AN ABSTRACT OF THE THESIS OF

Douglas A. Bewall for the degree of Master of Arts of Interdisciplinary Studies in Anthropology/Geography/History presented on April 16, 1982.

Title: Archeological Testing at the Willamette Mission Hospital Site.

Abstract approved: Redacted for Privacy

David R. Brauner

This study is an archeological testing report for the Willamette Mission Hospital Site. Landform analysis, photointerpretation and historical research were integrated with anthropological theory for this study.

The site is an invaluable data base to further the study of human adaptability and cultural change. It should provide an excellent context for the entire site usage period (1837 to recent). The archeological record confirmed the site's significant place in Pacific Northwest history. The Willamette Mission Hospital site was the location of the first American political meeting, the first American hospital, the first American smithy in the Northwest and the first home of an elected provisional governor of the Oregon Country.

A working hypothesis was developed during this study that provides a ranking system for determining whole brick chronologies. A diagnostic tool was also developed for interpreting cultural depositions through the analysis of window glass shards. This study also employed a historic typology that provided a base to project test unit placement by cultural categories present in the various cultural segments of the site (sub-sites).
ARCHEOLOGICAL TESTING AT
THE WILLAMETTE MISSION HOSPITAL SITE

by
Douglas A. Bewali

A THESIS
submitted to
Oregon State University

in partial fulfillment of
the requirements for the
degree of
Master of Arts in Interdisciplinary Studies
Completed April 15, 1982
Commencement June, 1982
APPROVED:

Redacted for Privacy

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Date thesis is presented April 16, 1982

Typed by Agnes Ferngren for Douglas A. Bewall
ACKNOWLEDGEMENTS

I wish to thank the site's owners, Francis and Paul Witteman for making this study possible, for their enthusiasm, access to their personal research collections, loan of Francis' extended family, for field work, use of storage facilities and the over-all enthusiasm to protect and restore this historical and archeologically significant site for future generations.

I am most appreciative that Dr. David Brauner, Oregon State University, entrusted this unique site to these hands, for the loan of field equipment, and for a critical, constructive analysis of this thesis.

I am grateful to the Oregon State University Foundation for supporting photography, tool and travel expenses for this study.

I am honored that Phillip H. Curtis, Associate Curator of Ceramics and Glass at the Winterthur Museum, lent his expertise to identification of the surface scatter ceramic ware.

A special thanks to Tony Walters, Director, Ethnobotanical Research Service, for a most enthusiastic identification, interpretation and reports upon the botanical sample. My thanks to Dr. Theodore Scheffer, Dr. Robert Krahmer and Mr. Ed. Dougal of the OSU Forest Research Laboratory for Potassium Ferrocyanide testing of the redwood sample, identification of the bamboo sample, fungal analysis and wood identifications, respectively.

My thanks to Chris Jenkins, OSU Field Supervisor for the 71 students of Anthropology 105, Spring class 1981, and to Chris Jenkins and Debi Soper for placing the faunal sample in typology.

The volunteer field workers suffered the shovel and screen subculture that makes theory practical:

Mark Bevel
Jill Chappel
Nick Cochrane (plus diagnostic lab.)
Darren Fletchall
John Hatch
Bobby Higley
Kelly Higley
Kevin Higley
Gwenn Kessel
Susie Lovell
Wayne Marshall (plus artifact lab.)
Debi Soper
Francis Witteman
71 Anth 105 students, Spring 1981

A special thanks to Mary Weber and Judith Sanders for making accessible their in-depth research data on Mission Bottom and the Mission Hospital Site.

Nine months of "high adventure" can wear pretty thin without a special person that says "keep going." Dianne Daniels was my "benchmark" for this study. Thanks Dee.
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ARCHEOLOGICAL TESTING AT THE
WILLAMETTE MISSION HOSPITAL SITE

1. INTRODUCTION

Euroamerican settlement of the Pacific Northwest started in the Willamette Valley, Oregon Country. The first settlers were missionaries from urban centers in Northeast Atlantic coast states. They found themselves in an undeveloped wilderness that was jointly occupied by treaty between Great Britain and the United States. They were confronted with a harsh isolated life as far removed from their homes and parent culture as the continents' physical limits allowed. They also faced an unfamiliar barter and commodity exchange economic system that was controlled by the English crown's royal monopoly chartered Hudson's Bay Company.

A true measurement of the settlers' response to this culture threatening environment is important to measuring cultural dynamics. It is also important to sorting-out Euroamerican history in the Pacific Northwest. It is additionally important to the understanding of the historic dynamics of the American expansionist period.

The oral and written history of the settlement is wide but without depth. Personal attack, religious fanaticism and political justification permeate the period's letters, diaries and books. The surface nature of the available collective works is underscored by the historically important first mission headquarters' specific location not being rediscovered until 1980, and then, only by archaeological investigation (Sanders and Weber, 1980).

The Willamette Mission Headquarters had several satellite sites. These sites have not been archeologically evaluated. Among these sites is the Mission Hospital Site, located one mile to the east of the headquarters site. This site has an oral and recorded history that spans the entire Euroamerican presence in the Pacific Northwest. The written history is an unbroken trickle of raw, sometimes confusing and conflicting data.
This study will examine the Hospital Site by testing its subsurface to determine if context is indeed undisturbed. Conclusions, recommendations and approaches to site investigation, if warranted, will be made after a complete analysis of the testing data.
2. ENVIRONMENTAL FACTORS

The site is located in Marion County, Oregon, 10 miles north of Salem in Section 38W, T6S R3W on the east side of the Willamette River (Fig. 1). Situated on an alluvial floodplain, the rectangular shaped site gradually slopes upward to a natural terrace near its southwest boundary. This terrace, capped by a ca. 1870 dwelling, is almost totally above maximum flood level and commands the surrounding area (CE 1966: Sheet 6).

The site's southern boundary sharply descends to a well defined but long abandoned channel of the Willamette River (CE Aerial Photo, 1959). Until recently, the channel seasonally flooded. Extensive dam construction on the upper Willamette River system eliminated serious episodes of flooding ca. 1964, allowing shrub and alder (Alnus rubra) growth to densely crowd the old channel floor. The channel periphery provides a natural growth zone for native shrubs, hardwoods and firs. A pristine stand of old growth Douglas fir (Pseudotsuga menziesii) is within this zone. A non-cultivated zone, directly north of this natural growth, runs along the entire south edge of the site. This zone contains at least one example of all native Northwest American evergreen and deciduous trees. The trees were planted in the 1930s by an Oregon State University botanist (Personal communication, Witteman). Twelve acres of cherry varieties (Prunus) and two acres of blueberries (Vaccinium corymbosum) dominate the site. These 12 acres have been planted in wheat or utilized as an orchard from first land clearance in ca. 1835 to present (see Figures 2 and 3).

Soils encountered in the orchard are well drained Haplexerolls on 0-3 percent slopes, over a brown (10YR3/3) silty clay loam A horizon over a light brown silty clay loam B horizon. The southern terrace area soils differ in that a very high clay content was noted in the loam B horizon at 40 cm. (Balster and Parsons 1968: 14).
Climatically, the site locale is characterized by warm, dry summers and wet winters. Annual rainfall in 1979 was 38 inches, with 4.4 percent occurring between June and August and 45 percent between December and February. The average monthly temperature extremes of 31.2 and 67.9 degrees f. are misleading as the ground temperature averaged 33.4 and 78 degrees f. for the same periods (NOAA 1980).

Wind-chill factor, highly seasonal episodes of wet and dry conditions, spring flooding and natural soil characteristics have combined to systematically attack structural integrity. Extensive restoration has been required for the ca. 1870 dwelling in 1920, 1940 and 1964 (Personal communications, Barker; Jones; Witteman). It is reasonable to conclude that between first settlement and 1870, structures on the site would have been equally subject to environmental damage.

Access to road systems and water borne transportation has been available at the site from first land clearance to present. The Wheatland Road parallels the site's western boundary. This road has provided access to a Willamette River fording point and later, a ferry crossing point for the entire period of occupation (see Historical Perspective Section).

Landform, weather, cultivation choices and locale have molded the site's cultural organization. The choice of structure placement and cultural function, typical to the Willamette Valley, has not materially changed from original settlement to present.

At least eleven permanent structures have stood or still stand in the vicinity of the Mission Hospital. A storage barn constructed in 1981 of prefabricated metal skin over a wooden frame was placed on a 64 x 95 foot concrete slab that was poured in 1922. This slab replaced a rotting hand-hewn oak foundation from a previous hay barn that blew down in 1964. The slab was poured by jacking up the barn, adding the new foundation, then lowering the barn on the slab. The hay barn had a drive-through design between 1920 and 1923 (Personal communication, Barker, 1981), and an external loading, unloading design in 1936 (CE Aerial photo, 1936). The hay barn was in place in 1870 (Personal communication, Hayes, 1980). It is reasonable to conclude that the granary, a 16 x 30 foot structure described on the property in 1844,
and probably dating from 1843, was located in the same vicinity (Gray 1870: 336; Bill of Sale, 1844).

The Machine shop (Blacksmith shop) was dismantled in 1940 (Personal communication, Jones, 1981). In 1935, the shop had a tin roof and single entrance-exit, but otherwise exactly fits the dimensions, location and function of a shop in 1920-1928. This long, low building was used for repairs to farm equipment and featured a drive-through design in the 1920s. The shop was supported by hand-hewn oak corner beams (no foundation) and was wood shingled on its roof and sides. A very long folding double door with wrought iron fittings enclosed each end. The shop was essentially the same structure in 1910. A blacksmith shop was at this spot in 1870 (Personal communication, Hayes, 1980). The mission blacksmith operation was moved to the site from its original core mission site by the time the Hospital site was sold in 1844 (Bill of Sale, 1844). It is reasonable to conclude that the Smithy location was also the location of later blacksmith shops.

The extant ca. 1870 dwelling has been extensively repaired over its lifetime, as previously discussed, but has only undergone one major external modification since 1910 (Personal communication, Hayes, 1980). The detached but matching shed was made an integral part of the main structure sometime after 1928 (Personal communication, Barker, 1980). The archeological record indicates the Mission hospital was at the same location as the present dwelling (see Feature Four).

Two smokehouses were known to exist on the property. In 1936-1940 (CE Aerial photo, 1936; Barry letter, 1940), and in 1910 (Personal communication, Hayes, 1980). Both structures were located in the same cultural usage area of the site (see Figure 3 and Feature One).

Three privies have been identified for the periods ca. 1870, 1910 and 1920-1928. They are all within fifteen feet of each other (Personal communication, Barker, 1981; Hayes, 1980; see Feature Three).
Figure 1. Willamette Mission Hospital Site Location
Figure 2. Site Plan Detail
Figure 3. Structural Placement and Cultural Function 1844-1981
3. HISTORICAL PERSPECTIVE

In the early 1800s, several Euroamerican organizations aggressively brought their concepts of religious and pragmatic values to the Northwest. The Methodist Missionary Society of New York was one such organization. Reverend Jason Lee was selected to spearhead Methodist missionary efforts in the Oregon Country (Annual Report 1835).

In 1834, Lee established his mission headquarters near a natural fording point on the Willamette River. Seven years later, the headquarters was moved to what is now Salem, Oregon. The original headquarters site was abandoned and evidence of its surface existence quickly vanished. No documentation of the site's specific location on the river has ever been found. The disappearance was so complete that debate continued over the site's exact location for a century.

The site was relocated in 1980 by Oregon State University archaeologists Judith Sanders and Dr. David Brauner. The 1830s river channel had eventually shifted west, leaving the site on an oxbow lake, now known as Mission Lake. The site is located one-quarter mile to the south of the present Wheatland Ferry landing, adjacent to Willamette Mission State Park (see Figure 1; Sanders and Weser 1980).

The Reverend Lee had not just established a headquarters. During his first three years in the Willamette Valley, he placed mission components at Willamette Falls, The Dalles, and in the Clatsop area. He also started several business enterprises, including two documented farms. One of these farms was associated with the Clatsop component and the other with the 1834-1841 mission headquarters site (Gary 1844: 101). With the headquarters site location resolved, specific information about mission structures and mission satellite sites remained illusive. One such satellite site is the headquarters site farm. This site, designated the Hospital Site herein, is the focal point of this work.

Hospital Site

The Hospital Site is one of the most important representations of American expansionism into Northwest America. The original site
structures included the Mission Granary, Hospital, Blacksmith shop and at least one log dwelling. The Granary was the location of the first American political meeting in the Northwest. A political dialogue started there which eventually resolved the question of whether Great Britain or the United States would control what is now the Northwest United States (Gray 1870: 337). The Blacksmith shop, originally at the main mission site, was the first known American smithy in Northwest America (1837, moved 1841?). The hospital was the first American structure specifically built for that purpose in the Northwest (1839-1840), although no evidence of its having been utilized specifically for that purpose has been discovered.

Hospital and Clinic

The incidence of sickness had become so high at the mission that by 1836 Reverend Lee petitioned the Mission Board for a medical doctor (Lee 1836). Doctor Elijah White was the only volunteer (Allen 1850: 19). Lee was to suggest a minimum ten year period for an assignment (Gary 1844: 95). Volunteers would have brought all their worldly goods with them. It is reasonable to conclude that an intact archaeological record would contain an excellent cross-section of ca. 1830-1840 cultural material.

The White family arrived at the mission headquarters in 1837 with the first reinforcement party. They were promptly lodged within the headquarters buildings. With these arrivals, the headquarters population swelled to 60 overcrowded and vermin-ridden souls (Allen 1850: 87). The Whites were shortly assigned an unfinished log dwelling about a mile from the headquarters, that had neither roof nor all four walls up. The desire to be free from the over-populated and unhealthy headquarters site can be appreciated by the shortcuts used to complete the dwelling. The chimney hearth was constructed of clay and ash because a source of

\[\text{A subculture correlation between the Methodist Missionaries exists between the Pacific Northwest and Hawaii. The mission in Honolulu was just as overcrowded in one dwelling as here.}\]
proper hearth stone was "several miles away." (Allen 1850:87). Shortly after the dwelling's completion, White added a clinic wing to the log structure (Allen 1850:88). Margaret Bailey, another 1837 arrival, described the area surrounding the log dwelling (Bailey, 1854:56):

Dr. White has a fine blockhouse situated upon a pleasant and extensive prairie with a delightful evergreen grove of fir trees upon one side, and the agreeable, variety of hill, pond of clear water, bushes, brakes, and groves of fir, oak, maple and cottonwood, and deer . . . upon the background.2

Lee returned to the East Coast in 1838 to recruit a large mission reinforcement. Prior to departing, he directed Dr. White to design and supervise the construction of a hospital. White wrote of the pending construction (White, 1838):

Our hospital is to be 50 feet in length, and two stories high, to be put up by a good carpenter3 and finished in a durable and workmanlike manner, and I wish it to be most distinctly understood, that what is proper in New York or Boston, is needed here.

What White considered "proper" was made clear in a report to Congress by Lieutenant Charles Wilkes, USN (later Rear Admiral). Wilkes had been on an official fact finding expedition to the Northwest in 1841. His report described the hospital as a frame building with a double piazza in front and perhaps the best (built) structure in Oregon. Wilkes also observed four families living in the structure in 1841. George Abernathy, the first governor of the Provisional Government of Oregon (Country) was amongst the inmates. Doctor Babcock, White's replacement,4 was living in one of two log cabins near the hospital

2Italics added: a pristine old growth grove of pine with the right age is located at the site's southern edge today; it may be the grove mentioned here (see Figure 3 ).

3Two carpenters were associated with the mission at this time. They would have used a mental template to design the structure, based on their New England construction experiences.

4White resigned in 1840 after a confrontation with Lee (Annual Report, 1846). He returned to the mission area in 1842 as first U.S. Government official appointed west of the Rocky Mountains (Senate 1846). He homesteaded the property directly south of the Hospital site, selling it before the special land division of 1848 took place (later Land Grant Claim No. 60).
In 1844, Dr. Babcock was using the hospital as a clinic and home (Gary 1844:82). Reverend George Gary, Lee's replacement, had been directed by the Mission Board to eliminate all non-religious functions from mission activity. Gary quickly sold the land holdings and business activities, including the Hospital Site. Alanson Beers, the mission blacksmith and the Hospital site farm manager, purchased the Hospital site. The 1844 Bill of Sale lists the Mission Granary, Hospital, Smithy and one log cabin (Oregon Archives).

The Hospital Site had been surveyed by Jessie Applegate in 1843. Applegate used several structures as reference points during the survey. The survey notes survived, and were used to locate the Hospital structure and one log cabin (Oregon Archives). In this survey, the northwest edge of the property and two structures that paralleled each other in a north-south line, were used by Applegate to mark the site's western boundary line. The structures were the hospital, within the property line, and a cabin, outside the property line. To see the two structures at the same time from a northwest property line transit station, the structures had to be almost parallel to each other. The area where the log dwelling should have been in relation to the hospital, is a slight knoll today, and almost directly across from the present c. 1870 dwelling within the site property line. A large amount of cultural debris was noted on this knoll during plowing over a period of many years (Personal Communication, Townsend). By a combination of the 1843 surveying notes and informant, the relative position of the hospital and log structure respectively, are projected as being approximately where the c. 1870 dwelling and the present knoll are today.

Local oral history had maintained for many years that the existing residence was the original hospital. Mrs. J. Orlo Hayes, Alanson Beers'...

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5 The other residents would have departed in 1841 when the mission headquarters was moved to what is now Salem.

6 Lee returned to New York in 1843 to defend himself against charges of management impropriety at the mission, brought by Dr. White and two others. He was reassigned in the U.S., never returning to the mission (Annual Report, 1846).

7 The Beers family arrived with the Whites, among others, in 1837.
great-granddaughter, spent part of her youth at the house. She claimed her grandfather, Oliver Beers, built the existing house ca. 1870 (Oregon Statesman, 1964). Independent structural analysis has indicated the structure is a rural vernacular farmhouse typical to the last three decades of the nineteenth century (Sanders and Weber 1981). A separate structure was made an integral part of the farmhouse by enclosing a common roof? sometime between 1928 and 1940 (Personal communication, Barker; Jones 1981). The construction materials and technique of construction for the structure matches the dwelling. It is considered to date from the dwelling's construction period, and to have originally functioned as a detached buggy house. From historical documentation, oral histories and survey reconstruction, the hospital had to have been close to the present position of the extant c. 1870 dwelling.

Mrs. Hayes also recalled that in ca. 1900, a two-story "chicken-coop" with windows, interior floors and a staircase to the second floor was located at some distance due east from the farmhouse (Sanders and Weber 1980). This structure is unidentified as to specific location and function. No subsurface remains have been detected from aerial photographs.

Granary

The first political meeting that led to forming a provisional government in Oregon took place in the Granary. The Granary was located on the Mission Farm purchased by Alanson Beers. The specific location of the Granary, however, has been continuously debated. The latest published attempt to locate the Granary utilized all previous land surveys as a composite (Barry, 1942: 289). This procedure can not be accurately used, as errors in surveying are unique to that survey. Survey errors have direct relationships to each angle and length for that survey only (Interior 1977). This fact caused the original land survey by Jessie Applegate to be employed in an effort to locate the Granary site. This survey is the only one in which there is no question of the Granary being present. Later surveys used the term "barn" and can not
be relied on to be referring to the specific Granary structure. Applegate's field notes indicate the northwest corner of the property was N43°W from the Granary at 24 chains (1584 feet). The western boundary line ran north-south from the northwest corner at S35°E, between the hospital and a log cabin. With these two bearings, the angle to the Granary along the measured distance, places the Granary within the present Hospital Site property line, close by the private dirt road that runs east-west today (see Figure 3).

Smithy

The original Blacksmith operation was set up in 1837 at the headquarters site. Its function was moved to the Mission Farm in 1841(?). In 1844 the smithy equipment was sold to Alanson Beers along with the other structures previously noted. It is doubtful that the heavy equipment involved with a smithy would be moved after Beers bought the property. It is reasonable to project the first smithy as being at the same location as those that are known to have existed at the same subsite in 1870, 1910, 1928 and 1940 (Personal communications, Hayes; Barker; and Jones, see Figure 3).

Other Structures

Indoor plumbing was not installed at the site until the 1930s. The Farm manager in 1920-1923 placed his privy at eight to ten steps directly east of the eastern most door of the extant dwelling (Personal communication, Barker, 1981) i.e., due east of the previously detached structure. The manager described the privy structure as being very well made and rather ornate for its function. It is reasonable to conclude that the privies would be within easy walking distance of a dwelling. By scribbling a hypothetical walking distance radius from the dwelling center, a radius can be projected where privies would have been located. Two privies are confirmed within this radius at the eastern end of the dwelling (see Figure 3 and Feature Three).
Site Continuity

Upon gaining territorial status in 1848, Oregon was permitted a special land division action by the United States government. This action doubled the constitutional maximum for a land grant from 320 acres to 640 acres. This action was designed to protect the early settlers' property rights. The special land division allowed Beers to retain his purchase intact. Beers original property boundaries and special land division claim number (38) are the official United States government reference boundaries and subsection identification number for this land today (Geodedic Survey).

The property has been reduced to smaller parcels during many subsequent purchases since the original sale. The parcel of land where the mission hospital structures stood remains intact and is owned by Paul and Frances Witteman of Salem, Oregon (and Anchorage, Alaska) (Marion County Recorder).

Cultural Continuity

All of the Mission Hospital Site prime-movers were EuroAmericans from a tri-state area of the Atlantic Northeast. The Mission Board's sphere of influence may have been most influential in that area, or a conscious or subconscious selection of personnel was made. Reverend J. Lee, selected the site and directed construction of the hospital. He was from the Territory of Vermont (now southeast Canada). Dr. White selected the style and directed construction of the hospital. He was from upper-state New York. The hospital's most likely carpenter-supervisor, was the mission's first assigned carpenter (1837), D. Wilson. He was a native New Yorker. Alanson Beers, the site's first private owner, was from Connecticut, his wife from New York State (Allan, 1848; 2, 22). A continuity of Northeast American culture should be expected. This continuity should include site layout (structural relationships), construction techniques (design and construction) and like artifact typologies reflecting this background. Modifications to normative Northeast cultural backgrounds should measure adaptive behavior demanded by the new
Northwest environment (see Methodology section for further discussion).
4. SURFACE EVALUATION

A surface reconnaissance was conducted in July, 1981 after the dwelling's front lawn area was deeply plowed for a new lawn. Brick fragments were the only artifacts noted. The fragments were considered remnants of a recent brick walk from the dwelling to a mailbox at the highway (Personal communication, Witteman). The lack of other artifacts in the lawn area was surprising because several types of artifacts had been surface collected on two occasions in June, 1980. The first collection took place with no discernable surface disturbance noted. The second collection took place after a septic system installation was completed southwest of the dwelling's front lawn area (Personal communications, Sanders, 1981). The significance of this data required further analysis. The "before and after" lawn area ceramic collections were compared for the lawn area. The second ceramic assemblage contained only pre-1854 shards. This was not true for the first or "before" collection (Curtis, letter, 1981). It is reasonable to conclude that the septic tank excavation had uncovered and scattered early historic material.

Surface Assemblage

Surface artifacts were collected on three occasions at the site. The first two collections, briefly discussed earlier, center on the grounds surrounding the ca. 1870 dwelling. The later of these collections primarily dealt with the surface scatter created by a septic tank pit and filter field excavation and back-fill. A third assemblage was collected throughout the May-July 1981 field season by the writer. The later assemblage was systematically collected after weekly weed abatement plowing in the orchard areas. A means of systematic analysis was needed for the resulting surface assemblage. The first step in this analysis had to be a measurement of the extent of artifact scatter.
Artifact Scatter

If the surface assemblage could be shown to be subject to minimum scattering over a long period, subassemblages could provide invaluable data on cultural activity. The long historic presence of the dwelling (ca. 1870) and its periphery plants and fences should have functioned to minimize surface scatter. Secondly, the commercial growth zones had a long history of being surrounded by ditches on three sides, roads on three sides and a never developed natural growth zone on the fourth side. Artifact scatter may have been physically prevented between the divergent cultural usage areas of the site. A means of verifying the minimum scatter concept was needed.

Subsites

In order to test the minimum movement concept, natural and cultural barriers (measured by artifact counts) were used to construct possible intra-site areas of specific cultural activity (subsites). The west end of the dwelling (fronting the State Road) was isolated from the remainder of the site by fences, plants, an L-shaped gravel road and the dwelling itself. The field inventory indicated construction material ratios that reflected a distinct difference between the north front edge and the remainder of the house frontage. The north edge contained 51 percent of all surface assemblage construction material at the site while the center section contained 24 percent and the south edge contained 12 percent. This was particularly noteworthy for brick (58 percent of N) and window glass (52 percent of N). The combined totals of brick N was 11 percent and 38 percent of window glass at the dwelling's front and south edge. The north edge had either not been groomed of normal cultural debris or was functioning as a primary deposition point for construction material. The dwelling's frontage area contained twice the amount of construction material but almost exactly the same amount of ceramic shards as the south edge. The north edge contained 10 percent of the ceramic N, while the frontage area contained 25 percent. Each
of the three portions of the dwelling's frontage area had functioned in a different culture manner than the others. These portions were designated Subsite A, B and C (Figure 4). The east edge of the structure was physically separated from the other edges of the dwelling as previously discussed. Additionally, this area and the cultigen area directly to the east of it were isolated from the larger orchard area by a long established dirt equipment road dissecting this area and the much larger cultigen area to the north, west and east of it. The enclosure of this was completed by the natural growth zone at its southern edge. This area was designated Subsite D. The remainder of the site, all presently in cultivation, and previously containing several structures, was designated collectively as Subsite E.

Artifacts in each subsite were then divided into two general groupings, Usage and Construction. The Construction group consisted of building materials such as window glass, brick and cement. The Usage group consisted of personal and domestic usage items such as glass and ceramic vessels and buttons. The orchard area, with 75 percent of the total site surface, contained 14 percent of the surface assemblage (N 198). Additionally, the orchard area contained 14 percent of the Usage category and only eight percent of the construction artifacts. Given the long functional usage history of the site and barriers to surface scatter, assemblages in subsites were indeed restricted to specific areas. The physical barriers that restricted artifact movement between cultural areas should have provided usable artifact count comparison data. These data should provide an interpretive base to define cultural activity for the site. This was not possible here. The back-hoe excavated septic system, discussed earlier, significantly disturbed the subsurface in an isolated segment of the site. This disturbance significantly increased total artifact counts for the dwelling's State Road frontage subsites in relation to other subsites. Artifact count and style comparisons would not be valid with this skewing i.e., the amount of artifacts should reflect a high degree of surface deposition, but actually reflect a major excavation episode that is not comparable to other areas of the site's surface. A comparative skewing would be to
Figure 4. Cultural Subsites
excavate one test unit to a 200 cm. level, then compare its contents with a strictly surface scatter assemblage for the remainder of a site. In order to gain useful data, cultural function vice numerical counts must be the basis of the site's surface assemblage analysis. If artifacts in the excavated area retained a consistency of cultural usage in a direct ratio with all other subsites, the surface analysis could proceed without skewing. A typology system was needed to test this concept.

Historic Typology

A typology developed by Roderick Sprague for historic sites (Sprague 1981) solved the heavily skewed artifact count problem by measuring the cultural activity in each subsite. The functional classes of culture in this model are indicated in Table 1.

<table>
<thead>
<tr>
<th></th>
<th>I Personal Items</th>
<th>V Commerce-Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>II</td>
<td>Domestic Items</td>
<td>VI Group Services</td>
</tr>
<tr>
<td>III</td>
<td>Architecture</td>
<td>VII Group Ritual</td>
</tr>
<tr>
<td>IV</td>
<td>Personal and Domestic Transportation</td>
<td>VIII Unknown (or exact function unknown</td>
</tr>
</tbody>
</table>

The classifications present in the functionally identifiable artifacts (N 146) were 38 percent Domestic Items, 26 percent Architecture, 10 percent Personal Items and trace percentages of Commerce-Industry (see Table 2). The deep excavation for the septic system installation had significantly increased the total amount of artifacts in the "surface" but had not materially changed the cultural categories present in the site's surface assemblage. Sprague's classification system provided an excellent starting point to design a thorough analysis approach to the surface assemblage (see Appendix A).
### Table 2. Surface Assemblage Functional Classification by Subsite (N. 198)

<table>
<thead>
<tr>
<th>Function Categories</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. Personal (N. 16)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clothing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cosmetics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Patent Medicine Bottle Shards</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Spirit Bottle Shards</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>II. Domestic (N. 74)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ceramics</td>
<td>7</td>
<td>18</td>
<td>17</td>
<td>25</td>
<td>6</td>
</tr>
<tr>
<td>Metal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>III. Architecture (N. 51)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brick</td>
<td>7</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Cement</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clay Shapes</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metals</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Window Glass</td>
<td>15</td>
<td>8</td>
<td>4</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>V. Commerce-Industry (N. 4)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture-Husbandry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Hunting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Electronic/Electric</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>VIII. Cultural Category</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unidentified (N. 53)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clay Nodule</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Coal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Glass</td>
<td>2</td>
<td>1</td>
<td>20</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Lithic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

Adapted from Sprague, 1981
Once the artifacts were organized into functional categories, horizon markers were selected for dating subsite assemblages. The horizon markers were window glass, daubing (clay nodules), ceramics, and metals i.e., Domestic Items and Architecture. A detailed analysis of these horizon markers confirmed the site's usage from the 1830s to present. Additionally, they provided quality of life information and a supplementary means of selecting possible test unit locations in each subsite.

Window Glass

The surface assemblage contained 29 shards of window glass. The writer considered key cultural references, needed to analyze the glass thickness for dating purposes, lacking. See Appendix B for a full treatment of this subject. The exception to this lack of data was observable manufacturing techniques in some shards. The measurable qualities indicated early, poor qualities of cylinder glass and the presence of crown glass production methods (see Table 3 and Appendix B). One sample of double strength glass was noted. The shard did not conform to the standard European practice of fusing one thick and one thin pane together to reduce weight (Roenke 1978: 36). This single shard measured equidistant from both edges to the joining point in the middle. The window glass assemblage contained random sizes of unreconstructable shards that indicated a secondary deposition source for some of the shards (see Appendix B: 156). The working hypothesis stated in Appendix B and the reasonable evidence that a large, underground secondary deposition had been disturbed, indicated the source of much of the scatter in Subsites A, B and C was the refuse scatter (Subsite C). Subsite A, with over 50 percent of all site window glass and more shards than the combined subzones B and C (colocated with A) was considered an exception. The much thicker plant growth allowed in this area, if characteristic at an early date, would have helped sustain Subsite A as a primary depository point for window glass when panes were broken or replaced (see Appendix B: 157).
Structural Nodules

Three earthen-clay nodules were in the surface assemblage. The nodules contained a wealth of detail about early structural use of clay and mud. Microscopic examination indicated two of the shapes contained "fingerprints" of wood surfaces that they had been forced to join. One shape contained a pronounced curvature along one entire face and multiple compaction lines on all sides. It appeared to have been used as a wedge or chinking around a circular surface, such as a wooden pole. A large singe area on only one side suggested its use in a fireplace or oven.

One shape contained brick fragments on one side, compaction lines along three sides and at its center, a solid carbonized wood fragment. The third shape, more dirt than clay, may have been pelletized when a fire was kindled by it, but contained brick discoloration stains on one edge.

The shapes were all from the lawn area subsites. The source for these shapes appeared to be the surface scatter previously mentioned. The site is rich in natural clay deposits at a shallow depth near the 1870s dwelling and may have been the source area for the shapes' raw material. If correct, the mined pit could have functioned as a secondary depository point or privy for the site.

Ceramics

The ceramic assemblage contained 71 earthenware and two porcelain shards (N 73). Hollow-ware appeared in a ratio of 1:4 to flatware. Flatware appeared in six categories of styles, hollow-ware in four. Photographs of a representative ceramic subassemblage (N 16) were analyzed by the Winterthur Museum of Delaware. The Winterthur's Curator of Ceramics and Glass identified the photographed N. as English earthenware and Chinese porcelain, ca. 1820-1853 inclusive (Curtis letter, 1981). These shards appeared throughout the site (see Table 4) and were used as a significant portion of the ceramic horizon markers.
The ceramic horizon markers were used to date the historic debris scatter at the front of the dwelling. Because Subsite A functioned in a different cultural sense than subsites B and C, even though they were adjacent, the isolated subsite B and C ceramics were analyzed separately. The scatter in these two subsites almost exactly paralleled the overall ceramic assemblage for style ratios between flatware and hollow-ware, including the ratio of burned shards to unburned shards (85 percent of N burnt). The horizon markers indicated inclusive dates for the scatter site of 1820-1853 with a mean of ca. 1840 (N 15). Subsite B also contained one shard dating from 1850 and subsite C contained two English hallmark bearing shards that dated from 1913 (see Table 5). The appearance of a cross-section of widely different ceramic style periods, with a majority burnt, in the various subsites indicated refuse burning was consistently practiced at different periods in every subsite. This trend continues today. Modern ceramics with burned and singed surfaces were found in subsites D and E (see Table 5).

Metals

Metals made up only seven percent of N, but contained a cross-section of site cultural activity and history. A nine inch base cast iron pot (teapot?) fragment reflected early domestic life. A roughly fabricated, handwrought, threaded hook, structural brace door hinge and latch slide mechanism indicated an early settlement period use of metals in architecture and/or commerce. A "U" shaped device, hand shaped from wire stock and perhaps a flower pot or fireplace suspension loop, pointed to rural self-sufficiency in manufacturing. A commercially manufactured pulley wheel closely resembled sliding barn door devices still seen in the Willamette Valley, and came from one of the pre-1941 farm buildings. An electronic "alligator clip", two-part clip-on shaft end cover and a bushing(?) reflected modern technology.
Table 3. Surface Window Glass Assemblage
Definable Attributes

<table>
<thead>
<tr>
<th>Attributes</th>
<th>% Total N. 29</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curvilinear Lines</td>
<td>35%</td>
</tr>
<tr>
<td>Linear Lines</td>
<td>-</td>
</tr>
<tr>
<td>Curvilinear Lines and Linear Lines</td>
<td>3%2</td>
</tr>
<tr>
<td>Elongated Seeds and Bubbles</td>
<td>31%3</td>
</tr>
<tr>
<td>Round Seeds and Bubbles</td>
<td>-</td>
</tr>
<tr>
<td>Knots</td>
<td>-</td>
</tr>
<tr>
<td>Stones</td>
<td>-</td>
</tr>
<tr>
<td>Patina (slight to very heavy)</td>
<td>7%</td>
</tr>
<tr>
<td>Opaque</td>
<td>-</td>
</tr>
<tr>
<td>Perfectly Clear</td>
<td>7%</td>
</tr>
<tr>
<td>Straight Edge Shards (Pane edges)</td>
<td>3%4-6</td>
</tr>
<tr>
<td>Double Thickness</td>
<td>3%4</td>
</tr>
<tr>
<td>Possible Double Thickness</td>
<td>10%5</td>
</tr>
<tr>
<td>Sand Impressed in Glass (early cylinder glass)</td>
<td>3%6</td>
</tr>
</tbody>
</table>

Adapted from Roenke, 1978

1See Table 16 Appendix B for comparisons between Surface and Test Unit assemblages.

2One shard only; location of straight line in glass appears straight, but should be curvilinear.

3Reflects specific areas of a glass pane with these definable attributes (see Appendix B).

4One shard only.

5Based on observable faults with uncharacteristic thickness for those fault categories.

6No reconstructable shards noted.
Table 4. Surface Ceramic Assemblage (N. 74)
By Measurable Attributes

<table>
<thead>
<tr>
<th>Ceramic Type &amp; Style (Earthenware except as noted)</th>
<th>Subsite</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Transferware</td>
<td></td>
</tr>
<tr>
<td>Flatware</td>
<td>1</td>
</tr>
<tr>
<td>Hollow-ware</td>
<td>-</td>
</tr>
<tr>
<td>Burned/Singed</td>
<td>1</td>
</tr>
<tr>
<td>Handpainted</td>
<td></td>
</tr>
<tr>
<td>Flatware</td>
<td>1</td>
</tr>
<tr>
<td>Hollow-ware</td>
<td>-</td>
</tr>
<tr>
<td>Burned/Singed</td>
<td>1</td>
</tr>
<tr>
<td>Molded</td>
<td></td>
</tr>
<tr>
<td>Flatware</td>
<td>-</td>
</tr>
<tr>
<td>Hollow-ware</td>
<td>-</td>
</tr>
<tr>
<td>Burned/Singed</td>
<td>-</td>
</tr>
<tr>
<td>Plain White</td>
<td></td>
</tr>
<tr>
<td>Flatware</td>
<td>3</td>
</tr>
<tr>
<td>Hollow-ware</td>
<td>1</td>
</tr>
<tr>
<td>Burned/Singed</td>
<td>3</td>
</tr>
<tr>
<td>Solid Colors</td>
<td></td>
</tr>
<tr>
<td>Flatware</td>
<td>-</td>
</tr>
<tr>
<td>Hollow-ware</td>
<td>-</td>
</tr>
<tr>
<td>Burned/Singed</td>
<td>-</td>
</tr>
<tr>
<td>Crock</td>
<td></td>
</tr>
<tr>
<td>Hollow-ware</td>
<td>1</td>
</tr>
<tr>
<td>Burned/Singed</td>
<td>-</td>
</tr>
<tr>
<td>Machine Applied Design (Modern)</td>
<td></td>
</tr>
<tr>
<td>Flatware</td>
<td>-</td>
</tr>
<tr>
<td>Hollow-ware</td>
<td>-</td>
</tr>
<tr>
<td>Burned/Singed</td>
<td>-</td>
</tr>
<tr>
<td>Porcelain</td>
<td></td>
</tr>
<tr>
<td>Flatware</td>
<td>-</td>
</tr>
<tr>
<td>Hollow-ware</td>
<td>-</td>
</tr>
<tr>
<td>Burned/Singed</td>
<td>-</td>
</tr>
</tbody>
</table>
Table 5. Distribution of Ceramic Horizon Markers by Subsite (N. 45)

<table>
<thead>
<tr>
<th>Source, Manufacturing Techniques and Periods</th>
<th>Subsite</th>
<th>% Burned/Singed</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Transferware:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1820-1830</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1820-1835</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1830-1850</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>ca. 1840</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>1842-1853</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>English Hand-Painted over Glaze:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ca. 1820-1840</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>1830-1840</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Source Unknown, Hand-Painted:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modern</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>English Molded:</td>
<td>1820-1840</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>1850+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1913+</td>
<td>2</td>
</tr>
<tr>
<td>Source Unknown, Plain White:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open Dates</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Source Unknown, Machine Applied Design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modern</td>
<td>3</td>
<td>100%</td>
</tr>
<tr>
<td>Chinese Porcelain:</td>
<td>1825-1835</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: Curtis, letter, 1981; Encyclopaedia of Ceramics, 1954
5. EXCAVATION AND ANALYTICAL METHODOLOGY

Excavation, by its very nature and state-of-art development, displaces the cultural context it wishes to analyze and preserve. Accordingly, archeological methodology has evolved several acceptable excavation techniques for any given site. These techniques are designed to minimize data loss and preserve cultural context for future study as technological developments enhance data recovery. As the first subsurface investigation at the site, an appropriate excavation approach was developed. The testing phase excavation technique judged least disturbing to cultural context for maximum data return was 1 x 2 m. test units.

The surface evaluation had indicated specific cultural zones at this site from first settlement to present. These zones, designated subsites, were used to broadly determine areas where test units would provide a cross-section of data with the minimum site disturbance within the 18 acre site.

Test units A through E placements were determined from correlations between oral histories gathered prior to the field phase, written site histories and correlations with aerial photographs from different periods. Fortunately, where memories failed, histories and photographs did not, and visa versa. Test units F and G were oriented across depressions that appeared man-made, in such a way that part of the area would be preserved for future study. Eventually, nine test units and three test unit extensions were placed in the site (see Figure 5).

Site integrity, from available evidence, was believed good as major plowing had not been recorded for any subsite. This factor required excavation in shallow levels to insure that cultural context was preserved. Ten cm. arbitrary levels were employed with skim shoveling until cultural context or stratigraphic changes were noted. Natural and cultural stratigraphy was then followed. Each soil level and feature (natural and cultural) were screened through one-quarter inch mesh hardware cloth.

In order to follow depositional patterns from the earliest levels, each artifact location and stratigraphic reference was plotted on scale working drawings in the field. Drawing reference was to the test unit
in each case. In situ and screen collected artifacts were then placed in separate level or feature bags for recording and later analysis. Soil changes and organic materials were plotted and samples were taken by level and/or feature. In order to allow maximum reconstruction, artifacts found in groups impacted together were removed and recorded as a unit where possible with specific notes, photographs and mapping. With this method, materials difficult to reconstruct, such as window glass shards, could be studied in situ and reconstructed to the maximum extent.

All organic materials, such as leather, faunal and floral samples, were treated with a solution of Toluene (a chemical plastic suspension medium) at the time of excavation or during laboratory preparation based on the level of preservation. Metal artifacts in many cases were in advanced stages of decomposition or electrolytic separation. In order to gain useful data from these seriously damaged artifacts, metal reduction and spectographic analysis were performed in laboratory settings.

All artifacts that could be reconstructed from fragments were restored. Water soluable glue was used for all reconstructions. Individual shards were plotted for major reconstructions to study deposition patterns and degree of displacement by post depositional processes. Additionally, studies of breakage patterns were attempted in order to determine method of deposition and condition upon deposition.

A total of 5,148 artifacts, 269 floral samples and 291 faunal samples were recovered during the testing phase.

Several theoretical goals were projected:
- Identification and reconstruction of cultural materials to the maximum extent possible.
- Placement of materials in cultural context.
- Dating subsites usage as specialized cultural activity areas.
- Validation of oral and written history for the site.
- Interpretations of adaptive behavior and cultural evolution at the site.
- Quality of life in a rural setting as reflected in various artifact subassemblies through time.
- Determination of additional archeological work at the site.
In order to reach these goals, a single method of constant reference was needed to evaluate cultural materials within the context stated above. A cultural model designed specifically for historical sites by Dr. Roderick Sprague was employed (see Table 1). This model allowed a step by step evaluation of data as it was processed from simple cataloging to specialized usage determination. As the data was refined, a picture of site organization and subsite usage developed. From the specialized usage categories artifacts were placed in inventories. The resulting inventories were easily analyzed for ratios of specialized cultural materials present by comparison to other materials. When all data could be derived from these inventories, meaningful and datable horizon markers were determined. The horizon markers provided dating for the site and also allowed determination of quality of life changes for different periods of the site's occupation i.e., ceramics have a measurable quality (price), choice of color and design (was it unusual or common to the period) and the ratio of expensive to cheap ceramic in the assemblage.
6. TEST UNITS FEATURES AND STRUCTURAL ASSESSMENT

Test units A through C were placed in the orchard for evidence of farm structures that previously stood in Subsite E (Figure 3). Test Unit D was placed near the existing barn to determine the earliest cultural context in that area. Test Unit E was placed at the ca.1870 dwelling's northwest corner in close proximity to an existing window because Subsite A had previously been identified as a primary deposition point. As work progressed, Test Units F and G were placed to the east of the dwelling for evidence of privies and dumps (Subsite D). Toward the end of the testing phase, Test Unit J was added under the existing dwelling's dining room in order to evaluate a surface scatter and fire pit. In all, nine test units and three test unit extensions were excavated during an overall assessment of the ca.1870 dwelling (see Figure 5).

Test Units A and H

Test Unit A was excavated in ten cm. arbitrary levels because context was expected at a higher level than normally expected in a plowed field. The maximum plow depth presently employed in Subsite E cannot exceed 15 cm. since the cherry trees (Prunus) have shallow roots and die if girded by even slightly deeper plowing (Personal communication, Witteman, 1981). The disturbed zone was deeper than expected, indicating deeper plowing had been employed in the subsite area before the ca. 1964 planting of the orchard. An unmortared brick course was disclosed in the southeast quadrant of the unit at 20 cm. There was a strong indication of structural materials to the south of the unit and Test Unit H was added, parallel to Test Unit A. To completely uncover the exposed north brick course, a 50 x 100 cm. extension was added to the east of Test Unit A, paralleling the eastern 100 cm. quadrant of A. This extension was designated Test Unit A Extension (HSAE). A fire pit
was disclosed in the east wall of Test Unit H as excavations continued. The fire pit paralleled the width of the open area between the two brick courses and ended at the same level as the lowest level of the brick courses. This pit appeared to be an integral part of the brick courses and was excavated to obtain samples of the brick and metal fragments that slightly protruded into Test Unit H. This extension was designated Test Unit H Extension (HSHE). The extension was excavated into the eastern wall of Test Unit H until solid, undisturbed soil was encountered at 14 cm. Artifacts recovered from this pocket shaped extension were the same types of artifacts as those discovered between the brick courses (see Table 6). Because the excavations were expanded over a large area and a commercial cherry harvest was scheduled to commence, the owner requested the units be closed. Quadrants of the units with cultural material at levels below 20 cm. (17 cm. in Test Unit H) were excavated to 50 cm. One small segment of Test Unit H, paralleling the southern brick course, contained two post fragments and was excavated to 70 cm. (13 cm. below the post bases). The post hole backfills contained wire drawn and machine cut square nails. The combined excavations were designated Feature One.

Feature One

The northern brick course had been constructed in such a way that its top level was 7 cm. higher than the top level bricks in the southern course. This placed the top bricks in the northern course within the plow zone where they were dislodged. The southern course remained intact one row higher. Many brick fragments were wedged and piled between the courses at the extreme western end of the Feature. This compacted mass contained mortared, medium fire brick, mixed with unmortared brick fragments. The mortared brick also appeared at the base of the mixed zone in test unit walls and at the base of the plow zone within the test unit surfaces. None of this mortared brick could be reconstructed nor
identified as part of the intact brick courses. The brick fragments massed below this brick, between the courses, was reconstructable and matched the various intact bricks within the structural fragment. Only the brick courses, the fire pit that paralleled the width between the courses on the east wall of Test Unit H and an area by the southern brick course contained artifacts below the 20 cm. level. Between and on the brick courses were several types of wood. Thick fragments of iron oxide permeated coastal Redwood (*Sequoia sempervirens*) were at the base of the feature between the courses. Fragments of partially carbonized western Red Cedar (*Thuja plicata*) were on the southern brick course. Fragments of Sitka (?) Spruce (*Picea sp.*) were between the courses. A large quantity of partially and fully carbonized fragments of Douglas Fir (*Pseudotsuga menziesii*) were between and around the courses. A carbonized Douglas Fir plank exactly paralleled the outside limits of each course from the western terminus to an area approximately half the length of each course. Upon removal of the feature and subsequent removal of an additional 16 cm. of sterile soil (to the 50 cm. level) below the brick courses, a heat induced discoloration was noted. This discoloration was restricted to an area extending from the eastern half of the brick courses to the eastern wall of Test Unit H between the brick courses. The width of this discolored patch was matched by the width of the fire pit in the east wall extension of Test Unit H (HSHE). Additionally, a smoke-like smudge, containing pellitized clay, appeared on the northern wall of the extension to Test Unit A (HSAE). This test unit wall smudge extended from slightly below the plow zone (22 cm.) to a level parallel with the base of the brick courses (approximately 32 cm.). This smudge contained a large amount of small, pellitized clay nodules. The horizontal width of this smudge mark extended the entire length of the extension. No other walls in the feature (eight in all) contained such a smudge. The bricks and intentionally broken brick halves that formed the structural fragment represented a wide range of brick manufacturing techniques from early American settlement to 1920 and beyond (?) (see Figure 6 and Appendix C for a full treatment of this subject. Nails, nail shattered brick, daubing, carbonized wood and daubing residue appeared
Figure 6. Feature One Plan View and South Elevation View
on and within fractured surfaces of the bricks. The brick surfaces facing into the open area between the courses had been heavily daubed to fill gaps and cracks between individual bricks. Table 6 contains a list of artifacts discovered within Feature One.

Analysis

When the specific area of the brick courses had been excavated, two planks or boards were laid parallel to each other at the extreme edges of the excavated area. Unmortared, scavanged brick was laid on the boards and their facing edges were sealed with clay. The many broken surfaces, chip marks with nails still in place and carbonized wood fragments inside these breaks indicated an attempt had been made to drive nails between the edges of the adjoining bricks on their exterior and interior edges. This would only be done if framing had been placed on the bricks as a support for an above ground structure. Oral history, aerial photographs and the archeological context indicated Feature One was the second of two known smoke houses to have existed in this area (see Figure 3). The structure dates after 1928 and before 1941. The technique of construction with daubing was the same as the first permanent site construction a hundred years earlier (1836-1840). Whether this technique was due to the economic times or frugal management is not known. An additional point of interest is the appearance of a rather complete chronology of brick manufacturing techniques in the structural fragment. The bricks dated from the earliest settlement period to the 1920's. At least two kiln types were represented in the brick surfaces (Appendix C). The redwood fragments, unique to the floral assemblage at the site, and its unburned condition, indicated the rather thick long fragments may have been a part of the above ground portion of the structure. The qualities of redwood would make it an excellent support or beam to hold hanging meats awaiting smoke curing. If this latter concept is correct, the smoke house either burned down or was allowed to deteriorate in place (perhaps as economic conditions improved?). With the nails still in place at brick break points in many places, the undisturbed condition of most of the unmortared brick and the smoke stains
Table 6. Artifacts Within Feature
One (17-34 cm.) (N. 520)

<table>
<thead>
<tr>
<th>Artifacts</th>
<th>A</th>
<th>AE</th>
<th>H</th>
<th>HE</th>
<th>Post Holes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brick:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete bricks</td>
<td>4</td>
<td>4</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Half bricks</td>
<td>2</td>
<td>4</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flat edge fragments</td>
<td>15</td>
<td>5</td>
<td>53</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Medium fire fragments with mortar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small fragments</td>
<td>1</td>
<td>66</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Ceramics:</strong> cup handle</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Daubing:</strong> flat edge with straight impressions</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Glass:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Clear shards</td>
<td>1</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Window glass shards</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lithics:</strong> tar covered rock</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Metal:</strong> Iron;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nails:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machine cut square</td>
<td>4</td>
<td>6</td>
<td>29</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Wire drawn</td>
<td>1</td>
<td>4</td>
<td>21</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Nail fragments</td>
<td>19</td>
<td>35</td>
<td>70</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td><strong>Spikes:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machine cut square</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wire drawn</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction(?) staples</td>
<td>4</td>
<td>2</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotter Pin(?) fragments</td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Flat fragments</td>
<td>6</td>
<td>1</td>
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<td>Flat plate with a screw fragment</td>
<td>1</td>
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<tr>
<td>Table 6. cont.</td>
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<td></td>
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</tr>
<tr>
<td>----------------</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Rod shapes</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wire strand</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unidentified</td>
<td>60</td>
<td>2</td>
<td>39</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

**Metal: Brass;**

- 12 gauge shotgun shell base: 1
- .22 cal. cartridge casing: 1
extending the entire length of HSAE, it appears the structure was destroyed by a carelessly laid smoke fire (see Figure 6). Artifacts discovered within the fire pit and the eastern-most portion of the test units were a cross-section of spikes and nails, a carriage bolt, several elongated metal fragments and several pounds of unidentified metals, mixed with large quantities of carbonized woods. The distinct smoke stains at the eastern end of the feature's floor and the cross section of metals possibly indicated the source of smoke was scavenged wooden materials that were kindled in that area. The varying periods of commercial materials present indicated pre 1900 wooden and metal objects were still present at the site as late as ca. 1930-1940. An attempt to verify the use of this feature was disappointing. Interviews with Mission Bottom residents who had visited the farm during this period did not disclose information that either supported or refuted this analysis.

Test Units B and C

Level One of Test Unit B contained 189 glass, metal, brick and plastic artifacts. Level Two contained six artifacts, two of which were anthracite coal. A very distinct gravel bedding was noted along the entire northern edge of this unit. An aerial photograph (CE 1936) indicated the most reasonable use of a road at this location was for access to the previous cow barn (Figure 3). The unit was excavated to a depth of 20 cm. Level One of Test Unit C contained 90 glass, metal and ceramic (3) artifacts. Level Two contained 27 metal and glass artifacts. The unit was completed at 20 cm. The combined test units (A, H, B and C) surface scatter levels (to 20 cm.) indicated a tremendous surface scatter in subsite E. The reasonable source of this much material would be a garbage scatter that was plowed level at some period after the nearby structures were leveled (ca. 1940?).

9The surface scatter (00-20 cm.) in the three units was 805 artifacts: Test Unit A (94), AE (44) and H (355).
Test Unit D

Test Unit D was placed at the site of earlier period barns (see Figure 3). A hardpan was encountered throughout because an edge of the farm equipment road extended to the west of the unit (see Figure 2). This rock was packed so tightly that a leather harness fragment with rivets and metal fittings still in place was well preserved. The latest period of deposition for this artifact was 1964 when the pre-1920 barn blew down in a storm. The barn was not replaced until 1981 (Personal communication, Witteman). The unit assemblage was in layers between the levels of gravel and broken rock in such a way that several episodes of dumping were compressed between overlays of gravel. The assemblage in Level One (N 345), consisted of machine cut square nails, wire drawn nails, assorted metal fragments, glass shards (both container and window glass), and roofing materials and a large fragment of a metal container top. Level Two contained 23 artifacts of the same type, excepting an iron wedge with a fractured surface was recovered from the north wall of the unit at 17 cm. The unit was closed out at 20 cm. A loose correlation between roofing materials here, and in Test Unit E and F was made. All contained identical roofing nails and small quantities of roofing felt and tar. Wood samples indicated the presence of Douglas Fir and Western Hemlock in the unit. The fir was co-located with the metal top, but was too deteriorated to determine if it was milled lumber.

Test Unit E

Test Unit E was excavated to a depth of 20 cm. as a 100 x 100 cm. unit. Contents of this small unit (N 426) indicated structural presence prior to the c. 1870 dwelling. In order to obtain a larger sample (at least 2 cubic meters more) an additional 100 x 100 cm. quadrant was added to the east of the completed unit. The resulting assemblage, N 545, indicated a chronology of window glass (N 48) and brick (N 76) that spanned the entire history of the site. The low fire brick was identical to that co-located with a mission period garbage scatter under the present dining room (Test Unit J). The medium fire brick fragments matched the large amounts of brick and brick fragments under the present front room and dining room areas that pre-dated the c. 1870 dwelling,
and were diagnostically evaluated as 1855-1857. The medium to high fire brick fragments matched the present dwelling's foundation brick, indicating repairs have taken place at that area for the foundation. This supports the known periodic major repair cycles for the dwelling. Window glass shards matched a reconstructed glass pane from the privy (Test Unit G) and one shard discovered at the Willamette Mission site (35MA5001) located one mile away. Other glass shards matched the present structure's window glass. Wood samples indicated Douglas Fir (P. mensaeaeid) logs had been sawed and carefully axe trimmed at the unit area (Walters 1982). This sample suggests preparation of shingles for either the roof or siding because the angle of cuts were too precise for chopped wood scrap. Neither structural member is shingled today. Fragments of saw-cut chips of Western Hemlock (Tsuga heterophylla) were also noted. Western Hemlock was only discovered in one other unit, Test Unit D. A correlation between construction or repair materials from both units was established through roofing nails, and this correlation may indicate roofing tar containers were moved between the units. Broken, tar covered rock, and melted tar globules were also found in this unit. See Appendix A for a complete inventory of Test Unit E.

Test Unit F

Excavation of Test Unit F started with a standard procedure of skim shoveling of the entire 1 x 2 m. unit. Artifact analysis in the field indicated almost immediately that the unit was heavily mixed. The unit was divided into two, 100 x 100 cm., quadrants to insure changes in stratigraphy could be noted, thus allowing an analysis of intrusive episodes within the unit. The first level of the southern quadrant was then completed to the 20 cm. level. A distinct edge of an ash horizon appeared in the 20 cm. level at the southern corners of the quadrant. Very large burnt brick fragments appeared near the center of the quadrant at 20 cm. and continued to the 30 cm. level, radiating outward to form a flat surface. They appeared to be a box platform for burning trash, although
very few artifacts were encountered, the heat discoloration was very distinct. The second through sixth levels (to 60 cm.) were excavated. Level Six contained 10 cm. of natural clay. The resulting stratigraphy exposed in the northern quadrant's southern wall indicated an intrusion to 45 cm. This intrusion was excavated as a separate unit within the Test unit in 10 cm. levels and a separate analysis was conducted for that sub-quadrant. Upon completion of this excavation, the remainder of the northern quadrant was excavated to 50 cm., where the soil profile began to reflect a natural clay horizon that matched the southern quadrant 60 cm. level clay horizon. Test Unit F was designated Feature Two.

Feature Two

Mixing in the feature was very complete, including the contents of the shovel shaped intrusion that pierced the northern quadrant vertically to the 45 cm. level. The base of this intrusion was lined with carbonized Douglas Fir wood and bark. Artifacts from this intrusion were late 19th and 20th Century period artifacts, including a complete patent medicine bottle that dated to the 1890s, at the 19 cm. level. A scatter of clay seedling pot fragments (all reconstructable) overlaid this intrusion and may have originated in the greenhouse directly to the north of the unit. A large amount of pebbles, probably seedling pot drainage fill, was in the same levels. Window glass from the greenhouse, identified by its unique yellow-green discoloration, was scattered in the northern quadrant's surface area. Bricks at the northern edge of the unit had been laid between the greenhouse and the unit area as a decorative border(?), and had acted as a division for the two areas during the active use period for both areas. The greenhouse dated to the 1930s and was not abandoned until it was vandalized in 1980 (Personal communications, Witteman).

The only clearly datable material in the surface garbage scatter that was undisturbed was the greenhouse artifacts that could not date prior to ca.1930 but could be as late as 1960. These artifacts were restricted primarily to the First Level in the northern quadrant. Window
glass shards with concentric lines, associated with a pre 1870 structure on the site (see Appendix B), were mixed from 40 cm. in the southern quadrant to the surface in the northern quadrant. This indicated a deep intrusion. Pre 1914 manganese content container glass (some appearing to be patent medicine bottle shards) was mixed from the surface to 50+ cm., indicating a second, deeper intrusion had taken place. Recent machine process glass shard depositions were concentrated in the northern half of the feature, representing a considerable depositional period after the last intrusive episode or a one time massive dwelling(?) cleanup dumping. See Table 7 for artifact scatter distribution.

The early settlement artifact deposition location partially escaped being scattered during intrusion episodes. This indicated the area may have originally become a secondary depositional point because it contained a natural depression at its southern end. A series of intrusions and depositional periods followed. A formal dump was excavated through the top layers of previous depositions to the 40 cm. level in the southern quadrant and brick fragments were laid flat at its base. Burning was carried out there for some time as the brick was badly disintegrated and most of the artifacts in that area were burnt, charred and melted, including the ceramic. Natural depositions followed because rich organic soil was interspersed with artifacts in the northern quadrant. This period was followed by a deep reopening of the area to the 45 cm. level in both quadrants but with depositions restricted to the northern quadrant, with at least one episode of Douglas Fir wood and bark being used to kindle a fire(?). This usage would have predated ca. 1930 as the greenhouse was too close to the area for open fires. The latest depositions in the northern quadrant consisted of a considerable amount of mass produced glass container shards. These shards were unmarked and unburned, supporting the ban on burning previously suggested.

The proximity of this garbage scatter to the dwelling, presence of 19th Century artifacts and the continued use of this garbage scatter area for a very long period of time supports the analysis that the

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10 A surface scatter of approximately 100 burnt peach pits (Prunus) littered the surface area and were very recent depositions.
original hospital structure was near the feature.

Test Unit G

Test Unit G sampled the edges of two right angle surface impressions that were too linear to be natural. Within the first ten cm. (Level One), a scatter of mixed period ceramic, glass, metal and faunal fragments were discovered in silty clay loam A horizon soil. Within this scatter were a number of blue transferware pattern shards that were easily identified under field conditions. It was decided to use these shards to trace possible intrusive episodes. In order to control the analysis, the unit was divided into two 100 x 100 cm. quadrants.

The northern quadrant was excavated to 20 cm. An ash horizon extended to 18 cm. in the southwest quarter of this quadrant. The diameter of this ash horizon was projected to be 110 cm. with half of its diameter outside the unit. The ash horizon contained two faunal fragments at its base, and was directly above a solid clay horizon. This clay, natural to the area (see Feature Two), extended horizontally from the quadrant's southwestern edge to the north wall of the unit in a wedge shape. The head of this wedge shape was at the north wall of the unit. Two deposits of stacked faunal remains, apparently separate depositions, were discovered toward the central area of the quadrant in silty clay loam A horizon soil. In the Third Level, the source of the blue earthenware was discovered, centered in the quadrant, at the 20-25 cm. level. Large base, edge and rim fragments were colocated with an assortment of unreconstructable ceramic and glass shards, faunal fragments and machine cut square nails. The only other fragments of these highly reconstructable fragments (a large bowl) were discovered at 45 and 51 cm. levels, within the northern quadrant. The locations of these two fragments in the north wall of the unit, colocated with burrows, indicated shard movement may have been caused by extensive burrowing that was encountered in the unit (see Figure 7). A zone of almost total sterility was noted from 25-30 cm. except a complete handmade earthenware lid cut through this level between 27 to 34 cm. In the 30-40 cm.
level, only four artifacts were discovered between 30 and 32 cm. They were at the extreme north and south edges of the quadrant. Again, distribution was restricted to co-location with burrow activity. As in Level Three, an artifact was angled through the sterile zone. In this level it was a pre 1900 medical dispensing bottle angled between 32 and 37 cm. Level Four also contained a shallow wedge shaped clay horizon that matched the consistency of the Level Two clay horizon. This soil change appeared at the eastern wall of the quadrant with the head of the wedge at the southern end of the quadrant. At the 40 cm. level a massive quadrant-wide deposition of seed began. This seed was identified as Evergreen(?) Blackberry (Rubus). In the 40-50 cm. level, the wedge shaped natural clay horizon first noted in the 18 cm. level at the western wall of the quadrant, was exactly parallel along its entire irregular base by a deposition of four machine cut square nails. A large river cobble, the only one noted in the entire unit, was in contact with a shattered patent medicine bottle at and within the eastern wall of the quadrant between 45-50 cm. The western wall clay horizon had been sterile from 18 cm., and was not excavated below 50 cm. The 50-54 cm. level was almost devoid of artifacts but at 55 cm. the start of a massive artifact concentration began. This concentration consisted of pre-1900 canning jar fragments (reconstructed), a vegetable dish (reconstructed), oil lamp fragments (partially reconstructed) and faunal fragments. This concentration continued through the 75 cm. level. A flow of Prosser-type buttons across the 60 cm. floor formed a loose line that extended into the east wall, but at the 45-48 cm. level within the wall. In order to analyze this seeming directional flow of artifacts, a 50 x 70 cm. extension was added in the eastern wall of the quadrant. The extension was designated Test Unit G Extension (HSGE).

The extension was excavated as one unit from the surface to 60 cm. The first artifacts discovered were at the 17 to 18 cm. level and consisted of a machine cut square nail colocated with an electric fuse and a .32 caliber cartridge case.\textsuperscript{11} Artifacts fully compatible with test

\textsuperscript{11} Spring rains had set a record for the area and drying processes
unit artifacts were discovered between 20 and 60 cm., across most of the extension's width. These artifacts reflected a distinct down flow angle toward the northwest. This angle was roughly duplicated by heavier fragments and complete artifacts in the northwest segment of the northern quadrant but at an average of 20 cm. lower level. The seed horizon noted in the northern quadrants at the 40 cm. level was also noted at that level in the extension. Richly organic soil was noted from 18 cm., and a thin clay soil horizon marked the wall at the 40 cm. level. This horizon paralleled a large concentration of metal fragments that began at 45 cm. The clay horizon extended from the 40 cm. level in the extension to a 32 cm. level as it joined the east wall of the unit. This continuous clay horizon then joined the north wall of the unit at 20 cm. At this point, the 60 cm. soil horizon that was now exposed by the excavations at the north wall of the southern quadrant was examined.

The north wall of the southern quadrant contained an unusual "v" shape intrusion that had four distinct components. The area above the "v" shape extended from 10 cm. at the unit's east and west walls to a 40 cm. depth (Level Four) at its near center of unit location (41 cm. from the unit's west wall). This wedge shape contained two intrusions. The larger intrusion's base was lined on both angled edges with carbonized wood from 32 to 40 cm. The smaller intrusion was a kidney shaped burrow with approximately 1.6 cubic meters of volume. The intrusion was wholly within the larger intrusion. A single clear glass shard was discovered in the large intrusion, no artifacts were located in the burrow. The burrow was connected to the west wall of the unit by a tunnel that was filled in with silty clay loam A horizon soils. The soil horizon that actually formed the distinct "v" shape, below the intrusion, consisted of compacted clay granules. The "arms" of the "v" extended to the 18 cm. level of the east and west unit walls. The "v" thickened toward its center, terminating at the 59-60 cm. level with a truncated base. It had a maximum vertical width of 30 cm. and a projected volume

opened fissures as deep as 15 cm. A simple experiment showed an excavation trowel could be dropped straight into such a fissure if the handle was removed. The site's southern apron area was full of these fissures.
of 8.1 cubic meters of clay. The areas to the sides of this "v" formed triangle shapes that extended from the truncated base to the unit walls and upward to a narrowing point, constricted by the walls and the clay horizon. The two triangle shaped soil horizons differed from each other. The west wall triangle contained very rich organic content soils with a clear glass shard at the 59 cm. level. The east wall triangle contained mixed sandy clay and highly organic content soils. The clay horizon and triangle wedges extended to the maximum excavation limits in varying thicknesses, terminating at the southern quadrants maximum excavation point.

The 20-30 cm. level in the southern quadrant contained blue transferware fragments that matched the same reconstructable fragments in the northern quadrant at that level. This level also contained machine cut square nails, wire drawn nails, clear glass shards, brick fragments, metal fragments and faunal remains (see Appendix D). This level also contained three Douglas Fir post fragments in a linear relationship that extended through the floor of the level. Level Four was sterile from 30 to 36 cm. Artifacts were discovered between and immediately around the posts and in a sloping angle from the last post fragment (closest to the center of the unit), to the base of the level (37-39 cm.). A concentration of machine cut square nails and oil lamp shards were massed at the levels floor on an undisturbed silty clay Loam A horizon soil that contained post fragments from 37 to 42 cm. Directly to the North of this mass was a concentration of large window glass fragments that were angled perpendicular to the floor of the unit from 38 to 59 cm. This window glass was reconstructed. An oil lamp chimney top fragment and part of a vegetable dish were located together between the 44 and 50 cm. levels. Artifacts discovered at the 60 cm. level included a ceramic shard, machine cut square nails and a canning jar fragment. Levels Five and Six (40-60 cm.) contained highly organic soil with massive quantities of blackberry seeds. Excavations below 60 cm. were carried out with the northern and southern

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12 Just such a soil horizon was noted at the southern quadrant maximum excavation level where a massive root system was noted. See Figure 7.
quadrants and the extension being treated as one unit.

The 60-75 cm. level was excavated by context. The extension contained no artifacts or seed below 63 cm. but the unit (proper) contained both to 90 cm. The majority of fragments and shards in the quadrants were all reconstructable and concentrated in specific areas. The northern quadrant had concentrations of artifacts in a crescent shape at the north and east wall areas. Vertical depositions were again encountered through otherwise artifact-free levels, in this case, nursing bottle fragments from 65 to 80 cm. The northern quadrant contained a second concentration at the center of the quadrant, consisting of whole bottles, a vase fragment and canning jar fragments. This concentration continued across the unit into the southern quadrant and included more vase fragments, vegetable dish base fragments, oil lamp top fragments and canning jar fragments. These were all contained between 60 and 65 cm. excepting a complete base to a vase (which had smaller fragments stacked inside) that pierced the level between 59 and 69 cm. A second such deposition, separated from the first by approximately 4 cm. of clay, was concentrated at 73 to 75 cm. in the southern quadrant. Two of the post fragments, first noted in the 20-30 cm. level (at 22 and 25 cm. respectively) continued through the 75 cm. level in the same A horizon soil. Excavations ceased in the portion of the southern quadrant that contained the posts, excepting the posts which were excavated to there bases (88 and 43 cm. respectively). The third post fragment had extended between 29 and 52 cm. A thin strip of undisturbed soil bordered the post area and was not excavated below 75 cm. A vertical penetration was noted for the otherwise restricted artifact level between 66 and 80 cm. This exception consisted of large, heavy vegetable dish base fragments. The massive seed depositions continued throughout the levels to 80 cm. (wherever clay deposits were not present). A thick layer of pulverized clay separated the 80 and 90 cm. levels. Rich organic soil without seed content was noted in the last level excavated. One artifact was encountered at 90+ cm. This was a whiskey bottle embossed on its base "J. Walker's VB". Soundings indicated extensive depositions existed below this level, but the field season had ended. The unit and extension were lined with plastic prior to back-filling. The combined excavations were designated Feature Three.
<table>
<thead>
<tr>
<th>Artifacts</th>
<th>Level and Quadrant</th>
<th>00-20</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>N S</td>
<td>N S</td>
<td>N S</td>
<td>N S</td>
<td>N S</td>
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<tr>
<td>Bottons:</td>
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<td></td>
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<tr>
<td>Mother-of-Pearl</td>
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<td></td>
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<tr>
<td>Plastic</td>
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<tr>
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<td>7.5YR7/6</td>
<td></td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10R5/6</td>
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<td>1</td>
<td>1</td>
<td>4</td>
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<tr>
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<td>7</td>
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<td>Hand painted</td>
<td></td>
<td>4</td>
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<td></td>
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<td>Molded</td>
<td></td>
<td>4</td>
<td>4</td>
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<tr>
<td>Plain white</td>
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<td>31</td>
<td>18</td>
<td>9</td>
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Table 7. cont.

**Earthenware Hollow ware:**
- Hand painted: 1
- Plain white: 2 3 2 1
- Seedling pots (reconstructed): 2

**Porcelain:**
- Hand painted: 2 1
- Doll face fragment: 1
- Crockery: 3 2 5
- Crockery severely burnt: 2 1

**Cement:**
- Fine crushed rock: 4
- With plaster: 1 2 1

**Glass:**
- Container shards:
  - Amber: 28 2 4 1 1
  - Aqua: 6 2
  - Cobalt Blue: 5 1 1
  - Brownish-Green: 1
  - Clear: 159 7 35 24 5
  - Green: 4 1 2
  - Light Yellow-green: 2 1 1
  - Yellow-Green: 1
  - Canning jar fragment: 1
  - Tonic Bottle: 1
Table 7. cont.

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<thead>
<tr>
<th>Item</th>
<th>Count</th>
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<tr>
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<tr>
<td>Top fragment with plastic cap</td>
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<td>Oral thermometer fragment</td>
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<tr>
<td>Mirror shard</td>
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<tr>
<td><strong>Window glass:</strong></td>
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<td>Clear</td>
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<td>Cloudy surfaces</td>
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<tr>
<td>Concentric lines</td>
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<td>Green paint smear</td>
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<td>Imperfections</td>
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<td>Straight edges</td>
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<td>Straight lines (cylinder glass?)</td>
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<td>Yellowish tint</td>
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<tr>
<td>Stained orange, clear</td>
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<tr>
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<td>Light bulb glass shards(?)</td>
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<td>Milk glass shards</td>
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<td>Item</td>
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<td>Wire drawn fragments</td>
<td>15 3</td>
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<td>Plyers (play)</td>
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<td>Spent bullet</td>
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<tr>
<td>Machine cut square</td>
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<tr>
<td>Item</td>
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<td>Spring(?) fragment</td>
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<td>Square shapes painted red</td>
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<tr>
<td>Washer</td>
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<td>Round shot with mold marks</td>
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<tr>
<td>Chemical(?) pellets</td>
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<td>Coin, U.S. One cent</td>
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<td>Door knob fragment</td>
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<tr>
<td>Electric fuse</td>
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<tr>
<td>Spark plug</td>
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<td>Lithics:</td>
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<tr>
<td>Coal, anthracite</td>
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<tr>
<td>Cryptocrystalline side scraper</td>
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<tr>
<td>Slate pencil fragments</td>
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</tr>
<tr>
<td>Slate tablet fragments</td>
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<td>Obsidian flakes</td>
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<td>Description</td>
<td>Count</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>River cobbles, fire cracked</td>
<td>1</td>
</tr>
<tr>
<td>Triangular point, constricting stem</td>
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</tr>
</tbody>
</table>
Feature Three

Several intrusions appeared from the surface to the 70 cm. level in both quadrants. Man-made intrusions appeared in two areas of the unit. The deepest was restricted to a narrow segment in the unit's center and cut through an extensive non-natural deposit of clay to a maximum depth of 40 cm. A second area of intrusion was noted in the western wall area of the unit as a 10 cm. thick ash horizon that extended to the 18 cm. level. These intrusions caused a minimum scattering of depositions that pre-dated the intrusive episodes (see Table 8). Non-human intrusions were noted in three areas of the unit. Two of these intrusions were deep and extensive (see Figures 8 and 9). Artifact movement was surprisingly light for these burrow intrusions. The highly reconstructable artifact assemblage indicated only one major fragment had been moved from a minimum projected original deposition point of 59 cm., at the unit's center area to 20 cm. at the southern quadrants western wall. The kidney shaped burrow centered in the man-made intrusion at 22 cm. and extended to the west wall of the unit, may be the source of the movement. One of the two deep burrows extended from 70 cm. to within 12 cm. of the unit surface. The tunnel leading from this burrow ended incompletely at the 12 cm. level on a parallel line and within 40 cm. of the vase fragment. No other intrusions account for this isolated but great vertical distance movement. Heavy artifacts had pierced the unit surfaces vertically in each level, indicating a plastic surface had been present when original depositions took place. This plasticity was evident from 27 cm. to 90 cm., commencing with the complete hand-made earthenware lids angled deposition. Very localized depositional areas were indicated in the unit at certain points. Light and oblong artifacts tended to collect in these "pocket" areas in specific relationships i.e., nails at the base of the solid clay horizon and at other walls in the unit. These characteristics were used to plot direct and deflected artifact deposition locations. The patterns that emerged from this plotting indicated several areas of primary impact deposition were located in the feature. This analysis was supported by the presence of the very deep clay
deposition at the center area of the unit (almost perfectly dissecting the unit in two parts). This non-natural "v" shaped clay deposit was part of the feature's sealing clay cap. It also separated the primary depositional areas of the two quadrants that would be at a higher, cone shaped, level than the surrounding areas (Personal communication, Brauner 1982). The direct and deflected artifact depositional locations within the feature (measurable because of the limited scattering of artifacts by intrusions) indicated the feature may have been a two-hole privy.

A sample of the rich organic soils was taken from the 40-50 cm. level and the 60-75 cm. levels of the unit. The ethnobotanical analysis indicated massive cultural based floral depositions. A minimum of 4.2 cubic meters of blackberry seeds (Evergreen(?)), half a cubic meter of microscopic carbonized wood and half a cubic meter of microscopic plant vascular bundles and leaf fragments were within the feature. The type of blackberry present was not introduced into the Northwest until 1850, and then as a commercial berry crop (Walters 1981). The quantity of seed was too large to be random diet or wild plant deposition, and with the presence of complete and fragmented canning jars, points to blackberry jelly preparation. The vascular bundles belong to the subfamily of plants that contain several usable vegetive and tissue-like leaves (Walters 1981; see Appendix E). The three posts at the southern quadrant South periphery were Douglas Fir, all barkless, and of the same diameter. The deflected artifact depositions bordered these posts and a definite slope angle there, matched the slope angle in the extension to the unit by one cm. Below this slope angle, fronting the posts, an area of round complete and large fragment artifacts were noted. This gave the appearance of a wall area that had stopped rolling artifacts. A like-area of deposition existed in the northern quadrant, but not against a wall. These depositions were over a relatively short period of time i.e., massive seed depositions in all levels below 40 cm. pointed to a deposition to 90 cm. in the summer months. The entire privy was sealed in clay after abandonment. This sealing clay "cap" extended from 18 cm. at the Northwest wall area to 40 cm. at the extension wall. Depositions were limited to above 60 cm., and angled location of artifacts
therein, indicated the extension area was the maximum eastern width of
the privy. The rock impacted bottle 45 cm. below the last intact level
indicated the bottle's deposition had originally been against the east
wall and the floor of the northern quadrant. This confirmed the exten-
sion's sloping shape. It also indicated the bottle could be seen through
the privy seat or that the structure had been removed, then replaced,
i.e., the bottle was directly hit by the cobble, then both were sealed
under several layers of later organic matter depositions before final
sealing. Evidence that the structure had been removed was also provided
by the number of bent nails and spikes that were colocated with the post
fragments in both quadrants. Additionally, a horizontal post fragment was
colocated with the southern quadrant post fragments but at a lower level
than those posts (9 to 14 cm. lower than the closest post, see Figure 7).
In order to support this conclusion, a separate means of measurement was
needed. Artifacts were utilized to provide this analysis. Whole round
bottles dropped through the seat opening(s) would be expected to roll to
a wall area or fill with liquid and sink in a random pattern. The round
whole bottle depositions were examined. In the southern quadrant, a patent
medicine dispensing bottle was located at the 32-37 cm. level, within 15
cm. of the east wall. Three medical dispensing bottles were co-located
(stacked at 40 cm.) at the base of the southern post area. A round patent
medicine bottle was located at the same southern wall area at 56 cm. In
the northern quadrant, a round patent medicine and a medical dispensing
bottle were co-located at the quadrant center, 60 cm. from the north wall
and 64 cm. below the surface. A round whiskey bottle was located 20 cm.
from the north wall, at 90+ cm. A round medical dispensing bottle was
located 15 cm. from the east wall at 66-74 cm., slanted 60 degrees from
vertical and angled northwest. A round bottle was within the extension
wall area, close by a square patent medicine bottle at the extension's
joining edge with the north quadrant. Two condiment bottles (octagon
shapes) were noted at the southern wall at 64 cm. 10 of the 12 round
bottles plotted were located close to or at wall areas. Another means was
available to check these results. If deflected deposition could at least
be partially reflected by shape, then direct depositions should be
determinable by weight. A heavy object dropped through the privy seat opening would cut through the plastic surface at a near perpendicular angle. As previously discussed, such depositions existed from 27 cm. to 90 cm. An analysis of these depositions indicated such depositions existed in the northern quadrant. These depositions were a massive metal concentration at the extension wall (20 x 20 cm.), between 45 and 60 cm. and a metal concentration at 70 cm.

In the southern quadrant, the window glass pane (in two direct contact layers) extended through 21 vertical centimeters. The pane was oriented with its long axis in a north-South orientation (29 cm. long) and 20 cm. wide at its short axis. The pane was centered 75 cm. from the west wall and 85 cm. from the south wall. A heavy vase fragment base with several smaller fragments within its interior was vertically oriented through 10 cm., 35 cm. from the west wall and 100 cm. from the south wall. These primary depositions were too far from each other to be considered to have been carried out through the same privy seat opening. The angle of these depositions, when viewed from the angle of the posts at the southern end of the feature, line up. The clear indication is that each post was once at the center of the structure's southern edge. Based on direct impact depositions, the primary depositions proceeded from East to West i.e., southern quadrant glass pane fragments were at the 38 to 59 cm. level, the vase fragment was between 59 to 69 cm. levels. In the northern quadrant, the direct depositions proceeded from East to West between 45-60 cm. and the 70 cm. level. The time of year indicated by the seed depositions (discussed earlier) reflected a summer movement of the privy structure. This movement would be at the hottest time of the year, thus a very odorous period to work around a privy. The various clay seals would serve very well to control this odor while work progressed during each reconstruction episode. The post furthest to the south was 88 cm. deep, the next post was 35 cm. deep and the western-most post was 15 cm.

13 The posts at the southern extreme of the feature progressed at an angle that was sympathetic with the depositions i.e., at an angle that paralleled the direct deposits.
deep. The post fragment in the northern quadrant was at the 43 to 60 cm. level, possibly indicating a dislodged structural foundation member. This may have been one of the reasons to remove the structure. Another possibility was the time of year. As previously discussed, the ground split and cracked in impressively wide and deep fractures. The unstable ground may have dislodged the foundation posts, causing the need for the structure's removal and replacement (see Figure 9).

Two functional classes of artifacts were recovered from the intact levels of the privy below 40 cm. The window glass pane fragment and large amounts of dissimilar manufacturing techniques employed in pane manufacture indicated a structure with several modifications had been modified or leveled (see Appendix B for a discussion). The recovered square nails, 19 percent of N., and 73 percent of the square nails with wood fiber impressions and other structural hardware, supported this conclusion (see Table 8 and Appendix A). The culinary materials present were typical to ca. 1860-1880 (see Table 8).

The reasonable conclusion is that the privy was in use during construction of the ca. 1870 dwelling and was used as a secondary depositional point for at least some of the non-destructable Mission Hospital construction and hardware materials that were removed to make way for the new dwelling.

On a more whimsical note, the natural polish agate and lithic fragments indicated collectables that were casually given the ultimate rejection: down the privy. This whimsy was valuable in fact, because just such a collectible was noted in Feature Two by a Midwest America projectile point that was discarded in the surface scatter area. These separate depositions may indicate a compatible time-frame for both depositions or two different periods of surface lithic tool collecting at the site: a hobby that continues within the gully area of the site to this day (Personal communication, Witteman, 1981).

14 Interestingly, the features contained almost exactly the same amounts of square nails: 21, 25, 19 and 21 percent respectively.

15 The structural affiliated Test Units D and E contained exactly 12 square nails each, or 85.7 percent of the non-feature square nails.
Figure 7. Feature Three Plan View
Figure 8. Feature Three North Wall
Figure 9. Feature Three West Wall
<table>
<thead>
<tr>
<th>Artifacts</th>
<th>17-30 cm.</th>
<th>30-40 cm.</th>
<th>40-50 cm.</th>
<th>50-60 cm.</th>
<th>60-75 cm.</th>
<th>75-90 cm.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N  S  X</td>
<td>N  S  X</td>
<td>N  S  X</td>
<td>N  S  X</td>
<td>N  S  X</td>
<td>N  S  X</td>
</tr>
</tbody>
</table>

**Buttons:**
- Prosser Plain White 3 2 6
- Metal 2 1

**Bottles (whole):**
- Medical Dispensing 1 1 1 2 1
- Tonic 1 1 3 2
- Whiskey 1
- Extract 1 1
- Condiment 2

**Bottles (reconstructed):**
- Nursing (11) (1)
- Soft drink (1) (1)
- Tonic (4) (1) (3) (6)

**Brick (fragments):**
- 7.5YR7/6 3 1 1
- 10R5/6 4 3 2
- 10R6/8 1 1 1 2 1 1
- Severely burnt 1 1
Table 8 cont.

Ceramic (reconstructed):

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
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<tbody>
<tr>
<td>Vegetable bowl</td>
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<tr>
<td>Vegetable bowl lid</td>
<td>4</td>
</tr>
<tr>
<td>Blue Transferware bowl fragment</td>
<td>31</td>
</tr>
<tr>
<td>Crockery Lid</td>
<td>1</td>
</tr>
<tr>
<td>Transferware shards:</td>
<td></td>
</tr>
<tr>
<td>Blue</td>
<td>1</td>
</tr>
<tr>
<td>Green</td>
<td>3</td>
</tr>
<tr>
<td>Red</td>
<td>1</td>
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<tr>
<td>Hand painted</td>
<td>1</td>
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<td>Molded</td>
<td>1</td>
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<tr>
<td>Plain white</td>
<td>8</td>
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<tr>
<td>Plain white fragment</td>
<td>1</td>
</tr>
<tr>
<td>Solid color</td>
<td>1</td>
</tr>
<tr>
<td>Severely burnt</td>
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</tr>
<tr>
<td>Porcelain</td>
<td>2</td>
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Canning Jars (reconstructed):

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<tr>
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<tr>
<td>Aqua</td>
<td>(4)</td>
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<tr>
<td>Aqua</td>
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<tr>
<td>Clear</td>
<td>(1)</td>
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<tr>
<td>Clear</td>
<td></td>
</tr>
<tr>
<td>Cement:</td>
<td></td>
</tr>
<tr>
<td>With river pebbles</td>
<td>1</td>
</tr>
<tr>
<td>With plaster</td>
<td></td>
</tr>
<tr>
<td>Hollow ware Glass:</td>
<td></td>
</tr>
<tr>
<td>Glass:</td>
<td></td>
</tr>
<tr>
<td>Dessert dish frag.</td>
<td>1</td>
</tr>
<tr>
<td>Dessert dish frag. starburst design</td>
<td></td>
</tr>
<tr>
<td>Dessert dish frag. diamond design</td>
<td></td>
</tr>
<tr>
<td>Dessert dish(?) frag.</td>
<td></td>
</tr>
<tr>
<td>Relish bowl? frag.</td>
<td></td>
</tr>
<tr>
<td>Tumbler</td>
<td></td>
</tr>
<tr>
<td>Water glass</td>
<td></td>
</tr>
<tr>
<td>Water glass</td>
<td></td>
</tr>
<tr>
<td>Oil lamp chimneys</td>
<td></td>
</tr>
<tr>
<td>Clear</td>
<td></td>
</tr>
<tr>
<td>Clear</td>
<td></td>
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</table>
Table 8. cont.

<table>
<thead>
<tr>
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<th>(1) (2)</th>
<th>(4)</th>
<th>(1)</th>
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<tbody>
<tr>
<td>Clear</td>
<td>(1) (4)</td>
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<td>(19)</td>
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<td>Clear</td>
<td></td>
<td>(7)</td>
<td></td>
<td>(19)</td>
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<td>Clear</td>
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<td>(2)</td>
<td>(3)</td>
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<td>(1)</td>
<td>(1) (4)</td>
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<td>(4)</td>
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<td>Base fragments</td>
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<td>Base reconstruction</td>
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<td>(4) (19)</td>
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<tr>
<td>Shards</td>
<td>1</td>
<td>2</td>
<td>10</td>
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<tr>
<td>Oil lamp reservoir frag.</td>
<td>(1)</td>
<td>(1) (1) (1) (1) (8)</td>
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<td>(4)</td>
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<tr>
<td>Container shards:</td>
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<tr>
<td>Amber</td>
<td>2</td>
<td>3</td>
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<tr>
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<td>Brown-green</td>
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<tr>
<td>Clear</td>
<td>16</td>
<td>21</td>
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<td>26</td>
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<tr>
<td>Crystal-like</td>
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<tr>
<td>Light Blue-green</td>
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<td>5</td>
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<td>2</td>
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<tr>
<td>Light Violet</td>
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<td>Medium Violet</td>
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<td>Purple</td>
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<td>Category</td>
<td>Count 1</td>
<td>Count 2</td>
<td>Count 3</td>
<td>Count 4</td>
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<td>-------------------------------</td>
<td>---------</td>
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<tr>
<td>Yellow-green</td>
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<td>Vase, reconstructed</td>
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<td>Window glass:</td>
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<tr>
<td>Crown(?) pane frag.</td>
<td>(20)(19)</td>
<td></td>
<td></td>
<td>(5)</td>
</tr>
<tr>
<td>Pane frag. with straight edges</td>
<td>(6)</td>
<td>(4)</td>
<td></td>
<td>(1)</td>
</tr>
<tr>
<td>Pane frag. with straight edges</td>
<td>(1)</td>
<td>(4)</td>
<td></td>
<td>(1)</td>
</tr>
<tr>
<td>Pane fragment</td>
<td></td>
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<td>(7)</td>
</tr>
<tr>
<td>Shards:</td>
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</tr>
<tr>
<td>Clear</td>
<td></td>
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<td>Concentric lines</td>
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<td>Imperfections</td>
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<td>1</td>
<td>3</td>
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<tr>
<td>Mottled and cloudy surfaces</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>2</td>
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<tr>
<td>Straight lines</td>
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<tr>
<td>Edge fragments</td>
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<td>1</td>
<td>2</td>
<td>4</td>
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<tr>
<td>Aqua tinted</td>
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<tr>
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</tr>
<tr>
<td>Agate</td>
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<tr>
<td>Fire cracked rock</td>
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<tr>
<td>Slate tablet frag.</td>
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</tr>
<tr>
<td>Steep-end scraper</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Metals:</td>
<td></td>
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</tr>
<tr>
<td>---</td>
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<tr>
<td>Aluminum pull-tab</td>
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<tr>
<td>Brass:</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Escutcheon</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 Gauge shotgun shell base</td>
<td>4</td>
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<tr>
<td>.32 Cal. cartridge case</td>
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<tr>
<td>Container fragments</td>
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<tr>
<td>Container top frag.</td>
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<tr>
<td>Bolt fragment</td>
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</tr>
<tr>
<td>Flat fragments</td>
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<td></td>
</tr>
<tr>
<td>Molded hinge pin</td>
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<td></td>
</tr>
<tr>
<td>Hand-wrought square nails</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machine-cut square nails</td>
<td>11 8 1 3 13 4 1 6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machine-cut square nails with wood fiber impressions</td>
<td>3 4 5 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machine-cut square nail fragments</td>
<td>2 5 3 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wire drawn nails</td>
<td>1 3 1 1</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Wire drawn nail fragments</td>
<td>5 5 10 3 11</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Nuts</td>
<td>1 1</td>
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### Table 8. cont.

<table>
<thead>
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<td>Staple</td>
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<td>Square shape</td>
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<tr>
<td>Upholstery (?) tacks</td>
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<tr>
<td>Tin can (?) fragment</td>
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</tr>
<tr>
<td>Wire strand</td>
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</tr>
<tr>
<td>Pulley or Capstan fragment</td>
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</tr>
<tr>
<td>Spent bullet</td>
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</tr>
<tr>
<td>Electric Junction</td>
<td>1</td>
</tr>
<tr>
<td>Box slugs</td>
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</tr>
<tr>
<td>Electric Fuse</td>
<td>1</td>
</tr>
<tr>
<td>Lead Container frags.</td>
<td>(49)</td>
</tr>
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<td>Pellet, chemical (?)</td>
<td>1</td>
</tr>
<tr>
<td>Rubber gasket fragment</td>
<td>1</td>
</tr>
</tbody>
</table>

**Notes:**
1. "X" indicates Test Unit G Extension (HSGE)
2. Column entries in parenthesis are number of shards from that level and quadrant that were combined to obtain a reconstruction.
3. See Appendix C for full descriptions of artifacts listed in this table.
In order to determine if any part of the original hospital structure was incorporated into the ca. 1870 dwelling construction, an evaluation of that structure was necessary. The structure was divided into three units or cells for the analyses. The western-most part of the dwelling forms a rectangle that contains a part of the dwellings front room. This was designated Cell One. Cell Two joins Cell One at the eastern front room area at a right angle, and forms a second rectangle. The Third Cell is the eastern-most part of the structure and joins Cell Two at a right angle. It contains the kitchen and previous buggy house (that was attached to the structure after 1928; see Figure 3).

Cell One contains a partial cellar that allowed a close inspection of the brick foundation and structural underpinnings. The brick was all medium-high fire brick and the main supports were all 8 x 8 inch commercial grade girders. Attached by wire drawn nails to a girder at the North-west corner of the cellar was a hand-hewn beam fragment that did not appear to support or reinforce the structural integrity in any way. The beam contained adze marks. The cell also contained a rectangular brace-like structure at the extreme west and north wall segment of the basement. This brick and masonry mass had been in place in 1920 (Personal communication, Barker, 1981). The bricks were medium-high fire and otherwise matched the foundation bricks. The quality of this structural detail was far below the standard appearance of the brick foundation. A distinct appearance of extreme haste or lack of bricklaying knowledge dominated its appearance. In order to determine the purpose of the 120 x 40 x 60 cm. structure, a concrete cap was partially removed and a 50 x 40 x 60 cm. sample was excavated and screened through wire cloth in the same manner as for test units. The 12 cubic meter cap to base sample was sterile fine gravels and powdery soil. The excavation indicated the structure bordered on dirt, below the foundation level, at the extreme edge of the dwelling foundation. The structure was a retaining wall that was an integral part of the dwelling's construction. The persisting rumor, passed
on from owner to owner, that the structure was a crypt (Personal communication, Witteman, 1981), was laid to rest. Additional examination of the wall area indicated a like-structure, delineated by brick and masonry markings, had once been at the southwest corner of the cellar. At some time prior to 1920 this retaining wall was removed (Personal communication, Barker, 1981). The cellar floor had been poured in 1920 after removal of several inches of uneven dirt from the floor surfaces (Personal communication, Barker, 1981).

Cell Two was reached through a 1 x 1 1/2 foot crawl space opening in the brick foundation at the six foot level of the eastern basement wall. Within this crawl space entry, another hand-hewn beam had been attached to a girder in the same manner as in Cell One. The cell opened up under the eastern part of the front room. The main volume area of the cell area, past the short but claustrophobic crawl space, opened into an area with headroom that varied between two and four and a half feet. This area was very dry with powdery dust-like soil. Two areas within the cell contained a thick scatter of pre-1870 low and medium fire brick and brick fragments (see Appendix C). These bricks contained daubing residue (and smoke stains in some cases). Both brick types contained straw and straw moldings. The surface also contained a scatter of ceramic shards, metal, faunal remains and a fire pit that was partially lined with pre-1870 singed brick and brick fragments. Test Unit J was placed in this pit. This area contained a solid brick foundation with several airway openings and footed piers (as floor braces). All of the brick appeared to be the same medium-high fire brick as the Cell One foundation.

Cell Three had been totally separated from the second cell by a solid brick foundation (matching the north and south foundations in appearance). This foundation was broken (by sledge hammer?) for electrical wiring access after 1940 (Personal communication, Witteman, 1981). Head clearance was very low in this cell. The cell was not entered, but under hand-carried illumination, the flat surface appeared undisturbed and level throughout.
Analysis

A consistent brick foundation cohesiveness and standard appearance of the girders throughout Cell One and Two indicated these cells had been constructed simultaneously. This supported oral history for the dwelling. The broken foundation and flat surface in Cell Three indicated that cell had been unattached when the structure was built. This supported oral history for the cell. An impression of heritage appreciation was very strong when the non-functional hand-hewn beams were viewed just as they had been originally nailed to the commercially produced girders of another era. This is particularly poignant when the cellar girder with "Beers" spelled-out in black paint is noticed in the damp, dim, cob-web filled cellar.

Cell Two, with pre-1870 brick strewn over the area, indicated an earlier structure may have existed at the location. The fire-pit with the same brick types being used as a liner, indicated an extensive open area, close to the sites apron area, delineated the maximum south extreme for the earlier structure. Only one structure is known to have existed at this spot prior to 1870. This structure was the Mission Hospital. The fire-pit was designated Test Unit J and excavated as a standard 1 x 2 m. unit.

Test Unit J

As previously indicated, Test Unit J was placed within the partially brick lined fire pit, within Cell Two. The placement coincided with the present dwellings' above ground dinning room area. Portable flood lights, a circulating fan and face masks were used in the cell during excavations because the slightest movement in this low cell area raised thick dust that was slow to settle. Probing had indicated powdery soil extended to a depth of approximately 30 cm., in places, in the desired test area.

16 The original owners surname, source unknown.
Long metal wands were driven into the unit corners to insure a secure unit corner reference was maintained. One-hundred medium fire bricks and brick fragments were removed from the unit surface. Excavation was by dust-pan, trowel and brush. Excavated material was removed by a plastic lined wooden crate that was pulled through the crawl space entry-way to Cell One where it was carried out through the external cellar entry-way for screening. This laborious task was repeated until the entire dust-like cap was removed. The exposed solid soil contained brick dust and burn and singe marks at the units southwest and northwest corners within the floors and walls. The west wall floor was honey-combed with burrows. A weasel skull (*Mustela erminea*) was discovered in the unit and may be the remains of the burrows occupant (see Appendix D) Directly above the burrows was a solid ash horizon with carbonized soft wood fragments. Above the ash horizon was medium fire brick fragments and scattered remnants of carbonized wood (see Figure 10). At the northwest wall area and along the north wall of the unit was roughly piled medium fire brick and brick fragments. These walls also contained a small quantity of low fire brick. The brick surfaces that faced into the unit were smoke stained. The south wall area contained fine fragments of brick, ash and a 20 x 40 cm. burn mark at the southwest part of the wall. The east wall was significantly lower than the other walls and was composed totally of dusty soil. The unit was designated Feature Four.

**Feature Four**

Feature Four contained a cross-section of unreconstructable cultural materials. An artifact subassemblage consisted of relatively impervious shards of ceramic and glass. These artifacts were burnt, scratched and/or chipped. This subassemblage consisted of early settlement and pre-1900 artifacts. A second subassemblage of delicate materials (leather and paper) indicated a possible separate, later depositional episode had taken place. A newspaper fragment from the *Oregonian* was dated 1922 and had been compacted into a burrow. See Table 9 for details of the assemblages. These depositions may have occurred during the periodic major restorations of the dwelling.
Window glass shards discovered in this unit contained manufacturing techniques that were common between 1820 and 1840. This type of shard was also discovered in Features Two and Three. One shard from the Willamette Mission Site (35MA5001) also matched these shards. The machine-cut square nails possessed the same characteristics as those discovered in Feature One, Two and Three. A slate fragment matched the thickness (.100 inches) of a like fragment in Feature Three. The low fire bricks matched a fragment from the Willamette Mission Site and several fragments in Test Unit E and the other features. These fragments contained the thick soot smudges on one flat edge that is expected on fireplace flue brick. Construction materials present had clearly been used for a structure that pre-dated the present dwelling.

The personal and culinary fragment functional classes formed a loose chronology from first settlement to the present dwelling's construction period. The area had clearly been used as a secondary depositional area for the Mission Hospital and was not abandoned until it was covered by the present structure. A canning jar base fragment indicated construction of the present dwelling was after 1872 and probably after 1873 (see Appendix F). The faunal assemblage indicated a varied protein diet (see Appendix D).
Figure 10. Feature Four West Wall Profile

All other surfaces are very loose soil - very dry.

Surface gives the appearance of being layered.
Table 9. Feature Four Artifact Assemblage (N. 309)

<table>
<thead>
<tr>
<th>Artifact Category</th>
<th>N.</th>
<th>Burnt</th>
</tr>
</thead>
<tbody>
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<td>Bead, wound glass, opaque amber</td>
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</tr>
<tr>
<td>Buttons:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glass;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calico Prosser (plain reverse)</td>
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</tr>
<tr>
<td>Pie Crust Prosser</td>
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<td>Plain Prosser</td>
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<td>1</td>
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<td>Mother-of-Pearl</td>
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<td>Plastic</td>
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<td></td>
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<tr>
<td>Bottle Fragments:</td>
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<td>Tonic</td>
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</tr>
<tr>
<td>Brick:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.5YR7/6 (with straw content);</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major fragments</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>One flat edge</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>10R5/6;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One flat edge</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>10R6/8 (with straw content);</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Represents 100 complete and major fragments)</td>
<td>1</td>
<td>x1</td>
</tr>
<tr>
<td>Cement, very fine with wood fiber impressions</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Ceramic fragments and shards:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Earthenware flatware;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transferware:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue, New Blanche, Copeland and Garratt, 1833-1847</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Blue scrolls</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Flow blue floral</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Dark Brown floral</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Brown</td>
<td>1</td>
<td>1</td>
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Table 9, cont.

<table>
<thead>
<tr>
<th>Design Description</th>
<th>Molded</th>
<th>Plain White:</th>
</tr>
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<tbody>
<tr>
<td>Hand painted:</td>
<td></td>
<td></td>
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<tr>
<td>Cherries and leaves with stems</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Cobalt blue stripe on white</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Pink and black</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Red and Green flowers (Gaudy Dutch)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Chocolate, Yellow, Blue and White</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>stripes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Molded</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>Plain White:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue tint</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>Cream</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>19</td>
<td>17</td>
</tr>
<tr>
<td>Solid Color:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue, striped white and black</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Green with impressed herring-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>bone design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very light Green</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Earthenware Hollow ware:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transferware;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue floral</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Green flowers and leafs</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Red cup base, country scene</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Handpainted flowers</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Plain White;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue tint</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Reconstructed (shard count given)</td>
<td>(3)</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Severely burnt</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Porcelain Flatware:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hand painted</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Plain White</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Porcelain Hollow ware:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hand painted Dragon (external)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Chinese, 1820-1840</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 9. cont.

<table>
<thead>
<tr>
<th>Crockery:</th>
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</tr>
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<tbody>
<tr>
<td>Bisque</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Chocolate glaze</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Unglazed interior, clear glaze exterior</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Yellow ware</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Severely burnt</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Severely burnt, reconstructed (shard count given)</td>
<td>(2)</td>
<td>(2)</td>
</tr>
</tbody>
</table>

| Clay pipe stem fragment | 1   |
| Cork stopper fragment   | 1   |

<table>
<thead>
<tr>
<th>Glass:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottle stopper, aqua</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Bowl base fragment</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Canning jar fragment embossed 1873</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Container fragments;</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Shallow round shape with elongated pinch marks</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unidentified shards;</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown-Green</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Dark Green (black glass) 1809-1875</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>Clear</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Crystal-like</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Light Blue-Green</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>Light Violet</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Turquoise, molded</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Window Glass;</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Clear reconstructed</td>
<td>(2)</td>
<td></td>
</tr>
<tr>
<td>Cloudy</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Concentric lines (English Crown glass, 1820-1840?)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Mottled surfaces</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Straight edges with molding marks and glass imperfections</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Straight lines (Cylinder glass?)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Material</td>
<td>Description</td>
<td>Quantity</td>
</tr>
<tr>
<td>------------------</td>
<td>----------------------------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td><strong>Metal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brass</td>
<td>Cartridge casing 25/20 cal. (1893-1930)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sleeve over bamboo rod (sleeve gilded)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Crimped brass sleeve over iron fragment</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Straight pin (gilded)</td>
<td>1</td>
</tr>
<tr>
<td>Caste Iron</td>
<td>Sash hardware</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Fragments</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Spring(?) fragment</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Handwrought trunk hinge fragment</td>
<td>1</td>
</tr>
<tr>
<td>Nails</td>
<td>Handwrought square with rectangular head</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Machine cut square with wood impressions</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Machine cut square (bent)</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Other machine cut square</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>Machine cut square fragments(?)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Wire drawn</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Wire drawn fragments(?)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Spikes, machine cut square</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Lacing, shoe(?) , crimped on brass tip</td>
<td>1</td>
</tr>
<tr>
<td>Leather</td>
<td>Strap and loop fragments</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Patch(?) fragment</td>
<td>1</td>
</tr>
<tr>
<td>Lithics</td>
<td>Obsedian flakes</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Slate writing tablet fragments</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Sash Cord fragments</td>
<td>2</td>
</tr>
</tbody>
</table>

1 Smoke smudges, not burnt
Window glass shards discovered in this unit contained manufacturing techniques that were common between 1820 and 1840. This type of shard was also discovered in Features Two and Three. One shard from the Willamette Mission Site (35MA5001) also matched these shards. The machine-cut square nails possessed the same characteristics as those discovered in Feature One, Two and Three. A slate fragment matched the thickness (.100 inches) of a like fragment in Feature Three. The low fire bricks matched a fragment from the Willamette Mission Site and several fragments in Test Unit E and the other features. These fragments contained the thick soot smudges on one flat edge that is expected on fireplace flue brick. Construction materials present had clearly been used for a structure that pre-dated the present dwelling.

The personal and culinary fragment functional classes formed a loose chronology from first settlement to the present dwelling's construction period. The area had clearly been used as a secondary depositional area for the Mission Hospital and was not abandoned until it was covered by the present structure. A canning jar base fragment indicated construction of the present dwelling was after 1872 and probably after 1873 (see Appendix F). The faunal assemblage indicated a varied protein diet (see Appendix D).
Physical evidence of the granary was not located. The small size of the structure and the large 1920 excavated slab area may have sealed in or destroyed evidence of that structure. A very limited result was obtained in the gravel dominated Test Unit D, but it was determined to be a short duration secondary deposition area for the barn. Clinkers and handwrought and machined equipment parts were scattered throughout the disturbed level of Subsite E. The surface nature of construction i.e., corner post foundation and known demolition of the machine shop, makes future recovery of useful Smithy data doubtful. The source of large amounts of medium fire mortared brick poses an interesting problem. Next to nothing is known about this structure's function or period of construction (present to 1910).

The Hospital was located on high ground at the southwest edge of the site as projected in Figure 3. The ca. 1870 structure was built over the structural remains of the hospital, the only documented structure to predate the present dwelling at this spot within the site. Based upon the outstanding preservation present in Cell Two of the dwelling (see Chapter 6), delicate early settlement artifacts, not normally available in the archeological record in this climate, are recoverable in Cell Two and perhaps Cell Three under the ca. 1870 dwelling.

Preliminary evidence indicated the high ground area under the ca. 1870 dwelling may contain a lithic scatter, with obsidian flakes present that would predate the original construction of ca. 1840. Co-located at a previous channel of the Willamette River, this may be a pre-contact site.

One privy was located at the site by informant and another was archeologically identified by surface condition and excavation. The context of the excavated privy provided a quantity of pre-1870 structural remains. Artifacts which relate to repair and maintenance practices for privies were also recovered. Additionally, household wares, canning items and dietary information was obtained. Health problems, family life and container re-use practices were additional benefits for this single test unit. It is reasonable to conclude that a number of privies pre-date
Feature Three and should provide similar data sets. The privy was not completely excavated due to field season restrictions.

The ca. 1870 dwellings underpinnings and foundation indicated two cells had been built as a unit and had undergone only one major structural change during its long existence. The dwelling was built after 1872, and perhaps between 1873 and 1874.

**Summary**

The site's oral and written history was essentially correct. The level of surface disturbance required exacting archeological controls to insure recovered data will provide cultural information. Subsites A through D archeological context was disturbed in varying degrees by human activity and burrowing. Privies would have survived this disturbance but may have top surfaces mixed and scattered by later human activity. Subsite E is disturbed to the 17-20 cm. level by plowing activity. The area under Cell Two (and perhaps Cell Three) of the ca. 1873 dwelling contains a perfectly preserved, if mixed, mission to ca. 1873 component.

The site is a rare time capsule of cultural change from first settlement to present in a very restricted zone within the 18 acre site. Archeological investigation is not only warranted but important to furthering the understanding of Pacific Northwest Euroamerican cultural dynamics.
REFERENCES CITED

Allen, A. J. (Comp)
1850 Ten Years in Oregon. Travels and Adventures of Doctor E.
White and Lady, West of the Rocky Mountains. Andrus,

Bailey, M.
1854 The Grains; or Passages in the Life of Ruth Rover with
Occasional Pictures of Oregon, Natural and Moral.
Carter
and Austin, Portland, Oregon. Facsimile on file, Depart-
ment of Anthropology, Oregon State University, Corvallis.

Balster, C. A. and R. B. Parsons
Special Report No. 265. Agricultural Experiment Station,
Oregon State University, Corvallis;

Barker, Mr.
1981 Interview at his Salem Oregon home. Mr. Barker was the site
farm manager between 1920 and 1928. Tape on file at
Department of Anthropology, Oregon State University, Corvallis.

Barry, J. Neilson
1940 Enclosure to letter to Mr. Creighton Jones, September 15,
1940. Facsimile copy on file, Department of Anthropology,
Oregon State University, Corvallis.

Brauner, David R.
1981 Personal communication. Professor of Anthropology, Oregon
State University, Corvallis.

Corps of Engineers, Portland Oregon
1936 Aerial photograph Serial 36-1366.
1959 Aerial photograph Serial 59-258.
1968 Willamette River Oregon, Clackamas, Marion and Yamhill
Counties Flood Plain Information. Interim Report.

Curtis, Philip H.
1981 Letters to writer. Facsimile copies on file, Department of
Anthropology, Oregon State University, Corvallis.

Department of the Interior

Gary, George
1844 Diary of Rev. George Gary. Oregon Historical Quarterly,
<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>Title</th>
<th>Publisher/Details</th>
</tr>
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<tr>
<td>Gurcke, Karl</td>
<td>1982</td>
<td>Personal communication. Mr. Gurcke is a graduate student at the University of Idaho, specializing in brick diagnostics.</td>
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<tr>
<td>Hayes, Mrs. J. Orlo</td>
<td>1980</td>
<td>Rough notes of an interview, copy on file, Department of Anthropology, Oregon State University, Corvallis.</td>
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<td>Jones, Mrs. Creighton</td>
<td>1981</td>
<td>Personal communication. Resident of the site between 1940 and 1945.</td>
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<tr>
<td>Marion County Recorder</td>
<td>1978</td>
<td>Site Trust Deed Survey Data, Vol. 133.</td>
<td></td>
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<tr>
<td></td>
<td>1846</td>
<td>Annual Report, 1846. Facsimile on file, Willamette University Library.</td>
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</table>
National Oceanic Atmospheric Administration

Oregon State Documents. State Archives, Salem.
1843 Survey Records of Jesse Applegate.
1844 Alanson Beers Bill of Sale.
1848 Land Grant Claim No. 60. Patent No. 38.

Peddle, C. J.

Roenke, Karl

Sanders, Judith A. and Mary K. Weber

Sanders, Judith A.
1981 Personal communications. Graduate Research Assistant, Department of Anthropology, Oregon State University, Corvallis.

Schiffer, Michael B.

Sprague, Roderick

Townsend, Paul
1981 Personal communication. Mr. Townsend owns the property facing the site and is the oldest land-owner in Mission Bottom, Oregon.

United States Geodetic Service
1957 Mission Bottom Quadrangle Oregon 7.5 Minute Series (Topographic Map).
United States Senate
1846  *Senate Document No. 54. Twenty-ninth Congress, First Session.*

Walters, Tony
1981  Ethnobotanical Reports to writer. On file Oregon State University, Department of Anthropology.
1982  Ethnobotanical Reports to writer. On file Oregon State University, Department of Anthropology.

Weber, Mary K.
1981  Personal communications. Graduate Research Assistant, Department of Anthropology, Oregon State University, Corvallis.

White, Elijah

Wilkes, (Lt.) Charles, USN

Witteman, Paul
1981  Personal communications. Mr. Witteman is the site co-owner.
APPENDIX A

ARTIFACT INVENTORIES
A. ARTIFACT INVENTORIES

Artifact inventories pose a particular problem for historic archeologists. No individual has access to comparative collections for each artifact discovered. Archeologists must depend on existing texts and photographs for comparative identification. Tests are often subject to personal interpretation and often contain the subconscious cultural biases of taxonomists i.e., emphasizing the unusual over the everyday, even though the everyday has more diagnostic value. The interpretive biases inherent in all cultures and stress on particular data creates a serious data base problem for constructing valid taxonomies. In addition, comments are often appended to inventories that reflect whole sub-assemblages have been discarded because they are not within the correct time-span or do not add to desired results. This set of inventories will attempt to provide a well-rounded artifact inventory. Each artifact encountered during field work at this site is described in the following inventories.

Even the most detailed artifact description poses special problems because semantics and generic concepts differ between locales, regions and nations. Additionally, specialty language differs i.e., Gaudy Dutch ceramic is bright enamel hand painted over glaze to some experts. Accordingly, physical descriptions are used as a key, and "popular" names are secondary entries.

The following inventories are categorized according to a system devised by Dr. Roderick Sprague (1981). This functional typology system requires a highly stratified symbology of cultural usage. Once the letter-number symbology is clearly understood, the system demands interpretation that introduces a strong cultural and historic perception bias, i.e., is a writing slate Home Education (category IIB8x), Recreation (IH (x)x), a blacksmith sketch board (V(Xx)? or is it Unknown (VIII(Xx)? No one can be sure. Additionally, usage categories widely differ i.e., is "tonic" a medicinal beverage, personal indulgence or simply a shape of bottle? No one can specifically answer these questions; you would have to get inside the person's mind that used these items. A label of suggested use or ingredients that still adheres to a container can not provide the
user's desires, needs or hopes when using its contents. The user may not have been consciously aware of why the product was actually taken, i.e., many patent medicines contained highly addictive substances. The writer believes this system, as valuable as it is to force a cultural analysis of artifacts, can not be freed of these interpretive biases, biases that do not exist in simplistic prehistory category inventory systems, i.e., animal, vegetable or mineral. The reader must be aware of these built-in biases.

In the inventory, artifact conditions, such as burning and surface scratching, are listed because they are modifications that deserve recognition as being cultural manifestations within their own right where cultural context is established (see Appendix F).

Measurements are provided in the English vice metric system because the vast historical data of the Northwest indicates commerce and industry introduced into the area has been English and American. The use of a measurement system not used to manufacture the artifacts would be wrong. In order to insure a maximum precision within the more haphazard English system, 32 increments to an inch (32/32 = one inch) has been employed throughout the inventories. Where a clarification is warranted, metric measurements are provided in parenthesis, following English entries.

Where an artifact, such as a plate, bottle or other container had an incomplete but projectable radius angle, the diameter was traced with a drafting compass that inscribed a circle. They are only provided to reflect relative (maximum/minimum) radius concepts. The projected diameters are identified by the term 'projected' to differentiate between complete base measurements and fragment approximations.

It is not possible to fix less importance to the surface assemblage over the subsurface assemblage. Data from the surface scatter is unique within itself, thus is treated on an equal basis with the subsurface inventory.

A list of inventory abbreviations and terms is provided in Table 10. See Appendix F for wear pattern interpretations and Appendix G for a pictorial sample of artifacts in this inventory.
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Base diameter (outside dimensions)</td>
</tr>
<tr>
<td>D</td>
<td>Diameter of object</td>
</tr>
<tr>
<td>Fragment</td>
<td>A recognizable physical cultural entity, not a complete object, yet not a random shard</td>
</tr>
<tr>
<td>H</td>
<td>Overall height or length of an object</td>
</tr>
<tr>
<td>HSB</td>
<td>Hospital Site designator, here, Test Unit B</td>
</tr>
<tr>
<td>T</td>
<td>Thickness of object at the widest point</td>
</tr>
<tr>
<td>SSA</td>
<td>Hospital Site Surface Subsite designator, here, Subsite A. (See Surface Assemblage Section)</td>
</tr>
<tr>
<td>in.</td>
<td>Inch(s), English: 32/32 = one inch</td>
</tr>
</tbody>
</table>
Surface Artifact Inventory
Willamette Mission Hospital Site

I PERSONAL ITEMS

IA Clothing
IA1 Buttons, Ceramic;
a Plain, white Prosser type, four hole sew through, sunken panel, D 22/32 in.; N SSE 1

IA2 Buttons, Metal;
a Round front, embossed "BIG MAC", rod brazed to back with single sew or attachment hole; D 20/32 in.; N SSE 1

ID Body Ritual and Grooming
ID1 Cosmetics;
a Milk glass, mass produced modern cold cream jar fragment, base, foot and side; N SSD 1

IE Medical and Health
IE1B Tonic Bottle Glass;
a Aqua, air bubbles, side fragment, typical patent medicine shape, 1860-1900, burnt; N SSB 1
b Aqua, side and front fragment, typical patent medicine shape, 1860-1900, patina; N SSE 1
c Light aqua, air bubbles throughout, base fragment, base marks of mold ejection, typical patent medicine shape, 1880-1900; N SSD 1
d Aqua, internal bubbles, external smoothing line (?), thick base, side and front fragment, 1860-1900; N SSE 1
e Bright blue-green, surface and internal bubbles, side fragment, typical patent medicine shape, 1860-1900; N SSE 1
f Clear, whole bottle, screw top, air bubbles, push-up has two semi-circular machine ejection scars superimposed on embossed "A", H 2 B 20/32 x 20/32 in., pre-1900, burnt and
melted surfaces; N

SSC 1

IG
Indulgences

IG1
Spirit Bottle fragments;

a
Amber, air bubbles throughout, neck fragment, beer (?), pre-1900; N

SSB 1

b
Amber, molded beer, modern; N

SSE 1

c
Clear, air bubbles and vertical striations on exterior, lip and neck fragment, seam to bottom of circular band, applied lip, whiskey, pre-1900; N

SSD 1

d
Bright green, porous exterior, air bubbles, pre-1900, wine or gin; N

SSD 1

e
Dark green, porous exterior and interior, striations, shoulder fragment, 1850-1890, wine or gin; N

SSD 1

f
Very dark green (black glass), porous exterior, common 1815-1875, wine; N

SSD 1

g
Very dark green (black glass), basal kick-up, no pontil mark, base and side fragment, very thick, common 1815-1875; N

SSE 1

h
Dark green, porous exterior, bubbles, side and base fragment, octagon shape (?), gin (?), to 1860; N

SSC 1

II
DOMESTIC FUNCTION

IIB
Housewares and Appliances

IIB1
Culinary;

a
Caste iron pot or kettle fragment, side extends slightly below flat base and serves as a footing, B T 4/32 side T 2/32 in., D 7 28/32 (projected); N

SSB 1

IIB2
Gustatory;

IIB2A
Flatware, Earthenware
IIB2A1  Transferware fragments

a  Blue pearlware, floral, rim, English 1820-1830; burnt; N
     SSB 1
     SSE 1

b  Blue, random shapes and "X"'s, rim and ridge, English 1830-1850, slight crazing; N
     SSB 1

c  Blue, scroll and building, rim and ridge, English 1830-1850, crazed and burnt; N
     SSB 1

d  Blue, oriental, English 1830-1850?, burnt; N
     SSD 1

e  Blue, willow over white slip, English c. 1842-1853; crazed, burnt; N
     SSC 1

f  Blue pearlware, scroll and building, rim and corner, Staffordshire England 1820-1835, crazed and burnt; N
     SSD 1

g  Blue, outdoor scene over blue tint slip, foot and bottom, crazed; N
     SSA 1

h  Blue, stylized shapes, crazed; N
     SSB 1

i  Blue, unidentified design, slight crazing; N
     SSB 2

j  Blue, stylized border and floral, rim and base, crazed and burnt; N
     SSB 1

k  Blue, sandy finish, checks and circles, crazed and burnt; N
     SSB 1

l  Brown, oriental, ridge, England c. 1840, crazed and burnt; N
     SSC 1

m  Red, oriental, England c. 1840, crazed and burnt; N
     SSB 1
     SSC 1

IIB2A2  Handpainted over Glaze;

a  Blue shades, ridge, crazed and burnt; N
     SSC 1
b  Blue, cobalt band, Staffordshire England, c. 1820-1840; N
   SSB 1

c  Blue, green and red enamel flowers over white slip (Gaudy
   Dutch), rim, Staffordshire England, c. 1830-1840, crazed and
   burnt; N
   SSA 1

d  Red enamel flowers over white slip (Gaudy Dutch), rim, Staff-
   fordshire England, c. 1830-1840; N
   SSC 1

e  Light brown and turquoise leaves, modern, crazed and burnt; N
   SSE 2

f  White with gold band, rim, crazed and burnt; N
   SSD 1

g  White with cobalt band, Staffordshire England c. 1820-1840,
   (HS38C is burnt); N
   SSB 1
   SSC 1

IIA2A3 Molded;

a  Blue paint on feathered edge (Feather edge), over white slip,
   rim, England c. 1820-1840, crazed and burnt; N
   SSB 1

b  White over blue-tint slip, scrolls and borders, rim and ridge,
   (after 1850), crazed; N
   SSB 1

c  White over blue-tint slip, raised dots and borders, rim,
   crazed and burnt; N
   SSB 1

d  White, two base relief lines, flat surface, very porous,
   crazed; N
   SSD 1

e  White, one base relief line, hallmark on reverse in green,
   "Johnson Bros" over a crown, base, (after 1912), crazed and
   burnt; N
   SSC 2

IIB2A4 Plain white

a  Base and foot, (HSD130 crazed and burnt); N
   SSB 1
   SSD 1

b  Curved surface, three crazed and burnt (HS20D burnt only,
HS15D crazed only); N
   SSC  3
   SSD  2
c Flat surface, crazed and burnt; N
   SSD  1
d Foot, crazed and burnt; N
   SSD  1
e Blue tint slip, crazed and burnt; N
   SSA  1
f Foot and ridge, crazed and burnt; N
   SSB  1
g Lip, crazed and burnt; N
   SSA  1
   SSB  1
h Ridge, crazed; N
   SSB  1
i Unidentified shards, crazed and burnt; N
   SSB  1
   SSD  3
IIB2A5 Solid Color;
a Blue, crazed and burnt; N
   SSD  1
IIB2A6 Machine Applied Design;
a Yellow and white stylized flowers, modern, burnt; N
   SSE  2
b Yellow and white bands, burnt; N
   SSE  2
IIB2B Flatware, Porcelain Shards
2B1 Hand painted;
a Blue flowers with cobalt blue underglaze, foot and base,
China c. 1825-1835, burnt; N
   SSE  1
IIB2C Hollow ware, Earthenware Shards;
2C1 Transferware;
a Blue floral both edges, over white slip, curved edges, crazed
   and burnt; N
   SSB  1
b  Blue floral on exterior over white slip, curved edges, crazed and burnt; N
   SSC 1
   SSD 1

c  Red oriental floral both edges, over white slip, England c. 1840, burnt; N
   SSC 1

d  Unidentified color, flowers on exterior over white slip (?), severely burnt and crazed; N
   SSD 1

IIB2C2  Plain White
a  Very porous surface, crazed and burnt, foot, base and rim; N
   SSB 1

b  Crazed and burnt (HS6A, foot and corner, HS21D, rim); N
   SSA 1
   SSD 1

IIB2C3  Crock Fragments;
a  Sandy clay body, brown exterior slip, unglazed interior with cross-hatching, pickeling jar, burnt; N
   SSC 1

b  Very porous body, brownish white slip, N
   SSA 1

c  Sandy clay body, smooth chocolate brown slip; burnt; N
   SSA 1

d  White, smooth slip, horizontal ridges exterior, burnt; N
   SSD 1

IIB2C4  Solid Color;
a  Very porous sandy body, yellow slip (Yellow ware), burnt; N
   SSD 1

b  Blue exterior slip with horizontal ridges, white interior slip, crazed and burnt; N
   SSC 1

IIB2D  Hollow ware, Porcelain
IIB2D1  Transferware
a  Blue willow(?) over white slip, China c. 1825-1835; N
   SSD 1
III ARCHITECTURE

IIIB1 Construction Materials
IIIB1A Window Glass Shards

a  Cloudy Surface; N
    SSA 1

b  Curvilinear lines; N
    SSD 1

c  Curvilinear lines, imperfections and seeds; N
    SSB 2

d  Dash line, Seeds, stained and scratched surface; N
    SSA 1

e  Straight line (?), mottled surface; N
    SSA 1

f  Minute imperfections and seeds; N
    SSB 1
    SSC 1

g  Mottled surface (HS24B, seeds); N
    SSB 2
    SSC 1

h  Curvilinear lines, mottled surfaces; N
    SSA 1
    SSB 1
    SSD 1

i  Imperfections, mottled surfaces; N
    SSA 1
    SSB 1

j  Curvilinear line, minute imperfections (HS11A seeds), mottled surface; N
    SSA 3

k  Imperfections (HS25B, slight patina), mottled surfaces; N
    SSA 2
    SSB 1

l  Imperfections, seeds, double pane; thickness of each sheet, .0625 in., slight patina; mottled surfaces; N
m  Prism faceted mottle; N
    SSA 1
n  Very clear (HS22C, seeds); N
    SSA 2
    SSC 2
o  Clear, heavily chipped edge; N
    SSB 1

IIIB1B  Daubing
a  Baked clay plug-like dish shape (to fill a knot-hole?), two
    singed edges, wood fiber impressions and microscopic carbon-
    ized wood all edges, 2 8/32 x 1 x 1 in.; N
    SSC 1
b  Baked clay and dirt wedge shape, two edges wood fiber im-
    pressions, microscopic carbonized wood all edges, 1 x 18/32 x
    2 in., carbonized wood shape in center (brace?); N
    SSA 1
c  Baked clay and dirt wedge shape, same as B1b except singed
    one edge, brick fragments one edge, 28/32 x 24/32 x 22/32 in.;
    N
    SSA 1

IIIB1C  Brick
a  Adobe clay with hydration layer on flat edge, no complete
    edges, Munsell 7.5YR7/6; N
    SSB 1
b  Commercial quality, sand covered, no complete edges, Munsell
    2.5YR5/8; N
    SSA 4
c  Commercial quality, sand covered, no complete edges, Munsell
    7.5YR5/8; N
    SSA 1
    SSE 1
d  Commercial quality, sand covered, heavily burnt surfaces,
    HS23A, two complete edges - 3 14/32 x 2 in., Munsell 2.5YR4/4;
    N
    SSA 1
    SSD 1
    SSE 1
e  Commercial quality, sand covered, no complete edges, Munsell
2.5YRC/8; N

SSA 1
SSE 1

IIIB1D Cement
a Fine White, wedge shape, one flat edge brickstained, both match present dwelling (c. 1870) foundation facing; N
SSA 1
SSB 1

b White, binding together river pebbles in clump shape; N
SSB 1

c White, wedge shape, containing a wedge shaped interior (brace?) of clay and sand; N
SSA 1

IIIB2 Construction Hardware;
a Handwrought Iron Structural Brace, ends roughly cut to a point, each end pierced by a hole, centered at point cut angle begins, a larger hole is located slightly off exact center. Holes made while metal was hot, with a rod-like device. 4 24/32 x 1 19/32 x 8/32 in.; N
SSB 1

b Handwrought Iron hinge fragment, tapered from 1 in., at center to 16/32 in. at end. Three equidistant holes, one slightly off exact center, made while metal was hot, using a rod-like device, then bent to produce a hinge, folded dimensions (one side) 5 x 8/32 x 1 16/32 in., (opposite edge incomplete); N
SSC 1

c Commercial quality steel sliding door track wheel (?), six spokes, center mounting hole, D 4 in., T 20/32 in.; N
SSE 1

V COMMERCE AND INDUSTRY

VA Agriculture-Husbandry

VA1 Cattle Guard
a Molded porcelain electric fence insulator fragment from recent cattle guard fence; N
SSD 1

VB Hunting

VBI Ammunition;
a. 7 mm. center fire brass cartridge case, headstamp, "SUPER-X 7M/M" Western Cartridge Co., 1898 onward; N
   SSC 1

VB2 Gun Flint;
a. Agate gunflint, surface worked to fit flint-lock retainer, striking surface shows reworking, unworked reverse edge burnt (hardened [?]), 1 in. square; N
   SSE 1

VIII CULTURAL CATEGORY UNKNOWN

VIIIIB Glass
B1 Container (?) shards
a. Dark amber, very porous surface; N
   SSD 1
b. Aquamarine, bubbles and grooves in surfaces; N
   SSB 1
   SSD 1
c. Aquamarine, bubbles in surfaces; N
   SSB 2
   SSC 2
   SSD 2
   SSE 1
d. Aquamarine without imperfections; N
   SSC 1
   SSD 3
e. Aquamarine, burnt; N
   SSC 1
   SSD 1
f. Aquamarine, modern molded; N
   SSD 3
g. Dark blue, modern molded; N
   SSD 1
   SSE 1
h. Clear, modern molded; N
i Clear, painted red, burnt; N
   SSE 1

j Very dark green (black glass), burnt, melted; N
   SSE 1

k Light green, modern molded; N
   SSE 1

l Light purple, impurities or bubbles in surfaces; N
   SSD 2

m Light purple, air bubbles, base fragment embossed ---"O OR"---; N
   SSD 1

n Light purple, modern molded; N
   SSC 1

o Milk glass, modern molded; N
   SSD 1
   SSE 3

p Milk glass, burnt, embossed "NUINE"; N
   SSD 1

q Milk glass, painted orange; N
   SSE 1

VIIIB2 Other Glass;

a Clear, thick, oval surface, paperweight shard (?); N
   SSD 1

VIIIC Metals

VIIIC1 Wrought Iron;

a Handwrought eyebolt with threaded end, 14/32 in. stock, "eye" joint pulled apart, H 5 16/32 in.; N
   SSE 1

b Handwrought and punched iron shape with chisel-like shape one end, right-angle thin fragment opposite end, 2 23/32 x 8/32 x 21/32 in.; N
   SSE 1

VIIIC2 Wire Stock;
a "U" shape with curved ends H 3 16/32 in., width, 5 4/32 in.,
wings 1 in., and 1 4/32 in., hand shaped from 8/32 in., stock;

SSC 1

b Circular shape, incomplete, D 2 2/32 in. (projected), from
4/32 in. stock; N

SSD 1
Subsurface Artifact Inventory Willamette Mission Hospital Site

I PERSONAL ITEMS

IA Clothing

IA1 Buttons, Ceramic

a Plain white Prosser type, 4 sew through holes, panel slightly sunken, D 14/32 T 3/32, both singed, HSG 515 a fragment, HSJ 153 chipped edge and singed; N

  HSG 1
  HSJ 1

b Same as Ala except T 4/32, HSG 438 and HSGE 136 singed; N

  HSG 4
  HSGE 3

c Pie crust white, Prosser type, 4 sew through holes, sunken panel, D 12/32, HSJ 61 T 3/32, is slightly off-center molding, HSG 461 T 3/32; N

  HSG 1
  HSJ 1

d Plain white Prosser type, 4 sew through holes slightly elliptical, D 20/32 in.; N

  HSF 1

e Two piece white Prosser type, one hole in rounded top, top is inserted into a base-edge bottom piece containing two sew through holes, D 16/32, T 5/32, border 2/32 in.; N

  HSG 1

f Calico, Prosser type, 4 sew through holes, sunken panel, plain borders, front design grey six point starbursts with grey dots between starbursts on white body, D 14/32, T 3/32 in., chipped edge; N

  HSJ 1

g Irradescent black, Prosser type, 2 sew through holes, sunken panel, D 16/32 in.; N

  HSF 1

IA2 Buttons, Metal

a Cloth covered in green material, metal in very poor condition, fragmented; N

  HSGE 1

b Pie crust, 3 sew through holes, brown paint covered, sunken panel, D 8/32 in.; N

  HSG 1
IA3  Button, Mother of Pearl
   a  Plain, 4 sew through holes, sunken panel, HSJ60 is poorly made with part of exterior shell showing on back, D 16/32 T 3/32, HSJ 28 D 12/32 T 2/32; N
      HSJ 2

IA4  Button, Plastic
   a  Molded, white, 2 sew through holes, sunken panel, 2 incomplete mold holes perpendicular to sew holes on base which is slightly raised at panel area, D 15/32; N
      HSJ 1
   b  Molded, red, 2 hole sew through, center round, panel sunken and rectangular with rounded short sides, molding inside panel 2/32, matches outside contours of panel, D 17/32; N
      HSF 1

IB  Footwear
   a  Lacing, machine woven herring-bone style, brown fiber with cramped brass tip, W 10/32, L 6 28/32, Tip L 22/32 in., frayed at non-tip end and at 3 16/32 to 4 16/32 in. from Tip; N
      HSJ 1

IC  Adornment
   IC1  Beads
   a  Glass, wire wound opaque, amber, D 12/32, hole D 4/32 H 10/32; N
      HSJ 1

IE  Medical and Health
   IE1A  Tonic Bottles (whole)
   a  Clear, octagon, 3 mold seams (lip to base and around base), striations on neck, bubbles throughout, tooled collar, base push-up semicircle with embossed "22" (eleven?) in center, 1 side embossed "CALIFORNIA FIG SYRUP CO. SAN FRANCISCO CAL.", 2 sides embossed "SYRUP OF FIGS" (serifs on all letters), H 7 B 2 8/32 x 1 14/32 in., patina. Note: Laxative product; N
      HSF 1
   b  Bright aqua, octagon, 2 mold seam (lip through base, interrupted by push-up), striations on neck, bubbles throughout, porous, badly tooled collar and lopsided over-all appearance, base push-up circular, heavier impression one side, nipple in center, H 5 24/32 B 1 x 1 30/32 in., mint condition; N
      HSG 1
c  Aqua, octagon, 3 mold seams (lip to base and around base),
striations on neck, bubbles throughout, tooled collar, base
push-up a heavily scarred truncated circle, H 5 24/32 B 2
2/32 x 2 2/32, patina and etched surfaces; N
  HSGE 1

d  Aqua, round, 3 mold seams (lip to base and around base),
glass glob on neck, porous bubble in body, tooled collar with lop-
sided hole, base slightly marked in center and semi-circular
scar on overlapping side-to-base edge, embossed all around
"DR THOMPSON'S EYE WATER NEW LONDON CONN!": Note, product
known in 1820 and as late as 1892, H 3 20/32 D 1 in.; N
  HSG 1

e  Greenish-blue, round 3 mold seams (1 to lip, 1 to middle of
neck, 1 around base), roughly tooled collar, base push-up dis-
tinct circle with indistinct larger circle surrounding - glass
residue attached to outer circle - center embossed "4", H 5
8/32 D 1 6/32 in.; N
  HSG 1

IE  Medical and Health
IE1B  Tonic Bottles (Fragments)
a  Greenish-blue, base and side, octagon, 2 mold seams interrupted
by molded push-up on base, push-up very light circle with
slight circular indentation in center, embossed front ...."ELL
...USA", side, ...."EXT.", very thick glass, typical tonic
bottle shape, B (projected)2 16/32 x 1 22/32 in.; N
  HSJ 1
b  Same as above except push-up plain, B 2 12/32 x 1 16/32 in.,
patina very heavy; N
  HSJ 1

c  Clear, Lip, neck and slight shoulder edge, bubbles, vertical
striations, scrap glass in neck, two seams on neck, halfway
to Lip, tooled collar, neck H 1 in., D 26/32, Lip D 1 12/32
in., 1860-1900; chipped Lip; N
  HSF 1

IE1C  Medical Dispensing
a  Clear, round 4 mold seams (1 circles body, 2 join to neck
joint, 1 around base), bubbles, striations, tooled collar,
flat base, sizes progress from H 3 22/32 D 1 16/32 to H 5
24/32 D 2 8/32 in., conditions vary from severe opaqueness to
light patination, etching on most, 2 with chipped lips; N
  HSG 4
b  Aqua, round, 3 mold seams (lip to base and around base),
bubbles, very porous surface, tooled collar, plain flat base,
H 4 20/32 D 1 16/32 in.; N

HSG 1

c Bluish-green, round, 3 mold seams (lip to base and around base), bubbles throughout, striations on neck, tooled collar, base plain, H 4 26/32 D 1 29/32 in., patina, chipped lip; N

HSG 1

d Clear, round, 4 mold seams (1 circles body, 2 join to neck joint, 1 around base), bubbles throughout, striations, tooled lip, lip as wide as body, H 5 6/32 D 2 in., patina, reconstructed. Note: Possible pill jar. Base edge has heavy scratches and wear abrasions, unique to bottle assemblage; N

HSGE 1

e Clear, octagon, 3 mold seams (lip to base, around base), tooled collar, HSG 887 severe opaqueness and etching, H 3 21/32 B 1 14/32 x 1 14/32 in., HSG 570 patina, H 5 B 1 24/32 in., Base push-up consists of two octagon shapes, one inside the other, no push-up marks. Note: HSG 570 has cork in neck, contents liquid and settled whitish loose material; N

HSG 2

f Clear, octagon, 3 mold seams (lip to base, around base), tooled collar, bubbles, slight patina, plain circular push-up, H 2 16/32 B 1 x 1 4/32 in., chipped lip, reconstructed, 14 shards; N

HSG 1

IE1D Oral Thermometer Fragments; N

HSF 2

IG1A Spirit Bottles fragments

a Clear, bright, lip ring, neck and slight shoulder fragment, 2 seams (lip to shoulder), vertical striations on applied collar, bubbles throughout, Neck H 24/32, circular ring T 4/32, lip H 28/32 D 1 2/32 in.; N

HSD 1

IG1B Whole Spirit Bottles

a Aqua, round, 3 mold seams (sides to middle of neck and around base), striations on neck, bubbles throughout, porous, applied, fancy collar, base embossed "J WALKER'S V B", H 8 12/32 D 3 in., Contents: 14 Douglas Fir bark fragments; N

HSG 1

IG1C Metal Caps

a Steel, round, crimped edges, stylized lettering across top in gold, outlined in black, "OLYMPIA BEER", circled at edge in gold. Underside grey plastic covered, embossed "20" over a dot, edge, monogramed black "WHS", H predominates; N
IG2  Soft Drink Bottle Fragments
   a  Sarsaparilla  very light aqua, tooled collar, neck and starting
curve of shoulder fragment, 2 seams (to Lip), vertical striations
on neck, bubbles throughout, Neck H 2 8/32 Lip H 24/32
D 27/32 (projected), reconstruction scratched, chipped and
rubbed, (2 shards); N

IG3  Tobacco
   a  White clay tobacco pipe, stem fragment with small bowl shard
attached.  Push-up joining marks, stem decorated both sides,
unmatched dots and bars, impression tool marks accompany de-
coration, D 12/32 to 14/32 in., off-center stem hole; N

IH  Pastimes and Recreation
IH1  Collectables
   a  Lithic, triangular point, constricting stem base, B 15/32
(2.1 cm.), maximum point width l 24/32 (4.5 cm.), Midwest
American; N
   b  Agate, natural polish and faceting (?) two, small, natural
quartz intrusions; N
   c  Children's play pliers, locked open, badly corroded, 1 jaw
missing, some chrome? plating intact; N
   d  Lithic, steep-end scraper fragment, cryptocrystalline Selica
(Red Jasper); N
   e  Lithic, side scraper, fragment, cryptocrystalline Selica
(Red Jasper); N
   f  Molded porcelain dolls head fragment, cheek, lower lip, chin
and neck (Chinese?); N

IK  Infant Care
IK1  Nursing Bottle
   a  Clear, squat-round front, flat back, neck and shoulder pitch
forward, 3 mold seams (lip to base, around base), striations
on neck, bubbles throughout, applied ring and collar, designed
to accept rubber stretch seal, base flat with plain circular
push-up, 1 side embossed in circular shape: "THE EAGLE"
circling, "M. S. BURR & Co. TRADE MARK", around embossed circle containing an eagle device with shield of stars and bars, H 5 8/32 B 1 16/32 x 2 16/32 in., reconstructed (12 shards), patina; N

HSG 1

IL Luggage

a Handwrought iron, fitted L 6 18/32 W 2 26/32 to 1 11/32, T 16/32 in. (top and welt) to 4/32 (below welt), welt H = 2 in., 5 square holes, top right hole off center; N

HSJ 1

II DOMESTIC ITEMS

IIA Furnishings

IIA1 Furniture

a Mirror Fragments, flat, silver backing covered with black enamel (?) clear edge T = .072/1000; N

HSF 1

IIA3 Decorative

a Cylindrical glass vase, flairing toward base, sharply curving inward to base joint, exterior opaque, interior clear, rim edge handcarved with 5 stylized curved points, each ending in three, open, semi-circles at lip base, lip and base band trimmed in gold, sides hand decorated in wild flowers, buds and twigs (browns and yellows ?), H 8 in. (without base) Rim D 2 24/32, Base band D 1 22/32 in. base pedestal (?) missing, reconstruction (21 shards); N

HSG 1

b Molded glass bowl fragment, part of base, pedestal and foot (?), 3 seams on pedestal, 1 on foot arch (?), Pedestal D = 1 in., shattered, slight patina; N

HSJ 1

IIB1 Culinary

IIB1B Canning Jars

a Bright aqua, round, shoulder seal, seam from top of ground lip to middle of base, interrupted by push-up with embossed "20101", one continuous thread on lip, bubbles throughout, porous surface, scrap glass interior of base, embossed "MASON'S PATENT NOV 30TH 1858", H 9 2/32 D 4 12/32 in., reconstructed (shard sources given); N
HSG 28

HSGE 1

b  Aqua, same as above, except 3 mold seams (top of lip to base and around base), push-up has slightly raised glass bulb and embossing is slightly larger, H 9 2/32 D 4 12/32 in., reconstructed (23 shards); N

HSG 1

c  Aqua, same as above, except fragment (side and curve to base) embossed "P"(ATENT) "N"(OVEMBER), one seam, bubbles, porous, reconstructed (5 shards); N

HSG 1

d  Bright green, round base fragment with mold seams like Blb, push-up with nipple and concentric wavy rings, embossed: "PAT ----67.", inner circle: "PAT. FE(B) 4 73", "15" embossed near nipple, D (projected) 3 24/32 in., bubbles throughout; N

HSJ 1

e  Clear, molded lip, shoulder band, neck and band fragment with typical lightening type lid fastener raised semi-circle containing an elliptical hole flush with lower band, impressed "FFE" to left of semi-circle, air bubbles throughout; N

HSF 1

f  Clear, round, molded lip, shoulder seal seam from top of ground lip to ends of fragment each side, one continuous thread on lip, base and bottom (?) portion of sides missing, bubbles, impurities, stained, cloudy, lip D 2 12/32 in., lip heavily chipped from grinding (home-made?), lip H = 14/32 in., reconstructed (3 shards); N

HSG 1

g  Clear, round, very wide molded lip, lip seal (?), seam from ground lip to end of side fragment, curvilinear lines throughout, patina, stains, scratched surfaces, lip, shoulder and side fragments, elliptical lip, lip D 4 in. (projected), reconstruction (shard sources given); N

HSG 1

HSF 1

IIB1C  Whole Extract Bottles

a  Clear, octagon, 3 mold seams, molded push-up on base, 2 collars, one in middle of neck, applied lip, bubbles, striations on neck, patina, B 1 22/32 x 1 in., H 5 2/32 in., 1869-1900; N

HSG 1

b  Same as 1Ba except B 1 16/32 x 28/32 in., H 4 8/32 in., neck tilts, base marks "Mc", circular wavy lines around push-up,
1869-1900; N

IIB2  Gustatory
IIB2A Flatware, Earthenware
IIB2A1 Transferware fragments

a  Blue, New Blanche design, base, foot and side, halmark on base, blue, crown with undecipherable circular impression with bar in center, applied over printed crown, undecipherable green writing also applied over halmark. Maker's name beneath crown in circular shape: "COPELAND AND GARRETT + ", with pattern name centered within circle on two lines "NEW BLANCHE", Base 3 in., (projected), burnt, English 1833-1847; N

   HSG 1

b  Blue, Floral and Scrolls, rim and lip fragments, HSF601 and HSJ35, burnt, HSF 167 and HSJ103, crazed and burnt, HSG217 scratched; N

   HSF 2
   HSJ 3
   HSG 1

c  Blue, Random Shapes, HSF784 with "x"'s on rim border, (rust stained), shattered, burnt, crazed; N

   HSJ 2
   HSF 2

d  Blue, wreath, curved, sheared surface; N

   HSJ 1

e  Light blue, floral, base, foot and side fragments, HSF783 unidentified fragment, all crazed and burnt; N

   HSJ 2
   HSF 3

f  Flow blue, floral, rims, edges HSJ241 base and foot, all burnt and crazed; N

   HSF 3
   HSJ 1

g  Blue-green, floral, badly burnt, rubbed; N

   HSF 1

h  Brown, geometric designs; N

   HSJ 1

i  Brown floral, ridge, crazed and burnt; N
HSE 1

j  Dark brown, floral, curved, crazed and burnt; N
    HSJ 1

k  Reddish Brown, branches and leaves, shattered, gouged, burnt and crazed, HSF10, three bar impressions inside, base, foot, side; N
    HSF 1
    HSG 1

l  Red, Floral, ridge, base and foot fragments, burnt; N
    HSE 1
    HSG 2
    HSJ 1

m  Red, oriental, flat, shattered, English c. 1840; N
    HSE 1

n  Violet Red, urn and floral, rim and fluted edge, crazed and burnt; N
    HSJ 1

o  Light red, dot (border?) design, shattered surface; N
    HSG 1

p  Red (?), severely burnt, floral design both samples base and foot; N
    HSF 1
    HSG 1

q  Green (?) Floral shard, crazed and burnt; N
    HSG 1

r  Light green, leaves, base, foot and side, crazed and burnt, shattered; N
    HSF 1

s  Rose, yellow, dull green with gold border, flowers and leaves, rim, side and foot, rim D 5 20/32 in., (projected), reconstruction, (5 shards); N
    HSF 1

IIB2A2  Handpainted over Glaze

a  Cobalt Blue stripe on white slip, rim, sheared or worn; N
    HSF 1
    HSG 1

b  Chocolate, yellow, blue and white, strips on rim ridges, burnt
and crazed; N

HSJ 2

c Gold fleur de lis on white glaze, base, foot and side B 3 6/32 in. (projected), part of hallmark inscript "La---Po(rcel)ain", American after 1904; N

HSF 2
d Gold strip on rim, white glaze, crazed and burnt; N

HSF 1
e Red and Green over white glaze (Gaudy Dutch), prior 1900; N

HSJ 1
f Red, Brown and green, very fine cherries, leaves and stems, crazed and burnt; N

HSJ 2
g Pink and Black, crazed and burnt, sheared surface; N

HSJ 1
h Random black brush-work over grey; N

HSF 1
i Shades of brown over white, exterior curved; N

HSF 1

IIB2A3 Molded

a Blue paint on feathered edge (Feather edge), over white slip, serving bowl fragment(?), HSG755 scalloped rim, all others flat rims, HSJ91 burnt, scratched, and sheared; N

HSF 1
HSG 4
HSJ 1

b White with blue tint, HSJ54 vine and leaves, burnt and crazed, base D 5 in., (projected), reconstruction, (3 shards); N

HSJ 1
c White with blue tint, Sharon Arch (?), base, foot, side and rim, base D 5 in. (projected), crazed and burnt; N

HSJ 1
d White with blue tint, rectangles, porous surface, burnt and crazed; N

HSJ 1
e White, semi-circles, rim and side, thick edge, crazed and burnt; N

HSJ 1
f  White with blue tint, scalloped border, rim and curved side, crazed and burnt; N
    HSJ 1

g  White with blue tint, shallow vine on lip, very thin scalloped edges, crazed and burnt; N
    HSJ 1

h  Same as above except white with thicker molding; N
    HSF 1

i  White, scroll-work with scalloped edges, very thin, crazed; N
    HSF 1

j  White, flowing line on thin scalloped edge, rim and shoulder, crazed and burnt; N
    HSF 1

k  White, blue tint, letter ? thin edge rim, crazed and burnt; N
    HSJ 1

l  White, two raised parallel lines, rim side and base, crazed; N
    HSG 1
    HSF 1

m  Cream, 3 raised dots, flat, burnt, scratched; N
    HSG 1

n  Gold paint on raised dots with flowers, scalloped edge, crazed and burnt; N
    HSJ 2

o  Gold paint splatter on raised scroll-work, scalloped edge, burnt, HSF208, HSF209 reconstructed, (3 shards); N
    HSF 1

p  White, blue tint, circles with green dots within l circle, base, foot, shattered; N
    HSJ 1

q  White, raised knobs, blue paint imitating a feathered appearance, rim and shoulder, crazed, melted paint 1830-1840; N
    HSJ 1

IIB2A4  Plain White

a  Blue tint, dark blue hallmark fragment, late English Royal Coat of Arms, surmounted by coronet, second banner below coat of arms lettered "Porc"--(not porcelain) with lion, not rampant but with paws on a banner, base D 5 6/32, reconstructed, (2 fragments), burnt and crazed; N
HSJ 1
b Blue tint, rim, side, foot, base, base D 3 12/32 in. and 4 4/32 in., (projected), burnt and crazed; N
HSJ 2
c Same as above except base and foot, base D 2 18/32 in., (projected); N
HSJ 1
d White, base and rim, slight indic of blue hallmark edge, base D 3 6/32 in. (projected), burnt, rust stains; N
HSF 1
e Blue tint, various parts mostly crazed and burnt; N
HSE 2
HSF 2
HSG 4
HSJ 5
f Plain with projected base D 2, 2 16/32, 4 (2 fragments); N
HSF
g Plain, various base, rim, shoulder shards, mostly crazed and burnt; N
HSA 1
HSE 7
HSF 53
HSG 22
HSJ 17
h White, flat, fragment of dark blue and black hallmark crowns, HSF 14 burnt and crazed; N
HSF 2
i Blue tint, impressed hallmark fragment "...C" on outer semi-circle, over "Co" on inner semi-circle; N
HSJ 1
j Cream glaze, rim, porous, burnt, crazed; N
HSF 2
HSJ 1

IIB2B    Flatware, Porcelain Shards
IIB2B1   Handpainted
a Blue stripe edge, pink, blue and green flowers (saucer?) lip D 3 28/32 in. (projected); N
HSJ 2

IIB2B2 Solid Color
a Blue over cobalt underglaze, very thin, HSG386 burnt, reconstruction (2 fragments), Chinese, 1825-1835; N
HSG 1

IIB2B3 Plain, White
a HSJ23 flat, hallmark fragment in black, "ENGLAND", scratches; N
HSF 1
HSJ 1

IIB2C Hollow ware
IIB2C1 Transferware
a Blue, flowers, curved, burnt and crazed; N
HSJ 1
b Blue, leaves and flowers, flat, burnt and crazed; N
HSF 1
c Blue stylized shapes and "x"'s on rim both edges, very thin, chipped, burnt; N
HSG 1
d Blue leaves and structure exterior, curved, chipped, sheared; N
HSG 1
e Blue floral both edges, crazed; N
HSG 1
f Blue, large bowl fragment, flowers, leaves and buds intermixed with 2 species of birds in various sizes, interior and exterior, poor quality transfer with overlap of design and smudges, Base D (projection), Rim D (projection), Halmark "--VER" within a ribbon banner, crazed, sheared and fractured surfaces, (reconstruction shard sources given); N
HSG 113
HSGE 3
g Brownish Red Leaves, exterior, curved impressions, burnt, crazed; N
HSG 1

IIB2C2 Plain White
a Pearlware, rim D 3 in. (projected), burnt, crazed, stained, (reconstructed) (2 shards); N
HSF 1
b Base and foot, base D 2 16/32 in., (projected), base mark "13),
set of impressions by foot, scratched, chipped; N
  HSF 1
c  Foot and base, base D 1 16/32 in. (projected), burnt, crazed; N
  HSF 1
d  Cup foot?, chipped, stained, burnt; N
  HSJ 1
e  Curved, impression lines, burnt; N
  HSF 1
f  Round, thick (lid fragment), burnt, crazed; N
  HSF 1
g  Lip and ridge, sheared, crazed; N
  HSG 1
h  Blue tint, corner, burnt, crazed; N
  HSJ 1
i  Curved lip, crazed and burnt; N
  HSG 1
j  Curved lip and shoulder, lip D 4 in. (projected), crazed and burnt, reconstructed (3 shards); N
  HSJ 1
k  Blue tint, covered Vegetable Dish Lid, elliptical top, L 9 24/32, W 6 28/32, H 2 8/32 in., missing knob at center, top, sealing lip H 8/32 and 14/32 in. from edge, crazed, fits B41, reconstruction (shard sources given); N
  HSG 8
  HSGE 9
l  Blue tint, Covered Vegetable Dish, shallow footed base, L 11 16/32, W 7, H 3 in., sealing lip 6/32 in., 2 molded handles, long axis, base halmark (black) "WARRANTED IMPERIAL IRONSTONE CHINA", semi-circle around new style Royal English Crest, under crest, "RICHARD ALCOCK, BURSLEM ENGLAND", English, 1859-1878 (?), base foot edge is stained, rubbed and pitted, crazed, fits 3Ck, reconstructed (shard sources given); N
  HSG 15
  HSGE 1
m  White cup handle, burnt, crazed; N
  HSG 1

IIB2C3  Crock Fragments
a  Yellow glaze (Yellow ware), curved, HSC01 round lip, crazed,
burnt; N

HSC 1
HSJ 2

b Same as above except throw marks interior, round lip and curved side; (reconstructed) (2 shards); N
HSF 1

c Same as above except porous, flat, burnt HSF20, crazed and burnt; N
HSF 2

d Crockery Top (whole), Hand thrown, brown glaze upper surface, clear lower surface, knob at center, D 4 24/32 in., poorly made and fired, chipped; N
HSG 1

e Bisque, light clay, base and curved edge, burnt; N
HSJ 2

f Same as above except throw lines interior; N
HSF 1

g Same as above except dark clay, burnt; N
HSE 1

h Grey glaze exterior, chocolate glaze interior, curved, porous; N
HSF 5

i Grey slip both edges, curved, burnt; N
HSC 1

j Chocolate glaze both sides, HSG86, lip and side, crudely made, HSG135, a chip with 3 straight lines impressed, HSJ191, very porous exterior, 1 thick impression line across shard, interior has throw-marks and cracked, shiny glaze over brick-like clay; N
HSG 2
HSJ 1

k Same as above except interior unglazed; N
HSG 1

l Clear glaze over brown slip, light brown clay; N
HSG 1

m Brown exterior, bisque interior, lip and side, roughly made; N
HSJ 1
n Unidentified, burnt to bisque, lip, HSJ217 flat, HSGE02 slight curve; N
   HSGE 1
   HSJ 3

IIB2C4 Solid Color
   a Blue external, white slip interior, burnt and crazed; N
       HSF 1
   b Blue, curved, severely burnt and crazed; N
       HSG 1
   c Light Blue, white and black strips, burnt, crazed, sheared and fractured; N
       HSJ 1
   d Lilac exterior, grey interior, flat, crazed; N
       HSG 1
   e Green exterior, herring bone embossed, curved, white interior, crazed; N
       HSJ 1
   f Very light green, unidentifiable embossing, flat, burned and crazed; N
       HSJ 1
   g Maroon, very thick enamel, curved, burnt, HSG77 and HSG824 reconstructed; N
       HSG 3
   h White, chip, burnt and crazed; N
       HSG 1
   i Light pink (worn?) exterior, curved, chipped; N
       HSF 1

IIB2C5 Hand Painted over glaze
   a Light Brown, thin, porous, cup rim (?), burnt; N
       HSJ 1
   b Pink, yellow and brown wild flowers both edges impressed shell-like border one-fourth way up curved side, lip D 5 16/32 in. (projected), (cup?), burnt, crazed; N
       HSF 1
   c Gold lines on white, glaze between embossed squares, burnt; N
       HSF 1

IIB2D Hollow ware, Porcelain
IIB2D1 Transferware
a Dark Blue dragon design over cobalt underglaze, exterior, curved, thin, China, c. 1820-1835; N
   HSJ 1

IIB2D2 Hand finished Decoration
a Glossy white finish, exterior, raised dots partially covered with hand applied green and white droplet-like moldings, rim, lip and side fragment; burnt; N
   HSG 1

IIB2E Whole Condiment Bottles
a Aqua, pepper sauce bottle, cathedral style, octagon shape, mold seam, lip to plain push-up which interrupts seams, two joined collars form applied lip, B 1 16/32 x 1 24/32 H 8 20/32 in., neck top and lip lopsided (during lipping process?), air bubbles, porous, cloudy, patina; N
   HSG 1
b Bright aqua, chutney Bottle, octagon, 2 mold seams lip to push-up, which interrupts seams and has semi-circle of glass at center, roughly applied collar, B 2 14/32 x 1 17/32, H 7 4/32 in., lip applied lopsided; N
   HSG 1

IIB2F Hollow ware Glass
a Tumbler, clear, molded, weighted base, dimpled circles at center side with semi circles ending in straight, horizontal lines to base, staggered under dimpled circles, B D 2 22/32, lip D 3 11/32 H 3 26/32 in., very typical design 1850-1880, heavy wear on base, deposition etching and patina reconstruction (shard sources given); N
   HSG 2
   HSGE 3
b Clear, molded, lip molding, side curve to narrow flat center, water glass (?) base D 2 10/32, lip D 3 6/32 H 3 22/32 in., wear patterns on base, slight depositional etching, patina reconstruction (shard sources given); N
   HSG 1
   HSGE 1
c Same as 2Fb except no lip molding, base has starburst design, thick lip base D 2 16/32, lip D 4 4/32 in. H 1 12/32 in., reconstruction (8 shards); N
   HSG 1
d Clear, molded, elongated pinch mark design, sharp indentation (to pedestal?), beveled lip, design matches 2Fa, shattered
surfaces, lip T 2/32 in., lip to top of design 3 8/32 in.,
air bubbles and patina, reconstructed (shard sources given); N

HSG 1
HSGE 1

e Same as 2Fd except slightly smaller in size, no lip, shattered,
reconstruction (shard sources given); N

HSG 2
HSGE 2

f Clear, molded, stemmed dessert dish, pedestal has slight
vertical ribbing that stops at pedestal joint, flaired lip,
Base D 2 24/32, lip D 4 14/32, H 2 22/32 in., porous, poorly
made (mass produced?), after 1900, reconstruction (6 shards); N

HSG 1

IIB3 Portable Illumination

a Chimney, no seams, molded, uneven straight lip, horizontal
lines throughout, depositional etching, patina and cloudy,
H 7 lip D 1 20/32, base D 2 16/32, base lip thickness 59/1000
in., reconstruction (15 shards); N

HSG 1

b Same as B3a except very poor molded lip, reconstruction (10
shards); N

HSG 1

c Fluid Reservoir, octagon sides, rounded shoulder, weighted
base, 2 seams from base top to lip, starburst-like distor-
tion in glass, base D 2 2/32 H (to top of lip fragment) 2 in.,
scrap glass adhering to base interior, reconstruction (shard
sources given); N

HSG 6
HSGE 12

IIB7 Household Pastimes

a Television Antenna lead guide, semi-circular top, designed to
be driven into wood, both incomplete; N

HSE 2

IIB8 Home Education

IIB8A Writing Tablet fragments

a Slate, smooth flat surfaces, thickness varies from .040 to
.120 in., HSG617 (.120 in. T), has frame mark thickness of
6/32 and 8/32 in.; N

HSF 2
Slate Pencil fragments

Irregular and even faceted specimens, hand whittled writing points, T 5/32 and 7/32 in.; N

Sewing

Gilded Brass straight pin, round head, D 78/1000, shank D 23/1000, shaft length 1 10/32 in., green patina overall, white oxides on shank prior to metal reduction; N
III ARCHITECTURE

B1 Construction Materials
A Window Glass
B1A1 Pane Fragments
a Crown Glass Pane fragment, 16.5 x 22(?) in., T .056-.078 in., elliptical blisters, seeds, impurities, concentric lines, English, 1830-1840(?), Cloudy and patina, reconstruction (46 shards); N
HSG 1
b Straight edge pane fragment, cloudy, seeds, T .074-.075 in., English 1850-65(?), reconstruction (6 shards); N
HSG 1
c Pane fragment, (HSGE76 seeds), cloudy, T .064-.072 in., England, 1845-1855(?), reconstruction (7 shards); N
HSGE 1
d Straight edge pane fragment, (HSG601 seeds), cloudy and patina, T .076-.087 in., American, 1855-1885(?), reconstruction (5 shards); N
HSG 1
e Straight edge pane fragment, seeds, patina T .090-.101 in., American 1870-1900(?), (shard sources given); N
HSG 1
HSGE 4
f Straight edge pane fragment, imperfections, molding marks, T .080-.087 in., reconstruction (2 shards); N
HSJ 1
g Shard, stained yellow throughout, cloudy, reconstruction (2 shards); N
HSG 1

B1A2 Shards
a Aqua tint (HSG478, seeds); N
HSG 2
b Clear (HSF385 green [?] paint on surface); N
HSD 4
HSE 7
HSF 15
HSG 2
HSGE 7
c  Clear, chipped, scratched or fractured; N
    HSF  7
    HSG  2
    HSGE 2

d  Clear, seeds; N
    HSF  4
    HSE  3
    HSGE 1

e  Very clear; N
    HSF  1

f  Cloudy surfaces; N
    HSE  3
    HSF  3
    HSG  3
    HSGE 4

g  Curvilinear lines; N
    HSE  2
    HSF  2
    HSG  6
    HSGE 28
    HSJ  1

h  Curvilinear lines, cloudy; N
    HSF  1
    HSG  1
    HSGE 1

i  Curvilinear lines, seeds, cloudy; N
    HSF  1

j  Curvilinear lines, imperfections; N
    HSF  3
    HSG  2
    HSGE 6

k  Curvilinear lines, mottled; N
    HSGE 2

l  Curvilinear lines, seeds; N
Imperfections, (HSGE131, HSD38, HSG390 have seeds); N

Minute imperfections, mottled surface; N

Mottled surfaces (HSF224, green paint); N

Mottled and cloudy surfaces; N

Patina; N

Rippled lines, patina; N

Seeds, cloudy surfaces; N

Seeds, patina; N
Stained surfaces (HSGE179 also seeds); N
  HSE 4
  HSF 1
  HSG 1
  HSGE 7

Straight edge, cloudy; N
  HSE 1
  HSF 1
  HSGE 4
  HSJ 1

Straight lines, cloudy; N
  HSF 1
  HSG 1
  HSGE 5

Very close straight lines, cloudy
  HSE 1
  HSG 2

IIIB1B Daubing
  a  Baked Clay, flat edge with seven, close, straight impression lines, opposite edge uneven, burnt throughout; N
  HSH 1
  b  Composite earthen materials, semi-circular edge with red caste, covered with white paint(?), curving outward one end (lip?), opposite edge, earthen appearance; N
  HSF 1

IIIB1D Cement (Munsell 10YR81)
  a  Fine with crushed pebbles and rock fragments; N
  HSD 3
  HSE 64
  HSF 4
  HSG 1
  HSJ 3
  b  Same as above except with white plaster one flat edge; N
  HSE 1
  HSF 3
  HSG 1
IIIB1E Very fine cement
  a With agate fragments, 5YR7/6; N
     HSB 1
  b With fine white rock chips; N
     HSE 1
  c With wood fragments or wood fiber impressions, all with semi-
circular shape one edge; N
     HSJ 3
  d One flat edge; N
     HSB 1
     HSJ 1

IIIB1F White Plaster
  a With green paint (2.5G3/4) one edge; N
     HSE 3
  b With dark green paint (2.5G2.5/2) one edge; N
     HSE 21

IIIB1G Tarry Substances
  a Melted tar with river pebbles (roofing composite?); N
     HSE 4
     HSH 1
  b Tar paper; N
     HSD 13

B1H Bricks (see Appendix C for details)
B1H1 Soft density clay, low to very low fire (7.5YR7/6)
  a Major Fragments; N
     HSJ 2
  b Fragments with one measurable edge; N
     HSJ 3
  c Flat surface fragments; N
     HSE 4
     HSF 3
     HSG 6
     HSGE 1
     HSH 4
     HSJ 7
d  Very small to pellet size fragments; N
   HSA  36
   HSB  9
   HSE  26
   HSH  21

B1H2  Medium Density Clay, medium fire (10R6/8); N
a  Complete specimens, HSJ287 is a sample of 100 complete and fragmented bricks, it is pre-1870. Both specimens contain straw; N
   HSH  1
   HSJ  1

b  Major Fragments; N
   HSA  1

c  Fragments with one measurable edge; N
   HSH  1

d  Flat surface fragments; N
   HSA  1
   HSAE 8
   HSB  2
   HSC  1
   HSF  25
   HSG  5
   HSH  2

e  Very small to pellet size fragments; N
   HSA  78
   HSB  36
   HSC  8
   HSD  21
   HSE 153
   HSH 126

B1H3  Hard Density Clay, high fire (10R5/6)
a  Complete Specimens; N
   HSA  4
   HSAE 4
   HSH  6

b  Major Fragments; N
c Fragments with one measurable edge; N
   HSA 1
   HSAE 2
   HSH 15

d Flat surface Fragments; N
   HSA 42
   HSAE 12
   HSB 6
   HSD 1
   HSE 15
   HSF 8
   HSG 11
   HSH 73
   HSHE 2
   HSJ 1

e Very small to pellet size fragments; N
   HSA 21
   HSAE 1
   HSB 3
   HSC 2
   HSE 4
   HSF 1
   HSH 3

B1I Fire Brick (See Appendix C for details)
a White throughout, small grain, medium compaction, no complete
   specimens, HSF633, 4 8/32 x 2 18/32 in., HSF629 contains frag-
   ment of impression ")); N
   HSF 2

IIIB2 Construction Hardware
A Nails
B2A1 Handwrought square (less than 5 in. shank)
HSJ166 a complete specimen, rectangular head, shank 2 13/32 in., L - angle head; N

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2A2 Machine cut square (less than 5 in. shank)

a Square to rectangular heads, 68 complete specimens ranging from 1 12/32 to 4 in., mean shank length 2 12/32 in., 11 bent, fair to good condition; N

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b Same as A2a except shanks or head and shanks covered with red preservative, 5 complete specimens, HSF875 shank 2 16/32, head 10/32 x 7/32, HSGE271, shank 3 4/32, head 10/32 x 9/32. HSH388 shank 1 8/32, excellent to near perfect condition, 3 bent, 29 missing heads only, 10 missing one half or less of shank only; N

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c Same as A2a except bonded with clay, carbonized wood fiber and/or rock fragments, complete specimen, HSG1072, shank 2 16/32, head 8/32 x 8/32; N

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d  Same as A2a except bonded at right angles with wood fiber impressions. 10 with complete shafts (parts of head missing), range 1 4/32 to 3 16/32 in., mean 2 16/32 in., 9 complete specimens, shaft range 1 16/32 to 3 8/32, heads, 7/32 x 8/32 to 10/32 x 10/32, mean 2 16/32, head 8/32 x 9/32; N

HSG 13
HSH 1
HSJ 1

e  Same as A2a except poor quality, required electronic metal reduction for identity as typical square nails; N

HSC 1
HSD 5
HSE 2
HSF 8
HSG 11
HSH 2
HSJ 4

B2A3  Wire drawn Nails

a  Wire drawn nails, 69 complete specimens, mostly barbed shanks, shaft range 1 8/32 to 4 16/32 in., all round heads, mean shank length 2 16/32 in., 2 finishing nails, 1 aluminum, 8 galvanized, excellent to poor condition, 42 bent; N

HSAE 6
HSB 1
HSD 14
HSE 3
HSF 44
HSG 7
HSH 21
HSJ 1

b  Same as A3a except shanks or head and shanks covered with red preservative. 1 complete specimen, shaft 1 8/32 in. near perfect preservation; N

HSD 1
HSF 2
HSH 1

c  Same as A3a except bonded with clay, carbonized wood and/or
rocks, 4 complete specimens, shafts range from 3 8/32 to 4 in., HSAE282, HSH126 and HSH73 also have brick fragments attached, 4 bent samples; N

HSAE 3
HSH 4
d Nail fragments, identifiable but lacking one or more diagnostic attributes; N

HSA 79
HSAE 47
HSB 22
HSC 23
HSD 60
HSE 22
HSF 20
HSG 31
HSGE 1
HSH 211
HSHE 2
HSJ 2

B2A4 Roofing Nails

a Wire drawn, 5 complete specimens, shank 28/32 in., H.D. 12/32 in., barbed, HSD126 and HSC86, tar at base of head; N

HSC 1
HSD 1
HSF 3

B2B Spikes
B2B1 Machine Cut Square Spikes

a No complete specimens, squarish heads measure 16/32 x 13/32, 16/32 x 14/32, 16/32 x 16/32 and 24/32 x 24/32 in., very thick shanks, HSJ148 with cross grain wood fiber on shank, HSJ267 with red paint on shank and head, 3 bent fragments; N

HSF 1
HSH 1
HSJ 2

B2B2 Round Spikes (over 5 in. shanks)

a 4 complete specimens, mean shank length 5 in., 2 bent; N

HSH 4
Window Hardware

a. Caste iron internal window sash pulley, two parts, fitting opposite ends, shaft with moving toggle and fitting hole one end, bent male L 3 20/32, W 14/32, H 2 10/32 in., right angle shaft pierces center of shaft, holds circular rolling blocks with roll stop feet on both sides of shaft W 1 17/32 in., all moving parts frozen; N

HSJ 1

b. Window latch lock, caste iron, footed, slip, trigger mechanism, L 2 16/32, W (shaft) 4/32, W (with footings) 8/32, H 28/32 in., 19th Century American; N

HSF 1

Door Hardware

a. One piece door knob fragment, rounded front, donut-shaped back, baked-on black enamel over fired red clay body, key-way for double knob shaft (2), putty filled base at center, enamel ends at key-way edge, D 2 16/32 in. (projected), typical 19th Century American; N

HSF 1

b. Hinge pin, caste iron with fitted steel shank(?) Victorian style decorative top, L 1 4/32, max. D 14/32 in., straight shaft L 3 in., D 20/32 in., metal separation extensive, typical 19th Century American; N

HSF 1

Staples

a. Gate and barn door staples, steel, elliptical top, equal length shanks, opposing surface long sharp (chisel) points, 5 complete specimens, length from 1 22/32 to 1 24/32 in., HSAE326 and HSH283 galvanized; N

HSA 2
HSAE 2
HSF 1
HSH 3

Fixed Illumination Glass Chimneys

a. Molded, fluted top lip with pinched interior edges, lip and neck fragment, better quality of glass, compression lines on neck, reconstruction(shard sources given); N

HSG 6
HSGE 4

b. Molded, flask shaped body, fluted top lip with pinched interior edges, top lip D 2 16/32 x 2 20/32 in., Base D 2 20/32, H 8
16/32, maximum body width 3 24/32 in., compression lines en-circle neck and base, interior (surface has vertical distinct) scorch marks, reconstruction (24 shards); N

HSG 1

c Same as D1b except base fragment only, base D 2 18/32, base T 81/1000; N

HSG 1

d Molded, globe shaped body, fluted top lip with pinched interior edges, base lip T = 59/1000, top lip D 2 10/32, base D 2 10/32, base lip H 1 16/32, H 7 in., thick horizontal lines around base and neck, bubbles, patina; N

HSG 1

e Same as D1d, except base D 2 20/32, base lip H 1 8/32, base T 68/1000, neck and top missing, interior heavily smoked, reconstruction (36 shards); N

HSG 1

f Same as D1d except lip, neck and part of side missing, base lip H 1 12/32, base D 2 12/32, cloudy, patina and stained, curvilinear lines throughout; N

HSG 1

g Same as D1d except lip, neck and part of side missing, base lip H 1 6/32, base D 2 20/32, base T 100/1000, better quality of glass, reconstruction, shard source given; N

HSG 8

HSGE 2

h Molded, elongate shape, plain lip, high base with pronounced base rim edge, H 7 26/32, lip D 1 18/32, base D 2 12/32, base lip T 66/1000, base lip H 1 4/32 in., reconstruction, shard source given; N

HSG 19

HSGE 7

i Same as D1h except H 7 16/32 in., reconstruction, (26 shards); N

HSG 1

j Molded, plain top lip with flask shaped sides, base lip elliptical measures 1 16/32 x 1 20/32, lip and shoulder fragment, curvilinear lines throughout, reconstruction, (11 shards); N

HSG 1

D2 Power

D2A Electric Fuses
Screw type, copper clad ceramic, crimped fittings, see-through circular top glassine, cap embossed "Eagle", circled by embossed, stylized wavy lines, base stamped "30" (30 ampheres), burned out filament viewable through top; "20" (20 ampheres) with top obscured by corrosion, rust; N
HSGE 1

B2B Electric Light Bulbs
a Ceramic base and copper screw socket fragment, fused and burnt; N
HSG 1

b Glass filament support fragment; N
HSG 1

c Electric light globe shards; N
HSG 2

d Electric Junction Box "slug" push-outs; N
HSG 2

IV PERSONAL AND DOMESTIC TRANSPORTATION

IVA Vehicles
a Iron carriage bolt, head D 24/32, shank D 8/32, L 6 24/32, threads to sheared off tip, 27/32; N
HSH 1

b Carriage Lamp, bell shape, 2 seams from lip of base to top lip edge, both lip edges sealed with whitish material, very distinctive, densely porous surfaces throughout, massive base, thin shoulders and neck, base lip D 2 22/32, top lip D 1 20/32 H 6 26/32 in., both lips heavily chipped, base lip fractured extensively over half diameter. Some cloudy surfaces, reconstruction source of shards given; N
HSG 32
HSGE 1

c Carriage lamp shards, match Ab above; N
HSG 7

IVA' Farm Equipment
a Harvester machine box spring retainer, iron, rectangular, flat rounded top, two rounded shanks, threads discernable one shank, other shank partially sheared off? L 4 20/32 max., W 3 24/32
in., D 13/32 in.; N

**HSB 1**

b Harvester machine blade guide, elongated, dagger shape, dished area one end contains bolt or screw hole, center, semi-circular dish (for transverse retainer rod?), L 7 6/32, W 2 26/32 (max.); N

**HSH 1**

c Harvester machine stamped(?), leather bearing cover fragment, two raised circles at center, flanged lip of three semi-circles, outer two contain screw or bolt holes, center, circular raised dot L 7 6/32 W 4 12/32 (max.), HSD70 flang fragment with rivet only; N

**HSD 2**

d Harness, overlap crimp fitting, incomplete, L 1 12/32, W 1 12/32, T 2/32 in., approx., found on site with VAle; N

**HSD 1**

e Leather harness fragment, L 7 16/32, W 1 8/32, T 3/32 in., a brass rivet with washer at center, D 14/32 obverse, 11/32 reverse, attached at 18 degree angle by a rivet to a leather fragment, T 3/32 in., and washer, D 14/32 obverse, 14/32 reverse, iron rivet on distant end D 12/32 obverse, 8/32 in. reverse; N

**HSD 5**

f Machinery pawl, iron, with ball joint arm and eccentric arm L 5 12/32 in., eccentric arm T = 16/32, pawl T 12/32, ball D 20/32 in., N

**HSC 1**

g Spark plug with cap, ceramic insulator, printed in light green "ACLM47 LAWN MOWER"; N

**HSF 1**

h Round? field drain tile, fragments, brick-like interior, shiny clear glaze exterior, flat glaze interior; N

**HSA 5**

**HSAE 1**

**HSH 7**

**IVA2** Seedling Pots

**A2A** Bisque

a Molded, 5YR6-8, B 2 19/32, top D 4 12/32, H 4 4/32, top band H 1 4/32 in., reconstruction, reconstructions, HSF520 (16 shards), HSF514 (24 shards); N
IVA3  Barbed wire
   a  Kinked, twisted wire fragment; N
       HSD  1
   b  Curved, twisted barb, elliptical top; N
       HSD  1

IVA4  Seedling Covering
   a  Thin, black plastic sheeting fragments; N
       HSA  8
       HSB  30
   b  Thin, white, plastic sheeting fragments; N
       HSB  5

IVB  Hunting

IVB1  Ammunition
   a  Round lead ball, D 24/32 in., mold plug fragment attached, D
       11/32 in., lead mixed with iron, some metal separation evident; N
       HSF  1
   b  Spent bullet, lead, covered with yellowish-white varnish(?)
       D 9/32 in., H 16/32(?), 2 case grip rings, nose blunted,
       flattening one side, no metal separation noted; N
       HSG  1
   c  Spent bullet, steel, D 8/32 in., H 15/32 in.(?), 5 case grip
       rings, vertical impressions between rings, point blunted,
       signs of metal separation; N
       HSF  1
   d  Cartridge cases, .22 cal. short rifle, no headstamp markings,
       rimfire, both corroded, parts missing; N
       HSA  1
       HSG  1
   e  Cartridge case, .32 cal. pocket pistol round, center fire, head-
       stamp, UMC .32 S&W, rust color (UNION METALLIC Cartridge Co.,
       1867-1902); N
       HSGE 1
   f  Cartridge case, brass, 25/20 cal., BD 12/32, L 1 10/32 in.,
       headstamp WRA Co. 25-20 WCF, center fire (Winchester Repeating
       Arms Co., 1880-1930); N
       HSJ  1
g  Shotgun shell bases, 10 gauge, center fire, 3 specimens, head-
stamps: "Peter's 10 G NEW VICTOR", chain design circles center (Co. existed 1887-1934), "Winchester, No. 10 Blue Rival" circle impressed around center, (Co. existed 1866-1932); indistinct "06 -- 10 -- ERA(?), wadding in base except HSB85, which is smashed; N

  HSB 1
  HSG 2

h  Shotgun shell bases, 12 gauge, center fire, 4 specimens, head stamps, wreath border "1901", "(No.) 12", "LEADER", circle impressed around center, "Peter's 12 G NEW VICTOR", "UMC No. 12 HIGH BASE" (Co. in existence 1877-1930, "Peter's No. 12 HIGH GUN", stylized "P" circles center; N

  HSB 1
  HSG 2
  HSH 1

IVF  Logging

IVF1  Splitting Wedge

a  Iron, thick butt gradually decreasing and slightly flaring to a rounded blade edge, L 5 22/32, W 2 to 3 12/32 (projected), T 4/32 to 1 28/32 in. (projected), butt heavily battered, large fragment chipped off wide edge, below butt; N

  HSD 1

IVI  Manufacturing

IVI2A  Clinkers

a  Small, uneven shaped black molten surfaces with brownish red flat colors one surface; N

  HSA 6
  HSAE 1
  HSB 8
  HSC 11
  HSH 6

b  Small, ball shaped, black porous surfaces; N

  HSC 2

c  Small, tear-drop shaped, brown surfaces; N

  HSA 1
  HSH 1

d  Small, uneven shaped, brown surfaces with reddish tints; N

  HSH 1
Small, uneven shaped, grey molten surfaces with pitting and jagged edges; N
  HSA 2
  HSC 1
  HSH 1
Small, tear-drop shaped, grey surfaces; N
  HSH 1

Commercial Services

Monetary

American Government ONE cent coins, copper, Lincoln head obverse, 1920 and 1968D, both circulated condition, HSF42 heavily scratched, copper oxide all surfaces; N
  HSD 1
  HSF 1

UNKNOWNs

Brick Fragments(?)

Small, severely burnt, worn brick-like material; N
  HSAE 4
  HSF 5
  HSG 3
  HSH 53

Ceramic, severely burnt shards; N
  HSA 1
  HSF 2
  HSG 3
  HSJ 1

Chemical Fertilizer(?)

Solidified lumps, whitish, HSF853 smoke smudge one edge; N
  HSF 3
Same as Ca except yellow-whitish; N
  HSB 1
Same as Ca except light grey with two flatish surfaces; N
  HSG 1

Cork
a Container stopper fragment, base D 11/32 in.; N
   HSJ 1

VIII Glass

E1 Bottle fragment with cap

a Clear, molded, 2 seams to top of screw neck, collar at neck-
shoulder joint, lip D 18/32 in., plastic screw on cap interior
top embossed "A T-A SH-13", Armstrong Cork Co., 1925-1969,
shattered shoulder, scratched cap; N
   HSF 1

E2 Container shards(?)

a Amber, HSF424, striations on neck shard; N
   HSA 3
   HSB 1
   HSC 3
   HSD 4
   HSF 17
   HSG 7
   HSH 3

b Amber, scratched surfaces, HSF431 raised circular border; N
   HSC 1
   HSD 2
   HSF 7

c Amber, air bubbles, HSF430 molded raised collar, HSF437 rubbed
surfaces; N
   HSD 2
   HSE 1
   HSF 8

d Amber, patina; N
   HSF 2

e Light amber; N
   HSB 1
   HSD 1
   HSG 2

f Light amber, embossed baby face, necklace with letter "P" on
pendant, wreath behind as border, air bubbles, patina; N
   HSG 1
g  Light amber, patina; N
     HSF 1

h  Aqua, air bubbles, porous surfaces and/or striations (match reconstructed canning jars in all characteristics), HSF375 surface scratches; N
     HSF 2
     HSG 4

i  Aqua, impurities, air bubbles and/or porous, all with surface scratches, HSF454 contains lines; N
     HSD 2
     HSF 1
     HSG 1

j  Aqua, pressed glass with raised diamond design; N
     HSF 1

k  Aqua, air bubbles, porous; N
     HSG 2

l  Aqua, HSF396 cloudy surfaces, HSG912 and HSF456 shoulder shards, HSG910 and HSG1189 surface scratches; N
     HSA 1
     HSF 3
     HSG 6
     HSGE 1
     HSD 1

m  Aqua, impurities; N
     HSA 1

n  Dark aqua, air bubbles, surface scratches; N
     HSF 1

o  Clear, air bubbles, 3 scratched, 1 stained, 1 shattered; N
     HSF 22
     HSA 3
     HSE 1
     HSH 1
     HSJ 2

p  Clear with impurities; N
     HSF 1

q  Clear with impurities, scratched or rubbed surfaces; N
r Clear with patina; N

s Clear embossed, HSF254, base fragment, "-TIONC", HSF793-"Dura(glass)". HSE25(9) embossed stars; N

u Clear, depositional surface etching; N

v Clear with burnt surfaces; N
w Clear, orange stain (vial fragments?); N
  HSF 2

x Clear, air bubbles, horizontal striations, lamp glass base fragment(?); N
  HSF 1

y Cobalt blue, patina and/or burnt, except HSB01; N
  HSB 1
  HSF 7

z Dark green (black glass), air bubbles, striations, scoring, wavy lines, wine or gin bottle(?); N
  HSJ 31

aa Brown-green, air bubbles, striations, uneven surfaces; N
  HSA 1
  HSE 2
  HSF 1
  HSG 6
  HSJ 4

ab Green, air bubbles, striations, HSF868 lip and collar shard; N
  HSF 5

ac Green, modern, HSC16 embossed "—OR—" REFIL"; N
  HSC 2
  HSD 2
  HSF 2

ad Emerald green; N
  HSB 1
  HSH 1

ae Yellow-green, HSF24 air bubbles, patina, very thick; N
  HSC 1
  HSF 1

af Very light yellow-green, air bubbles; N
  HSAE 1
  HSD 1
ag  Very light yellow-green, patina HSGE12 painted scroll work; N
    HSF 1
    HSG 1
    HSGE 1

ah  Very light yellow-green, modern; N
    HSF 2

ai  Clear crystal; N
    HSA 4
    HSF 3
    HSG 2
    HSH 4

aj  Rose and purple (Mangeneese)
  a. Light purple (to 1914); N
    HSF 3
    HSGE 1

ak  Same as 2aj, except embossed, HSF214 and 220, HSF92 and 674
    reconstructions; N
    HSD 1
    HSE 1
    HSF 5

al  Medium violet, HSF144 depositional etching; N
    HSF 3
    HSG 1
    HSH 1

am  Purple; N
    HSA 1
    HSF 1
    HSG 1
    HSJ 2

an  Rose, patina; N
    HSF 1

ao  Turquoise, molded, flat circular embossed ribs(?), depressed
toward center, slab-like at right angle to base(?) side shat-
tered and fractured; N
    HSJ 1
ap  Gold paint 1 edge; N
       HSF 1

aq  Milk glass shards; N
       HSF 6

E3  Canning jar lid fragments(?)
a  Milk glass, circular, molded fragment with thin lip; N
       HSD 1
       HSF 1
       HSG 1

E4  Tonic bottle shards
a  Light blue green; N
       HSB 3
       HSD 1

b  Same as E4a, depositional etching or patina, HSF472 and 473 reconstructed; N
       HSE 3
       HSF 12
       HSG 7
       HSJ 14

c  Same as E4a except imperfections (air bubbles, impurities), HSJ263 and 132 reconstructed; N
       HSD 2
       HSE 2
       HSF 4
       HSG 4
       HSJ 12

d  Same as E4a except embossed surfaces; N
       HSE 1
       HSF 3
       HSG 1
       HSJ 4

e  Same as E4a except burnt; N
       HSAE 1
       HSE 1
       HSF 7
f  Same as E4a except scratched surfaces; N
   HSA 1
   HSB 3
   HSD 2
   HSE 7
   HSF 15
   HSG 2
   HSH 1
   HSJ 2

g  Same as E4a except shoulder side fragment, octagon shape; N
   HSJ 1

h  Same as E4a except octagon shape, reconstruction; N
   HSJ 2

E5  Shallow round containers(?)
a  Clear, cut or excellent molding, flaired lip and side, pedestal
    sharp indentation at base of (to pedestal?), design, pinched
    semi-circles directly above sharp indentation with apex half-
    way to lip, lip D 2 22/32 in. (projected); N
    HSJ 1

b  Same as E5a except violet tint, patina, molded lip D unknown; N
   HSG 1

c  Clear, pressed glass, deeply impressed starburst design(?); N
   HSG 1

d  Clear, pressed glass, base, foot and side fragment, poor quali-
    ty imitation of cut-glass, low diamond shapes, rubbed, scratched
    and chipped, reconstruction, (5 shards); N
   HSG 5

e  Clear, stained (desert dish?); N
   HSJ 1

E6  Pressed Glass
a  Clear, imitation cut-glass, base, foot and side fragment, very
    deep diamond shapes design on sides, base D 2 22/32 in., recon-
    struction, (4 shards), chipped, rubbed, patina; N
E7  Glass, Mirror(?)
    a  Light violet, elliptical lip 18/32 in., concave shoulder 10/32 in., silvered backing sealed in black enamel(?); N

E8  Tubing
    a  Narrow tubing with flaired end (suppository glass?); N

E9  Illumination Chimney shards(?)
    a  Very thin, oval, rounded, twisted shapes with lines, stains and discoloration (typical to reconstructed illumination chimneys); N

    b  Light bulb glass; N

    c  Portable illumination chimney(?), fragment of base, lip and straight side with holder? markings circling lower part of fragment 25/32 in., above base lip, base T 81/1000, patina; N

E10 View Plate fragments(?)
    a  One flat surface slanting down and outward to meet two right-angle edges creating reverse lip-like sides, surface is flat entire length; N

E11 Glass stopper
    a  Aqua, flat top, D 1 in., embossed ---"LBROOK", partially sheared, lip T 6/32 in., shaft with indented part of tip missing, fits neck size 16/32 in., molded; N

VIIIIF Leather Fragments
    a  One crimp cut straight edge, L 1 24/32, W 1 20/32, T 5/32 in.; N

    b  Strap(?), L 4, W 20/32, T 2/32 in., N
c  Loop shape, incomplete L 2 4/32 (straightened), T 3/32 in., matches Fb; N
   HSJ 1

d  Shapeless; N
   HSB 1

e  Five-sided patch(?), 1 24/32 x 1 18/32 x 28/32 x 26/32 in., no wear or fraying; N
   HSJ

VIIIG  Lithics
a  Obsidian flakes; N
   HSB 1
   HSF 1
   HSJ 2

b  Fire cracked river cobbles; N
   HSF 7
   HSG 1

c  River pebbles, shattered, permeated with red stain (internal brick materials?); N
   HSA 8
   HSH 9

VIIIH  Coal
a  Anthracite, small, burnt surfaces; N
   HSA 2
   HSB 14
   HSC 5
   HSF 1

VIII-I  Metals
I1  Aluminum
a  Beverage can "pull-top", modern, stained; N
   HSG 1

b  Cover (?) fragment, embossed "ACTUR--"(MANUFACTURED?) "---A", (PHILADELPHIA?) U.S(A.?)-"D INC", corroded pitted surfaces, early aluminum process; N
   HSE 1

I2  Brass
a  Brass thread escutcheon, iron fragments top edge both sides,
deteriorated, fragmentary, roots and clay welded to one edge; N
   HSG 27

b  Top or bottom edge fragments, welded edges ("Tin Cans"?); N
   HSD 2
   HSF 6
   HSG 1

c  Container top fragment, circular with continuous parallel
   raised welt (for closer?), reinforced welt at rim, top D 1
   22/32 in.; N
   HSG 2

d  Container top, crimped edge, D 12 in.; N
   HSD 2

e  Container fragments(?), some curved surfaces; N
   HSD 124

f  Tin, protective coating one flat edge (black), footed with
   welted reinforcement D 3 22/32 in., (projected), badly disintegrated; N
   HSG 27

g  Flat surfaces, tar-covered one flat edge; N
   HSH 30

h  Unidentifiable round shapes, irregular, generally small; N
   HSA 64
   HSAE 2
   HSB 11
   HSC 7
   HSE 7
   HSG 3
   HSH 38
   HSHE 6

I4B  Staples

a  Staples, rectangular shapes for (boxes and crates?) 2 complete
   specimens, very sharp points, sides 1 16/32 in., top 16/32 in.,
   sides 1 10/32, top 16/32 in.; N
   HSD 1
   HSE 1
   HSF 1
held by brass rivets obverse, reverse, pin-hole centered in
iron oxide between rivets endings, L 24/32, W 16/32 (max.)
slight hour-glass shaping at key hole designed for small, slot
footed key; N

HSG 1

b Rivet, complete, head D 13/32, shank 22/32 in.; N

HS

c Washers, complete, D 12/32, hole D 4/32 in.; N

HSB 2
d Washer?, molded(?) semi-circle, D 2 in., (projected), hole D
16/32 in. (projected); N

HSC 1
e Machinery seal, flat thin straight edge parallels semi-circular
edge, fragments join; N

HSC 2

f Fastener, round stock fastened into semi-circular ring one
end, straight perpendicular edge opposite end, latter end
encircled by cylinder shaped brass sleeve; N

HSF 1

I3 Copper

a Round sleeve, gilded exterior, raised band each end, L 1 24/32
D 14/32, band D 15/32 in., end crushed, rounded wood fragment
inserted to crushed surfaces depth, 28/32 in., inserted bamboo
tip slightly smaller D with circular raised surface at center
segmented pole or rod fragment?, highly oxidized, disintegrating
surface; N

HSJ 1

b Crimped-on sleeve over thin iron, disintegrating surfaces,
(part of 3A?); N

HSJ 1
c Thin flat fragments; N

HSC 1

HSF 1
d Round cover, D 1 8/32 in., hole D 24/32, lip depth 7/32 in.,
4 straight impressed lines, box hole at right angles on inter-
ior surface (electric junction box cover?), burnt; N

HSF 1

I4 Iron

I4A Container Fragments?

a Footed, cross braced(?) base D 3 22/32 in. (projected), badly
<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Staples (?)</strong></td>
<td>Rounded tops, no complete specimens; N</td>
<td></td>
</tr>
<tr>
<td><strong>Angled Pins (?)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cotter pins (?)</strong></td>
<td>Two parallel shanks, elliptical heads, no complete specimens; N</td>
<td></td>
</tr>
<tr>
<td><strong>Nail Fragments (?)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Square Nails (?)</strong></td>
<td>Typical machine made shank fragments, lacking two or more diagnostic characteristics; N</td>
<td></td>
</tr>
<tr>
<td><strong>Wire Drawn Nails (?)</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
- Staples are identified as having rounded tops and no complete specimens.
- Angled pins are described as having two parallel shanks and elliptical heads, with no complete specimens.
- Cotter pins are characterized by two parallel shanks and elliptical heads, also lacking complete specimens.
- Nail fragments are typical machine made shank fragments, lacking two or more diagnostic characteristics.
- Square nails are round shank fragments.
I4E  Square shapes(?)  
a  Undefined; N

I4F  "V" shapes, undefined; N  

I4G  Molded? eliptical shaped bar fragment, cross-section 16/32 x 16/32 in.; N

I4H  Wire strand fragments; N  

I4I  Bolts  
a  Round head, no complete specimens; N

I4J  Rods  
a  Long rod shapes; N
b Rod-like shapes; N

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>HSC</td>
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<tr>
<td>HSF</td>
<td>1</td>
</tr>
<tr>
<td>HSH</td>
<td>1</td>
</tr>
</tbody>
</table>

I4K Square nuts
a Threaded, one complete specimen, 14/32 x 14/32 in., T 8/32 in., HSC32 contains a pointed screw fragment; N

<table>
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<tbody>
<tr>
<td>HSC</td>
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<tr>
<td>HSG</td>
<td>2</td>
</tr>
<tr>
<td>HSH</td>
<td>1</td>
</tr>
</tbody>
</table>

I4L Six-sided nuts
a Threaded, incomplete; N

<table>
<thead>
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<th>Code</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSC</td>
<td>1</td>
</tr>
</tbody>
</table>

I4M Grommets
a Grommet, semicircular obverse, eight clinch lips reverse, D 16/32, hole D 7/32 in., burnt; N

<table>
<thead>
<tr>
<th>Code</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSF</td>
<td>1</td>
</tr>
</tbody>
</table>

I4N Washers
a One complete specimen, D 20/32 in., hole D 8/32 in., (projected); N

<table>
<thead>
<tr>
<th>Code</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSC</td>
<td>1</td>
</tr>
<tr>
<td>HSD</td>
<td>1</td>
</tr>
<tr>
<td>HSF</td>
<td>1</td>
</tr>
</tbody>
</table>

I4O Flat Fragments
a Undefined; N

<table>
<thead>
<tr>
<th>Code</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSA</td>
<td>6</td>
</tr>
<tr>
<td>HSAE</td>
<td>1</td>
</tr>
<tr>
<td>HSB</td>
<td>1</td>
</tr>
<tr>
<td>HSC</td>
<td>4</td>
</tr>
<tr>
<td>HSD</td>
<td>2</td>
</tr>
<tr>
<td>HSF</td>
<td>9</td>
</tr>
<tr>
<td>HSG</td>
<td>4</td>
</tr>
</tbody>
</table>
**I4P**

**Screws**

a. No complete specimens; N
   
   HSD 1
   HSE 1
   HSG 1

b. Sheet metal screw, complete, cap impressed "SD" with impressed dot above, 2 below letters; N
   
   HSD 1

**I4Q**

**Rivets**

a. Incomplete, head D 9/32 in.; N
   
   HSD 1

**I4R**

**Rectangular Shapes**

a. Brace or nameplate?, flat surfaces rectangular except gradually peaking at top to point, washer and small screw? at center, under point, 2 screws (one in place), at either straight edges, L 3 12/32, W (to point) 1 20/32 in., screw head D 12/32 in. (approximate), shaft length (sheared off) 20/32 in.; N
   
   HSH 1

**I4S**

**Handwrought Implement**

a. Spear like, rounded point bent, opposite end square, sheared off, a cleft groove parallels main body from pointed end for 5 in. toward flat end, L 8 4/32, W 12/32 in. to 24/32 in.; N
   
   HSF 1

**I4T**

**Handwrought (?)**

a. Elongate, folded pressure binding(?), slight wedging appearance one end, 2 copper rivets with heads on opposite flat edges, spike-like perturbation at right angle one edge, L 3 26/32, W 26/32 to 1 20/32 in., T 2/32 in. (approximate) (razor strap holder?); N
   
   HSD 1

**I4U**

**Hacksaw blade**

a. Fragments; N
   
   HSF 2

**I4V**

**Inner-spring (?)**

a. Fragment, parts of two coils, D 1 10/32 in. (projected); N
HSF 1
b Furniture coil spring connector(?) fragment, closed loop one end, curved hook opposite, L 3 in., W 1 10/32 in., D 8/32 in.; N

HSJ 1

I4W Cogged or toothed surfaces
a Oblong fragments, badly deteriorated; N

HSC 1
HSH 1

I4X C-clamp or "O" ring
a Fragment; N

HSC 1

I4Y Cleat or clamp
a Fragments; N

HSA 1

I4Z Drive Mechanisms
a Capstone or pulley wheel spindle with connecting shaft fragment, max. L 24/32 in., W 1 in., adjustment(?) access hole within spindle, rim D 28/32 and 1 in.; N

HSG 1

I4AA Spacers
a Square machinery spacers or shims, badly deteriorated, HSD180, single (square) hole, HSGE13, two rectangular slots; N

HSD 1
HSGE 1

I4AB Tacks
a Upholstery tack?, incomplete, rounded head, flat under surface, square shank, head D 24/32 in.; N

HSG 1

I5 Lead
a Molded, reinforced tip? hollow interior with two iron braces at joint of flat and semi-curved edges, burnt; N

HSF 1

b Container(?) fragments, thin flat surfaces, some with crimped edge joints, lead oxide on exposed surfaces, crushed; N

HSG 1

I6 Tin
a. Tin can solder seams or joints (?) burnt; N
   HSC 2

VIIIJ Molded Plastic
a. Yellow fragments; N
   HSB 2
   HSD 4

b. White fragments; N
   HSD 1

c. Severely burnt; N
   HSF 1

VIIIK Rubber
a. Natural rubber gasket fragment, flat, curved edges, lip one edge, red; N
   HSG 1

VIIIL Sash cord fragment, flax-like interior core wrapped by thread, tightly over-wrapped, continuous wrap style, manufacturers identifying code interwoven in green cotton with white cotton (a ca. 1870 sash cord), combed cotton; N
   HSJ 2

VIIIM Unknown purpose and material
a. Stylus shaped, black flexible material (shirt stays?) with 2 flat surfaces, finally grooved at right angle to long axis of flat surfaces, all edges worn, thickness varies from 68/1000 to 22/1000, L 1 4/32 in., W 10/32 in.; N
   HSG 4
APPENDIX B

FLAT GLASS ANALYSES
B. Flat Glass Analyses

Flat glass shard thickness has been proposed as a supplementary dating tool for nineteenth century sites in the Pacific Northwest. Additionally, this hypothesis suggests window glass as a temporal indicator for episodes of building construction, renovation and upkeep (Roenke, 1978: 48, 49, 118). The first window glass analyses for this site utilized Roenke's hypotheses.

Roenke predicted that systematic technological changes in flat glass manufacture had increased window glass thickness through time and that this phenomena appeared restricted to Northwest America because a monopolistic economic system restricted flat glass innovations from the area. To test this prediction, 15 archaeological sites in the Northwest, with relatively tight dates of occupation, were selected for analyses. Each had a stratigraphic reference that provided date correlations for flat glass within that reference. Roenke's conclusion was that the analyses tended to substantiate flat glass as a supplementary dating tool for nineteenth century Northwest America sites (Roenke 1978).

Stipulated controls require three measurements from each shard, ensuring measurements are taken from the center and a range of thickness across the shard. Shard midpoints, class intervals, class marks and incremental modes are then successively constructed. Flat glass dates of manufacture are derived from incremental modes (Roenke; 48).

A total of 363 flat glass shards were recovered at the Hospital site, 297 were large enough to provide the minimum three test points. Measurements were made with a Supreme (KD 6000) outside micrometer, calibrated to .00001 thousandth of an inch. The resulting data strongly reflected groupings of window glass by thickness. These modes tended to support historical records of construction (see Table 11).

Cultural Factors

Roenke was forced to analyze a large sample of small shards from 15 selected sites (Roenke: 107). A layered deposition of relatively large shards in Feature Two at this site allowed reconstruction of portions of window panes. The largest of these reconstructions contained
46 shards and three straight edges. The complete span measured 16.5 inches. Within this span, measurements varied from .057 at the center, to .078 at the edge. If these fragments had not been reconstructed, the individual shards could have represented either a long or very short time-span depending upon how the glass was broken and where it was discarded. If edge only, center only or complete pane are excavated, different modes develop (Fig. 11-13 and Table 12). Glass breakage characteristics and reaction to glass breakage may directly affect measurement results.

In order to test the possible skewing of window glass measurements by cultural behavior, cultural associations of each test unit to known structural history was necessary. Each test unit window glass assemblage was analyzed using Roenke's controls, then evaluated for known cultural relationships to historic structures.

The reconstruction of flat glass temporal indicators for individual test units reflected a disproportionate amount of very small shards directly at locations of past and present structures. Feature Three, a sealed privy, contained large, corner and edge shards that were highly reconstructable. Feature Four, a mission period debris scatter, contained a cross section of shard thickness with a preponderance of large, but unreconstructable shards. Feature Two, a long duration house refuse area significantly duplicated the characteristics of Feature Four (see Table 13).

A limited observation of accidentally broken windows today, indicates only very small shards remain in the dirt impact area after breakage cleanup has taken place. All recognizable shards were placed in a garbage recepticle unless heavy foliage is present at the break-point and obscures the cleanup effort (writer's personal observations).

It is reasonable to conclude that small shards, overlooked during cleanup, would remain in the vicinity of impact at nineteenth century rural sites. Garbage refuse areas would receive random breakage after shards were collected and temporarily stored with other household debris for dumping, particularly, if the pane was not promptly replaced. Pane replacement during upkeep periods, major breakages and structural change would provide large, somewhat dangerous amounts of broken glass that would be placed in privies or other safe deposition sites such as abandoned wells, ponds, and abandoned cellars. If major window glass finds,
including edges and reconstructable shards are found at points where known structures once stood, evidence of burning or in place abandonment should be expected.

Natural Factors

Ethnoarchaeological research has traditionally focused on extracting cultural process from material culture (artifacts). More recently, non-cultural factors that can and do affect the archaeological record are being studied. These studies have focused on measuring the effects of natural process on material culture. Such studies have been accomplished through observation of extant cultures that are assumed to be at the same level of cultural development as a compatible prehistoric culture, i.e., hunter-gatherer cultures. A recent natural process study suggests overall shard size can indicate how original deposition took place (Gifford 1978; 82). The hypothesis suggests, in part, that cultural material of less than 3 cm. in overall dimensions stands a greater chance of becoming primary deposition material. Additionally, primary deposition materials, given a permeable substrata and appropriate length of site occupation, will result in a subsurface zone of like-sized cultural items. A surface zone of larger maximum dimension cultural material will co-exist with the subsurface zone materials (Gifford; 82, 83).

The maximum dimension hypothesis is based in part upon an interpretive analysis of previous studies and field work carried out by Gifford among the Dassanetch people of the eastern shore of Lake Turkana, Kenya (Gifford; 84). The application to prehistoric sites is obvious, but Gifford continued to develop the theme by agreeing with Schiffer's proposition that as occupation intensity increases, primary deposition decreases (Schiffer 1976). The resulting holistic concept can be tested against historic as well as prehistoric period sites. In order to test this hypothesis, all shards in the Hospital site flat glass assemblage that did not qualify for Roenke's measurement criteria (see p. 155) were reanalyzed.

The analysis clearly showed that two test units contained a disproportionate amount of very small flat glass shards (less than 2.7 cm). One of these test units, Test Unit E, was a known primary depository
point for the c. 1870 dwelling. The other, Test Unit D, was not previously recognized as a primary depositional point (see Table 13). The small shard hypothesis provided an additional means of reconstructing cultural activity, but another factor must be considered during interpretation. Table 13 reflects a significant amount of very small size shards existed in Test Unit F. Although this amounts to half the percentage in Test Unit D and E, 20 percent is a sizable amount. Test Unit F is a known secondary depositional site (see Feature Two). The relatively large quantity of small size shards in Test Unit F is projected to be primary glass breakage depositions from within the dwelling that was cleaned up and discarded along with a cross-section of kitchen related cultural debris.

Cultural Significance

To test this working hypothesis, six sites of Roenke's 15 test site sample were reanalyzed. The selection of sites for reanalysis was simply based on selecting the first six that appear in the hypothesis text, excluding 45WW41 and 10NP108. The prior site was eliminated because all cultural reference was lacking. The later site was discarded because dumping from several local historic sites had previously taken place in the excavation area during construction work ca. 1920 and 1930 (Roenke; 73, 76).

The reanalysis procedure was to correlate each site's shard count against known cultural activity, excavation techniques employed and the working hypothesis described above.

Roenke's hypothesis sample for the six sites had techniques of excavation and cultural reference that ranged from exploratory trenching without structural location data to pin-point stratigraphic unit excavations with explicit cultural reference. At sites 45SP5, 450K64 and 45WW40, exploratory trench and grid excavations with only very broad cultural (structural) reference data provided only 12 percent of N. for the six sites. Two of the remaining sites, 45CL300 and 45ST97 provided 50 percent of N. These two sites contained central depositories consisting of a pond dump, cellar, privy and interiors of structures. These sites were excavated with precise controls. The remaining site, 10KA45,
with 1700 shards at a church and 885 shards within a sacristy with no known record of destruction, abandonment or use as a depository was anomalous. Trenching could account for the very high amount of shards about the church, i.e., unidentified privy or dump area encountered during shallow or near miss trenching excavations that were not correlated to a cultural significance. The remaining problem was the interior of a sanctum with a very large concentration of shards within its floor. Within the working hypothesis suggested here, the documented burning of a residence near the church in 1864 provides a reasonable association for this sample. It would appear that during the very long construction period for the church, the present sacristy was a depository (dump) (see Table 14 and 15).

Glass Quality Hypothesis

Roenke's hypothesis also suggested a connection between specific types of defects in poorer quality glass and the manufacturing techniques that created them. Top quality glass has the minimum amount of imperfections, thus it is more difficult to analyze for defects. Highly priced premium window glass does not appear to have been imported to frontier areas by the Hudson's Bay Company, a monopoly company during the settlement period. Recognition of imperfections in window glass should provide supplemental dating for Northwest flat glass. The following is adapted from Roenke 1978.

Crown glass was manufactured in England from about 1773 to 1850 and in the United States until about 1820. The glass blower would heat about 14 pounds of molten glass (gather) at the end of a blow pipe. It would be manipulated into a pear shape and enlarged by blowing. An iron punty would be attached opposite the blow pipe with a dab of molten glass and the pipe would be removed, leaving a small hole. After reheating, the blower spun the punty, gradually increasing the hole size by heat and centrifugal force. A flat, circular disk of relatively uniform thickness resulted, except at the center where the punty was attached. The punty was removed and the pane was placed in a cooling or annealing kiln. The resulting pane or table was halved or further cut into smaller panes for future sale. This process resulted in a brilliant surface with
very characteristic imperfections. The molten glass often contained residual chemical contaminants. The centrifugal force would compact, then move the contaminants into swirling patterns or "bullseyes" with curvilinear lines connecting the tighter swirl areas. The force of spinning, if excessive air was present in the original batch, would also cause round air pockets of various sizes to form in the glass. These air pockets are called seeds or bubbles, depending upon the relative size of each. The seeds and bubbles had a distinctively round shape. Either or both of these imperfections can be present in poorer quality crown glass.

Cylinder glass production is as old as recorded history, and was adapted in the United States by 1820. England did not accept this technique until a German innovation was introduced in 1832. In this method, the blower manipulated approximately 20 pounds of gather until a carboy cylinder of about six feet was produced. Once cooled, both ends were removed and the cylinder was halved on the long axis. The cylinder was flattened on a bed or "lagre". The earlier lagres were iron plate covered with sand. Later methods utilized a smooth glass surface. This technique allowed much larger sheets of glass than crown glass and at a much lower price per unit. This manufacturing technique resulted in distinctive imperfections. Residual chemical contaminants were compacted into straight lines during the flattening process. Any air present was formed into elliptical seeds and/or bubbles.

Quality control was further decreased in both techniques when unmelted raw materials such as firebrick fragments fell into a molten glass batch. These non-vitrified defects, called stones, appear in both types of panes. Additionally, small particles of unmelted glass, called knots, appear in both glass types and are caused by adding glass to a batch when the batch is below proper melting temperature, thus not allowing the materials to blend properly.

These examples are only several of many known defects recognizable in just these two manufacturing techniques. For a wider discussion, see Peddle 1927.

An analysis of Hospital site glass imperfections was conducted using the hypothesis controls for glass measurements (N. 297). Twenty-five percent of N. contained curvilinear line imperfections characteris-
tic of crown glass. Six percent of N. contained straight line imperfections typical of cylinder glass. Six percent of the sample contained elongated seeds and bubbles while no round seeds or bubbles were detected. The projected temporal indicator was that English made crown glass predominated at the site and that the cylinder glass had a poorer quality control during its manufacture.

The next analysis involved reconstructing all individual shards possible into fragments of glass panes. Upon completion of reconstruction, the glass was re-examined for imperfection changes. A two percent increase in curvalinear lines for the entire sample was noted with only one reconstruction of 46 shards (13 percent of N.). All linear lines became suspect, having decreased a total of 50 percent with this one reconstruction. Unaccountably, curvalinear lines (an attribute of crown glass) appeared throughout this reconstruction fragment with elongated seeds and bubbles (an attribute of cylinder glass). This was not an isolated case. Several smaller pane fragment reconstructions also shared these dissimilar attributes. Additionally, one shard from the core mission site (35MA50001) also shared these dissimilar attributes (see Table 15).

Several imperfection categories included in the hypothesis were also analyzed. Patination, the rainbow effect found in poorer quality glass when it absorbs minerals from the ground, was analyzed. Patination was found in 52 percent of N. and in 53 percent of the largest pane fragment reconstruction. Patination appears to be random in this analysis since 83 percent of the reconstructed shards were excavated at a depth of 30-60 cm., and 15 percent from 60-90 cm., all within a one x two meter test unit. Opaqueess, the point beyond patination in glass decomposition (Roenke; 22), and clear glass were added to the imperfection analysis to round out characteristics that could be readily identified with the naked eye. The list was then retitled, "Definable Attributes". The opaque sample proved misleading because stipulated hypothesis controls disqualified small shards from N., thus skewing readily observable characteristics for opaqueness by 11 percent in this instance. All clear glass shards qualified for examination and comprised 3.5 percent of N. (interestingly, all clear glass was recovered from one test unit (the garbage refuse area) (see Table 16). Rounding out the definable
butes were two unusual aqua shards, with mottled surfaces that lacked imperfections. These .048 and .050 thick specimens may be vestiges of the "Blue Glass Mania" that swept the country in 1871-1877 (Roenke; 21).

Conclusions

Window glass thickness can be a supplementary dating tool for nineteenth century sites. Cultural behavior, physical attributes of glass, and historic factors must be equally integrated for a proper analysis. If edge and reconstructable shards are detected, evidence of dump deposition, structural abandonment or destruction should be present. If evidence confirms these cultural activities, measurements can be meaningful for supplemental date determination. If these factors are not present, measurements are not valid. Imperfections will become a meaningful tool when we have more knowledge of manufacturing defects, but will be skewed unless reconstruction is an integral part of the analysis.
The break pattern consists of radiating and perpendicular secondary sympathetic breaks with missing corners (see Figure 12). The center break points to a sharp blow to the center area. The resulting shards were collected in a stack and dropped in a privy. The missing corners may have tenaciously remained, as is often the case. Just such an episode was witnessed by the writer when an announcement board fell at the Westminster House, Corvallis, Oregon (Winter, 1981). The four corners remained in place and were not removed until the following week when reglazing took place. In this instance, the underlying cause of the structural failure (rotten supports) was not corrected, and the exact sequence was repeated shortly thereafter (this time new supports were installed).
FIGURE 12: Cultural Impact on Flat Glass Deposition: Applying Hypothetical Mode Patterns

Table 11  Shard Mid-point Measurements for Figure 12

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>.080</td>
<td>.072</td>
<td>.070</td>
<td>.077</td>
<td>-</td>
</tr>
<tr>
<td>B</td>
<td>.079</td>
<td>.069</td>
<td>.068</td>
<td>.073</td>
<td>-</td>
</tr>
<tr>
<td>C</td>
<td>.062</td>
<td>.076</td>
<td>.058</td>
<td>.063</td>
<td>.066</td>
</tr>
<tr>
<td>D</td>
<td>.066*</td>
<td>.061</td>
<td>.058</td>
<td>.062</td>
<td>.066</td>
</tr>
</tbody>
</table>

1. Edge fragments, present at primary deposition points when in-place destruction of buildings has taken place.
2. Ring fragments, present in middens (+1.).
3. Center fragments, present at primary deposition points as small shards (+1. and 2.).
4. Measurements are based on Roenke's Hypothesis of the mean of three measurements per shard.

* One measurement only.
Figure 13: Equidistant measurements by hypothetical quadranting reflecting all measurements taken for Figure 12.

Note: The thickness of shards is too varied within a 1 x 1 inch area to provide a meaningful thickness analysis, even within the known edge areas with molding marks.
Table 12. Window Glass Thickness and Documented Cultural Activity

<table>
<thead>
<tr>
<th>Primary Mode (in.)</th>
<th>Shards (N. 360)</th>
<th>System Dates (ca.)</th>
<th>Documented Cultural Activity (see appropriate sections)</th>
</tr>
</thead>
<tbody>
<tr>
<td>.045</td>
<td>1</td>
<td>1830-1840</td>
<td>Mission Hospital completed 1839-40 used as a residence for four mission families</td>
</tr>
<tr>
<td>.055</td>
<td>14</td>
<td>1835-1845</td>
<td>Sold in 1844 to Mission farm manager with large family</td>
</tr>
<tr>
<td>.065</td>
<td>59</td>
<td>1845-1855</td>
<td>Executor controls property for Beers children 1853-65, 1865 Oliver Beers manages farm, marries in 1869.</td>
</tr>
<tr>
<td>.075</td>
<td>106</td>
<td>1850-1865</td>
<td>1870 Oliver Beers buys out brothers and sisters to obtain sole ownership. Extant dwelling constructed 1870-1871. The Beers have five children, Beers sells farm to Bank</td>
</tr>
<tr>
<td>.085</td>
<td>57</td>
<td>1855-1885</td>
<td>Mode for broken pane measured in upstairs room of extant dwelling</td>
</tr>
<tr>
<td>.095</td>
<td>17</td>
<td>1870-1900</td>
<td>Mode for broken pane measured in upstairs room of extant dwelling</td>
</tr>
<tr>
<td>.105</td>
<td>10</td>
<td>1900-1915</td>
<td>Extant dwelling extensively repaired for new manager 1920, new tenant 1940 and new owner 1964</td>
</tr>
<tr>
<td>.115</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.125</td>
<td>17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.130+</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 13. Small Size Shard Distribution and Cultural Associations by Test Unit

<table>
<thead>
<tr>
<th>Test Unit</th>
<th>% Total (N. 360)</th>
<th>% Small Shards (N. 66)</th>
<th>Cultural Association of Pit (see appropriate section)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0</td>
<td>0</td>
<td>Site of Smoke House Foundation</td>
</tr>
<tr>
<td>AE</td>
<td>0</td>
<td>0</td>
<td>Site of Smoke House Foundation</td>
</tr>
<tr>
<td>B</td>
<td>0</td>
<td>0</td>
<td>No known associations</td>
</tr>
<tr>
<td>C</td>
<td>0</td>
<td>0</td>
<td>No known associations</td>
</tr>
<tr>
<td>D</td>
<td>1.9%</td>
<td>43%</td>
<td>Site of 1981 barn and previous location of pre-1920 hand-hewn beam barn</td>
</tr>
<tr>
<td>E</td>
<td>17.7%</td>
<td>44%</td>
<td>Window at c. 1870 dwelling</td>
</tr>
<tr>
<td>F</td>
<td>16.9%</td>
<td>20%</td>
<td>House Refuse Area c. 1838 to present (intermittant use)</td>
</tr>
<tr>
<td>G</td>
<td>26.0%</td>
<td>11%</td>
<td>c. 1870 privy</td>
</tr>
<tr>
<td>GE</td>
<td>33.0%</td>
<td>8%</td>
<td>c. 1870 privy</td>
</tr>
<tr>
<td>H</td>
<td>-</td>
<td>-</td>
<td>Site of Smoke House Foundation, 1 shard in plow zone, discounted</td>
</tr>
<tr>
<td>HE</td>
<td>0</td>
<td>0</td>
<td>Site of Smoke House fire pit</td>
</tr>
<tr>
<td>J</td>
<td>4.1%</td>
<td>13%</td>
<td>Mission Period refuse area under existing c. 1870 dining room floor</td>
</tr>
</tbody>
</table>
### Table 14. Evidence of Cultural Behavior in Window Glass Distribution

<table>
<thead>
<tr>
<th>Site Design</th>
<th>Excavation Method(s)</th>
<th>Cultural Identity of Excavations</th>
<th>Comments</th>
<th>Shards N.</th>
</tr>
</thead>
<tbody>
<tr>
<td>45SP5</td>
<td>Test Trenches</td>
<td>Fort dimensions and buildings</td>
<td>All excavations inside Fort</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Exploration Trenches</td>
<td>House</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arbitrary Grid</td>
<td>House</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

History: Spokane House/Fort Spokane was constructed in 1810 by the Northwest Company with additional structures erected in 1811 by the Pacific Fur Company. The original structure was abandoned in 1813. Minor repairs and improvements were carried out until 1822-1823 when major construction took place. The site was stripped of all usable materials in 1826 and totally abandoned in 1828.

| 450K64      | Test Trenches        | Fort dimensions and buildings     | All excavations inside Fort | 323       |
|             | Test Pits?           | Inside Fort?                      | "                        |           |
|             | Salvage              | Inside Fort?                      | "                        |           |

History: Fort Okanogan was constructed in 1811 by the Pacific Fur Company. Several structures were added in 1813 by the Northwest Company. The site was stripped of all usable materials between 1831 and 1837 and abandoned.

*Glass from 1963-1964 excavations only: all other discarded.

| 45WW40      | Unknown              | Buildings                         | 119       |

History: Fort Nez Perces was constructed in 1818 and had a long history of building and renovation. It was burned in 1842, replaced, stripped and burned.
Table 14 cont.

in c. 1855. In 1857 to 1860 the U.S. Army main-
tained a depot which was reconstructed to some ex-
tent in 1861. These buildings were burned in 1880. 
The site was abandoned in 1882 excepting for a near-
by Ferry landing and keepers home, in use until 1917.

<table>
<thead>
<tr>
<th>Site Code</th>
<th>Type</th>
<th>Feature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>45CL300</td>
<td>Stratigraphic</td>
<td>Garbage Dump</td>
<td>In a previous pond</td>
</tr>
<tr>
<td></td>
<td></td>
<td>History: Kanaka Village/Vancouver Barracks garbage dump contained 16 superimposed culture laden strata from the Hudson's Bay Company and the U.S. Army occupation periods.</td>
<td></td>
</tr>
<tr>
<td>45ST97</td>
<td>Trench &amp; Cellar</td>
<td>Apparent Dump (1871-1907?)</td>
<td>995</td>
</tr>
<tr>
<td></td>
<td>Unit House</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trench-</td>
<td>House</td>
<td>112</td>
</tr>
<tr>
<td></td>
<td>Exploratory</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unit Privy</td>
<td>Used between 1855-1865</td>
<td>346</td>
</tr>
<tr>
<td></td>
<td>Natural Stratigraphy Blacksmith Shop and House</td>
<td>Apparent Dump by depositions (1871-1907?)</td>
<td>321</td>
</tr>
<tr>
<td></td>
<td>History: Fort Colville construction continued from 1825 to c. 1860 with demolition and structural improvements. Abandoned by the Hudson's Bay Company in 1871 it was a private ranch headquarters until 1907. All standing structures burned in 1910.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10KA45</td>
<td>Exploratory Building</td>
<td></td>
<td>165</td>
</tr>
<tr>
<td></td>
<td>Grid Block Position of Structure a. Church?</td>
<td>1700</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. West Sacristy</td>
<td>885</td>
</tr>
<tr>
<td></td>
<td>History: The Mission of the Sacred Heart was constructed c. 1850-1865 and still stands. Several companion buildings were constructed during this time-span. A residence near the rear of the church burned in 1864 and was replaced. A new parish house was constructed in 1895. Minor restoration was conducted in 1925.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Roenke 1978; 54-78
Table 15. Glass Assemblages from Table 24 and Excavation Source N. 6853

<table>
<thead>
<tr>
<th>Excavation</th>
<th>Site N.</th>
<th>% Total N.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exploratory Testing and Trenching</td>
<td>864*</td>
<td>12.6%</td>
</tr>
<tr>
<td>Grid Block</td>
<td>1700</td>
<td>24.8%</td>
</tr>
<tr>
<td>Inside a standing church structure</td>
<td>885</td>
<td>12.9%</td>
</tr>
<tr>
<td>Ponds, Privies and Cellars</td>
<td>3404</td>
<td>49.7%</td>
</tr>
</tbody>
</table>

*Unknown quantity discarded at one site: cultural association cannot be determined.
Table 16. Analyzed N. with Definable Attributes

<table>
<thead>
<tr>
<th>Attributes</th>
<th>% Hypothesis (N. 297)</th>
<th>Total (N. 297 or as indic.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aqua color throughout</td>
<td>.6%</td>
<td></td>
</tr>
<tr>
<td>Curvilinear Lines</td>
<td>25.0%</td>
<td>27.0%</td>
</tr>
<tr>
<td>Linear Lines</td>
<td>6.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Elongated Seeds and Bubbles</td>
<td>6.0%</td>
<td>6.0%</td>
</tr>
<tr>
<td>Round Seeds and Bubbles</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Knots</td>
<td>1.0%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Stones</td>
<td>.7%</td>
<td>.7%</td>
</tr>
<tr>
<td>Patina (Slight to very heavy)</td>
<td>52.0%</td>
<td>53.0%*</td>
</tr>
<tr>
<td>Opaque</td>
<td>17.0%</td>
<td>17.0%</td>
</tr>
<tr>
<td>Perfectly Clear</td>
<td>3.5%</td>
<td>3.5%</td>
</tr>
<tr>
<td>Straight Edge Shards (pane edges)</td>
<td>3.4%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Sand Impressed in Glass</td>
<td>2.0%</td>
<td>2.0%</td>
</tr>
</tbody>
</table>

*Represented by 1 reconstruction of 46 shards

Adopted from Roenke 1978.

Seeds and bubbles appear in discernible "bands" of the 46 shard reconstruction. See Figure 12 for specific data.
APPENDIX C

BRICK ASSEMBLAGE
C. BRICK ASSEMBLAGE

Brick, like ceramic, is formed from a multitude of clay types that may contain natural or intentionally added non-clay substances. Examples of these substances include minerals, rocks, vegetable fiber and sand. As with ceramics, bricks are hand-shaped, shaped in individual molds, group molds or, as in more recent processes, produced by machinery. The similarity with ceramics ends here. Unlike ceramics, bricks are normally perceived as construction materials. As utilitarian products, manufacturing techniques are not often hidden within finished bricks. Brickmaking techniques have changed through time, and these changes can often be observed on brick surfaces. See Table 17 for a short chronology of American brickmaking development.

Manufacturing techniques that provide aids to visual analysis of bricks include clay type, density, trimming and smoothing methods, firing levels and determinations of kilns used (in some cases). Trimming, the process of removing excess clay from brick molds, leaves tell-tale "signatures" of the process used on the top edge of each freshly molded brick. Smoothing, when required for a more finished look, is carried out on those surfaces that are expected to be seen after construction is completed. As an example, finished fireplace and external wall construction techniques may only show the narrow side and end portion of brick, thus these edges are smoothed, leaving the broad sides unmodified. The trimming and smoothing process is carried out while the brick is still in the greenware stage, producing handling marks, such as fingertip impressions and slipped edges (lipping) that may remain in the brick surface after firing. Firing methods vary, in the simplest terms, between low, medium and high temperatures. These firing levels, along with the type of clay used, produce the finished color. Color shade variations depend on the temperature employed, placement of an individual brick within the kiln and oxide quantities. Clay with concentrations of ferric oxide ($\text{Fe}_2\text{O}_3$), for example, will produce finished colors between pink and reddish black (McKee 1973:41). Within a single batch, or even a single brick, colors may vary dramatically. Reconstructed
bricks at the Hospital Site reflected color variations, caused by uneven firing and ground etching (?) that made it almost impossible to conceive of the fragments as having been from a single specimen. This factor makes interpretation of firing data from small fragments difficult unless density of the clay can be determined. Compaction, or density, varies by the process used to produce greenware brick. Machine produced bricks tend to have a denser consistency (weigh more per cubic inch) and have a firmer appearance than hand molded types (McKee; 43). In the firing process, bricks are often fused and melted at one end and unfired or low fired at the opposite end when clamp (or scove) kilns are employed. Clamp kilns are among the oldest known kiln designs. The greenware bricks form the kiln by careful arrangement of the bricks in stacks that leave hollow areas between the various stacks. Fires are built within these hollow areas. This method of firing was used extensively in pre-nineteenth century Eastern America. When a large building was to be built of brick, clamp kilns were often constructed at the construction site to produce the required brick (McKee; 42). Since the investment was small and limited technology was required, this method can be described as a "cottage industry" method of brick production.

A list of brick terms and measurable attribute concepts is contained in Table 18.

Beyond manufacturing analyses possibilities, modifications after the brick has reached the customer are also diagnostic. Modifications may consist of chipping, gouging or breaking to fit construction needs. In the latter case, bricks are often scored to enhance a desired point of breaking (as in halfing bricks for construction fillers or joints). Groat, cement, plaster, daubing, paint, metal stains and acid etching are also clues to brick usage. These modifications are often followed by a reuse of the whole brick or brick fragments as wall filler, patches for existing structures or even as furnishings (such as the popular book case supports of brick today).

17Iron oxide permeated a part of Feature One, and may have affected the color of some brick fragments (see Floral section, Floral inventory category D).
A preliminary evaluation of the brick assemblage indicated all of the diagnostic values discussed to this point were present in the assemblage with the exception of clear evidence of acid etching. Two percent of the Mission Hospital Site sample were complete specimens and ninety-four percent were small to pellet size fragments. Lumped together, the assemblage only provided raw data quantities. In order to construct a meaningful analysis for the diverse assemblage, (N 842), the raw data was placed in a series of subassemblages. Each specimen was placed in a subassemblage by its relative degree of completeness. Table 19 contains a list of these subassemblage categories.

Whole brick specimens consisted of fourteen high fire and two medium fire bricks (N 16). All but one of these bricks were associated with Feature One. Thirteen were hand molded and three were machine-made after 1920. Two of the hand molded brick contained straw and straw moldings (Walters 1982). Hand molded brick trim techniques clearly showed on nine specimens. Seven of these were trimmed by metal and two by stick method. All but one specimen in this subassemblage contained cultural modifications after firing. Smoke stains appeared on all but two bricks in Feature One. The single medium fired brick specimen from Feature Four was an example of the kind of brick found under the c. 1870 dining room and front room areas. The present ca. 1870 dwelling has a solid brick foundation, piers and a brace, all entirely of medium high to high fire (10R5/6) common brick. The medium and low fire bricks are not part of the present structure (see Table 20 and Feature Four).

The major fragments subassemblage consisted of two low fire specimens from Feature Four, one medium and ten high fire bricks from Feature One and one fire brick fragment from Feature Two (N 14). Two major fragment specimens from Feature Four were hand molded, low fire bricks that were identical to specimens discovered at the Willamette Mission Site (35MA5001). Trim methods for the sample were difficult to determine but trim techniques were discernable in nine specimens. Six were trimmed by metal, two by wire (after 1920) and one by stick. The subassemblage also contained three purposely scored and halfed specimens, all from Feature One. Additionally, three other fragments within Feature One were
halfed bricks, but lacked score markings. Within Feature One, four specimens contained iron oxide stains in nail-like shaped and one specimen contained a carbonized wood covered nail(?) bonded to the brick. This fragment exactly fit another fragment, indicating a nail had been driven through the brick splitting it (see Table 21).

Fragments with one complete edge (N 22) were proportionally more difficult to interpret than major fragments but nine were determined to be hand molded by a combination of trimming method and density values (see Table 22). This subassemblage contained three low fire, one medium fire and eighteen high fire specimens. The low fire sample interiors were almost raw clay and were all from Feature Four. The remainder of the sample was from Feature One. One high fire specimen contained a stylized "Y" impression that may represent a tool impression. Four specimens from Feature One contained typical clamp kiln production fused surfaces. Cultural modifications to this subassemblage after firing were extensive and very diversified. One low fire specimen from Feature Four had a very heavy soot layer typical of chimney flues. The other two low fire specimens were smoke stained on one surface as a consequence of their use as a garbage pit liner (see Feature Four). All of the fragments except the low fire sample were considered end (header) fragments. Complete edges ranged from 1 28/32 to 2 8/32 in., with a mean of 2 2/32 in. Test Unit A, AE, and H contained seven medium fire specimens with cement and plaster residue (see the Small Fragment Subassemblage for comments). Five specimens from Feature One contained daubing residue on 90 degree angle edges. One specimen also had daubing on the butt end.

The flat surface subassemblage contained fragments of mortared, medium fire brick. All of this brick was discovered within the disturbed zone above Feature One. These fragments could not be reconstructed although they appeared completely compatible with each other (down to cement texture). The in situ Feature One structure contained only daubed bricks. The source of these mortared brick fragments, unique within the assemblage, is not identifiable with any of the construction techniques employed for the site's historically documented structures. The
restriction of artifact movement between cultural zones (subsites) discussed in the Surface Evaluation section indicated the source of this brick may be the two story structure used as a chicken coop, ca. 1900.

Cultural modifications were extensive in this subassemblage. Thirteen fragments contained smoke smudges and burns, and one contained metal fragments and seven with signs of non-clay material moldings (some with rounded shapes typical of river pebbles). The high fire segment contained sixteen fragments with cement, one with plaster over cement, fourteen with daubing, twenty-six with smoke stains, seven with metal fragments, or stains, seven with inclusions, and two with a hydration layer or chemical compound on all broken surfaces. A dark header corner fragment (HSJ89) contained a very light whitish coating (paint?) on one edge.

The small fragment and pellet size subassemblage represented 65 percent of the brick sample but was more restrictive in distribution than the larger fragments with a flat surface with 29 percent of N (see Table 23 and 24). Feature One contained 58 percent of low fire, 48 percent of medium fire and 71 percent of high fire fragments in this subassemblage. This high concentration of small to pellet sized fragments in Feature One indicated the extent of upper level disturbance of this structural remnant by plowing.

Feature Two and Four contained almost none of this subassemblage. Feature Three contained only three percent of the high fire fragments. Test Unit E contained a large proportion of the remainder of the subassemblage. This concentration is too high to be considered random or fill from another part of the site. A comparison with the two non-culturally associated test units (B and C), indicated the random small to pellet size fragment count that should be expected within the first 20 cm. in a 1 x 2 m test unit (in that zone) should average ten percent or less of N (see Table 24). Test Unit E was established as a primary depositional point in the Surface Evaluation Section. The clear indication is that all three types of brick present in the assemblage in quantity have been utilized at the exterior foundation area of the c. 1870 dwelling at some time previous to that structure's construction.
Measurement Analysis

The use of brick measurements as a possible diagnostic tool has been debated for some time (Personal communication, Gurcke, 1982). One source suggests pre-machine shrinkage was up to fourteen percent of the total volume between loading the mold and obtaining the finished product. The porous greenware shrinkage was credited with an eight percent shrinkage and firing with another six percent (McKee, 42). Machine pressing techniques developed ca. 1870, producing a denser, "dry process" brick that had a minimum of shrinkage, thus a relatively stable brick size (McKee, 45). This sharp change in technology at a specific period of time should provide a diagnostic tool for brick interpretation and dating. This is particularly true since sharp edges and uniformity became fashionable in brick structures by the last half of the nineteenth century in America (McKee, 45).

Criteria for the examination of brick measurements as a possible diagnostic tool were based on the use of standards adapted by the National Brickmaker Association in 1899 (see Table 25; (McKee, 53). Automatic brick making equipment would have been designed to manufacture these standards after that time, if not before. In order to test this concept, the complete machine process bricks (all dating after 1920) were measured and these measurements were converted to volumes by multiplying the three measurements (L x W x H) and dividing that value by three (see Table 2E). Volume was a necessary criteria because linear shrinkage cannot be predicted for early brick with any degree of accuracy (McKee, 44), which probably raised the original problem of measurements as a diagnostic tool. The bricks volume conformed within -3.2 percent to the standard brick volume. Volumes of the other bricks in the assemblage were then measured in the same manner. The maximum variation from standard common brick

16Bricks at the Hopkins House, Annapolis, Md., C. 1860 were 8 x 4 x 2 1/8, a volume value within 8.5 percent of the standard, common brick (McKee, 53).
volume was +7 to -17.2 percent with seven bricks grouped from -17.2 to -10 percent and three bricks grouped from -5.6 to -4.2 percent. The first group clearly was not produced by the standard dry brick process. The second group could represent the standard dry brick process. To further analyze the diagnostic value, a confirming analysis was needed. As discussed earlier, the density of hand molded and machine produced brick should significantly differ as the dry brick machine compaction process should reasonably exceed hand molded brick density if the size of the complete bricks were reasonably close in volume. With a maximum deviation of -17.2 percent in volume and a minimum of -4.2 percent in volume, it was worth trying. The controls used for this analysis were to place the bricks on a dry surface within a single room for a two month period to avoid uneven dampness variations between the bricks. The range of weights for machine brick was 79 to 83 ounces, with an average of 80.6 ounces. Common hand made bricks averaged 70.7 ounces and stock bricks averaged 74.3 ounces (see Table 20). The brick with the largest volume in the assemblage (HSJ287) was 16 percent lighter than the average weight for machine made bricks. The remainder of the non-machine produced brick ranged from -21 to -11 percent in one grouping and -8 to -2 percent in a second grouping. The value of density was a measurable quantity. The resulting two values of density and volume were ranked for each brick, using the machine made bricks (after 1920) as a standard reference, i.e., the brick with the closest standard volume of 1899 was ranked One. All other bricks were ranked from Two to Thirteen. A second set of values, based on weight were assigned each brick. The heaviest, (densest) brick was ranked One and all other bricks were ranked accordingly. The two values were added. The resulting figures were then ranked from smallest value of combined ranking to the largest value (see Table 26. Independently established manufacturing techniques, previously recorded, were then added to each pre-coded brick. The ranking and manufacturing techniques indicated a grouping that was supported by the assigned ranking (see Table 26). A larger sample should separate the groupings further. As a check on the validity of such a small assemblage, two complete brick specimens (all that was recovered) from the
cellar of a dwelling known to have been constructed c. 1855-1857 were selected for the same analyses. These bricks (from the Fiechter House) were clearly hand molded bricks, and had been bound together as part of the dwelling's cellar walls by daubing, not cement. One of the two was a clamp produced brick (dark header). Rated with the site brick assemblage they produced the furthest deviation in ranking from the standard, a value of 22 and 20 versus 4. The Fiechter brick with manufacturing techniques valued at 20, contained the same surface manufacturing technique as assemblage brick AE1 (rated at 19).

Analysis

All but one whole brick in the small assemblage had been recovered from a single structural detail (Feature One). The combined ordering value arrived at by adding volume and weight ranked the bricks in a chronological pattern. When each brick's method of manufacture was added to the numerical ordering, groupings were confirmed for the ordering values. When known dates and periods of manufacture or use were added, the system formed a chronology.

The ordering in this small assemblage indicated two periods which were far apart, for metal trimming and use of sand struck brick. Clamp kiln production was employed from the earliest specific date of brick-making in the area (1855-1857) until just prior to machine production was introduced. Hand molded brick was the most common and progressed in compaction through time. Firing levels, i.e., colors, are not connected with chronology. The combination of non-standard size, light weight (with reasonable level of volume comparisons) and manufacture technique reflected a chronology of 1855-57 to post-1920 for the brick in Feature One. This thesis should be further tested with much larger, datable assemblages.
TABLE 17. Short Chronology of American Brickmaking Development

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1792</td>
<td>First brickmaking machine patent issued.</td>
</tr>
<tr>
<td>1833</td>
<td>A few brick machines in use, Eastern United States.</td>
</tr>
<tr>
<td>c. 1850</td>
<td>Sharp edge, dense bricks become fashionable.</td>
</tr>
<tr>
<td>c. 1870</td>
<td>Large scale use of brickmaking machines, mostly English-made.</td>
</tr>
<tr>
<td></td>
<td>Introduction of oblique blade and wire greenware cutters.</td>
</tr>
<tr>
<td>c. 1870</td>
<td>Dry-clay process introduced to reduce drying and firing shrinkage.</td>
</tr>
<tr>
<td>1899</td>
<td>National Brickmaker's Association adopts standard brick sizes:</td>
</tr>
<tr>
<td></td>
<td>Common Brick 8 8/32 x 4 x 2 6/32 in.</td>
</tr>
<tr>
<td></td>
<td>Stock (Face) Brick 8 12/32 x 4 x 2 12/32 in.</td>
</tr>
<tr>
<td></td>
<td>Roman Brick 12 x 4 x 1 16/32 in.</td>
</tr>
<tr>
<td>c. 1920</td>
<td>Introduction of semi-circular wire greenware cutters.</td>
</tr>
<tr>
<td>To Present</td>
<td>Continued use of c. 1870 brick making machines for aesthetic qualities. (Portland, Oregon)</td>
</tr>
</tbody>
</table>

Source: Gurcke, 1982
         McKee, 1973:4-46, 53
<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clay</td>
<td>Earthen materials often mixed with additives to produce brick.</td>
</tr>
<tr>
<td>Common Brick</td>
<td>Some irregularities and softer consistency than stock bricks.</td>
</tr>
<tr>
<td>Cutter</td>
<td>An automatic machine function that slices off individual bricks at appropriate sizes after clay is forced through a shaping process. Trim marks are left on both sides of brick unless retrimming is desired.</td>
</tr>
<tr>
<td>Dark Header</td>
<td>Over-fired brick end produced by clamp and scove kiln production that places some brick-ends close to fires. Used by brick-masons for decorative relief on external walls, etc.</td>
</tr>
<tr>
<td>Finger tip Impressions</td>
<td>Circular impressions in bricks, produced by handling greenware. Finger prints do not usually show.</td>
</tr>
<tr>
<td>Fire</td>
<td>Process of hardening greenware by various sources of heat, i.e., wood, brush, straw, coal and natural gas (modern). See Text.</td>
</tr>
<tr>
<td>Greenware</td>
<td>Non-fired, semi-stiff condition of a brick.</td>
</tr>
<tr>
<td>Lipping</td>
<td>Frosting-like buckling or lifting of right-angle edges that should be flat. Not to be confused with melted edges caused by over firing &quot;drupe&quot; which is accompanied by dark burn dis-colorations (see Dark Header).</td>
</tr>
<tr>
<td>Multiple strikes</td>
<td>Retrimming to smooth rough surfaces when desired for visible construction work.</td>
</tr>
<tr>
<td>Sand struck</td>
<td>Sand granules imbedded in brick surfaces caused by dusting molds prior to filling with clay. The top edge (trimmed edge) will be free of this coating. (Not be be confused with &quot;sanded&quot;).</td>
</tr>
</tbody>
</table>
### Table 18 cont.

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sanded</strong></td>
<td>Application of sand (usually rounded grains) after greenware is produced, normally evenly distributed throughout brick.</td>
</tr>
<tr>
<td><strong>Stock Brick</strong></td>
<td>More uniform appearance than Common Brick and denser consistency. Popular after c. 1850 in America.</td>
</tr>
<tr>
<td><strong>Trim</strong></td>
<td>A process of passing a straight edge across a filled mold to level overfills to mold tops. Depending on drag coefficient, caused by the amount of impurity clumps at surface, distinct patterns develop by trim devices resiliency:</td>
</tr>
<tr>
<td><strong>Stick Trim</strong></td>
<td>Straight, medium to heavy furrows one edge.</td>
</tr>
<tr>
<td><strong>Metal Trim</strong></td>
<td>Straight, heavy furrows with occasional indentations and hollowed-out areas where impurities have been pushed or removed from mold.</td>
</tr>
<tr>
<td><strong>Wire Trim</strong></td>
<td>Fine straight lines. Semi-circular lines on two edges indicate Automatic machine trim (after 1920).</td>
</tr>
<tr>
<td><strong>Knife or Blade Trim</strong></td>
<td>Straight or elliptical lines on both sides (unless multiple strikes employed to smooth). Machine Production c. 1850? - 1920?</td>
</tr>
<tr>
<td><strong>Water Struck</strong></td>
<td>Process of trimming (smoothing) with water which causes a smooth, fluid finish.</td>
</tr>
</tbody>
</table>

Source: McKee, 1973
Gurcke, 1982
<table>
<thead>
<tr>
<th>Category (I)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Complete specimens, including reconstructions</td>
</tr>
<tr>
<td>II</td>
<td>Major breaks but with more than one complete edge</td>
</tr>
<tr>
<td>III</td>
<td>Fragments with one complete edge</td>
</tr>
<tr>
<td>IV</td>
<td>Small and pellet size fragments</td>
</tr>
<tr>
<td>V</td>
<td>Possible brick fragments (See Appendix Category VIII Brick(?))</td>
</tr>
</tbody>
</table>
Table 20. Complete Brick Specimens (N 16)

<table>
<thead>
<tr>
<th>Unit</th>
<th>Sand Struck</th>
<th>Sanded</th>
<th>Trimmed</th>
<th>Lipped</th>
<th>Dark Header</th>
<th>Weight (ounces)</th>
<th>Size (inches) (32/32=1)</th>
<th>Comments and Cultural Modifications after Firing</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>x</td>
<td>M</td>
<td>x</td>
<td></td>
<td></td>
<td>77</td>
<td>7 24/32 x 3 24/32 x 2 4/32</td>
<td>Stock hand molded; smoke stains after firing. Feature One.</td>
</tr>
<tr>
<td>A</td>
<td>x</td>
<td>?</td>
<td>x</td>
<td></td>
<td></td>
<td>77</td>
<td>8 x 3 24/32 x 2 6/32</td>
<td>Common hand molded; reconstructed (three fragments). Feature One.</td>
</tr>
<tr>
<td>A</td>
<td>x</td>
<td>?</td>
<td>x</td>
<td>x</td>
<td></td>
<td>72</td>
<td>8 4/32 x 4 x 2 6/32</td>
<td>Stock hand molded; smoke stains after firing. Daubing. Feature One.</td>
</tr>
<tr>
<td>A</td>
<td>x</td>
<td>S</td>
<td></td>
<td></td>
<td></td>
<td>74</td>
<td>8 8/32 x 4 x 2 4/32</td>
<td>Stock hand molded; smoke stains after firing. Daubing. Feature One.</td>
</tr>
<tr>
<td>AE</td>
<td>x</td>
<td>M</td>
<td>x</td>
<td></td>
<td></td>
<td>70</td>
<td>8 x 3 16/32 x 2 6/32</td>
<td>Common hand molded; smoke stains after firing. Daubing. Feature One.</td>
</tr>
<tr>
<td>AE</td>
<td>x</td>
<td>M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8 2/32 x 3 16/32 x 2 6/32</td>
<td>Hand molded; smoke stains after firing. Daubing. Feature One.</td>
</tr>
<tr>
<td>Table 20 cont.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H x S x 79 7 24/32 x 3 24/32 x 2 8/32 Hand molded; smoke stains after firing, daubing.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H x M 69 8 10/32 x 3 26/32 x 2 2/32 Hand molded; smoke stains after firing. Feature One.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H x M x 75 8 12/32 x 4 x 2 4/32 Stock hand molded; smoke stains after firing. Feature One.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H x M x x 8 4/32 x 3 28/32 x 2 4/32 Hand molded Feature One.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H x S ? 64 8 16/32 x 4 4/32 x 2 4/32 Early hand molded, 10R6/8; smoke stains after firing. Feature One.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J S? x 68 8 x 4 x 2 16/32 Early hand molded, 10R6/8; smoke stains after firing. Feature Four. Represents 100 bricks and fragments in and around Test Unit J.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note 1. Three specimens were not weighed owing to reduced surfaces that would materially change weights. All had all six edges intact and are otherwise completed specimens.
<table>
<thead>
<tr>
<th>Unit</th>
<th>Sand Struck</th>
<th>Samled</th>
<th>Trim</th>
<th>Lipping</th>
<th>Dark Header</th>
<th>Size in Inches</th>
<th>Comments and Cultural Modifications after Firing. Firing 10R5/6 unless otherwise indicated</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>x</td>
<td>M</td>
<td>x</td>
<td>x</td>
<td></td>
<td>4 x 2 4/32</td>
<td>10R6/8, scoring lines one edge (brick half); Feature One.</td>
</tr>
<tr>
<td>F</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4 8/32 x 2 18/32</td>
<td>Fire Brick, fine grain throughout; Feature Two.</td>
</tr>
<tr>
<td>H</td>
<td>M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 28/32 x 2 2/32</td>
<td>Stiff clay, semi-circular trim line one edge; surface burns after firing, daubing; Feature One.</td>
</tr>
<tr>
<td>H</td>
<td>x</td>
<td>M</td>
<td>?</td>
<td></td>
<td></td>
<td>3 24/32 x 2 4/32</td>
<td>Machine made after 1920, broken surfaces burned intensely; Feature One.</td>
</tr>
<tr>
<td>H</td>
<td>W</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4 x 2 14/32</td>
<td>Stiff clay, nail(?) attached by carbonized wood fragments. Reconstruction (2 fragments); Feature One.</td>
</tr>
<tr>
<td>H</td>
<td>M?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 16/32 x 2 6/32</td>
<td>Nail impression marks (round stains) two corners, half a brick, daubing and singe marks. Reconstructed (3 fragments); Feature One.</td>
</tr>
<tr>
<td>H</td>
<td>S</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td>4 x 2</td>
<td>Stiff clay; Feature One</td>
</tr>
<tr>
<td>H</td>
<td>x</td>
<td>M</td>
<td>4 2/32 x 2 6/32</td>
<td>Smoke stains and daubing, brick half; Feature One.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>x</td>
<td>M</td>
<td>x</td>
<td>4 x 2 6/32</td>
<td>Stiff clay, rust stains, daubing(?). Reconstruction (2 fragments); Feature One.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>x</td>
<td>M</td>
<td>x</td>
<td>4 x 2 6/32</td>
<td>Stiff clay, scoring marks two edges, brick half; Feature One.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HE</td>
<td>x</td>
<td>M</td>
<td>x</td>
<td>2 2/32 x 3 28/32</td>
<td>Hand molded, rust stains; Feature One.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>?</td>
<td>x</td>
<td>3 10/32 x 2 4/32</td>
<td>Hand molded, center almost unfired with shingle-like surfaces, 7.5YR7/6. Matches brick samples from 35MA5001; Feature Four.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>x</td>
<td>x</td>
<td>4 x 2 6/32</td>
<td>Hand molded, center very low fired, 7.5YR7/6; Feature Four.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 22 Brick Fragments With One Complete Edge (N 22)

<table>
<thead>
<tr>
<th>Unit</th>
<th>Trim</th>
<th>Lipping</th>
<th>Dark Header</th>
<th>Size in Inches</th>
<th>Comments and Cultural Modifications after Firing. Firing 10R5/6 unless otherwise noted</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>x</td>
<td></td>
<td></td>
<td>2</td>
<td>Daubing(?)</td>
</tr>
<tr>
<td>AE</td>
<td>W</td>
<td>?</td>
<td></td>
<td>2 6/32</td>
<td>Stiff clay, cement one edge, daubing stain(?)</td>
</tr>
<tr>
<td>AE</td>
<td>x</td>
<td></td>
<td></td>
<td>2</td>
<td>Hand made, inclusion molds, reconstructed (2 fragments.</td>
</tr>
<tr>
<td>H</td>
<td>M</td>
<td></td>
<td></td>
<td>2</td>
<td>10R6/8, hand molded, metal stains one edge, smoke smudges two edges, Feature One.</td>
</tr>
<tr>
<td>H</td>
<td></td>
<td>128/32</td>
<td></td>
<td></td>
<td>Hand molded, inclusion molds, cement one edge.</td>
</tr>
<tr>
<td>H</td>
<td>W?</td>
<td></td>
<td></td>
<td>2</td>
<td>Hand molded, daubing stains(?), cement one edge.</td>
</tr>
<tr>
<td>H</td>
<td></td>
<td>2 6/32</td>
<td></td>
<td></td>
<td>Daubing, carbonized wood one edge; Feature One.</td>
</tr>
<tr>
<td>H</td>
<td>M</td>
<td>2 2/32</td>
<td></td>
<td></td>
<td>Hand molded, inclusion molds, daubing stains(?)</td>
</tr>
<tr>
<td>H</td>
<td></td>
<td>1 30/32</td>
<td></td>
<td></td>
<td>Stiff clay, inclusion molds; Feature One.</td>
</tr>
<tr>
<td>H</td>
<td>S</td>
<td>2 2/32</td>
<td></td>
<td></td>
<td>Daubing stains; Feature One.</td>
</tr>
<tr>
<td>H</td>
<td></td>
<td>2 6/32</td>
<td></td>
<td></td>
<td>Feature One.</td>
</tr>
</tbody>
</table>
Table 22 cont.

<table>
<thead>
<tr>
<th></th>
<th>x</th>
<th>2 4/32</th>
<th>Stiff Clay, daubing stains; Feature One.</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>x</td>
<td>2</td>
<td>Letter &quot;Y&quot;(?) impressed one edge, stiff clay, reconstruction (2 fragments); Feature One.</td>
</tr>
<tr>
<td>H S</td>
<td></td>
<td>2</td>
<td>Gouge mark one short edge; Feature One.</td>
</tr>
<tr>
<td>H M?</td>
<td></td>
<td>2 2/32</td>
<td>Stiff clay, cement one edge; Feature One.</td>
</tr>
<tr>
<td>H M</td>
<td>x</td>
<td>1 30/32</td>
<td>Hand molded; Feature One.</td>
</tr>
<tr>
<td>H M</td>
<td></td>
<td>2 4/32</td>
<td>Cement one edge.</td>
</tr>
<tr>
<td>H</td>
<td></td>
<td>2 8/32</td>
<td>Medium clay, metal stain on broken surface, cement one edge.</td>
</tr>
<tr>
<td>J M</td>
<td></td>
<td>2 2/32</td>
<td>7.5YR7/6 soft clay, Feature Four.</td>
</tr>
<tr>
<td>J S?</td>
<td></td>
<td>2 4/32</td>
<td>7.5YR7/6 soft clay, thick smoke deposit; Feature Four.</td>
</tr>
<tr>
<td>J</td>
<td></td>
<td>2 6/32</td>
<td>7.5YR7/6 soft clay, Feature Four.</td>
</tr>
</tbody>
</table>
Table 23: Fragments with a flat Surface (N 241)

<table>
<thead>
<tr>
<th>Unit</th>
<th>10R5/6 (N 171)</th>
<th>10R6/8 (N 44)</th>
<th>7.5YR7/6 (N 25)</th>
<th>White (N 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>42</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>AE</td>
<td>12</td>
<td>8</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>B</td>
<td>6</td>
<td>2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>C</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>E</td>
<td>15</td>
<td>-</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>F</td>
<td>8</td>
<td>25</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>G</td>
<td>11</td>
<td>5</td>
<td>6</td>
<td>-</td>
</tr>
<tr>
<td>GE</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>H</td>
<td>73</td>
<td>2</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>HE</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>J</td>
<td>1</td>
<td>-</td>
<td>7</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 24: Very Small and Pellet Size Fragments (N 549)

<table>
<thead>
<tr>
<th>Unit</th>
<th>10R5/6 (N35)</th>
<th>10R6/8 (N 422)</th>
<th>7.5YR7/6 (N 92)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>21</td>
<td>78</td>
<td>36</td>
</tr>
<tr>
<td>AE</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>B</td>
<td>3</td>
<td>36</td>
<td>9</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
<td>8</td>
<td>-</td>
</tr>
<tr>
<td>D</td>
<td>-</td>
<td>21</td>
<td>-</td>
</tr>
<tr>
<td>E</td>
<td>4</td>
<td>153</td>
<td>26</td>
</tr>
<tr>
<td>F</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>H</td>
<td>3</td>
<td>126</td>
<td>21</td>
</tr>
<tr>
<td>U.S. Brickmaker Standards</td>
<td>Converted to 32 thirty-seconds of an inch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Brick 8 8/32 x 4 x 2 8/32</td>
<td>264 x 128 x 72/32 = 464 \div 3 = 154.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stock Brick 8 3/8 x 4 x 2 3/8</td>
<td>259 x 128 x 67/32 = 454 \div 3 = 151.3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 26: Complete Brick Ranking With Sample Comparisons (N 13)

<table>
<thead>
<tr>
<th>Cubic Inches</th>
<th>Cubic Inch Ranking</th>
<th>Weight in Ounces</th>
<th>Weight Ranking</th>
<th>Total Ranking</th>
<th>Manufacturing Techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td>A₁</td>
<td>61.8</td>
<td>10</td>
<td>77</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>A₂</td>
<td>65.6</td>
<td>-</td>
<td>-</td>
<td>*1</td>
<td></td>
</tr>
<tr>
<td>A₃</td>
<td>71.1</td>
<td>6</td>
<td>72</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>A₄</td>
<td>70.1</td>
<td>7</td>
<td>74</td>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td>Aₑ₁</td>
<td>61.3</td>
<td>11</td>
<td>70</td>
<td>8</td>
<td>19</td>
</tr>
<tr>
<td>Aₑ₂</td>
<td>61.7</td>
<td>-</td>
<td>-</td>
<td>*1</td>
<td></td>
</tr>
<tr>
<td>Aₑ₃</td>
<td>77.8</td>
<td>4</td>
<td>79</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Aₑ₄</td>
<td>74.5</td>
<td>1</td>
<td>70</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>H₁</td>
<td>65.4</td>
<td>9</td>
<td>79</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>H₂</td>
<td>72.6</td>
<td>2</td>
<td>83</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>H₃</td>
<td>77.2</td>
<td>3</td>
<td>80</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>H₄</td>
<td>65.4</td>
<td>9</td>
<td>69</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>H₅</td>
<td>71.2</td>
<td>5</td>
<td>75</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>H₆</td>
<td>66.9</td>
<td>-</td>
<td>-</td>
<td>*1</td>
<td></td>
</tr>
</tbody>
</table>
Table 26 cont.

<table>
<thead>
<tr>
<th></th>
<th>J</th>
<th>80</th>
<th>8</th>
<th>68</th>
<th>10</th>
<th>18</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unknown trim, medium fire, pre 1870 (by context).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fletcher House

1 55.7 (12) (68) (10) (22)<sup>2</sup> Hand molded, clamp kiln, 1855-1857 (by context).

2 54.4 (13) (72) (7) (20)<sup>2</sup> Hand molded; daubing, 1855-1857 (by context).

Standard (1899) See Tables 12 and 20

1 Common Brick

<table>
<thead>
<tr>
<th></th>
<th>Standard for machine produced only, owing to shrinkage of non-dry process.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>74.3 (1) (75.4)&lt;sup&gt;3&lt;/sup&gt; (5) (6)&lt;sup&gt;4&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

2 Stock Brick

<table>
<thead>
<tr>
<th></th>
<th>Standard for machine produced only, owing to shrinkage of non-dry process.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>79.5 (8) (80.6)&lt;sup&gt;5&lt;/sup&gt; (2) (10)&lt;sup&gt;4&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>1</sup>Missing segments of surface, unusable in total ranking.

<sup>2</sup>Would be ranking if in assemblage.

<sup>3</sup>Based on average weight for machine made bricks in assemblage, reduced 8.8% by difference from volume of stock brick.

<sup>4</sup>Would be ranking if in assemblage, realigning all higher values accordingly, i.e., the value of the assemblage value rating for H5 would become 12, vice 10.

<sup>5</sup>Based on average weight for machine made bricks in assemblage.
APPENDIX D

FAUNAL AND SHELL ASSEMBLAGES
D. FAUNAL AND SHELL ASSEMBLAGES

The faunal assemblage, N 291, consisted of each faunal specimen recovered during the testing phase. The assemblage was identified to species where possible. The Oregon State University, Department of Anthropology, comparative faunal collection was utilized for this identification process. Where species was not identified, family and subfamily that could be eliminated from consideration was noted i.e., not deer, sheep, or cow. Butchering marks perceived with the naked eye, articulations and reconstructions were noted.

Catalog numbers follow the same identification system as artifact numbering excepting "F" (for faunal) follows the serialized number in each case i.e., "HSF02F" represents Hospital Site, Test unit F, second faunal sample recovered (at the 00-20 cm. level in this case).

Most of the recovered sample represented domestic species that were butchered before reaching full maturity. Non-domesticated species were utilized to supplement these domesticated food resources. The dietary based faunal sample discovered in context was restricted in distribution to secondary depositions. These depositions were under the existing ca. 1870 dwelling (Feature Four), Surface Scatter Area (Feature Two) and the privy (Feature Three). The subassemblage in the privy indicated a well diversified protein diet during the short (no more than three months) depositional period. The appearance of pests, represented by Vole (Microtus) and Rat (Rattus) in the assemblage, indicated a problem with these pests at the dwelling. A problem that continues today (Personal communication, Witteman).

Swine (Sus scrofa) and Duck (Anas sp.) assemblages were discovered in Feature Four and, in situ, above and within Feature Three. This indicated a utilization of these resources from early settlement to very recent. Additionally, large, medium and small mammal assemblages were present in both features and represented a like-period of dietary resource utilization (see Table 27).
Shell

Two samples of shell were recovered. A mother-of-pearl fragment and a clam lip fragment. These may be dietary, ornamental or collectables. The mother-of-pearl fragment closely resembles one of the shell buttons in the subsurface artifact assemblage (see IA3a, HSJ60), but is a much larger, oblong fragment. The light-brown clam shell lip appears to be a salt water species but is not large enough to identify. Both fragments were discovered in the secondary deposition under the ca. 1870 dwelling (Feature Four).
<table>
<thead>
<tr>
<th>Species</th>
<th>Feature Number</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Two 00-60 cm.</td>
<td>Three 00-90 cm.</td>
<td>Four 00-30 cm.</td>
<td></td>
</tr>
<tr>
<td>Chicken (Gallus sp.)</td>
<td></td>
<td></td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Cow (Bos taurus sp.)</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Deer (Odocoileus sp.)</td>
<td></td>
<td></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Duck (Anas sp.)</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weasel (Mustela erminea)</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Fish (Saimonidae sp.)</td>
<td></td>
<td></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Muskrat (Ondatra zibethicus)</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Pig (Sus scrofa)</td>
<td>4</td>
<td>20</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Rat (Rattus rattus)</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sheep (Ovis aries)</td>
<td></td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Turkey (Meleagris gallopavo)</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vole (Microtus richardsoni)</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unidentified Bird (Galliformes)</td>
<td>9</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unidentified Bird (Aves)</td>
<td>11</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unidentified Mammals (Mammalia):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large mammal size</td>
<td>6</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large mammal with butchering marks</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Medium mammal size</td>
<td>3</td>
<td>31</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>Medium mammal size with butchering marks</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Small mammal size</td>
<td>4</td>
<td>22</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Unidentified bone fragments</td>
<td>6</td>
<td>45</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
FAUNAL ASSEMBLAGE

I AVES
IA Anas sp.
a Left humerus, broken at diaphysis, distal end missing; N
    HSJ  1
b Right humerus, broken at diaphysis; N
    HSG  1
c Scapula, anterior portion missing; N
    HSG  1
IB Meleagris gallopavo
a Coracoid, distal end missing; N
    HSG  1
b Left humerus, broken at diaphysis, distal end missing; N
    HSG  1
c Left metacarpals, osmetacarpal 3 is broken; N
    HSG  1
d Left radius fragment, matches IBe; N
    HSG  1
e Left radius fragment, matches each other; N
    HSG  2
f Right tibia, broken at diaphysis, proximal end of epiphyses not fused; N
    HSG  1
g Left ulna fragments, match each other; N
    HSG  2
h Ulnar carpal; N
    HSG  1
IC Gallus sp.
a Coracoid, epiphyses are missing, proximal end immature; N
    HSJ  1
b Left humerus, distal end deteriorated, proximal epiphyses fused, partially missing; N
    HSG  1
c  Right humerus, HSJ88F broken at diaphysis, proximal end missing; N
    HSG  1
    HSJ  1

d  Left, second and third metacarpal; N
    HSG  1
    HSJ  1

e  Right radius, epiphyses are missing; N
    HSJ  1

f  Left scapula, deteriorated along superior edge of blade, distal end missing; N
    HSG  1

g  Right scapula, epiphyses broken on posterior end; N
    HSG  1

h  Right ulna, ocecranon missing, seimi-lunar notch badly deteriorated coronoid process missing proximal end, trochlea distal end badly deteriorated; N
    HSG  1

i  Vertebrae; N
    HSG  1

j  Cervical vertebrae, approximately fourteenth foramen present, right side; N
    HSD  1

ID  Stellulula coltipes

a  Lower mandible; N
    HSB  1

IE  Galliformes

a  Unidentified whole and fragmented bone; N
    HSG  9
    HSJ  7

IF  AVES

a  Unidentified whole and fragmented bone; N
    HSG  11
    HSJ  1
MAMMALIA

IIA Bos taurus sp.

a Right femur proximal portion, evidence of butchering cut superiorly inferiorly through the bone; N

   HSJ 1

b Patella, left; N

   HSG 1

c Patella, right; N

   HSJ 1

d Patella fragment; N

   HSF 1

e Left scapula, glenoid fossa and neck present, blade missing; N

   HSJ 1

IIB Microtus richardsoni

a Right pelvis girdle, ischium acetabulum and ilium present; N

   HSG 1

b Cranium, mandible missing; N

   HSD 1

c Cranial fragment with dentition; N

   HSD 1

d Right tibia, proximal epiphyses missing, diaphysis broken below midsnart; N

   HSG 1

IIC Mustela erminea

a Skull; N

   HSJ 1

IID Odocoileus sp.

a Left humerus diaphysis fragment, proximal end deteriorated about the epiphyses, diaphysis broken about midsnart inferior to nutrient foramen, evidence of cut marks at break; N

   HSJ 1

b Right humerus, diagonal butchering saw marks just inferior to the nutrient foramen, proximal end broken, rodent gnawing after discarding, just inferior of epiphyses; N

   HSJ 1
c  Left scapula fragment, very well muscled specimen; N
   HSJ  1

d  Ulna, left posterior fragment, semi-lunar notch present; N
   HSJ  1

IIE  Ondatra zibethicus
a  Right tibia; N
   HSJ  1

IIF  Ovis aries
a  Right femur, distal epiphyses; N
   HSJ  1
b  Lumbar vertebral body and epiphyses reconstructed (HSJ18F and
   HSJ74F), epiphyses not fused; N
   HSJ  1
c  Right tibia, proximal diaphysis (HSJ12F and HSJ63F) reconstructed
   epiphyses and anterior diaphysis missing, proximal diaphysis not
   fused; N
   HSJ  1

IIG  Rattus rattus
a  Right frontal maxilla, premaxilla, nasal, temporal, three
   molars; N
   HSJ  1
b  Right maxillary fragment; N
   HSJ  1
c  Left scapula, distal blade margins missing; N
   HSG  1
d  Left tibia, HSG164F distal end missing; N
   HSG  1
   HSJ  1
e  Right tibia; N
   HSG  1

IIH  Sus scrofa
a  Calcaneous, right side distal end missing; N
   HSF  1
   HSG  1
b  Carpal scaphoid; N
   HSG  1
Right femur, distal and proximal articulations and epiphyses missing, scratches present may be knife induced; N

HSG  1

d Right femur, distal portion missing, proximal end missing, spiral fracture; N

HSJ  1

e Fronto, parietal suture not fused, parietal-occipital suture occipit partially fused, right and left parietal occipit; N

HSJ  1

f Left humerus, missing proximal end, distal end broken with cut marks and scratches, epiphyses not fused; N

HSG  1

g Left humerus, proximal diaphysis and epiphyses missing, knife-like scratches; N

HSG  1

h Right humerus, distal portion of diaphysis epiphyses deteriorated and fused, spiral fracture break on diaphysis; N

HSJ  1

i Right humerus, diaphysis and proximal articulations missing, step fractures distal end; N

HSJ  1

j Incisor, maxillary, fragment; N

HSG  1

k Lumbar vertebrae, epiphysis not fused, anterior articulating process deteriorated, left side of body saw-cut; N

HSJ  1

l Mandibular incisor; N

HSF  1

m Mandibular premolar P-3 right side, with slight wear; N

HSF  1

n Maxilar molar, well worn; N

HSJ  1

o Right maxilla, articulated with a slight wear pattern, bearing permanent molar and premolar; N

HSF  1

p Right central maxillary incisor, slight to moderate wear pattern; N

HSJ  1
q Right maxillary molar (M3), very slight wear pattern, HSJ90F (P2), crown is fragmentary; N
   HSJ  2
r Metacarpal, tarsal; N
   HSG  1
s Left metatarsal; N
   HSG  1
t Metatarsal, carpale, distal end deteriorated; N
   HSG  2
u Phalange; N
   HSG  8
v Right temporal fragment, meatus and zygomatic present; N
   HSG  1
w Thoracic vertebrae, epiphyses not fused, deterioration on cortex and anterior articulating facets; N
   HSJ  1
x Right tibia, proximal epiphyses and articulation missing, distal epiphyses deteriorated and unfused; N
   HSG  1
y Right ulna, distal end missing, fragmented proximal portion, epiphysial union discernable in lunar notch, HSJ54F contains butcher marks, anterior margins; N
   HSJ  2
z Vertebrae fragment with butcher marks; N
   HSJ  1
II-1 Mammalia, Unidentified, large size animal
a Rib fragments, HSJ42F sternal end; N
   HSG  2
   HSJ  2
b Rib fragments with butchering marks; N
   HSF  1
   HSG  4
   HSJ  1
c Long bone fragments, diaphysis HSG166F cross-sectioned by butchering; N
   HSG  1
   HSJ  1
d Pelvic-like fragment, butcher marks; N  
   HSG  1

IIJ Mammalia, Unidentified, medium size animal  
a Rib fragments, mid-sections; N  
   HSF  3  
   HSG 11  
   HSJ 13

b Rib fragments with butchering marks; N  
   HSF  1  
   HSG 12  
   HSJ  1

c Rib fragment, sternal end; N  
   HSG  7

d Rib fragment, vertebral end; N  
   HSJ  5

e Rib fragment, vertebral end, knife marks; N  
   HSJ  1

f Vertebrae body, epiphysis not fused, cut parallel to body; N  
   HSG  1

g Vertebrae, butchering marks; N  
   HSG  1

h Lumbar vertebral fragment, epiphyses fused, anterior cut perpendicular to body, right transverse process missing; N  
   HSJ  1

i Lumbar vertebral fragment, posterior articulating facets, spinous process and left anterior articulating process present (HSJ91F not deer or goat, most closely resembles pig); N  
   HSJ  2

j Lumbar vertebral fragment, apparent cut parallel to body, epiphyses fused, right transverse process and posterior articulating process and body part present; N  
   HSJ  1

k Tarsals/carpals; N  
   HSJ  2

l Right ilium; N  
   HSJ  1
m. Vertebral fragment, spinous process; N  
   HSJ 1
n. Vertebral body fragment; N  
   HSJ 1
o. Epiphysis fragment; N  
   HSJ 1
p. Lumbar vertebrae, epiphyses not fused, approximate size of HSJ3OF, saw-cut along anterior process and on right side, detaching lateral part of anterior and posterior articulating facets, anterior cut is at same angle as IIJz; N  
   HSJ 1

IIK Mammalia, Unidentified, small size animal
   a. Right femur fragment, reconstructed; N  
      HSG 2
   b. Phalange; N  
      HSG 1
c. Scapula fragment, glenoid fossa present; N  
      HSG 1
d. Vertebrae; N  
      HSG 1
e. Left front carpal; N  
      HSF 1
f. Long fragments; N  
   HSF 1
   HSG 1

IIL Unidentified mammalia bone fragments; N  
   HSF 2
   HSG 13
   HSJ 6

IIM Unidentified mammalia bone fragments with butchering marks; N  
   HSG 4

III PESCES
IIIA Salmonidae
   a. Vertebrae, three with all or parts of spines missing; N  
      HSG 4
<table>
<thead>
<tr>
<th>IV</th>
<th>Unidentified bone fragments; N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HSB 1</td>
</tr>
<tr>
<td></td>
<td>HSE 1</td>
</tr>
<tr>
<td></td>
<td>HSF 6</td>
</tr>
<tr>
<td></td>
<td>HSG 45</td>
</tr>
<tr>
<td></td>
<td>HSJ 6</td>
</tr>
</tbody>
</table>
E. FLORAL ASSEMBLAGE

The Hospital Site contained at least one example of each native Northwest America tree in a natural growth state and 14 acres of cultigens (see Environmental Section). A physical examination of the site indicated distinct zones of growth for cultigens and natural flora. These zones were separated by natural and cultural usage barriers (see Figure 4). The natural growth zone had a long history of containment within the southern edge of the site. It was concluded that these barriers would have acted to prevent or greatly reduce movement of natural flora from their restricted growth zones into an otherwise cultural context. Flora should have been in cultural context situations by direct or indirect human activity, not natural process. The floral assemblage would test this conclusion.

Excluding living roots, 269 separate floral samples, total weight 793 grams, were recovered. The samples consisted of fragments discovered in specific cultural context and as level samples after screening. The analyzed sample totalled approximately 20 percent of N (Walters, 1981). Several techniques were employed to sort and prepare samples. Small organic fragments were separated from soil samples by flotation or dry and wet pecks under microscopic conditions. Wood and bark samples were stabilized with paraffin or toluene soaks. Toluene was employed in the field to preserve delicate samples, and additionally, functioned to stabilize cross-sections for slide preparation. The floral examination included species identification, human and natural modifications and the level of sample preservation. All examinations were conducted with standard power and electron microscopy techniques (Walters, 1981).

Seven species of wood and bark were identified. Five of these were indigenous tree species. Cultigens, primarily cherry varieties (Prunus)
and blueberries (*Vaccinium corymbosum*), cover 14 of the 18 acre site, but did not appear in the floral assemblage at all. The lack of cultigens in the assemblage is partially explained by the practice of immediately removing pruning debris to prevent plant disease vectors (Personal communication, Witteman). Carbonization was found to be caused by iron oxide in some cases, not burning or natural process (Walters, 1981). Most floral samples were found in archeological context with metals, structures (past and present), a debris scatter and a privy. The microscopic analysis and archeobotanical interpretations reflected seed pericarps and cellular vascular bundle fragments in such profusion in a cultural context, that canning practices and dietary or sanitary uses were the only reasonable conclusion (see Feature One). Additionally, methods to reduce fibers, special uses of woods and barks and identification of floral species used in construction were specifically indicated. The floral assemblage depositions had been cultural in origin, not natural (see appropriate sections of this work for details).
Floral Assemblage

I  Bigtree Family (Taxodiaceae)
   Ia  Coast Redwood (Sequoia sempervirens), six wood fragments; N
       HSH  3 g.
   Ib  Coast Redwood (Sequoia sempervirens), 22 iron oxide permeated
       wood fragments; N
       HSA  4 g.
       HSH 297.3 g.

II  Cypress Family (Cupressaceae)
 IIb  Western Redcedar (Thuja plicata), one wood fragment; N
       HSH  6.8 g.

III  Dogwood Family (Cornaceae)
 IIIa  Pacific Dogwood (Cornus nuttallii), 13 wood fragments; N
       HSE  3.8 g.

IV  Pine Family (Pinaceae)
 IVA  True Fir (Abies sp.)
   IVA1  Grand Fir (A. grandis), probable species, 10 very dry, well
       preserved wood fragments; N
       HSJ  21 g.
   IVA2  Species unknown, one badly decomposed wood fragment; N
       HSH  2.5 g.
   IVB  Spruce (Picea sp.) probable species Sitka Spruce (P. sitchensis),
       one wood fragment; N
       HSH  68.5 g.

IVC  Douglas Fir (Pseudotsuga menziesii)
 IVC1  Douglas Fir (P. menziesii), 16 wood fragments; N
       HSD  93.3 g.
       HSG  40.7 g.
       HSH  11.5 g.
   IVC2  Douglas Fir (P. menziesii), 69 partially carbonized wood frag-
       ments; N
       HSA  4 g.
Douglas Fir (P. menziesii), 65 fully carbonized wood fragments; N

Douglas Fir (P. menziesii), 2 saw-cut wood with bark fragments; N

Douglas Fir (P. menziesii), two bark fragments; N

Douglas Fir (P. menziesii), 14 bark fragments, the contents of a whiskey bottle (HSG 1186); N

Douglas Fir (P. menziesii), 26 carbonized bark fragments; N

Douglas Fir (P. menziesii), one axe-cut wood chip; N

Western Hemlock (Tsuga heterophylla)

Western Hemlock (T. heterophylla), one wood fragment; N

Western Hemlock (T. heterophylla), four saw-cut wood chips; N

Gramineae

Straw (Poaceae sp.), within surfaces of bricks HSJ287 and HSH483; N

Bamboo (Phyllostachys sp.) solid red fragment with nibbled round end, fitted inside brass sleeve (HSJ285); N
VI  
**Prunus**
VIA  
Peach (*Persicum malum*), 3 pits, burnt and surface weathered, sample from approximate samples shown; N  
<table>
<thead>
<tr>
<th></th>
<th>HSF</th>
<th>HSG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 (100)</td>
<td>1 (50)</td>
</tr>
</tbody>
</table>

VII  
Rose Family (*Rosaceae*)
VIIA  
Blackberry (*Rubus*) seed pericarps, probable speciation, Evergreen Blackberry (*R. laciniatus Willd.*), extracted from 69 grams of two soil samples; N  
<table>
<thead>
<tr>
<th></th>
<th>HSG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.9 g. (24 g. soil sample)</td>
</tr>
<tr>
<td></td>
<td>.3 g. (45 g. soil sample)</td>
</tr>
</tbody>
</table>

VIII  
Unidentified softwoods
VIIIA  
One wood fragment; N  
<table>
<thead>
<tr>
<th></th>
<th>HSE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.8 g.</td>
</tr>
</tbody>
</table>

VIIIB  
One carbonized wood fragment; N  
<table>
<thead>
<tr>
<th></th>
<th>HSA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6.1 g.</td>
</tr>
</tbody>
</table>

IX  
Unidentified microscopic charcoal fragments, extracted from 45 grams of soil samples; N  
<table>
<thead>
<tr>
<th></th>
<th>HSG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.3 g.</td>
</tr>
</tbody>
</table>

X  
Unidentified microscopic stem vascular bundle fragments; typical of the Carrot Family (*Apiaceae* subfamily, *Apiaceae U. apiicidae*), celery (*Apium graveolens*). Extracted from 45 g. soil sample; N  
<table>
<thead>
<tr>
<th></th>
<th>HSG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.3 g.</td>
</tr>
</tbody>
</table>

XI  
Unidentified microscopic plant leaf fragments of a large leaf plant (*Dicotyledonous*), perhaps Cabbage, Big-leaf maple or Thimbleberry. Extracted from 45 g. soil sample; N  
<table>
<thead>
<tr>
<th></th>
<th>HSG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.3 g.</td>
</tr>
</tbody>
</table>
APPENDIX F

WEAR PATTERN INTERPRETATIONS
F. WEAR PATTERN INTERPRETATIONS

During the preliminary typology examination, it was noted that some ceramic and glass artifacts contained wear patterns. A microscopic comparison of these artifacts indicated specific wear was restricted to only the highest flat surface areas of bases. Additionally, only certain subcategories of glass-ware were represented in this subassemblage. The whole and complete base fragment subassemblage (N 27) contained 33 percent with a base wear pattern. Of this group, 15 percent were three piece mold medical dispensing bottles and only four percent were bottles believed to be tonic dispensing types (see Table 27). Several projections can be made from this data.

Considering the short duration of the privy depositions (Feature Three), i.e., no more than one summer, a great deal of medication was consumed in a short period of time. Four of the medical dispensing bottles had been reused (refilled prescriptions?). One wide-mouth container was reused for a considerable period of time based on the heavy wear pattern on its base. This can reasonably be considered a refillable medical prescription container for pills(?) (see Figure 14). With the exception of this bottle, all of the medical dispensing bottles had narrow necks and wide lip areas. This points to liquid medication that was made-up by a local pharmacy or doctor i.e., refilled prescription. A wholesale medication dispenser would not accept returned bottles(?). The liquid dispensing bottles additionally had chipped lips, making their continued reuse unlikely (see Figure 15). The tonic bottles, with one narcotic(?) exception, were discarded shortly after being emptied. None of the tonic bottles had chipped lips.

The single canning jar base fragment in Feature Four (under the present dwelling in a fire pit) was patented February 4, 1873. Based on

---

20 A reconstructed nursing bottles was the one exception, it had a wear pattern on its flat edge (see Figure 16).
almost no base wear and other diagnostic values, such as imperfections and a slight push-up at its center, it is reasonable to conclude the present dwelling could not have been constructed prior to 1873. Additionally, considering distribution time for a new jar into the commercial market, construction may not have taken place until after 1873.

One of the two reconstructed canning jars from Feature Three contained heavy wear on its plain base and continuous screw lip. The other reconstructed canning jar contained no such wear patterns but did have a different manufacturing technique and a control symbol on its base push-up. The newer overall appearance of the later jar and different manufacturing techniques indicated at least two periods of canning jars (see Figure 17). This type of break is common when a cap is over-tightened during canning.

The covered vegetable dish from Feature Three, dated between 1859-1878. It contained a considerable pedestal base wear that fits this extended use time-frame if used on a daily bases. This dish was discarded as one unit, thus is reasonably considered an in-use breakage (see Figure 18).

Wear pattern examination of the ceramic lip and base fragment assemblage, excluding Feature Three, was inconclusive owing to the scratched, chipped, burned and shattered appearance of shards. These ceramic shard characteristics are expected where secondary deposition is by garbage pit or a like deposition after a household cleanup of breakage. Other diagnostic values indicate this was the method of deposition for the majority of the ceramic assemblage (see Feature and Inventory Sections).

It is reasonable to conclude that some glass containers were reused because the owner simply randomly selected them for such re-use. It is also reasonable that after over 100 years in the ground, some lower quality glass will disintegrate faster than others (providing an analysis bases for measuring quality of glass used in different types of bottles). Base wear patterns provided diagnostic information not obtainable by other means.
Figure 14. Clear Pill(?) Bottle, IE1Cd (scale: .54x)

Figure 15. Liquid Medical Dispensing Bottles (L-R) Blue-green, IE1Cc; Clear, IE1Ca (scale: .72x) Note chipped lip both specimens.
Figure 16. Clear Nursing Bottle (L-R) Reverse (scale: .80x); Obverse, IKla
Figure 17. Aqua, Canning Jar and base wear detail, IIB1Bb (scale: .5lx) Note continuous thread and base wear patterning.
Figure 18. Blue Tint, White Earthenware Covered Vegetable Dish (scale: .44x); bottom photo a detail of pedestal base wear IIB2C2L
Table 28. Artifact Wear Patterns

<table>
<thead>
<tr>
<th>Feature</th>
<th>Projected Usage and Shape</th>
<th>Assemblage (N 27)</th>
<th>Base Wear (N 9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two</td>
<td>Tonic, octagon</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Three</td>
<td>Blue Transferware Bowl</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>fragment</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Canning Jars (reconstructions)</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Condiment bottles, octagon</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Covered Vegetable Dish</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Desert Dish, round (recon.)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Desert Dish, round (recon.)</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>diamond design</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Extract Bottles, octagon</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medical dispensing, round</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Nursing Bottle, oblong base (reconstruction)</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Tonic, round embossed and octagon (one reconstruction)</td>
<td>7</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Whiskey, round</td>
<td>1</td>
<td>17</td>
</tr>
<tr>
<td>Four</td>
<td>Canning Jar base fragment</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>embossed &quot;PAT FEB 4 1873&quot;</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Note 1. Wear on continuous thread lip as well as base.
2 Fractured surfaces, inconclusive results.
3 Base obscured by ground etching for three samples.
4 All three piece mold manufacturing techniques.
5 Wear pattern is on flat side of bottle, not base.
6 Embossed "SOOTHING SYRUP".
7 Contained fourteen Douglas Fir (*Pseudotsuga menziesii*) bark fragments.
APPENDIX G

PICTORAL SAMPLE OF ARTIFACTS

WITHIN THE SUBSURFACE INVENTORY
Figure 19. Feature One Representative Artifact Sample (scale: 1x)

Top (L-R)  
Machine cut Square Spike Fragment (IIIIB2B1a);  
Machine cut Square Nails:  
  Red Preservative on Shank ((IIIIB2A2b))  
  Wood Binding on Shank (IIIIB2A2d)  
  Rock, carbonized wood and baked clay on shank (IIIIB2A2c)  
  Double Bent Nail (IIIIB2A2A)

Bottom (L-R)  
Machine cut Square Nail Fragments (IIIIB2A2a)
Figure 20. Feature One Representative Artifact Sample (scale: .47x)

Top (L-R)  Carriage Bolt Fragment (IVAa); Wire drawn Spike; Wire drawn Spike with clay binding; Wire drawn Spike with wood binding (all IIIIB2B1a); Two round (nail(?) fragments (VIII-1D2a)

Middle  Two Galvanized Wire drawn Nails (IIIIB2A3a)

Bottom (L-R)  Iron Nameplate or Brace Frag. (VIII-1D2a)
             Wire drawn Nails (IIIIB2A3a)
Figure 21. Feature Two Representative Artifact Sample (scale: .55x)

Left

Unidentified Spear-like Frag. (VIII-I4Ra)

Right (T-B)

Baked Enamel Door Knob Frag. (IIIB2Da)
Caste iron Window Latch (IIIB2Cb)
Handwrought Square Nail (IIIB2A1a)
Machine cut Square Nail (IIIB2A2a)
Figure 22. Feature Three Representative Artifact Sample (scale .63x)

Top (L-R)  Machine cut Square Nails (IIIB2A1a): fourth from left a handwrought square nail (IIIB2A1)
Brass thread Escutcheon with Iron fragments (VIII-I2a)

Bottom (L-R)  Machine cut Square Nails (IIIB2A1a)

Middle  Cast iron Victorian Style Door Hinge Pin (IIIE2Db)
Figure 23. Feature Four Representative Artifact Sample (scale: .52x)

Top (L-R) Machine cut Square Spike with wood fiber binding (IIIB2B1a)
        Machine cut Square Spike (IIIB2B1a)
        Various Machine cut Square Nails (IIIB2A2a)

Middle (L-R) Cast iron Window Sash Mechanism (IIIB2a)

Bottom (L-R) Three Machine cut Square Nails (IIIB2A2a)
              Spring(?) Frag. (VIII-I4Vb)
Figure 24. Feature Four Representative Artifact Sample (scale: .53x)

From L-R:
Handwrought Trunk Hinge (ILa)
Sash cord Fragments (VIIIa)
Leather Strap and matching Leather Loop fragments (VIII-Fa, VIII-Fb)
Crimped-on Brass Binding over Iron(?) Fragment (VIII-13a)
Gilded Brass Sleeve over fitted Bamboo Fragment (VIII-13b)
Figure 25. Farm Equipment Sample Sub-site E (scale: .37x)

Top (L-R)  Machinary Pawl with Ball Joint arm and Eccentric arm (VA1f)
        Leather Harness Fragment (VA1h)

Middle (L-R)  Leather Cinch Plate Frag. (VAld)
            Harvester Leather Bearing Cover Fragment (VAld)

Bottom (L-R)  Elliptical shaped Iron Bar (molded[?]) (VIII-I4g)
            Spacers or Shims (VIII-I4AAa)
Figure 26. Oil Lamp Reconstructions Sample, Feature Three (scale: .38x)

Top (L-R) Fixed usage Lamp (IIID1h)
Carriage Lamp (IVAb)
Portable Lamp (IIB3a)

Bottom (L-R) Fixed Lamp (IIID1d)
Kerosene Reservoir (IIB3c)
Fixed Lamp (IIID1f)