wine, yaman and stone:
the archeology of a russian hospital trash pit

SITKA

NATIONAL HISTORICAL PARK / ALASKA

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WINE, YAMAN AND STONE:
THE ARCHEOLOGY OF A RUSSIAN HOSPITAL TRASH PIT

SITKA NATIONAL HISTORICAL PARK

SITKA, ALASKA

by

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with

ARTIFACT DESCRIPTION
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MACROFLORAL ANALYSIS
by
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FAUNAL ANALYSIS
by
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Frontispiece: Tumbler, Wine Bottle, Yaman Bones, Stoneware Mineral Water Bottle, and Stone Mortar and Pestle

ABSTRACT

Archeological investigations at the Russian Bishop's House in Sitka National Historical Park, Sitka, Alaska, uncovered the remains of a seven-foot square, wood-lined pit filled with trash. The trash dated to ca. 1860, and consisted of over 11,000 artifacts, 12 kg of food bone, remnants of clothing and leather, charcoal, and organic materials. Analysis of these remains has provided a rich comparative collection of items used by the Russians at the end of the occupation of Alaska. Data are examined from both the historic and archeological record regarding: the material culture of the late Russian period; processes of trash pit formation; Russian medical practices; the socioeconomic conditions exemplified by the trash; and provisioning of New Archangel.

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PREFACE

On July 13, 1981, excavator Gail Johanson finished drawing the east profile of a test unit on the south side of the Old School, near the Russian Bishop's House in Sitka, Alaska. I remember how curious Gail had been about the base of a mineral water bottle that was imbedded in that side of her unit. I had been taught, and firmly believe, that all artifacts found in the side walls should stay there for future investigations. I also knew that had she removed it, the sandy Sitka soils might cave in, leaving her no profile to draw. However, since this was a testing project, preliminary to the construction of new concrete spread wall foundations for the 20th century building, I acceded to Gail's curiosity and let her remove the bottle after she drew her profile. Gail's notes of that moment begin the story which culminates with this report.

> . . . the hole in the NE corner opened wider as I was brushing the wall clean. Many pieces of glass, a large hunk of porcelain or pipe pottery, a nail and wood fell onto the surface of my unit. Of course they were not bagged [with the artifacts from the unit], but I feel they are significant despite their lack of provenience. There were more artifacts visible in the hole, the largest being a bottom surface to a bowl-shaped object, likely made of pottery.

The quite obvious concentration of artifacts revealed by the removal of the stoneware bottle was sufficiently different from the rather mundane fill and sparse sheet trash that we had been encountering (see Blee 1985), that we opened another test unit to the east. In the next nine days, we had excavated a total of three more test units and had determined that we had found what appeared to be a Russian-era, semi-subterranean structure that had been completely filled with garbage of a most exciting nature.

Almost two years later, in 1983, Congress authorized the funds for the construction of the Old School's new foundations. I returned to Sitka to determine how far under the building the trash pit extended and to prepare a research design for the archeological salvage of the trash pit (Blee 1983b; 1983c). The excavations took place over a three-week period the following July, in which we completely salvaged the contents of the feature and recorded the architecture of the buried structure itself. The new foundations were constructed within a month of the completion of the excavations.

This report details the cultural material found in the trash pit and discusses the implications for a new understanding of life in mid-nineteenth century Sitka, Alaska. Spending three years analysing artifacts and trying to find comparable collections in Alaska emphasized to us that this report can make a significant contribution to the archeological study of Russian America. We hope you find the report interesting, and the results as fascinating as we found them.

CHAPTER 1

BACKGROUND INFORMATION

by

Catherine Holder Blee

HISTORY AND ENVIRONMENT

Sitka has one of the longest histories of Euramerican communities on the west coast of North America. Alexandre Baranov founded New Archangel in 1804, after a battle with the local Tlingit population, which lasted seven days despite his European armaments. He was manager of the Russian-American Company, a privately owned organization granted license by the Russian government to obtain furs on their easternmost frontier. By the 1830s, New Archangel was known as "The Paris of the Pacific" and served a multitude of nations trading in the far Pacific northwest waters. The community continued to thrive, but furs were gradually depleted, and other resources failed to bring prosperity to Russia's colonies. In 1867, Russia sold her American colonies to the United States, the Russian-American Company sold her inventory to an American firm, and those who could returned to the Mother country. Americans descended on New Archangel and restored its original name of Sitka. They began life in the last of America's frontiers.

Sitka is situated on Baranof Island, one of the largest of the Alexandros Archipelago lying west of the mainland in Southeast Alaska (figure 1.1). The archipelagos consist of a chain of steep-sided mountains rising as high as 6,000 feet above sea level. Located in the Maritime Climatic Zone, the town experiences relatively high precipitation and mild temperatures with very little seasonal variation. The town is situated on the north shore of Sitka Bay. Soils in the area of the excavation, which originally was only a few meters above high tide, consist of bedded beach sands and gravels overlain by approximately 20 cm of humic soils which have accumulated since Euramerican occupation of the site.

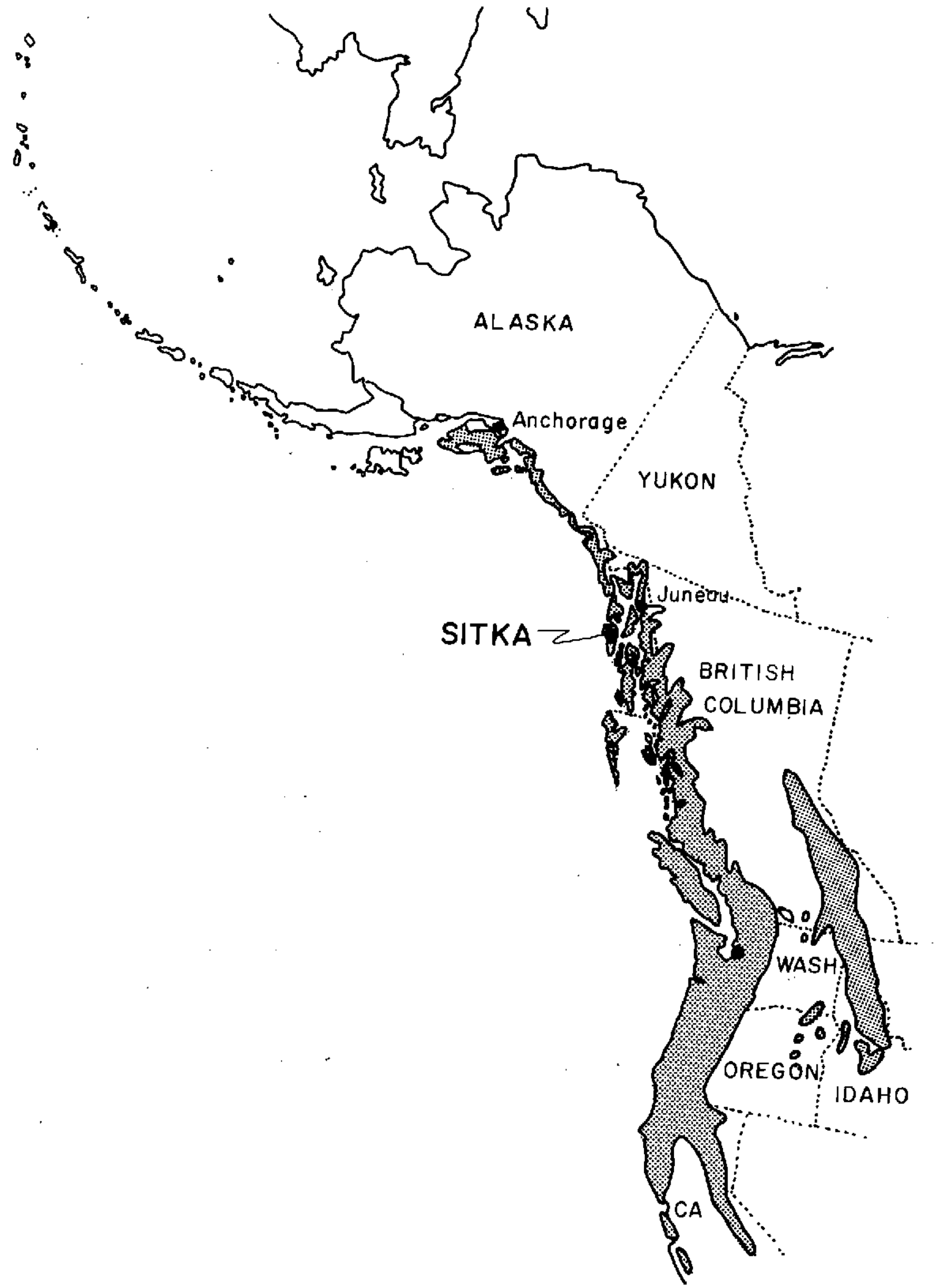

Figure 1.1: The location of Sitka, and the extent of Pacific Coast forest type Arboreal Species (after Heusser 1985:141).

FLORA

A typical southeast Alaska rain forest surrounds Sitka. Hemlock and spruce predominate with alder, ferns and bushes comprising the understory. A thick mat of moss and lichens covers the ground. Wild foods used by both Russians and native Tlingits included smilax, cowparsnip, hemlock, parsley, raspberries and salmonberries (Blaschke 1981). The Russians did some gardening, growing potatoes, turnips, radishes, rutabagas, carrots and beets. With the use of hot frames, sometimes cabbage, lettuce and cucumbers were grown, but with intermittant success (Blaschke 1981; Golovin 1979; Tikhmenev 1978:369; and Gibson 1976). The wet climate and sandy soils combined to make agricultural pursuits less than successful. In addition, the dense forest and steep terrain precluded cultivation of hay, so livestock was very rarely kept. This created a shortage of manure for fertilizer.

> Animal manure was so scarce that seaweed (especially sea cabbage) was used as a fertilizer, and at New Archangel [Sitka] the gravelly soil was also fertilized with herring roe, fish remains, ground mussels, chopped twigs, and leaves (Gibson 1976:107).

A more detailed description of the Sitka environment will be presented in Chapter 5.

FAUNA

Gulls, shore birds, ravens and bald eagles occupy the trees and skies of the Sitka area. Red squirrels share the trees (Goodrich 1983). Harbor seals, sea otters, sea lions, and whales can be seen in the harbor and in the mountains can be found the Sitka black-tailed deer, brown bears and mountain goats (LeResche and Hinman 1973). A wide variety of fish inhabit the bay and nearby streams, including a number of varieties of salmon, Dolly Varden char, herring, shrimp, crab and halibut (McLean and Delany 1978).

The official history of the Russian American Company, compiled by P.A. Tikhmenev in 1861, lists the following animals in the vicinity of New Archangel: eagles, blue magpies, grey woodpeckers, swans, geese, hummingbirds, redbreast, snipes, woodcocks, red salmon, dog salmon, silver salmon, humpback salmon, king salmon, halibut, and herring. The only mammals he lists for the Sitka area are yaman, brown bear, sea otter and hair seal (Tihkmenev, 1978:421-422). The yaman or "wild chamois" reported repeatedly by the Russians were most likely the Sitka black-tailed deer (Odocoileus hemionus sitkensis). The likely origin of this word and what it means will be discussed in detail in Chapter 4. The Dall sheep (Ovis dalli) range does not extend as far south as Baranov Island (Reardon 1981:95). Mountain goats (Oreamnus americanus) were first introduced to Baranof Island in 1923; they did not exist there before that time (Johnson 1984; Hughes 1984; Dufresne 1946:22, 45; Rhode and Barker 1942:22).

Domestic animals were scarce in the colony, largely due to the lack of fodder. There were rarely more than a dozen head of cattle at Sitka. Chickens and pigs were fed fish, resulting in an unappetising flavor to their flesh, so they were only occasionally consumed. The only domestic animal that appears to have thrived was the dog, and it was not eaten by the Russians.

ETHNOGRAPHIC OVERVIEW

When the Russians came to the Sitka area in 1799, they found a favorable anchorage and abundant fishing waters. These resources were also important to the local inhabitants, the Sitka Tlingit, who had long before established a permanent village in the place favored by the Russians. The Russians called them the Kolosh, after the Russian word for wood, kalyushka, and referring to the wooden labret that the Tlingit and other Northwest Coast people commonly wore in their lips. The following ethnographic overview was culled mainly from DeLaguna (1972), with supplements from a number of other sources (Kaiper and Kaiper 1978; Jones 1914; Krause 1956; Kamenskii 1985).

The Sitka Tlingit are members of a culture group that stretches along the coast of southeast Alaska from north of the Queen Charlotte Islands on the south to east of Prince William Sound on the north. A few inland groups in the Yukon Territory were aboriginally connected by means of trails over the Chilkat, Chilkoot and White passes. Besides a common language, the Tlingit shared a distinctive economic and social structure typical of Northwest Coast peoples.

Dependent on rich fisheries and hunting grounds of the coast, they followed a set economic round which involved a winter residence in permanent villages, from which they hunted sea mammals and deer, fished for halibut and oelachon, and gathered clams and cockles. In spring, they added sea urchins, vegetable foods and herring to their larders. At this time, the mainstay of their subsistence, the salmon, began to run. By June, fishing and hunting groups had moved to temporary camps placed in traditional resource areas owned by a given kin group. In August, they returned to the larger villages, where berries and other vegetable foods were becoming abundant. A second season of salmon fishing might occur in October, and deer hunting was resumed. Fur trapping began in November. The main village was occupied all year, but the population was obviously smaller during times when temporary fishing, hunting and trapping camps were being used.

The Tlingit social system consisted of several sibs, or groups of lineages, the members of which considered themselves to be brothers and sisters. Each sib was usually named for an animal which figured prominently in their sib history, and which was usually associated with a certain place in the long ago past. The lineage was traced through the maternal line; the maternal uncle was the significant male in a given household. All wealth was funnelled to the maternal uncle until it reached the highest ranking uncle, who was the head of the sib. Tlingit society was highly stratified, with roughly aristocratic, middle, and lower classes, as well as a slave class. In addition, every individual had a specific rank conferred upon him by the prestige of his sib, his position within the sib, and partially on his own abilities. One way a sib acquired prestige was through its ability to hold large feasts, or potlatches, in which great quantities of food and goods were distributed to rival sibs, usually of the opposite moiety. One of the most powerful individuals within the sib was the shaman, who served as an intermediary between his relatives and the forces of nature, such as disease, the weather, and the supernatural.

The Russians, on the other hand, were representatives of a commercial enterprise supported by the Czarist government in Moscow. Their social structure was also highly heirarchical, with very little opportunity for change in social status. The officers of the company were usually of some aristocratic rank and had a European style education. For that reason, I have lumped them with Americans and British when speaking of Euramerican culture. The workmen, on the other hand, were generally conscripts from Russia, Siberia, or Slavic regions. In addition, they relied heavily on Aleut labor for the acquisition of furs.

The Russian economic structure depended in part on a tributary system, in which local leaders were responsible for gathering tributes in the form of furs, food, and other local products of interest to Czar. In return, the subject population received political protection, religious education and the other benefits of Russian citizenship (Wolf 1982). The reason the Russian American Company was in Alaska was to acquire furs.

This, then, is the context for the archeological remains found under the Old School building in 1981.

METHODOLOGY

RESEARCH DESIGN

Based on the 1981 and 1983 tests, a research design was prepared in accordance with the National Park Service guidelines established in NPS 28, and in collaboration with the Alaska Regional Archeologist in Anchorage (Blee 1983b). The deposit was determined to be significant, and thus worthy of complete salvage, due to its potential to yield important scientific and interpretive information. The high frequency of organic remains were expected to permit a broader scientific interpretation of activities contributing to the deposit than sites with only non-organic remnants. Its relatively short period of deposition suggested that the deposit could present a time capsule of activities unlike the slowly accumulating sheet trash deposits which characterized previous excavations in Sitka (Shinkwin 1977; Blee 1985). Until that time, no well-dated material culture assemblage was available for the comparative identification of artifacts in archeological contexts from Russian American sites. It was believed that this collection had the potential to yield important data regarding activities taking place on a daily basis by the depositors of the trash, 19th century religious, health, and/or educational institutions; frontier diet, accessibility of supplies, and frontier ethics regarding the law; and Tlingit/Euramerican cultural interactions (Blee 1983b:3).

Six research questions were posed in a hypothesis testing format. The first three were particularizing and concerned the function of the feature itself, the origin and nature of the deposit inside the feature, and when the deposit was formed. Associated with the last question was the identification of the depositors. These problems were uncomplicated in their presentation; answers to each became self-evident as excavation and analysis progressed.

At the request of the Regional Archeologist and Alaska State Historic Preservation Officer, three additional questions of a research orientation were to be posed of the data. As such, they are more generalizing in their implications. Like any sort of research which seeks to explain cultural phenomena, these questions could not be definitively answered by this one set of archeological data. However, it was hoped that evidence from this trash pit could provide information either corroborating or refuting contradictory documentary evidence. As such, it would be a platform for similar research in the future.

It must be cautioned that elucidation of the documentary record was not the primary goal of these investigations, although clarification of history is always an interesting by-product of archeological research. Archeological methods provide only a poor substitute for the words of people who witnessed events and lived the lives the historian studies. However, there is often a difference, either deliberate or unintentional, between what people say they do and what they actually do. Furthermore, the words of the literate often say very little about the lives of the illiterate, and, as can be seen in some of the historical passages quoted in this text, are much colored by the perceptions of the writer. Archeological data may be a means of determining whether such biases exist, whether there are alternative explanations to historically derived ones, and how the non-literate Russian workman or neighboring Tlingit dealt with his daily needs as compared to the document-keeping Russian officials. If, in the process, the archeologist supplements the written record, so much the better.

The primary goal of the three research questions, therefore, was the understanding of cultural processes as seen through the archeological record, and supplemented by the historical one, not the converse. They were suggested by the nature of the data recovered during the tests. A high frequency of animal bone suggested that subsistence problems could be broached. A high frequency of liquor bottles at a time when the historic literature indicated strict control on its sale implied that official rules could be waived. The presence of Tlingit basketry suggested that the flow of material culture was not only from the Russians to the Tlingits. Certainly other types of questions could have been asked, but these were the problems chosen for focus. Each hypothesis was framed according to the structure of deductive logic. A series of propositions supporting the hypothesis were framed so that refutation of any proposition would result in the rejection of the hypothesis in favor of its converse, or an alternative hypothesis, the object being to prove the alternative.

The three research hypotheses suggested by the preliminary data were:

1) The supply of imported food and sundries was regular in Sitka;

2) The prohibition against the sale of liquor in Russian American and Alaska resulted in the abstinence from consumption of alcoholic beverages;

3) Cultural contact between the native Tlingit and Euramericans resulted in a great change for the Tlingits and little change for the Euramericans, as seen in the material culture.

A list of assumptions and propositions supporting each hypothesis can be found in Blee (1983b), and will be reiterated in Chapter 8 when the hypotheses are tested, and after all pertinent data have been presented.

Excavation and laboratory techniques, as well as recording and analysis procedures were oriented towards providing the necessary data to answer the six research questions. In addition, a detailed description of the artifacts is presented in recognition of the paucity of readily available comparative collections from mid-19th century Russian American sites.

EXCAVATION METHODS

Excavation of the trash pit was not entirely uniform due to the fact that it was not excavated all at once. When it was first discovered, a 50 cm by 50 cm unit was placed in its southwest corner (N8.5W1.5). This unit was named by the distance of its southeast corner from an arbitrary datum point placed 9 meters south and 17 meters east of the southeast corner of the Russian Bishop's House (figure 1.2). That means that the southwest corner of the pit was 0.5 meters south and 15 meters east of the Bishop's House. This unit was excavated in 10 cm levels from the ground surface , in conformity with testing precedures on the rest of the Russian Bishop's House Site (Blee 1985:14, 16).

Upon determining that the concentration of artifacts was significant and did represent a distinct trash deposition, two more units were excavated to the east. The first (N8W1) was the remaining 3/4 of a one meter by one meter square unit left after N8.5W1.5 had been excavated (figure 1.3). The second unit (N8W0) was a full one meter by one meter square. Due to time pressures, N8W1 was excavated in 20 cm levels. However, the appearance of large numbers of bone in N8W0 forced a re-evaluation of the method and we returned to 10 cm levels in order to maintain better vertical control.

Identification of the people who contributed to the deposit was integral to answering most of the research questions. Their position within Russian society would determine how representative the deposit was of Russian life in general, and thus put constraints on the applicability of the data to test generalized propositions. It was believed that a spatial analysis of the material culture in the pit would help determine who was contributing to the deposit and for how long. Because time constraints did not permit the precise recording of the exact location of every one of the over 10,000 artifacts recovered, the feature was excavated in units that were 50 cm by 50 cm wide by 10 cm deep, a size believed to be small enough to estimate the relative density of certain types of artifacts in each portion of the feature. At the same time, this method was similar to that used in the initial tests, making integration of the data much easier.

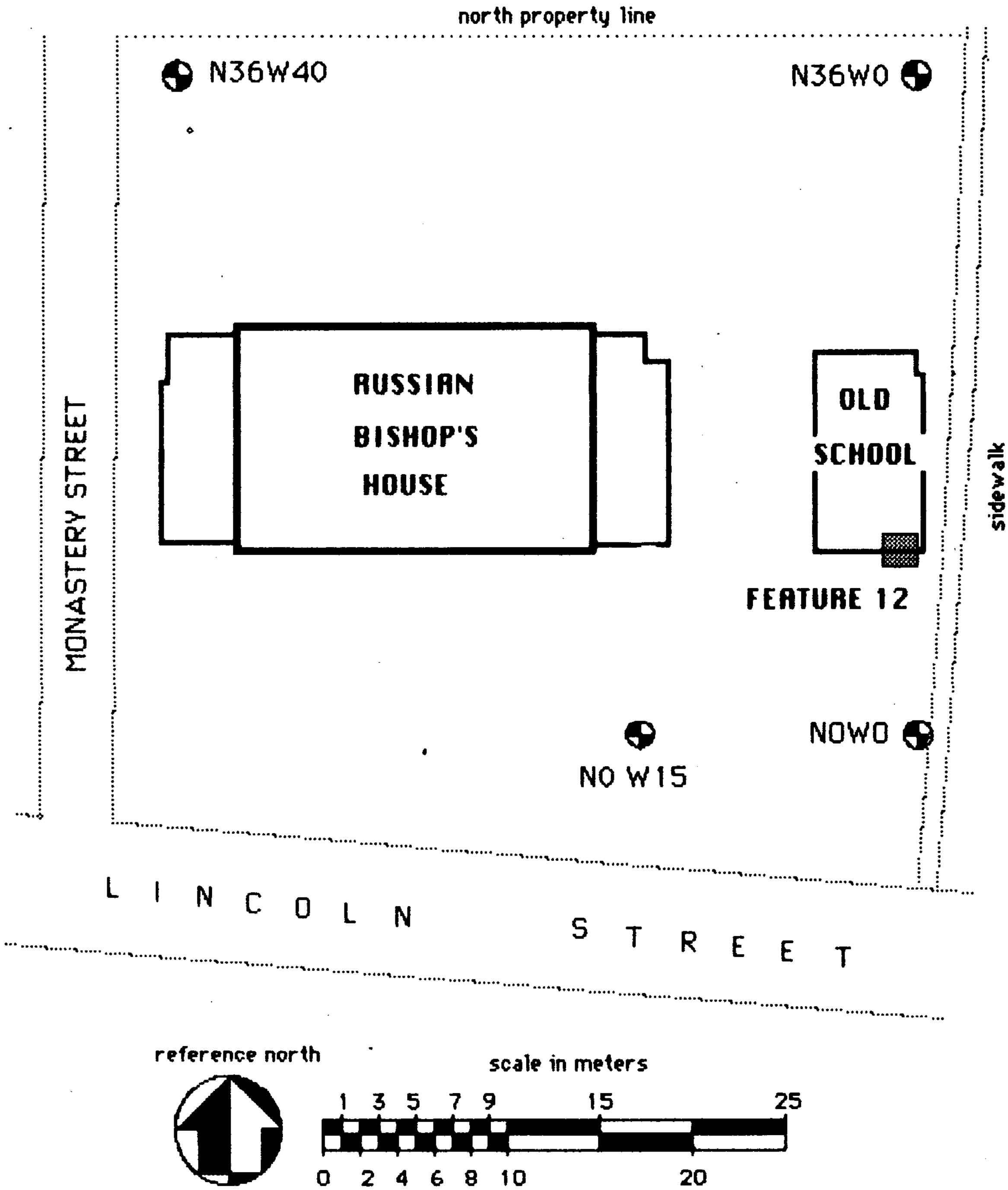

Figure 1.2: Site map, showing location of Feature 12 in reference to National Park Service buildings.

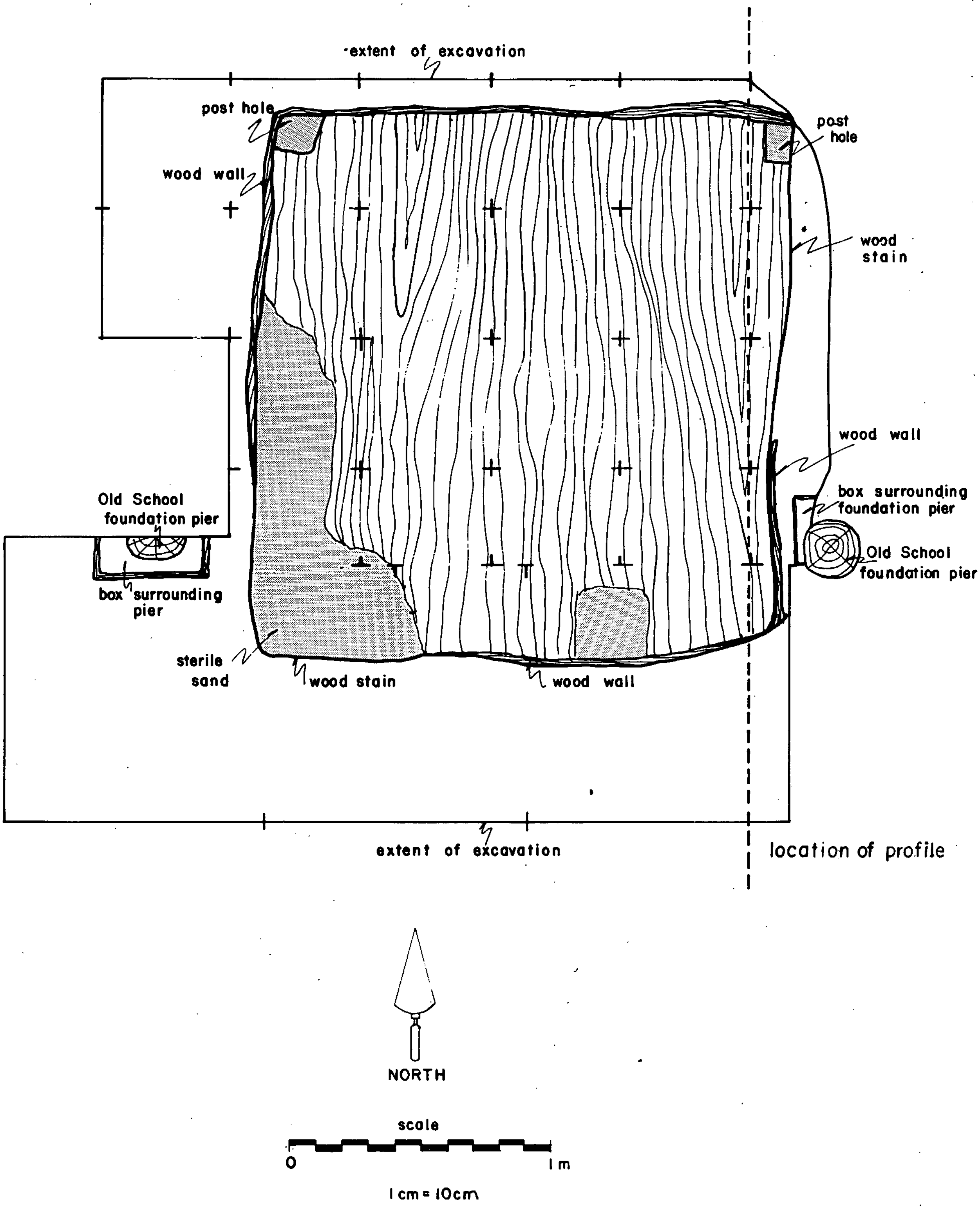

Figure 1.3: Plan of Feature 12 excavations.

When we began excavations in 1983, the area estimated to contain the feature was gridded into 50 cm by 50 cm units, each labelled by its distance from the datum point. The use of a faulty builder's transit to relocate the trash pit resulted in the grid being 12 cm west and 13 cm south of the original grid set up in 1981. This was not discovered until the excavation was well underway, so readjustment was not possible.

Excavation was hampered by the presence of the Old School. In order to facilitate our excavations, the construction supervisor had removed the flooring and subflooring from the building over the area to be excavated. Due to impending damage to the building structure, however, he had been forced to place the building on jacks. The presence of the jacks supporting the full weight of the building precluded total excavation of the area surrounding the feature, especially along the east side and an area about 50 cm by 75 cm along the west side.

Each of the new 50 cm by 50 cm square units were excavated stratigraphically, and strata individual were subdivided into 10 cm levels. No one unit was excavated more than 10 cm deep until all units within the feature were excavated to the same level. No unit penetrated the next lower stratum until excavation of all units had exposed the stratum. In other words, the entire feature was excavated a layer at a time. An exception to this was the easternmost row of units, which were left in order to provide a stratigraphic profile (figure 1.4). After the recording was completed, these four units were also excavated in stratigraphic layers with 10 cm subdivisions.

It should be noted that finer stratigraphic subdivisions than those recognized during excavation probably originally existed. This seems likely in view of the analysis of artifact spatial distribution presented in Chapter 3. However, the level by level method of excavation hindered rather than enabled discernment of micro-stratigraphy. Such a method was dictated by the short time span allotted for the work, which required two excavators digging at the same time within a very limited space. The presence of load-bearing jacks surrounding the area of excavation severely restricted the room in which to work, thus precluding the possibility of bisecting the feature to discern the micro-stratigraphy. It should be noted that none was seen in the profile left by the four units along the east side of the feature. A combination of very poor lighting available under the extant Old School, and the very dark, humic and charcoal-laiden soils obscured all but the most obvious stratigraphic differences. Fortunately, statistical methods could be used to imply micro-stratigraphic association, as will be demonstrated in the spatial analysis in Chapter 3.

All material was screened through 1/4" mesh, then again through 1/8" mesh. It quickly became apparent that very little cultural material passed through the 1/4" screen, so apart from some periodic checking, the 1/8" mesh was abandoned. Several large plastic bags of soil samples were collected in order to estimate the amount of faunal and floral material that escaped the larger mesh. Time constraints being what they were, more detailed collection was not possible.

All artifacts were collected and bagged by provenience. A few, large artifacts overlapping grid lines were plotted in situ and so labelled. Ubiquitous structural materials such as brick and wood, and charcoal were only sampled. All bone, shell, and macro-faunal material were also collected.

LABORATORY METHODS

Artifacts were cleaned and stabilized in a field laboratory located in the Old School. Artifacts were rinsed with tap water and dried before packing. After bathing with distilled water to neutralize pH, bone was soaked in a solution of ethyl alcohol, ethulose 400 and distilled water, then slowly dried on mesh drying racks. Leather was also bathed, then soaked in a solution of Bavon Asak 5205 leather lubricant and distilled water with a fungicide added, then dried under pressure to prevent curling or cracking. Cloth was float-rinsed in distilled water between layers of nylon screen and also dried under pressure.

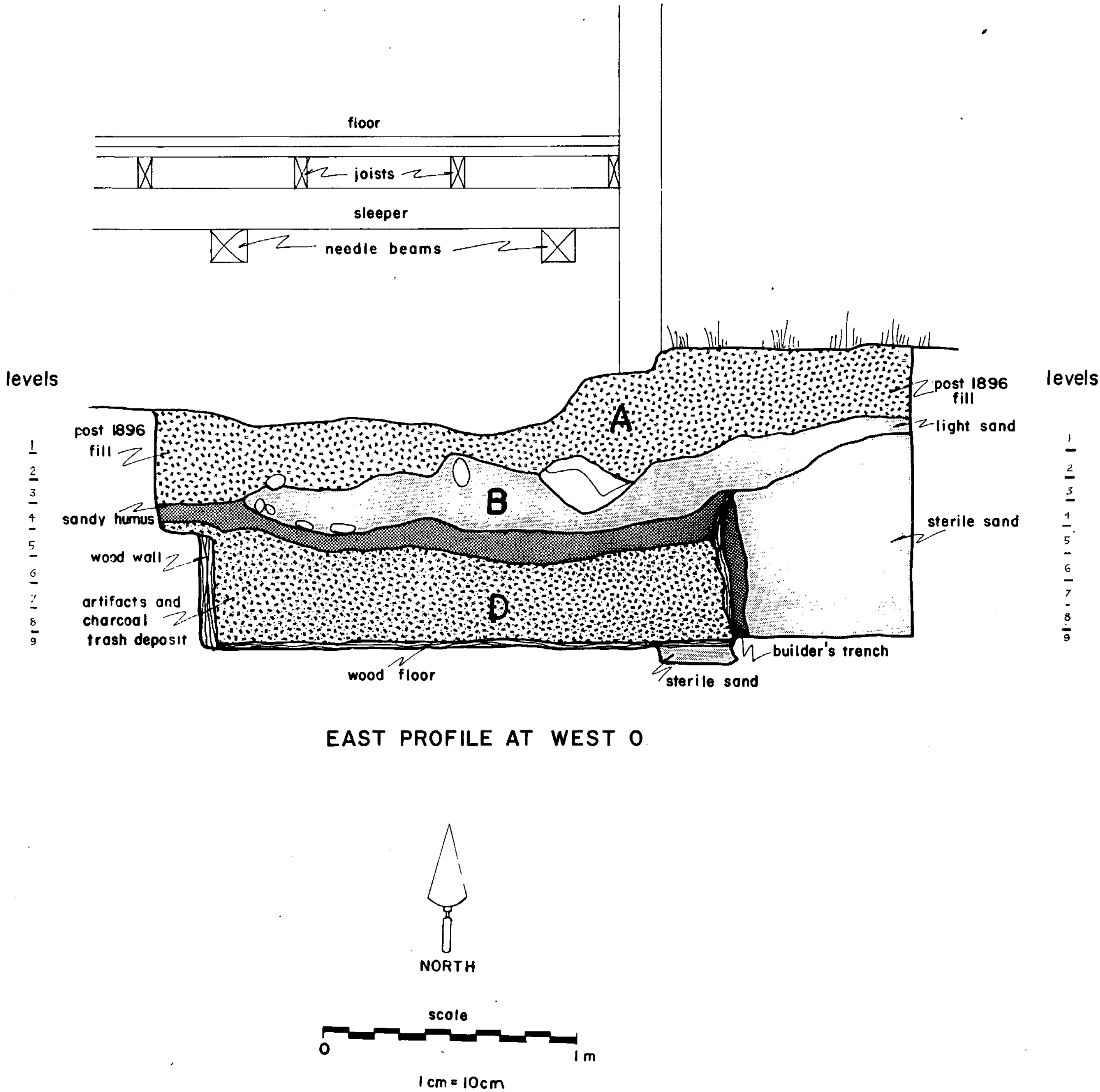

Figure 1.4 : Profile of Feature 12 at West O, looking east.

A field inventory was maintained in sufficient detail to aide in the statistical analysis of sherd counts. All artifacts were packaged and mailed to the Denver Service Center archeological laboratory and arrived in excellent shape before we did.

Glass and ceramic artifacts were mended to the extent necessary to determine the form and function of vessels and to establish the degree of intermixing of levels and strata. Each sherd was labelled with its provenience, and the reconstructed vessel assigned a unique identification number. Unmended sherds of like type from a given provenience were assigned lot numbers. Artifacts were dated and identified by function and place of manufacture when possible. When not, they were described in detail for future reference by other investigators.

Linda J. Scott and D. Kate Aasen conducted macrofloral and fiber analysis under contract to the National Park Service. Their analysis appears in Chapter 5. Faunal analysis was conducted by Steve Chomko and will be described in Chapter 6.

OBSERVATIONS

THE FEATURE

Feature 12 was basically a subterranean wood lined box without a lid (figure 1.3). Its side walls varied from 45 cm to 60 cm below the ground surface at the time that it was constructed. The wood of the side walls was about 6 cm thick and consisted of planks running horizontally around the feature. The wood grain was oriented east to west on the north and south sides, and north to south on the east and west sides. Wood was not present for 1.25 meters along the east side and in the southwest corner. However, a ca. 2 cm thick dark reddish brown humic stain where a wall would have been indicated that preservation was bad in those areas, and that a wall had once encompassed the entire feature.

The floor, also made of wood, was very thin, varying from practically nothing to 2 cm thick. Areas where it was not present contained a thin layer of deteriorated humic material. It is possible that the pit held water, contributing to a more rapid decay of wood on the floor than in the walls. Wood grains were oriented from north to south. It was not possible in the dim artificial light under the building, given the extremely deteriorated condition of the wood, to determine individual plank thicknesses.

Distinct post holes with very soft, deteriorated wood in them occupied the northwest and northeast corners of the pit. It is possible that the southeast and southwest corners also held postholes, but preservation appeared to have been much worse on the south end of the pit. The northeast post was especially well defined (figure 1.5). It measured 15 cm north to south and 10 cm east to west, and was perfecly rectangular in plan. The bottom of the post had obviously been wedge-shaped, with the long, sharp end to the north.

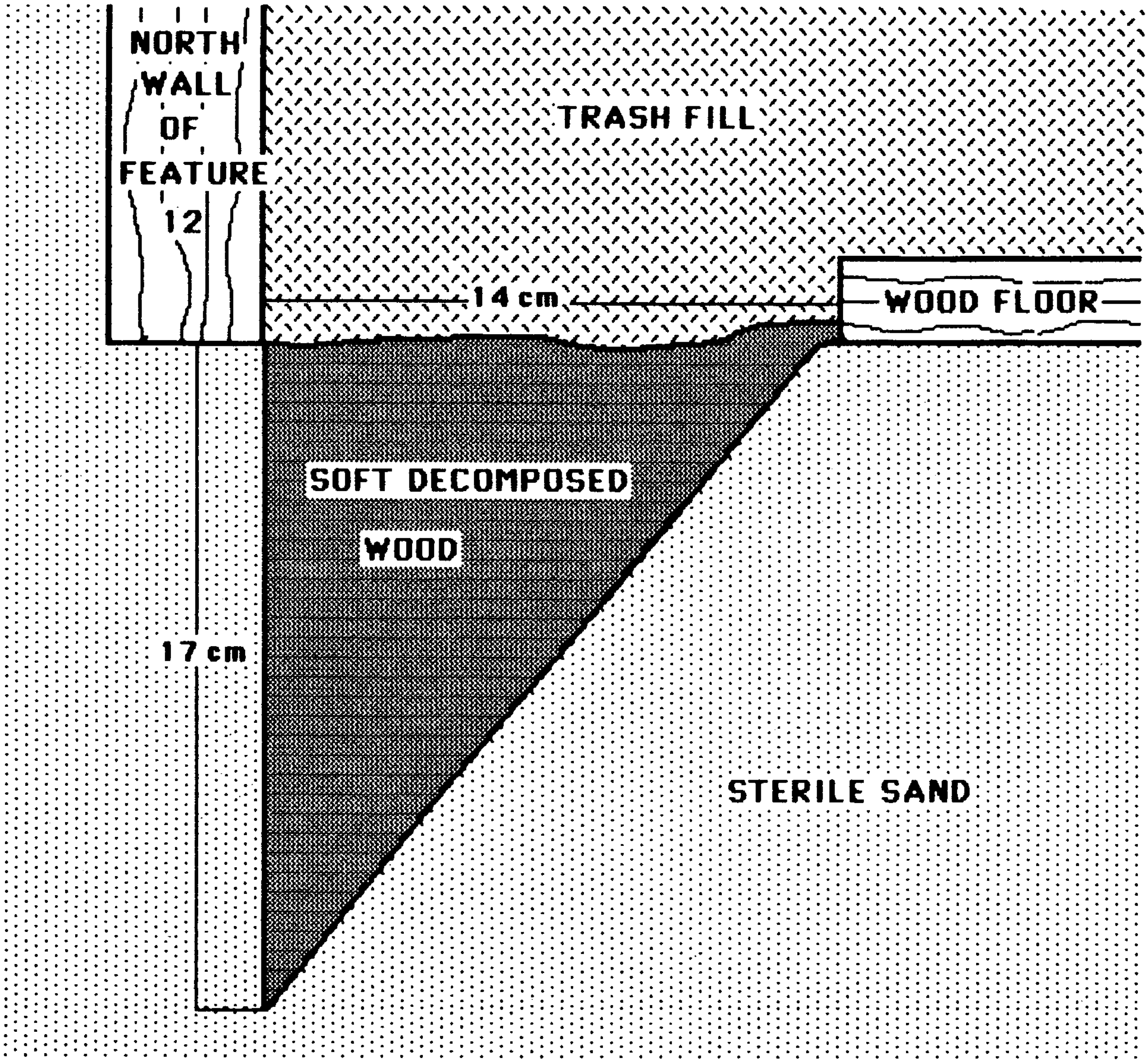

Figure 1.5: Detail of northeast corner posthole. Looking east.

The feature averaged 2.00 meters from east to west and 2.10 meters from north to south. The presence of the posts in the corners suggests that they supported a superstructure that stood above the ground. The structure only extended about 60 cm below the ground surface at the time it was in use.

STRATIGRAPHY

The pit for the underground portion of the structure had been dug into clean, culturally sterile beach sands (Stratum E). The pit was approximately 5 cm larger than the wood liner, and the floor rested directly on the sandy substratum. The space between the feature walls and the sand was backfilled with a sandy material containing a limited amount of humus and a few artifacts of a largely undiagnostic nature.

The wood lined pit was entirely filled with trash and charcoal with very little soil matrix (Stratum D: levels 6-9). While a few gravelly pebbles and some sand were found within the matrix, most appeared to be deteriorated organics and charcoal. The reporting of this material comprises the bulk of this report. The trash inside the feature quite obviously has little or nothing to do with the feature itself. It is apparent that once the superstructure was removed, the remaining hole was used for trash disposal.

Overlying the trash was a 7 cm to 15 cm thick layer of sandy humus which also contained a good number of artifacts (Stratum C: Levels 4 and 5). It probably represents a sand layer which was thrown over the top of the trash pit once it was full to mask the odor and unsightliness. Left undisturbed for even a few years and assisted by vegetation growth, the organics in the top layers of the pit would have turned to humus, resulting in the mixed sandy humus. Broken artifacts in Stratum C mend with those in Stratum D, indicating that they do not represent distinctly different material cultures.

Stratum B (Level 4) is an almost culturally sterile, loosely packed gravelly sand. Since that portion of Level 4 that was made up of Stratum B contained no artifacts, the material culture in Level 4 is considered to be a part of the feature contents. As will be seen in Chapter 3, Level 4 as a whole contained very few artifacts. Stratum B did not cover the entire pit, being concentrated more in the center and east portions of the feature. It also covers the original ground surface to the south of the pit, and appears to have been a fill of some sort, probably used to level out the ground after settling had occurred in the trash pit. This suggests that Stratum B post-dates Stratum C by some years.

Stratum A (Levels 1-3) is a mixed sand, gravel and humus fill placed on the site immediately after the Old School was constructed in 1897 (Blee 1985). It contains a large number of artifacts dating from the middle of the 19th century up to the present, and probably contains a number of items deposited in the crawl space after the Old School was built. The presence of Russian marked artifacts in this stratum suggests that the fill originated at another Russian site; however, as fill, its archeological integrity was compromised.

INTRUSIONS

While the integrity of the trash deposits appears to be pretty good, a minimum of disturbance was apparent. The Old School foundation pier in the middle of the south wall extended about 3 cm into the top of Stratum D, the trash. Likewise, the southeast foundation pier intruded slightly into the feature (figure 1.6). The few sherds in strata above the feature that mended with vessels in the feature were found in units surrounding these foundation piers.

Figure 1.6: Photograph of the southeast foundation pier of the Old School, looking east.

ORIGIN OF THE TRASH

Tentative dating of the material culture in the trash pit placed its origin to the middle of the 19th century. The presence of artifacts obviously made for or by Russians in the deposit suggested Russian use of the items at one time. Two possible candidates could account for the trash deposit: the Russian Bishop's House to the west, and the Russian Hospital building to the east (figure 1.7).

THE RUSSIAN BISHOP'S HOUSE

This building stands 15 meters west of the trash pit location and is currently being restored by the National Park Service. Documentation of the building's history is good (Mote 1981; Cloyd 1983; Blee 1985), and will not be reiterated in detail here. It was built in 1842 by the Russian-American Company for the use of the Russian Orthodox Bishop of Kamchatka, Alaska and the Kuriles. Almost immediately, Bishop Veniaminov began to use his "mansion" as a school for native children, and young monks and priests began to share his living quarters. When the See was transfered to Iakutsk in 1858, the house was used by the priest of New Archangel and any Brothers or novitiates who were present.

The priests continued to use the large building for classrooms and religious services as well as for a residence, after American acquisition of Alaska. At that time, the headquarters for the Church in America was moved to San Francisco, and Sitka became a local parish that was forced to support itself. Moreover, much of the education of Native children was taken over by American Presbyterian missionaries. The Russian Orthodox Church continued to care for and educate Tlingit orphans. The Bishop's House became locally known as the Russian Mission or Russian Orphanage. By 1894, 11 children lived in the Bishop's House, as well as the priest and his family (Donskoi 1894).

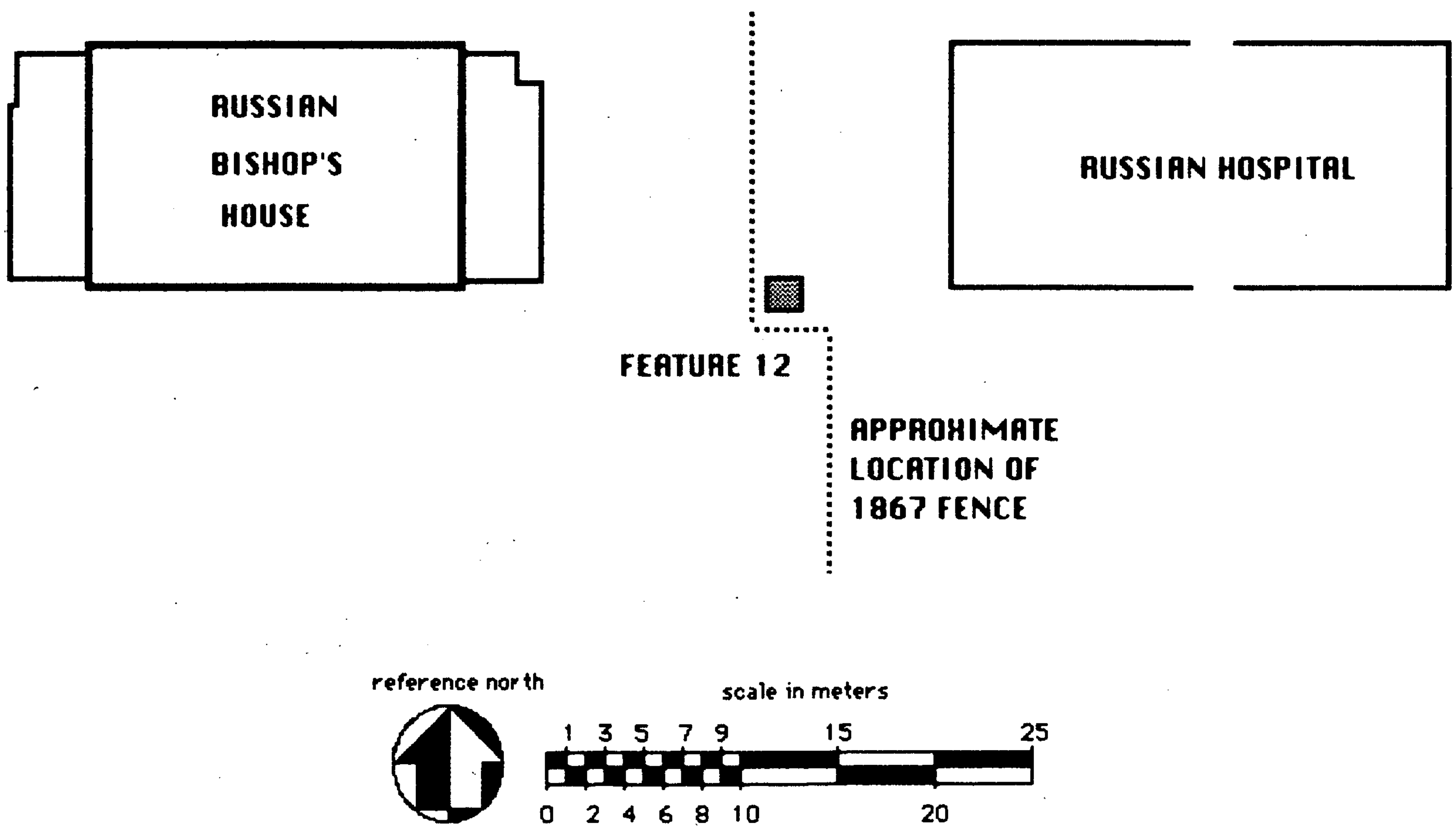

FIGURE 1.7: RELATIVE LOCATION OF RUSSIAN BISHOP'S HOUSE, HOSPITAL, TRASH PIT AND FENCE.

In 1897, priest Anatolii Kamenskii requested funding for the construction of a new school house to allow for the kindergarten classes and girls to attend school. These funds were provided, and the Old School was constructed in the late summer, in time for fall classes (Kamenskii 1897). This activity effectively sealed off the trash pit below the school until our excavations.

THE HOSPITAL

Historical Summary

Sometime between 1844 and 1847, the Company constructed a two-story log building with an iron roof for use as a seminary building (ARCA[1] 1847). This structure was located approximately 3 sazchen (21 feet) to the east of the Bishop's House. From early maps (figures 1.8 and 1.9) it appears to have been approximately the same size as the Bishop's House, which was 13 sazchen long (91 feet), including its galleries, and 6 sazchen wide (42 feet). Early American records indicate that the seminary building was actually 84.75 by 41 feet (QMGO 1873) which would place it close to 12 by 6 sazchen.

The seminary was moved to Iakutsk in 1858. On June 11, 1858, the seminary building was transferred to the Russian-American Company. At that time, the structure was valued by the Company to be worth 23,482 rubles 82 kopek paper (Voedvodskii 1858). Little information could be found about the actual conversion of the seminary building into a hospital, but there is no doubt that that is the use to which the building was put. Golovin (1979:65) wrote in 1862 that "The New Archangel infirmary is located in a two-story wooden building, which previously housed a seminary" and it is identified as the Russian hospital in the 1867

1. Alaska Russian Church Archives, Library of Congress.

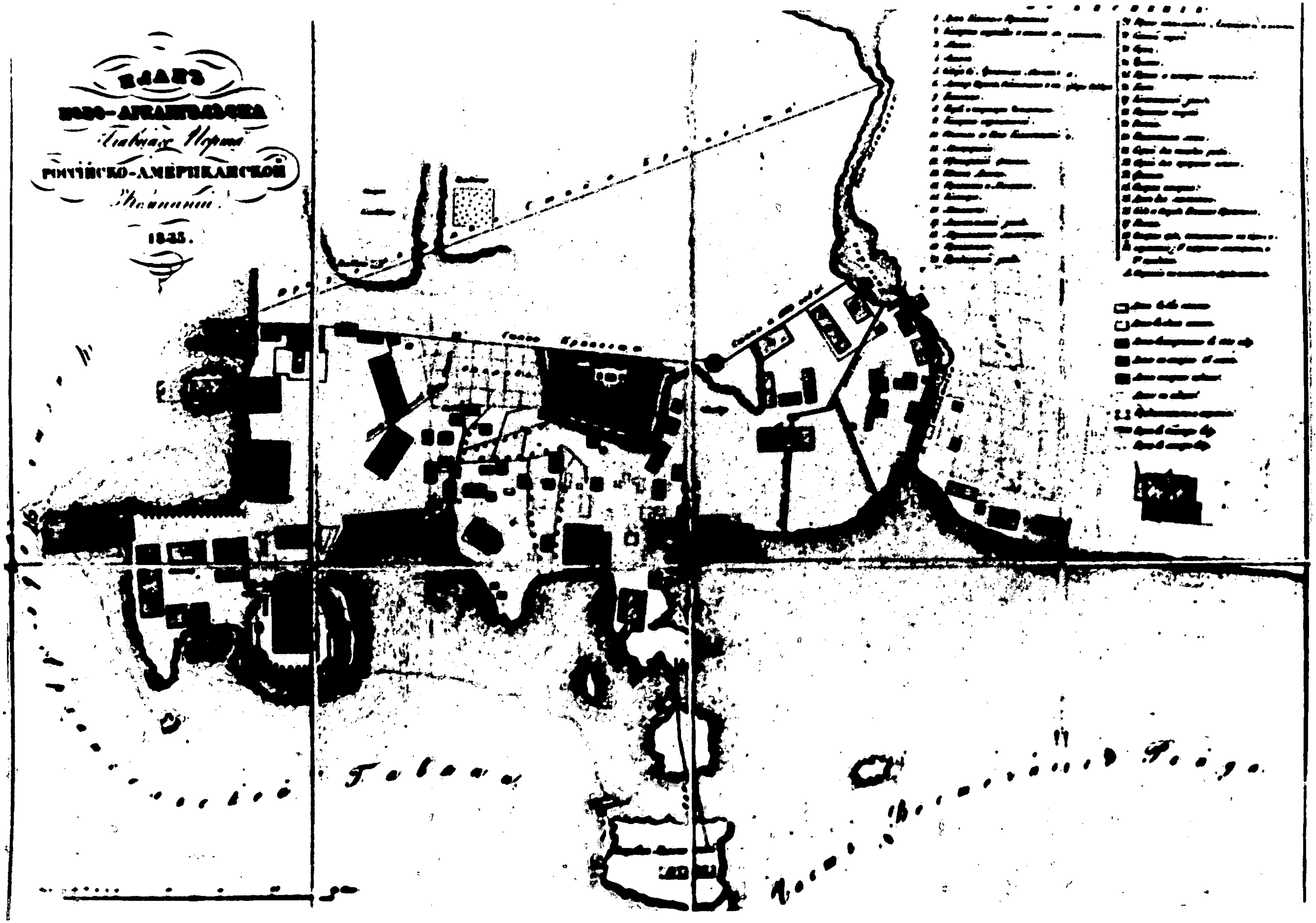

Figure 1.8: Map of New Archangel in 1845 (Sitka National Historical Park). The Russian Bishop's House is the easternmost building on the drawing, below the legend. The sketched outline to the east represents foundations for the proposed seminary.

map prepared by the US Army at the time of the transfer of buildings from the Russian-American Company to the United States Government (figure 1.9).

In the 1870 census, three people were recorded as civilian employees of a building known as "St. Borrowe's": Anna Koratsina was a nurse; Polly Paramanoff was a servant; and James Walker was a cook. In addition, Pollagy Borshima was listed as a "servant at the hospital." All four people were recorded as living in privately owned dwellings and were not military personnel, who were not included in the census. DeArmond believes that St. Borrowe's was the name of the hospital (1981:93). It may be a holdover from the Russian period.

After 1867, the US Army used the building as a post hospital for the entire time it was stationed in Sitka. An Army report from 1873 states that the condition of the building was "Good". A new sheet iron roof was put on during that year (QMGO[2] 1873). The 1874 report stated that "No especial repairs were made during the year" to the hospital, but that it needed a new floor in the kitchen, repainting throughout, and 24 new windows for the second floor (QMGO 1874). On June 1, 1875, Dr. John A. Fitzgerald requested $220.00 for materials for repairs to the hospital, which were finally approved, after 18 signatures from officials in Sitka, Portland, San Francisco and Washington, D.C., on December 8, 1875. It is presumed the repairs were done. They included:

1st - Demolition of the two old frame sheds or wings, so called.
2nd - The better lighting and efficient warming of the halls.
3d - The better lighting and ventilation of the wards and other part of the building.
4th - The fitting of bathroom and watercloset.
5th - The fitting of the shelving in Dispensary and Storeroom.
6th - The adjustment of the light partition walls.
7th - The laying of floors.
8th - Construction of small stairway (Fitzgerald 1875).

2. Records of the Quarter Master General's Office.

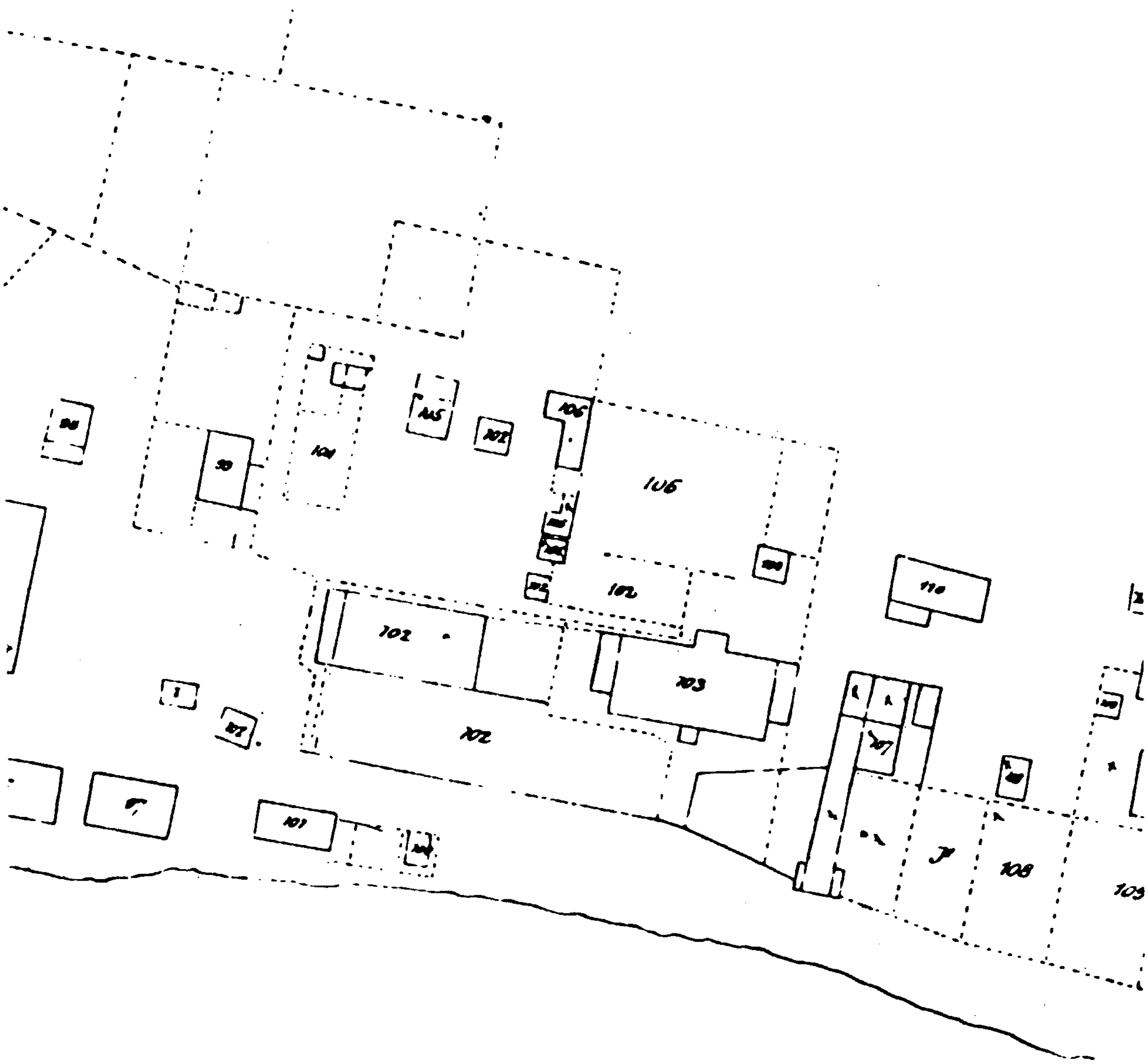

Figure 1.9: The 1867 transfer map (Mote 1981:187). The hospital is Building No. 103.

When the Army left Sitka in 1879, the building was apparently abandoned. The statements made in 1875 suggest that even then it was falling into serious disrepair. Navy records indicate they used Building 16 as a hospital. This was a log building on the northwest side of the parade grounds (DeArmond 1966:44).

In 1880, A.E. Austin, a teacher commissioned by the Presbyterian Board of Home Missions, arranged with Naval Commander Henry Glass, then in charge of the Sitka post, to use the abandoned hospital building to house the newly formed Presbyterian Boys Boarding School. His daughter, only referred to as Miss Austin, obtained the building.

> There was a large Russian building in the upper end of the town called the hospital. It had been used for that purpose by the Russians and by our soldiers when the country was turned over to our government. The Collector, then as now, was the custodian of the public buildings. . . The teacher thought she would send these boys into one of the rooms in this building and then tell the Collector what she had done, that he would be more likely to let them stay when they were in possession than to let them in by asking permission while they were out. It turned out as she thought, for when she told him what she had done, he said "Well as they are in let them stay, I suppose." (Austin 1892:241-242).

Austin complained that although the parents of 25 boys agreed to let their children live at the school, he did not have the funds to fit up a kitchen and dormitory.

> Capt. Glass understood my dialema [sic] and said if I would order the lumber he would have the ship carpenters fit up the rooms, make bedsteads, etc. . . The hospital was secured from the government and soon fitted up as a home and boarding school (Austin 1892:242).

Austin and his family lived in the building with the boys and were fairly happy with the arrangement, until it caught on fire.

> . . . on the morning of the 26th of January, 1882, we were awakened by the ringing of the large school bell when we found that our home was doomed to speedy destruction by the

> devouring flames. It caught from a defective flue over the school room, we suppose, as the roof over that part of the building was consumed when we first saw it. It was an old building very much decayed and that end of the building had settled several inches. The stairs and stoop formerly on that end of the building were gone when we moved into it. The boys acted very bravely, and said they would save my furniture or die, some of them did stay in the burning building until they had to jump out of the second story windows. I went through their dormitory and threw their beds and blankets out of the windows just before the roof fell in or they would have suffered far more than they did. I expected to lose everything, except the clothes we had on, but the miners turned out so promptly and worked so bravely, most of our furniture was saved (Austen 1892:243).[3]

So ended the life of a building that I shall refer to as the Russian Hospital for the remainder of this report.

Description of the Hospital

Very few complete descriptions of the hospital and its grounds exist from the Russian period, at least in English translations. Golovin (1979:65) describes it as a two-story wooden building. "The structure is fairly large, and there is fresh air in the rooms whose windows face the sea, but the air is damp and stifling in the rooms on the northwest side." The American period is a bit more specific, due largely to the Army ownership. A fairly detailed description of the post hospital was compiled by Assistant Surgeon John A. Brooke for an 1875 publication, which is appended in its entirety in Appendix A. All following quotes are taken from this source (Brooke 1875:480-481).

The hospital contained five rooms used by the Army surgeon resident at the hospital, an office, a steward's quarters, a dispensary, a mess-room,

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3. Sheldon Jackson, of some importance in the educational history of Alaska, proceeded to establish the Sitka Industrial School from the Presbyterian Boys School. It is now the Sheldon Jackson College.

and a kitchen on the first floor. An outdoor cistern served the kitchen, and connected with a sewer that ran under the building. A stair from the second floor "opens upon an outside stairway leading to the ground below, and giving access from the second floor to the wood-shed, water-closet, &c." The second floor contained a small (12 feet by 12-1/2 feet) room used for Indian patients, a larger ward for other patients, an attendants' room, and a laboratory. It also contained a store room with "open shelves and a closet for liquors and small-stores." Between the ward and the attendant's room was a bathroom and lavatory containing a "fixed bath-tub, wash-sink, and water-closet (the latter not being now used), all of which communicate by means of lead pipes with the sewer beneathe the building." There were also "two commodes for use in the hospital, and an ordinary pit, housed over, a few yards behind the building."

The structure, in 1873, had two wings, each measuring 11-1/3 feet by 30 feet, which apparently were in such bad condition that they could not be used. Assistant Surgeon John A. Fitzgerald wrote that "The removal of the two old sheds or wings, is necessary on account of their general dilapidation and uselessness" (1875:2). From an 1871 map compiled by the Army (figure 1.10) it is obvious that these two wings are set back from the front of the structure and flush with the back. That may explain why the wings are not seen in the 1867 photograph taken of the building (figure 1.11).

The hospital, at least in 1869, still retained its Russian coat of paint. Like the Bishop's House next door, it was "painted yellowish and roofed with red metal" (Overland Monthly 1869:179). The tradition of painting all buildings yellow was strong as early as the 1820s when Khlebnikov (1976:76) wrote that "All dwellings are coated with a compound made of chalk or yellow ochre every year to prevent them from rotting." Both Teichmann (1962:173) and Whymper (1868:74) noted the yellow buildings in Sitka in the 1860s.

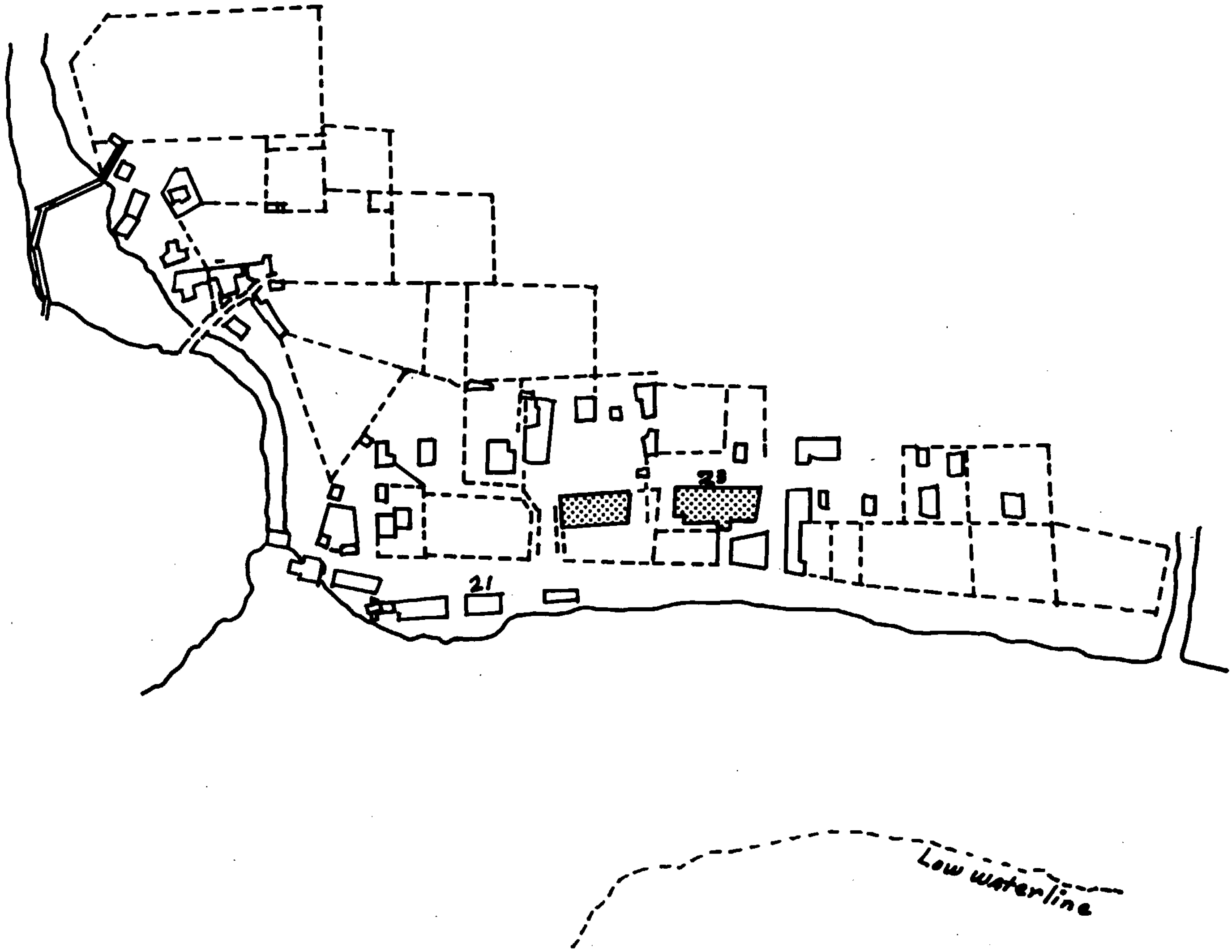

Figure 1.10: The 1871 map, from a drawing entitled "Map of the Town and Military Post of Sitka, Alaska Territory. Compiled under orders of Brig. Gen. E.R.S. Canby, Commanding Department of the Columbia, 1871." Building marked "23" is the hospital.

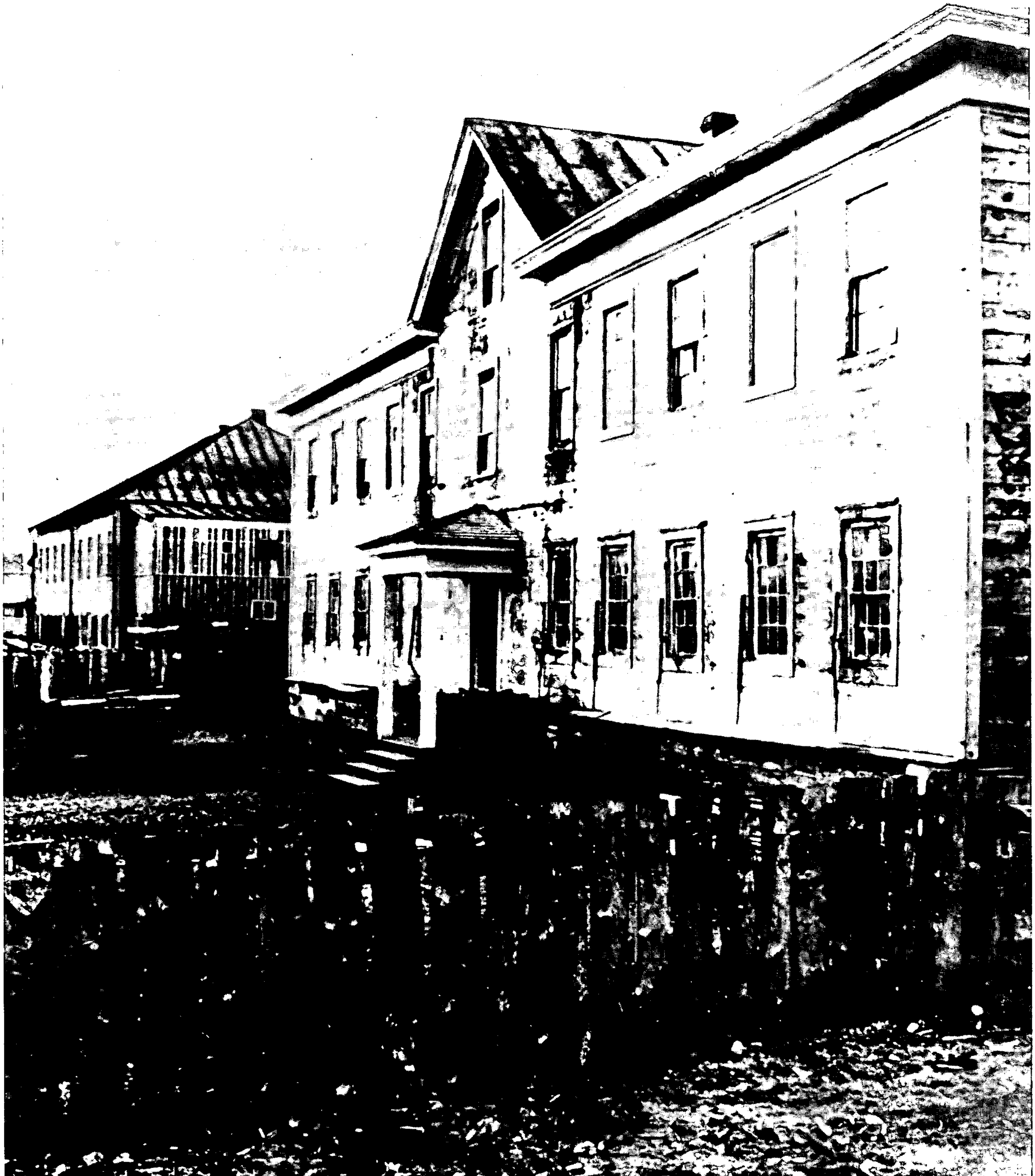

Figure 1.11: An 1867 photograph of the Russian Hospital (The Bancroft Library, University of California, Berkeley. Special courtesy of the San Francisco College for Women).

That the roof was iron in 1869 is reinforced by a newspaper article which states "The Military Hospital is also a large and roomy building, like many of the other Russian houses, has an iron sheeted roof" (Alaska Times, June 25, 1869:3). Khlebnikov (1976:76) notes that the iron roofs in town were "oiled" once a year. Whymper suggests that they were "sheet iron roofs painted red" (1868:74). A new sheet iron roof was added in 1873 (QMGO 1873).

The Hospital Inhabitants

The New Archangel hospital was intended to serve the needs of forty patients at a time. At least in the American period, the building contained five rooms designated for a doctor and his family, and one for a steward. Whether the attendant's room mentioned in the above description from Brooke (1875:481) was for a residence or for daytime use cannot be determined.

The Russians maintained that the hospital had forty beds. "During 1860 the total number of patients and outpatients for the New Arkhangel infirmary was 1,400. Of these, 1,328 were cured; 22 had died as of January 1, 1861 and 50 are still in the infirmary" (Golovin 1979:66-67). With only 40 beds and 50 patients, the hospital was indeed crowded.

The Americans did not keep so many patients at one time. There were 22 beds in the American hospital in 1870, and nine patients when Army surgeon A. Hartsuff arrived to take over as Medical Director of the Territory (Stubbs 1956:210; Alaska Times, May 14, 1870:2). In May of 1869, 13 patients were in the post hospital (Alaska Times, May 21, 1869:3). Brooke (1875:481) reports an average of six patients at any one time.

For the large number of patients, the Russians maintained only two doctors.

> Medical help in the colonies is supervised by two doctors with their headquarters in New Archangel, who visit all the districts when there is an opportunity or need. One of them supervises the hospital and pharmacy in New Archangel while the other visits the sick in their homes (Tikhmenev 1978:371).

With the duty of having to travel to all the outposts in the colony, from Fort Michael at the mouth of the Yukon River to Fort Ross in California, it is unlikely that two doctors would have both been in Sitka at the same time. However, there were some trained medical personnel who helped the physicians. "There are three feldshers[4] in the infirmary, and four apprentices" (Golovin 1979:66).

Not only were there fewer patients in the American period, but more doctors. The Americans appeared to have kept at least two doctors on duty at all times, and often there were others. At a time when Dr. A Hartsuff was Medical Director, Dr. and Mrs. W.H. Ensign were living at the hospital, and three other doctors were attached to the post (DeArmond 1981:16, 22). Dr. John A. Fitzgerald was a post surgeon from 1874 to 1876, but he and his wife did not live at the hospital. I presume that one of the other physicians resided there. His wife, in her letters to her mother, often refers to other doctors and their families, and specifically mentions the arrival of a "contract doctor," a civilian who was hired by the Army for a specific task.

Another employee of the hospital was the steward, a male nurse or medic. Emily Fitzgerald noted to her mother that the hospital's steward had been caught ". . . using up the hospital's wines, brandy, whisky, et." (Laufe 1962:175), so it is presumed that in addition to whatever duties the man had, he was at least partially responsible for keeping the hospital's supplies.

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4. A feldsher is a medical assistant.

In the Russian period, the hospital was the place where sick workmen of the lower classes were treated. Officers and higher officials and their families were treated in their own homes. The workmen could be Russian, Creole,[5] Tlingit or Aleut as long as they were employees of the Company. As for their families,

> There are no [medical] facilities for women. They receive medical attention in their own quarters, but in the exceptional cases they may be placed in a separate room, which at the present time is almost always occupied by Kolosh women infected with syphilis (Golovin 1979:65).

A midwife is listed on the payroll of the Company in 1861, but it is presumed that birth was given in the home of the mother.

The Americans initially treated the remaining Russians, Tlingits and Aleuts as well as the American military personnel. However, by December 1870, these people were no longer permitted to stay in the hospital, although they were treated on an outpatient basis (Lain 1974:139). A surgeon was appointed especially to serve civilians (Stubbs 1956:210-211).

That the Tlingits were reluctant to go to the hospital in the Russian times is evident by a few early American reports. Teichmann commented in 1868 that

> It is worthy of note that any Indian who is ill can obtain advice and medicine free on application to the American hospital, but unfortunately superstition still has a very strong hold over them, so that they prefer to sit patiently and have incantations chanted over them for days by their medicine men rather than have resource to the help of a white man (Tiechmann 1962:196).

He later describes an event where he and an Army acquiaintance, who was collecting Tlingit artifacts, entered a man's house to find him "in a

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5. "Creole" is the term used by both Russians and Americans to indicate people with one parent who was Russian and the other who was Tlingit or Aleut.

high fever and suffering great pain." Upon examination, he found that the foot was swollen and festering. The Army captain lanced the cut, withdrew a piece of rusted nail, and cleaned the wound. The man was grateful for the help of a white man who was familiar and friendly to him, but refused to go to the hospital (Tiechmann 1962:216). Khlebnikov, Golovin, and Tikhmenev all comment that the local shamans were more influential in treating the Tlingit than were the Russian doctors.

Diseases Treated at the Hospital

George Simpson (1978:179), visiting Sitka in 1841, reported that "The cases [treated at the hospital] consist chiefly of typhus and continued feavers, pulmonary complaints, syphilis, afflictions of the eye, and haemopysis, this last complaint, nobody knows why being very common on this coast." Golovin listed respiratory disorders, consumption, colds, rheumatism, gastric disorders, and jaundice, as principle complaints. He attributed the climate, alcholism and sexual promiscuity to much of the health problems in the community. Epidemic diseases were not a serious problem by the 1860s as vaccines were by then pretty well accepted by the native population, although smallpox especially had been devastating up until the 1850s. Accidents, of course, were also causes for convalescence, resulting in particular from the tremendous amount of logging that was necessary to keep the community heated and the buildings and ships repaired. Golovin also listed yellow fever, diarrhea, catarrh, lumbago (inflammation of the muscles in the lower back and thighs), rashes, something called vereda, carbuncles (a type of severe boil) and eye inflammations as particular complaints of the Aleut workmen (Golovin 1979:63-65).

From the American period, Brooke (1875:483) lists typhoid fever, remittant fever, intermittent fever, rheumatism, syphilis, consumption (tuberculosis?), catarrh (a respiratory ailment), bronchitis, pneumonia, pleurisy (an abdominal and respiratory inflammation), diarrhea, dysentery, hernia, gonorrhea, alcoholism, and accidents as the types of cases that were treated between 1870 and 1874.

While it is likely that diseases that we would recognize such as heart disease and cancer were present, they were probably confused with some of the afflictions named above.

Venereal disease was a major problem for the Russians, as none of the workmen were allowed to bring families from Russia, and sexual relations with the Tlingit women were easy to arrange.

> At one time syphilis was so widespread among the workers and soldiers in New Arkangel that when the present Chief Manager arrived in the colonies he had to resort to forceful measures in an attempt to wipe it out. He destroyed all the huts near the port, both along the shore and in the forest, in which illicit sexual relations were carried on; then he ordered a special building to be built near Lebiazhe Lake, and put a sentry on top of it. From time to time the Kolosh women who live in the area are taken to the infirmary for a medical examination. The sick are kept there to be treated and those who are healthy are allowed to go. However a prolonged stay in the infirmary is very difficult for the Kolosh women who are accustomed to complete freedom. As a rule, after two or three days they run away from the infirmary back to their own settlement where it is very difficult to find them. Consequently the Chief Manager has announced that any woman who runs away from the infirmary will have half of her head shaved, which the Kolosh consider very humiliating. At first this measure aroused dissatisfaction among the Kolosh, but when they became convinced that the Chief Manager would carry through this threat, and when they finally realized the benefits of medication, they capitulated; now, not only do they not run away from the infirmary, they come voluntarily to request medical treatment (Golovin 1979:64).

The Chief Manager did not just wreak punishment on the women. It was suspected that some of the workers deliberately contracted venereal diseases in order "be freed from work and lie in the infirmary," therefore,

> The Chief Manager has ordered soldiers and laborers to have frequent medical examinations, and he has also introduced a rule that anyone who is infected with a venereal disease shall have his wages and rations docked while he is in the hospital (Golovin 1979:64).

In the discussions that follow, it is important to remember that the hospital was intended to treat males of lower rank, and that the local Tlingits were probably not often treated, due to reluctance on their part during the Russian period, and by custom during the early American period. Women were rarely if ever in the hospital (note that the infirmary described above was a specially constructed building near Lebiazhe Lake). The only known exceptions, included Mrs. W.H. Ensign, who lived with her doctor husband at the hospital in 1870. Three women employees of the hospital were listed in the 1870 census (DeArmond 1981:16, 93).

THE ORIGIN OF THE FEATURE

The most common semi-subterranean structures used by the Russians were banias (bath houses) and ice houses. In a parish newsletter to Bishop Nikolai Ziorov dated August 27, 1896, Sitka diocese administrator Anatolii Kamenskii states that a bania had been built at the Bishop's house for a cost of $100. Its location was not specified except that it was near the Bishop's House. On September 8, 1898, he wrote that the bania had burned. The fire started at 2:00 a.m. on Friday, September 4, after all the students and faculty had taken their baths. Several items were lost in the fire: paddles, sails, some old sleeping bags, ropes, barrels and other storage containers.

This is the only record of a bania in the vicinity of either the Bishop's House or the Russian Hospital. However, it seems unlikely that Feature 12 is the remains of this bania. The Old School was built in 1897 and its foundations intrude through layers above the feature, indicating the feature cannot post-date 1897. Furthermore, it is unlikely that the two meter square structure could have held paddles, ropes, sails, sleeping bags, barrels, storage containers and a person taking a bath all at the same time. A sketch of the Russian Bishop's House made by John Pana Markoff, a former student in the building, shows an addition to the southeast corner of the building labelled "Washroom and Storage," which may be the bania which burned in 1896.

While it is possible that Feature 12 was an earlier bath house used by either the Bishop's House or the hospital occupants, comparison with other archeologically recovered examples suggest otherwise. Two bath houses were recorded by Oswalt (1980:28, 170, 174) at Kolmakovskiy Redoubt, a Russian outpost on the Kuskokwim River of west Central Alaska, dating from 1844 to 1861. Each contained a group of large fire-cracked rocks in a corner of the structure.

An 1868 description of a Russian bath also emphasizes the presence of a stone hearth in the structure. Teichmann says he entered "a blockhouse, of the simplest possible construction, almost hermetically sealed up." He and his companions sat down in a waiting room while the bath was prepared,

> . . . then walked into the actual bathroom, equipped only with a great vessel of boiling water built round with stone. . . The procedure was simply that we dashed hot and cold water over each other, beat one another with whisks woven of bast and fed the steam from time to time by emptying buckets of water over the red hot stones of the boiler. . . (Teichmann 1963:196).

Banias were essentially saunas and required a source of heat to produce steam. Feature 12 lacks any indication that a fire was used in the structure. Although both charcoal and firecracked rock are common, the distribution of each is unpatterned, and the walls and floor of the structure do not appear scorched or burned.

It seems more likely that the structure was an icehouse or other sort of storage area. As mentioned before, winters in Sitka are relatively mild, necessitating some sort of cold food storage year round. Unfortunately, neither historic or artifactual evidence can support or refute this proposition. No mention is made of ice houses in the vicinity of either the Bishop's House or the hospital. Artifacts do not appear to be associated directly with the structure. However, sawdust was common in the lower levels where preserved next to large copper items.

The lack of a stone, metal or sand platform on which to build a fire suggests Feature 12 was not a bania. On admittedly weak and inconclusive evidence, I suggest it might have been an icehouse. Other interpretations may occur to others.

CHAPTER 2

ARTIFACT DESCRIPTION

by

Marianne Musitelli

INTRODUCTION

Over 10,000[6] individual artifacts were recovered from Feature 12 and the levels above. The huge volume and diversity of materials found, as well as the fine state of preservation and relative completeness of many of the artifacts, provided us with a rare and privileged glimpse of 19th century Russian-American material culture. The following pages describe the artifacts recovered as completely as possible. Function, style, color, size, manufacturing technologies, origins, and dates have all been duly noted. The intent here is not to bore or overwhelm the reader with esoteric trivia but to provide complete comparative information for others working on Russian-American sites. Obviously, the dating and sourcing of artifacts was essential to understanding when the trash pit was formed, and who contributed to it. In addition, their identification was essential to testing the hypothesis regarding the regularity of supplies in Sitka.

Classification

Following Blee (1983a), the artifacts recovered were classified primarily by function. This decision was made for two reasons. First, we felt a functional classification would aid in interpreting behavior patterns at the site, one of our primary goals. Second, the relative completeness of many of the items found simplified the determination of function, and made us feel more confident that our assignments of similar incomplete objects were not simply guesses.

The Classification System used consists of the following four function-oriented groups (Blee 1983a):

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6. This number reflects the total number of artifact fragments or sherds actually found, rather than the count of complete objects.

1. Domestic artifacts are those which result from the storage, preparation, serving, and consumption of food.

2. The Structural group includes all items that were part of a building, or were used in its construction, operation, or upkeep.

3. Personal artifacts are those which were most likely to have been privately rather than corporately owned, and possibly carried around on one's person. Clothing, personal ornamentation, and items having to do with grooming are all examples of this group.

4. The Activities group includes all items which might have been used in special activities at the site. Religious items, school supplies, printing equipment, medical supplies and bulk storage artifacts are examples of the items in this group.

Artifacts within each of the functional groups are further subdivided into a number of classes, which define the use of the artifact more specifically. For example, the Domestic Group includes the food preparation, food serving, food storage, and beverage storage classes. These classes will be defined and discussed in more detail later as they relate to the items found.

Artifacts which could not be classified by function were placed in one of the following two groups:

5. The Ambiguous Function group includes artifacts that could easily have more than one use. No assumption can be made about their function, because there is close to an equal likelihood that the item could have been used in more than one way. Cloth is a good example of the type of artifact found in this class. Functions could include clothing (Personal Group), upholstery, drapery, bed linens, tablecloths, carpets (Domestic Group), or bandages (Activities Group). In all cases included in this group, the material from which the artifact was made can be easily identified. A great deal can be

deduced about its structure, the technology required to manufacture it, and possibly even the time period in which it was made. For this reason, despite our lack of knowledge concerning their function, these artifacts do contribute to our understanding of the site, and should be considered separately from the next group, the Unclassified Artifacts.

6. Unclassified Artifacts are items that cannot be classified by function. Although sometimes shape and material can be described, little else is known about them. Function, origin and method and period of manufacture remain a complete mystery. As a result, these artifacts contribute little to our understanding of the processes and behaviors that form a deposit. They include items which the cataloguer could not identify but someone else may be able to (whatsits). These can provide information about relative chronology, based on characteristics such as manufacturing techniques and material composition. It also includes items no one could identify (unknowns) due to their state of deterioration. Finally, the group includes artifacts which have been changed in some manner to make their original function meaningless (changed).

It should be emphasized that whenever reasonable, every attempt was made to assign functional classifications to artifacts, rather than use the Ambiguous or Unclassified categories. Since archeological materials by natur are often fragmentary or incomplete, this required making some common sense assumptions regarding most likely form or use. Incomplete or fragmentary items were compared to reconstructed items from this site or elsewhere whose function was known, in order to make classifications. The most obvious example of this was in our treatment of bottle glass sherds. When no functionally diagnostic characteristics were present on a glass bottle sherd, function was assigned based on color. It was assumed that clear, aqua and "rare" colored glass contained food. When the glass was highly decorated, it was assumed to have been used for serving food. Panelled glass, no matter what the color, was expected to have contained pharmaceuticals, except when it clearly matched well identified condiment bottles. Green and brown glass were assumed to be beverage containers. Very thin clear curved glass sherds were assigned to the Medical class due to the high frequency of mended tincture bottles found in the deposit. Thick green tinted glass with a wide radius was assumed to be carboy glass, and so assigned to the Bulk Storage class.

It is readily admitted that not all brown bottles contained beverages, and not all aqua colored bottles contained food or contiments. However, in the absence of functionally diagnostic characteristics, some assumptions must be made or the subset of quantifiable material becomes so small that no meaningful generalizations can be made (Teague 1980). Of the bottles that could be assigned a function, the generalizations stated above held true. No aqua Coca-Cola bottles were discovered. Of the aqua bottles reconstructed, all were food containers. Of the brown glass bottles reconstructed, all contained beer or liquor. Of the clear glass bottles whose function could be determined, all were food jars, and none were soda bottles. There were a few clear medical flasks and jars, but they were almost entirely reconstructable and identified as Medical class artifacts, so it is doubted that the isolated sherds associated with these items substantially biased this sample. Since the determination of central tendencies is the goal of quantification analysis, it is not believed that the exceptions substantially biased the results.

Organization

The organization of this report follows the structure of the classification system outlined above. Within this general outline, artifacts found in Feature 12 (Level 5 and below) will be discussed separately from those found in the upper levels. This was done to minimize reader confusion since, as discussed earlier, the two deposits were formed at different times and reflect different processes.

Counting Artifacts

Whenever possible, glass and ceramic artifacts will be described in terms of minimum counts or numbers rather than individual sherds. Since not all vessels recovered were complete, a brief word of explanation is in order regarding how these numbers were reached. The first step was to separate individual sherds on the basis of obvious physical differences like ware type, color, pattern, curvature, etc. All similar sherds were grouped together, and vessels were reconstructed as much as possible. When complete reconstruction was not possible, discrete units like bases, lips and rims were used to estimate the minimum number of vessels. The total number of bases and total number of lips/rims were counted, and the larger number of the two was taken to be the minimum vessel count. The remaining undifferentiated sherds with no obvious associations with reconstructed vessels were tallied as individual sherds; no attempt was made to determine the minimum number of vessels represented.

DOMESTIC GROUP

BEVERAGE STORAGE

The beverage storage class includes all those artifacts used in the storage of beverages. Liquor and soda bottles, beer cans, pop-top tabs, crown caps, and corks are all examples of artifacts belonging to this class. Non-diagnostic brown, green, and "black" glass sherds are also included in this category, based on the assumption that there is a relationship between glass color and function (Blee 1983a:56; 1985:96-98).

The bottles recovered were analyzed to determine function, contents, method of manufacture, and corresponding manufacture dates. Function and contents were determined largely by comparison with illustrated examples in nineteenth and twentieth century catalogues, and with previously identified bottles found at other archeological sites. Analysis of distinctive manufacturing marks found on the bottles provided information concerning method and period of manufacture. Since numerous accounts of nineteenth century glass making technology have been published elsewhere, both in anthropological and popular literature, these processes will not be reviewed here, nor will a tedious description of the diagnostic traits found on each individual bottle be presented. Instead, the interested reader is referred to figure 2.1 which provides the results of this analysis, and a list of the references consulted. In a few instances, clarification of the dates arrived at or the manufacturing process used are required, and will be presented in the body of the text.

Feature 12

A minimum of 42 beverage storage bottles were recovered from Feature 12. These include 38 liquor bottles and four indeterminate vessels represented only by base or lip fragments.

FIGURE 2.1: MANUFACTURING DATES AND ORIGINS OF BEVERAGE BOTTLES IN FEATURE 12

Bottles	Figure Reference	Diagnostic Traits and Associated Dates	Bibliographic References	Bottle Dates	Origins
Wine/Champagne Burgundy style	-	Mold-blown: dip mold (pre 1920) Tooled finish (post 1830 in Europe; post 1860 in U.S.) Finish imperfectly melded to neck (before ca. 1880) (indicates pre-glory-hole) Bare iron pontil w/red-purple deposit (ca. 1845-70)	(Scovill 1972:78; Lorraine 1968:43) (Toulouse 1969a:533; Munsey 1971:41; Toulouse and Ferraro 1964:70) (Toulouse 1968:141; Newman 1970:73; Kendrick 1966:29; Munsey 1971:48; Ferraro and Ferraro 1966:19; Jones 1971:71)	ca. 1845-70	unknown
Bordeaux style	-	Mold-blown: dip mold (pre 1920) Sheared lip with hand applied laid-on-ring finish (less common after ca. 1830-40). Becomes more popular again in late 19th century.	(Scovill 1972:78; Lorraine 1968:43) (Newman 1970:74; Kendrick 1966:48; Schulz 1986).	pre-1920	unknown
Hock style	-	Mold-blown: dip mold (pre 1920) Sheared lip with hand-applied laid-on-ring finish (less common after	(Scovill 1972:78; Lorraine 1968:43) (Newman 1970:70; Kendrick 1966:48)	pre-1920	unknown
"Black" glass spirits bottles Type 1	-	Mold-blown: dip mold (pre 1920) Tooled finish (post 1830 in Europe; post 1860 in U.S.) Finish imperfectly melded to neck (before ca. 1880) Bare iron pontil with red-purple deposit (ca 1845-70) "Black" glass utility bottles (ca. 1840-80)	(Scovill 1972:78; Lorraine 1968:43) (Toulouse 1969:533; Munsey 1971:41) (Toulouse 1969a:534; Munsey 1971:41; Ferraro and Ferraro 1964:79) (Toulouse 1968:141; Newman 1970:73; Kendrick 1966:24; Munsey 1971:48; Ferraro and Ferraro 1966:192; Jones 1971:71) (Newman 1970:74; Ward et al. 1977: 240; Ferraro and Ferraro 1966:96; Chance 1976:133; Wilson 1968:13)	ca. 1840-80	unknown
Type 2	-	Mold-blown: dip mold (pre 1920) Tooled finish (post 1830 in Europe; post 1860 in U.S.) Finish imperfectly melded to neck (before ca. 1880) Molded base (post 1820) "Black" glass utility bottles (ca. 1840-80)	(Scoville 1972:78; Lorraine 1968:43) (Toulouse 1969a:533; Munsey 1971:41) (Toulouse 1969a:534; Munsey 1971:41; Ferraro and Ferraro 1964:79) (Toulouse 1968:141; Newman 1970:73; Kendrick 1966:24; Munsey 1971:48; Ferraro and Ferraro 1966:192; Jones 1971:71) (Newman 1970:74; Ward et al. 1977:240; Ferraro and Ferraro 1966:46; Chance 1976:133; Wilson 1968:13) (Jones 1971:66-67)	ca. 1840-80	unknown
Type 3	-	Mold-blown: three piece mold (invented ca. 1810, popular ca. 1870-1910) Tooled finish (post 1880 in Europe; post 1860 in U.S.) Finish imperfectly melded to neck (before ca. 1880) Molded base (post 1820) "Black" glass utility bottles (ca. 1840-80)	(Lorraine 1968:38; Newman 1970:72; Kendrick 1966:578; Putnam 1965:preface; Ferraro and Ferraro 1966:79; Toulouse 1969:578; Munsey 1971:89)	ca. 1840-80	unknown
Schnapps bottle	-	Mold-blown (pre 1920) Tooled finish (post 1830 in Europe; post 1806 in U.S.) Bare iron pontil with red-purple deposit (ca. 1845-70) "Black" glass (pre 1880)	(Scovill 1972:78; Lorraine 1968:43) (Toulouse 1969:533; Munsey 1971:41) (Toulouse 1968:141; Newman 1970:73; Kendrick 1966:29; Munsey 1971:48; Ferraro and Ferraro 1966:19; Jones 1971:71) (Newman 1970:74; Ferraro and Ferraro 1966:96; Ward et al. 1977:85, Chance 1976:133)	ca. 1845-70	Schiedom, Holland
Generic brown liquor bottles	-	Mold-blown: turn mold (post 1860 in Europe; 1870-1920 in U.S.) Tooled finish (post 1830 in Europe; post 1860 in U.S.)	(Kendrick 1966:43; Putnam 1965: preface; Ferraro and Ferraro 1964;79; Toulouse 1969:53; Newman 1970:72; Munsey 1971:40) (Toulouse 1969:533; Munsey 1971:41)	ca. 1860-1920	unknown

Three different styles of wine or champagne bottles were identified. The most common of these are the so-called "burgundy" or "champagne" style bottles, of which fragments of at least seven different vessels were recovered. These are broad, heavy-walled bottles with sloping shoulders, deep square kick-ups, and laid-on-ring finishes (figure 2.2). A long established wine-making tradition dictates that red and white burgundies be stored in bottles of this shape (Munsey 1971:59), although the sturdiness and deep kick-ups of these bottles makes them equally suitable for holding effervescent champagnes (Switzer 1974; Herskovitz 1978).

As can be seen from figure 2.2, these bottles have no mold seams. The absence of seams on identical bottles found elsewhere has been explained in various ways by different authors. Most, like Chance (1976:136), take this to mean the bottles were free-blown. Others, however, suggest the bottles were made in a turn mold, with mold seams being obliterated by the turning process (Munsey 1972:40). Both of these interpretations have been rejected here, however. The perfect symmetry and absolute standardization of sizes suggests the use of a forming mold, although it does not seem likely that the mold used was a turn mold, since the characteristic horizontal striations left on the surface of the bottle by this technique are absent. Toulouse (1969a:530) suggests an alternate explanation which we believe to be the correct one. He indicates that many so-called "free-blown" bottles of the nineteenth century were actually manufactured in dip molds, which may or may not leave a seam, with the necks and shoulders finished by hand. This seems to be the case here, since the necks of these bottles appear to be stretched, as often occurs during the hand-finishing phase. This combination of traits could not be adequately explained by either the free-blown or turn-mold processes.

Fragments of at least three bordeaux style bottles were also found. These are thin-walled fragile vessels with square shoulders and straight sides (figures 2.3 and 2.4a). Like the burgundy style bottles, they are also symmetrical and appear to be mold formed, although lacking mold

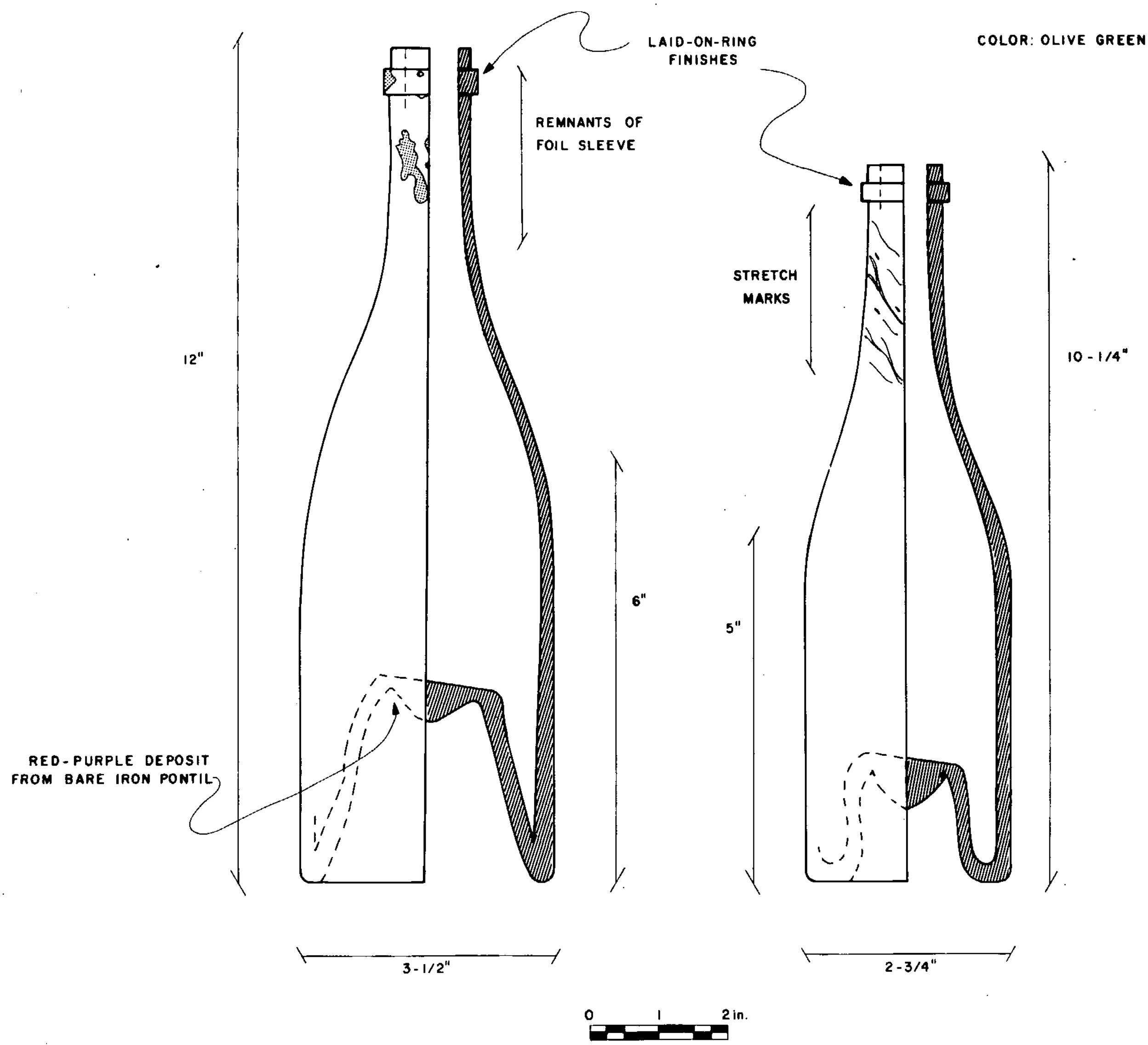


Figure 2.2: Burgundy style wine bottle and champagne bottle.

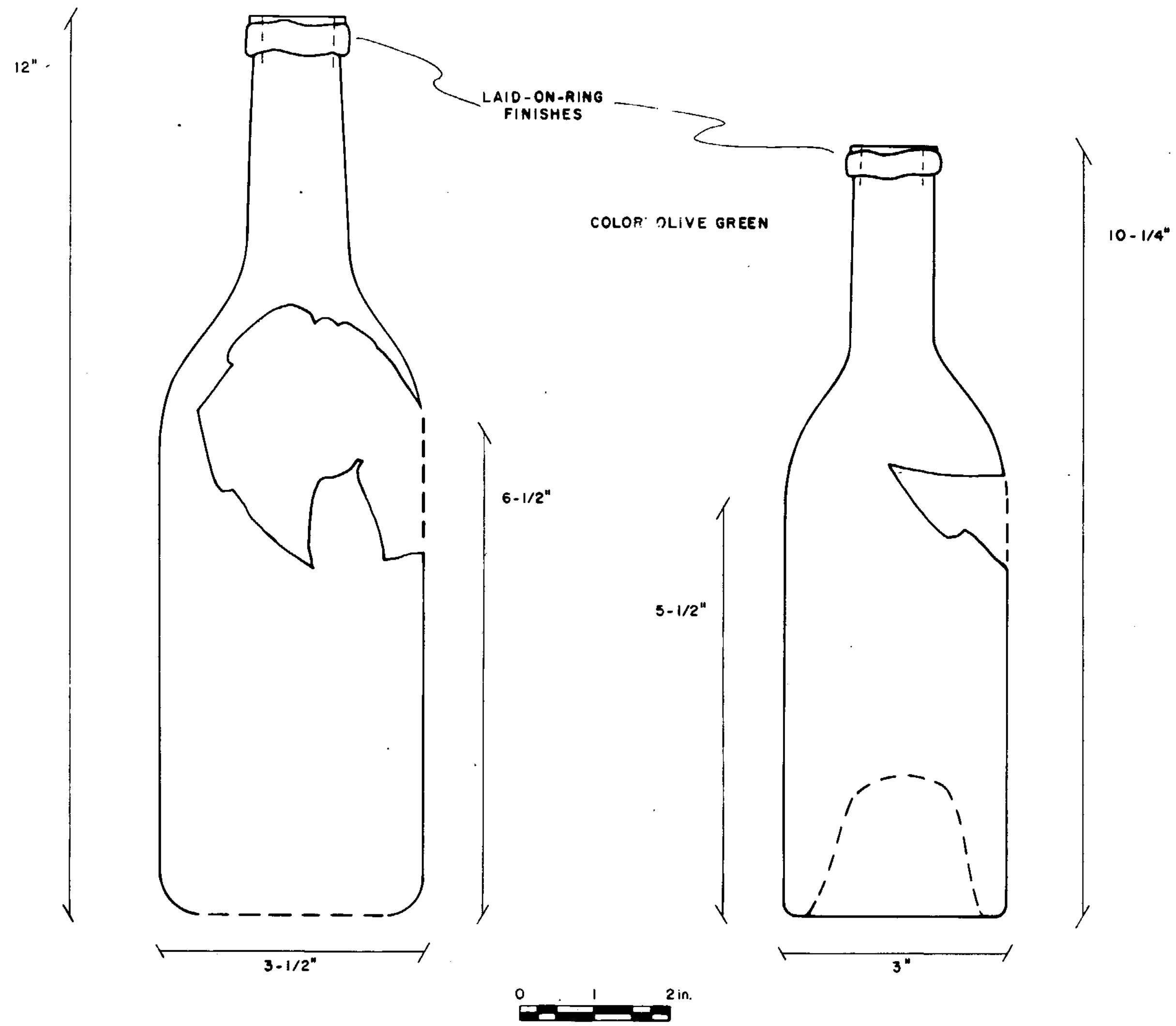


Figure 2.3: Bordeaux style bottles.

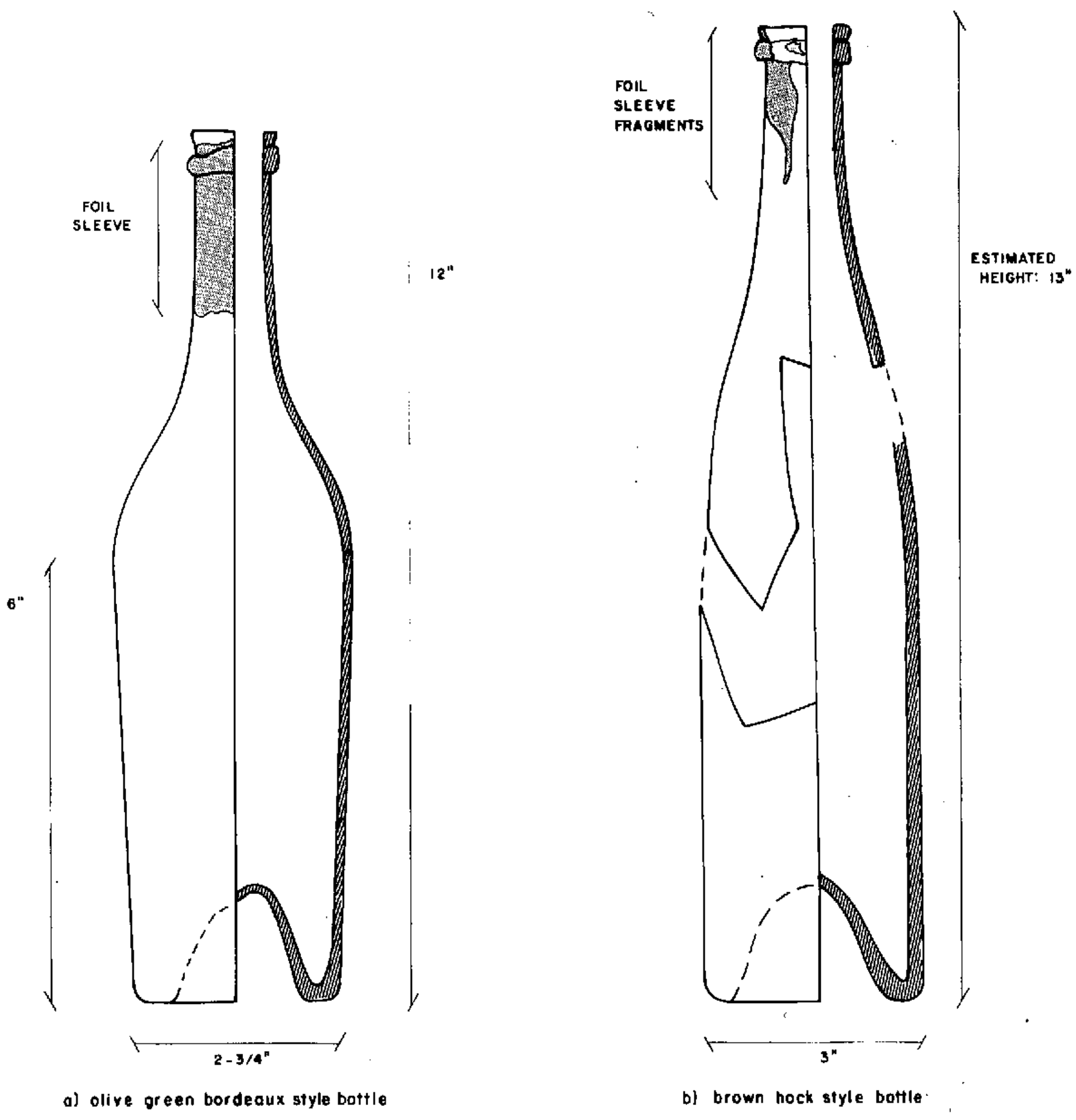


Figure 2.4: Bordeaux style bottle (a) and hock style bottle (b)

seams. Bordeaux style bottles are used to hold clarets, white bordeauxs, chiantis, and Spanish reds (Munsey 1971:59).

The final wine bottle represented is a brown hock style bottle (figure 2.4b). Bottles of this type taper gently from the base to the lip, with no perceptible shoulder. They are used predominantly for sweet white wines. According to Munsey (1971:59), tradition dictates that Moselles be bottled in green glass, and Rhines in amber.

Like the previously mentioned examples, this bottle is very symmetrical and apparently mold-blown although lacking seams. As can be seen from figure 2.1, the dating of both this bottle and the bordeaux style bottles poses a bit of a problem since no absolute diagnostic traits could be identified. Presumably, sheared lips and crudely applied laid-on-ring finishes became much less common after the 1830 invention of the lipping tool (Toulouse 1969a:533; Munsey 1971:41) although they did not disappear altogether. Manufacturers of utility wares frequently continued to use outdated techniques for cheap, mass-produced items like beverage bottles. A bottle similar to the hock style bottle was found at Fort Vancouver in a U.S. Army context, ca. 1865-70 (Chance and Chance 1976:136,148), which may give a general idea of age.

The most numerous bottle type identified in the beverage class is the utility "black" glass spirits bottles. During the mid to late nineteenth century, these bottles were mass produced as containers for alcoholic beverages including beer, ale, brandy, whiskey, rye or wine. It is rarely possible to determine the contents of individual bottles precisely, since few were embossed and the same shape and finish type were used for different beverages. Seven complete or fairly complete vessels were found, along with 14 bases and 18 necks and lip finishes, accounting for a minimum of 25 vessels. With the exception of one bottle, all were found in Feature 12.

The complete vessels are of four major types. Figures 2.5 through 2.8 illustrate these varieties and their different methods of manufacture. As

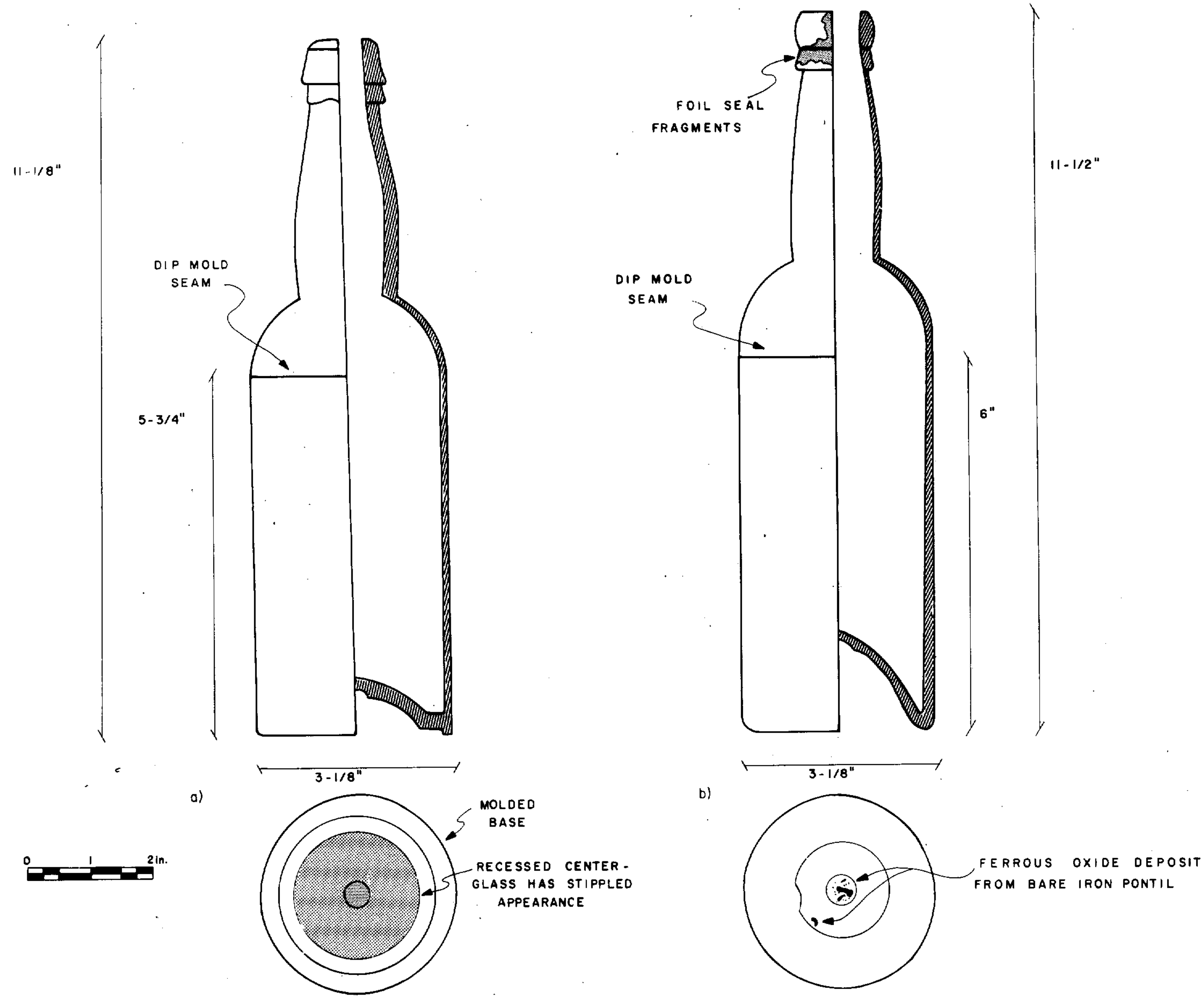


Figure 2.5 : 'Black' glass spirits bottles.

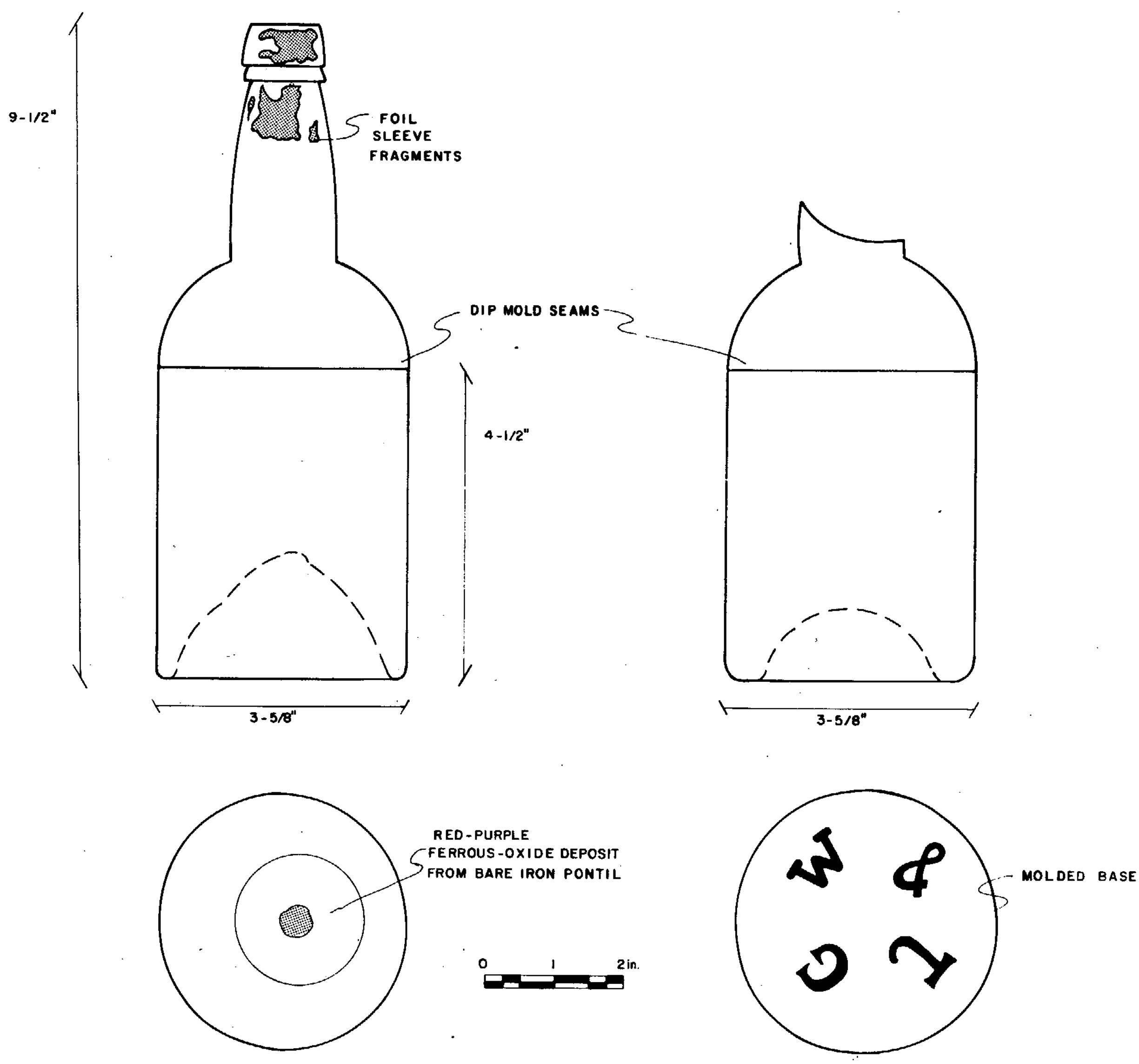


Figure 2.6: 'Black' glass spirits bottles.

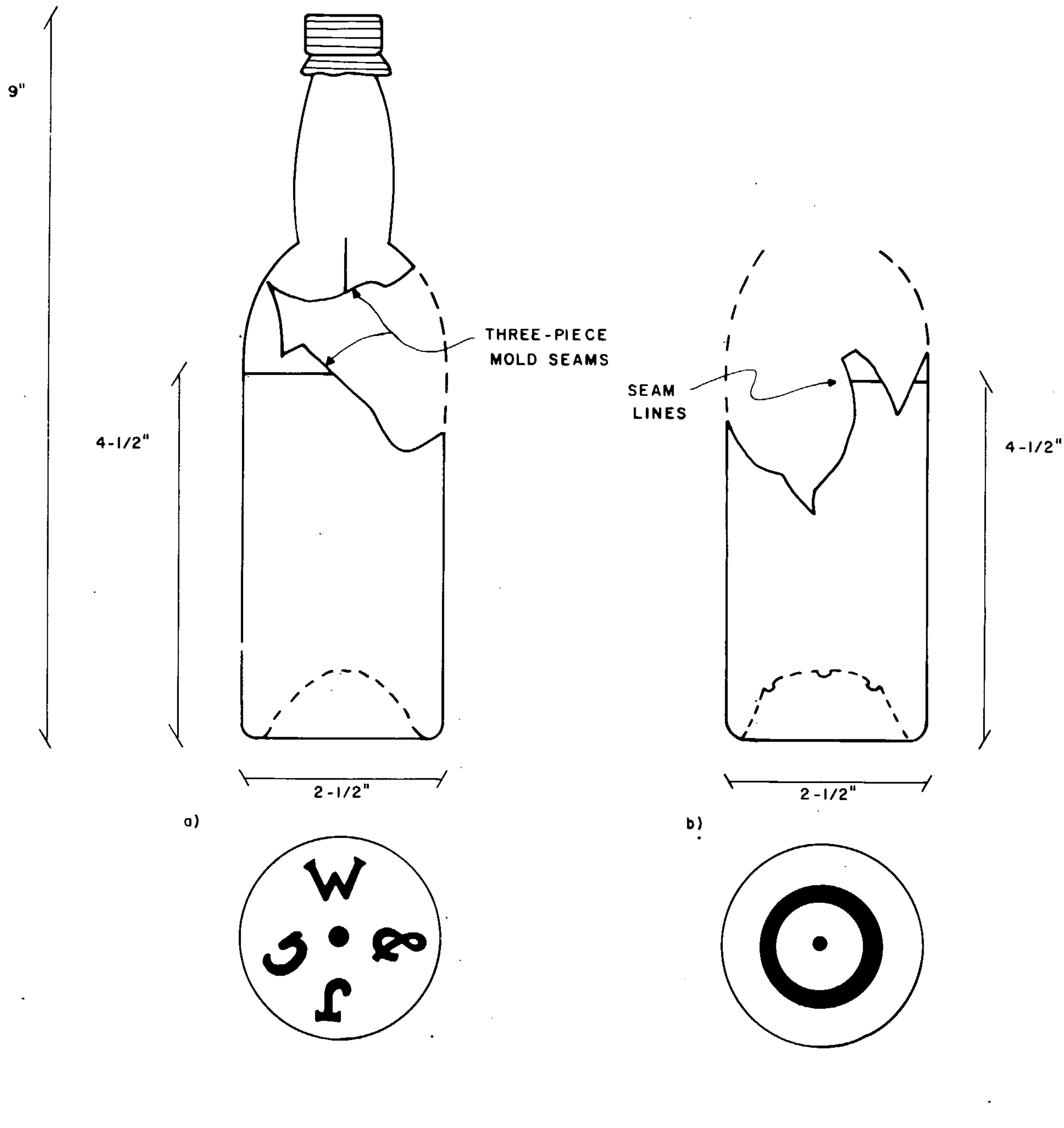


Figure 2.7: 'Black'glass spirits bottle.

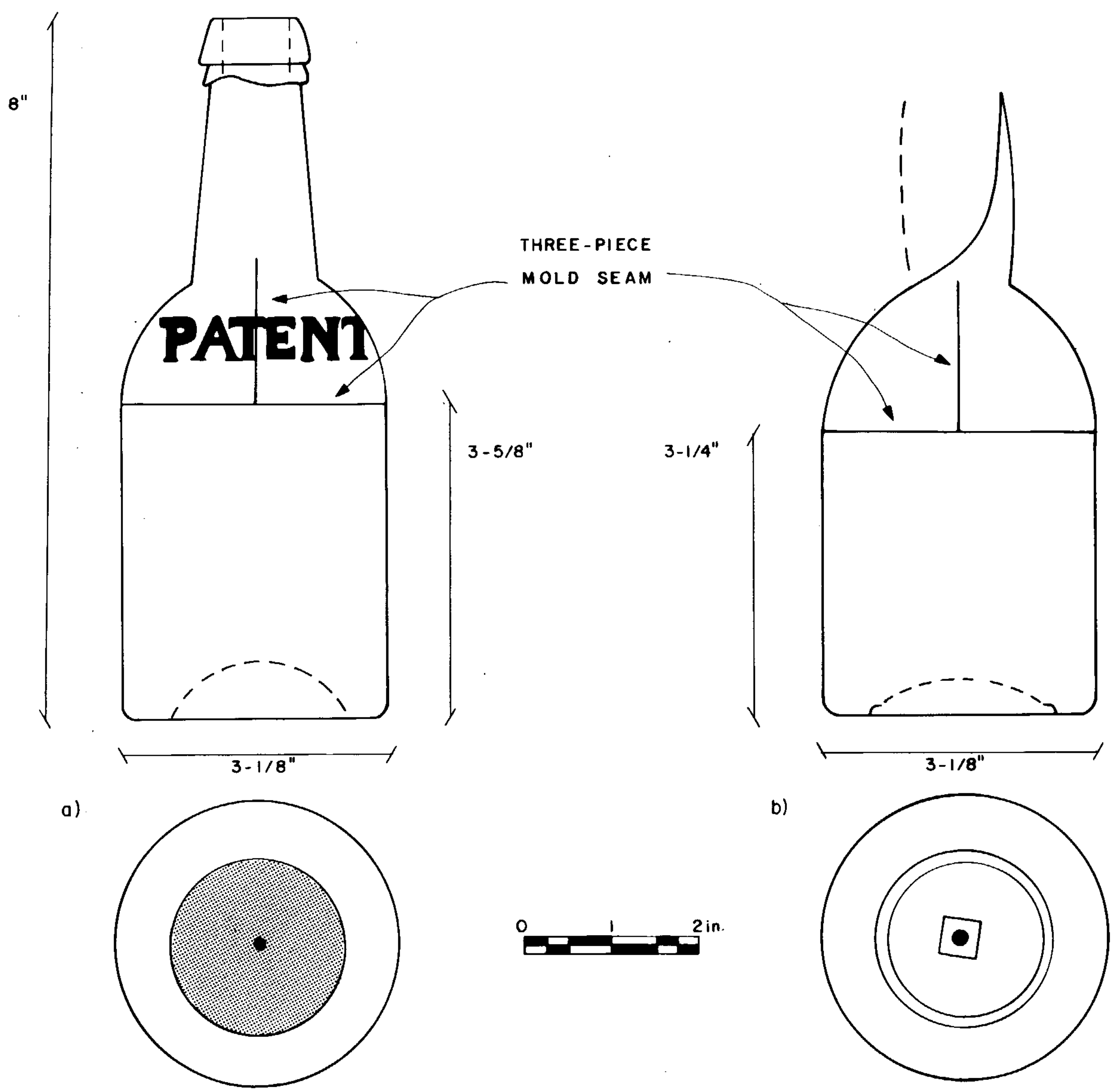


Figure 2.8: 'Black' glass spirits bottles.

can be seen, most of these bottles were made either in dip molds or in three-piece molds with crudely tooled brandy finishes. The use of three-piece molds poses a bit of a question for dating purposes. Three-piece molds were invented ca. 1810 (Lorraine 1968:38; Newman 1970:72; Kendrick 1966:578; Putnam 1965:preface; Ferraro and Ferraro 1964:79), but according to some authors were most popular ca. 1870-1910 (Toulouse 1969b:578; Munsey 1971:39). A post-1880 date does not seem consistent with what is known about "black" glass spirits bottles, however. Both anthropological and popular literature indicate that, for the most part, "black" glass was no longer being used by ca. 1880 (Newman 1970:73,74; Ward et. al. 1977:240; Ferraro and Ferraro 1966:96). This is supported by archeological evidence from Fort Vancouver where no "black" glass was found in any context dating later than 1876 (Chance 1976:133). For these reasons, a date of ca. 1840-1880 is postulated for these bottles, based on the fact that this is the period when "black" glass spirits bottles were mass produced (Wilson and Wilson 1968:13).

Four of the spirits bottles recovered are embossed. Two have the word "PATENT" inscribed on either the shoulder or base, and two are marked with "W & JG". Wilson (1968:17,19) identifies the former as "Patent Bottles" made ca. 1860-1875, although he does not explain what he means by the term "Patent". Presumably this refers to a bottle style patented by a particular manufacturer. The origin of the W & JG mark could not be identified despite a prolonged search.

Interestingly, several of the spirits bottles still have fragments of the foil seal on the neck and finish, and eight still have intact corks. This may indicate the bottles were disposed before opening, either as a result of confiscation or accidental breakage. It could also mean that corks were kept with the bottle as a closure during several days' use, and stuck back in the bottle when emptied.

One complete "black" glass case bottle with the inscription "A BARBIER'S SCHIEDAM/AROMATIC SCHNAPPS" was recovered (figure 2.9). This

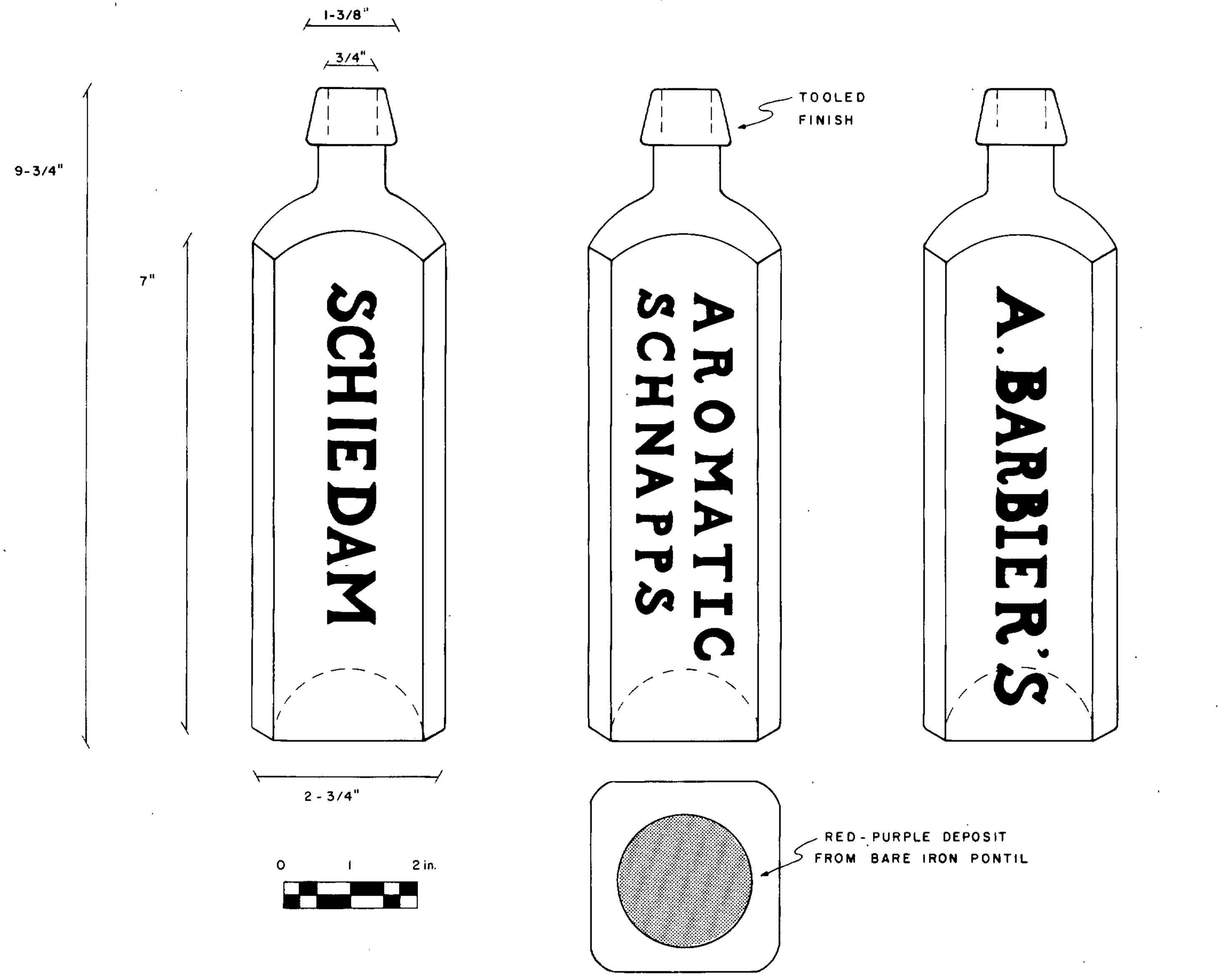


Figure 2.9: 'Black' glass schnapps bottle.

mark indicates a variety of gin or schnapps and was used by American as well as Dutch manufactuers (Schulz 1986).No information could be found on the A. Barbier Company or their dates of operation, however. The fact that the other words on the bottle are written in English suggests a British or American origin rather than Dutch, despite the fact that the city of Schiedam was in Holland.

Figure 2.10 illustrates the final two bottles believed to have contained alcoholic beverages. Both are of brown glass, and have faint horizontal striations across their bodies, indicating they were made in a turn mold. The first, (figure 2.10a) was likely a beer bottle, based on its shape and distinctive blob-with-ring finish. The contents of the second (figure 2.10b) are less easily determined. Labelled bottles of this shape, size, and finish type have contained a variety of different beverages, including brandy, ale, stout, or whiskey.

In addition to the diagnostic marks left from the turn mold, these bottles also have a slightly perceptible rounded ridge of glass around the widest diameter of the shoulders. Such marks are common on bottles blown in dip molds, but an alternate explanation is sought here since bottles can only be "turned" in full-height molds (Munsey 1971:40). Instead, it is believed this mark represents the juncture of the two mold parts. Although turn-mold bottles could only be produced in full-height molds, these molds were made in separable parts to define the different contours of the bottle (Toulouse 1969a:531). It seems quite reasonable to assume that a greater amount of glass may have accumulated at the juncture of these seams during the turning process.

Turn-paste molds were first manufactured ca. 1860 in Europe (Kendrick 1966:43; Putnam 1965:preface; Ferraro and Ferraro 1964:79), but did not become popular in the United States until ca. 1870-1920 (Toulouse 1969a:532; Newman 1970:72; Munsey 1971:40; Kendrick 1966:43). The post 1870 date has been accepted by most researchers working on historic period sites in the United States, which only seems reasonable given the known information. If the depost from Feature 12 represents a Russian

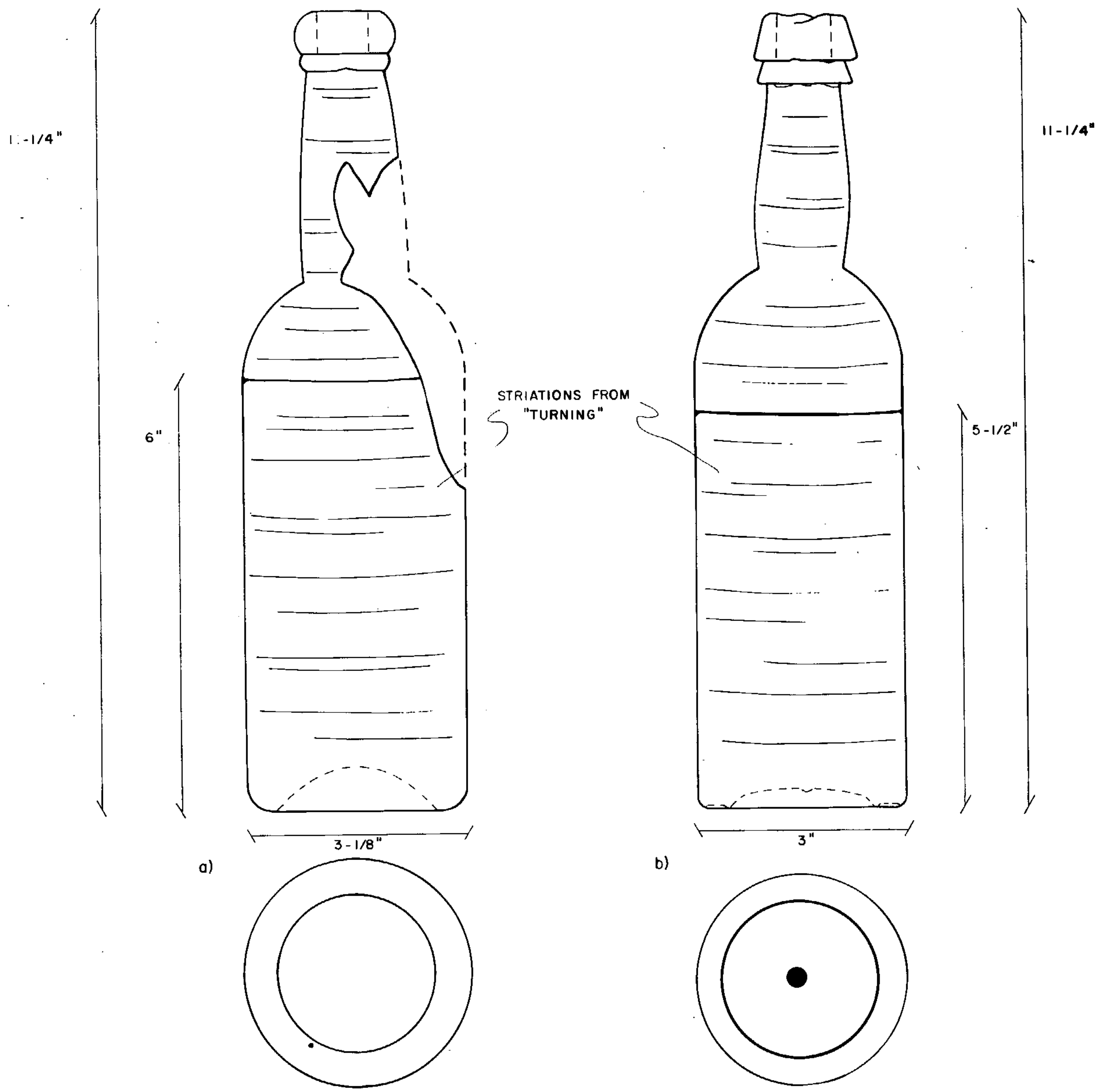


Figure 2.10: Brown turn mold manufactured liquor bottles.

presence, however, it is possible that these bottles were manufactured in Europe, and represent the earlier date. Gibson (1976) notes that ships of many different nations supplied the Russian-American Company throughout its history. After 1849, chartered European ships were an especially important means of supply. These ships bought goods directly from the producers in Finland, Germany, and England and transported them across the ocean to Sitka (Gibson 1976:77,82). For this reason, the post-1860 date is being accepted here. It should also be noted that wooden molds, which were quite popular in Germany ca. .1820-65 (Kendrick 1966:43) produced the same marks as the turn molds. These molds were less durable than the iron molds used later, and consequently not as widespread. It is doubtful that they would have been used for cheap utility bottles, although the possibility should not be overlooked entirely.

The remaining beverage storage bottles in Feature 12 are summarized in figure 2.11. These include nineteen corks of assorted sizes, and several base and lip fragments.

Levels Above Feature 12

Several recent beverage bottles were found in Levels 1 and 2. It should be emphasized that these probably are sheet trash from the recent past or from earlier in the century when the Old School building was rented out as a tenement. Trash no doubt blew in, or was indiscriminately tossed under the open foundation, and accumulated on top of the earlier deposit. Although the following items are described for comparative purposes for anyone interested in later sites, they should not be considered contemporaneous with the earlier items described previously. These items include parts of four bourbon bottles, two generic liquor bottles, eight beer bottles and three soda bottles. These artifacts are illustrated in figures 2.12 through 2.14, and their diagnostic traits and manufacture dates are summarized in figure 2.15.

FIGURE 2.11: BEVERAGE STORAGE ARTIFACTS IN LEVELS ABOVE FEATURE 12

Vessel/Color	Sherd	Mininum Vessels
"Black" glass spirits bottle	6	1
Jesse Moore Bourbon (brown)	32	2
J.H. Cutler Bourbon (brown)	39	2
M.G. Co. beer (brown)	71	1
No Deposit/No Return beer (brown)	78	7
"Federal Law Forbids. . ." whiskey (clear)	3	1
Coke bottle (aqua)	10	1
Soda bottles (clear)	40	2
Bristol-Glazed-Stoneware Ale Bottles	7	2
Bases		
"Black" glass	6	3
Olive green glass	14	2
Lips		
Clear glass jug	1	1
Clear screw thread finish	1	1
Incomplete green lip	5	1
"Black" glass oil finishes	31	2
Aluminum beer can	1	1
Ferrous screw thread bottle cap	1	-
		30

BEVERAGE STORAGE ARTIFACTS IN FEATURE 12

Vessel/Color	Sherds	Minimum Vessel
Wine bottles		
Burgundy/Champagne (olive green)	129	7
Bordeaux style (olive green)	75	3
Hock/Rhine style (brown)	50	1
"Black" glass spirits bottles	280	24
A. Barbier's Schnapps (black)	38	1
Unmarked brown liquor bottles	48	2
Bases		
Union oval (clear)	2	1
Green free-blown bases	59	2
Lips		
Clear glass jug	3	1
Corks	19	-
		42

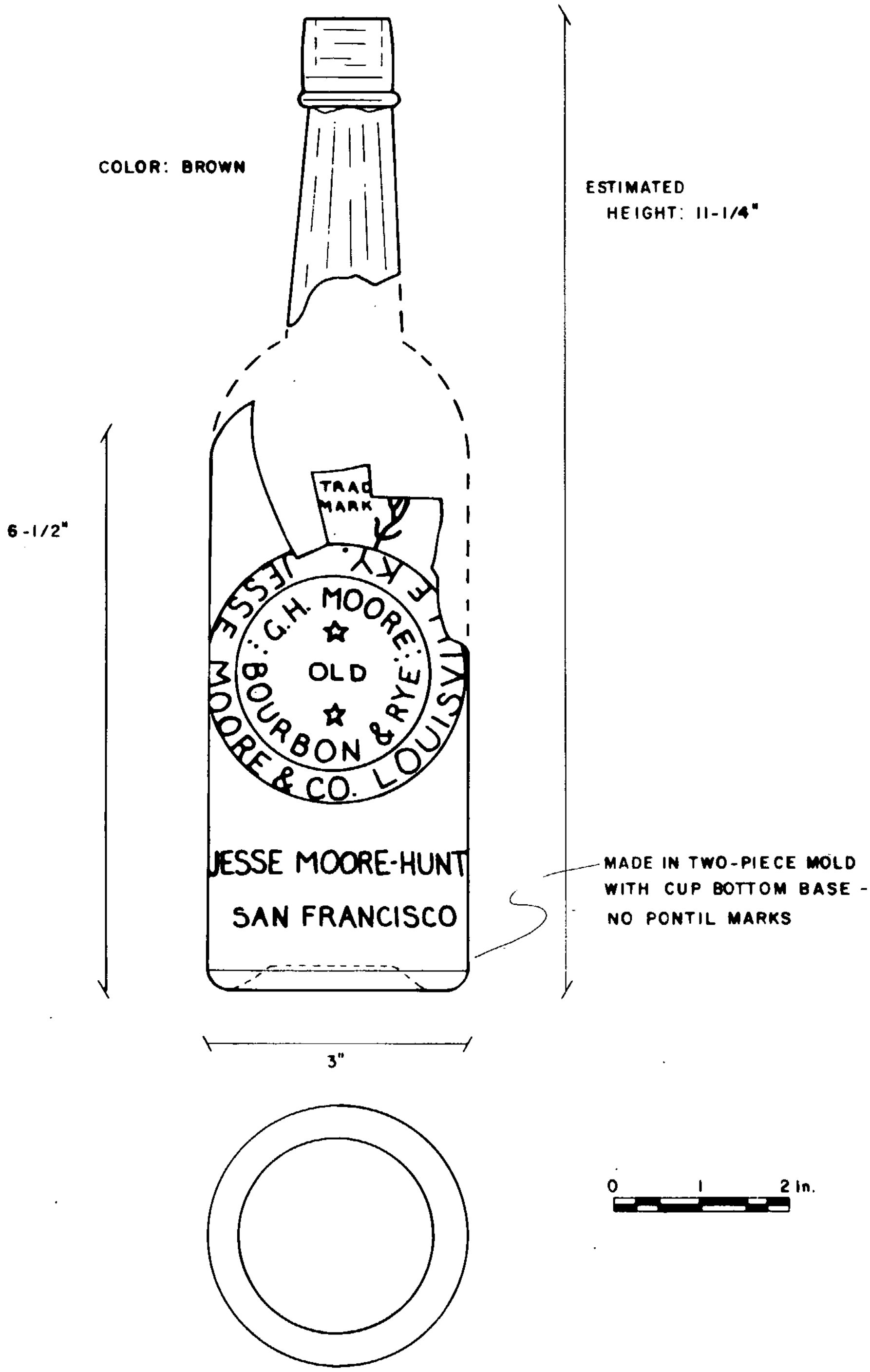
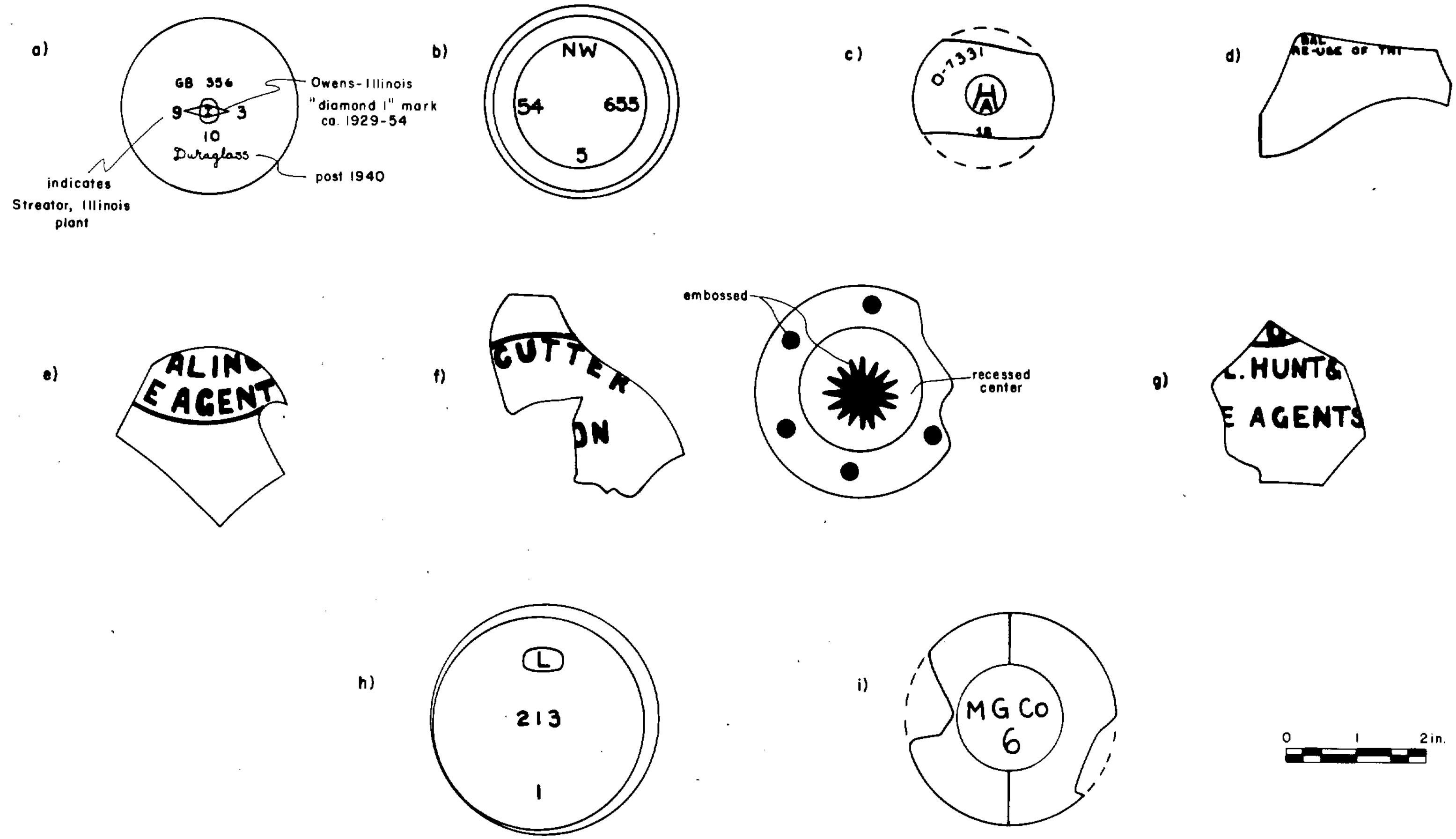
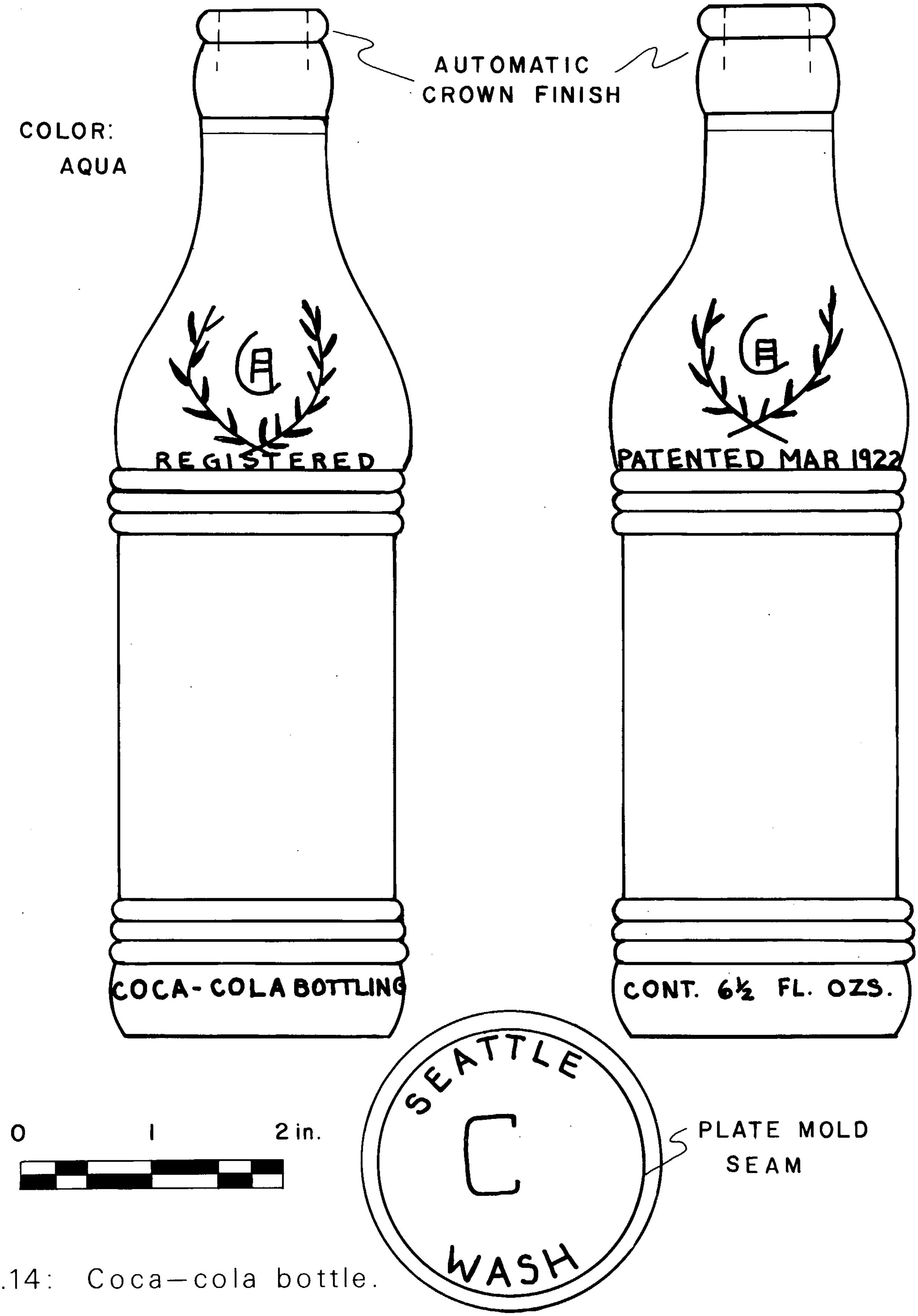


Figure 2.12: Bourbon bottle.



a) brown glass beer bottle base, Owens Illinois Duraglass: 1940-54   b) brown glass beer bottle base, Northwestern Glass Co, Seattle: 1931 - present
c) clear glass soda bottle base, Hazel Atlas Glass Co: 1920-64   d) clear glass liquor bottle "Federal Law Prohits Re-Use...": ca. 1933-64
e-f) brown glass shoulder and base fragments "J.H. CUTTER OLD BOURBON/A.P. HOTALING & CO./SOLE AGENTS": ca. 1880 - 93
g) brown glass "G.H. MOORE OLD BOURBON... MOORE HUNT & CO. SOLE AGENTS": ca. 1876 - 1916   h) brown glass base, Latchford Glass Co, Los Angeles: 1957- present
i) brown glass base, Modes Glass Co, Cicero, Indiana: 1895-1904 OR Missouri Glass Co, St. Louis, 1859-1911

Figure 2.13: Recent embossed bottle glass.



2.14: Coca–cola bottle.

FIGURE 2.15: MANUFACTURING DATES AND ORIGINS OF BEVERAGE BOTTLES IN LEVELS ABOVE FEATURE 12

Bottles	Figure Reference	Diagnostic Traits and Associated Dates	Bibliographic References	Bottle Dates	Origins
Jesse Moore-Hunt bourbon Type 1	-	Partial embossed label ". . .HUNT 2 . . . / . . .AGENTS" (likely complete label read "MOORE-HUNT & CO. / SOLE AGENTS". This style label dates ca. 1876-1916)	(Wilson and Wilson 1968:86)	1876-1916	San Francisco
Type 2	-	Mold-blown: two piece mold with cup mold base (post 1840) Tooled finish (post 1830 in Europe; post 1860 in U.S. Embossed label "G.H. MOORE OLD BOURBON AND RYE/JESSE MOORE & CO. LOUISVILLE, KY/JESSE MOORE-HUNT CO/SAN FRANCISCO" (ca. 1896-1918)	(Lorraine 1968:40; Newman 1970:72; Putnam 1965:preface) (Toulouse 1969a:533; Munsey 1971:41) (Wilson and Wilson 1968:88)	1896-1918	San Francisco
Brown quart bottle	-	Automatic (post 1920) Embossed base mark "L/213/1" (from Latchford Glass Co. of Los Angeles - post 1957)	(Scovill 1972:78; Lorraine 1968:43) (Toulouse 1972:316)	1957-present	Los Angeles
Clear whiskey	-	Partial embossed label ". . .RAL/ RE-USE OF THIS. . ." (entire label likely read "Federal Law Forbids Resale or Re-Use of This Bottle" - embossed on all liquor bottles manufactured in U.S. between 1933-1964)	(Munsey 1971:126)	1933-64	unknown
Brown beer bottles Type 1	-	Mold-blown: two piece mold with cup mold base (post 1840) Tooled finish (post 1830 in Europe; post 1860 in U.S.) Embossed base mark "MG CO/6" (either from Modes Glass Co. of Cicero, Indian, ca. 1895-1904 or Missouri Glass co. of St. Louis, ca. 1859-1911)	(Wilson & Wilson 1968:86) (Lorraine 1968:40; Newman 1970:72; Putnam 1965:preface) (Toulouse 1969a:588; Munsey 1971:41) (Wilson & Wilson 1968:88) (Scoville 1972:78; Lorraine 1968:43) (Toulouse 1972:316) (Munsey 1971:126) (Toulouse 1972:360-361; Herskouitz 1978:7)	ca. 1859-1904	Cicero, Indiana or St. Louis, Missouri
Type 2	-	Automatic (post 1920) Shoulders embossed "NO DEPOSIT/ NO RETURN" (post 1938) Embossed base mark "NW/54?655/5" (from Northwestern Glass Co, Seattle - post 1931)	(Scovill 1972:78; Lorraine 1968:43) (Word et al. 1977:238) (Toulouse 1971:390)	1938-present	Seattle
Type 3	-	Automatic (post 1920) Embossed Owens & Illinois base mark elements: "diamond I design" (ca. 1929-54) "Duraglass" (post 1940) "9" indicates Streator, Illinois plant	(Scovill 1972:78; Lorraine 1966:43) (Toulouse 1971:393,403)	1940-1954	Streator, Illinois
J.H. Cutler bourbon	-	Partial embossed labels ". . .CUTTER/. . . ALIN . . ./ . . .E AGENTS" (entire label likely read "J.H. CUTTER/OLD BOURBON/A.P. HOTALING & CO/ SOLE AGENTS - ca. 1880-1893)	(Wilson & Wilson 1968:58)	ca. 1880-1893	San Francisco

FIGURE 2.15: MANUFACTURING DATES AND ORIGINS OF BEVERAGE BOTTLES IN LEVELS ABOVE FEATURE 12 (Cont.)

Bottles	Figure Reference	Diagnostic Traits and Associated Dates	Bibliographic References	Bottle Dates	Origins
Soda bottles Type 1	-	Embossed on sides "PATENTED MAR 1922/REGISTERED/COCA-COLA BOTTLING/CONT. 6½ FL. OZ." (post 1922) Embossed base mark "SEATTLE/C/WASH"		post 1922	Seattle
Type 2	-	Embossed Hazel/Atlas base mark (1920-1964)	(Toulouse 1972:239)	1920-64	Wheeling, W. Virginia
Beer can		Church-key opened (pre 1962)	Denver Post, Jan. 23, 1985	pre 1962	unknown
"Black" glass spirits bottle	-	Mold-blown: three piece mold (invented ca. 1810, popular ca. 1870-1910) Molded base (post 1820) Tooled finish (post 1830 in Europe; post 1860 in U.S.) "Black" glass utility bottles (ca. 1840-80)	(Lorraine 1968:38; Newman 1970:72; Kendrick 1966:578; Putnam 1965: preface; Ferraro and Ferraro 1964:79; Toulouse 1969:578; Munsey 1971:39) (Jones 1971:66-67) (Toulouse 1969:533; Munsey 1971:41) (Newman 1970:74; Ward et al. 1977:240; Ferraro and Ferraro 1966:96; Chance 1976:133; Wilson 1968:13)	ca. 1840-80	unknown

Non-Diagnostics

A total of 1870 non-diagnostic glass sherds were also catalogued in this class. For the purpose of this discussion, no attempt made to separate these sherds by level or stratum, although it was done in Chapter 3 in the analysis of Spatial distribution. Distribution by color is as follows:

"black" glass	1324
brown glass	120
olive green glass	364
green glass	43
bright green glass	7

Discussion

One goal of this artifact analysis is to discover the nature and origin of the Feature 12 deposit. The possibilities, as outlined in the research design (Blee 1983b), include the following:

1) The deposit was formed by seminarians being taught by the Russian Orthodox Church, and dates between 1845-1858.

2) The deposit was formed by occupants of the Russian hospital, and dates between 1858-1867.

3) The deposit was formed by the U.S. Army Hospital, and dates between 1867-1877.

4) The deposit was formed by students and teachers of the Sitka Industrial School, and dates between 1881-1882.

A fifth possibility, which was not mentioned in the research design, is that the deposit was formed by occupants of the Russian Bishop's House. The Bishop's House was built in 1843, and continued to be used by the Russian Orthodox Church well into the twentieth century. It served both as the rectory for the Orthodox priests stationed in Sitka, and as an ecclesiastical school for Russian and Tlingit children.

With the exception of the latter, all of the possibilities outlined represent distinct time periods. Because of this, the period of deposition represented by Feature 12 is one important clue to its orign.

In historic archeology, two methods are commonly used to date deposits. Both rely on correlating the manufacture dates of artifacts in the deposit with the period of deposition. Bottle glass is particularly useful in this application since it characteristically is disposed of as soon as its contents are consumed, resulting in a closer correlation between manufacture, use, and deposition dates than is often found among other classes of artifacts.

The <u>terminus post quem</u> method is one means of dating a deposit based on the manufacture dates of artifacts. In this method, the <u>initial manufacture date</u> of the <u>latest artifact</u> type present is taken to be "the date after which the artifacts must have found their way into the ground" (Noel-Hume 1980:11). The reasoning followed is that the deposit could not have been made before the individual artifacts present in it were manufactured. The assumes a sealed deposit where all artifacts were deposited within a short period of time.

As can be seen from figure 2.16, the <u>terminus post quem</u> for Feature 12 based on the beverage bottles is 1860. This indicates that the deposit could not have been formed by members of the Russian Seminary.

One problem with the above method is that it does not take artifact frequency into consideration. A single item with a significantly earlier or later date than the bulk of artifacts in the deposit has as much influence on the final result as do several items which have similar dates. As a consequence, intrusions may adversely affect the date obtained.

One means of remedying this is to use statistical means to weight the influence each artifact has on the final result. This is precisely what the

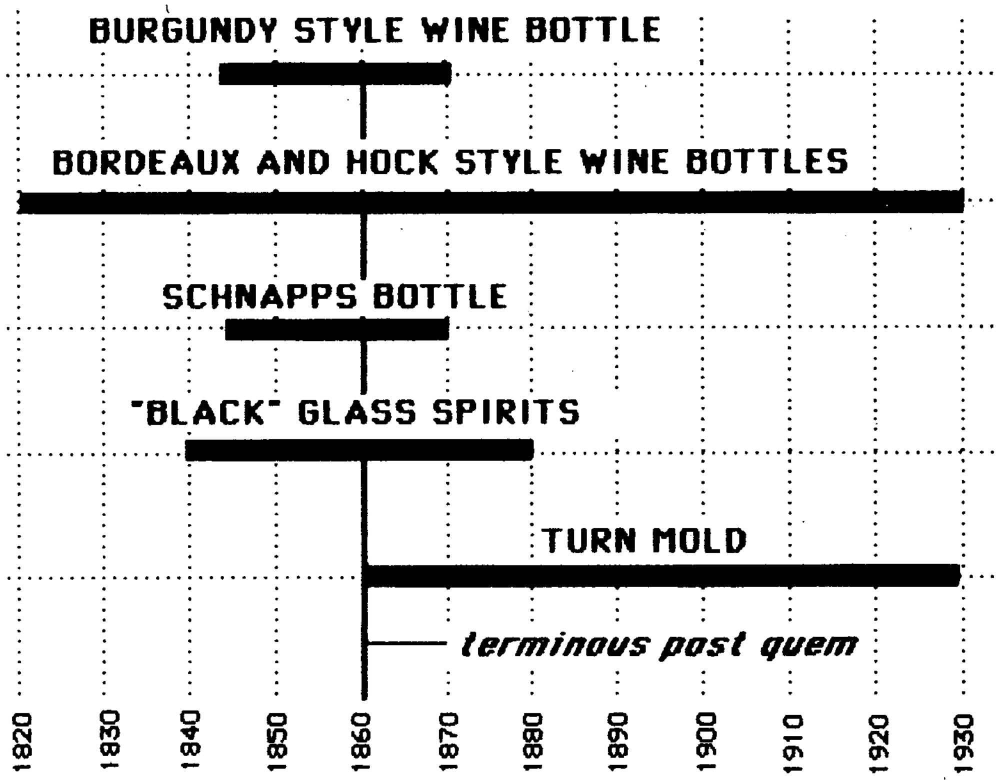


FIGURE 2.16: MANUFACTURING DATES OF BEVERAGE CONTAINER BOTTLES IN FEATURE 12.

mean artifact date[7] does. To use the mean artifact date, we must first establish the median manufacture date for the temporally diagnostic artifacts in the deposit. This is simply the mid-point of the known period of manufacture. Artifacts with a manufacturing range exceeding 100 years are excluded from consideration, since they are not precise enough chronological indicators to be used successfully in the formula (South 1972).

Once these dates are established, the mean is calculated according to the following formula:

$$Y = \frac{\sum X_i f_i}{\sum f_i}$$

Where Y = mean artifact date
f_i = frequency of each artifact type
n = the number of artifacts in the sample

The standard deviation is then calculated according to this formula:

$$S^2 = \frac{\sum f_i x_i - \frac{(\sum f_i x_i)^2}{N}}{N-1}$$

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7. As originally used by South (1971), the technique is termed "mean ceramic date". Although originally developed for use with ceramics, recent studies (Hill 1982; Adams and Gaw 1977) have demonstrated that the statistical tool can be applied to any class of artifacts as long as the manufacture dates can be determined with sufficient precision.

Figure 2.17 illustrates this process for the Beverage Storage artifacts, yielding a date of 1861.1 ± 7.3. This statistic should be interpreted with caution. While the range afforded by the standard deviation has sometimes been interpreted as synonomous with the period of occupation or deposition (South 1972), this is probably not a statistically valid interpretation for two reasons. First, all this figure tells us is that the median manufacture dates of the artifacts in the deposit cluster between 1853.7 and 1868.3. It does not tell us their entire range of manufacture, as the initial and terminal dates are not considered in the formula.

Secondly, the statistic measures manufacture dates, not the period of use or deposition. To make the interpretation suggested above, we must assume that the two are synonomous. In reality of course, this is not always the case. A number of factors can influence the amount of time that elapses between the manufacture and deposition of an item, including the amount of time the product spent in warehouses or retailer's shelves before reaching the consumer, the length of use of the item before it was discarded, and recycling of the original container for secondary purposes. A lag in any of these areas creates a situation where the manufacture date is substantially earlier than the deposition/use dates. Examining four mid- to late nineteenth century sites, Hill (1982) found a manufacture-deposition time lag of between 3.8 and 33.1 years for various bottled products.

Then what does this statistic measure? Like the *terminus post quem*, it tells us only that the artifacts in the deposit were manufactured sometime around 1861, and deposited an indefinite number of years after that. The results obtained differ from the previous method primarily in that they reflect artifact frequency.

Although a post-1860 date does not tell us precisely what historic occupation Feature 12 is associated with, it does raise several interesting questions. The most tantalizing of these concerns is the large number of liquor bottles found in Feature 12, since the official policy during both the Russian and early American periods was to prohibit the sale of alcohol. There are several possible explanations for this inconsistency.

FIGURE 2.17:
MEAN ARTIFACT DATE FOR BEVERAGE STORAGE ARTIFACTS IN FEATURE 12

Artifact	Date Range	(X_i) Median Date	(f_i) Min. Vessel	($f_i \cdot x_i$) Product	($f_i x_i^2$)
Burgundy style wine bottles	1845-70	1857.5	7	402.5	23143.75
"Black" glass spirts bottles	1840-80	1860	25	1300	90000
Schnapps bottle	1845-70	1857.5	1	57.5	3306.25
Generic brown	1860-1920	1890	2	180	16200
			35	2140	132650

$$Y = 1800 + \frac{2140}{35}$$
$$= 1861.1$$

$$S = \frac{132650 - \frac{(2140)^2}{35}}{34}$$

$$S = 7.3$$

mean date = 1861.1 ± 7.3

One explanation is that the liquor bottles represent confiscated products. As mentioned previously, several of the bottles recovered still bear foil seals around the neck and lip, and eight still have intact corks, possibly suggesting they were disposed before opening. Closer examination tends to invalidate this proposition, however. Of the 42 liquor bottles in Feature 12, only 7 or 16.7 percent were more than 75% complete after reconstruction. This suggests the containers were broken prior to disposal, with the missing pieces lost before reaching the trash pit, and thus were probably not confiscated items.

A more likely explanation is that temperance regulations were never strictly enforced. Historic sources indicate that this was indeed the case during the American period, where public drunkeness was commonplace (DeArmond 1981:35). The one exception concerned sales to Native Americans, where there was an attempt made to enforce temperance regulations.

The record is less clear for the Russian period. Sources indicate that in 1845, the manager of the Russian-American Company requested and received the right to completely prohibit the sale and distribution of hard liquor in the colonies. This was done in an attempt to control the alcoholism problem which had reached monstrous proportions. In 1847, this restriction was eased somewhat and the manager was given the authority to sell limited quantities of alcohol. In Sitka, this meant each employee could purchase one glass of hard liquor a day and drink it immediately at the company rum cellar. In 1853, restrictions were loosened even further. The Company ordered officials to give faithful employees up to 3 cups of vodka a week to reward diligence, and permitted employees additionally to purchase one vedro[8] of vodka per month (Sarafian 1971:113-115).

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8. A vedro is equal to 2.7 gallons.

Alcohol consumption was still supposed to be limited to the rum cellar, although Lt. Golovin reported bottles of liquor were frequently used as medians of exchange so some liquor seems to have been available through other sources. He writes:

> Creoles and others are generally addicted to drink, and since they have difficulty in getting vodka from the company, at least in the quantities they would like, they try to obtain it from other inhabitants, to whom it is supplied freely from the warehouse. Therefore, in spite of the prohibitions all work here is valued in terms of spirits. A shoemaker, for example, will ask 25 or 30 paper rubles for one pair of boots, but if you give him rum instead of money, then for the same pair of boots, he will be satisfied with one bottle of rum, which cost 3.50 paper rubles in the warehouse (Golovin 1983:116-117).

The "other inhabitants" Golovin alludes to in this report are likely high ranking military officers and priests, who constitute the only other major group of citizens in Sitka outside the Creole workers. His statement seems to indicate that the temperance regulations did not extend to Sitka's elite, who had access to alcohol whenever and wherever they wanted it. This privilege would have extended both to the priests at the Russian Bishop's House, and to the company doctors, who were high ranking naval officers. If this is true, it could account for the large number of liquor bottles in Feature 12.

One fact that seems to support this interpretation is the large number of wine bottles recovered. Over one quarter of the beverage bottles identified in Feature 12 were shapes known to have been used for wine or champagne. Historic sources indicate that in Sitka at least, wine consumption was limited to the upper classes. A doctor stationed in Sitka wrote:

> Wines are also imported in American ships but only the stronger ones--madeira, sherry, port (usually good brand) because they spoil easily. All these are used moderately, for the most part immediately after meals, and they are not sold except to higher officials and only very seldom (when there is a great quantity of them) are the workers allowed to buy one or two bottles, for example, on their name days, at christenings and the like. (Blaschke 1972:56)

A third possible explanation is that the liquor bottles in Feature 12 were associated with the hospital, indicating the medicinal use of alcohol was a sanctioned activity exempted from the ban. Certainly the state of medical knowledge in the nineteenth century was such that the "medicinal" glass of brandy or wine was often a legitimate prescription. Alcohol was used as a stimulant, sedative, and in primitive conditions, for sterilization. Brandy, wine, and beer were commonly used as external vehicles to administer medications, and in distilled form, were common ingredients in medicated waters, tinctures and draughts. Bills for patients' hospital stays frequently included a substantial charge for liquor.

This theory is supported by the historic record at least for the American period. Dr. John Brooke, the U.S. Army Post Surgeon at Sitka mentioned that one room in the hospital was used as a liquor closet and a storeroom for small supplies (Brooke 1875:480). In her letters home, Emily Fitzgerald, the wife of the army surgeon stationed at Sitka, recounts an incident where the hospital's steward was caught stealing from the hospital's supply of wine, brandy and whiskey (Laufe 1962:175). That this supply was being used medicinally seems likely, since she also mentions that her husband prescribed stout for her when she was feeling poorly after a miscarriage (Laufe 1962:160). Although there are no similar references to the medicinal use of alcohol during the Russian period, the following statement made by a Russian doctor seems to indicate that it may have been viewed in the same manner:

> I am personally convinced that the moderate use of whiskey[9] in view of the climate, the type and way of life is not at all hurtful. All agree that it is beneficial for the augmentation of digestion, the circulation of blood and all secretions. . . (Blaschke 1972:44).

9. An alternative translation suggests the word is actually "strong spirit" rather than whiskey (Blaschke 1972:55).

FOOD STORAGE

The food storage class includes food containers of all sorts. Tin cans, canning jars, food bottles, and plastic or foil wrappers are all examples of the items in this class. Non-diagnostic clear, aqua, and amethyst glass sherds are also included in this category.

Feature 12

A minimum of 17 vessels from Feature 12 were included in the food storage class. Identifiable forms include olive oil bottles, a sauce bottle, and several condiment bottles. These artifacts are illustrated on the following pages and their diagnostic traits are summarized in figure 2.18.

Two of the bottles included in this group are embossed. The first is a light green condiment bottle with a diamond registry mark on the base (figure 2.19). This mark designates the patent date of the bottle as August 4, 1859 (Wetherbee 1980:31).

The second is a free blown olive oil bottle (figure 2.20). A glass seal on the shoulder identifies it as a manufacture of John Durand and Company of New York City. According to Zumwalt (1980:126), this company was in business between 1837 and 1880.

In connection with the latter it should be noted that although olive oil bottles have been been included in the food storage class based on their most likely use, their potential medical association should not be overlooked. Olive oil is included in nineteenth century inventories of materia medica and seems to have had a variety of applications. It was often used by itself as an emollient to sooth burns and inflammations (Richardson 1905:830), or was combined with other ingredients in ointments. Mixed with soda, it was taken internally in a concoction known as Spanish Soap, which was a highly effective purgative and diuretic (Ross 1976:130).

FIGURE 2.18: MANUFACTURING DATES AND ORIGINS OF FOOD STORAGE BOTTLES IN FEATURE 12

Bottles	Figure Reference	Diagnostic Traits and Associated Dates	Bibliographic References	Bottle Dates	Origins
Olive oil bottle Type 1	-	Free-blown (more common prior to 1860, but continued to be made until automatic production became standard, ca. 1920)	(Kendrick 1966:23-24; Scoville 1977:78; Lorraine 1963:43)	pre 1920	unknown
		Sheared lips with hand-applied laid-on-ring finishes (less common after 1830 or 1840, although continued to be used as long as hand-blown bottles were produced, ca. 1920)	(Newman 1970:74; Kendrick 1966:48)		
Type 2	-	Free-blown (more common prior to 1860 but continued to be made until automatic production became standard, ca. 1920)	(Kendrick 1966:23-24; Scovill 1977:78; Lorraine 1963:43)	1837-1880	New York City
		Sheared lips with hand-applied laid-on-ring finished (less common after 1830 or 1840, although continued to be used as long as hand-blown bottles were produced, ca. 1920)			
		Embossed label - "SUPERFINE OLIVE OIL CLARIFIED/JOHN DURAND BORDEAU" (1837-1880)	(Zumwalt 1980:126)		
"Sauce" bottle	-	Mold-blown: three piece mold (invented ca. 1810, most popular in U.S., ca. 1870-1910)	(Lorraine 1968:38; Newman 1970:72; Kendrick 1966:578; Putnam 1965: preface; Ferraro and Ferraro 1964:79;	1830-1920	unknown
		Tooled finish (post 1830 in Europe; post 1860 in U.S.)	Toulouse 1969:578; Munsey 1971:39) (Toulouse 1969:533; Munsey 1971:41)		
		Snap case (post 1830 in Europe; post 1850 in U.S.)	(Toulouse 1968:204; Munsey 1971:48)		
Condiment bottles	-	Mold-blown (pre 1920)	(Scovill 1972:78; Lorraine 1968:43)	1859-1920	unknown
		Hand-applied laid-on-ring finish (less common after 1830 or 1840, but continued to be made as long as hand-blown bottles were produced, ca. 1920)	(Newman 1970:74; Kendrick 1966:48)		
		Diamond Registry Mark on base "M/R/4/3" (indicates Aug. 4, 1859 patent)	(Wetherbee 1980:31)		

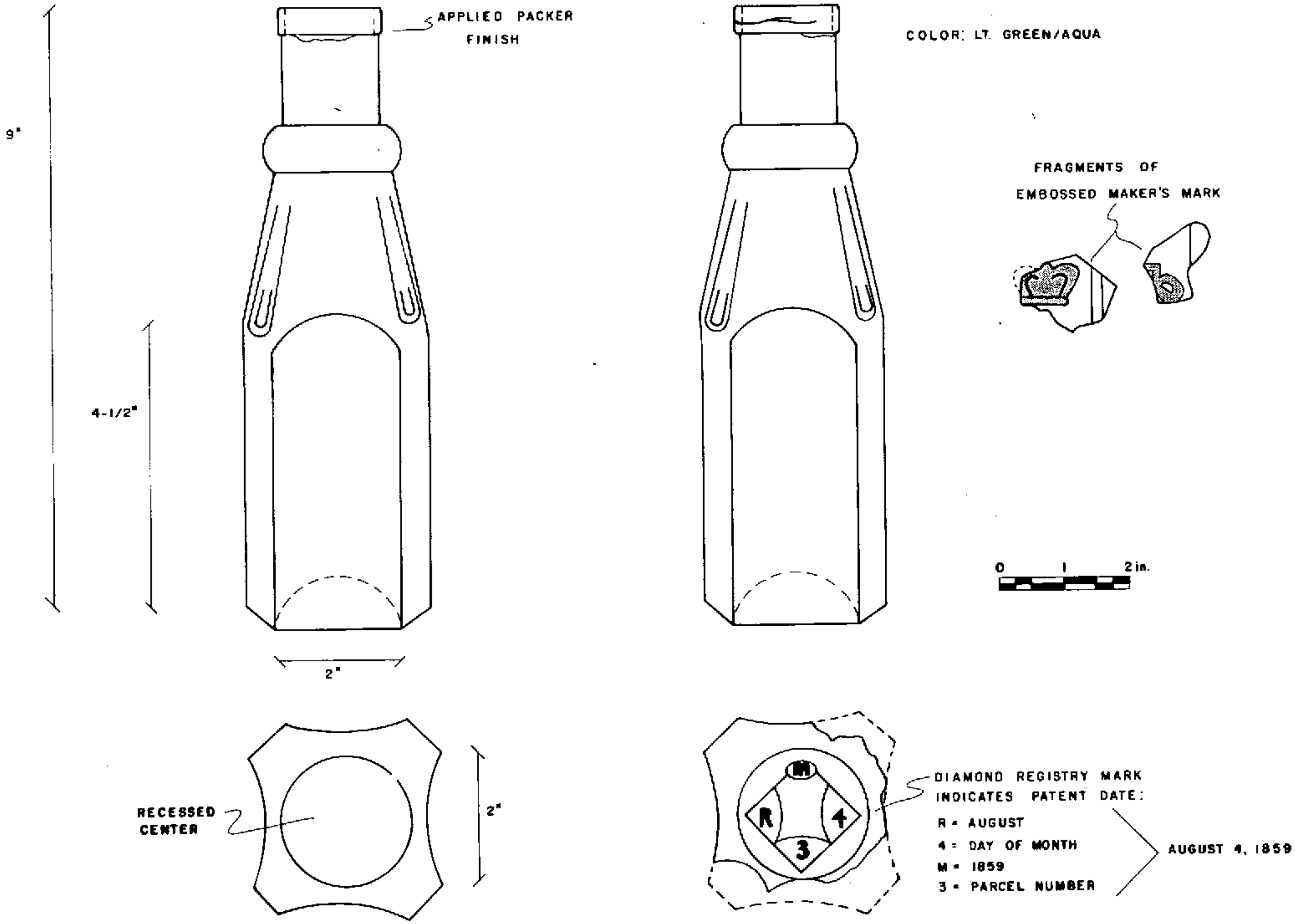


Figure 2.19: Condiment bottle.

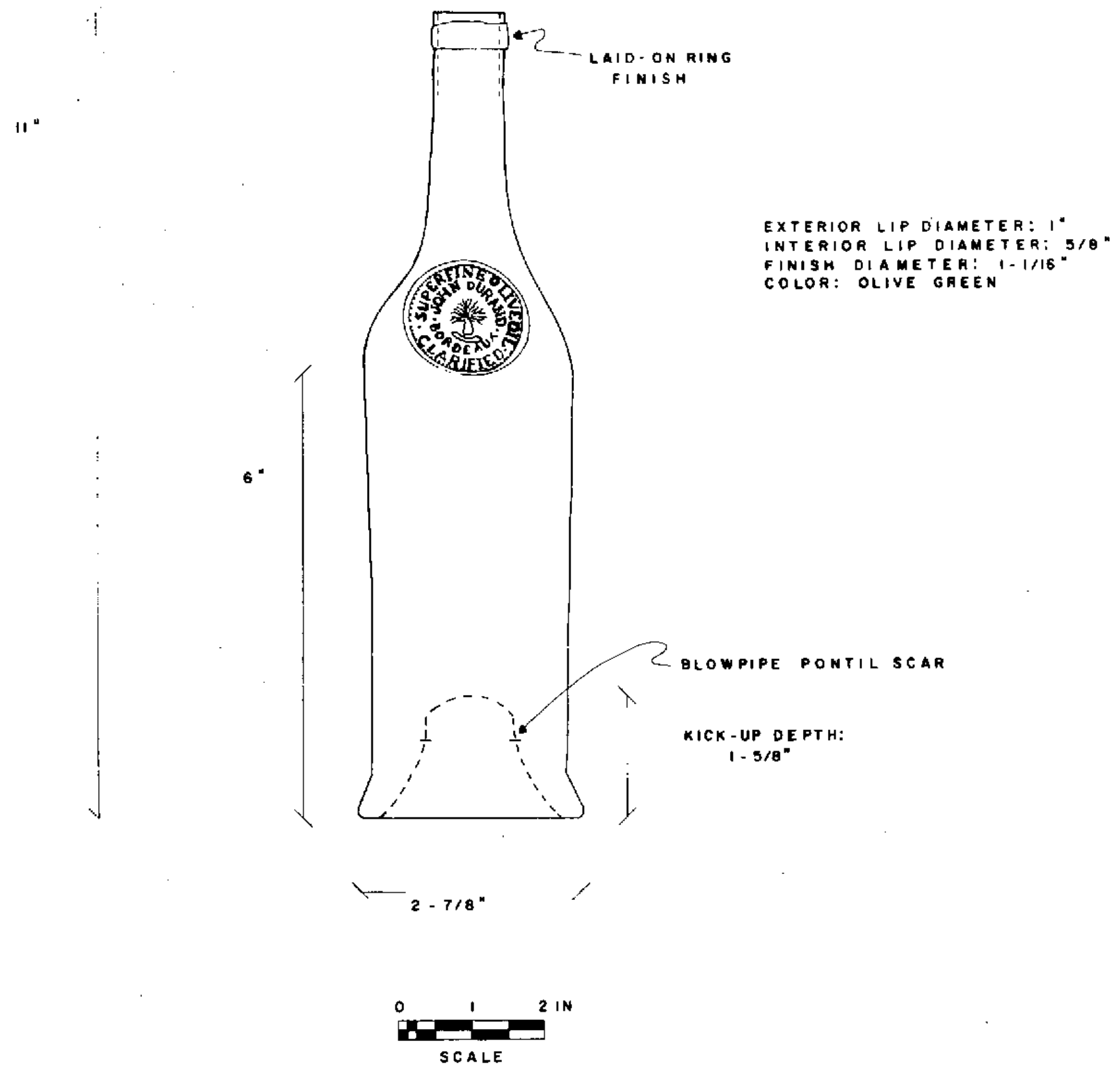


Figure 2.20: Free blown olive oil bottle.

Additional food storage vessels in Feature 12 are represented only by base and lip fragments. These include two square mold-brown clear glass bases, two round aqua bases, four wide-mouth tooled packer or bead finishes, and one aqua-colored tooled brandy finish similar to those on Lea and Perrin Sauce bottles (figure 2.21). Seven tin can fragments were also included in this class. None were complete enough to determine method of manufacture.

Levels Above Feature 12

Several more recent food storage containers were found in the levels above Feature 12. The rim portion of one fluted, amethyst jelly jar was found in Level 1. On the basis of its color it has been dated ca. 1880-1917 (Ward, Abbink and Stein 1977:240).

Fragments of three glass canning jar lids (figure 2.22) and one milk glass lid liner were found in Levels 1 and 2. Milk glass lid liners were developed in 1869 by Lewis Boyd for use with the Mason Jar (Toulouse 1969:350). The purpose of these liners was to prevent the jar's contents from coming into contact with the zinc lids used on the original mason jar. One is embossed with the insignia of the Consolidated Fruit Jar Co. with the words "TRADEMARK MASON'S IMPROVED/PATD May 23, 1871" inscribed around the perimeter. The Consolidated Fruit Jar Company was in business from 1869-1882 (Toulouse 1969d:61,513). The remaining lids are too incomplete to allow identification.

Figure 2.24 summarizes other food storage artifacts in the levels above Feature 12. These include one clear glass mustard barrel base, fragments of one large mold-blown (?) square panelled base, two round aqua bases, one automatically produced amethyst-colored double bead finish, one 3" diameter tin can, and one rectangular meat can top. The latter is opened by a roll-up strip, which indicates it post-dates 1960 (Fontana and Greenleaf 1962:71).

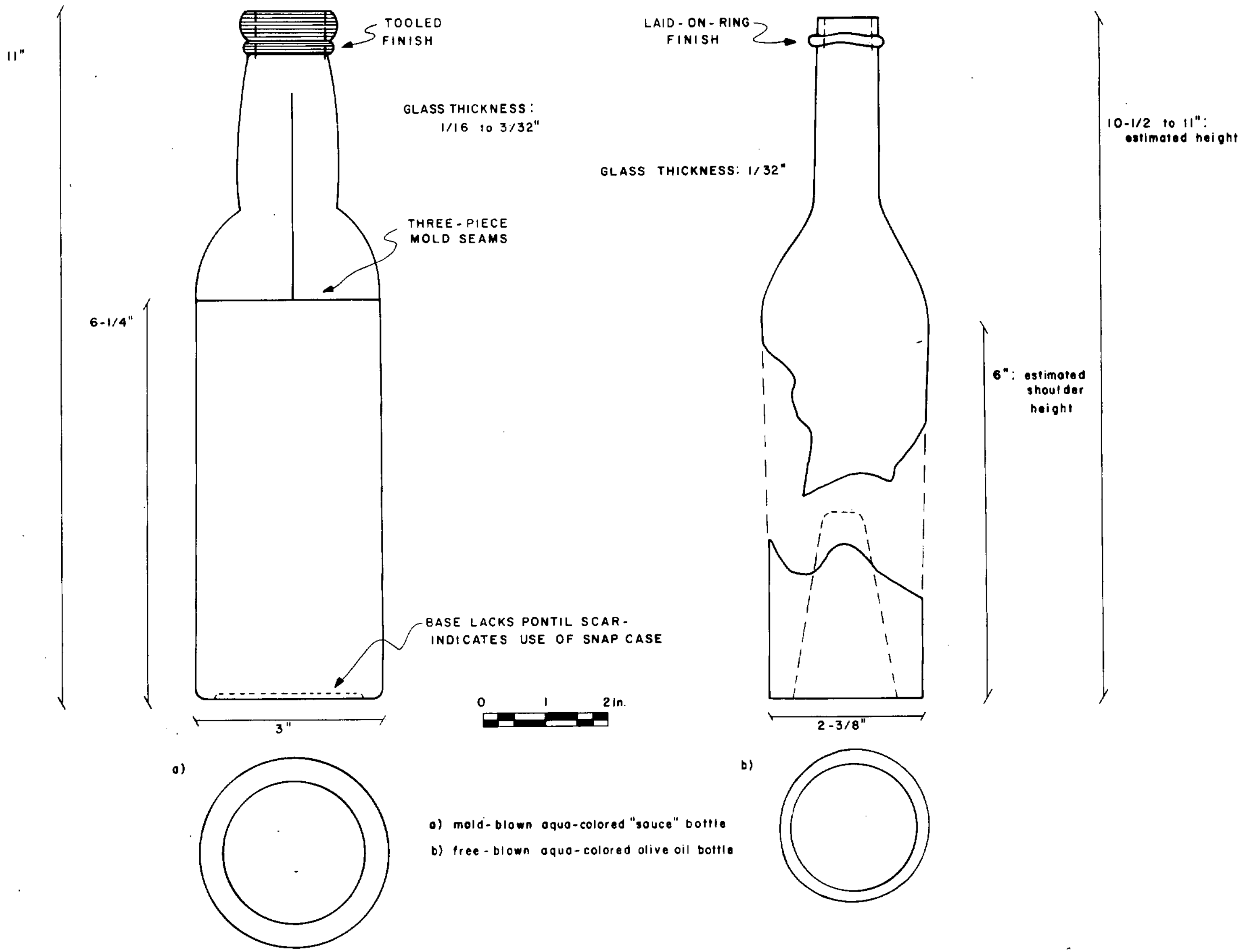


Figure 2.21: Food Storage bottles.

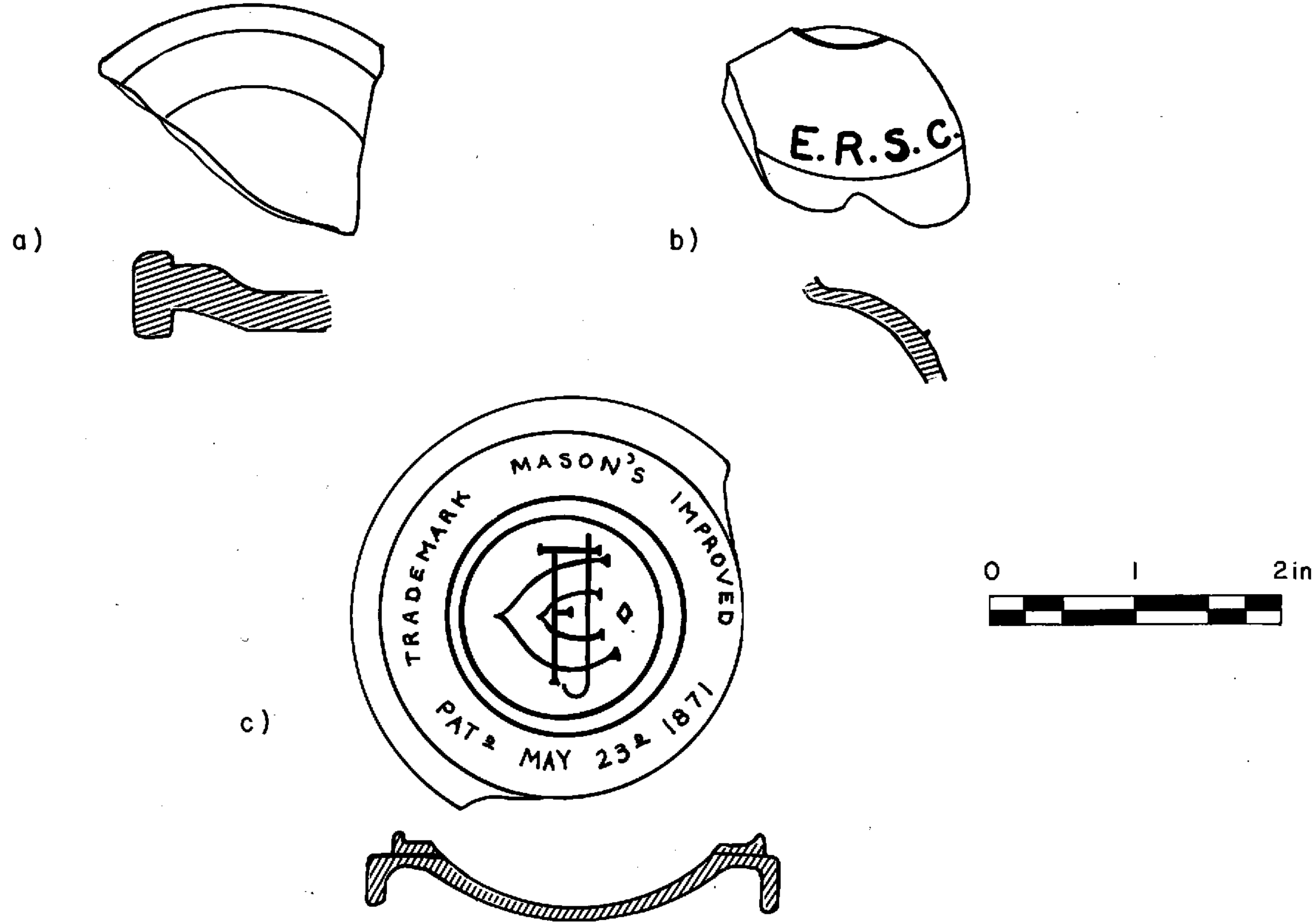


Figure 2.22: Canning jar lids.

FIGURE 2.23: FOOD STORAGE ARTIFACTS IN FEATURE 12

Vessel/Material	Sherds	Min. Vessel
Olive Oil Bottles		
Olive Green	19	1
Aqua	59	1
Sauce Bottle (Aqua)	49	1
Condiment Bottles (Lt. Green)	128	4
Bases		
Square - Clear	8	2
Round - Aqua	3	2
Lips		
Tooled Double Bead (Aqua)	13	1
Tooled Bead (Aqua)	3	1
Tooled Packer (Aqua)	2	1
Tooled Packer (Bright Green)	10	1
Tooled Brandy (Aqua)	1	1
Tin can Fragments	7	1
		17

FIGURE 2.24: FOOD STORAGE ARTIFACTS IN LEVELS ABOVE FEATURE 12

Vessel/Material	Fragments/ Sherds	Min. Vessel
Jelly Jar (Amethyst Glass)	1	1
Canning Jar Lids		
Aqua	8	2
Clear	1	1
Milk Glass Lid Liner	3	1
Bases		
French Mustard Barrel (Clear)	3	1
Square - Aqua	14	1
Round - Aqua	7	4
Lips		
Automatic Double Bead (Amethyst)	1	1
Rectangular Meat Can Lid	1	1
Tin Can	10	1
Strip Key Opener	1	1
Aluminum Foil	25	1
Green Aluminum Foil	1	1
Plastic Wrap	31	1
Cardboard Carton Fragments	2	1
Styrofoam Tray	1	1
White Plastic Freezer Container	1	1
		21

Non-diagnostic Sherds

Also cataloged with the food storage class were 2111 non-diagnostic clear, aqua and amethyst glass sherds. These include 357 aqua sherds, 1754 clear glass sherds, and two amethyst sherds.

Discussion

The relative paucity of Food Storage Artifacts makes any conclusions regarding this class very difficult. As can be seen from figure 2.25, only three datable artifact types were recovered from Feature 12. As with beverage storage artifacts, a post 1860 date is indicated by the terminus post quem. The mean artifact date of 1881.9 ± 12.85 is much later than that received for the beverage storage class, however. No doubt this is due to the small sample size and relative lack of precision of the dates used. Some of the samples used to arrive at this date have a time range of 90 years, which comes close to exceeding the effective limit of the technique.

FIGURE 2.25: MEAN ARTIFACT DATE FOR FOOD STORAGE ARTIFACTS IN FEATURE 12

Artifact	Date Range	(x_i) Median Date	(f_i) Min. Vessel	$f_i.x_i$ Product	$f_i.x_i2$
John Duran Olive Oil	1837-1880	1858.5	1	58.5	3422.25
Sauce Bottle	1830-1920	1875	1	75	5625
Condiment Bottles	1859-1920	1889.5	4	358	32041
			6	491.5	41088.25

$$Y = 180 + \frac{419.5}{6} \qquad S = \frac{41088.25 - (491.5)^2}{6}$$

$$Y = 1881.9 \qquad S = 12.85$$

mean date = 1881.9 ± 12.85

FOOD PREPARATION

One cast iron stove lid is the only food preparation artifact recovered. It is 9½ inches in diameter and has an elaborate stylized design (figure 2.26). It was found in the levels above Feature 12.

FOOD SERVING

The food serving class consists of all those items normally included in table services, or associated with the serving of food. Bowls, plates, serving dishes, glasses, and cups are all examples of the items included in this class. Unless positively identified otherwise, thin-bodied ceramic sherds and pressed or engraved glass are also included.

Not surprisingly, ceramics comprise the most numerous material type represented in this class. In addition to classification by function and morphology, these artifacts will also be described by ware type, pattern, and decorative technique. Although the terms used in this classification are standardly applied in archeological research, experience shows that they are seldom defined in precisely the same manner by any two workers. In order to eliminate any ambiguity that may be created by this situation, figures 2.27 and 2.28 presents our definitions of the terms used.

Feature 12

A minimum of 41 food serving vessels were recovered from Feature 12. Identifiable forms include bowls, dinner plates, serving dishes, teapots, cups, saucers, mugs, wine glasses, glass tumblers, pot lids, forks, and a salt cellar.

A minimum of five dinner plates were identified. Three are ironstone and two are white earthenware. Two of the ironstone plates are identical

Figure 2.26: Cast iron stove lid.

FIGURE 2.27: CERAMIC WARE TYPE DEFINITIONS

EARTHENWARES are a low-fire, porous opaque pottery made from clay (Wegars 1981:115). They have a soft body which is permeable to liquids unless glazed. Paste colors range from earthtones to cream or white (Worthy 1982:334).

Redware is a coarse earthenware with a red-brown to orange-pink paste. It is commonly used unglazed (as in modern flowerpots) or with brown slips or lead-tinted glazes (Goodwin et al. 1984:119). Redware was extremely common on utilitarian products of the eighteenth and nineteenth centuries, and continues to be used today.

Tin-glazed earthenware is an extremely soft-bodied earthenware with a paste color that ranges from buff to pink. It has a thick, opaque tin-oxide glaze which is very obvious as a dintinct layer from the body (Goodwin et al. 1984:118). The glaze is fairly soft and quite prone to flaking and crazing. The paste itself is often soft enough to be scratched with a fingernail. The vessels are usually thickly potted. By the nineteenth century, the use of tin-glazed earthenware was largely limited to cosmetic containers and medical ceramics, except, of course, for majolica, which was not present in those excavations.

White-colored earthenware is a term being used here to lump ware types traditionally referred to in the literature as "whiteware" and "pearlware". These are refined white bodied earthenwares which have clear alkaline or lead glazes. The major difference generally cited between the two wares is that pearlware is a softer bodied ware with more cobalt in the glaze, which gives it a "bluer" appearance than whiteware. Recent evidence (Miller 1980; Sussman 1977) seems to indicate that the traditional whiteware/pearlware distinction made by archaeologists was not used by nineteenth century potters. Miller (1980:16-18) has demonstrated that wares with the so-called "Whiteware" bodies were being made with "pearlware" glazes in the mid-nineteenth century, under both names. For this reason, these wares are being lumped together in this catagory.

White colored earthenwares were popular throughout the nineteenth and twentieth centuries for tableware. Common decorations included transfer printing, edge banding, hand-painting, and decalcomania.

Ironstone or semi-porcelain, as it is sometimes called is a hard, refined white earthenware developed in England and the U.S. in the mid nineteenth century (Wetherbee 1980:18). It is often viewed as a harder, whiter, more vitrified ware than white earthenware, with a thicker body and an opaque glaze which often appears to have a blue-gray tint. Decoration normally consists of molded designs. Undecorated wares of this type, referred to as "hotel ware" were common in the late nineteenth and early twentieth century.

STONEWARE is a hard bodied, vitrified ceramic which has a smooth, stone-like appearance. The paste color ranges from white to buff, gray, or brown, depending on firing temperatures and the impurities in the clay. Unlike earthenwares, stonewares do not have to be glazed to render them impermeable to liquids, although glazing is often added for decorative purposes. Salt-glazes, slips, and alkaline glazes are the most commonly used (Goodwin et al. 1984:124). Stonewares are generally a thicker, cruder, coarser bodied ware than the earthenwares and are frequently used for storage containers and utility bottles.

Yellow ware is a difficult ceramic to classify. Although actually made of stone ware clays, it is generally not fired long enough to render it vitreous, and for this reason is often classified with the earthenwares. The paste color of this ware ranges from buff to brown-yellow. It is glazed with clear alkaline glazes, which give it a distinctly yellow appearance, hence the name (Goodwin et al. 1984:120). Common decorations include blue and brown annular bands and mocha decorations.

PORCELAIN is a completely vitrified, refined ceramic made of kaolin-based pastes. It is very hard and has a translucent, glassy appearance. Paste composition varies from a coarse, granular, blue-gray material to a hard, white, extremely vitreous glass-like texture depending on the fluxes used.

"Chinese Export" porcelain is a term used to refer to a thick bodied ware with a blue gray cast. The paste is very granular with a very distinct division between the paste and the glaze. Decoration usually consists of hand-painted underglaze blue design of a Chinese or pseudo-Chinese motif. So-called "chinese export" wares were often copied by British potters, making it extremely difficult to determine origin in most cases.

FIGURE 2.28: CERAMIC DECORATIVE TECHNIQUES

Transfer-Printing is a decorative process which involves transferring printed designs from an inked copper engraved plate to a transfer paper, and then on the unfired ware. The ware is then glazed, leaving the design intact beneath the glaze. Transfer-printing was first used ca. 1787 or 80, but did not become popular until ca. 1800 (Coysh 1974:7; Noel-Hume 1980:128-129). Blue was the most commonly used color in transfer prints until ca. 1830, when other colors were added (Price 1979:19).

Flow designs are a variation of transfer-printing where the colors are allowed to "flow" or bleed out into the surrounding undecorated portions of the ware, giving the design a blurred appearance. This is done by introducing chlorinated vapor into the kiln during firing. Flow designs are made in various colors, although blue is the most common. They were first manufactured ca. 1830. The bulk were made until 1860 or 80 (Price 1979:22; Goodwin et al. 1979:67), with a few types being produced as late as 1910 (Williams 1971).

Decalcomania is a decorative technique which first became popular ca. 1900 (Wegars 1981:121; Goodwin et al. 1984:132). Designs to be used on the wares are printed on a specially prepared backing paper which is coated with glue. When the backing paper is applied to the ware and moistened, the paper can be slid off, leaving the design to adhere to the vessel. Unlike transfer-prints, these designs are generally applied over the glaze, although there are exceptions.

Edge ware is a term used to refer to tablewares with molded or embossed rims. These wares are generally left uncolored or with only a single band of blue or green around the rim. Shell-edge is one of the most common variety of edge wares. It was developed in the early 1770's (Noel-Hume 1980:126) and continued to be made until at least 1860 (Price 1979:18).

Sponge wares are wares in which the decoration is applied by means of an inked sponge. The design often consists of colored bands around the vessel rim or more formal stamped floral or geometric patterns. The latter technique is often referred to as "handstamping".

Hand-painted wares are vessels on which the decoration is painted by hand rather than applied by means of transfers, decals, or stamps. Hand-painted designs can be applied both underglaze and overglaze. A variety of specific types of decoration can be recognized within this category, including annular, finger-painted and gilded wares.

Annular wares are wares decorated with horizontal bands of color around the rim. This decorative technique was first used on pearlware ca. 1795 and continued to be used on yellow wares into the twentieth century (Noel-Hume 1980:131).

Finger-painting is a technique commonly used in conjunction with annular bands. It involved swirling together different colored slips to create multi-color bands.

Gilding consists of the application of small amounts of a metallic overglaze paint to highlight the design. Gold is the most common color used, although bronze, copper, silver, red, and pink are also found.

(figure 2.29). Both have a molded edge design similar to the true scallop pattern created by James Edwards of Burslem (Wetherbee 1980:46), and an impressed marker's mark on the base which reads "Ironstone/China/E. Challinor & Co." E. Challinor & Co., of the Fenton Potteries in Staffordshire, England, used this mark between 1853-60 (Godden 1964:137).

The third ironstone plate also has a molded edge with a scalloped rim design (figure 2.31). Although the exact pattern could not be identified, the design is very similar to styles popular in the 1840's and 50's (Wetherbee 1980:36,58). A partial impressed mark on the base reads ". . .ABLES MANN/. . .SLEM". This likely is a manufacture of Venables, Mann & Co. of Burslem, in business between 1853-1855 (Godden 1964:633).

One blue transfer printed white earthenware plate decorated with the familiar Standard Willow pattern was recovered. This pattern was first manufactured ca. 1810 (Coysh 1974:80), and is still being produced today. A poorly impressed mark on the base of this plate reads "SEWEL". This has tentatively been attributed to Sewell & Co. of St. Anthony's Pottery, Northumberland. The misspelled name raises some questions regarding this identification, however. The possibility exists that the mark may be an imitation made by one of Sewell's competitors, or it may be simply be a flawed product. The Sewell pottery went through numerous name changes between 1804-1878. All of the known marks from this period bear the word "Sewell" in them in one form or another, although those that say <u>only</u> "SEWELL" are believed to date ca. 1804-1828 (Godden 1964:591).

The final plate identified is a blue shell edge white earthenware. The shell edge design was first used in the early 1770's (Noel-Hume 1980:126) and continued to be made until at least 1860 (Price 1979:18).

Portions of at least two white earthenware <u>serving dishes</u> were also recovered. The first is represented only by rim and shoulder fragments

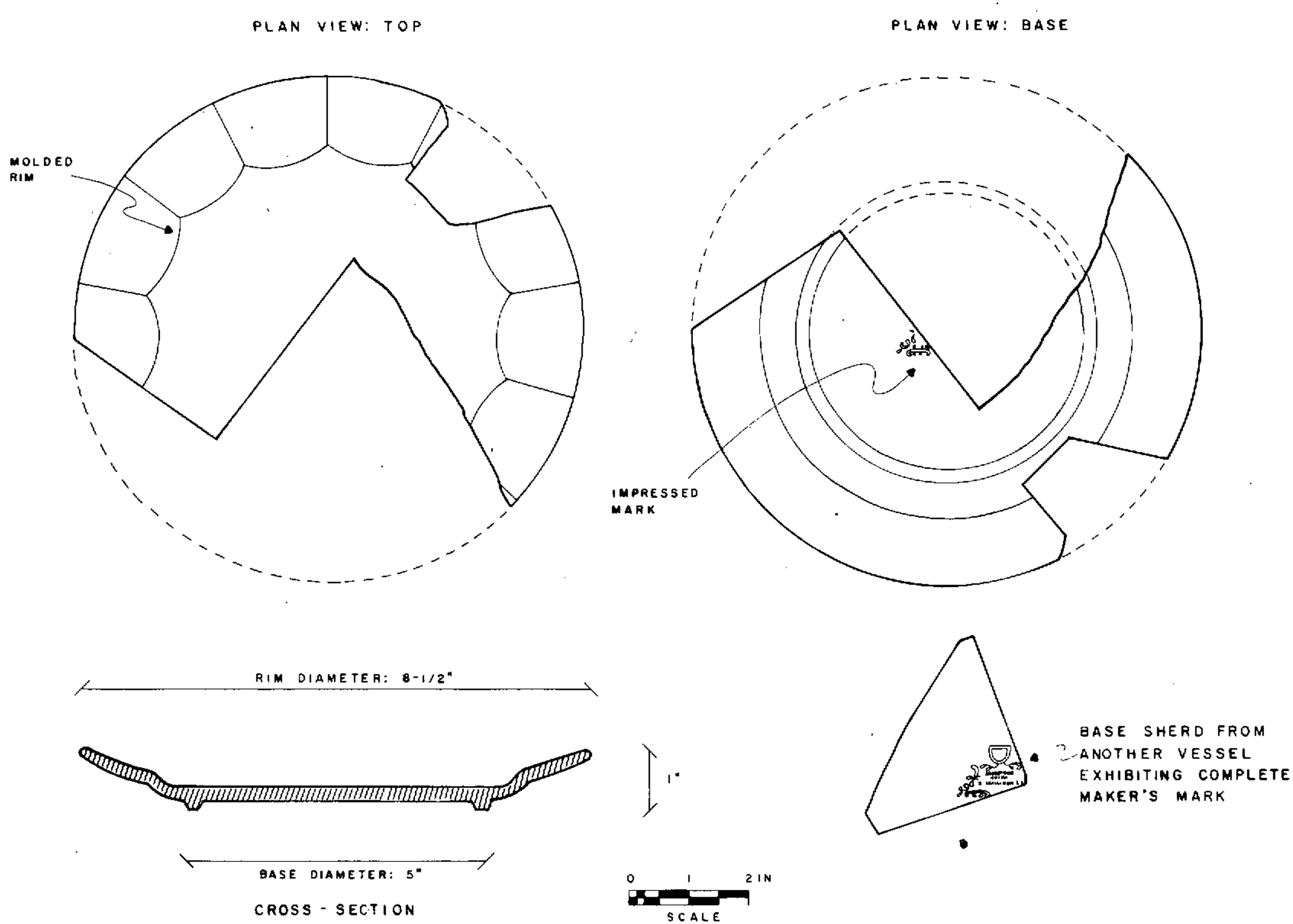


Figure 2.29: Ironstone plate, by Challinor.

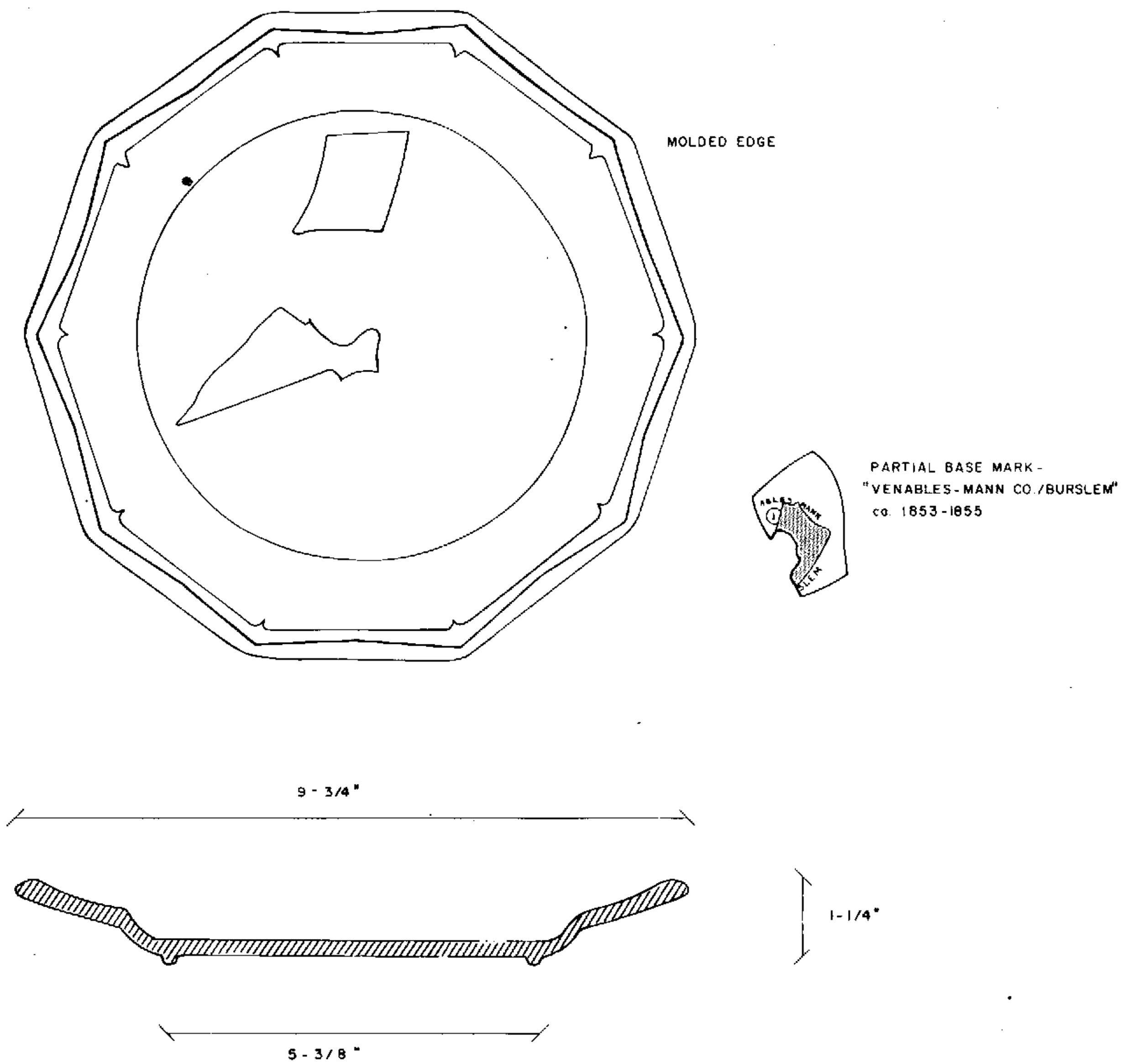


Figure 2.30: Ironstone plate by Venables-Mann.

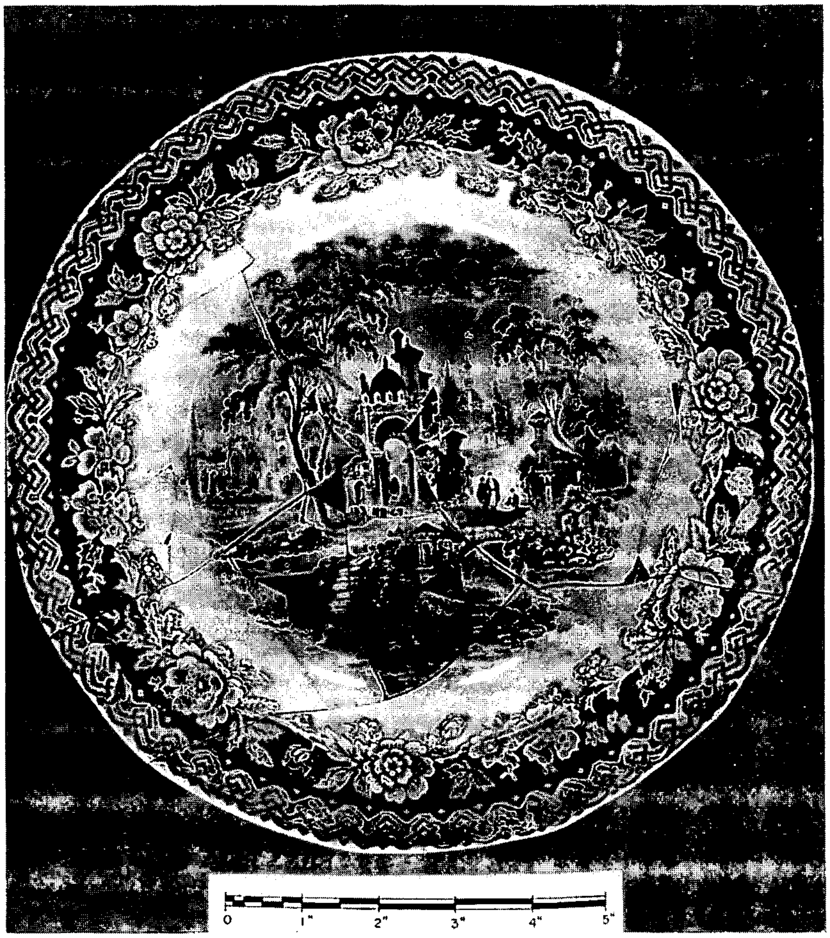


Figure 2.31: Spoletto serving dish.

and is undecorated. The second is completely reconstructed (figure 2.31). It is decorated with a blue transfer printed pattern consisting of a floral and geometric border and a pictorial center. A blue transfer printed mark on the base identifies this pattern as "Spoletto" manufactured by "S & Co". An impressed mark next to this reads ". . .SEWE. . ." (figure 2.32c). Possibly "S & Co" are Sewell & Co. of St. Anthony's Pottery, Northumberland. Once again the identification is tentative, however. Although Godden (1964:591) notes that the Sewell Pottery did indeed go by the name "Sewell and CO" between 1852-78, their marks were different than the aforementioned. Possibly this mark represents a variety not identified previously, or an imitation. It is interesting to note that sherds with an identical pattern were found in the materials recovered from Kolmakovskiy Redoubt, a nineteenth century Russian fur-trading post in Alaska. Fragments with this pattern were recovered from a Russian era context, which dates ca. 1841-1867 (Oswalt 1980:71, 208).

Tea serving vessels make up the largest functional category within the food serving class, representing 36.9% of the vessels recovered in that class. A minimum of 29 vessels comprising portions of at least 13 different tea sets were identified. These include three teapots, one teapot (?) handle, six sugar bowl or teapot lids, ten cups, seven saucers, and rim fragments of three unknown small-diameter, straight-walled vessels. The latter could be parts of any one of a number of different vessels, including cups, sugar bowls, or marmalade pots. Distribution of tea-serving vessels by material, decorative technique and shape is shown in figure 2.33.

As can be seen, a number of different patterns and decorative techniques are represented on tea sets. Of particular interest among these are three transfer prints identical to patterns found on ceramic sherds from Kolmakovskiy Redoubt. Although this coincidence does not conclusively prove these items are associated with a Russian occupation at Sitka, it does suggest a link.

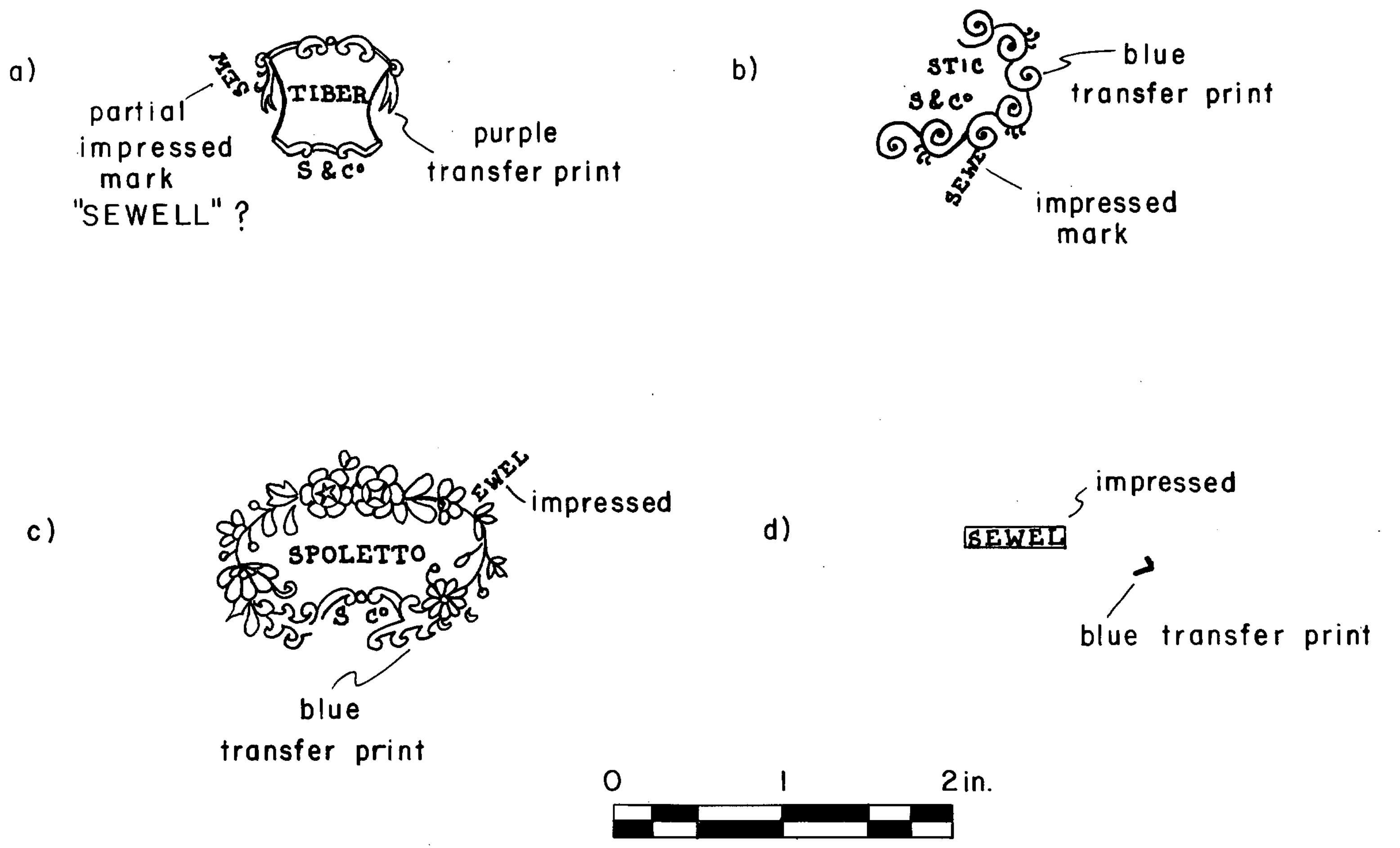


Figure 2.32: Sewell's maker's marks.

FIGURE 2.33: DISTRIBUTION OF TEA SERVING VESSELS BY MATERIAL, PATTERN AND WARE TYPE

Material/Pattern/Color	Teapots	Lids	Teacups	Saucers	** Unknown	Min. Vessels	Min. Patterns
Yellow Ware	1					1	
White Earthenware							
Blue Transfer Print							
Spoletto pattern			1			1	1
". . .STIC" pattern		2		1	2	5	1
Lt. Purple Transfer Prints							
Tiber pattern				2		2	1
Unknown pattern	1 (w/lid)		1			2	1
Dk. Purple Transfer Print							
*Unknown pattern	1 (w/lid)	1				2	1
Red Transfer Print							
*Unknown pattern			1			1	-
Green Transfer Prints							
Tiber pattern	1 handle sherd)		1	1	1	4	
*Unknown pattern				1			
Blue-Grey Transfer Print							
Spoletto pattern		1				1	-
Flow Blue Designs			3	1		4	3
Porcelain							
Undecorated			1			1	1
Molded body		1				1	1
Green transfer			1	1		2	2
Hand-painted overglaze enamel/gilding	—	1	1	—	—	2	1
Total	4	6	10	7	3	29	13

*Although different colors, these are all the same pattern.

**Only rim sherds of these vessels remain. All are straight-walled, plain-rimmed vessels with diameters ranging between 2-3/4 to 3-1/2". They could be parts of any one of a number of different vessels including cups, sugar bowls, or marmalade pots.

The first of these prints is a light purple floral and ribbon pattern found on a matching teapot and cup (figure 2.34a). According to Oswalt (1980:71, 207) this pattern was found in a definite Russian context at Kolmakovskiy.

The second example is a blue transfer print pattern found on fragments of five different vessels (figure 2.35). The rim is decorated with a series of interconnecting circles, above a geometric/floral design. The exterior of the bowl and the interior of the saucer have a pictorial design. Of the nine sherds of this pattern found at Kolmakovsky Redoubt, six were in an 1840's context, while the remaining three had later associations (Oswalt 1980:70, 208). Oswalt believes that while the pattern may represent an early occupation of Kolmakovsky, it is uncommon. Figure 2.32b illustrates a partial maker's mark found on the saucer from this set. The blue transfer printed mark identifies the pattern as ". . .STIC" of "S & CO". An impressed "SEWELS" mark is below this. As indicated previously, if this mark can be attributed to Sewell and Company, it dates ca. 1852-78, indicating Oswalt's earlier contextual date is incorrect.

The third print found at Kolmakovskiy is also a Sewells manufacture. This is the Spoletto pattern previously mentioned. It was found on one dark blue teacup, and one blue-grey teapot lid.

It is interesting to note that of the 29 tea serving vessels identified, 13 were manufactured by a single company, Sewells. In addition to those vessels previously mentioned, these include several wares decorated with the "Tiber" pattern (figures 2.36 and 2.37).

A minimum of three <u>bowls</u> were recovered from the units excavated. Figure 2.38 illustrates a large, undecorated porcelain bowl. It is a footed vessel with a slightly flaring rim. No maker's marks or other distinguishing characteristics were apparent. A second large bowl of Chinese export porcelain was found in Level 9 (figure 2.39). Decoration consists of a sloppily executed underglaze blue floral design, and a series

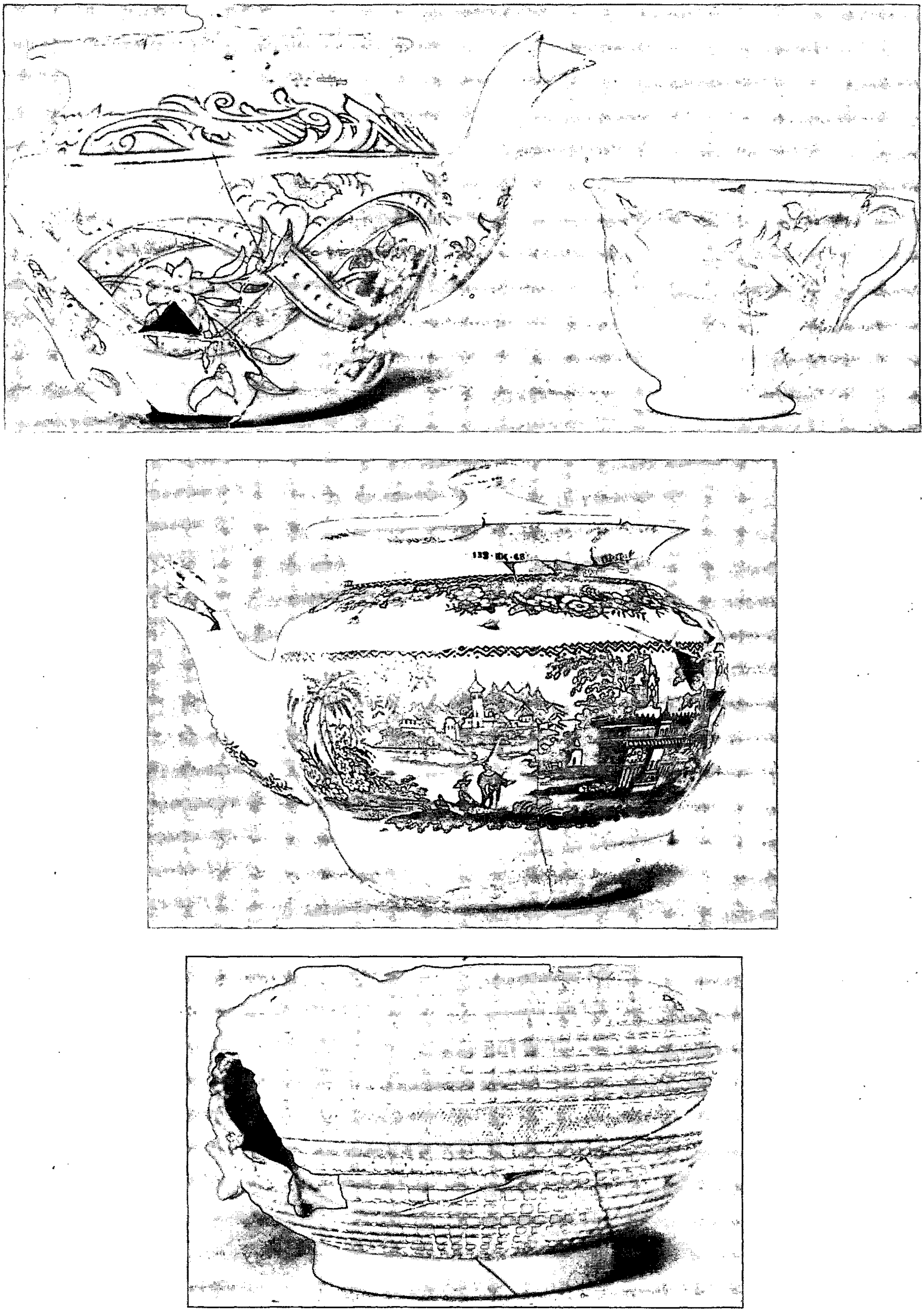


Figure 2.34: a) Light purpose transfer printed teapot and teacup; b) dark purpose transfer printed teapot; c) yellow ware teapot.

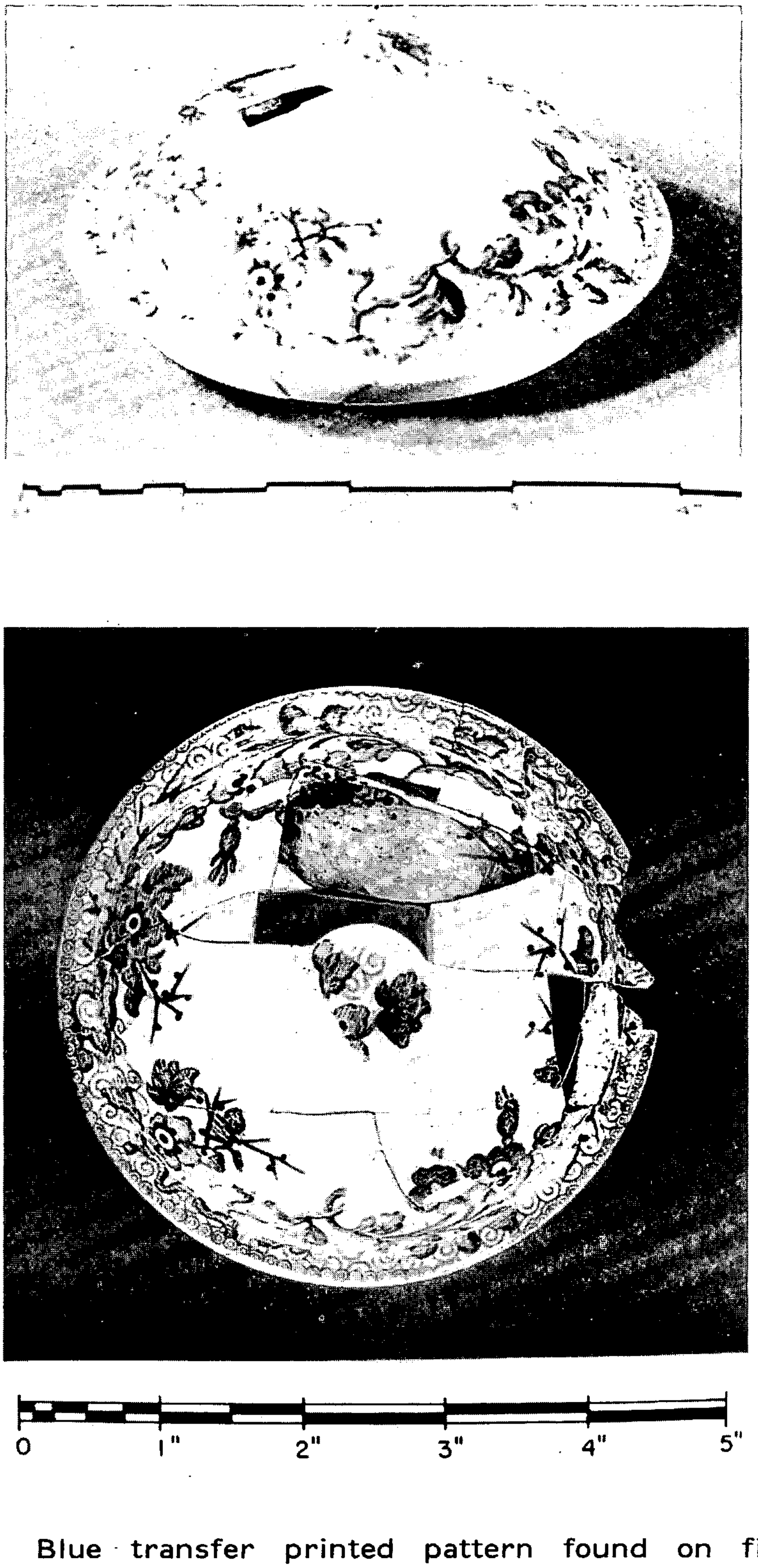


Figure 2.35: Blue transfer printed pattern found on five different vessels.

Figure 2.36: "Tiber" pattern teacup, green transfer printed; a) side view, b) inside view.

Figure 2.37: "Tiber" pattern: light purple transfer printed saucer.

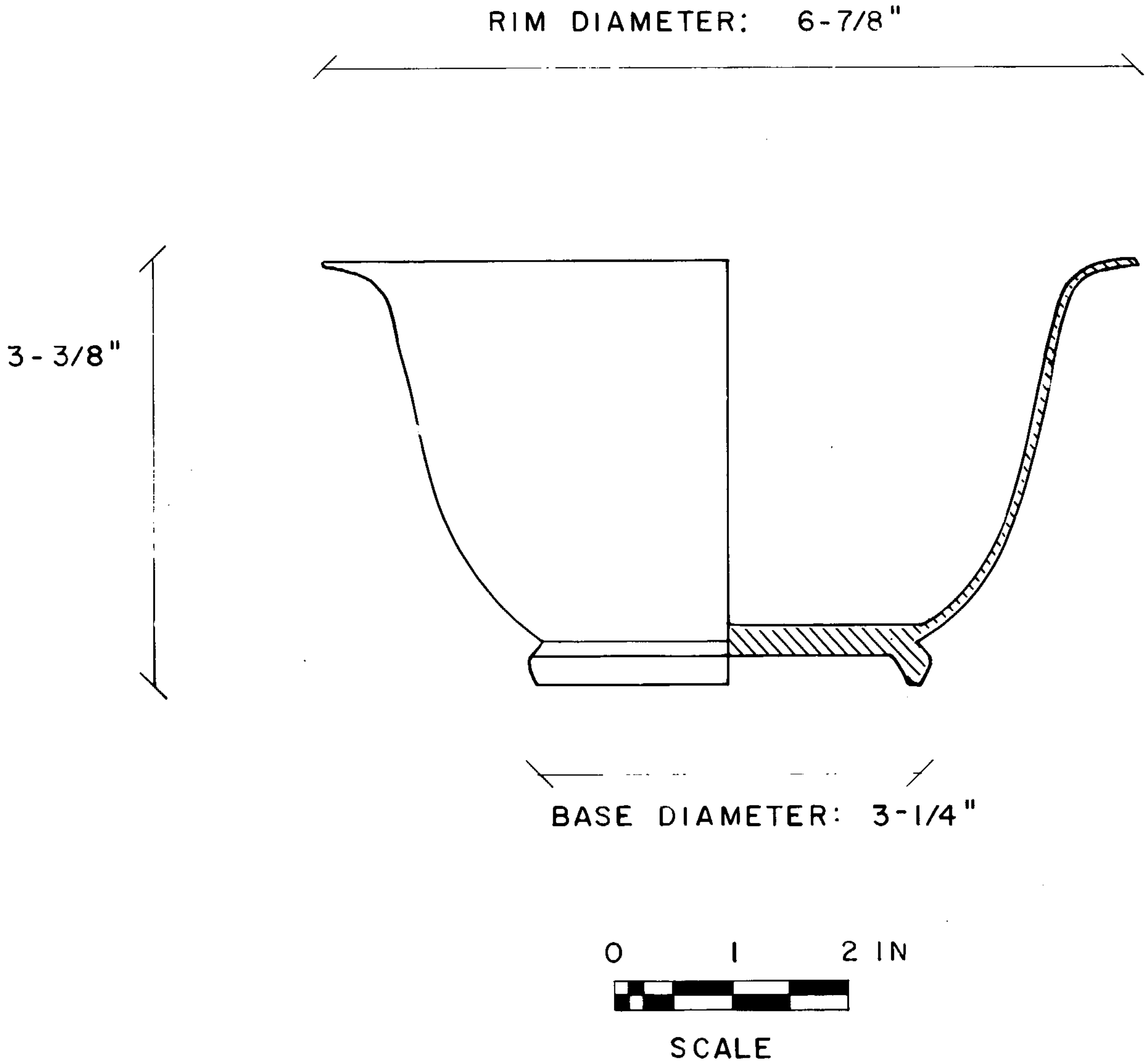


Figure 2.38: Large undecorated white porcelain bowl.

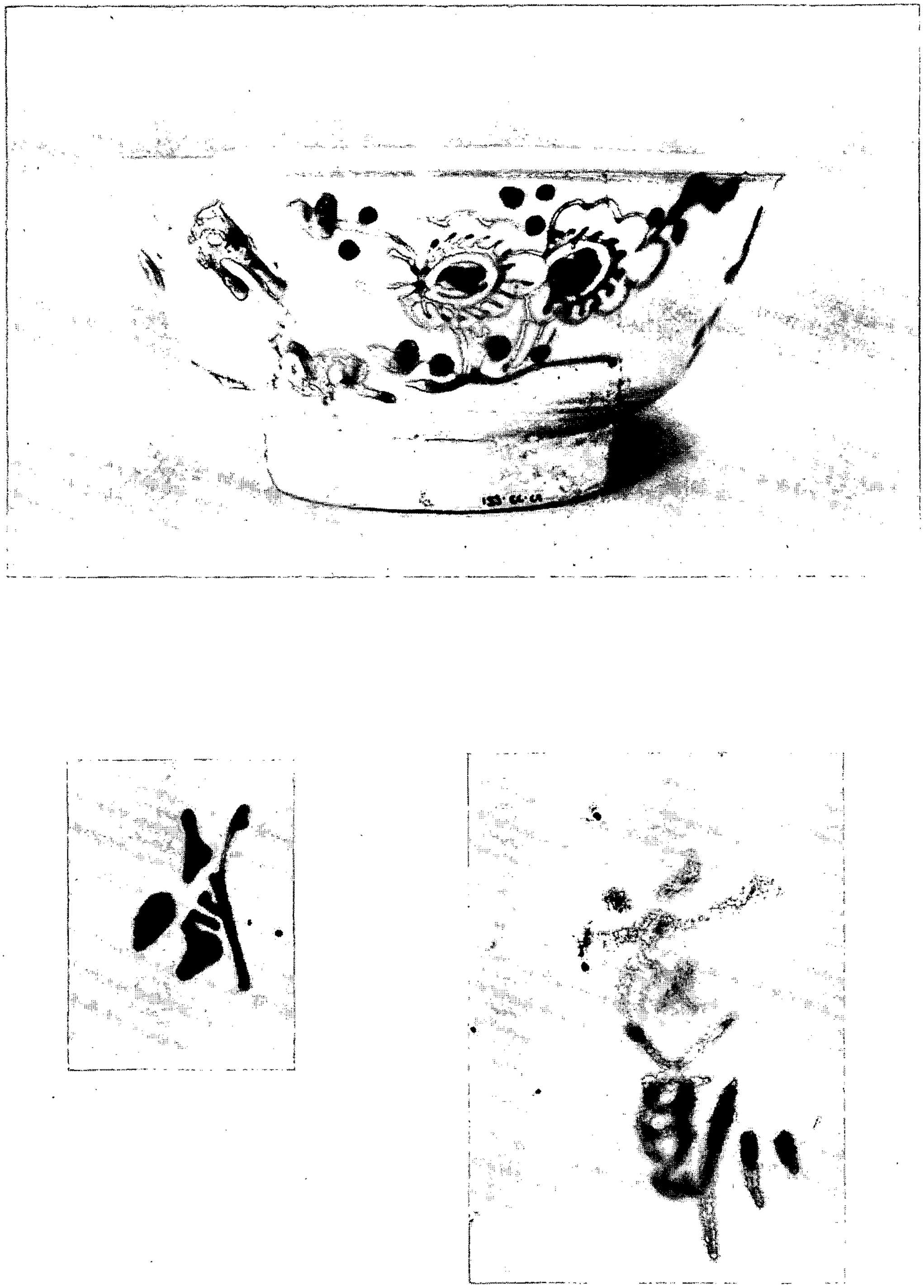


Figure 2.39: Chinese porcelain bowl. a) side view; b) inside mark; c) mark on base.

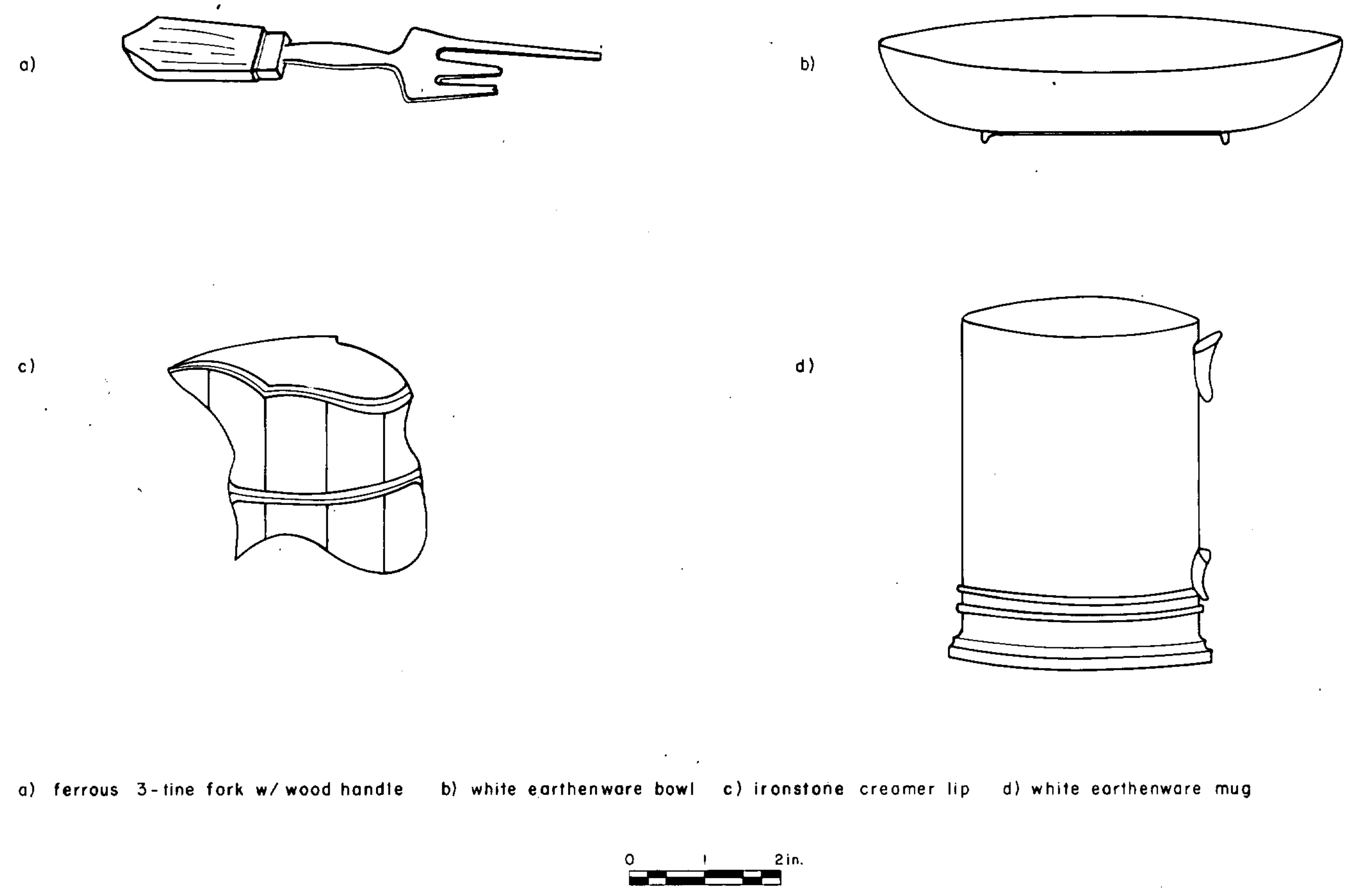
of concentric rings near the base on both the interior and exterior of the bowl. Undeciphered Chinese marks are found in the bottom of the bowl and on the base. These marks could stand for many different things, including the name of the potter or factory which produced the bowl, reign marks, or symbols of good luck. European potters sometimes copied these marks on wares made to imitate Chinese porcelains (MacDonald-Taylor 1968:306).

The third bowl is a shallow vessel of undecorated white earthenware (figure 2.40b). Although the same general shape as saucers, it is slightly larger in diameter, and presumably used for a different purpose. Possible functions include a dessert dish or bread and butter plate.

One white earthenware mug was found in Level 9 (figure 2.40d). The only decoration apparent on it are two molded ridges approximately 1/4 inch wide slightly above the base of the vessel.

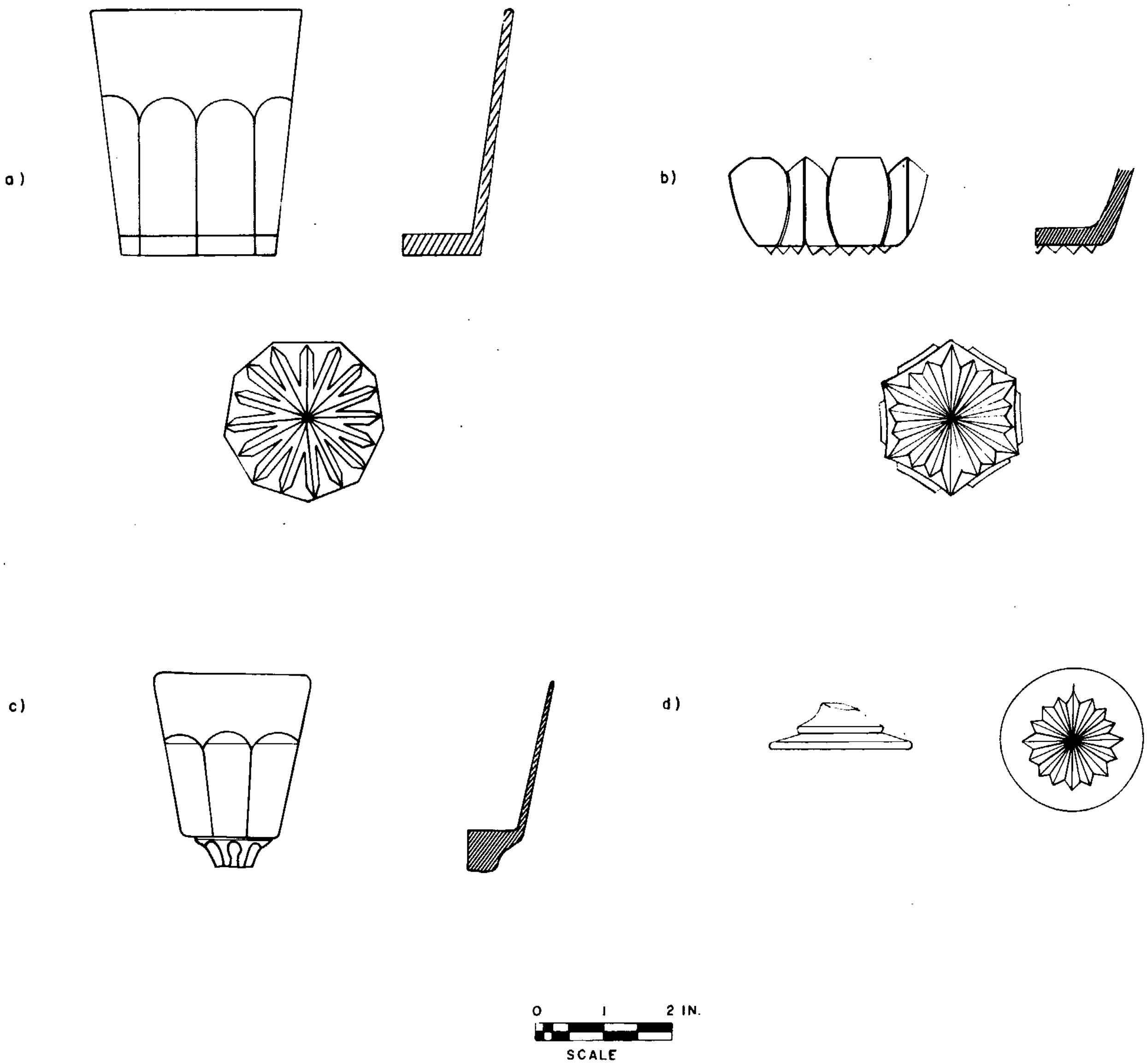
The lip of one ironstone creamer was also identified (figure 2.40c). Although it is too incomplete to conclusively determine the pattern, the general body shape resembles wares of the Sydenham and Octagon styles, popular in the 1850's (Wetherbee 1980:45-58). The pattern also resembles the Burslem plate described earlier (figure 2.30), and may be part of the same set.

Three items of pressed glass were included in the food serving class. These include one molded, faceted tumbler (figure 2.41a), one wine glass (figure 2.41c), and an amethyst stemware base (figure 2.41d). Pressed glass was first manufactured in 1827 (Lorraine 1968:38), and continues to be used today for cheap glassware. The stemware base has been dated ca. 1880-1917 on the basis of color (Ward et al. 1977:240). The amethyst coloring resulted from a chemical reaction between sunlight and manganese, which was used as a clarifying agent as early as the 1820s (Drone 1874).



a) ferrous 3-tine fork w/ wood handle b) white earthenware bowl c) ironstone creamer lip d) white earthenware mug

Figure 2.40: Miscellaneous food serving artifacts.



a) tumbler b) salt cellar c) wine glass d) stemware base

Figure 2.41: Glassware.

Two cuprous pot lids and one pot handle fragement were identified. The first is a round lid, 6-1/4 inches in diameter, with a black lacquer coating (figure 2.42). It appears to be the size of a teapot or samovar lid. The second lid is "D" shaped in plan (figure 2.43). It has a tan lacquer coating and a woven basketry handle. The underside has a 3/4-inch flange or rim around the edge.

Two ferrous 3 tine forks and one wooden cutlery handle are also included in this class (figure 2.40a). The two may be from the same utensil, although it cannot be determined with certainty due to the poor condition of the handle.

Levels Above Feature 12

Additional food serving artifacts were found in the levels above Feature 12. These include one pressed glass salt cellar or condiment dish (figure 2.41b), one pressed glass coaster, one undecorated oval ironstone serving dish cover, one shallow, undecorated whiteware bowl, fragments of at least four pressed glass tumblers, two clear glass stemware bases, two teapot or sugar bowl lids, and nine teacups. Among the latter is one green transfer-printed porcelain teacup with a partial cyrillic mark (figure 2.44d). Although definitely identified as a manufacture of the Kornilov Brothers of St. Petersburgh, sources disagree about its period of use. Penkala (1968:222) says the Brothers Kornilov opened for business in 1831 and continued in operation until 1917. Ross (1968:312) says that although the Kornilov factory opened in 1835, the company was not known as Brothers Kornilov until after 1893. He does not mention what name they went by prior to 1893, however. This statement is difficult to interpret since all marks illustrated for the Kornilov factory have the word "brothers" in them. Because of the confusion surrounding this question, the wider date range of the company's entire span of existence is being used.

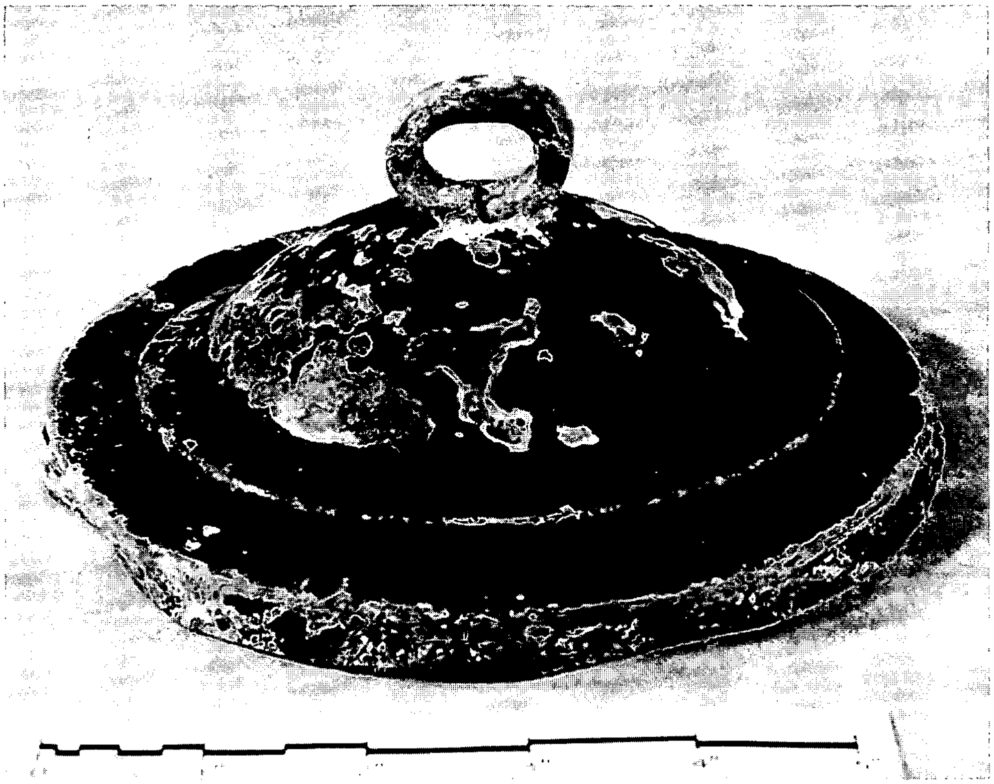
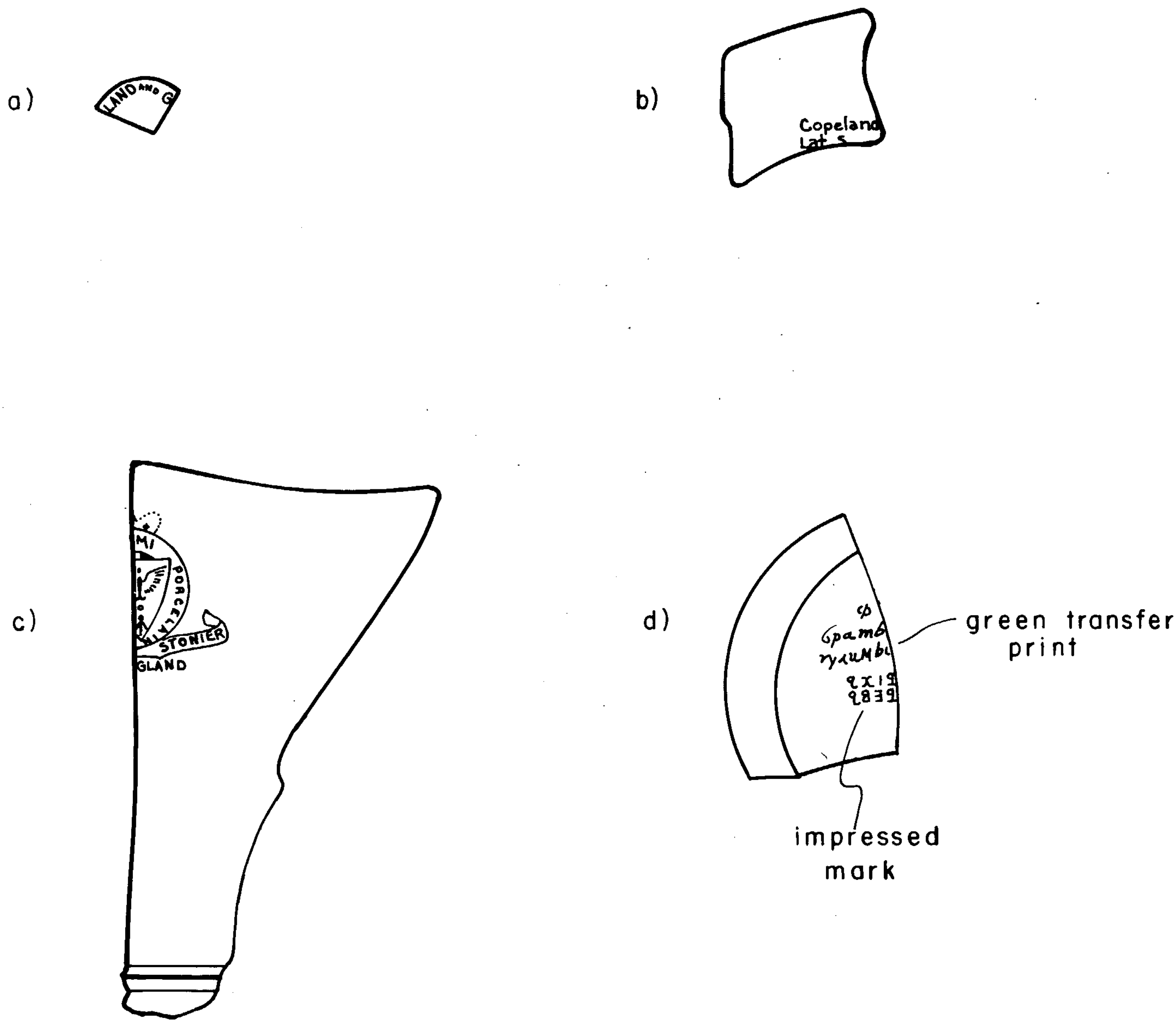


Figure 2.42: Lacquered copper lid.

Figure 2.43: "D"-shaped copper lid.



a) Whiteware - Green Transfer Print
"COPELAND AND GARRETT"
1853 - 47

b) Whiteware - Blue Transfer Print
" Copeland - Late Spode"
1847 - 67

c) Whiteware - Brown Transfer Print
"SEMI PORCELAIN - BISHOP STONIER - ENGLAND"
1899 - 1936

d) Porcelain Teacup Base
cyrillic mark translates
"Kornilov Brothers Factories"
ca. 1831 - 1917

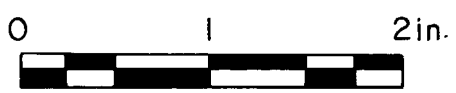


Figure 2.44: Maker's marks in fill above Feature 12.

Non-Diagnostic Sherds

Several undifferentiated glass and ceramic sherds whose vessel form could not be determined were also included in the food serving class. Their distribution by material and decorative technique is illustrated in figure 2.45. For the most part, these items are not diagnostic, so for this discussion, there has been little attempt made to separate sherds found within the feature from those found above it. Those interested in a further breakdown can refer to Appendix B.

The few diagnostic items found are listed in figure 2.46 and illustrated in figure 2.47. It is noteworthy that all of the identified transfer-print patterns are manufactures of Copeland and Garrett. The Spode/Copeland Company was the commissioned supplier of ceramic tablewares to the Hudson's Bay Company from 1836 to at least 1853, when U.S. tariffs restricted the importation of British goods (Sussman 1979:9; Ross 1977:192). During these years, the Hudson's Bay Company imported large numbers of ceramics to Fort Vancouver for sale in the Pacific Northwest. The patterns identified are among those known to have been imported for this purpose. It should also be noted that between 1839-1849, the Hudson's Bay Company acted as the sole supplier of manufactured goods and foodstuffs to the Russian-American Company. This arrangement, worked out under the terms of a treaty, stipulated that the Hudson's Bay Company would supply the Russian-American Company with all the manufactures and provisions it required, in exchange for a lease on the fur-rich southern portion of Russian-America's territory. It is likely that the identified patterns date from this period in history and represent a Russian presence. Unfortunately, the majority of these patterns were found in the levels above the feature, and do not help date the feature itself. They do suggest that the fill above Feature 12 originated from a Russian era structure, however.

FIGURE 2.45: DISTRIBUTION OF NON-DIAGNOSTIC GLASS AND CERAMIC SHERDS IN THE FOOD SERVING CLASS BY MATERIAL AND DECORATIVE TECHNIQUES

Material/Decorative Technique	Sherds
Coarse Earthenware	
Undecorated	121
Bright colored glazes	7
White Earthenware	
Edgeware	1
Blue transfer print	99
Brown transfer print	10
Black transfer print	3
Green transfer print	3
Red transfer print	1
Purple transfer print	1
Flow blue	123
Flow black	2
Sponge blue	19
Polychrome sponge stamped	2
Finger painted/annular	5
Undecorated	275
Hand-painted underglaze blue/overglaze enamel gilded	1
Ironstone	
Undecorated	34
Brown transfer print	1
Edge molded	2
Edge molded/gilded band	1
Body molded	5
Porcelain	
Undecorated	93
Underglaze blue	26
Hand-painted overglaze enamel	11
Hand-painted overglaze enamel/gilded	7
Gilded edge - pink	1
Decalcomania	1
Bright colored glaze	1
Green transfer print	2
Glass	
Pressed glass - clear	2
Pressed glass - amethyst	1
Red enamel hand-painted/etched	8
Green milk glass-ribbed panels/floral design	5

FIGURE 2.46: IDENTIFIED CERAMIC PATTERNS AND MAKERS MARKS ON NON-MENDED SHERDS

Pattern	Color	Sherds	Manufacturer/Origin	Dates	Reference	Provenience
Watteau (figure B)	brown	2	Copeland and Garrett/ England	1847 to post 1861	(Sussman 1979:231)	Feature 12
Blue rose (figure E)	brown	5	Copeland and Garrett/ England	1825 to post 1833	(Sussman 1979:57)	Feature 12 & above
Continental Views/ Louis Quatzore (figure G)	brown	1	Copeland and Garrett/ England	1844-1882	(Sussman 1979:92, 145)	Above Feature 12
*Macaw/Pagoda (figure K)	blue	9	Copeland and Garrett/ England	1838-1872	(Sussman 1979:146, 155)	Above Feature 12
Lilly/Chatsworth (figure A)	blue	2	Copeland and Garrett/ England	1837-20th Century	(Sussman 1979:138)	Above Feature 12
Geramium (figure C)	blue	1	Copeland and Garrett/ England	1818-20th Century	(Sussman 1979:125)	Above Feature 12
Portland Vase (figure F)	blue	2	Copeland and Garrett/ England	1831 post 1833	(Sussman 1979:161)	Above Feature 12
B-773 (figure D)	flow blue	1	Copeland and Garrett/ England	1839 post 1847	(Sussman 1979:67)	Above Feature 12
Maker's Marks						
"SEMI PORCELAIN/ BISHOP STONIER/ ENGLAND" (figure __)	brown	1	Bishop and Stonier/ England	1899-1936	(Godden 1967:77)	Above Feature 12
"Copeland/Late Spode" (figure I)	blue	1	W.T. Copeland and Sons/England	1847-1867	(Godden 1964:171)	Above Feature 12
"Copeland and Garrett" (figure H)	green	1	Copeland and Garrett/ England	1833-1847	(Sussman 1979:241)	Above Feature 12

*Sherds are part of a teapot or sugar bowl lid.

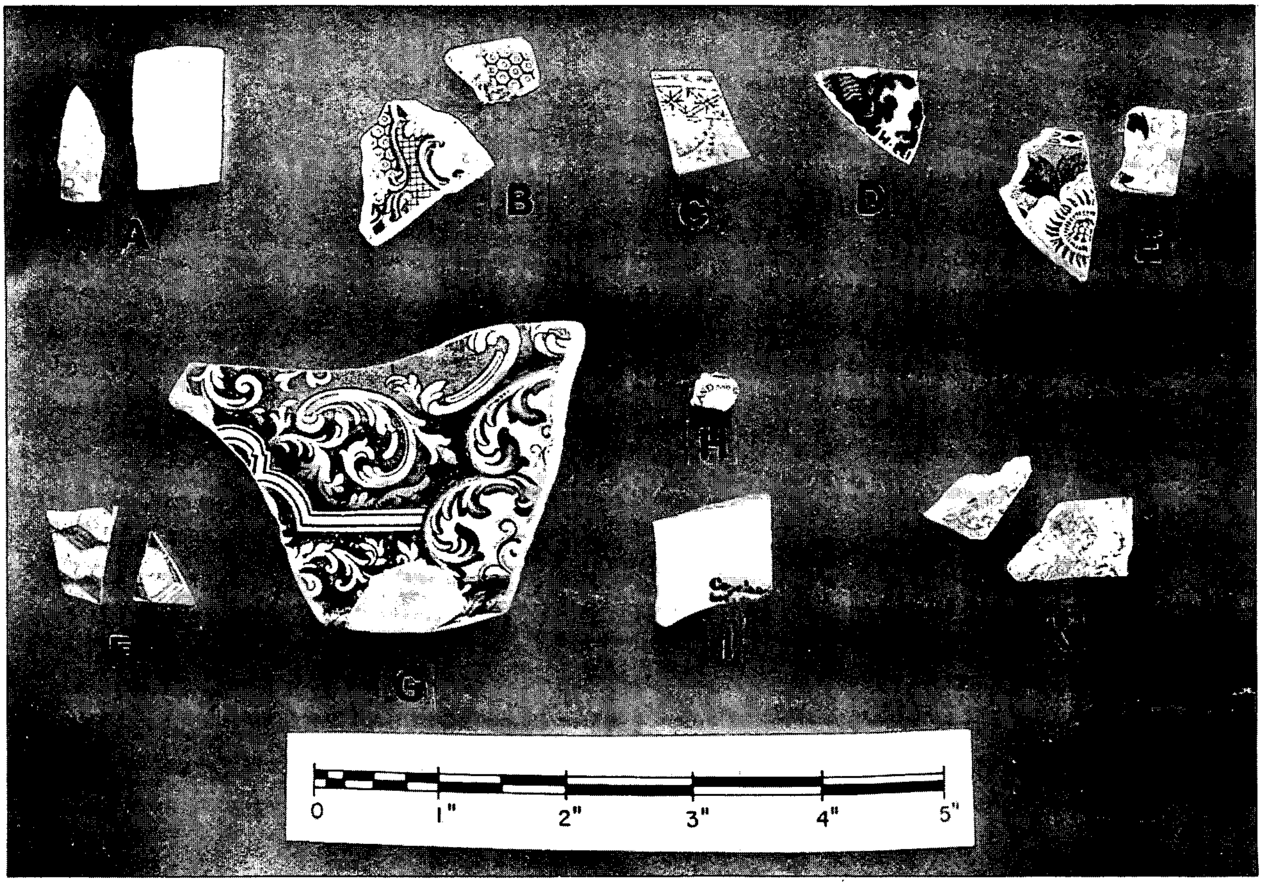


Figure 2.47: Spode/Copeland ceramic patterns: a) "Lilly" or "Chatsworth", blue transfer; b) "Watteau", brown transfer; c) "Geranium", blue transfer; d) "B-733", flow blue; e) "Blue Rose", brown transfer; f) "Portland Vase", blue transfer; g) "Loius Quartzore/Continental Views", brown transfer; g) Copeland & Garret mark, green; i) Copeland/Late Spode mark, blue; k) "Macaw", blue transfer.

FIGURE 2.48: DISTRIBUTION OF FOOD SERVING ARTIFACTS IN FEATURE 12

Vessel/Ware Type	Sherds	Min. Vessel
Dinner Plates		
Ironstone	49	3
White earthenware	44	2
Serving Dishes		
White earthenware	35	2
Bowls		
Porcelain	56	2
White earthenware	10	1
Mug		
White earthenware	17	1
Tumbler (clear glass)	7	1
Wine glass (clear glass)	6	1
Stemmed glassware (amethyst glass)	1	1
Teapots		
White earthenware	111	3
Yellow ware	26	1
Teapot or sugar bowl lids		
White earthenware	24	4
Porcelain	2	2
Teacups		
White earthenware	132	7
Porcelain	5	3
Saucers		
White earthenware	20	6
Porcelain	2	1
Creamer		
Ironstone	5	1
*Unknown Vessels		
White earthenware	3	3
Pot lids	3	3
3-tine fork	1	1
Cutlery handle	1	1

*These are represented only by rim sherds. Curvature and size suggest they could be parts of teacups, bowls, or marmalade pots.

FIGURE 2.49: DISTRIBUTION OF FOOD SERVING ARTIFACTS IN THE LEVELS ABOVE FEATURE 12

Vessel/Ware Type	Sherd	Min. Vessel
Bowl		
White earthenware	5	1
Serving dish cover		
Ironstone	37	1
Teacups		
White earthenware	16	2
Porcelain	24	7
Teapot or Sugar Bowl Lids		
White earthenware	9	1
Porcelain	2	1
Salt cellar (clear pressed glass)	3	1
Tumblers (clear pressed glass)	9	4
Stemware bases	2	2
Pressed glass coaster	1	1
Wooden cutlery handles	2	2
		23

Discussion

If we exclude the intrusive amethyst stemware base from consideration, the _terminus post quem_ for Feature 12 is 1853 (figure 2.50), and the mean ceramic date is 1842± 9.3[10] (figure 2.51). These dates are earlier than the dates obtained for both the beverage storage and food storage classes.

The explanation for this must be sought in the different nature of the two classes of artifacts. Bottle glass, as mentioned earlier, is purchased for its contents and generally disposed of as soon as these are consumed. Ceramics, on the other hand, are purchased for long-term use, and only disposed when broken. As a result, the ceramics in any given deposit will tend to reflect an earlier manufacture date than the bottle glass, despite the fact both were likely disposed at the same time. Examining the evidence from two turn-of-the-century sites in Silcott, Washington, Adams and Gaw (1977:225) found a difference of 23.54 years between the average median manufacture dates of ceramics and bottle glass.

Because of this, the ceramics recovered probably reflect a much earlier date than the period during which Feature 12 was formed. As a result, different means of determining the age and origin of the deposit must be considered. One means of accomplishing this is through comparison with other Russian-American company sites. Kolmakovskiy Redoubt in northern Alaska, and Fort Ross in California are two such sites. As mentioned previously, three of the transfer printed patterns found on wares from Kolmakovskiy are identical to those found in Feature 12. Two of these three identified patterns are manufactures of the Sewell pottery of Northumberland. At Fort Ross, no such correspondence was found,

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11. To arrive at this result, it should be noted that the Sewell marked pieces were assigned a date range of 1804-1878. This range covers the entire span of the company's existence, and corrects for any ambiguities in the identified marks.

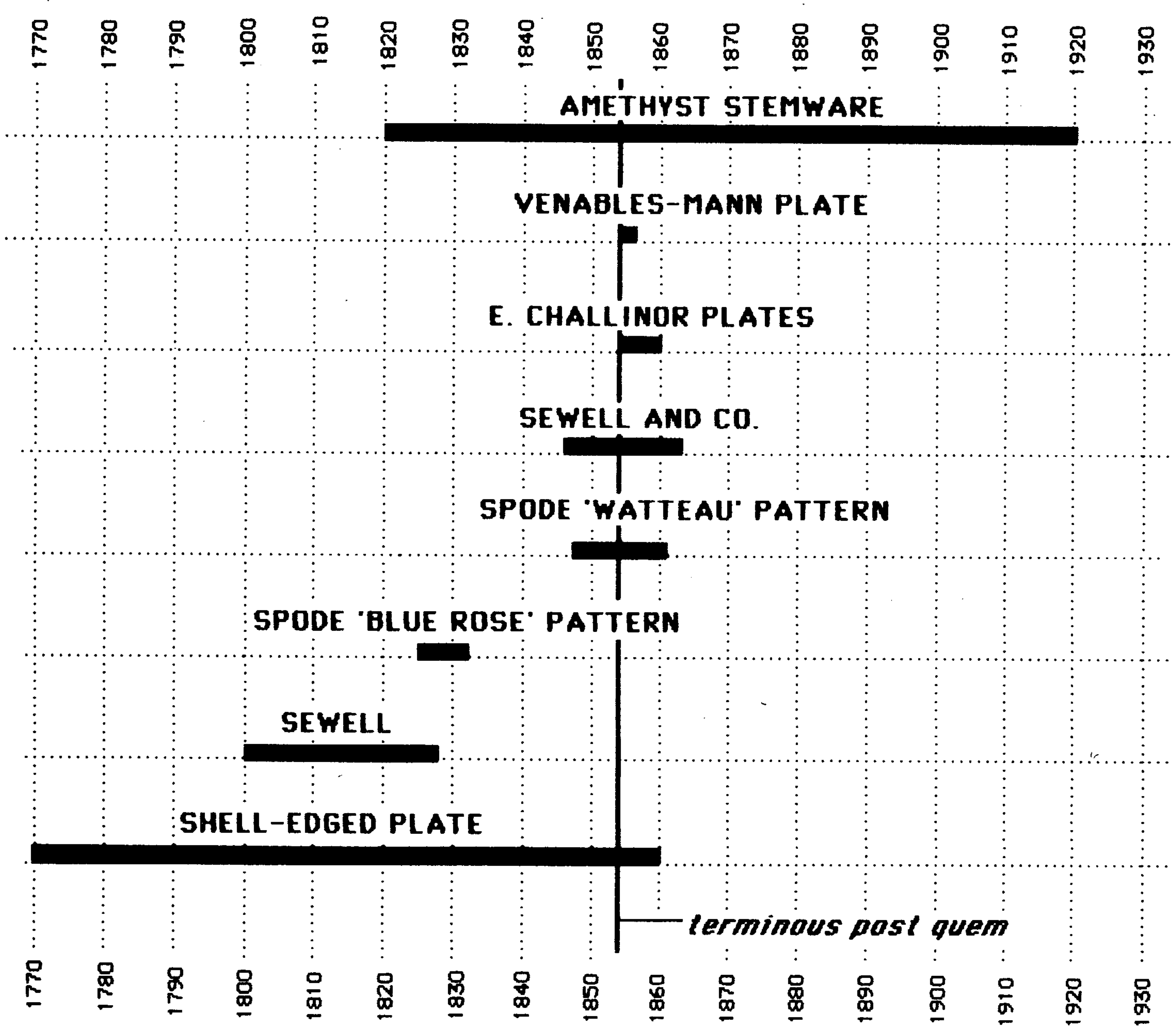


FIGURE 2.50: MANUFACTURING DATES OF FOOD SERVING ARTIFACTS IN FEATURE 12.

FIGURE 2.51: MEAN CERAMIC DATE, FOOD SERVING VESSELS

Artifact	Date Range	(f_i) Median Date	(f_i) Min. Vessel	$(f_i.x_i)$ Product	$(f_i.x_i^2)$
"Sewell" Manufactures	1804-1878	1841	14	574	23534
E. Challinor Manufactures	1853-1861	1857	2	114	6499
Venables-Mann Manufactures	1853-1855	1854	1	54	2916
Watteau Pattern	1847-1861	1854	1	54	2916
Blue Rose Pattern	1825-1833	1829	1	29	841
Shell Edge Plate	1770-1860	1815	1	15	225
			20	840	36931

$$Y = 1800 + \frac{840}{20} \qquad S = \frac{36931 - \frac{(840)^2}{29}}{19}$$

$$Y = 1842 \qquad S = 9.3$$

Mean Date = 1842 ± 9.3

however. Only the ubiquitous "Willow" pattern and Spode and Copeland's "Portland Vase" duplicate items from Feature 12 (O'Connor 1984:46-48). No doubt much of this difference can be attributed to the earlier date of Fort Ross which was occupied from 1812 to 1841.

One additional piece of evidence that may indicate a Russian presence is the large number of tea sets recovered. The celebrated Russian fondness for liquor seems only to be matched by the Russian fondness for tea. Writing of Sitka in 1842, Edward Blaschke stated, "The principal and almost the one and only drink of the inhabitants, with the exception of the garrison, is tea, an unheard of quantity, though very dilute, being taken by the workmen three or five times a day . . . Pure water for drinking is little used" (Blaschke 1971:43). He also noted that tea was a popular beverage at the hospital, with patients allotted two drams a day (Blaschke 1972:81).

The large number of tea sets recovered is interesting in another respect, as well. As can be seen from figure 2.33, although several different vessels with matching patterns were recovered, no complete sets were found. Instead, one or two vessels each from a wide variety of sets were identified. Several different factors could be responsible for this.

Low socioeconomic status is one factor that could be expected to contribute to the lack of matching sets. Both the seminary and hospital were supported by the Russian-American Company, which never was financially secure. Historic sources indicate that after 1840, company profits which were already low, started to decline even further (Mote 1981:117). Built in 1845, both the seminary and hospital existed through these years of lean profits. After 1880, the Presbyterian church used the seminary/hospital building as a school for native Tlingit boys. Like many church missions with limited budgets, it probably was partially dependent on charity to meet its operating expenses. Given the relatively poor financial standing of these institutions, it seems possible that items like dishes may have been acquired second-hand. No doubt some breakage had already occurred before the dishes were donated by the original owners, accounting for the incomplete sets.

A second possibility is that matching sets were not widely used. Ethnographic information from a turn-of-the-century frontier community in Silcott, Washington indicates that dishes were often purchased indiscriminately without regard to matching patterns, and were only replaced when broken (Gaw 1975:171). There are two reasons for this. First, in a frontier situation the limited resources available likely went into basic necessities rather than luxury items like a matched set of tableware. Dishes were primarily functional. Aesthetic considerations like color and pattern were of secondary importance. A second explanation lies in the source of supply. Frontier communities were generally serviced by a local country store and were largely restricted to the manufactures it carried. Compared with other items sold, dishes were in low demand, and as a result, only a small inventory was carried. This made it difficult to obtain a matched set, and nearly impossible to replace broken pieces with the same pattern (Gaw 1975:172). Certainly a similar situation would have existed in a "company" town like Sitka, where all commerce was controlled by the Russian-American Company. Even during the later American period when Sitka was opened to free enterprise, historic sources indicate that irregular supply and limited selection remained a problem.(Laufe 1962).

PERSONAL GROUP

MONEY CLASS

Two coins were recovered during the course of excavations. An 1845 Russian half kopek (figure 2.52b) was found in Feature 12. It bears the monogram of Czar Nicholas I, and was also known as a Denga or Denezhka. It was minted at the Souzan (Kolyvan) mint, which is located just outside of Novosibirsk and very near Tomsk. It would have been the equivalent of about $0.025 American at the time. Coinage of any kind was in extremely short supply during the Russian period. Workers were generally issued paper or leather script, or tokens for wages.

A U.S. wheatback penny dated 1917 was found in the upper level fill.

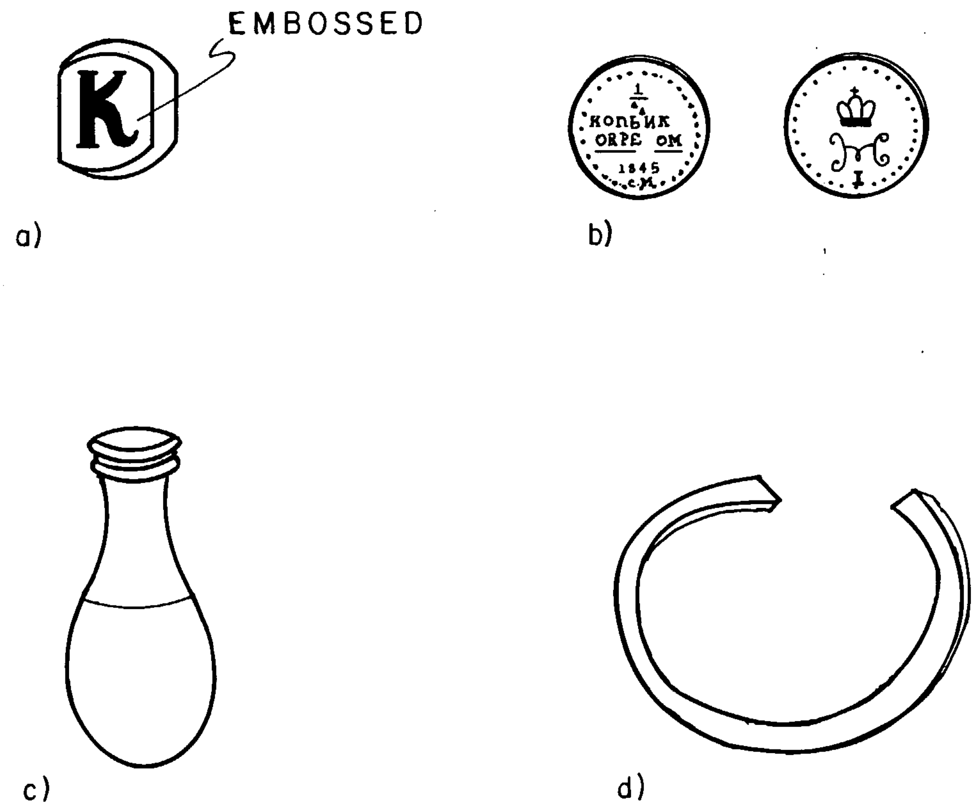
CLOTHING CLASS

The clothing class is divided into a number of subtypes. Artifacts recovered represent the clothing type, fastener type, and making and repair type.

Clothing Fasteners Type

Items like buttons, snaps, hooks, and zippers are included in the Clothing Fasteners type. Artifacts recovered include 64 buttons, one galloshes buckle, and one cuprous eye hook.

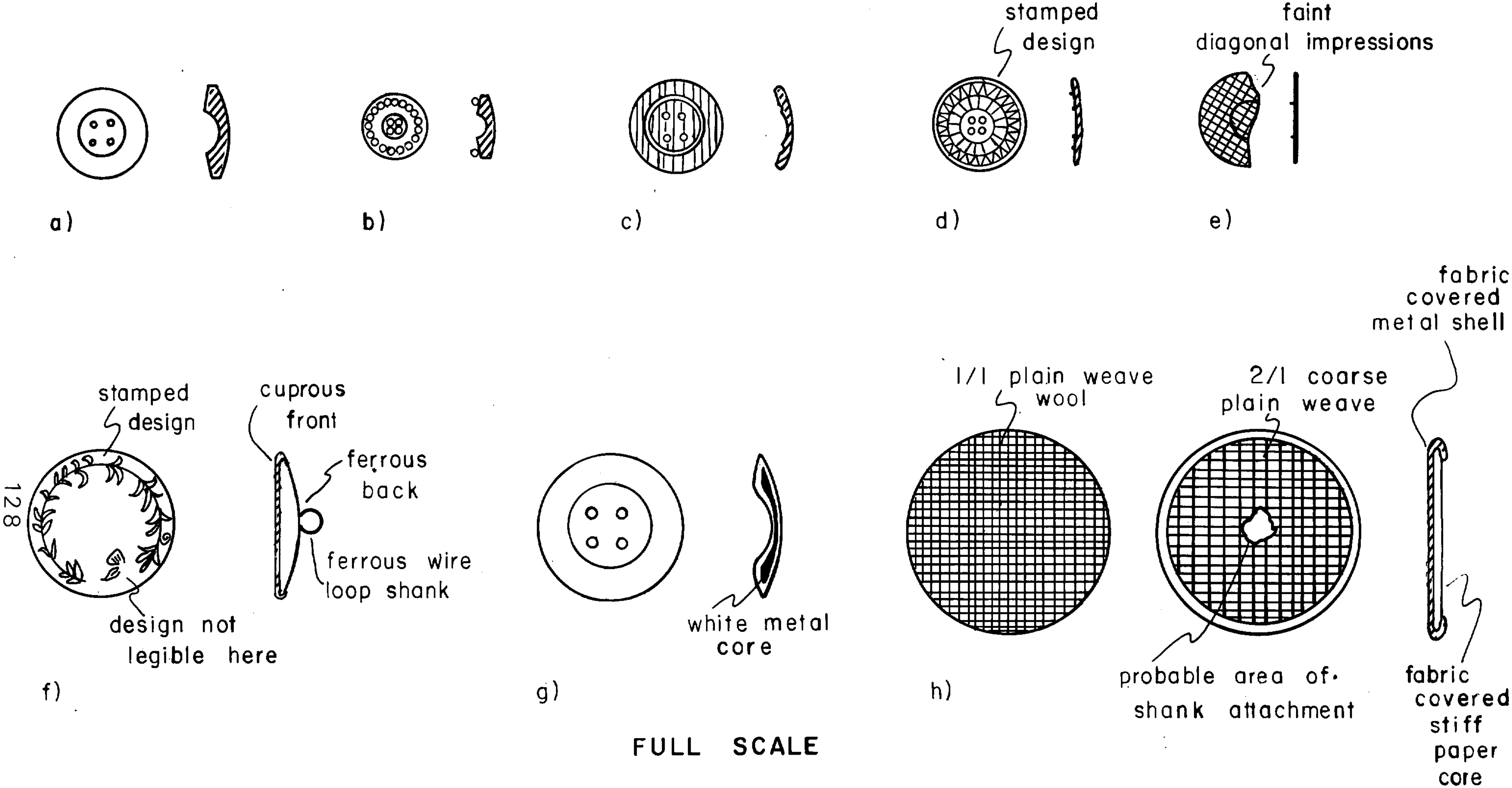
Fifty-three of the buttons were plain, one piece white porcelain disks with three to four sew-through holes (figure 2.53a). The buttons have a flat edge, a slightly convex back, and a concave panel in the front that contains the sew through holes. Diameters range from 5/16 inch to 5/8 inch (figure 2.54). Buttons of this type are known as "Prosser" buttons



a) lead seal b) one kopek c) bone vial d) cuprous bracelet

FULL SCALE

Figure 2.52: Miscellaneous personal artifacts.



a) white porcelain "prosser" b) fancy white prosser c) wood button d) white metal button e) corroded gilt button f) three piece metal button g) processed horn or celluloid button h) fabric covered button

Figure 2.53: Buttons.

FIGURE 2.54: CLOTHING CLASS

Fasteners	Feature 12	Outside Feature
Cuprous Eye Hook	1	
Buttons		
3-hole Prosser	1	
4-hole "Fancy" Prosser -7/16"	1	
4-hole Plain Prossers		
5/16 inch	1	
3/8 inch	14	
7/16 inch	29	
1/2 inch	7	
5/8 inch		1
Cast 4-hole White Metal - 7/16 inch	1	
4-hole Wood Button - 5/8 inch	1	
4-hole Celluloid Button - 1 inch		1
Fabric Covered Buttons		
1-7/8 inch	4	
1 inch	3	
3 piece Copper and Ferrous - 1 inch		1
5/8" badly corroded gilt fragment	1	
Galloshes Buckle		1
Making and Repair		
Straight Pin	1	
Spindle Whorl	1	
Thimble	1	
Clothing		
Partial Shoes	1	1
Identifiable Shoe Parts		
uppers	4	
welts	8	
soles	16	2
heels	39	
lifts	5	2
tongues	1	
heal with outsole	3	
Unidentifiable leather		
scrap	319	3
unknown	196	2

and were first manufactured in 1840. In that year, Richard Prosser was granted a British patent for the invention of a new button manufacturing technique which involved compressing dry ceramic powders in a metallic mold (Storm 1976:117). In 1841, his brother Thomas disputed his right to the technique and acquired an American patent for the same process (Storm 1976:116). Although the development of similar processes by other people soon forced the Prosser brothers out of business, the buttons still bear their name. These buttons were used primarily on underwear, workshirts, and other plain garments. One of the buttons recovered has a fancy, crimped edge and was probably used for more decorative purposes (figure 2.53b).

Other one piece buttons recovered include one 4-hole white metal button (figure 2.52d), one 4-hole wood button (figure 2.53c), and one 4-hole molded celluloid or processed horn button (figure 2.53g). The latter has been molded around a thin metal disc, and the surface is sealed with a thin coat of lacquer. Celluloid buttons were first made in 1869 to duplicate ivory or bone products (Luscomb 1967:36). Later manufactures were dyed or colored, giving them a more "plastic" appearance. This button was found in the levels above Feature 12.

Seven multi-piece fabric-covered buttons were identified (figure 2.53h). The core of these buttons consists of a piece of cardboard or stiff paper. It is covered with a thick, tightly woven 2/1 plain weave fabric similar to burlap. This, in turn, is covered with two thin ferrous shells, one on the front, and the other on the back. The front shell is covered with a lightweight, plain weave brown wool material which appears similar to one of the cloth fragments recovered. After 1860, it became popular to cover buttons with the same fabric used in garments, so it is possible there is some correspondence between the two (Albert 1949:48). The buttons are too badly deteriorated to determine shank type.

One decorative three piece metal button was recovered (figure 2.53f). The front consists of a piece of flat, cuprous metal with a floral wreath design stamped around the perimeter. The back is a slightly convex ferrous metal shell with a soldered loop shank. The rim, which holds the two pieces together is cuprous.

The final button recovered is a badly corroded partial gilt button (figure 2.53e). It is 5/8 inch in diameter. Condition is too poor to determine additional details.

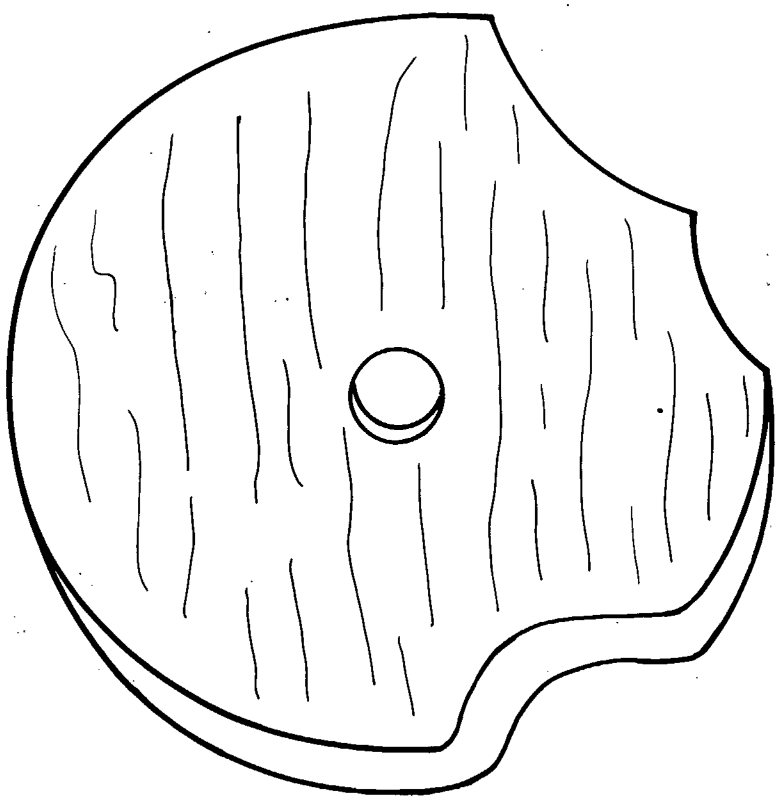
Making and Repair Type

Three items used to make or repair clothing were identified. These include one small ferrous straight pin fragment, one cuprous thimble, and one badly deteriorated wood spindle whorl (figure 2.55). The latter is 4 inches in diameter and one inch thick, and has a hole diameter of 1/2 inch.

Clothing Type

Shoes and leather scraps constitute the sole members of the clothing type. Two partial shoes, 84 identifiable shoe parts, and 520 pieces of unidentifiable leather were found. Over 98% of these were from Feature 12.

Identifiable shoe parts include uppers, welts, soles, heels, lifts, tongues, and shanks. Unidentifiable leather is broken into the categories of scrap and unknown. Scrap leather is leather which exhibits some manufacturing traits such as cut edges, stitching, or peg or nail holes. Three hundred and twenty-two pieces of scrap leather were recovered. These pieces likely are shoe parts or by-products from shoe manufacture. The unknown category consists of miscellaneous bits of leather with no manufacturing traits. One hundred and ninety-eight pieces of unknown leather were found. These have been included in this class since context suggests they were shoe parts, although there is no means of confirming this.



FULL SCALE

Figure 2.55: Damaged wood spindle whorl.

Uppers. Four shoe uppers were identified (figure 2.56). The term "uppers" refers to any part of the shoe above the sole (ie., the leather that covers the top of the foot). The uppers recovered are all from the back portion of the shoe directly above the heel. All are black patent leather and all have tiny, regularly spaced oval holes from machine stitching, indicating they post-date 1851. In that year, John Brooks Nichols patented the first sewing maching that was capable of sewing leather. An earlier machine patented in 1846 by Elias Howe was not suitable for this purpose since holes made in the leather by the needle would not readily close as they did with cloth. Nichols solved this problem by using a filed needle and special thread in his machine (Quimby 1946:31-32).

The uppers recovered apparently were attached to the sole by means of hand-driven ferrous square cut nails. A single row of closely spaced small ferrous clinching tacks surround a row of larger rusted rectangular holes. According to Anderson (1968:61), square cut nails found in shoes "generally date shoes before the time of wire nailing machines", ca. 1862. The presence of machine stitching with hand-driven square cut nails indicates this shoe was manufactured between 1851 and 1862. It must be remembered, however, that old methods of shoe manufacture were often mantained much longer than dictated than by available technology.

Heels and Lifts. Thirty-nine stacked leather shoe heels and 7 lifts were recovered. As the name suggests, stacked heels are heels made up of thin, layered pieces of wood or leather stacked one upon the other. The individual layers in these heels are known as "lifts", and the lift closest to the ground is referred to as the "top lift".

All of the heels recovered appear to be hand-crafted, although a variety of different construction methods were utilized. Figure 2.57 summarizes these techniques. In most, the lifts are tacked together by means of large wooden pegs, ferrous square cut nails, or some combination of the two, driven from the top lift towards the sole. These nails usually stop just short of the sole, so they do not penetrate the foot and cause

Figure 2.56: Patent leather, machine stitched uppers.

SOLE ATTACHMENT / TOP LIFT ATTACHMENT	small wood pegs around perimeter of heel	small wood pegs around perimeter of heel; randomly scattered large wood pegs	Double row of small wood pegs around perimeter of heel	UNKNOWN	TOTALS
square cut ferrous nails around peri-meter of heel	7	1	-	7	15
double row of ferrous square cut nails around perimeter of heel	1	-	-	-	1
square cut nails around perimeter and in center of heel	1	-	-	1	2
round headed brass nails around perimeter of heel	-	1	-	-	1
large ferrous square cut nails around perimeter: wood pegs in center	8	-	-	2	10
large wood pegs around perimeter of heel	1	-	-	-	1
randomly placed large wood pegs	4	-	1	-	5
UNKNOWN	-	-	-	3	3
TOTAL	22	2	1	13	38

FIGURE 2.57: SHOE HEEL CONSTRUCTION

discomfort. Soles are attached to the heels by means of smaller wooden pegs driven in the opposite direction.

Several of the heels recovered are very poorly made. Most have an insufficient number of nails or pegs driven into them, and in many cases these nails are poorly or irregularly spaced. In addition, seven of the heels have lifts that appear to be made up of scrap leather. Individual lifts are pieced together from irregularly shaped bits of leather (figure 2.58).

The poor quality of these shoes suggest a number of conditions. It may indicate the shoes found were practice works made by shoemaking students at the Sitka Industrial School or the Russian Orphanage. It may simply reflect the poor quality of the supplies sent to employees of the Russian American Company. Lt. Golovin complained of the latter. He noted that since soldiers ". . . usually work in cold rainy weather, they wear out their clothing and footwear quite rapidly, especially since all of these items that are sent are of poor quality; work boots are completely worthless. A working soldier wears out at least six pairs of such boots every year" (Golovin 1979:39).

One unusually shaped heel may be from a hob nail shoe or ice cleat (figure 2.59a,b). The lifts of this heel have square window pane like cut-outs. Large, flat-headed square cut nails are driven around the perimeter and center of the heel with the tips protruding slightly. This may have enhanced traction on wet, slippery ground.

Heels with Attached Soles. In addition to these isolated heels, three heels were found still attached to soles. Each of these soles show evidence of a different method of shoe construction.

The first example is a medium weight, hand-crafted pegged shoe with a stacked, pegged heel (figure 2.59c). It has both an insole and an outsole, with the uppers wedged between the two. A double row of small wooden pegs spaced five to the inch hold the two parts together. In the

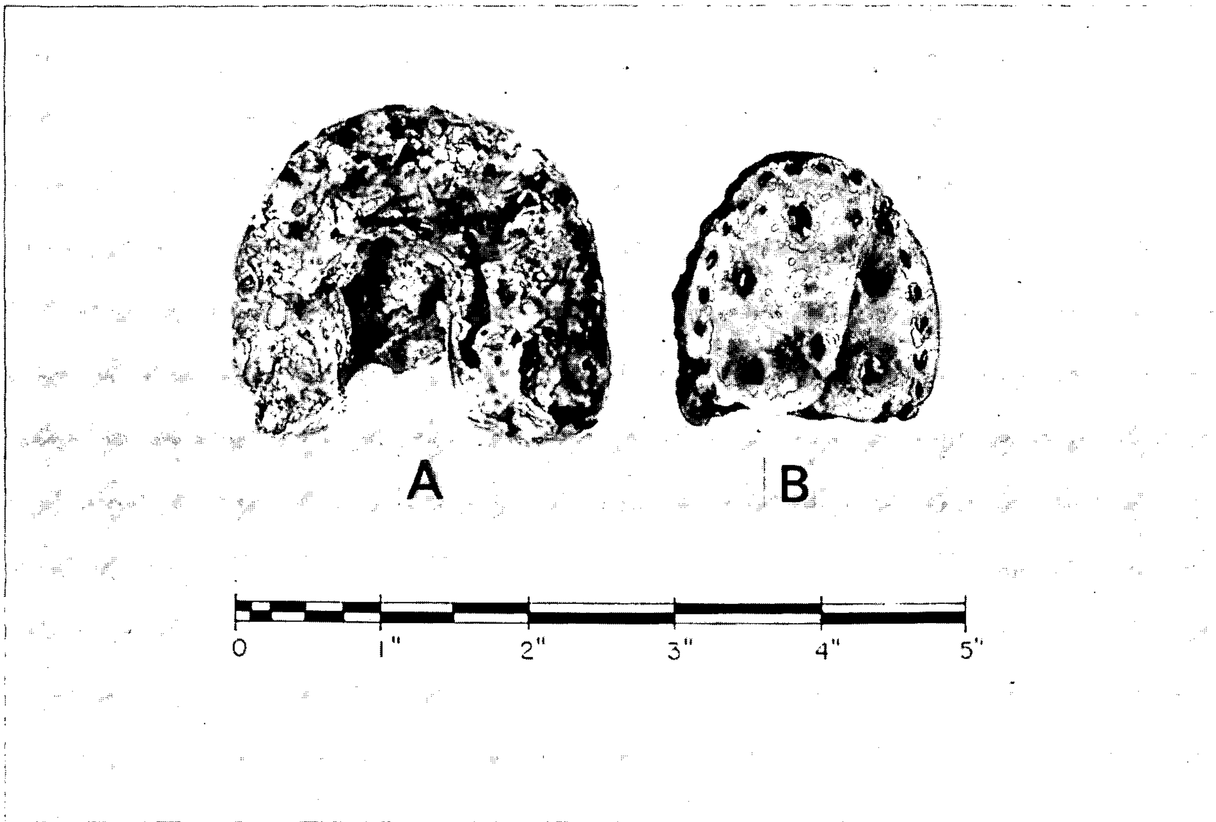


Figure 2.58: Lifts: a) split lift, b) made of scrap leather.

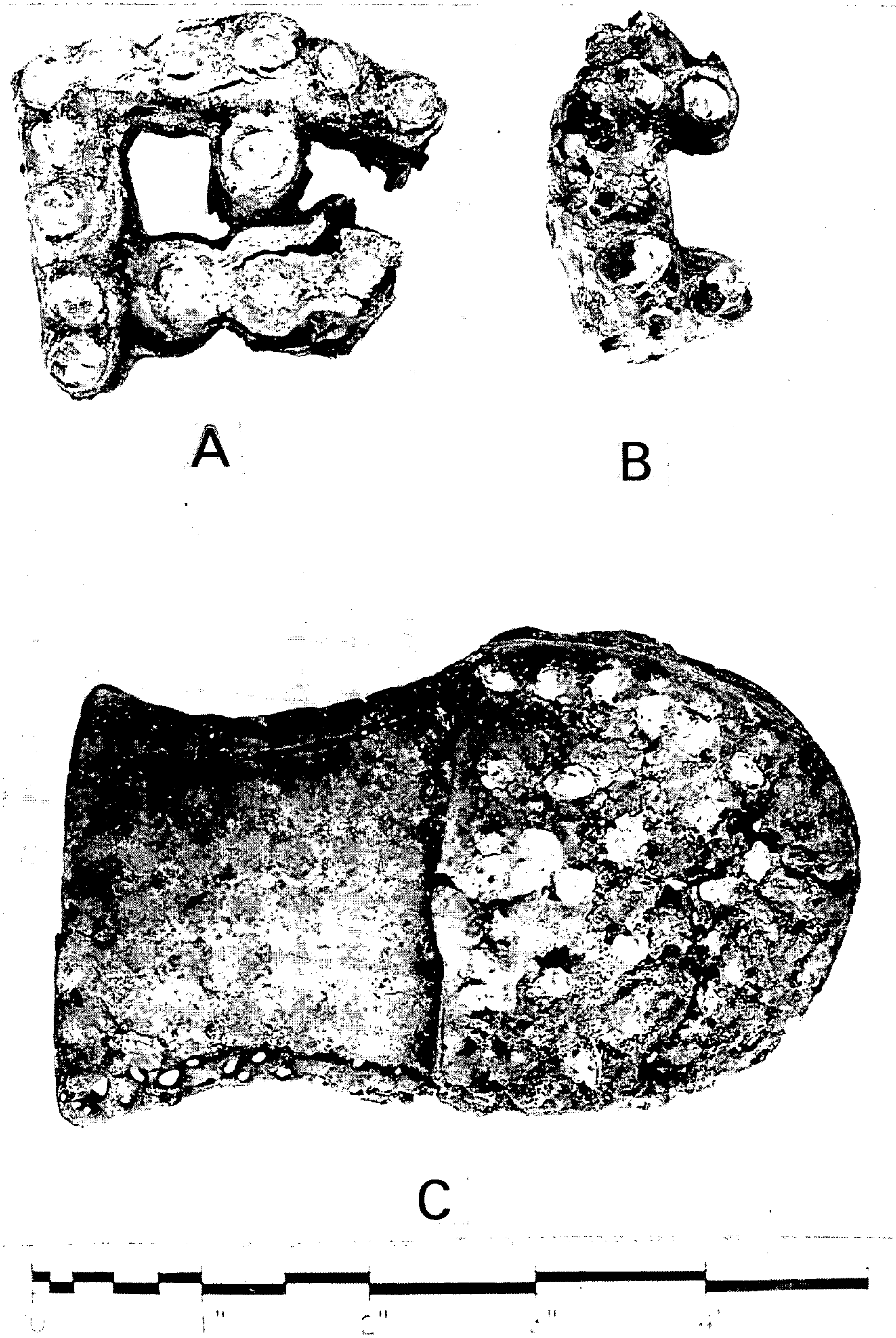


Figure 2.59: Hobnailed heels (a and b), and pegged shoe (c).

mid nineteenth century, pegged shoes were among some of the least expensive to manufacture (Dooley 1912:36), and probably also among some of the least comfortable to wear. Pegs were driven completely through both outsole and insole, with the surface of the peg extending above the insole smoothed by a rasp (Dooley 1912:36). No doubt this created a great deal of discomfort for the wearer as the insole compressed with age.

The second specimen appears to be part of a fine ladies or child's shoe (figure 2.60a). It is quite small with the top lift of the heel measuring only 1-3/8 inches by 1-5/8 inches. Unlike earlier cited examples, it appears to be very finely crafted. The lifts of the heel are made of single pieces of leather, evenly and precisely cut, and twelve, small regularly spaced cut ferrous nails hold the heel together. In spite of this craftsmanship, this shoe appears to have been no more comfortable to wear than the crudely manufactured pegged shoes, since heel nails protrude through to the foot in several places. Although a foot liner undoubtedly covered the sole, the discomfort was probably not completely alleviated.

A thin, 1/4-inch feathered strip of leather around the inside edge of the sole suggests this shoe was made by a turn process (Anderson 1968:62). Turned shoes are lightweight, single sole shoes made primarily for women. As the name suggests, these shoes are formed inside out on a last, and then "turned" right side out to finish. The upper and sole may be sewn directly together, with the stitching catching in a channel cut into the edge of the sole. This prevents the seam from coming into contact with the ground, protecting it from wear (Dooley 1912:151). Alternatively, the upper is sometimes sewn to a thin strip of leather attached to the sole (Dooley 1912:160), as in this case.

Turn shoes have been made from the earliest times, and are still being manufactured today (Quimby 1946:136). The earliest examples are hand-sewn, with later types being machine sewed, cemented, or even nailed. The exact method of attachment on the excavated example is not known for certain, although long, regularly spaced linear holes (5 per inch) suggest it may be machine stitched.

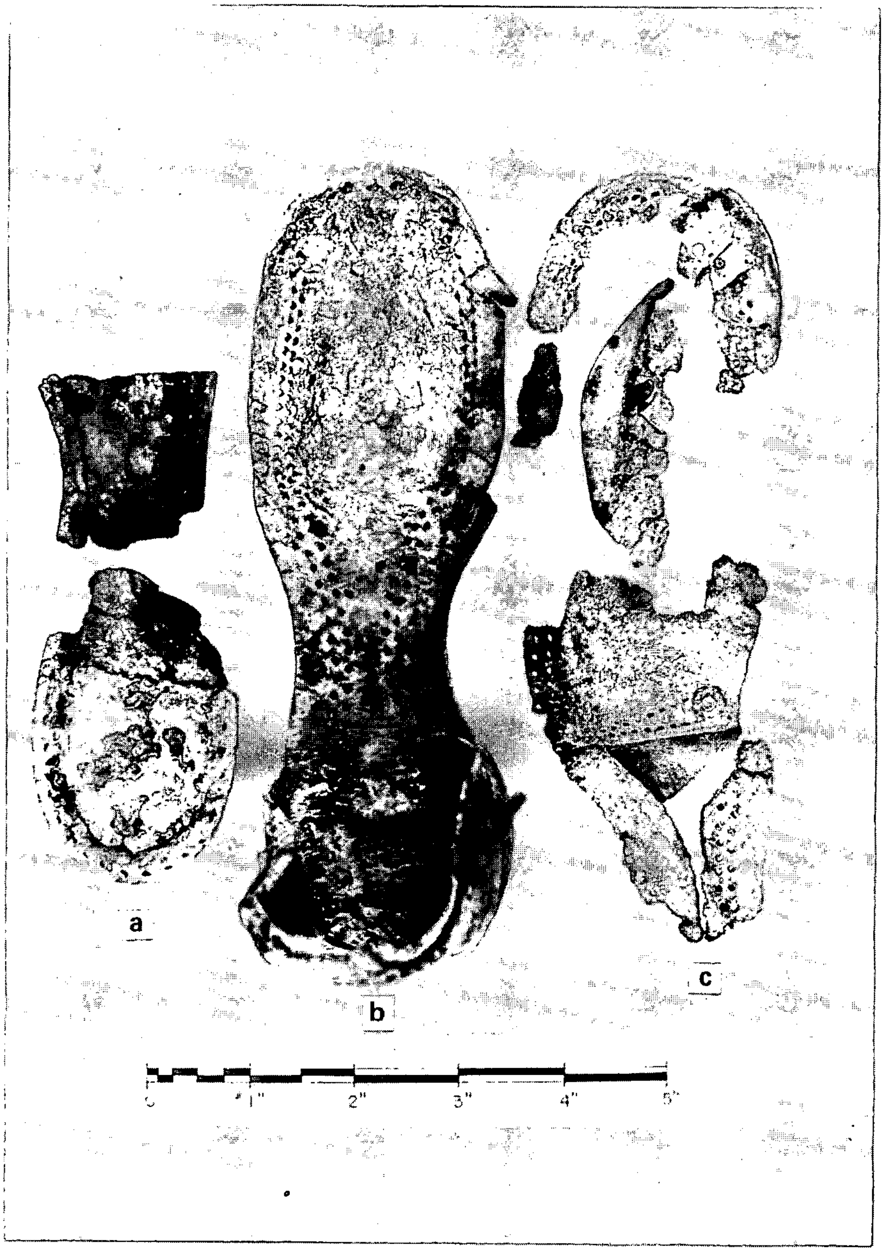


Figure 2.60: a) Child's shoe and outsole; b) lady's shoe sole; c) lady's uppers.

One other interesting aspect of this shoe is the shape of the sole. It appears to have been deliberately cut off a few inches below the base of the heel, as if to receive a new half sole. Thrift was apparently an important value in remote Sitka.

The third specimen identified is a welted shoe (figure 2.61). Like turned shoes, welted shoes have been in existence for hundreds of years, although they became more widespread after 1874 with the invention of the Goodyear Welt Stitcher (Quimby 1946:134). Prior to that time, welt construction was limited to fine dress shoes (Quimby 1946:33) or heavy shoes where durability was important (Dooky 1912:253). No doubt this was due to the great expense and time involved in crafting hand-welted shoes.

Welted shoes have both an insole and an outsole, attached by means of a thin strip of leather known as a "welt". Figure 2.62 illustrates a cross-section of a welted shoe and demonstrates the means by which the individual pieces are held together.

The process for making a welted shoe is rather complex (Dooley 1912:125): First, a channel is cut into the edge of the insole. Then the bottom strip created by this channel is turned at a right angle from the insole, forming a rib or shoulder against which the welt and upper are stitched. Next the outsole is similarly channeled, and stitched to the welt and upper (Dooley 1912:125), but not the insole. The channels are then cemented together, hiding and securing the stitching. The end result is a very comfortable, durable shoe. The system of channeling prevents the seams from coming in contact either with the foot or the ground, and the double stitching strengthens the shoe.

The Goodyear Welt Stitcher revolutionized this process by automating it. This machine cut the channels automatically rather than requiring them to be made by hand, and a special sewing machine with a curved needle stitched the pieces together. Beyond these traits, there seems to be no difference between hand-welted and machine welted shoes, however.

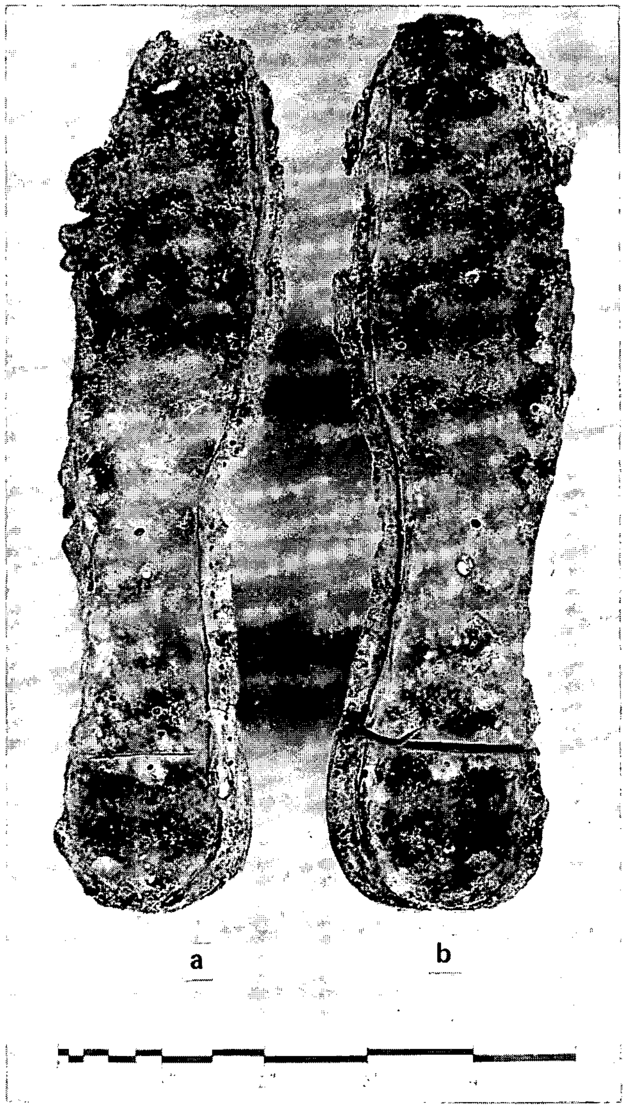
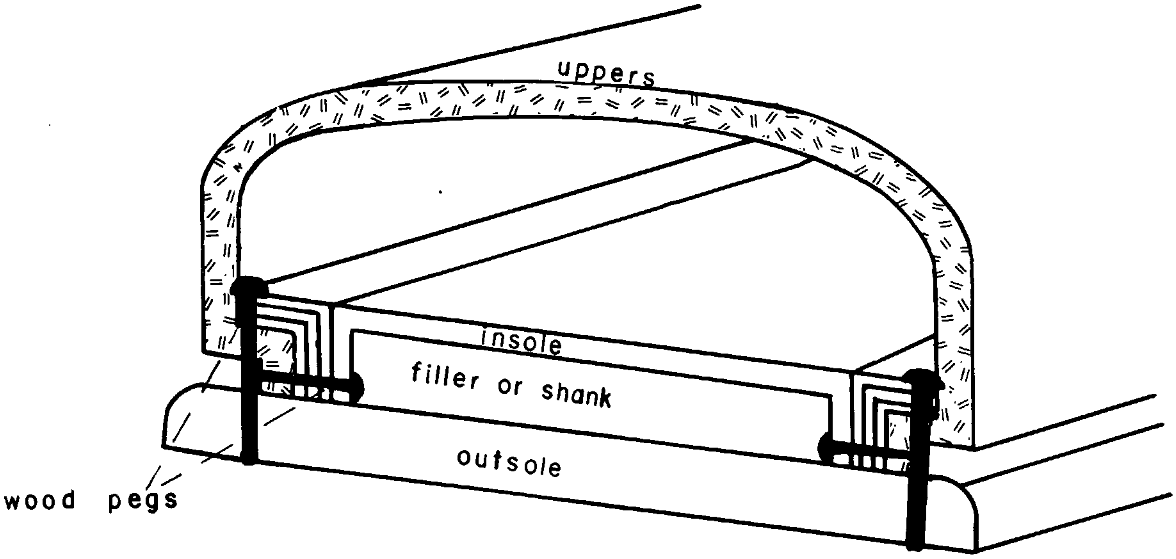
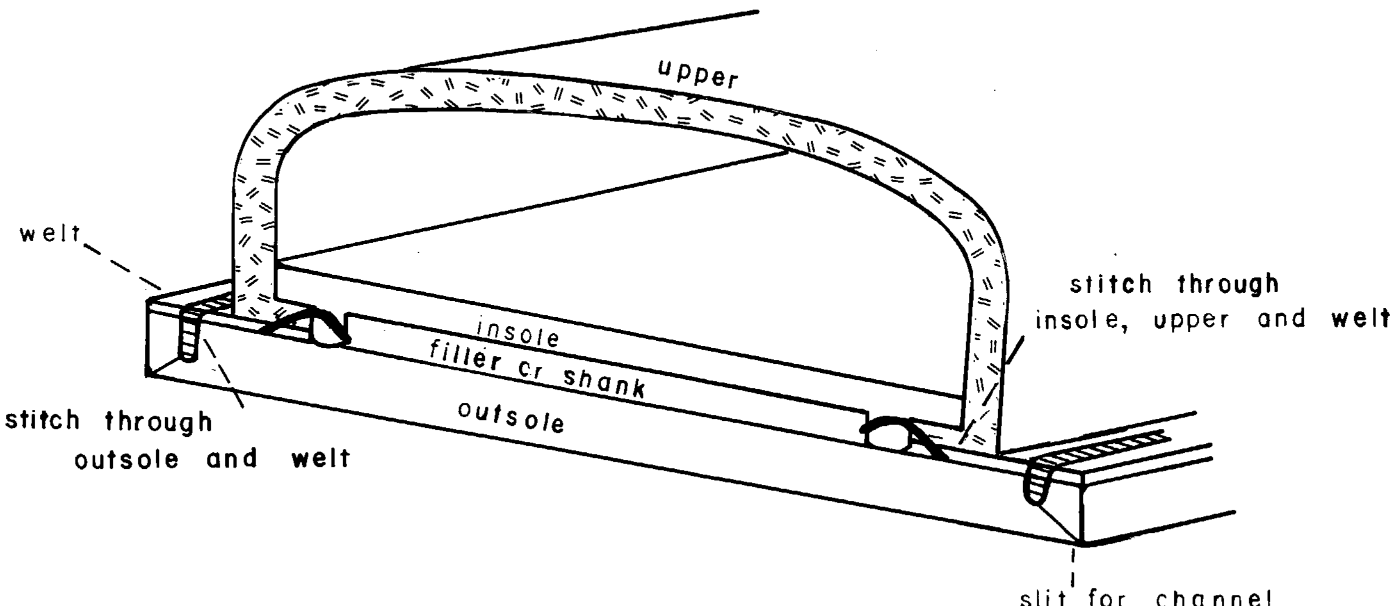


Figure 2.61: Welted shoe: a) insole with interior rib on the right side. This portion flips over onto b) the sole, which is grooved to receive the rib.



PEGGED WELTED SHOE



STANDARD WELTED SHOE

Figure 2.62: Cross-sections of welted shoes.

Previous assertions (Anderson 1968:64; Herskovitz 1978:125) that a rib on the base of the insole indicates the use of a Goodyear Welt Stitcher are unfounded. In fact, one early shoemaking history (Dooley 1912) clearly illustrates a hand-welted shoe with an insole rib.

This information suggests that the only way to distinguish hand-welted from machine welted shoes is by the stitching. If the stitching is slightly irregular in length and appears to be hand-sewn, the shoe is hand-welted. If it is very regular, it likely is machine stitched and made by a Goodyear welting process. This criteria is by no means fail-safe, however, as skilled craftsmen can become very accomplished in creating fine, even stitching that may replicate machine sewing.

On the recovered example, the issue is unresolved. Although the stitching is relatively even, stitch length does appear to vary slightly, between 5-6 stitches per inch. Poor preservation of the specimen makes it difficult to determine whether this can be attributed to hand craftsmanship, or simply the result of the slight shrinking or stretching of the leather with age. A few randomly placed pegs in the center of the sole suggest handcraftsmanship, although the evidence is not conclusive. The insole and outsole are also glued together, reinforcing the welt construction.

Partial Shoes. In addition to soles with attached heels, two more complete shoes were recovered. These partial shoes have intact soles, heels, and at least partial uppers, enabling us to determine a great deal about method of construction. Both shoes identified utilize wooden peg construction, although the methods employed are slightly different.

The first is a heavy duty double soled man's shoe or work boot. It has been cut to receive a new half-sole, and has a stacked leather heel which measures 2-1/4 inches by 2-1/2 inches. This heel is held together by means of several randomly spaced ferrous square cut nails. The insole and outsole appear to be attached by a means of an unusual form of welt construction which utilized pegs rather than stitching. Figure 2.62

illustrates this process. Several thin strips of leather are wedged between the insole and outsole, creating a rib which is used to attach the soles to the uppers by a two step process identical to that used in sewn welted shoes. No references have been found on this method of construction, and the reason for its use is unknown. The heads of the pegs still protrude through to the foot side of the insole, so comfort was apparently not a consideration in its use. (In sewn welted construction the foot is protected from the stitching.) The uppers of this shoe are crudely hand-stitched, and the bottom side of the outsole is channeled. This normally suggests the use of stitching, although unmistakable wooden pegs were removed from the holes in the channel. One possible explanation is that the sole was purchased previously channeled, and then assembled using available technology. Khlebnikov lists shoe soles as one of the items imported by the Russian-American Company and sold at company stores (1976:72), so this possibility exists.

The second specimen was found in the levels above Feature 12 (figure 2.60b). It is a small woman's or child's double soled shoe. It measures 7-1/2 inches long by 2-1/2 inches wide, and appears to be a left foot. It has a short, stacked leather heel attached by means of several small ferrous cut nails. Dimensions of the heel are 1-3/4 inches by 1-3/4 inches by 3/4 inches. The insole and outsole are attached by means of a double row of wooden pegs, driven directly through both soles. The heel and toe portions of the shoe are nailed, and the uppers are machine stitched.

The combination of machine stitched uppers with pegged soles suggests this shoe was manufactured sometime between the invention of John Brooks Nichols sewing machine in 1851 (Quimby 1946:31-32), and the decline in popularity of pegged shoes around 1880 (Quimby 1946:30). It may also indicate it pre-dates the 1860 invention of Lyman Blake's sewing machine, which was the first machine capable of sewing soles (Anderson 1968:59). As indicated earlier, new technology was not always readily adopted when available, however, so this seems less certain.

Soles. Eighteen soles or sole fragments were recovered. Of these, three were so fragmentary or in such poor condition that it was impossible to establish method of manufacture. Two of these soles were poorly tanned and still had animal hairs remaining on them. These may be manufacturers of the tannery operated by the Russian-American Company in New Archangel. Of the remaining soles, three were pegged, one was hand-stitched with a double row of stitching, and two were secured with both pegs and square cut nails. The latter are represented by square toed work boots. The sides of the soles are pegged, with the heels and toes nailed. Nine soles had ribs on them which were hand-stitched. Without the entire shoe it is impossible to determine whether these represent the sole of turned shoes or the insole of welted shoes.

One particularly unusual ribbed sole was identified. It is the toe and ball portion of a large man's square toed work boot. It is 3/4 inches wide and measures 7 inches from the toe to the ball of the foot. This sole is perforated throughout its length by a series of small, circular holes approximately 1/8 inch in diameter (figure 2.63). These holes are irregularly spaced, and some still have bits of the original leather remaining in them, suggesting they were punched by hand. The function of this perforated shoe entirely eludes us. One suggestion which we were unable to substantiate is that the shoe was modified for medical reasons. Holes may have been punched into the boot to allow air to circulate around a healing foot. It is also possible that this sole was perforated to provide traction on slippery surfaces.

Miscellaneous. The remaining identifiable shoe parts include eight welts, four tongue fragments, and one tentatively identified shank. Shanks are supports placed between the insole and outsole to stiffen the middle portion of the shoe. They may be made of leather, wood, cardboard, or steel. In all instances where soles were found with intact shanks, they were of a single piece of stiff leather secured by means of 2 or 3 strategically placed pegs or nails. Although the recovered example is the same size and shape as those shanks, it is made up of several

Figure 2.63: Perforated sole.

scraps of leather pieced together, and is perforated by several randomly spaced peg holes. This again suggest either a practice piece made by students, or extremely poor craftsmanship.

Discussion. Dates obtained from the analysis of shoe parts is inconclusive, largely due to the fragmentary condition and poor preservation of the specimens. As can be seen from figure 2.64, the identified shoe parts seem to date sometime after 1860 and before 1880, although one specimen tentatively identified as a Goodyear welted shoe may date after that time. It should be noted that these dates represent general guidelines only. While the dates of introduction of new technologies are known, their dates of widespread adoption are not. For instance, although the sewing machine was adapted for use with leather by 1851, it is possible that cobblers in remote areas like Sitka did not have access to such technology until much later. Likewise, although pegged shoes seemed to have lost favor after 1880 in urban centers of the world, they likely were still manufactured in more remote areas. Thus, the issue of date and origin of the deposit remain.

Although analysis of the technological attributes of the shoes are not particularly instructive in this regard, the nature of the assemblage itself might be. As indicated previously, it has been suggested that the large number of shoe parts found suggest the deposit represents the activities of shoemaking students at the Sitka Industrial School. While a definite possibility, this proposition should be considered carefully. Although the Sitka Industrial School was briefly housed in the old hospital building between 1881 and 1882, their stay was not more than six to nine months in duration. An article in the Sitka Tribune (November 7, 1885:3) reports that the old hospital building was outfitted for a school in the spring of 1881. On January 26, 1882, the industrial school was forced to find new quarters when the building in was destroyed by fire (Austin 1892:243).

The activities of the students during these formative months of the school are not well known. Although vocational training became a hallmark of

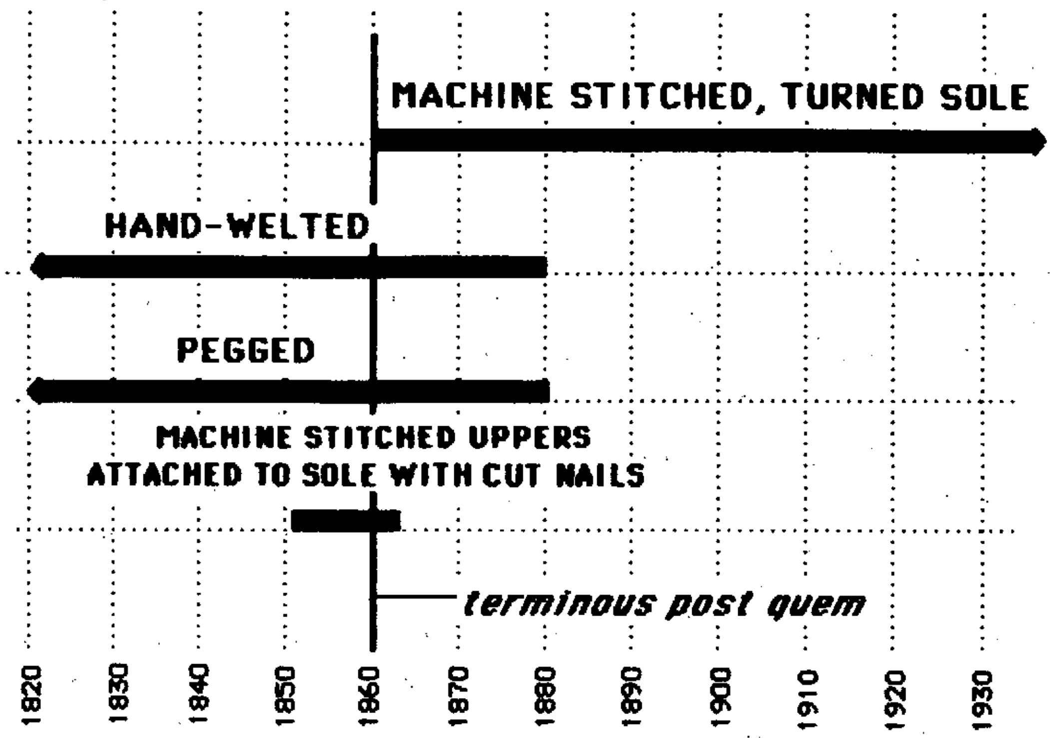


FIGURE 2.64: MANUFACTURING DATES OF SHOE LEATHER IN FEATURE 12.

the Sheldon Jackson school in later times, it is not known whether such a program existed during these early months. According to chronicles of the school's history, early efforts of the missionary teachers seem to have been directed primarily at teaching the children how to behave like proper "Boston Boys".

The first positive historical evidence of the existence of a shoe-making department at the industrial school is found in an issue of the Sitka Tribune published on December 29, 1888. A small article in this issue reports the opening of the shoe shop at the school. This shop was under the direction of H.F. Lake, who had arrived a few months earlier to assume the responsibilities of musical director of the school. His former employment record included stints as a boat and shoemaker (Sitka Tribune July 14, 1888:3), experience which he seems to have put to work in the service of the school. By this time, however, the industrial school was not located in the vicinity of Feature 12, but was on property now occupied by the Sheldon Jackson College, several blocks distant.

If the identified shoe parts seem to raise more questions than they answer, they are enlightening in at least one respect--namely, their ability to tell us about the circumstances of daily life in Sitka.

As previously mentioned, many of the shoes recovered were poorly constructed. Heels often had an insufficient number of nails or pegs driven in them; lifts and shanks were pieced together from bits of scrap leather; and leather was sometimes poorly tanned with incomplete removal of hair. In addition, many shoes have been cut to receive a new half sole, suggesting durability was not one of the more outstanding features of the footwear recovered.

State of the art technology in shoe making is little represented. With the exception of a few machine stitched uppers, and one shoe that may have been constructed through a Goodyear welting process, all of the shoes are handcrafted. Cheaply produced pegged shoes are one of the most numerous types identified.

All of the above suggests a grim picture of life in Sitka. Whether due to poverty, distance from trade centers, or both, the inhabitants of Sitka practiced an imposed self-reliance. Rather than relying on mass produced shoes constructed with new technologies available elsewhere, crude hand-crafted shoes predominated. Often times this footwear was of inferior quality, lacking both comfort and durability. When shoes wore out, as they frequently did, their life was extended by the addition of a new half sole. Thrift seems to have been an important value.

GROOMING AND HYGIENE CLASS

Items used in personal hygiene or daily grooming are included in the grooming and hygiene class. Identifiable forms include perfume bottles, cosmetic jars, a shaving mug, a chamber pot lid, and a comb.

Feature 12

Only eleven artifacts from this class were recovered from Feature 12. These include fragments of at least five cosmetic jars or ointment pots, three perfume bottles, one chamber pot lid, and a comb.

Figure 2.65a illustrates a clear glass perfume bottle recovered from unit N8.5W1.5. This mold-blown bottle has a solid iron bar pontil scar on the base, and a slightly flared, sheared lip. An embossed panel on the front of the bottle reads ". . .MARIE FARINA". An 1884 ad in the *American Druggist* identified Johann Maria Farina as a perfumer from Cologne-on-the-Rhine, Germany. By the early 1800s there were two or three firms, each under the name Farina operating in Cologne. There were a number of imitations bearing similar names which were produced to capitalize on the popularity of Farina products (Herskovitz 1978:17). A similar bottle was found during the Fort Vancouver excavations, but its origin and manufacturing dates were not identified. It is difficult to determine whether this bottle is of German or American manufacture.

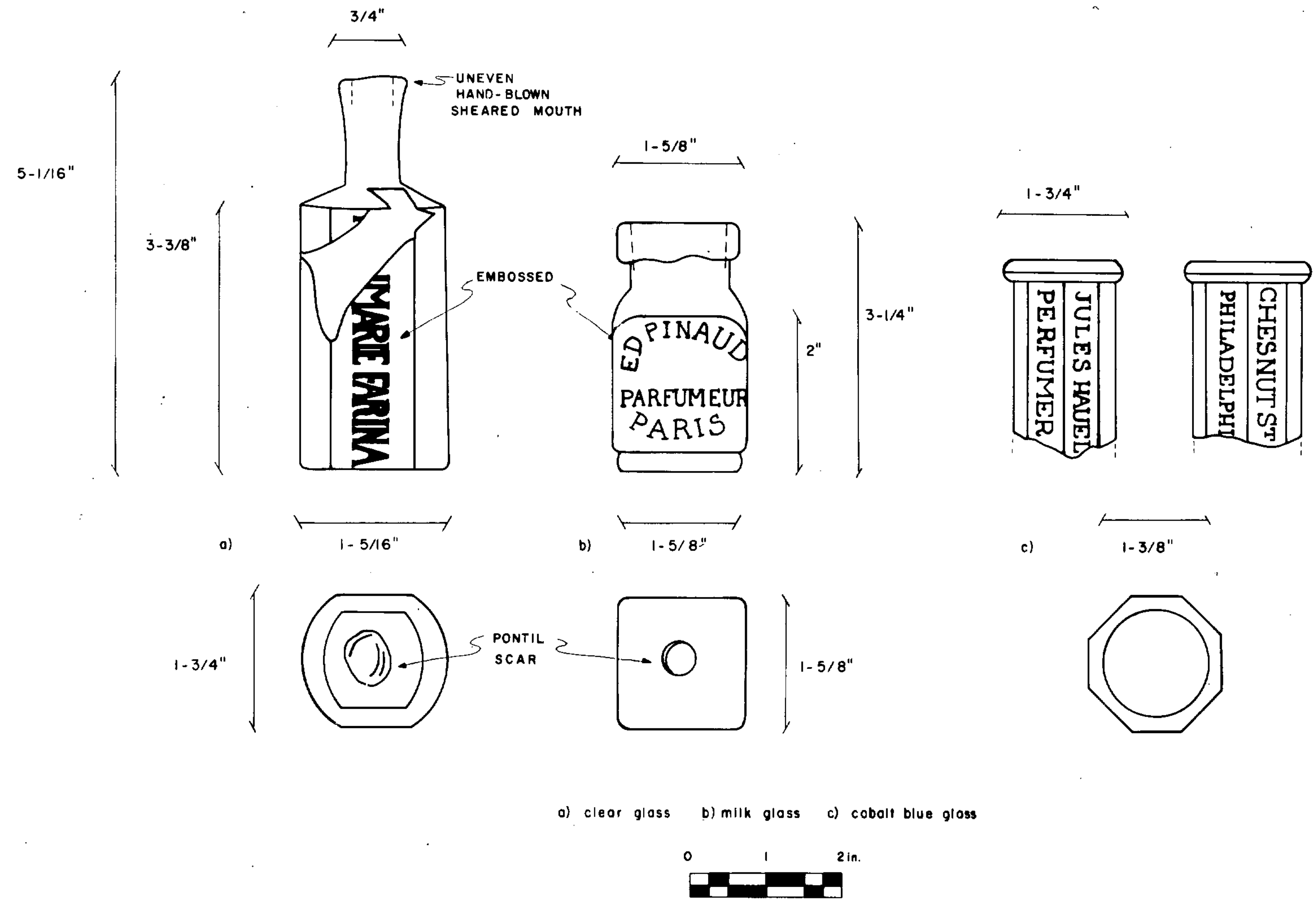


Figure 2.65: Perfume bottles.

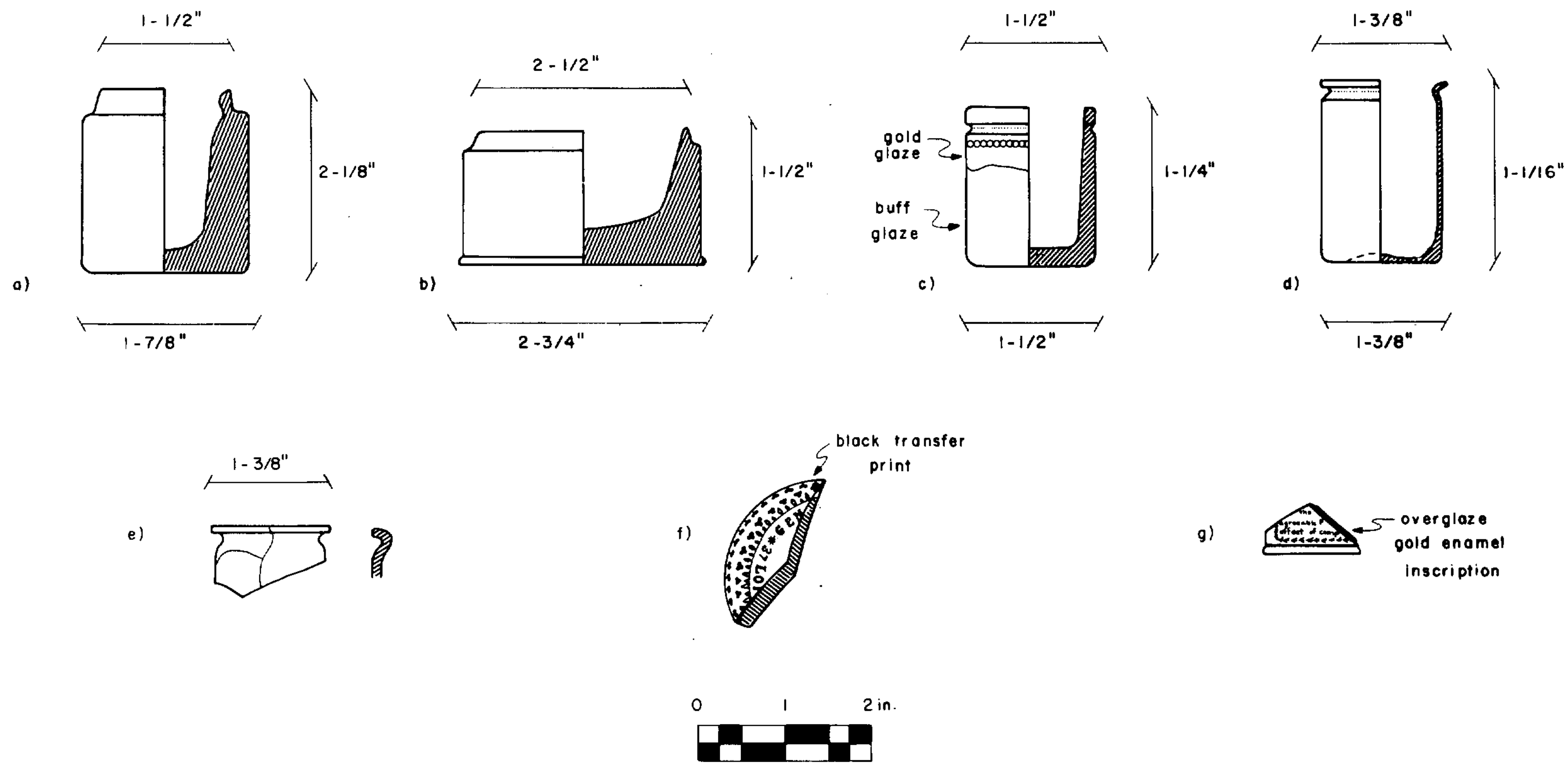
A second perfume bottle identified is a manufacture of E.D. Pinaud of Paris (figure 2.65b). This is a mold-formed white milk glass bottle with a tooled, rolled band color. The body of the vessel is square in cross-section with chamfered corners, and the neck and lip are round. An embossed inscription on one panel reads, "ED PINAUD/PARFUMEUR/ PARIS". According to Devner (1970:61), this firm was established in 1812. Peter Schulz (1986) reports that Pinaud perfumes were available in San Francisco during the California gold rush, citing a newspaper ad (Daily Alta California, March 5, 1853:1)

The final perfume bottle represented is a manufacture of Jules Hauel of Philadelphia (figure 2.65c). Only the neck and lip portions of this bottle were recovered. It is a mold-formed, fluted blue bottle with an embossed inscription which reads, "JULES HAUEL/PERFUMER/CHESTNUT ST/PHILADEPHIA". This company was in business by 1840. In 1859 the firm changed its name to Jules Hauel and Company (Schulz 1986).

Fragments from at least six cosmetic jars or ointment pots were identified in Feature 12. One complete ointment pot was recovered from unit N8W1 (figure 2.66a). This vessel is 2-1/8 inches in height and 1-13/16 inches in diameter. It is an undecorated, soft-bodied earthenware with a thin, opaque white glaze. Both the texture and color of the body resemble tin-enamel ware, although the vessel lacks the characteristic thick glaze of that ware. Base and lip fragments from at least two similar soft-bodied earthenware vials were also recovered.

One light green free-blown glass vial was found in unit N8W0 (figure 2.66d). This is an extremely thin-walled, fragile vessel with a tooled lip and a solid iron bar pontil mark. Although included in this class because of its small size and similarity to other cosmetic vials, it could also have been used as a prescription bottle for pills or powders.

Other vessels believed to represent cosmetic jars include the neck and shoulder portion of one clear glass vial, and one base fragment from a



a-b) white earthenware c) bristol-glazed stoneware d) free-blown light green glass e) soft paste earthenware f) white earthenware g) porcelain

Figure 2.66: Cosmetic jars.

decorative porcelain jar (figure 2.66g). The latter has a gilded overglaze inscription on the front which reads, ". . .the. . . agreeable P. . . effect of comp. . .". Cosmetic manufacturers of the late nineteenth century often printed eye-catching slogans on their containers, proclaiming the marvelous benefits of their product.

Two thick, heavy, undecorated white earthenware sherds believed to be part of a chamber pot lid were also found. Judging by the rim curvature, the diameter of the lid is between six and seven inches, and the lid is 3/8 inches thick.

One black composition comb fragment is the final grooming and hygiene artifact found in Feature 12. An impressed inscription on the side of the comb reads "I.R. COMB CO. GOODYEAR 1851".

Levels Above Feature 12

Additional grooming and hygiene artifacts found in the levels above the feature include one black transfer-printed white earthenware shaving mug (figure 2.67), one bristol-glazed stoneware cosmetic vial (figure 2.66c), one milk-glass cosmetic jar with a screw-thread finish, fragments from at least three undecorated white earthenware cosmetic jars, and two white earthenware cosmetic jar lids. One of the latter has a black transfer-printed inscription around the perimeter which reads "GEN. . ./37 LO. . ." (figure 2.66f). The origin of this mark is unknown.

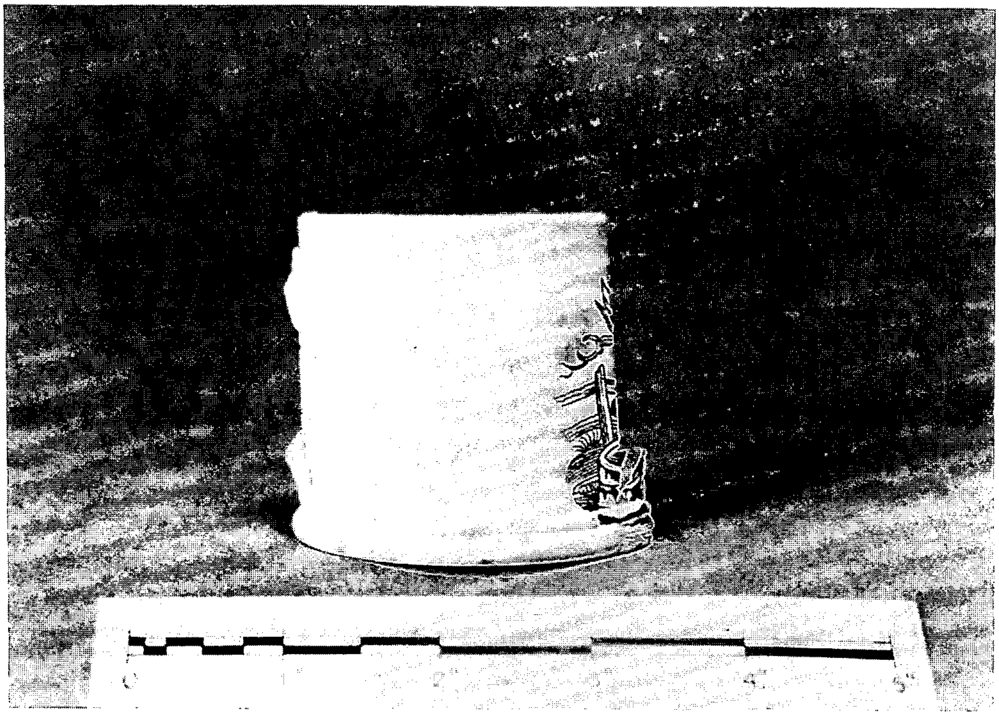


Figure 2.67: Black transfer printed whiteware shaving mug.

FIGURE 2.68: GROOMING AND HYGIENE ARTIFACTS IN FEATURE 12

Vessel/Material	Sherds	Min. Vessel
Perfume Bottles		
Milk glass	8	1
Clear glass	9	1
Blue glass	2	1
Cosmetic Jars/Ointment Pots		
White earthenware	8	3
Porcelain	1	1
Clear glass	7	1
Green glass	9	1
Chamber Pot Lid		
White earthenware	2	1
Composition Comb	1	1

GROOMING AND HYGIENE ARTIFACTS IN LEVELS ABOVE FEATURE 12

Vessel/Material	Sherds	Min. Vessel
Shaving Mug		
White earthenware	7	1
Cosmetic Jars		
Milk glass	9	1
White earthenware	9	3
Stoneware	4	1
Cosmetic Jar Lids		
White earthenware	23	2

PERSONAL CLASS

The personal class includes items that might be carried in a pocket or purse, or used as ornamentation. Items such as jewelry, beads, eyeglasses, or small personal possessions like a letter seal or a bone vial are included. Figure 2.69 summarizes the items recovered. By far the most numerous artifacts in this class were trade beads.

A total of 302 glass beads were found in Feature 12. For comparative purposes, a typology developed by Lester Ross (1976) for use on the trade beads from Fort Vancouver was used to describe the excavated examples. This typology classifies beads into six major types and two subtypes based on method of manufacture, and numerous classes and varieties based on shape, color, method of decoration, and other stylistic attributes. Of these six types, only three are relevant to the Sitka examples.

Tube Beads

Tube beads are the most common type, and as the name suggests, "consisted of or were manufactured from bead length sections which had been cut from glass tubes" (Ross 1976:679). These tubes can be made one of two ways. The first is by a hand-blowing process which stretches a molten glass bubble into the desired cylindrical shape. Beads manufactured by this process are sometimes also called "hollow-cane" or "drawn" beads (Spector 1976:20), and were the only type of tube bead made through the nineteenth century. In the early twentieth century, a new process was introduced whereby glass tubes could be made by drawing molten glass off a revolving mandrel (Ross 1976:679). Both methods of production are included in this definition.

Although all tube beads begin life as round cylinders, this basic shape is often modified for decorative reasons. After cutting, the individual bead sections may be polished, faceted, twisted or marvered so that the

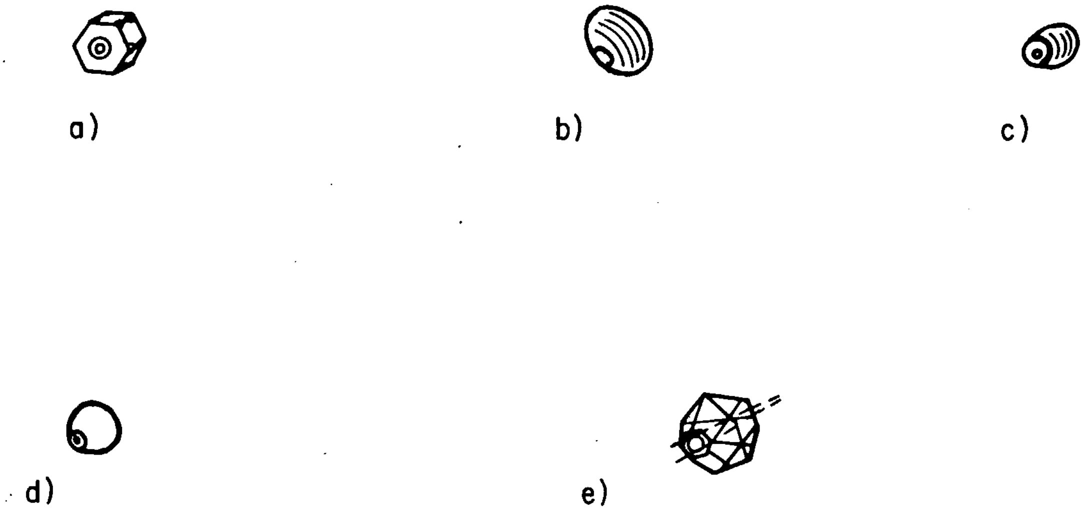
FIGURE 2.69: PERSONAL CLASS

	Feature 12	Outside Feature
Personal Ornamentation		
Beads	302	
Decorative ladies' hair comb		1
Child's copper bracelet	1	
Plastic totem pendant (tourist trinket)		1
Other Personal		
Bone vial	1	
Lead seal	1	
Eyeglasses		1

original tube shape is not always readily apparent. Microscopic examination can distinguish similarly shaped beads made by different processes, however. Tube beads will generally have longitudinal striations and the air bubbles in the glass will be elongated rather than round due to the stretching process (Spector 1976:21; Kidd and Kidd 1970:50).

Ross identifies two subtypes within the tube bead category. Cane tube beads, the first subtype, are beads which "retain all or part of the unmodified cut surface at each end of the bead" (Ross 1976:684). Eight cane tube beads, all of a single variety, were found at Sitka (figure 2.70). Although the exact dimensions of each bead varies slightly, all fall within a common range. Length ranges from 1/4 inch to 5/16 inch, and width from 1/4 inch to 11/32 inch. Hole size varies from 1/8 inch to 5/32 inch. All are of a variety Ross terms "multi-layer faceted". Multi-layer beads are created by dipping a glass bubble of one color into molten glass of a different color. This layer effect can be seen in cross-section on the cut ends. The inner core is an opaque light blue (Munsell 5 PB 6/8), and the outer layer is translucent dark blue (6.25 PB 4/12). In additon, each bead has six to eight randomly placed facets on each end.

Beads of this type are commonly referred to as "Russian" beads and were favored trade items among the Indians of the Pacific Northwest. The term "Russian" bead is actually a misnomer, however. Although these beads were associated with late eighteenth and early nineteenth century Russian fur trade sites in Alaska, they are most likely not Russian manufactured. In 1867, following the sale of Alaska, several unopened packages of these beads were found in the warehouse of the Russian American Company in Sitka. The outer cover on these packages was marked "Brussels", indicating they likely were Belgian exports (Woodward 1976:9). It is also incorrect to assume Russian traders were the only people using these beads as a medium of exchange. So-called "Russian" beads were imported in limited numbers by the Hudson's Bay Company and have been found in nineteenth century fur trade and native sites outside the Russian territory (Ross 1976:691).



a) multi - layer faceted cane tube bead (or "russian" bead): opaque light blue core translucent dark blue exterior (6.25 PB 4/12)

b) oblate wire wound bead: opaque black

c) barrel shaped wire wound bead: translucent dark blue (7.5 PB 2/6)

d) spherical wire wound bead (or "canton"): opaque light blue (7.5 PB 7/6)

e) faceted mandrel pressed bead: translucent amber (2.5 Y 6/10)

FULL SCALE

Figure 2.70: Beads

A second type of tube bead is the <u>hot tumbled bead</u>. These were beads which, after having been cut, were "tumbled over a fire to round the cut edges" (Ross 1976:697). 289 hot tumbled beads were recovered. All of these are exceedingly small donut-shaped beads between 3/32 to 1/8 inch diameter and 1/16 inch long. Small beads of this size and shape are commonly referred to as "seed" beads and were most widely used to ornament clothing (Woodward 1976:11). Two different size ranges are represented. The majority of beads fall in a range between 1/16 to 3/32 inch diameter. The opaque white beads are visibly larger, however, with a diameter of approximately 1/8 inch.

The seed beads recovered were a variety of colors (figure 2.71). Twenty-eight multi-layer and 261 single layer beads were found. The multi-layer beads are all of the same variety. They have opaque white centers and translucent red exteriors (Munsell 7.5R 4/14). Multi-layer red and white beads are known by several common names including "Cornaline d' Aleppo" and "Hudson's Bay" beads. The term "Cornaline d'Aleppo" refers to the city of Aleppo in the Near East, which served as a base for the Italian export business (Woodward 1976:19).[11] These beads were supposedly widely used by Hudson's Bay Company traders in Canada and the Northwest, although archaeological evidence from Fort Vancouver does not support this association (Ross 1976:671, 723).

Single layer beads were found in a variety of different colors. Yellow was by far the most common color, representing over 65% of the seed beads recovered. This was followed by opaque white beads representing 15.2%, and red and white "Cornaline d'Aleppos representing 9.7%. Blue-green, light blue, orange, and colorless beads constituted only a small percentage of those recovered.

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11. The opaque center of cornaline d'Aleppo beads may also be pink, green, or pale yellow, although white is most common.

FIGURE 2.71: FREQUENCY DISTRIBUTION OF BEADS BY TYPE AND COLOR

Tube Beads	
Cane tube beads	
faceted, multi-layer	
translucent blue (6.25 PB 4/12)/opaque light blue (5 RB 6/8)	8
Hot tumbled beads	
plain, single layer	
translucent yellow (5 Y 6/8)	73
opaque yellow (5 Y 8/10)	117
opaque white	44
opaque light blue green (5 B 5/10)	11
opaque light blue (5 BG 7/6)	8
opaque orange (16 YR 6/10)	4
transparent colorless	4
plain, multi-layer	
translucent red (7.5 R 4/14)/opaque white	28
Wire Wound Beads	
Oblate, single layer	
opaque black	1
Barrel, single layer	
translucent blue (7.5 PB 2/6)	1
Spherical, single layer	
opaque light blue (7.5 PB 7/6)	1
Mandrel Pressed Beads	
Faceted, single layer	
translucent amber (2.5 Y 6/10)	1
Unknown	
Opaque light blue (7.5 PB 7/6)	1

Wire Wound Beads

Wire wound beads are the second major type of bead found at the Old School. These are beads which "were manufactured by winding molten or plastic glass onto a rotating wire or reed" (Ross 1976:737). Beads manufactured by this process are readily distinguished by the circular striations which go around the diameter of the bead. In addition, any air bubbles present in the glass will tend to be circular or oval rather than elongated (Kidd and Kidd 1970:50; Spector 1976:21).

Three wire wound beads were found in Feature 12 (figure 2.70b, c, d). The first is a translucent dark blue (7.5 PB 2/6) barrel shaped bead. It is 11/32 inch long, 5/16 inch wide, with a 1/16 inch diameter hole. The second is an opaque black oblate shaped bead. It is 3/8 inch long and 7/16 inch wide, with a hole diameter of 1/8 inch. The third is a spherical opaque light blue (7.5 PB 7/6) bead which measures 1/4 inch by 1/4 inch, with a 1/8 inch diameter hole. Ross (1976:746-747) hypothesizes that beads of this color and manufacture are the so-called "Cantons", imported in great numbers by the Hudson's Bay Company from China for trade in the Pacific Northwest.

Mandrel Pressed Beads

The final identifiable bead is a mandrel pressed bead. Mandrel pressed beads were manufactured by pressing two pieces of glass together in a round mold with a conical projection. This produced a blank in which the hole penetrated only halfway. This blank was then removed and ground to produce facets, and the remaining portion of the hole punched through the bead (Ross 1976:754). Diagnostic characteristics of this type of bead include a conical shaped hole with a sharp inside edge created by the punching process (Ross 1976:762). In addition, mold seams which divide the upper and lower hemispheres are sometimes apparent (Storm 1976:107).

Only one mandrel pressed bead was found in Feature 12. It is an amber (2.5 Y 6/10) colored, seven sided, multi-faceted bead (figure 2.69e). It is 11/32 inches in length and 7/32 inches in diameter at the widest point. The stringing hole is 1/16 inch at the widest end, and 1/32 inch at the other.

Fragments of one opaque pale blue (7.5 PB 7/6) bead were also found. It is too fragmentary to determine shape or manufacturing process.

Other Personal Artifacts

Other interesting items in the Personal Class include a small bone vial which appears to be hollowed from a joint (figure 2.51c), and a rectangular lead letter seal with a raised initial "K" (figure 2.51a).

ACTIVITIES GROUP

SMOKING

Of some interest in this group were the smoking pipes. A variety of unusual materials and decorative types were identified. These include fragments of at least three ball clay pipes, one white glazed porcelain pipe, and two unusual ceramic pipes (figure 2.72).

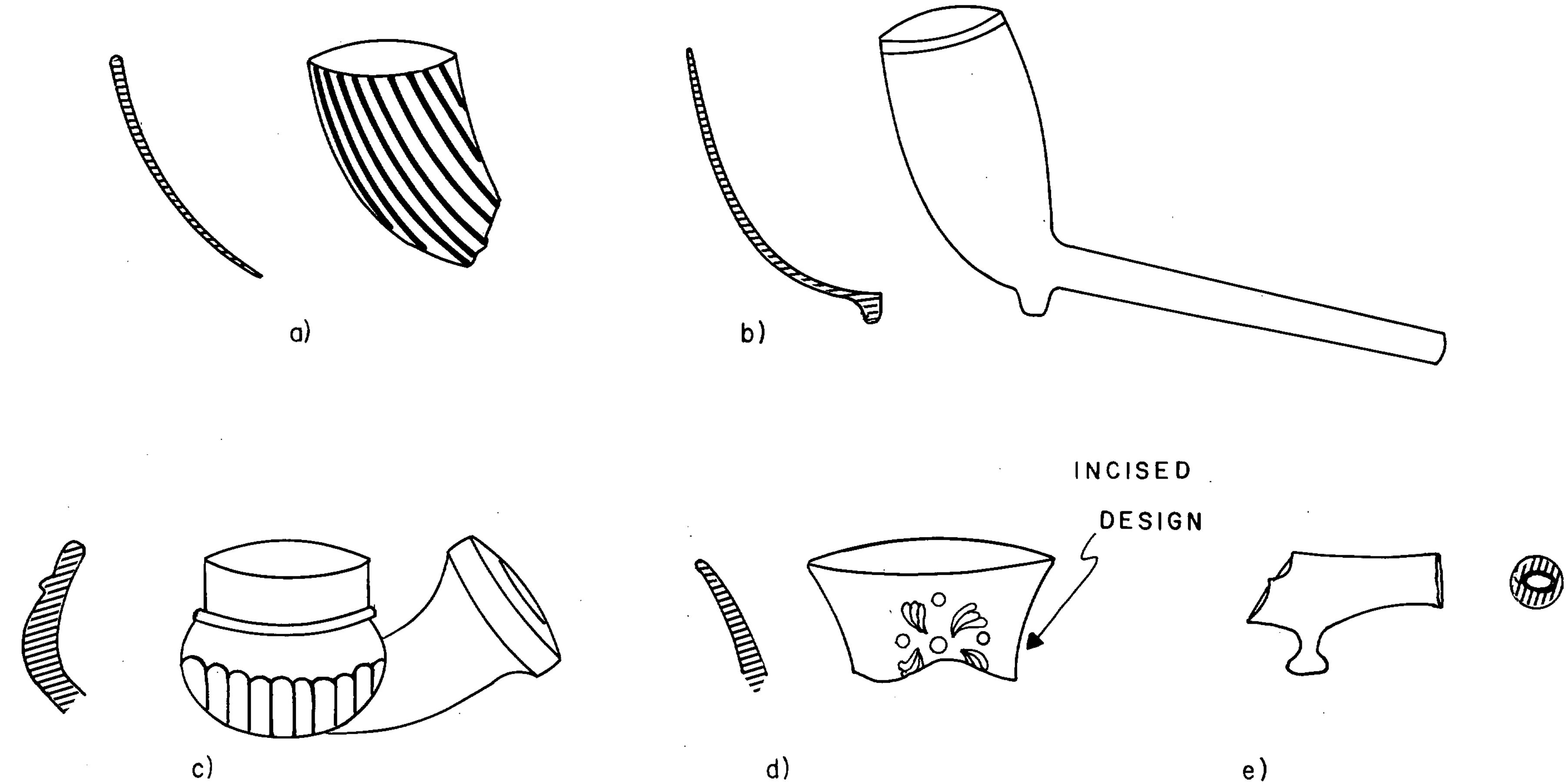
Artifact #2006 is a partial pipe bowl made of a lightweight, non-porous red ceramic (figure 2.72d). The bowl appears to have had a tulip shape and the rim flares slightly. It has an unglazed, highly burnished surface decorated with an incised floral design.

Artifact #2007 is an unusually shaped short, stubby pipe bowl made to be used with a detachable reed stem (figure 2.72c). It is made of a highly fired, non-porous, buff earthenware, and glazed with a flat, black metallic glaze. Decoration consists of a molded relief fluted geometric design.

Bowls of this material and decorative type are unknown to this investigator. An unconfirmed possibility exists that they represent a Turkish or Russian origin.

CHILDREN

Artifacts in this class indicate the presence of children, and are largely toys. They are all found in the levels outside the feature. The class includes cast iron side plate from a cap gun (figure 2.73d). A molded-relief "K" on the side identifies it as a manufacture of the Kilgore Toy Company of Westerville, Ohio. Numerous identified examples from this company date ca. 1905-1945 (Best 1973).

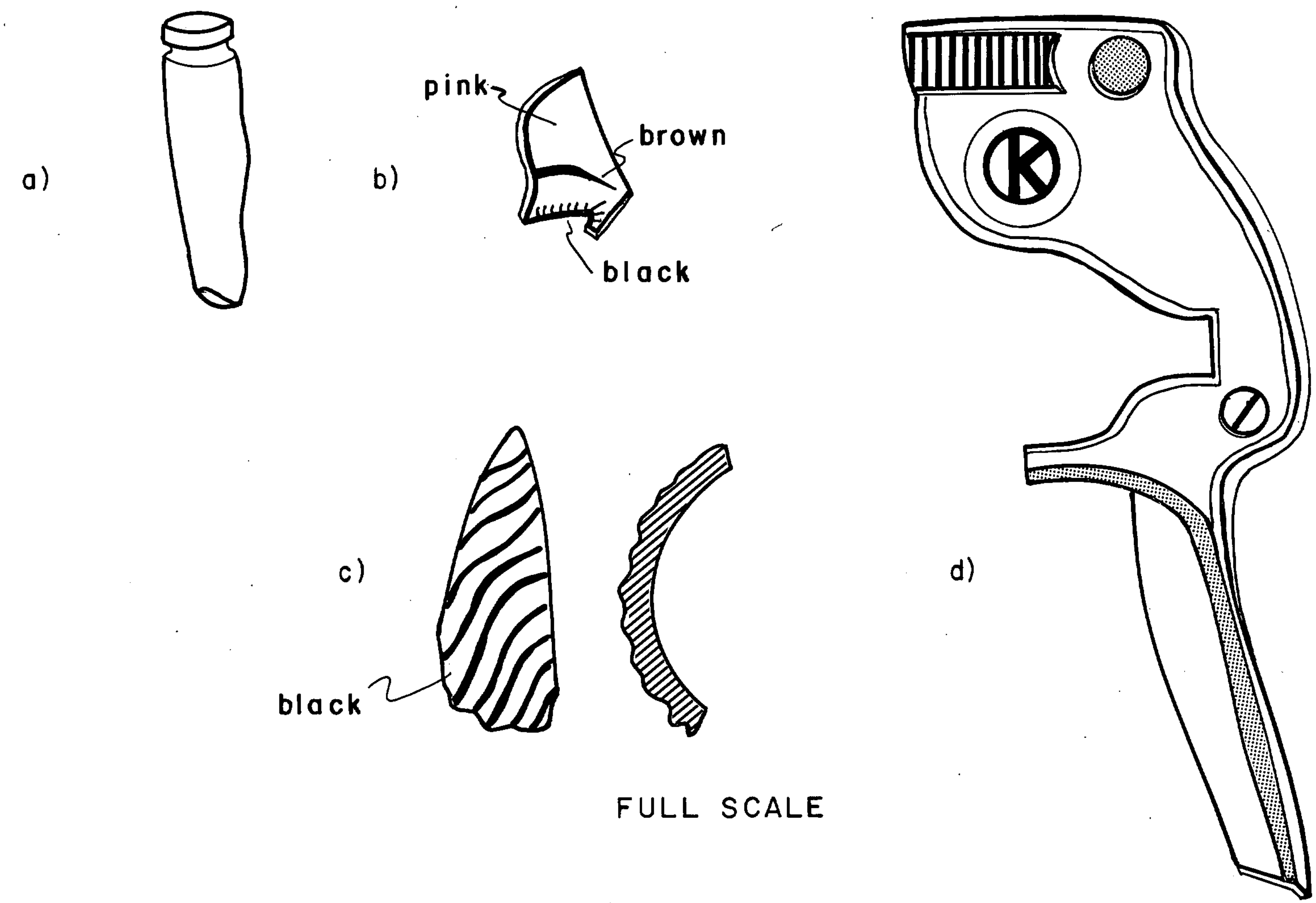


a-b) ball clay c) porous buff ceramic - black metallic glaze d) burnished red clay

e) porcelain

FULL SCALE

Figure 2.72: Smoking pipes.



a) glazed porcelain doll arm b-c) hand-painted porcelain bisque doll parts
d) cast iron cap gun side plate, Kilgore Toy Co., Westerville, Ohio, ca. 1905-1940

Figure 2.73: Toys.

The presence of children after construction of the Old School in 1896 is well documented in Blee (1985).

COMMUNICATION CLASS

This class consists of artifacts associated with the communication of the spoken or written word. Seventeen pieces of cast white metal printing type, three newspaper fragments, and one dictionary page fragment constitute the sole members of this class. A local newspaper, the Sitka Tribune rented office space on the lower floor of the Russian Bishop's House from 1922-23, and was likely the source of the typeface found. All artifacts in this class were from the levels above Feature 12.

One stoneware ink bottle base and several slate pencils and writing board fragments are included in the Communication class. The latter may represent educational activities from the Sitka Industrial School or the Russian Orphanage.

TRANSPORTATION CLASS

One ferrous oar lock (figure 2.74) and one baby carriage wheel constitute the sole members of this class.

HUNTING AND WARFARE

The Arms Class consists of non-military weapons and their parts. Projectiles, cartridges, and accessories like bullet molds or gunflints are also included.

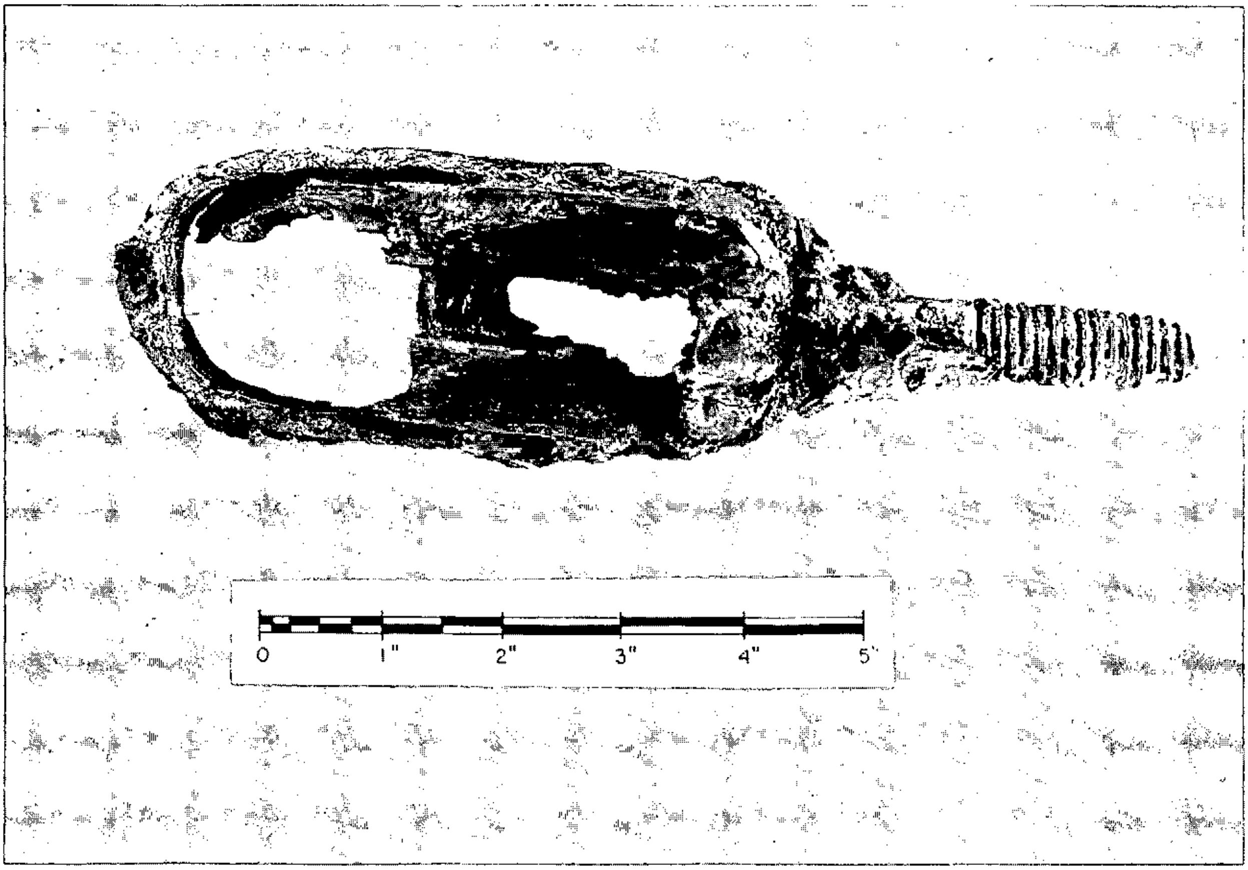


Figure 2.74: Oar lock.

Feature 12

Eleven gunflints and flint fragments were recovered from Feature 12. These include two fairly complete blades, seven blade fragments, and two flakes. Assorted sizes and colors are represented. Two black flints, two translucent amber brown (2.5Y 5/4) or "honey" colored flints with brown (10 YR 4/6) inclusions, and four translucent light greyish-brown (2.5Y 5/2) flints with milky white inclusions were identified. The remaining three flints have been burned, so it is not possible to establish color.

Color is one variable that has traditionally been used to establish origin of flints. According to traditional wisdom, black flints are generally British and "honey" colored flints are French. Witthoft (1966:39) describes possible Russian flints in the following manner:

> . . .They are thick, massive flints designed for the military musket, made from coarse blades, their backs and sides chipped to a semi-circular outline after the French manner. They are thicker than any French musket flint . . . It is a porous, mat-surfaced, non-glossy chalk flint, light grey to grey-black in color, with many tiny spherical whitish blotches and dots. . .

The latter description may correspond to the light greyish-brown flints recovered, although it is difficult to tell without color photographs, which Witthoft does not provide.

If this classification is correct, the flints at Sitka could represent a variety of origins, including British, French, and Russian. This is not surprising, considering the fact that the Russian-American Company received supplies by a number of means, including trade with British and American traders, and direct import from Europe. Care must be taken not to place too great a reliance on color as an indicator of origin, however, as the issue is very complex. Smith (1961:420) notes that French quarries produced black and brown flints as well as the better known blonde or "honey" color. White (1975:52) notes that in the Pacific Northwest the so-called "French" flints are often an indication of an

American presence, since they were frequently used by the American Military and local traders and trappers during this period.

At least four of the flints recovered show possible evidence of use as strike-a-lights. Artifact #0789 (figure 2.75a) is a thick, coarse, amber brown blade with a piece of cortex remaining on the heel. Two translated eighteenth century accounts of French flint production indicate that such clumsy flints were often sold as strike-a-lights, since they would not fit well in the gun cock (Smith 1960:60). The remaining flints suspected of use as strike-a-lights all have areas of concave wear, which traditionally has been taken as evidence of use with a fire steel (Witthoft 1966:29; Stone 1974). Recent evidence from living history experiments suggest this may not always hold true, however. Some forms of concave wear may also result from resharpening blades after they have become dull from use. The exact form of spent gunflints and the type of edge wear exhibited has not been studied in sufficient detail to distinguish them from flints used with fire steels in many cases. For example, one common form of resharpening involved "lowering the cock manually so that the flint rested against the frizzen, and then delivering a blow to the cock with the palm of the hand" (Trubowitz 1984:5). The resulting pressure caused a U-shaped indentation on the heel of the flint (figure 2.74e), commonly mistaken for strike-a-light use. Trubowitz (1984:13) contends that other wear patterns traditionally ascribed.to strike-a-light wear may likewise be misinterpretations, and that only further experimentation in edge wear analysis will serve to distinguish spent gunflints from flints used with fire steels.

a-b) translucent "honey" (2.5 Y 4/4) colored flint with brown (10 YR 4/6) and white inclusions   c-d) black flint   e-h) translucent light greyish brown (2.5 Y 5/2) flint with milky white inclusions

i-k) burned flints

0   1   2 in.

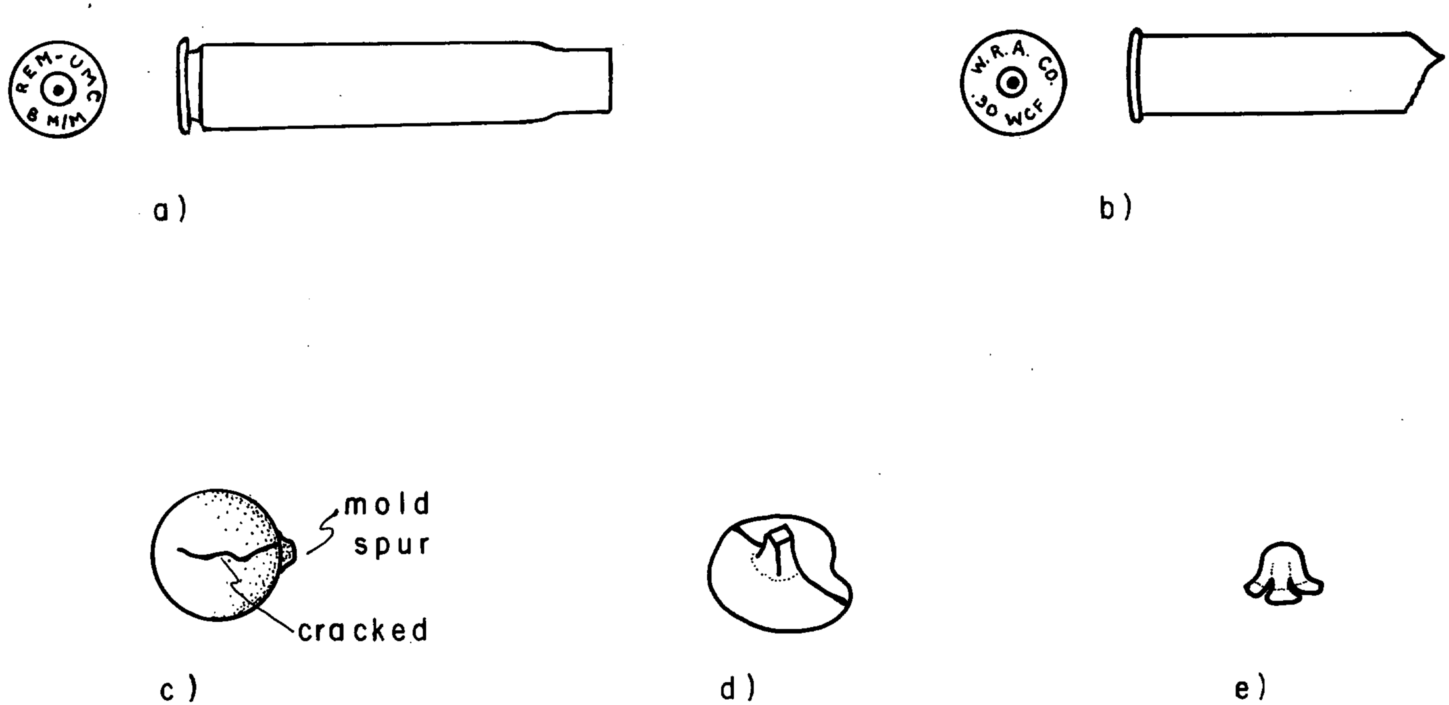
Figure 2.75: Broken gunflints and strike-a-lights.

Figure 2.76. HUNTING/WARFARE CLASS

	Feature 12	Outside Feature 12
Projectile Type		
Grape shot	1	
Cartridge Case Type		
8 mm REM-UMC		1
.30 -.30 W.C.F.		1
Arms Accessories		
Gunflints	11	
Sprue Lead	1	1

Other items in the Hunting/Warfare Class are summarized in Figure 2.76, above. Of note among this group are two spent cartridge cases, both found above the feature. The first is an 8mm centerfire bottleneck cartridge with a Remington-UMC headstamp (figure 2.77a). Remington and the Union-Metallic Cartridge Company merged in either 1910 (Fontana and Greenleaf 1962:80), or 1902 (Logan 1948:10); there is some confusion on the date in the literature. Either way, this artifact post-dates the turn of the century. The 8mm cartridge, used primarily for large game, was first produced in 1888, and is still being made today (Barnes 1980:62).

The second example is a rimmed, bottleneck cartridge with a headstamp which reads "W.R.A. CO./.30 W.C.F." (figure 2.77b) This headstamp identified the cartridge as a .30 - .30 Winchester center fire manufactured by the Winchester Repeating Arms Company (Logan 1948:191; Barnes 1980:48). This cartridge was designed in 1895 and was the first American smokeless powder center fire cartridge ever marketed (Barnes 1980:48). The .30 calibre Winchester is still sold, although the "W.R.A." headstamp is no longer used. The exact date when this change occured is unknown, although a logical guess would be 1932, when the Winchester Repeating Arms Compay was purchased by the Western Cartridge Company (Logan 1948:201). Hunters use .30 calibre cartridges primarily for deer and other small game.



FULL SCALE

a) semi-rimmed bottleneck 8 mm centerfire cartridge b) rimmed bottleneck .30 centerfire cartridge
c) grape shot d) sprue lead e) 4-wing brass percussion cap

Figure 2.77: Arms.

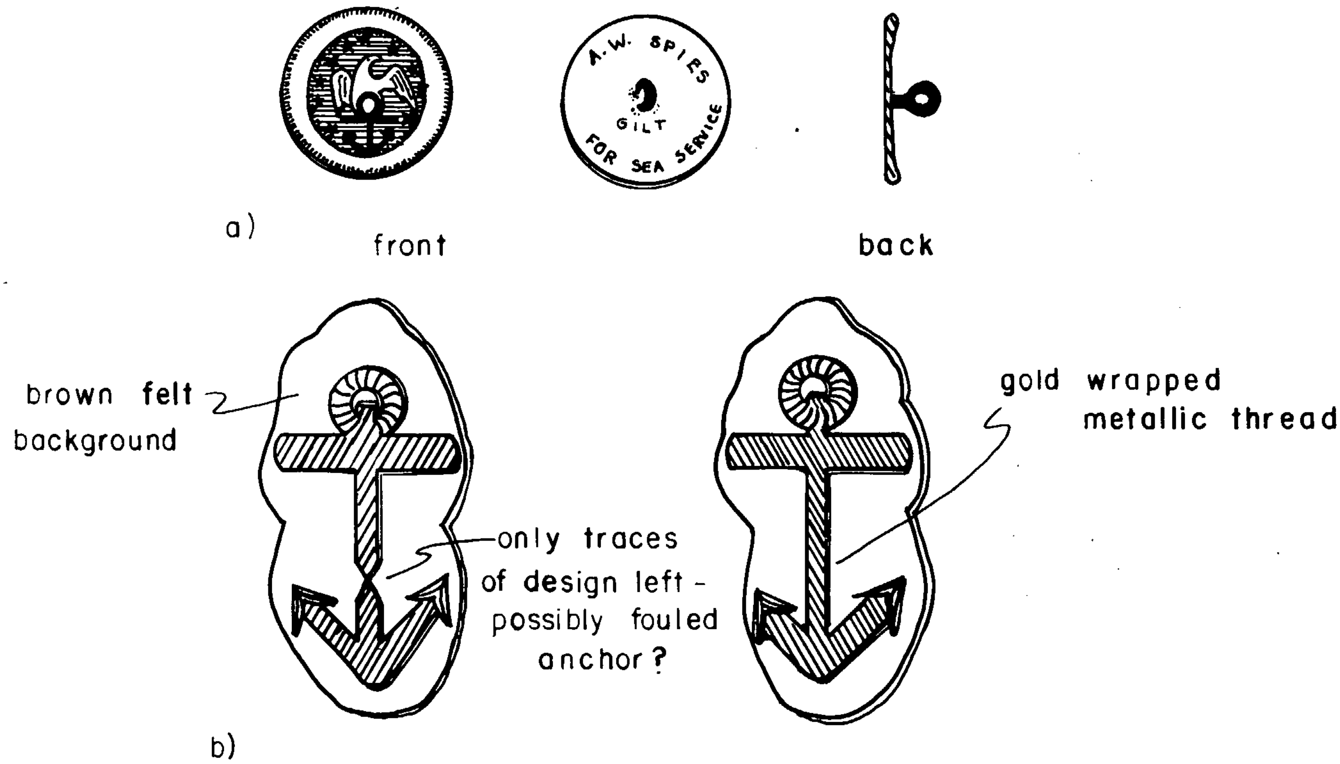
Military arms and uniforms are included in the Hunting/Warfare class. One cannonball, one naval button, and one naval insignia were recovered.

The cannonball is a three pound size and is 2.8 inches in diameter. It has a shallow circular depression on top, approximately 1 inch in diameter and 1/16 inch deep, likely formed during the molding process. Faint impressions from the mold seam are visible around the circumference. It should be noted that cannonballs were frequently used as net sinkers by Sitka fishermen. An undated advertisement, presumably from the 19th century promotes a "6-Pounder Cannon Ball, covered with leather for massaging the stomach to relieve constipation; recommended by New York physicians. Price, 75 cents each. 3-Pounder Cannon Ball, leather covered, 70 cents" (Bannerman 1980:162). The source, a museum of military goods, began collecting such items in 1867. The possible medical use for the ball should not be ignored.

One gilt cuprous naval button was found in the levels above Feature 12 (figure 2.78a). It is a one piece button with a soldered loop shank. A hallmark on the back reads "A.W. SPIES/GILT/FOR SEA SERVICE". A.W. Spies made military buttons between 1825-35 (Albert 1976:465).

One naval insignia was found in Feature 12 (figure 2.78b). It is of brown wool felt with a fouled anchor design outlined in metallic gold thread.

Country of origin and date of use could not be established. Correspondence with James Cheevers at Annapolis (personal communication, January 1985) indicates that United States naval insignia of the mid nineteenth century are made of the same materials and in the same manner as the recovered example. Unfortunately, no specimens in the museum's collection compare exactly in style and size. The use of anchor devices as insignia is quite common among all maritime services of the world, and has not been studied comprehensively, making positive identification difficult.



a) one piece gilt naval button b) embroidered naval insignia

FULL SCALE

Figure 2.78: Military items.

Figure 2.79: Activities Other Than Medical and Bulk Storage

	Feature 12	Outside Feature 12
Communication		
Printing type	-	17
Dictionary page	-	1
Newspaper fragments	-	3
Ink bottle	1	-
Writing slate fragments	10	4
Slate pencil fragments	4	2
Transportation		
Oar lock	1	-
Baby carriage wheel	-	1
Hunting and Warfare		
Cannonball	1	-
Naval button	-	1
Naval insignia	1	-
Grape shot	1	-
8 mm REM-UMC cartridge	-	1
.30-.30 W.C.F. cartridge case	-	1
Gunflints	11	-
Lead sprew	1	1
Holiday		
Glass Christmas ball ornament	-	1
Smoking		
Ball clay pipe bowls	1	1
Ball clay pipe bowl with stem	1	-
Ball clay pipe stem fragments	-	3
Porcelain pipe stem fragment	1	-
Red ceramic bowl	1	-
Black glazed earthenware pipe bowl	1	-
Cigarette butts	-	3
Children		
Model airplane parts	-	7
Plastic soldier	-	1
Glass marble fragment	-	1
Hand-painted porcelain doll parts	3	-
Ferrous side plate from toy gun	-	1
Black plastic phonograph record	-	1
Housekeeping		
Clothespin spring	-	1

HOLIDAY CLASS

Eleven fragments from a clear glass Christmas ball were found in Level 1. They are of very thin, clear glass with a slight amount of gilding. The base of the ball that articulates with the hanger hooks is intact.

STORAGE CLASS

The storage class consists of all those items used in bulk storage or packaging. It differs from the food storage or beverage storage classes in that the containers are generally larger and are used to store items for a longer period of time, and the contents are largely indeterminable from the type of container alone. A barrel, for example, could contain such diverse products as flour, liquor, or nails. Crocks, barrels, and sacks are examples of the types of artifacts in this class. Unless positively identified otherwise, coarse redwares and stonewares are also included.

A minimum of 31 storage containers were identified. Twenty-eight of these were from Feature 12. These include redware crocks, one to two gallon capacity carboys, a wide mouth case bottle, and barrel hoops.

A minimum of eighteen narrow-mouth redware storage jars were recovered from the units excavated. With the exception of one base found in the upper level fill, all are from Feature 12. These are high-fire, brown-glazed vessels with rounded shoulders and simple rolled lip finishes (figure 2.80). All are wheel-thrown and slightly irregular in shape and size. None bear any identifying marks.

The contents of these jars cannot be determined with any certainty. Wide-mouth ceramic jars of similar size and shape found on Canadian historic sites have tentatively been identified as preserve jars (J.A. Hamilton, personal communication, 1983). While this identification cannot be ruled out entirely, it seems an unlikely use for the narrow-mouth vessels recovered from Feature 12. More likely contents include viscous

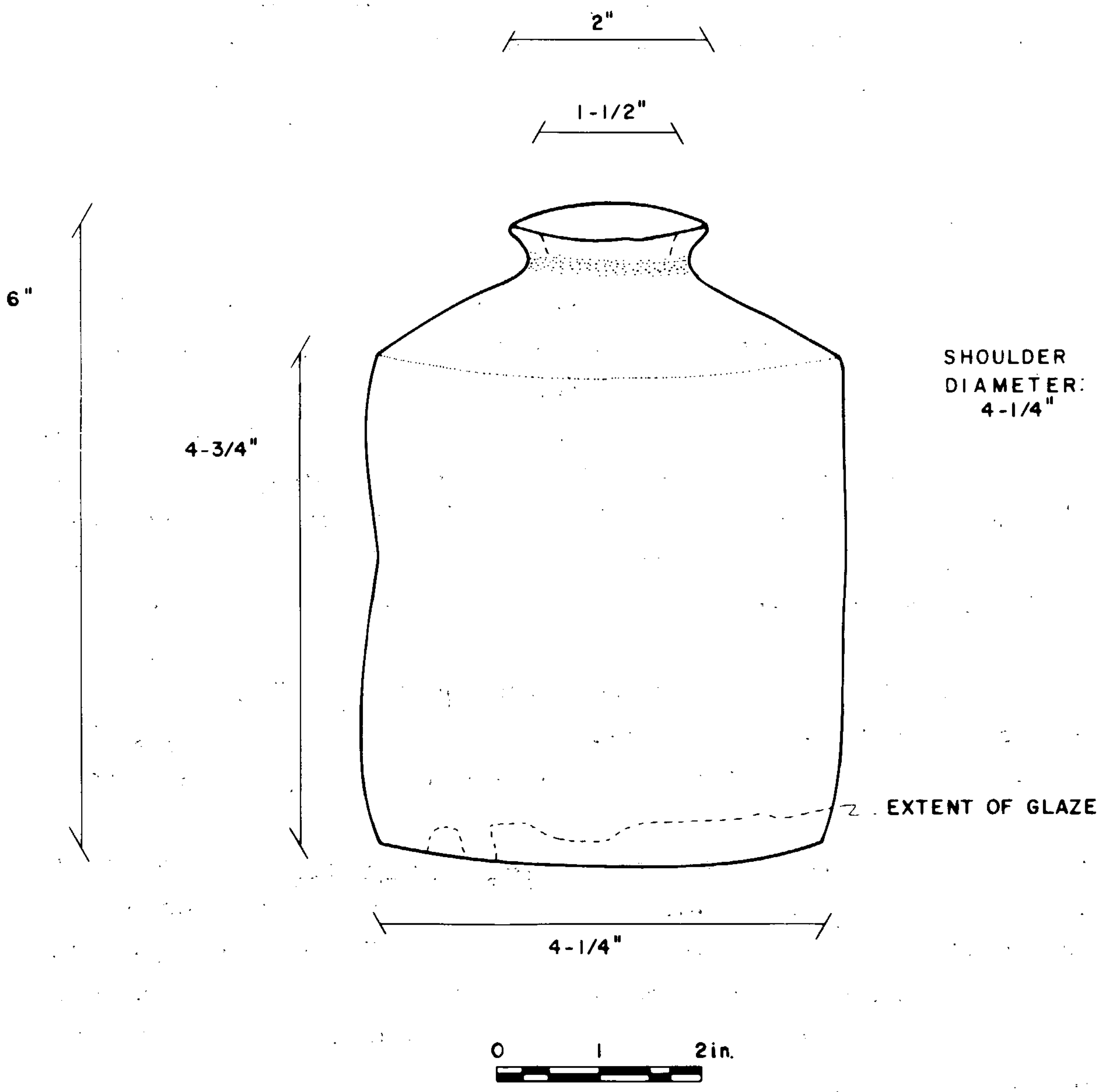


Figure 2.80: Redware storage jar.

liquids like honey or molasses, or dry powders. Glass jars of similar size and shape are also known to have been used for bulk storage of pharmaceuticals (Crellin and Scott 1972:25).

Two wide-mouth redware crocks were also identified (figure 2.81). These are wheel-thrown vessels of a coarse, porous material, glazed on both inside and outside with a yellow-green alkaline glaze. One example has an impressed capacity mark on the shoulder (figure 2.81a).

A base fragment from a coarse Chinese export porcelain crock was also recovered. Judging by the curvature, the base diameter is approximately 6 inches. Decoration consists of hand-painted underglaze blue stripes.

One wide mouth, green case bottle was recovered from unit N8W1 at a depth of 110-140 cm. below surface level. The lower portion of the body is square in cross-section while the upper body above the shoulders is round (figure 2.82). Horizontal striations on the neck and shoulder indicate that at least the upper portion of the body was hand-blown. The lip is fairly symmetrical and even, and appears to have been tooled. The lower body is straight sided and very symmetrical, suggesting the use of a forming mold. Most nineteenth century case bottles were formed in dip molds (Munsey 1971:85) and this most likely was the manufacturing technology used, since the neck and shoulders would still had to have been hand-finished as is evident on this bottle. There are no pontil marks on the base, indicating a snap case was used to hold the bottle during the finishing process. The use of the snap-case dictates a post 1830 date (Toulouse 1968:204; Munsey 1971:48).

Wide mouth case bottles were sometimes used by apothecary shops to hold medicinal powders such as jalap (a purgative), snuff or opium (Munsey 1971:85; Shafer 1970:43). It has also been suggested that these may have held rolled bandages in a sterile, alcohol solution for hospital use.

The bases of at least five glass carboys were recovered (figure 2.83). Three were found within Feature 12 and two were from the levels above.

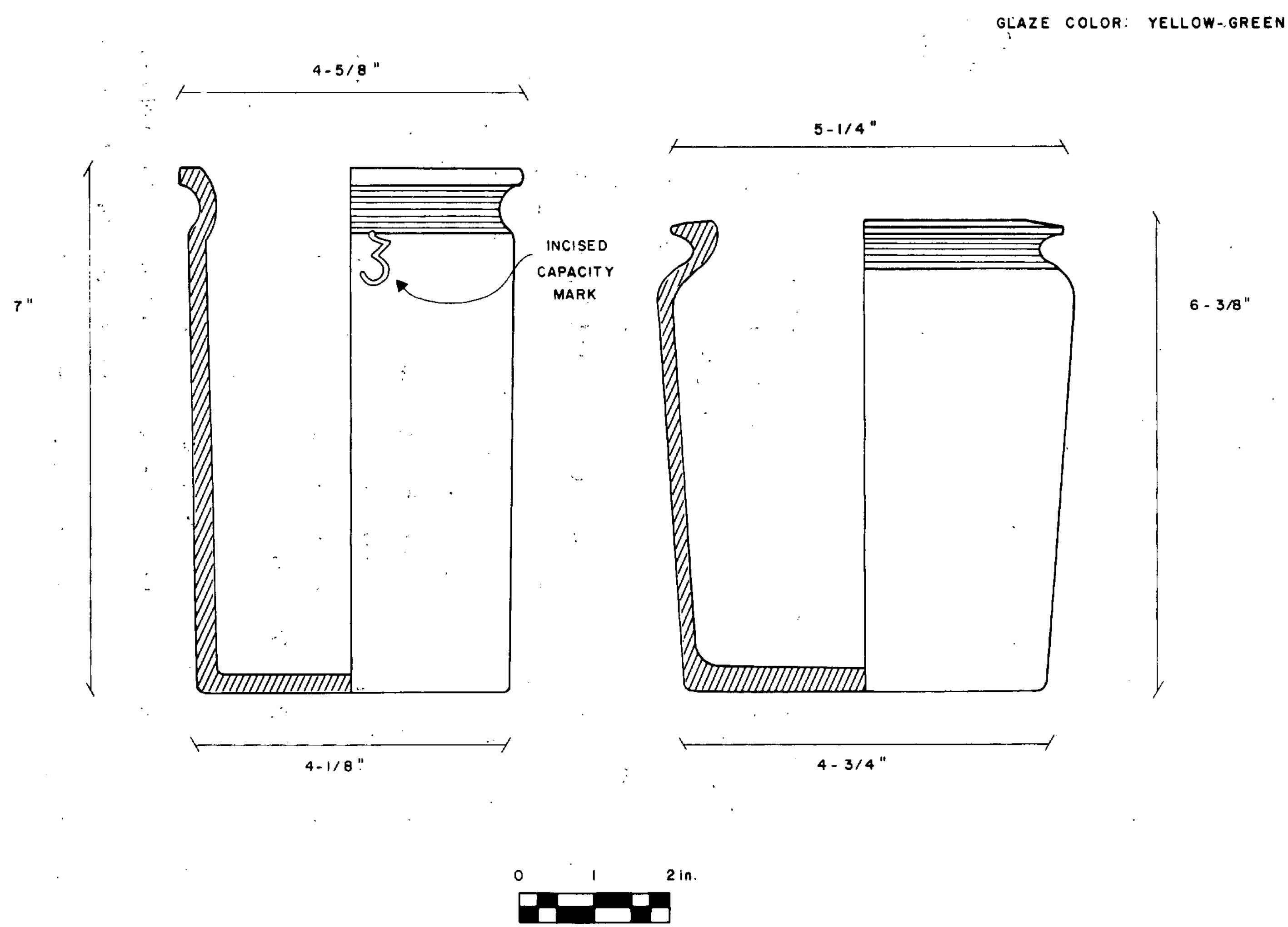


Figure 2.81: Coarse redware crocks.

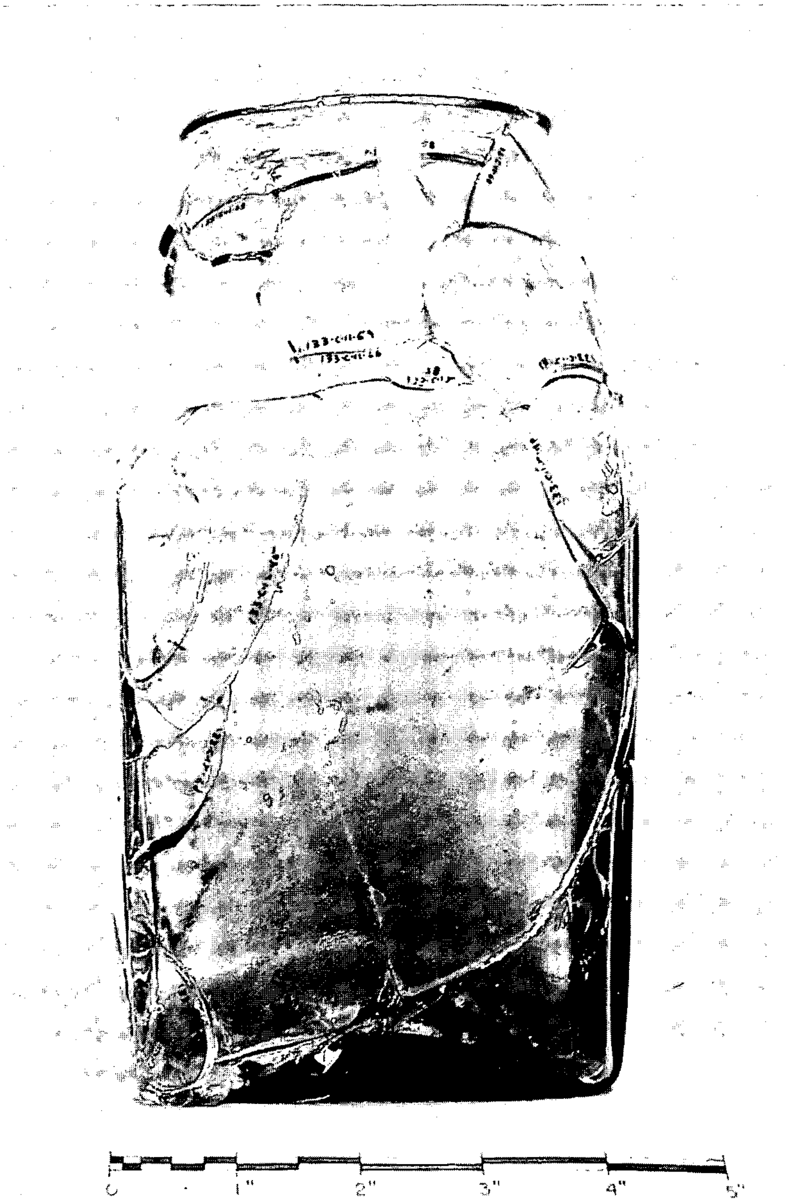


Figure 2.82: Green glass case bottle.

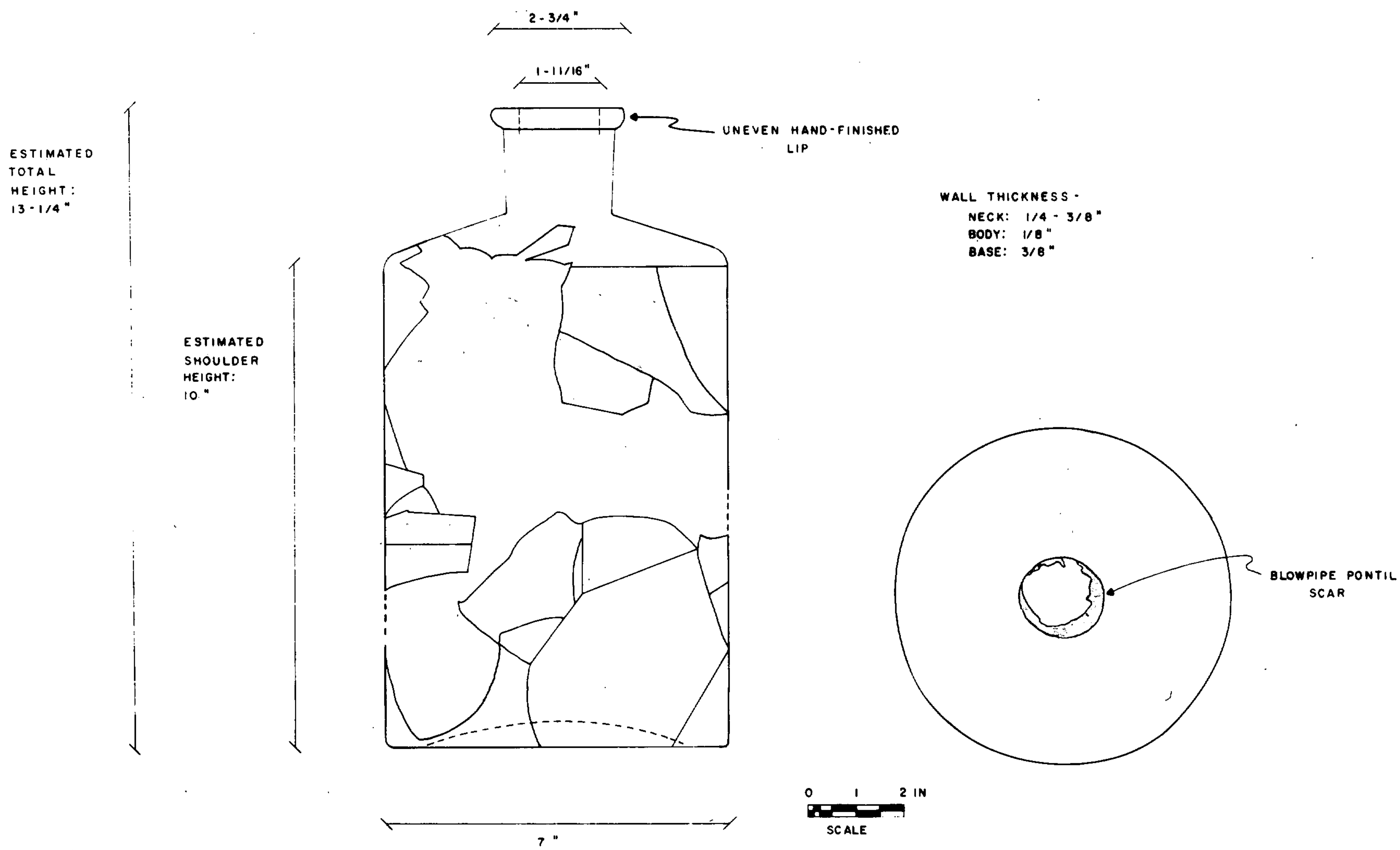


Figure 2.83: Green glass carboy, 1½ gallon volumn.

Carboys are extremely large, thick glass bottles whose capacity ranges from one to ten gallons. They were commonly used to hold acid or other corrosive liquids, and for safety reasons, were often encased in wooden boxes or wicker baskets to reduce the possibility of breakage (Maust 1965:140). An undated Illinois Glass Company catalog states that in addition to laboratory uses, these bottles were also extensively used for water, oils, extracts and fruit juices (Illinois Glass Co. n.d.:173).

The carboys recovered have a base diameter which ranges from seven to eight inches, and probably were from 1½ to 2 gallons in capacity. Four have blow-pipe pontil scars and the fifth has a ground pontil. All are different shades of green. The upper body portion of three carboys were also recovered. They have slightly rounded shoulders with a short (1-3/4 inches) neck and hand-finished lip. There are no mold seams evident anywhere on the body, and the bottles were apparently mold-blown. It is difficult to assign a date on the basis of technology, since free-blown bottles were manufactured throughout the entire nineteenth century.

One cuprous pry-off <u>lid</u> was found in level 7. It has a diameter of 4½ inches.

Two complete <u>barrel stays</u> and several barrel stay fragments were also recovered. The former have diameters of 24 and 31 inches.

Miscellaneous items in the storage class include seven non-diagnostic redware sherds, and five coarse grey-bodied stoneware sherds. Breakdown by material and decorative technique is illustrated in figure 2.84).

FIGURE 2.84:
DISTRIBUTION OF BULK STORAGE ARTIFACTS IN FEATURE 12

Vessel	Sherds	Min Vessel
Redware Jars	351	17
Redware crocks	83	2
Chinese export crocks	8	1
Wide mouth case bottle (green glass)	35	1
Carboys (green glass)	184	3
Cuprous pry-off lid	1	1
Barrel stay fragments (12,044.2 grams)	1,338	-
Barrel hoops		
24" diameter	1	1
31" diameter	2	2

DISTRIBUTION OF STORAGE ARTIFACTS IN LEVELS ABOVE FEATURE 12

Vessel	Sherds	Min Vessel
Redware jars	2	1
Carboys (green glass)	6	2

DISTRIBUTION OF NON-DIAGNOSTIC SHERDS IN STORAGE CLASS BY MATERIAL AND DECORATIVE TECHNIQUE

Material/Decorative Technique	Sherds
Redware	
Unglazed	2
White glaze	1
Black glaze exterior/white glaze interior	4
*Brown glaze	267
Stoneware	
Misc. salt-glazed	5
Glass	
**Green carboy glass	906

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* These are unmended sherds belonging to redware storage jars.
** These are unmended sherds of previously mentioned carboys.

MEDICAL CLASS

The medical class includes all items that are directly associated with the practice of medicine by trained physicians and medical personnel. A minimum of 69 vessels from Feature 12 are represented in this class. Identifiable forms include apothecary bottles, patent medicines, measuring glasses, stoneware mineral water bottles, blood-letting cups, mortar and pestles, syringes, evaporating dishes, funnels, and assorted glass tubes.

Feature 12

A minimum of nineteen apothecary bottles or "shop rounds" were recovered. These are plain, cylindrical bottles with sharply defined shoulders, short necks and prescription or patent lips. They were commonly used in apothecary shops for display purposes and to store the various ingredients used in prescriptions. Paper or glass labels were used to indicate contents, and closures were either cork or ground glass stoppers. Narrow mouth bottles are referred to in druggist's catalogues as tincture bottles and were used for liquids. Wide mouth bottles were known as saltmouths and were used for dry ingredients (Richardson 1979:32). The first reference to shop rounds in a wholesaler's catalogue was in 1790, and by at least the 1830's they were in common use (Crellin and Scott 1972:10-11).

A minimum of thirteen narrow mouth tincture bottles were identified (figure 2.85). All are of clarified glass probably to facilitate seeing the contents. These bottles are of three different sizes. The largest of these is 7½ inches tall and has an estimated capacity of 24 ounces. Six bottles of this type were recovered. All have ground necks and are of fairly durable, heavy glass. Seven smaller bottles between 5½ and 6 inches tall were also recovered. These bottles lack the ground necks of the larger examples, and are less durable. Two of these vessels are extremely fragile and have walls no thicker than common lamp chimney glass. The body walls are approximately 1/32 inch thick, and the neck

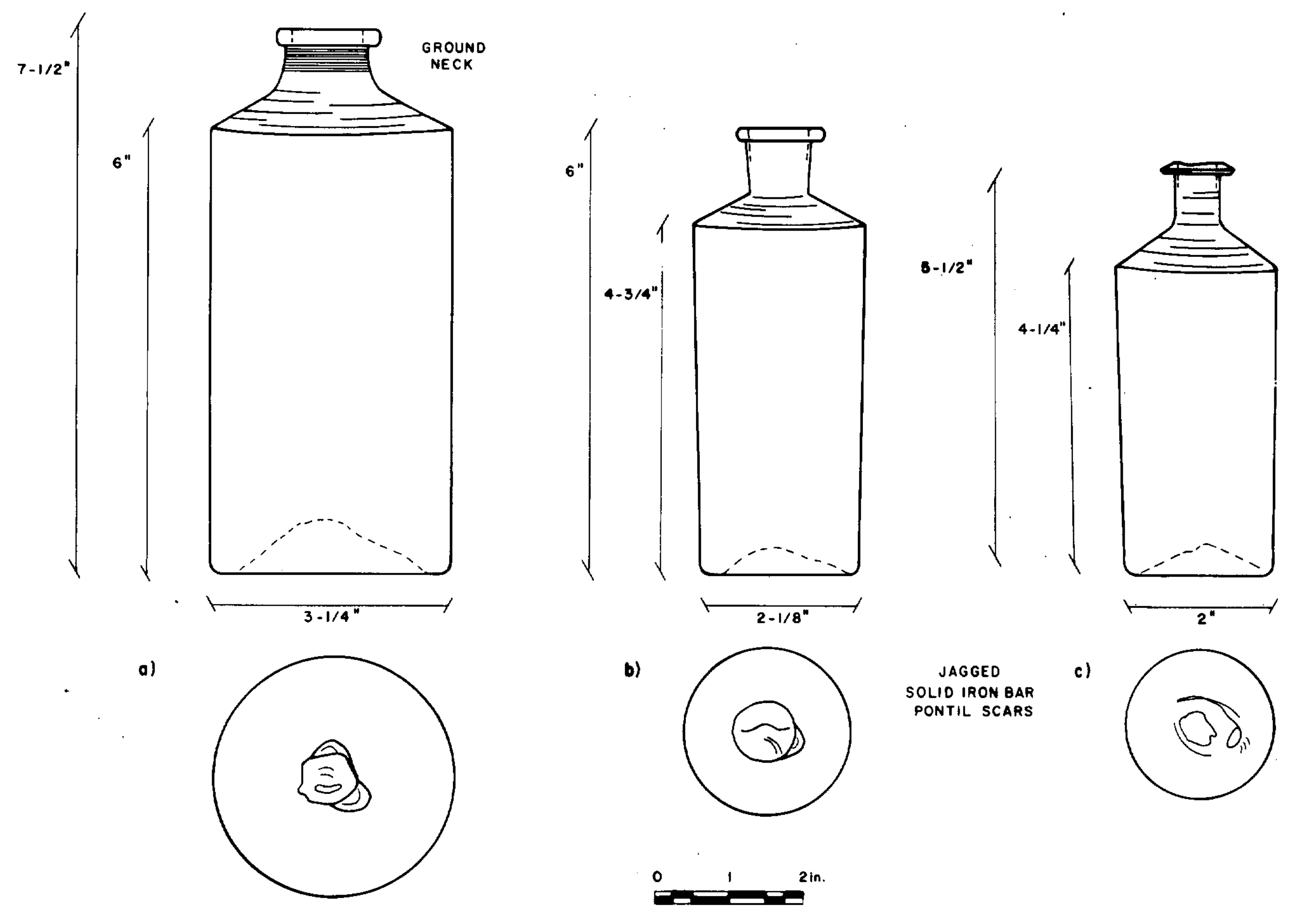


Figure 2.85: Clear glass narrow mouth tincture bottles..

and shoulders are 1/16 inch thick. It is not known if this thinness was intentional or represents an inferior product.

Portions of at least six saltmouth bottles were recovered. The largest of these are 8¼ inches tall with an estimated capacity of 40 ounces (figure 2.86a). They are of clarified glass with ground necks. One complete bottle and three bases of this type were identified. The remaining two examples are light green bottles, approximately 6 to 12 inches tall, with tooled, rolled band collars (figure 2.86b). A cork closure was evidently used since the neck is not ground.

All the shop rounds are very symmetrical and appear to be mold-formed, although lacking mold seams. All have solid iron bar pontil marks, and horizontal striations on the neck and shoulder from the use of the lipping tool. This tool was first used in Europe ca. 1830, and continued to be used as long as mold-blown bottles were produced (Munsey 1971:41; Toulouse 1969a:534).

Figure 2.87b illustrates a bottle identified in the 1898 Whitall-Tatum catalogue as a "fluted prescription" (Whitall-Tatum 1898:16). This bottle was made in a two-piece mold and has an uneven, rolled patent finish. There are no pontil marks on the base, indicating it was held in the snap-case during the finishing process, and therefore post-dates 1830 (Toulouse 1968:204; Munsey 1971:48).

A homeopathic vial, another common nineteenth century vessel used for dispensing medicine, is illustrated in figure 2.87a. This vessel is free-blown and has a tooled prescription finish. Homeopathy was a medical fad of the mid to late nineteenth century. It advocated treating patients with minute doses of substances which, if given in larger proportions, would cause symptoms similar to those caused by the ailment itself (Leake 1975). While there was no legitimate medical basis for its use, patients often fared no worse under this sort of treatment than they did under more accepted cures, which often were quite dangerous.

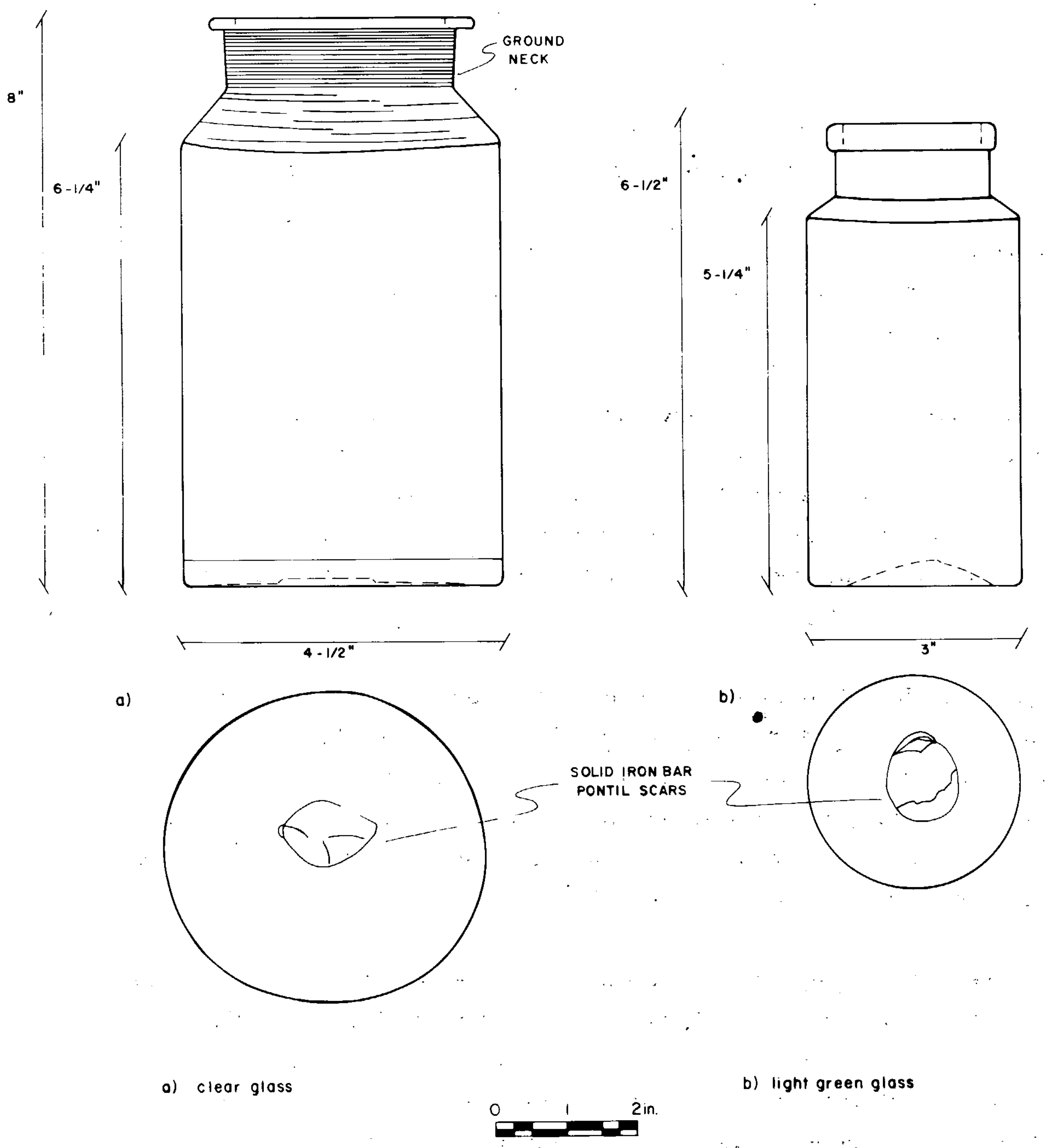
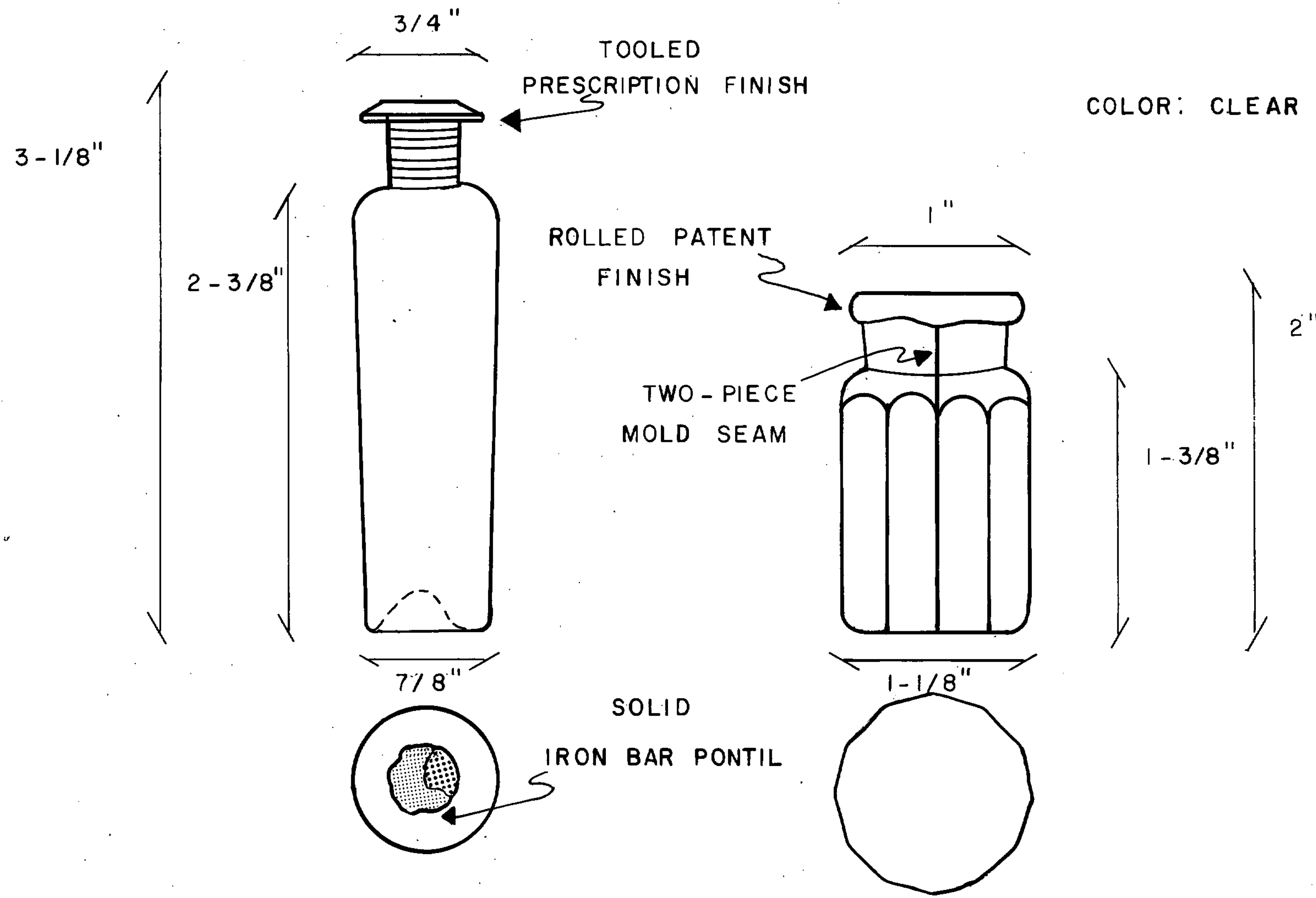


Figure 2.86: Saltmouth bottles.



a) free-blown homeopathic vial b) mold-blown fluted prescription bottle

FULL SCALE

Figure 2.87: Pharmaceutical glass.

In addition to these distinctively shaped bottles, several other vessels are suspected of having been used to store and dispense pharmaceuticals. Figure 2.85b illustrates a clear glass bottle similar to those identified by Wilson (1981:58) as a "medicine bottle", and by Ross (1976:1006) as an "apothecary bottle". The bottle lacks mold seams, but is very symmetrical and likely mold formed. It has a solid iron bar pontil mark and a crude, rolled packer finish.

Portions of two light green free-blown vials of the type illustrated in figure 2.88b were also recovered. These are similar to bottles found at Fort Vancouver identified as "medicine vials" (Ross 1976:1012). The 1898 Whitall-Tatum catalogue identifies similarly shaped bottles as "sample bottles" or "round prescriptions" (Whitall-Tatum 1898:18, 28). Both are extremely fragile vessels with walls no thicker than approximately 1/32 inch. They have a deeply indented pontil scar on the base presumably made by a solid iron bar pontil, and a rolled patent finish.

The base, shoulder, neck and lip portion of at least one "black" glass case bottle were identified in the units examined. The bottle is square in cross-section with chamfered corners. It has a very short neck (1/2 inch) with a crudely applied deep patent lip. The base has a circular depression with four embossed adjoining squares (figure 2.89d). Although case bottles frequently held gin, the shape of this bottle suggests a different function. Typical lip finishes on gin bottles include flared mouths and applied brandy or oil finishes. In contrast, the excavated example has a deep patent lip and an extremely short neck. These traits in combination would make it very difficult to pour the contents of the bottle with any accuracy or fluidity as would be expected of a gin bottle. If, however, the bottle served an apothecary function, its contents could be removed with a pipette or cotton swab eliminating this problem. Putnam (1965:41) identifies similarly shaped bottles with graduated marks as "embalming fluid bottles", and at least one personally owned example from the early twentieth century held ethyl alcohol (Rhodes 1983: personal communication) so a medical use is not inconceivable. Because of this possibility, the bottle has tenatively been included in the medical class.

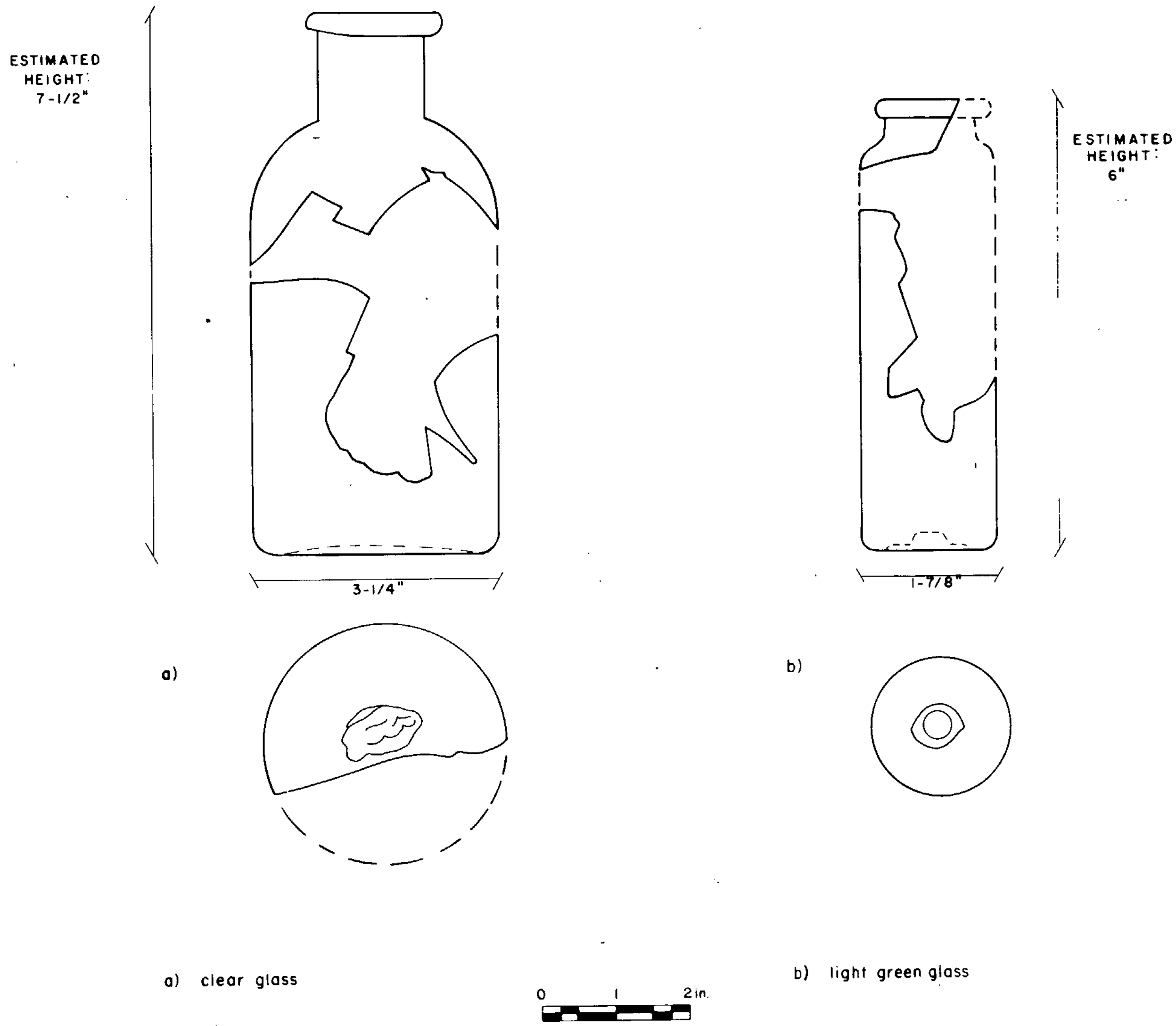
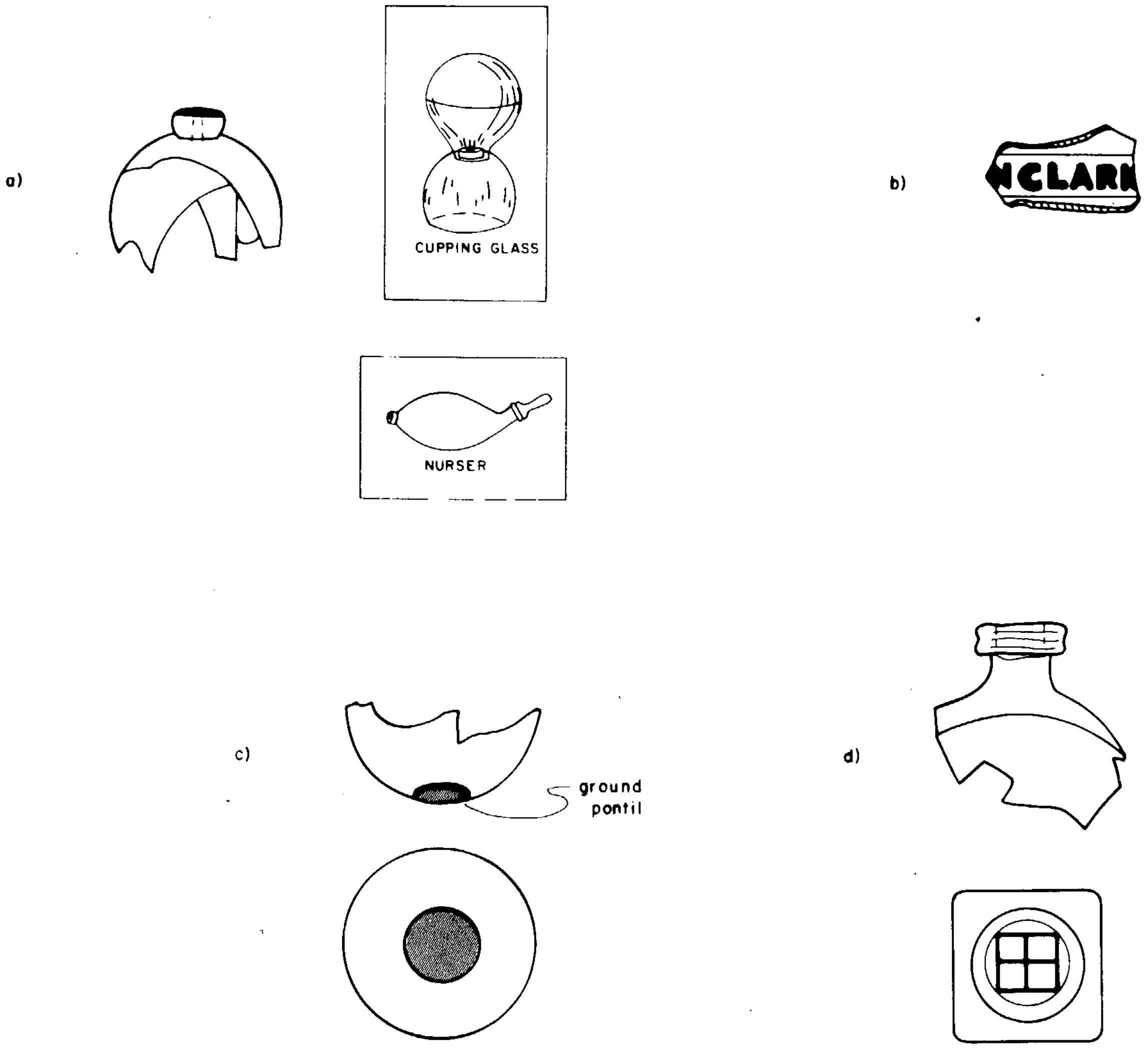


Figure 2.88: Apothecary bottles.



a) clear glass nurser or cupping glass fragment b) embossed aqua patent medicine bottle c) clear glass base? with ground pontil d) "black" glass case bottle shoulder and base

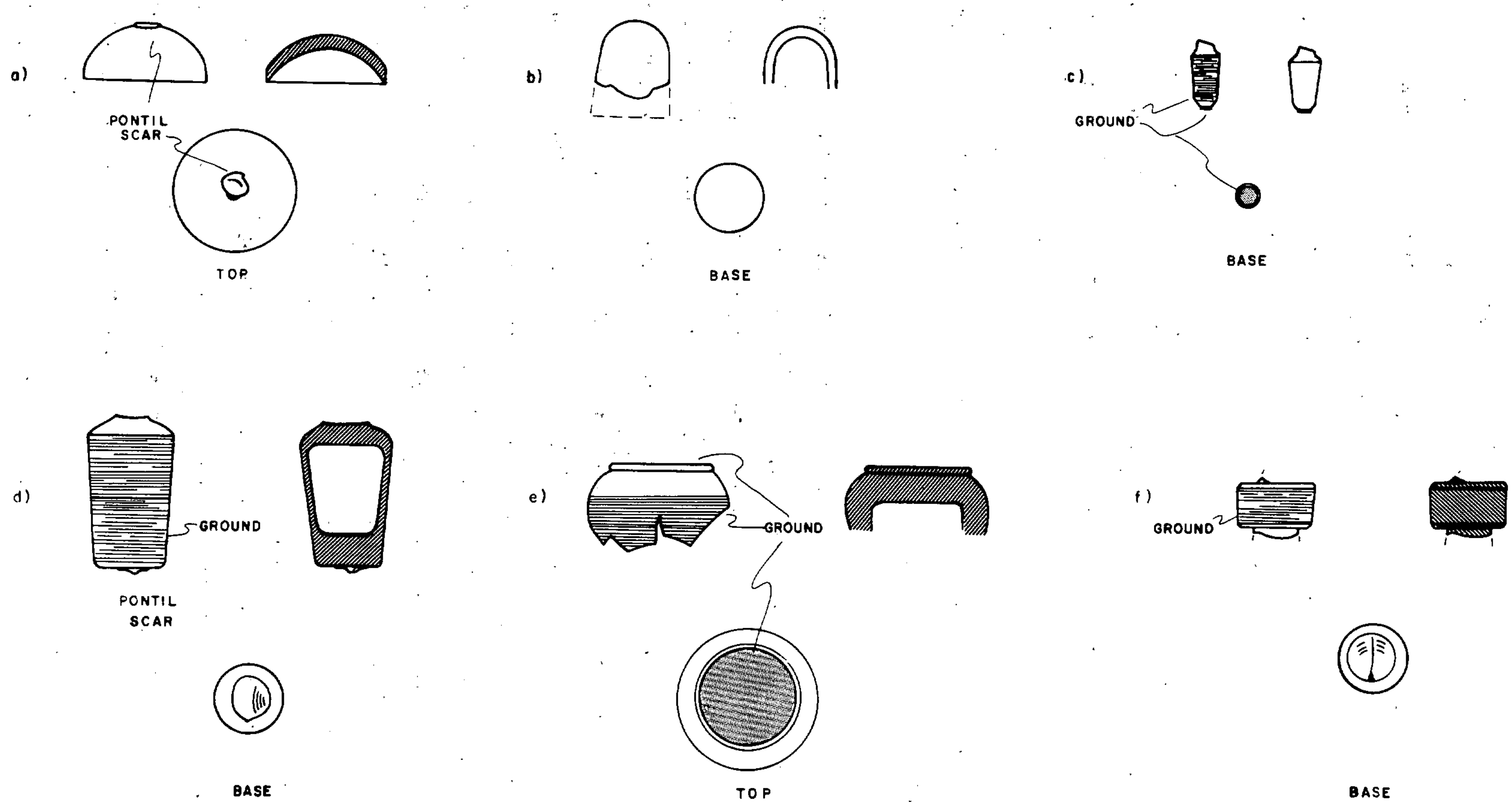
Figure 2.89: Miscellaneous medical artifacts.

Fragments of at least three patent medicine or prescription bottles were also found in Feature 12. These include one light green prescription finish; one plain, unembossed aqua blake style base; and one rectangualr aqua recessed panel with the letters ". . .N CLARK. . ." embossed (figure 2.89b). There were several patent medicines with the name of "CLARK'S" manufactured throughout the nineteenth century, but it was not possible to determine which manufacturer this represents.

Four ground glass stoppers and one stopper cover were also identified (figure 2.90). Stopper covers are round or oblong shaped lids, frequently with ground lips, that are placed over the neck and lip portions of pharmaceutical bottles to keep out dust and other contaminants (Richardson 1979:32). Druggist's catalogues illustrate these covers being used with oil, balsam, ether and chloroform bottles. Spirit lamps often had similar covers, as well.

Several items of laboratory equipment were also identified among the items in this class. These include two globe flasks illustrated in figure 2.91d and 2.92. The first of these is a fragile, free-blown vessel no more than 3 inches tall, with a heavy weighted base. It is the same light green color as the previously mentioned saltmouth, and may represent a common manufcture. Although the small size may seem surprising for laboratory equipment, the Whitall-Tatum catalogue lists globe flasks as small as one ounce (Whitall-Tatum 1898:68). The second flask is a larger, more durable vessel of heavy, clarified glass. It has a ground neck and an unevenly tooled ring finish, and was likely used for storing or mixing chemicals. A ground glass stopper which appears to fit its mouth is illustrated in figure 2.90f.

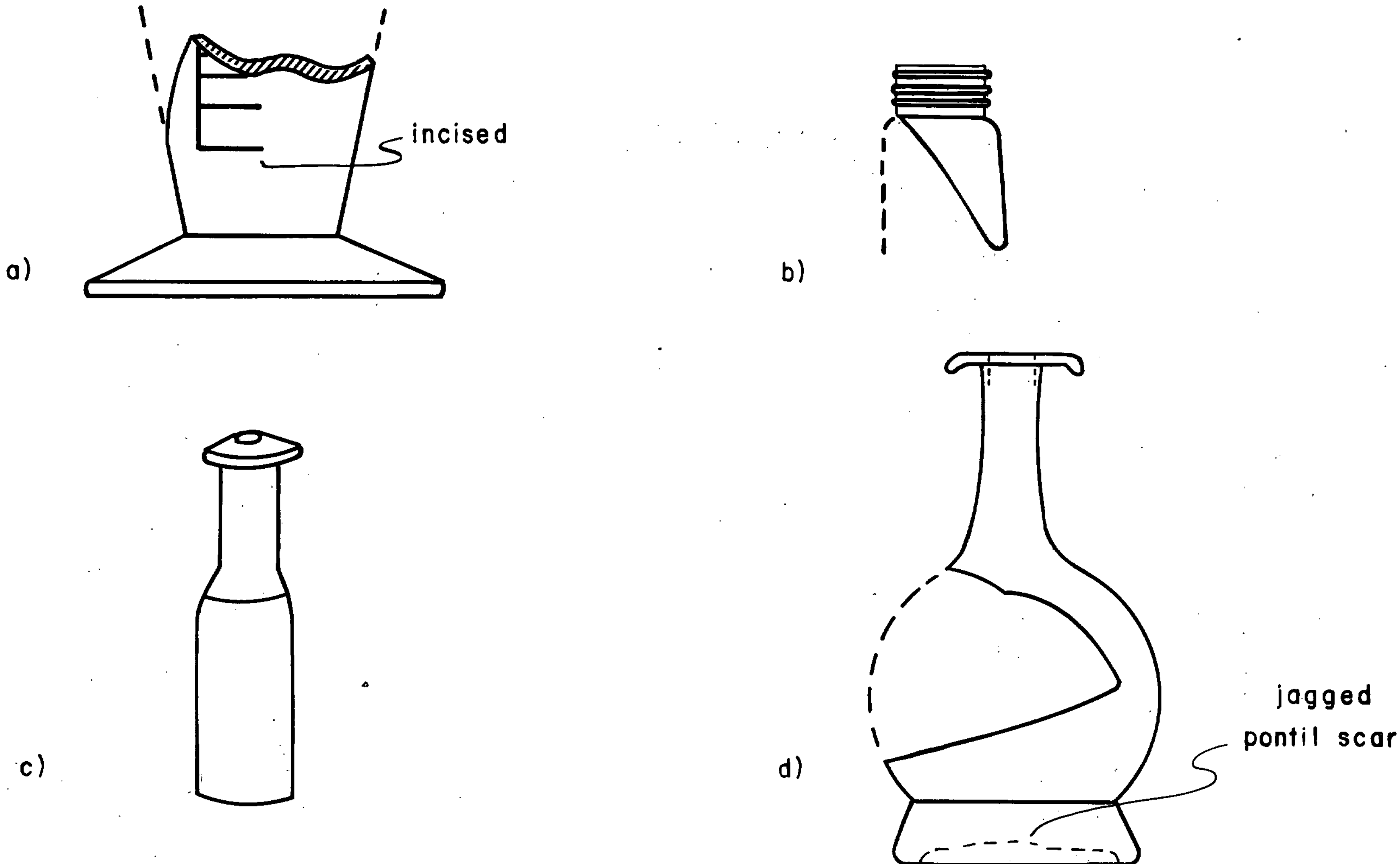
It should be noted that this flask also bears a remarkable similarity to fire grenades produced in the late nineteenth century. After careful consideration, this possibility has been rejected, however. Experts on this subject suggest it is unlikely fire grenades would have a ground neck as on this example. They were generally blown all in one piece or sealed with lead, so the extra expense of a ground neck was unnecessary



a-b) aqua glass stopper covers c) clear ground glass stopper d) green ground glass stopper e-f) clear ground glass stoppers

0 1 2in.

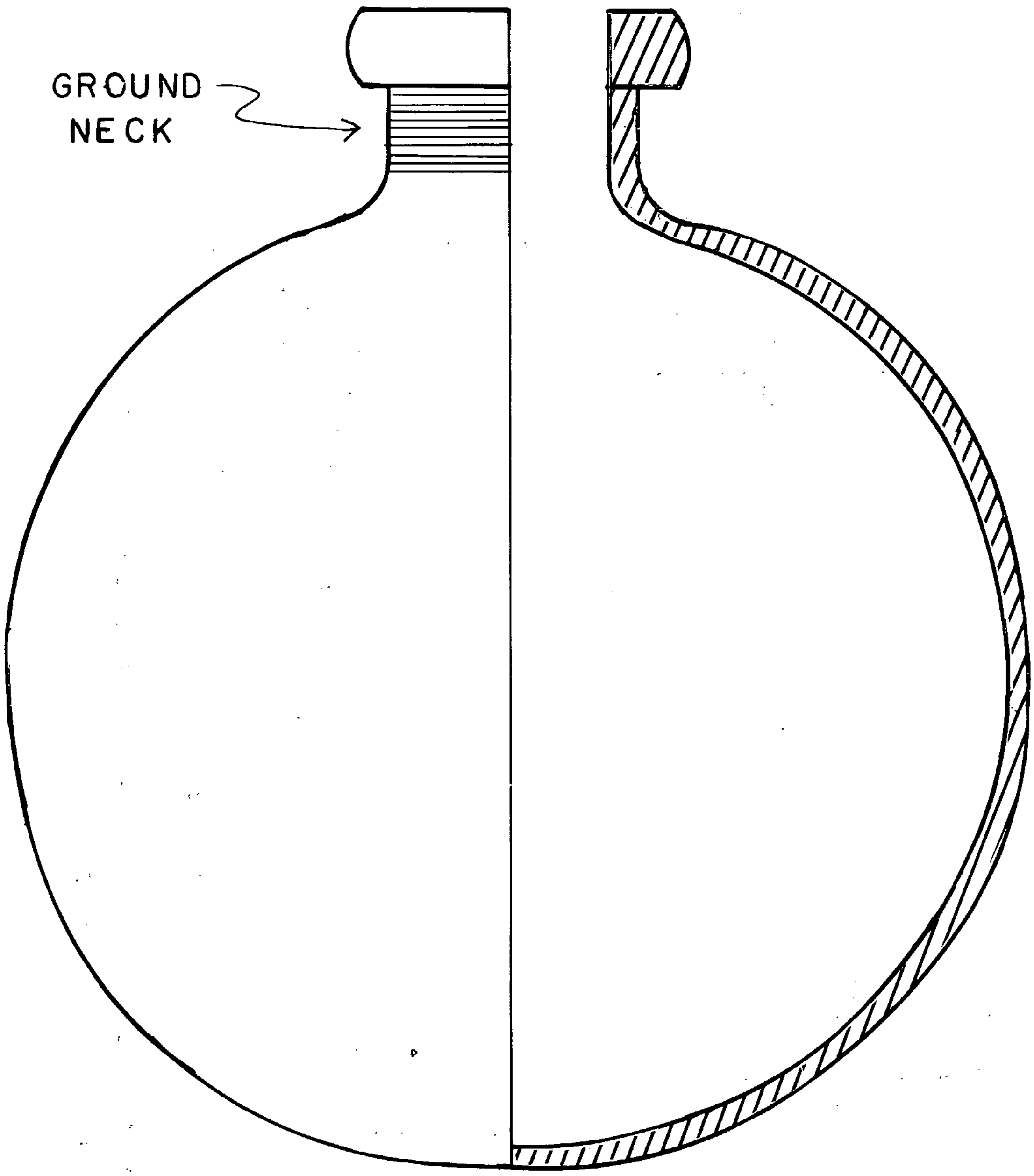
Figure 2.90: Bottle stoppers and covers



FULL SCALE

a) clear glass graduated measure b) clear glass screw cap tube vial
c) milk glass syringe d) light green globe flask

Figure 2.91: Miscellaneous medical equipment.



FULL SCALE

Figure 2.92: Globe flask.

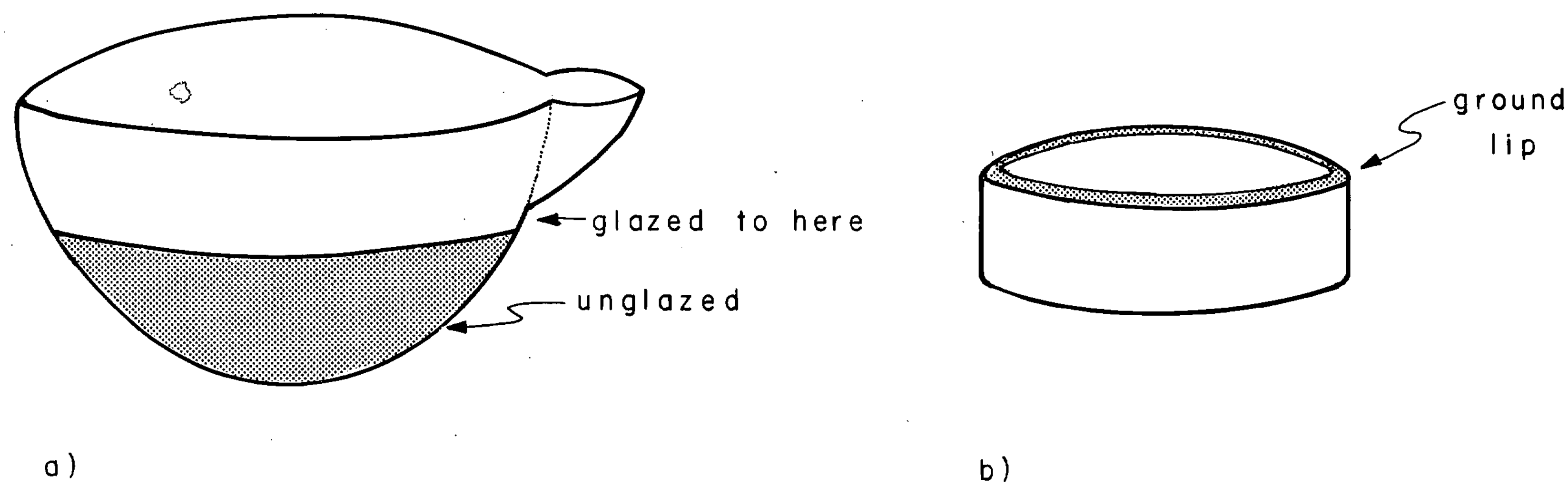
(Heaver 1984). Secondly, fire grenades were generally made of very thin glass so as to shatter readily when thrown on a fire (Wills 1984). The thickness of this glass would be dysfunctional.

One incomplete graduated graduated glass measure was also found (figure 2.91a). It is a mold formed, footed conical measure with graduations etched onto the exterior of the glass. It is not known what standard of measurement the graduations delineate. Glass measures were first marketed to the general public in the 1870's (Crellin and Scott 1970:147) but have been standard apothecary equipment since around 1800 (Mathews 1962:280).

Among the more interesting items recovered are two porcelain evaporating dishes (figure 2.93a). These are shallow, undecorated white porcelain bowls with pouring spouts. The bottom half of the bowls are unglazed on the exterior, so that the dishes may be placed directly over the heat source ot evaporate liquids for chemical preparations.

A related item is listed in the Whitall-Tatum catalogue (1898:72) simply as a "glass dish" (figure 2.93b). This dish is of heavy clear glass with a flat bottom and vertical sides. The lip is ground. From a twentieth century perspective its shape and size appear very similar to a petri dish. While tempting to suggest this is so, this is not a very likely interpretation for two reasons. First, petri dishes have a slight gap between the dish and the lid to allow air to circulate so the culture may survive. The ground lip precludes this possibility. Second, while the "germ theory" of disease was known during the period in question, it was not yet widely accepted, so it seems unlikely that a petri dish would be found.

Portions of two stone mortars and pestles believed to have been used for apothecary functions were also found (figure 2.94). All are of a mottled gray-green metamorphosed basalt or basaltic andesite formally described as "a fine grained amygdaloidal eipdote-chlorite-feldspar greenstone" (Brew 1984). According to geologists from the Alaskan Branch of USGS the material is not native to Sitka or Southeast Alaska.



a) porcelain evaporating dish b) clear glass dish with ground lip

Figure 2.93: Laboratory dishes.

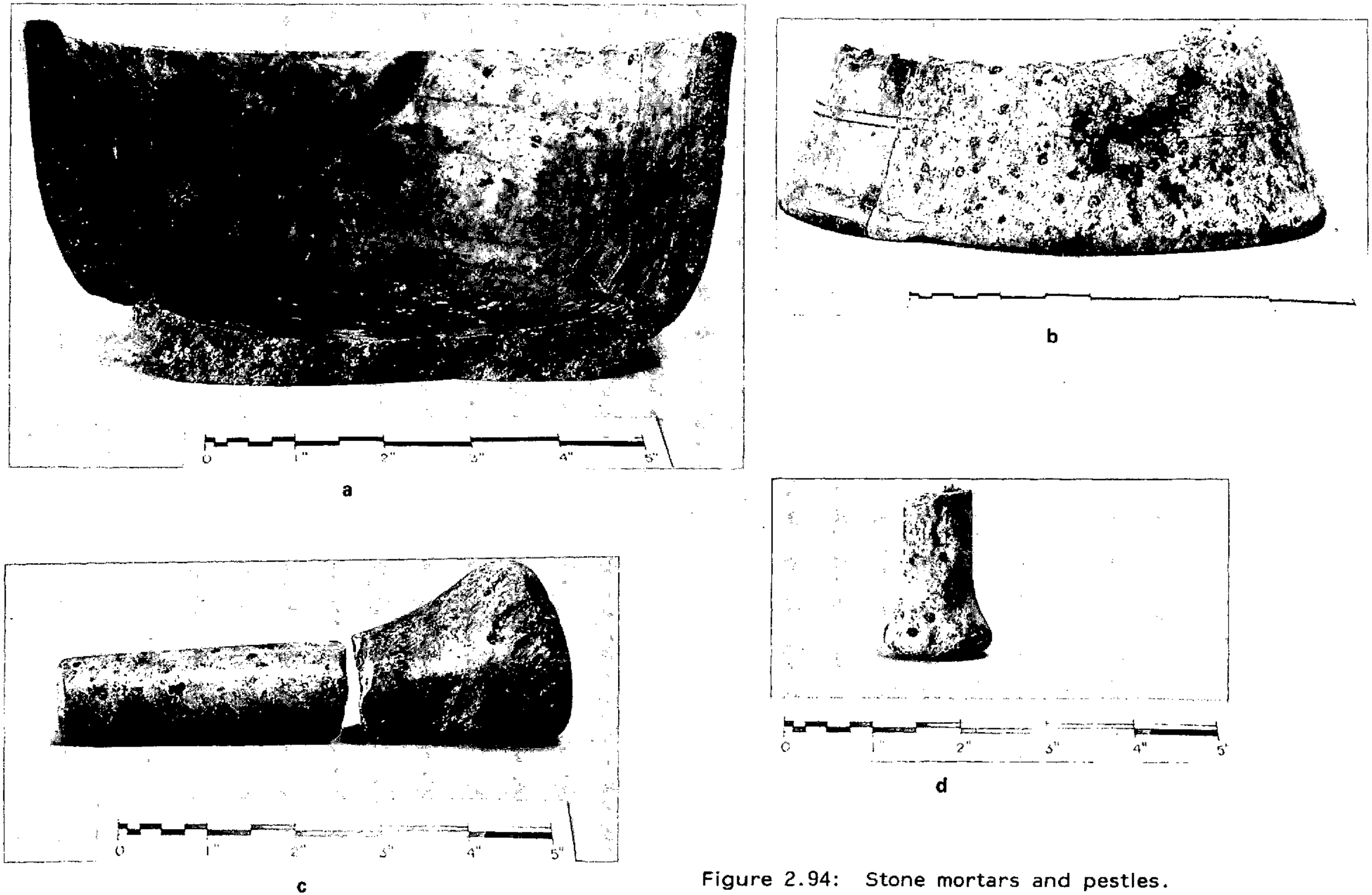


Figure 2.94: Stone mortars and pestles.

The use of stone in apothecary mortars is a little puzzling. By the mid-nineteenth century, glass and porcelain were the preferred materials since they were less liable to contamination by poisons or strong acids than were stone mortars (Mathews 1962:269-270). Perhaps these mortars serve some specialized function. A seventheenth century doctor decreed that "all precious stones that entered into electuaries should be ground into powder upon a porphyry stone" (Mathews 1962:269). Whether or not this convention was followed in the late nineteenth century was unknown, although it certainly would account for the extremely pitted surface on the large pestle. More likely, however, the use of stone was simply a matter of preference or availability.

One additional mortar, represented only by rim fragments, is of a more familiar material. Made of heavy white porcelain, it resembles ceramic mortars still in use today.

One clear glass funnel and fragments of at least eight clear glass tubes of various sizes and thicknesses were recovered. These most likely represent a laboratory function. Glass tubes were often used to feed into stoppered flasks for laboratory purposes. They could constitute component parts of tube funnels, separating funnels, siphons, pipettes, and feeding tubes, among other laboratory equipment. Of interest among this group is a flared tube with a ground lip. This has tentatively been identified as the beak of a retort, a vessel used in pharmacies to distill liquids by heat (Edmonson 1983).

Figure 2.91c illustrates a milk glass syringe found in levels 8 and 9. Syringes were commonly used in the nineteenth century for irrigating body cavities, and injecting douches, enemas, or suppositories. Hypodermic syringes were not developed until 1853, and did not become common until later in the century (Leake 1975:142).

Fragments of a clear glass ball believed to be part of either a nurser of a blood-letting cup were found in level 9 of unit N8W0 (figure 2.89a). A small hole penetrates through a knob-like projection on the end of the ball to the interior. From the exterior, the hole appears to have been intentionally widened. An undated ad advertising the "BEST" nurser has this exact configuration. The hole serves as an air inlet and allows easier cleaning of the bottle. This particular style of nurser has not been dated, but the ad depicting it shows it used with a rubber nipple. These were developed in 1845, but were not truly practical until after 1900 (Munsey 1971:182). The second possibility already mentioned is that the fragments recovered are part of a cupping glass used for blood-letting, which was a standard nineteenth century medical treatment. A rubber bulb or cupping pump would have been attached to the knob on the end and used to evacuate air from the cup. This created the suction necessary to draw blood from the skin.

One positively identified cupping glass was also recovered (figure 2.95a). This glass is hand-blown and has a rolled band collar. Blood-letting could be accomplished one of two ways using this cup. Dry cupping was accomplished by igniting a match in the cup immediately prior to placing it on the skin. This evacuated all air from the cup and had the same effect as the rubber bulb or cupping pump mentioned earlier. Wet cupping was accomplished by means of a lancet or scarificator. A lancet was a very small, sharp blade used to pierce the skin to start the blood flow. One lancet was identified among the items recovered (figure 2.95b). It consists of a broken iron blade encased between two tortoise shell guards. The tip of the blade is missing.

In the nineteenth century, blood-letting was done for the same reason as were other medically approved forms of purging (including vomiting, enemas, douches, etc.). A widely accepted medical theory of the time attributed illness to an imbalance of the humours. The physical body was believed to be composed of four humours which corresponded to the four basic elements (earth, air, fire and water). As long as these elements remained in balance health was insured. An imblance caused illness, so to affect a cure the patient was bled or purged to restore the ill humour to its proper level (Haller 1981:4-5).

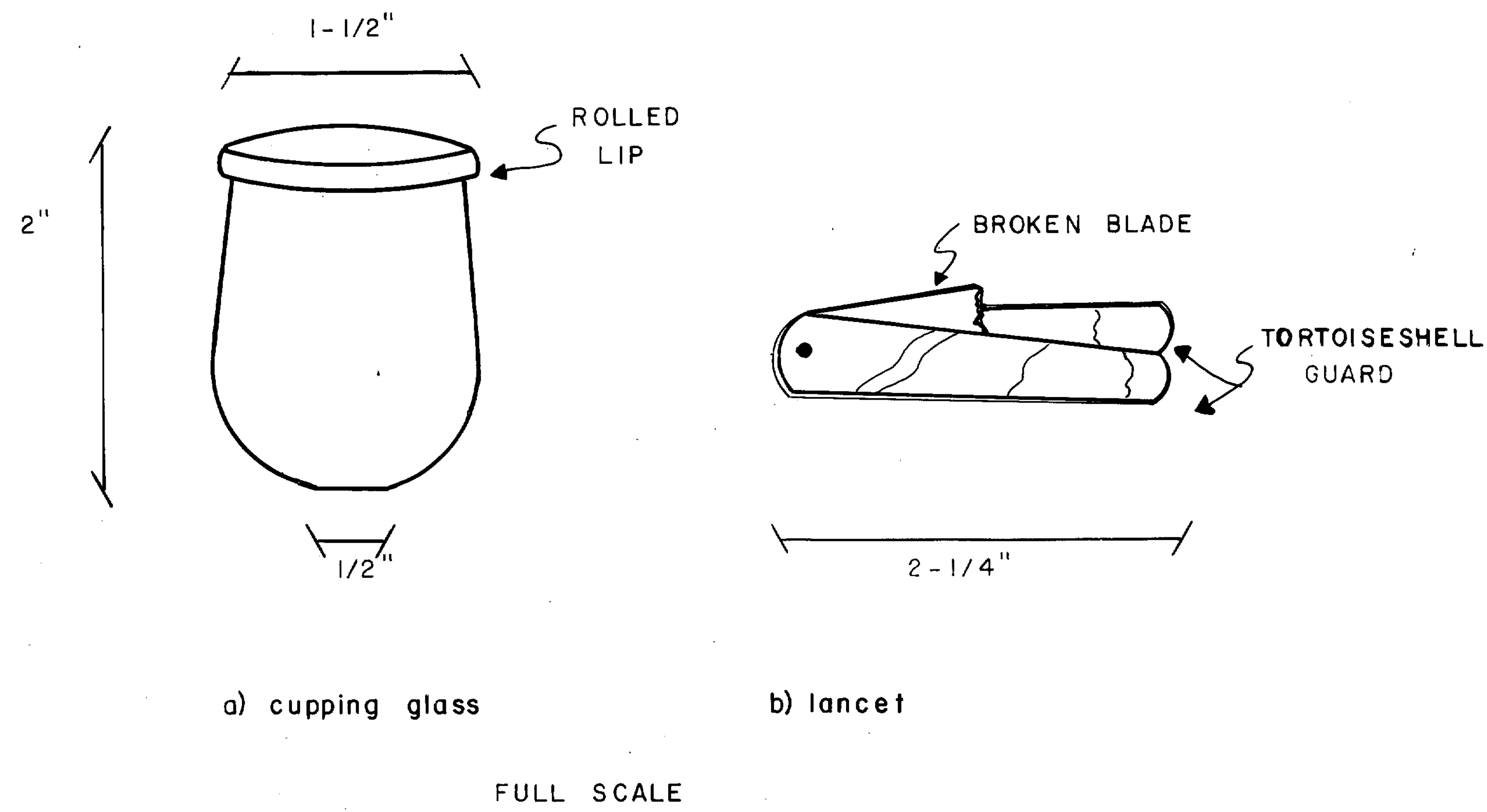


Figure 2.95: Blood-letting instruments.

Blood-letting was not prescribed with as much frequency after the 1830's (Brougher 1959:1261; Thorndike 1927:473), although a more restricted use of the technique was still advocated throughout the remainder of the century. Cupping glasses continue to appear in druggist's catalogues as late as 1898. Russian physicians apparently shared this conservative view and believed limited blood-letting to be useful in some instances. Blaschke, a Russian physician stationed in Sitka, bemoaned the absence of leeches as impeding the cure of infantile diptheria, while at the same time denouncing the peasant's habits of frequent, unrestricted blood-letting (Blaschke 1972:60, 65, 68-69).

Portions of at least twelve stoneware <u>mineral water bottles</u> were recovered. These bottles have a coarse buff to grey colored paste, with orange to reddish-brown glazes. All are wheel thrown with a twisted wire cut marks on the base (figure 2.96). Two different sizes were identified: 36 oz. and 28 oz.

Two 36 oz. bottles were recovered. One of these bears a circular, incised seal on the shoulder, depicting a crowned lion with the word ". . .ELTERS" (Selters) on the outside. Below this are the words "HERZOGTHUM NASSAU" (figure 2.97b). Munsey (1971:135) identifies this as a seltzer water bottle from Nassau, a region in the province of Hesse in Germany. The impressed title reads literally "Duchy of Nassau," which ceased to exist after the Austro-Prussian War in 1866. Thereafter, the springs were operated by the Prussian government (Schulz 1986). Similar bottles were found at Fort Vancouver in a context of ca. 1825-42 (Chance 1976:157, 158), and at Fort Laramie in a ca. 1860-90 context (Wilson 1981:32). An inscription beneath the handle of the marked bottle reads "F C(?)/NUM 35" (figure 2.97c). The exact interpretation of this mark is unclear, although it is known capacity marks were commonly printed on the sides of stoneware vessels (Greer 1981:138).

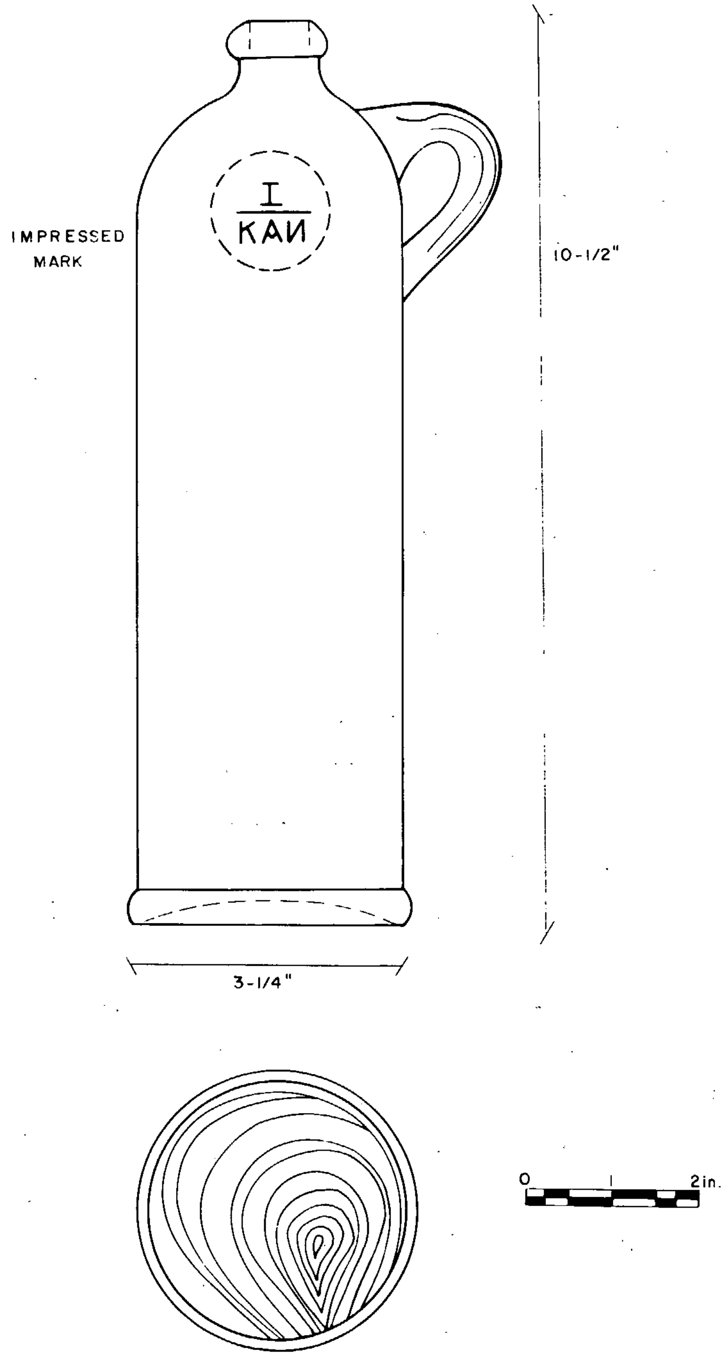


Figure 2.96: Cyrillic marked mineral water bottle.

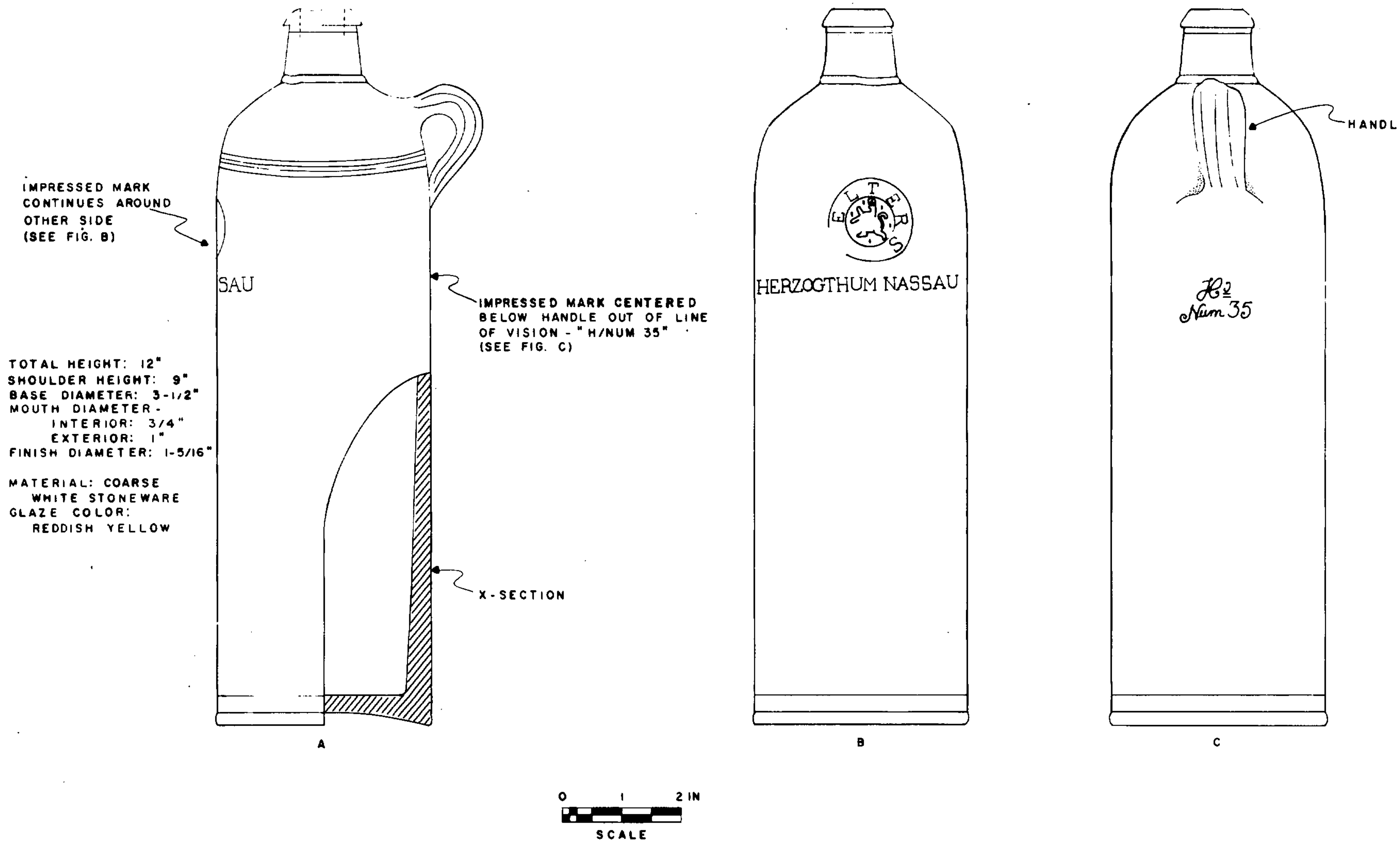


Figure 2.97: German mineral water bottles.

Eight 28 oz. bottles were recovered. Of particular interest are three bottles with incised Cyrillic marks (figure 2.96). These marks translate as "KAI." Their meaning is unknown. The Cyrillic alphabet is used in the Russian language, indicating that these bottles were either a Russian manufacture or were manufactured specifically for a Russian market.

Mineral water was a popular cure-all of the nineteenth century well known to Russian physicians. It was administered for everything from constipation to syphillis. Historic sources indicate that Russian interest in the medical use of mineral water started as early as the eighteenth century (Grmek 1970:308), and continued well into nineteenth century. Both Lt. Golovin, a Russian-American Company official, and Dr. Edward Blaschke, a physician stationed in Sitka, mention the hot sulphur springs a few miles distant from Sitka where huts had been set up for those who wished to "take the cure". Depending on their ailment, patients either soaked in the bath or drank the water. Dr. Blaschke mentions the springs as being useful for the treatment of syphillis, arthritis, scrofula (tubercolosis of the lymph glands), rheumatism, dropsy (edema), and psoriasis, among other ailments (Blaschke 1972:16). The structures at the springs were destroyed by Tlingits in 1853 and were never rebuilt. Possibly after that time health conscious citizens and physicians began using imported mineral water.

In addition to its direct use, mineral water was also used as an external vehicle for other medications. Nineteenth century pharmacists favored the use of water in mixtures over sugared juleps and earlier decoctions, since it was a better solvent and less likely to produce precipitates (Crellin and Scott 1970:139).

Two final items from Feature 12 were tentatively included in the medical class. The first is clear glass bottle base with a ground pontil (figure 2.89c). Although the exact function of this bottle (?) is unknown, its unusual round shape and the presence of a ground pontil suggests a possible medical or laboratory use. The second is a small piece of <u>gauze bandaging</u>.

Levels Above Feature 12

Additional medical artifacts found in the levels above Feature 12 include fragments of at least two graduated glass measures, one glass tube, one ground glass stirring rod, one heavy clear glass shop round base, one screw cap tube vial (figure 2.91b), and assorted prescription and patent lips. With the exception of the screw cap vial and the stirring rod, all duplicate items found in Feature 12.

Discussion

Manufacturing dates of medical artifacts are difficult to determine with any precision. In part, this is due to the fact that few possess maker's marks or other distinctive labels which might aid in this process. In addition, chronologies established for other artifact types seem to contain several serious errors if rigidly applied to medical artifacts. For instance, it is generally accepted that clear glass was not widely used for container glass until after the 1880's when consumer demand dictated its use. Prior to that time, it was considered too expensive to produce and was used only for specialized items. Yet, despite the added expense, it is known that flint glass was used for medical vials as early as 1790. No doubt this was due to its extreme usefulness in a laboratory setting. Clarity would have aided in identification of contents, and would have been an important characteristic of vessels used to store potentially poisonous substances routinely used in pharmacies. Because of the specialized uses of medical artifacts, further comparative information is necessary before an adequate chronology can be established.

Although the large number of medical artifacts recovered points to the strong possibility that Feature 12 contains debris from one of the hospital periods, the occupation represented is unknown. The Cyrillic marked mineral water bottles may suggest it represents the Russian occupation, although these vessels were not found in sufficient numbers to be conclusive. One additional piece of negative evidence also points to a

Russian occupation. This is the absence of any bottles marked "U.S.A. HOSP DEPT" or "USA MEDICAL DEPT". Bottles marked with these labels are typically found on sites associated with infirmaries of the U.S. Army (Herskovitz 1978:17).

A more remote possibility that should be considered is that the medical artifacts recovered were associated with educational activities at the Russian Bishop's House or Russian Seminary. Kovach (1957:194) notes that students at the seminary were instructed ". . . about the predominant diseases, their causes, and means of prevention, and the locally available treatments. . .". This was considered ". . . indispensable to the missionaries in order that the healer of the soul could also provide healing for the body of those far removed from other sources of medical aid". These courses were taught by Company physicians.

The difficulty with this proposition is that, as mentioned earlier, the manufacture dates of other classes of artifacts suggests the deposit was formed after 1860, much later than the seminary period. After the sale of Russian-America to the United States in 1867, however, instructional activities resumed at the Russian Bishop's House, including training for prospective priests. Although there is no mention of instruction in the medical arts being included in this later curriculum, the possibility should not be ignored.

FIGURE 2.98: MEDICAL ARTIFACTS IN FEATURE 12

Vessel/Material	Sherds	Min. Vessel
Shop Rounds		
Clear glass	355	17
Light green glass	104	2
Fluted Prescription (clear glass)	1	1
Homeopathic Vial (clear glass)	1	1
Pharmaceutical Bottles		
Clear glass	25	1
Light green glass	72	2
"Black" Glass Case Bottle	56	1
Globe Flasks		
Clear glass	63	1
Light green glass	6	1
Graduated Measure (clear glass)	2	1
Glass Dish (clear)	1	1
Porcelain Evaporating Dishes	23	2
Clear Glass Funnel	6	1
Clear Glass Tubes	40	8
Milk Glass Syringe	2	1
Cupping Glass (clear)	3	1
Nurser/Cupping Glass (clear)	4	1
Mortars		
Stone	8	2
Porcelain	2	1
Pestles		
Stone	3	2
Stoneware Mineral Water Bottles	189	12
Ground Glass Stoppers		
Clear	6	3
Green	2	1
Glass Covers for Stoppers (aqua)	3	1
Light Green Prescription Lip	1	1
Aqua Patent Medicine/Prescription Bottle Base	3	2
Clear Glass Base Ground Pontil	1	1

FIGURE 2.99: MEDICAL ARTIFACTS IN LEVELS ABOVE FEATURE 12

Vessel/Material	Sherds	Min. Vessel
Screw-Cup Tube Vial (clear glass)	1	1
Graduated Measures (clear glass)	9	2
Clear Glass Tube	3	1
Clear Glass Stirring Rod	1	1
Glass Cover for Stopper (aqua)	1	1
Lip Finishes		
Aqua patent lips - plain	4	2
Brown patent lips - ground neck	1	1
Clear Glass Stop Round Base	1	1
		12

STRUCTURAL GROUP

The Structural and Hardware group includes a wide variety of construction materials, tools, and miscellaneous hardware most likely associated with the construction, operation, or upkeep of a building and its grounds. The majority of these items are not diagnostic, and the reader is referred to artifact summaries in figures 2.99, 2.100, and 2.101, and 2.102 and illustrations in figures 2.103-2.106 for further information and descriptions.

A few brief words of explanation regarding the use of these tables is in order. As noted, friable materials like mortar, brick and plaster are enumerated both by object counts and gram weights to give a more accurate estimate of volume (figure 2.102). Mortar and plaster categories have been combined for the summaries since it was often difficult to distinguish these materials due to their very deteriorated condition. Bricks are designated either as "fragments" or "partial bricks". Fragments are spalls from the center of the brick, which provide no information other than type of material. Partial bricks are those in which it was possible to determine at least one dimension (i.e., length, thickness, or width) of the complete brick. Intact corners as well as nearly whole bricks were included in this category. The large size and weight of these pieces prohibited recording of weights. Although exact sizes and shapes of "partial bricks" were recorded for cataloguing purposes, there was no attempt made to enumerate those for this report as they seemed to vary greatly, with no standardization. Suffice it to say that the following size ranges were represented:

thickness: 1-1/2" to 2-1/2"
width: 4 to 4-3/4"
length: 6 to 9"

Oversize bricks of similar lengths and widths appear to be typical of Russian occupied sites. In addition to the standard rectangular bricks, one piece was recovered which had a rounded edge.

FIGURE 2.100: STRUCTURAL GROUP

Window Glass Class	Feature 12	Outside Features
Aqua	477	828
Clear	193	309
Glazing		16
Door and Window Hardware Class		
Cuprous Butt Hinge	1	
Ferrous Door Lock		1
Ferrous Door Lock Fragment	1	
Ferrous Door Pull	1	
Cuprous Escutcheon Plate	1	
Tools Class		
Hard Rock Drill - Ferrous	1	
Spade - Ferrous	1	
Hand Rade - Ferrous	1	
File Fragments - Ferrous	2	
Utilities Class		
Lighting Type		
Lamp Chimney Rim Sherds	13	10
Wick Trimmer - Ferrous	1	
Electrical Type		
Porcelain Insulator Fragment		1
Electrical Fixture Base		1
Water Type		
Faucet - Euprous		1
Heating Type		
Coal		1

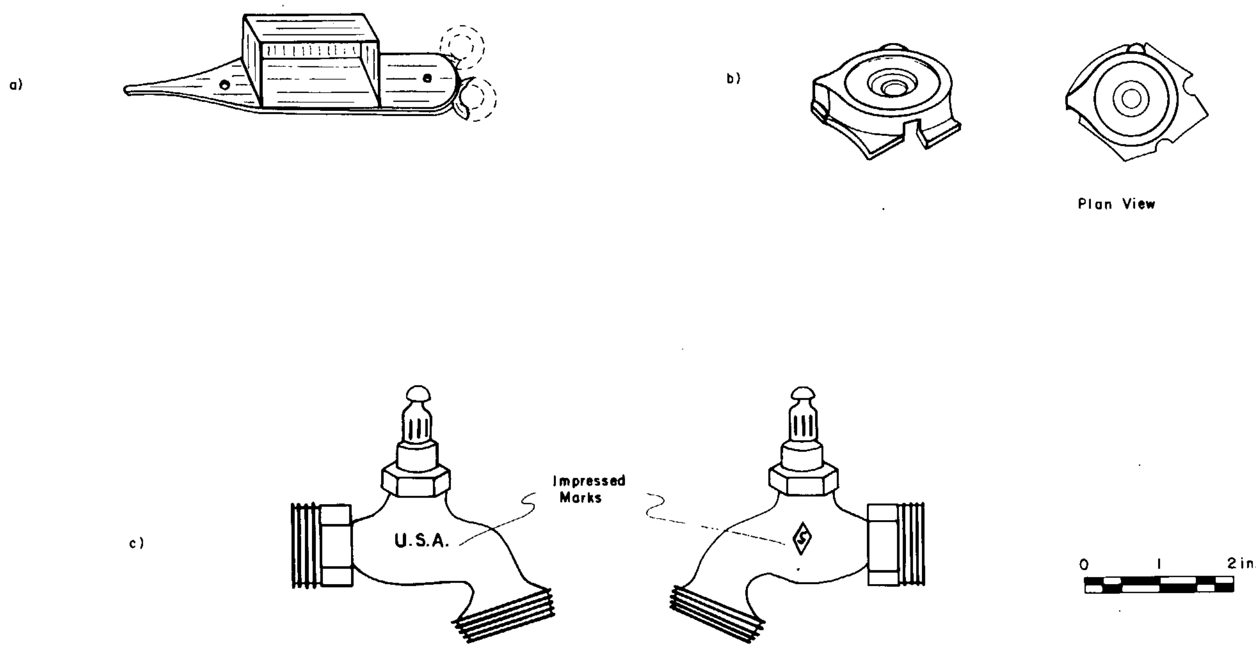
FIGURE 2.101: MISCELLANEOUS HARDWARE CLASS

Artifacts	Feature	Outside
Wire		
Ferrous	27	4
Cuprous	13	1
Wire Coils		
Ferrous		2
Cuprous	3	
String		2
Bolt - (3-4" Wrought Bolt with square head)	2	
Chain Link Segment		1
Staples (Ferrous)		
Wrought		
3-1/2"	2	
3"		1
Flat		
1"	1	
Wire		
2-1/2"	1	
Wood Screws (Ferrous)		
1-1/2" to 2/1/2" long, 10-12 gauge	3	1
Tacks		
Decorative Cuprous Flat-Headed Tack w/ Wire Shank	1	
Ferrous Wrought Tack w/ Flat Head		
1"	1	
3/4"	2	
Ferrous Wrought Tack w/ Rosehead		
3/4"	1	
1/2"	1	
Cast Brass Tacks		
Flat Head		
1/2"	1	
3/4"	3	
5/8"	1	
L-Head		
1/2"	2	
5/8"	1	
Round Head		
1/2"	1	
Carpenter's Pencil Shield (Cuprous)	1	
Ferrous Pipe Fragments		
1/4" diameter	5	
3/8" diameter		1
Cuprous Hinge	1	
Bracket Hooks (Ferrous)	2	
Male Pipe Fitting (Ferrous) - 5/8" diameter	1	

FIGURE 2.102: MATERIALS CLASS

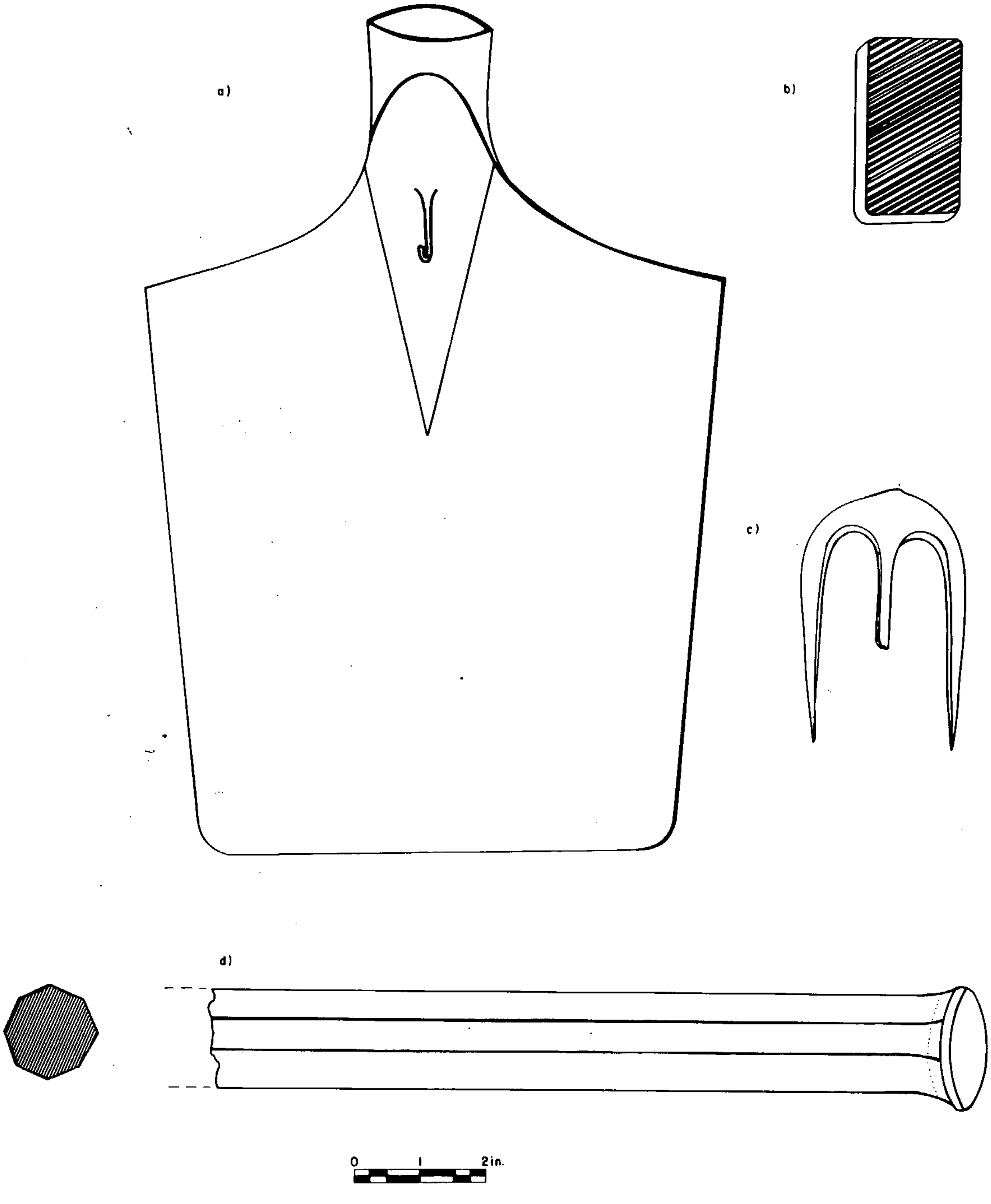
Artifacts	Feature	Weight	Outside
Partial Red Bricks	34		
Partial Salmon Brick	1		
Red Brick Fragments		(2803.8)	462
	724	(8478.7)	
Yellow Brick Fragments	1	(11.6)	
Mortar/Plaster	91	(1326.3)	
		(5.9)	4
Wood	528		140
Tongue-in-Groove			13
Molding			11
Wood with Grey Paint			1
Wood with White Paint			1
Wood with Pink Paint			14
Linoleum			2
Peg Board			2
Felt Sheathing			6
Concrete		(52.4)	3
Wallpaper			16
Isinglass (mica)	104		3
Paint Chips			
Green			4
Blue-Green			16
Blue-Grey			6
Lt. Blue			6
Beige	2		
White			75
Orange			1
Red			3
Pink			28
Cuprous Metal Roofing	1		
Cuprous Ventilator Pipe	1		

It should also be noted that temper and grit type of the recovered bricks also varied greatly, although no intensive analysis of this characteristic was undertaken. Should further research be conducted at a later date, it is recommended that additional analysis of this sort be performed.



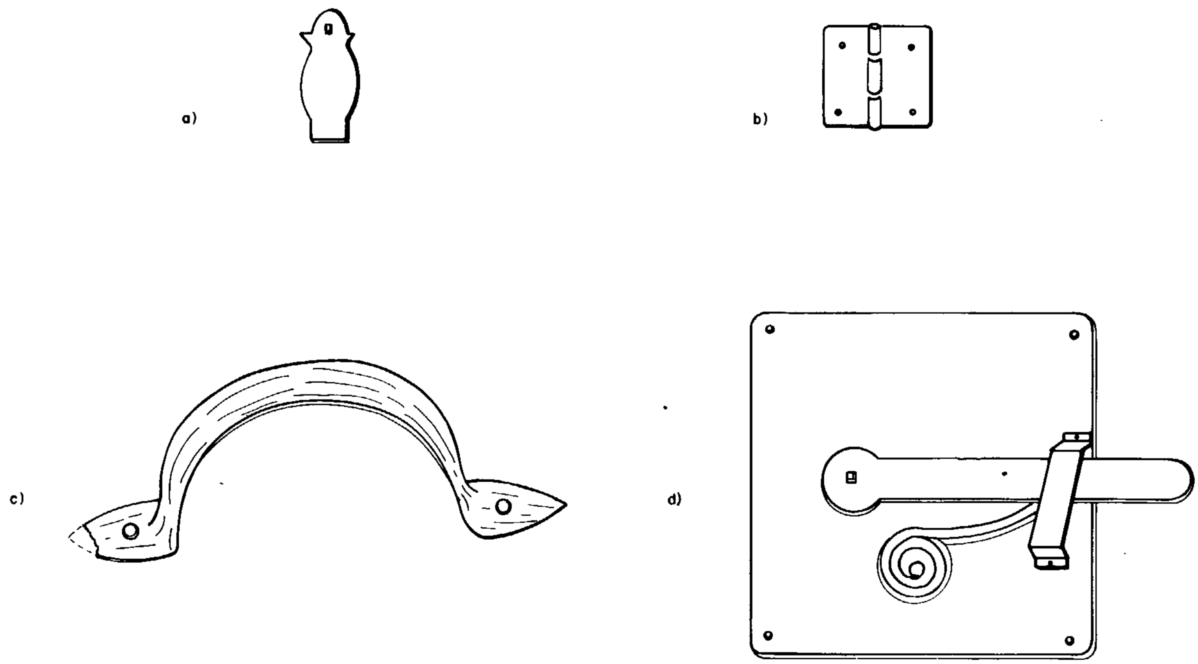
a) ferrous metal wick trimmer b) electrical fixture base - porcelain bisque c) brass faucet

Figure 2.103: Utilities artifacts above Feature 12.



Ferrous Metal Tools: a) spade b) file c) hand rake d) hard rock drill

Figure 2.104: Tools.



a) cuprous escutcheon plate b) cuprous butt hinge c) ferrous door pull d) ferrous door lock

Figure 2.105: Door and window hardware.

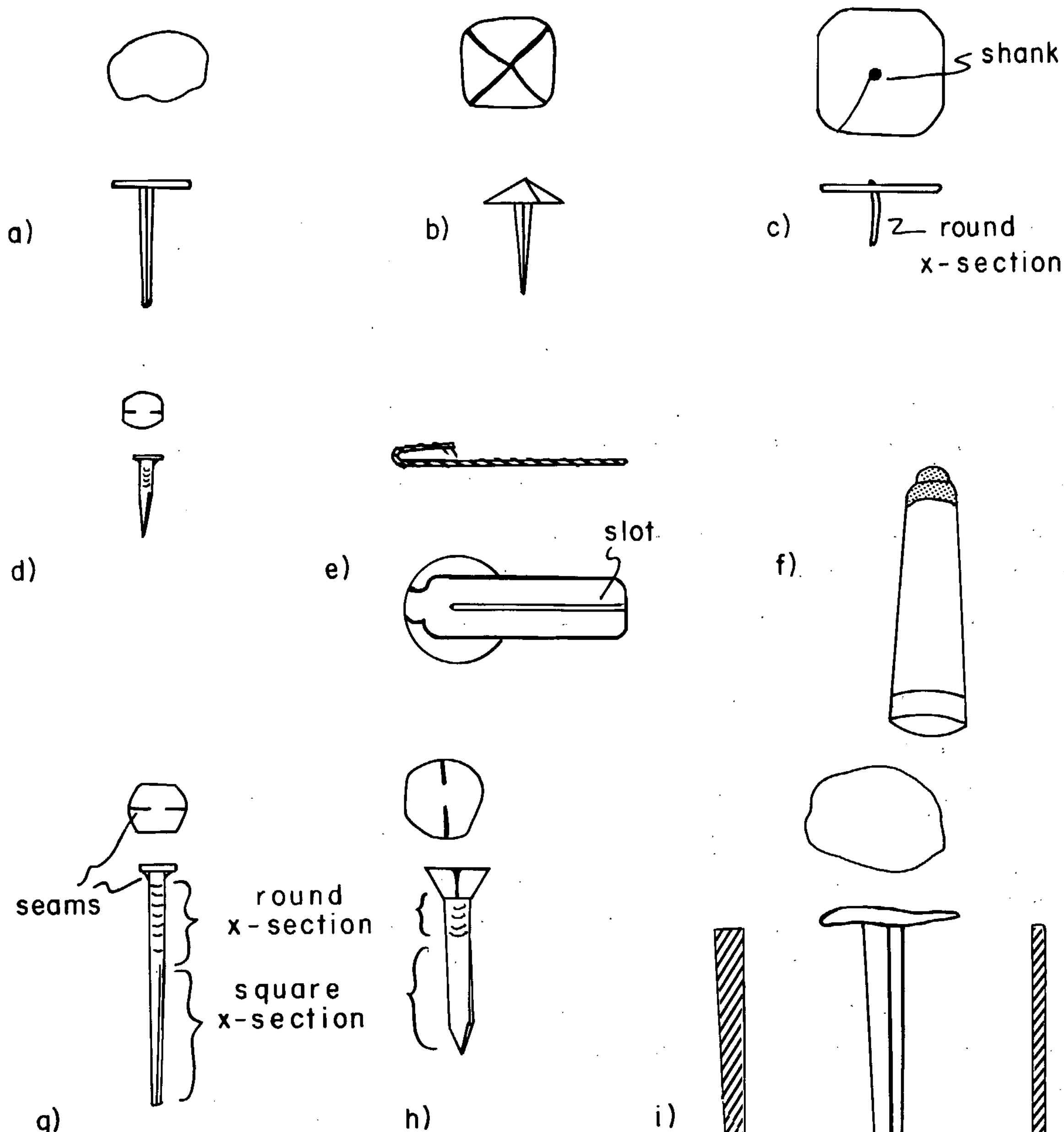
Nails Class

Of the Structural group, only the nail class requires further mention. Based on number of heads present, a minimum of 592 nails were recovered from Feature 12 and the levels above it. These are represented by 272 complete nails, 320 nail heads, 142 nail tips, 119 shanks, and 390 unindentified fragments.[12] Classification is according to standard usage by manufacture, head type, material, and function where known. Pennyweight was used to record the size of complete nails, and to estimate the size of incomplete fragments whenever possible. The size of spikes was recorded by length in inches. (For the purpose of this report, spikes are defined as any nail 5 inches or longer.)

In addition to cut, wrought, and wire nails, two additional nail types were defined, which need a bit of explanation. The first of these are cast nails, which were formed in a one piece mold, complete with the head. Nails found at Sitka believed to have been formed by this method are small cuprous and white metal nails between 2d and 3d in length. Shanks are generally square in cross-section, although the portion directly beneath the head is round in some examples. On the better preserved specimens, mold seams are visible on two opposite sides of the shank, running onto the underside of the head (figure 2.106). Heads are either flat or countersunk, often with irregularly shaped edges. An anonymous source quoted by Fontana (1962:53) suggests nails of this type may have been used for "horticultural purposes, and the hob-nails or tackets of shoemakers". A copper foundry operated in Sitka during the Russian period (Golovin 1979:50), and may be the source of the nails found.

The "unknown" category consists of nails which are in too poor a condition to determine manufacture type. Most were so badly rusted or

12. Distribution of precise types by completeness and size can be found in Appendix B.



a) ferrous wrought tack - flat head
b) " " " - rosehead
c) decorative cuprous tack
d) cast cuprous tack
e) decorative cuprous hinge/lock?
f) cuprous carpenters pencil shield
g) cuprous cast nail - flat head
h) " " " - countersunk head
i) ferrous cut nail with wrought head

FULL SCALE

Figure 2.106: Miscellaneous hardware and nails.

corroded that it was useless to attempt even simple cleaning or conservation measures for the purpose of identification. Although conforming to the general size and shape of nails, little else can be determined about them.

Figure 2.107 presents a complete summary of nails and nail fragments found, although for purposes of analysis, the following distribution based on type and provenience of complete nails and nail heads is helpful:

	Feature 12	Outside Feature
Spikes	10 (2.50%)	9 (4.4%)
Wrought Nails	106 (27.00%)	16 (7.9%)
Cut Nails with Cut Heads	219 (56.15%)	63 (31.2%)
Cut Nails with Wrought Heads	17 (4.35%)	3 (1.5%)
Wire Nails	10 (2.60%)	108 (53.5%)
Cast Brass Nails	11 (2.80%)	2 (1.0%)
Cast White Metal Nails	5 (1.30%)	--
Unknown	12 (3.10%)	1 (0.5%)
	390	202

From this brief summary, it is apparent that cut and wrought nails are more common within Feature 12, and wire nails are more common without, although the separation is by no means complete. Particularly distressing is the presence of 10 wire nails within the feature itself. Although wire nails were first manufactured ca. 1850, they were not used in large numbers until ca. 1890 (Fontana 1962:55; Nelson 1963), a much later date than that suggested by the remainder of the artifacts in the deposit. Thus, although wire nails represent only a very small percent (2.6%) of the total nails within the feature, their presence suggests the context of the deposit is slightly disturbed. The origin of this disturbance, as suggested earlier, was most likely the construction of the Old School. Most of the wire nails found within the feature are in units around the perimeter of the deposit, near foundation piers of the Old School building.

FIGURE 2.107: DISTRIBUTION OF NAIL HEADS BY TYPE, SIZE, AND PROVENIENCE
(excluding spikes)

	2-5d		6-10d		Over 10d		Undetermined Size	
	Feature	Outside	Feature	Outside	Feature	Outside	Feature	Outside
Common Heads (includes flat, and hand-applied wrought)								
wrought nails	17	3	28	2	34	7	4	2
cut nails w/ wrought heads	6	1	7	1	3			1
cut nails w/ cut heads	141	14	45	25	8	20	6	
wire nails	5	12	3	31	1	3		
cast nails	5	2						
Rose Heads								
wrought nails	1		6		2			
cut nails w/ wrought heads			1					
Countersunk Heads								
wire nails	1							
cast nails	9				1		1	
Galvanized Common Heads								
wire nails		1		35		2		
Galvanized Roofing Heads								
wire nails		3						
Roofing Heads								
wire nails		2						
Common Galvanized Heads with Ring Shanks								
wire nails		14						
L-Heads								
wrought nails	3		2		1			
cut nails w/ cut heads	4		8					
Brad Heads								
wire nails		3		2				
Finish Heads								
cut nails w/ cut heads	1			1				
Siding/Sheathing Heads								
cut nails w/ cut heads						1		
Casing Heads								
wrought nails			1					
Unknown Heads								
wrought nails	5	1	1	1			1	
cut nails	4		1	2	1			
unknown nails	1				3	1	0	

Apart from this information, the nail class is not terribly informative about the nature or age of the deposits excavated. Figure 2.107 illustrates the distribution of headed nails and nail fragments by type, size, and provenience. Nails have been divided into three size groups based on hypothesized differences in function. Small nails (2-5d) are used primarily for finish carpentry, medium nails (6-10d) are used for most general purposes, and large nails (over 10d) are used for heavy duty construction like framing a house or building a fence. As can be seen, there are significant differences between the size of nails within the feature and those without:

	Inside Feature 12	Outside Feature
2-5d	203 (53.4%)	56 (29.0%)
6-10d	103 (27.1%)	100 (51.8%)
over 10d	54 (14.2%)	34 (17.6%)
undetermined size	20 (5.3%)	3 (1.6%)
	380	193

Not surprisingly, in both deposits, small and medium nails are more numerous than large nails, although small nails are relatively more numerous within the feature than outside it. To a large extent, this difference can be attributed to the presence of 141 small, common cut nails in Feature 12. Nails of this type could have been used in a wide variety of purposes including finish carpentry, cabinet making, or fastening barrel stays, and do not add to our knowledge about the processes forming Feature 12. Although historic sources indicate that pupils at the Russian Orthodox School were learning the carpenters and coopers' trades (Golovin 1979:60), the connection between this information and the artifactual evidence is slim. The high proportion of small nails implies minor repair activities, not substantial structural construction.

Distribution of head types is likewise uninformative. Over 45% of the nails in Feature 12 were common nails, used for a wide range of tasks. The remaining nails represent a variety of different head types, with no patterning obvious. In the levels above Feature 12, a number of distinctive, recent nail types including galvanized common and roofing nails, and ring shank nails used for dry-walling were found. These suggest very recent construction activity, possibly associated with the rennovation of the Russian Bishop's House.

FURNITURE - DECORATIVE FURNISHING

Items like vases, flower pots, or knic-knacs used to decorate the interior of a structure are included in the decorative furnishings class. Two artifacts were included in this category.

One decorative china figurine was recovered from Level 6 (figure 2.108). The pedestaled figure is that of a man in what appears to be colonial era dress. He is wearing red knee length pants which appear to be tucked into boots or hose, and a short, waist-length blue jacket. The head and upper torso portion of the figure are missing. The figure was apparently decorated in several stages. The jacket was hand-painted in an underglaze, and the pants are an overglaze enamel. The trim on the cuffs of the jackets and pants is an overglaze gold lustre, also applied by hand.

One faceted, pear-shaped, clear glass lamp shade bauble was found in level 3. It is 1-1/2 inches in length and 3/4 inches in width at its widest point. Two holes, approximately 1/16 inches in diameter are drilled through the distal and proximal ends. A series of these baubles were likely strung together on a chandelier or other decorative light fixture.

Figure 2.108: Porcelain figurine.

AMBIGUOUS GROUP

Artifacts which could represent one of a number of different functions are included in the Ambiguous group. As previously mentioned, textiles are a prime example of the type of artifacts in this group, and constitute one of its single largest members.

CLOTH

Over 1800 square inches of fabric, representing at least 23 different specific types of material were recovered. Although in most cases preservation was sufficient to allow identification of fiber and weave, the scraps recovered were too incomplete to readily determine specific function. As a result, this discussion will be limited to a description of the physical characteristics of the fabric recovered, such as fiber, weave, texture, weight, color and size.[13] Any decoration or sewing details will also be noted. Since preservation of the textiles is remarkably good, it is hoped that in the future a researcher with specific questions that could be addressed through use of these items may re-examine them and do a more analytical report.

Terms used in the following discussion are defined in figure 2.109. Fabric structure is illustrated in figure 2.110.

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13. Since the size of the individual pieces varied greatly, it was decided that an estimate of the square inches of fabric better represented the amount of material recovered than a simple count of the number of pieces. This was accomplished by laying a sheet of clear mylar with a one inch grid on it over the fabric. Counting the number of squares covered on the grid provided an estimate of the square inches of the fabric. While this method has obvious drawbacks, it does provide a general estimate of the quantity of material recovered. The numbers derived should be considered rough estimates only.

FIGURE 2.109: TEXTILE AND SEWING TERMS

Aniline dye: properly, any synthetic dye made from a coal-tar derivative. Popularly, the term is used to refer to any synthetic dye made from an organic base (Picken 1975:5). Aniline dyes were the first synthetic dye ever produced. The first one was developed in 1856 by the English chemist Sir W.H. Perkin (Encyclopaedia of Textiles 1972:435).

Float: a term used to refer to long surface stitches of weft or filling threads. A weft thread that weaves over two or more adjacent warp threads is often referred to as a "float".

Nap: "fuzzy or hairy substance or fibers projecting on some materials, giving a downy appearance, forming a soft surface, and lying smoothly in one direction" (Pickens 1975:251). This surface can either be intentionally produced by brushing the surface of the fabric with vegetable burrs or wire brushes, or can result from normal wear.

Warp: threads which run lengthwise in a fabric (Hollen and Saddler 1964:130). They are the first threads to be placed on a loom, and form the base of the fabric. Without selvages, it is impossible to precisely distinguish warp threads from weft threads, although generally the fabric is stronger and tends to stretch less in the warp direction (Hollen and Saddler 1964:131).

Weft: threads that run from selvage to selvage across a fabric (Hollen and Saddler 1964:130). These threads interlace the warp, and are often referred to as filling threads.

Balanced weave: a weave in which warp and weft threads are more or less equally represented on the surface of the fabric.

Unbalanced weave: a weave in which warp and weft threads are unequally represented on the surface of the fabric. This can be a result of either the weave structure, or the spacing of the threads.

Whip-stitch: a series of stitches which run perpendicular to the direction of the seam.

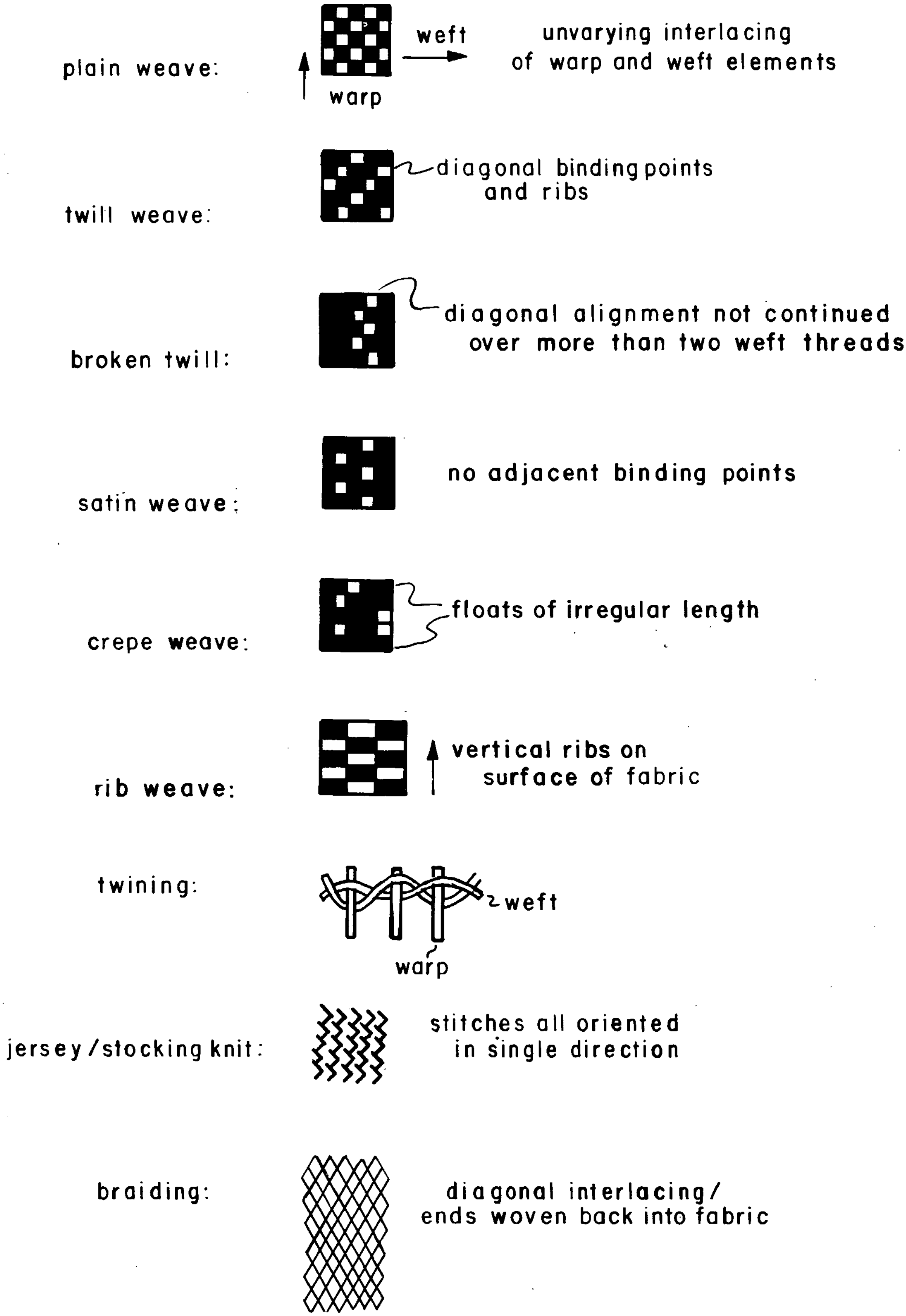

Figure 2.110: Fabric structure.

Wool was the most common fabric found in Feature 12. The fibers of this material are readily identified under a binocular microscope at high magnification by the series of overlapping scales on the eipdermis (Encyclopaedia of Textiles 1972:89; Hollen and Saddler 1964:26). These scales, in conjunction with the natural crimp of the fiber, allow individual wool fibers to easily bond together and trap air for bulk and warmth. This quality makes it a particularly warm, absorbent material well-suited to the wet environment of Sitka.

Plain Weave

The wool fabrics recovered illustrate a variety of different textures, weaves, weights and colors. The most simple fabric construction represented is plain weave. Plain weave fabrics are characterized by an alternate under and over interlacing of both warp and filling threads (Encyclopaedia of Textiles 1972:339). According to Emery (1966:76), "the principle of the interlacing is unvarying alternation. Each weft unit passes alternatively over and under successive warp units, and each reverses the procedure of the one before it". This produces a fabric with no right or wrong side. If different colored threads were used for warp and weft, the resulting design would resemble a checkerboard (Held 1973:140, Hollen 1964:165).

In plain weave, warp and weft threads may be paired, tripled, or used in larger groups, providing the same number of elements are paired in both warp and weft. A standard notation is used to refer to the number of threads paired and the order of interlacing. For example, a 2/2 plain weave refers to a weave in which two warp threads and two weft threads are woven as a single unit in a plain weave. (For a more complete illustration of this principle see Emery 1966).

Over 894 square inches of plain weave wool fabric were identified. All have a simple 1/1 structure. These include:

a) 143 square inches of a lightweight, loosely woven drab olive[14] (10 Y 2/1) colored homespun fabric. No stitching is evident, but two 1" wide strips have a simple knotted fringe of light brown (10 YR 5/4) yarn (figure 2.111).

b) 121 square inches of medium weight, blue-green (10 B 3/2) fabric which has been napped from wear. Several of the pieces have been purposefully cut and hand-stitched, and appear to be garment fragments. One cut piece resembles a collar edge, and another the plackett of a shirt or blouse. The latter has two hand-stitched button holes, and a badly deteriorated concave 4-hole yellow metal button (figure 2.112). One of the button holes has been partially resewn in a contrasting color, suggesting it may have been mended. The edge of one amorphous shaped fabric scrap is whip-stitched.

c) 3 square inches of medium weight, floral print fabric. The print consists of a blue-green (7.5 B 2/4) background, with a brown (2.5 YR 3/4) and beige (2.5 Y 6/4) design. The weight, texture, and weave are identical to the previously described blue-green fabric.

d) 318 square inches of medium weight brown fabric, slightly napped from wear. Texture and weight resemble b and c above, and may in fact, be a more faded example of the same fabric. Straight cut edges have been turned under and/or hand-stitched 1/8 inch from the edge. Most of the stitching is irregular and not of the highest quality. Both plain and whip-stitching are represented. One large piece with stitched edges has a rectangular piece of fabric cut out of it, suggesting the textile was being reused in some fashion.

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14. It should be noted that the colors currently described are not necessarily the original ones. Fabrics have a tendency to fade or change colors completely as they age.

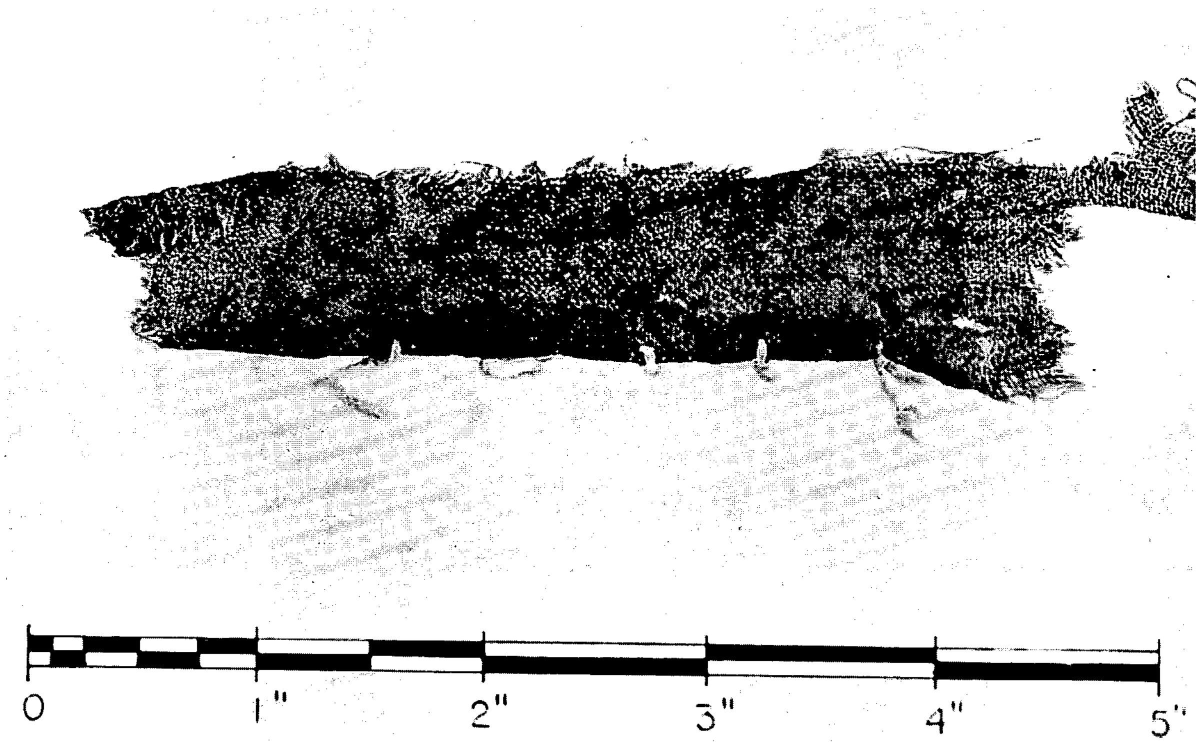


Figure 2.111: Fringed fabric.

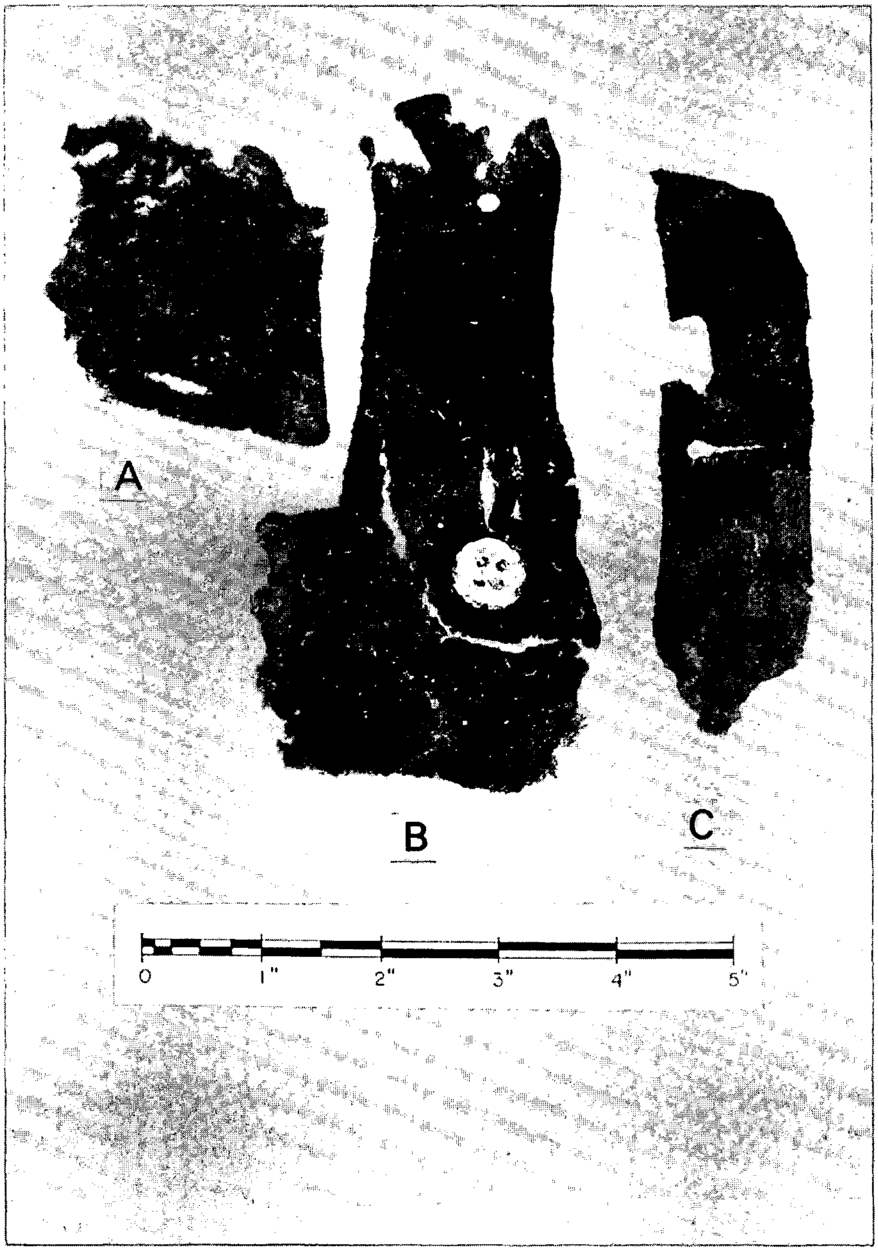


Figure 2.112: Plackett (a), button (b), and button hole pieces (c).

e) 309 square inches of a soft, medium weight, loosely woven, brown (5 Y 3/4) and white bold checked fabric (figure 2.113). Some of the straight edges are turned under and hand-stitched 1/8 inch from the edge.

Rib Weave

One rib weave fabric was identified in Feature 12. Rib weave is a variation of plain weave characterized by a series of pronounced vertical or horizontal ribs across the surface of the fabric. This ribbed effect can be created one of two ways. The first is by using an unequal number of threads in warp and weft. (For example, two warp threads and one weft thread interlaced in a plain weave.) The second is by varying the spacing of either warp or weft so that one element is more tightly woven than the other, concealing the looser (Emery 1966:77). In the feature, 39 square inches of blue-green (10 GY 2/1) rib weave fabric were recovered. It is of a variety sometimes also called "half-basket" or "repp" weave. The fabric has one set of paired elements (it is difficult to determine whether it is warp or weft since there are no selvages), and one set of single elements. In addition, the fabric has an extra set of filling threads on the back, interlaced in plain weave. These threads do not penetrate the front of the cloth, and are there solely to strengthen the fabric. The edges of some of the pieces are turned under 1/8 inch.

Twill Weave

A second major weave type represented is the twill weave. Twill weave fabrics are characterized by long floats on the surface of the fabric, with diagonal points of interlacing. In a balanced weave, this diagonal alignment results in diagonal lines running across the face of the fabric. In unbalanced weaves, the diagonal effect is often obscured, and the weave type can only be determined through close inspection of the structure (Emery 1966:33). Unlike plain weaves, twill weave fabrics have definite "right" and "wrong" sides.

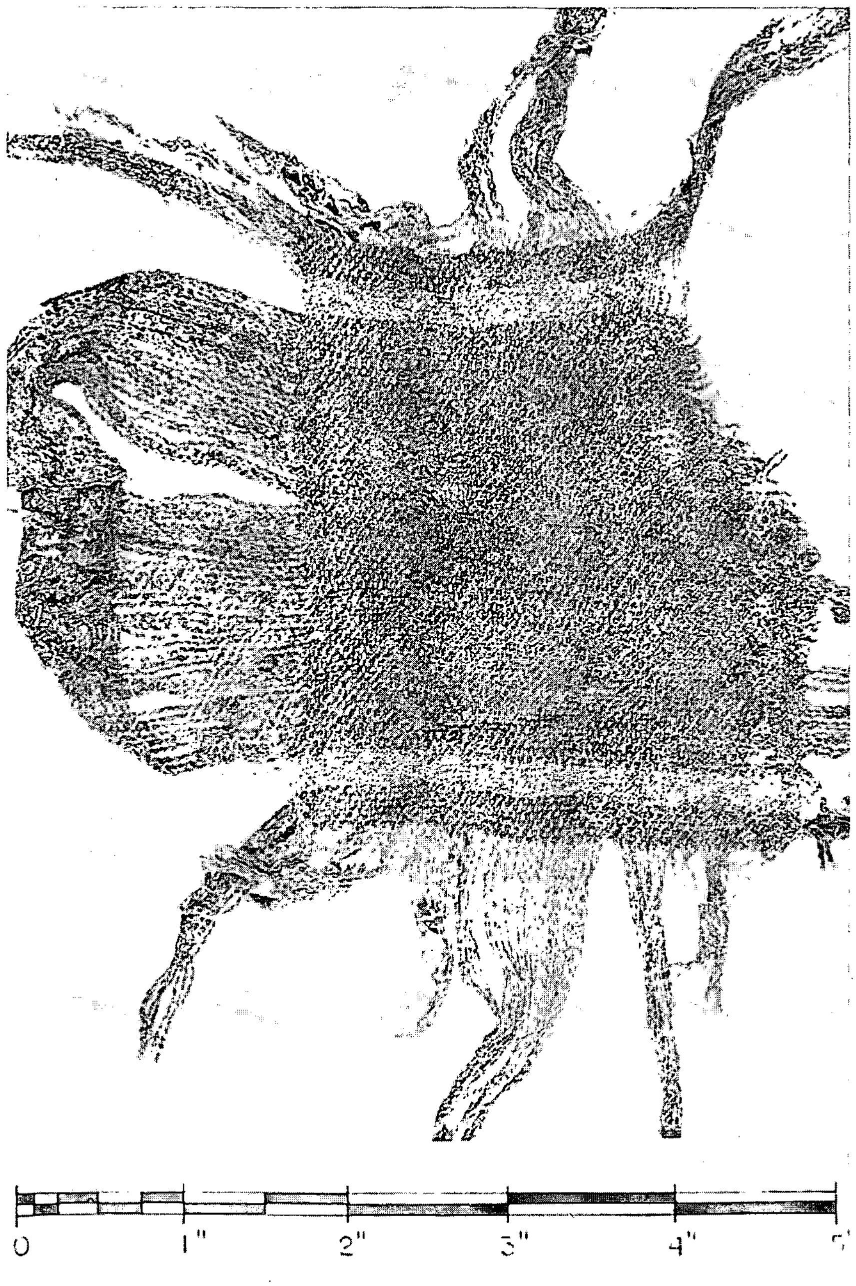


Figure 2.113: Bold-checked, plain weave fabric.

Recovered from the excavations were 424 square inches of twill weave wool fabric. These include:

a) 144 square inches of medium weight, brown (25 Y 3/2), 3/1 weave cloth. The fabric is fairly tightly woven, and one side is slightly napped from wear. It has long, cut edges which have been turned under 1/8 inch, and a few widely spaced holes from hand-stitching. The stitching lines on one piece appear to form a dart.

b) 276 square inches of a medium weight, brown (10 YR 3/4) fabric, with an unbalanced 2/1 weave structure. No stitching is evident.

c) 4 square inches of lightweight, blue-green (10 BG 2/4), 2/1 twill. The fabric appears to have been colored with a synthetic aniline dye (Sue Gillis 1983), which indicates it could have been produced no earlier than 1856 (Encyclopaedia of Textiles 1972:435).

Satin Weave

Satin weave is the third major type of weave. It is similar to twill weave in that it is characterized by long floats of regular length on the surface of the fabric. It differs, however, in that the diagonal alignment of floats and binding points is only intermittent at best (Emery 1966:108, Held 1973:142, Hollen 1964:147). Successive weft threads will never bind adjacent warps. This produces a smooth-faced fabric without the diagonal lines or checkerboard of twill and plain weaves.

Over 101 square inches of satin weave wool was recovered from Feature 12. These include:

a) 99 square inches of medium weight, brown (10 YR 3/4) fabric with a fairly tight 4/1 weave structure. The fabric pieces recovered have very long cut edges, with a few irregularly spaced stitching holes along the margins. Two large pieces have been whip-stitched together (figure 2.114).

b) 2.5 square inches of thick, tightly woven olive green (5 Y 3/2) cloth with a 3/1 weave structure. The fabric has been cut on the diagonal, and the back is napped.

Crepe weave is a derivative of satin weave made with floats of irregular length (Hollen 1964:149). The threads are interlaced in a seemingly random pattern, resulting in a fabric with a very mottled appearance. If randomly spaced short stitches are used, the fabric may appear to be covered with minute spots (Hollen 1964:149).

About 4 square inches of lightweight, loosely woven crepe weave fabric were recovered. It has paired warp threads and single weft threads. Each pair of warps has one gold (5 Y 4/4) thread and one olive green (5 GY 3/2) thread. The wefts are all olive green. The cloth is the approximate texture and weight of curtain fabric.

Novelty Weaves

Apart from the three basic weaves and their derivatives, several novelty weaves were represented among the textiles from Feature 12. Double cloth is a fabric structure which can combine any of the three basic weaves. It consists of "two distinct fabrics, face and back, which are generally stitched together by interlacing the face threads with the back threads" (Oelsner 1952:260). The face and the back may be entirely different weaves. Double cloths are often cheaper to manufacture than a heavy cloth made of a single thickness, and produce a more durable fabric (Oelsner 1952:260-261).

Approximately 33 square inches of double cloth fabric was found in Feature 12. It is a thick, closely woven reddish-brown (2.5 YR 3/2) wool. The front is woven in a balanced 2/1 twill. The back is napped

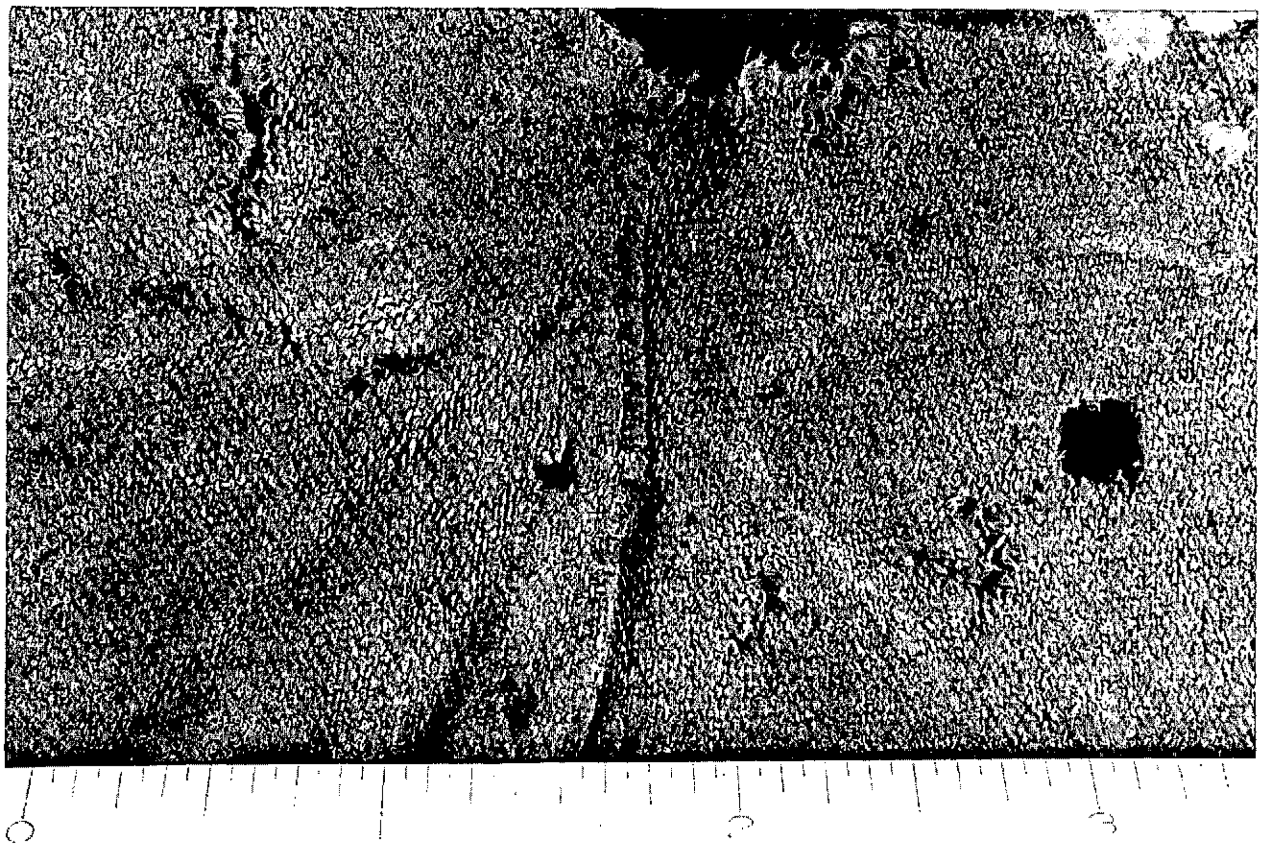


Figure 2.114: Satin weave with whip stitching.

from wear, so that it is impossible to determine weave. It has straight cut edges, but no stitching. The weight and texture suggest a use other than clothing.

Mock leno or lace weaves, as the name suggests, are weaves designed to cause open spaces in the cloth (Oelsner 1952:166). These should not be confused with either the true leno weave in which paired warps are interlaced before inserting weft threads (Hollen and Saddler 1964:153), or with true lace, which is made from a different process. Instead, these are woven fabrics with a lacy appearance.

Two mock leno fabrics were identified in Feature 12 (figure 2.115). These include:

a) 2 square inches of extremely lightweight, soft, loosely woven olive green (5 Y 3/2) wool. It is an unbalanced weave with paired warps and single wefts. The wefts are very loosely interwoven in a satin weave, to create an open, gauze-like structure. The weight of the fabric suggests use as a fine linen or ladies garment.

b) 2.5 - 3 square inches of lightweight, lacy, olive-green (5 Y/ 2/2) wool. The fabric is woven in a plain weave, with warps and wefts very distantly spaced to create large square openings in the material. Both warps and wefts are paired. The fabric strip is approximately 5 inches long, and 1/2 to 3/4 inch wide, suggesting it may have been used as a ribbon or decorative trim of some sort.

Pile weaves are weaves which display a raised surface (Held 1978:193). They are commonly used for rugs, upholstery, or other heavy, coarse materials. Twining is a type of low pile weave in which "two or more weft yarns are twisted around one another as they move across the warp" (Held 1978:196). Approximately 2.5 square inches of low pile twined material were recovered. It is an extremely heavy, coarse, golden-brown (2.5 Y 5/4) wool. The exact structure is difficult to determine because of poor preservation, but weft yarns do appear to be intertwined.

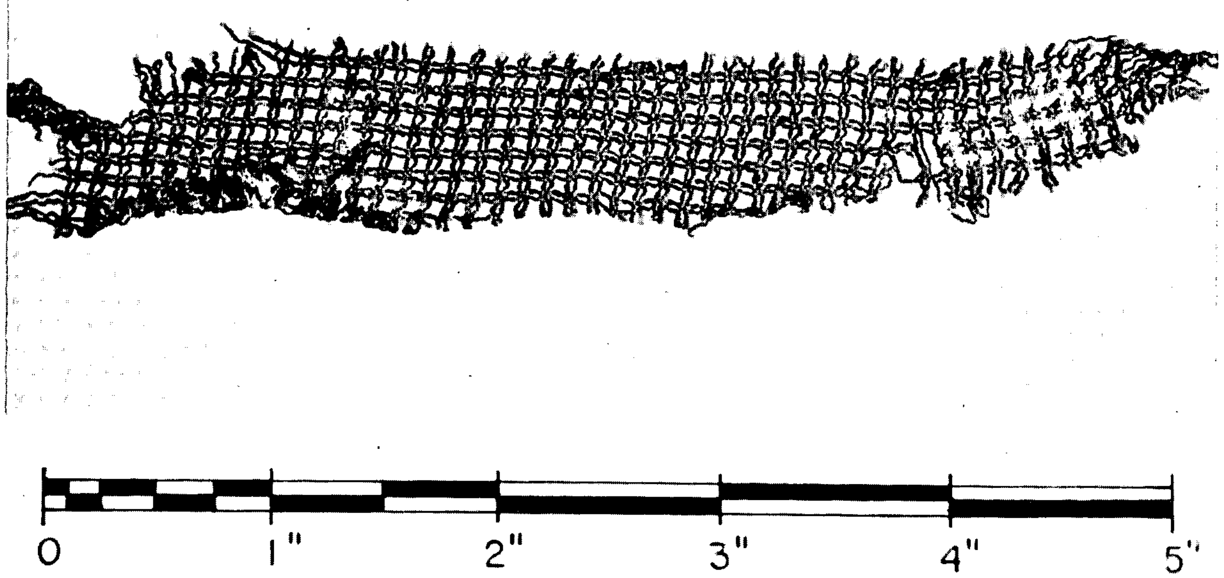


Figure 2.115: Mock leno weave.

Non-Woven Fabrics

Several non-woven wool fabrics were also identified. These include felts, knits, and crocheted materials.

Approximately 11.5 square inches of heavy, brown (10 YR 3/2) felt were found in Feature 12. The irregular size and shape of the pieces suggests they are scrap remnants from sewing activities.

About 14 square inches of tightly knit, medium weight, green (7.5 Y 2/2) wool was identified. The fabric structure is a plain jersey or stocking knit. These are knit materials in which all the loops are formed on one face of the fabric, resulting in a textile with 2 distinct faces (Emery 1966:40; Encylopaedia of Textiles 1972:354).

Approximately 29.5 square inches of bulky, faded, blue-green (5 Y 2/1) wool material were also recovered. It appears to have been crocheted, and has a lacy, loose weave structure suggestive of a shawl or lap blanket.

Other wool materials include over 66 square inches of ravelled or badly napped blue-green (10 BG 2/4) yarn, and 22 square inches of lightweight, olive-green (5 Y 2/1) fabric with an unknown structure (figure 2.116). The latter consists of fine crimped threads laid side by side and oriented in a single direction. The means by which these threads hold together is unknown since there is no evidence of weaving or interlooping of any kind.

The remaining fabrics in Feature 12 are cotton or wool-cotton blends. Under high magnification, cotton fibers appear flat and ribbon-like and are twisted throughout their length (Encyclopaedia of Textiles 1972:71).

About 228 square inches of heavy, brown (2.5 Y 3/4) wool-cotton blend fabric were found. It has a balanced 2/2 weave structure of a type referred to as "broken twill". This is a type of twill weave in which the

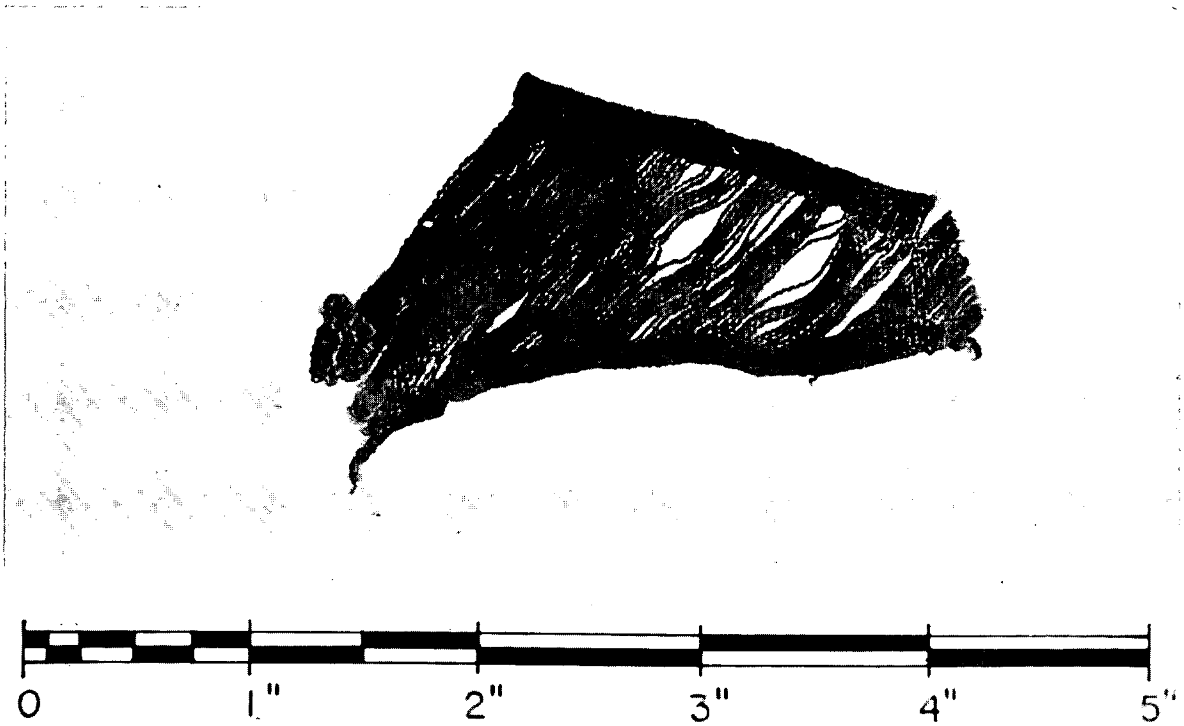


Figure 2.116: Fabric with unknown structure.

diagonal alignment of binding points is never maintained over more than two weft threads (Emery 1966:95). Although the material is thick, the fabric itself is loosely woven and very flexible. The edges of some pieces are burned.

One piece of olive-green (7.5 Y 3/2) cotton braid was found in Level 8 (figure 2.117). It is folded lengthwise down the middle, and measures 3/4 inch wide and 2-1/4 inches long. Braiding is a special type of fabric construction made by the diagonal interlacing of yarns (Hollen and Saddler 1964:128). Unlike woven fabrics, braid has no selvages, becaue individual threads are woven back into the fabric when they reach the outside edge. This interlacing continues in a zig-zag fashion throughout the entire length of the braid. Braided fabrics are typically very stretchy and are frequently used for hemming, or for decorative trim.

Levels Above Feature 12

Two additional textile fragments were found in the levels above Feature 12. These include:

a) Approximately 1 square inch of olive-green (5 Y 3/2) double cloth. It is a soft, tightly woven wool fabric with a 4/1 satin weave structure on one face. The opposite face is badly napped.

b) 6 square inches of coarse, faded brown (10 YR 2/1) plain weave material, of an unidentified fiber.

Discussion

As with the shoe leather, the cloth recovered seems to indicate either inexpert sewing activities, as of students, or extremely austere conditions. Many of the fabric scraps recovered have been intentionally cut odd sizes, indicating they may represent sewing remnants or possibly

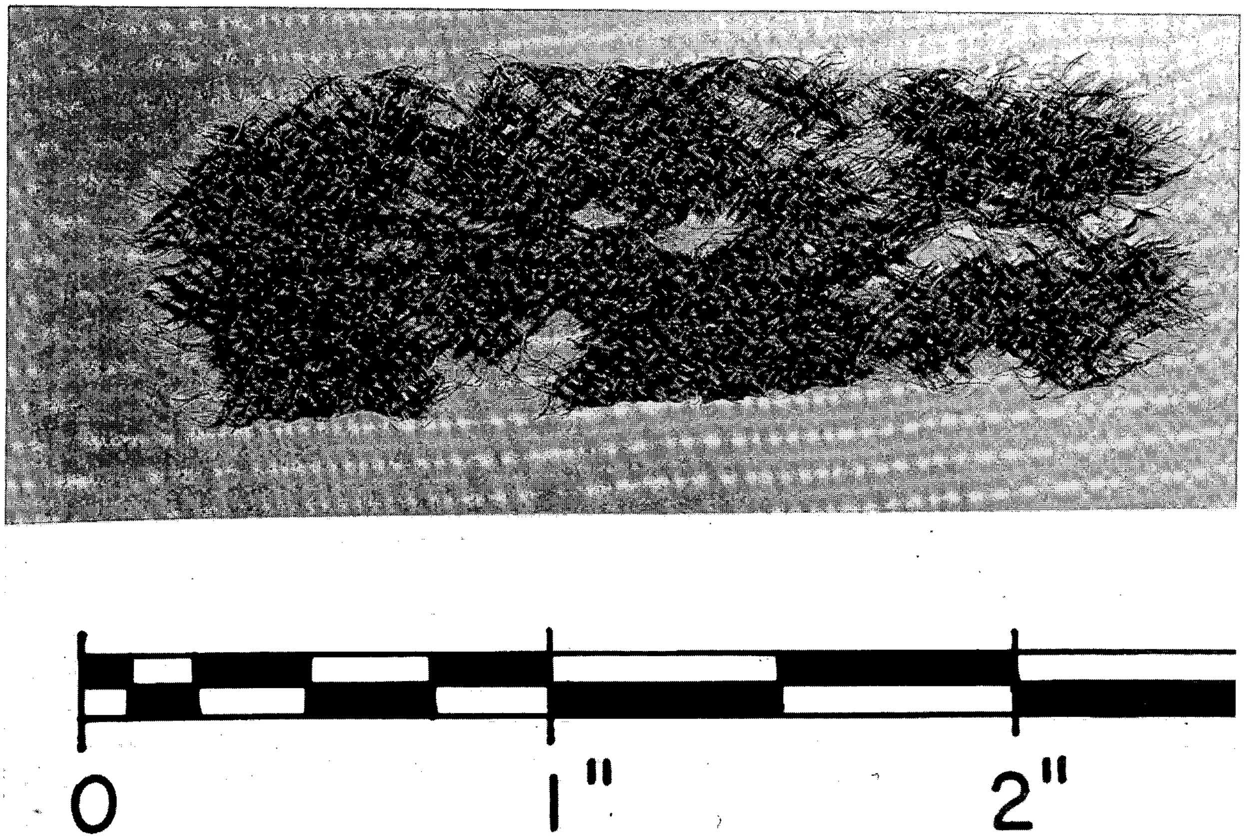


Figure 2.117: Cotton Braid.

remnants left after making bandages. Several of the pieces recovered are poorly and irregularly stitched, and some display a number of different stitching types. All of the above suggests student practice.

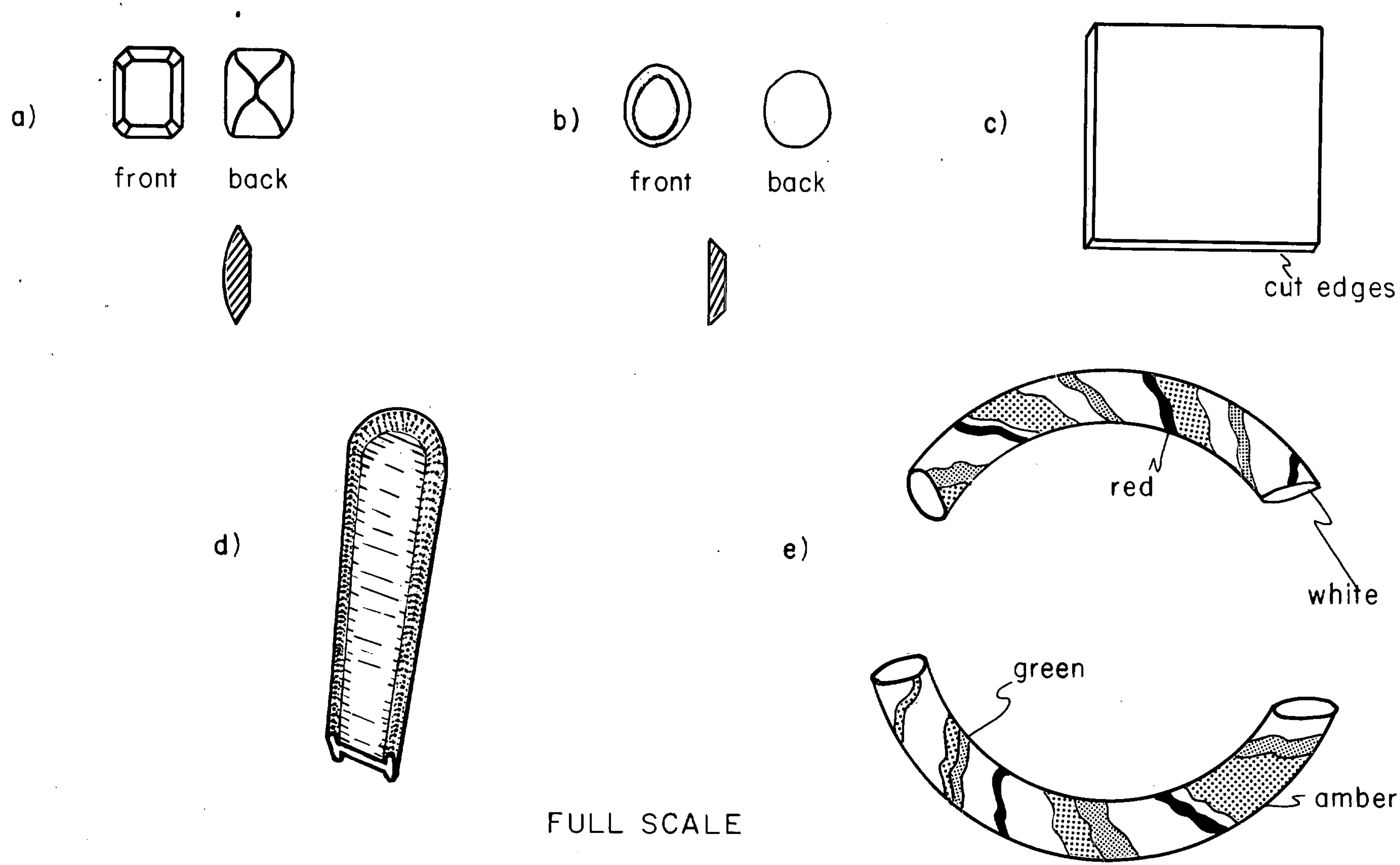
An alternate, but not necessarily mutually exclusive explanation suggests these characteristics are the result of impoverishment. Pieces intentionally cut of garmets indicate reuse, possibly for sewing practice, bandages, or both. One buttonhole on a shirt placket has been mended intentionally and reinforced, using contrasting color thread.

OTHER AMBIGUOUS GROUP ARTIFACTS

Several other unusual items are also included in the ambiguous group. These include three transparent green glass fake gems found in Feature 12. These gems could have been used for pesonal ornamentation if mounted in a setting, or to decorate clothing or other objects. Two are rectangular with multi-faceted edges. The third is an oval cut with a flat back and a bevelled edge (figure 2.118a, b).

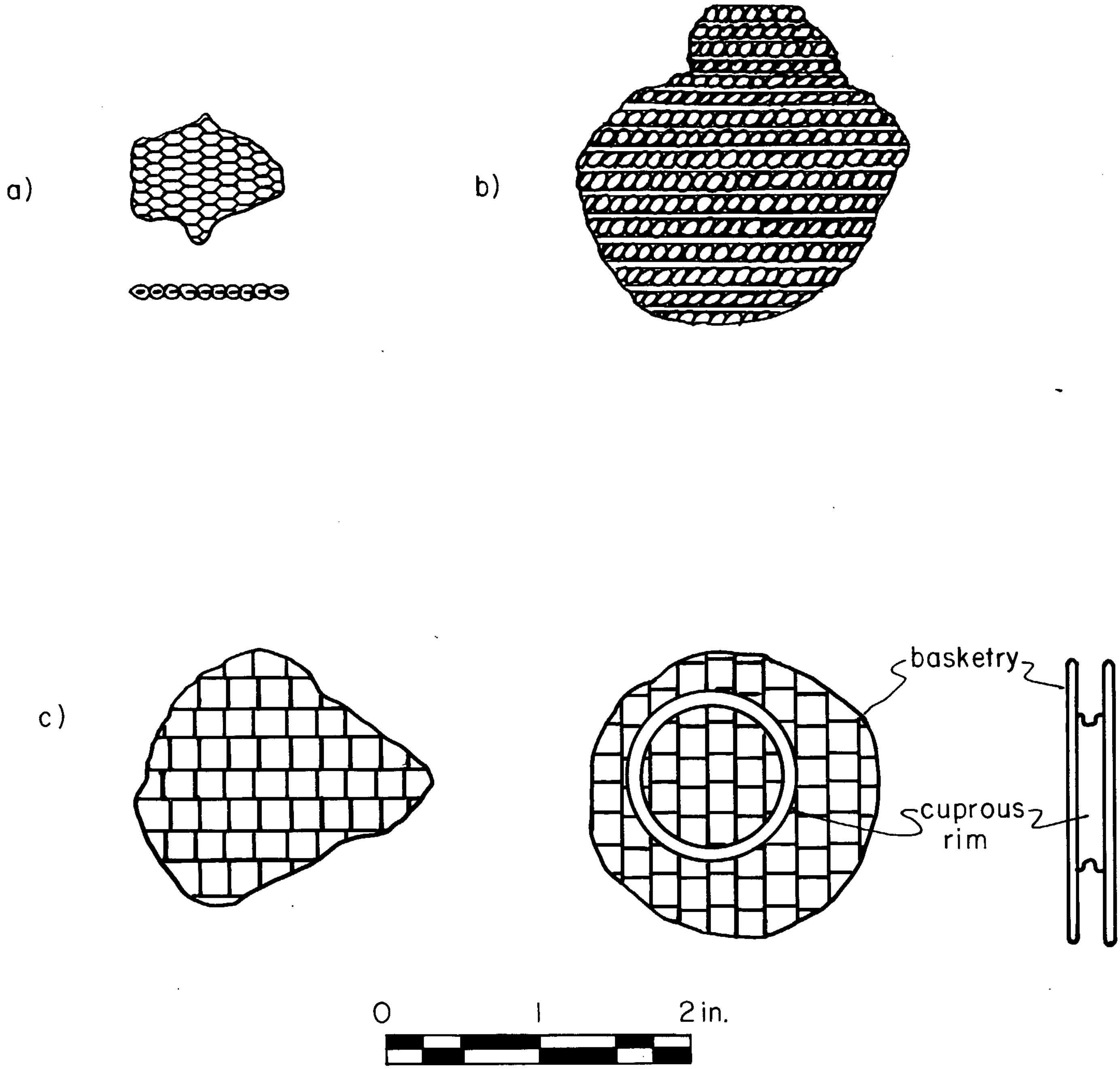
Ten pieces of basketry (figures 2.119 and 2.120) were also identified. These include five pieces of flat, plain weave, plaited basketry, one piece of coiled basketry, and three pieces of simple twined basketry. The final piece was too badly deteriorated to determine structure. All of the pieces were too small to determine original function or use. Many are multiple thicknesses with individual layers of basketry placed one atop another. One round piece appears to be attached to a cuprous cylinder, but the association may be fortuitous (figures 2.119c and 2.20). Copper oxides often tend to adhere to nearby organic materials, which in turn are preserved by the salts.

Three rectangular flat clear glass plates which measure 1-1/2" x 1-3/8" x 1/16" were found in levels 6 and 7 (figure 2.115c). Although resembling window glass, they have been intentionally cut to this size with right angle corners, indicating a different use. Possibilities include



a-b) emerald green fake glass gems c) aqua tinted glass plate d) ferrous jappaned handle
e) milk glass cylinder

Figure 2.118: Ambiguous function artifacts.



a) twined basketry b) coiled basketry c) plaited basketry fragment associated with cuprous metal rim

Figure 2.119: Basketry fragments.

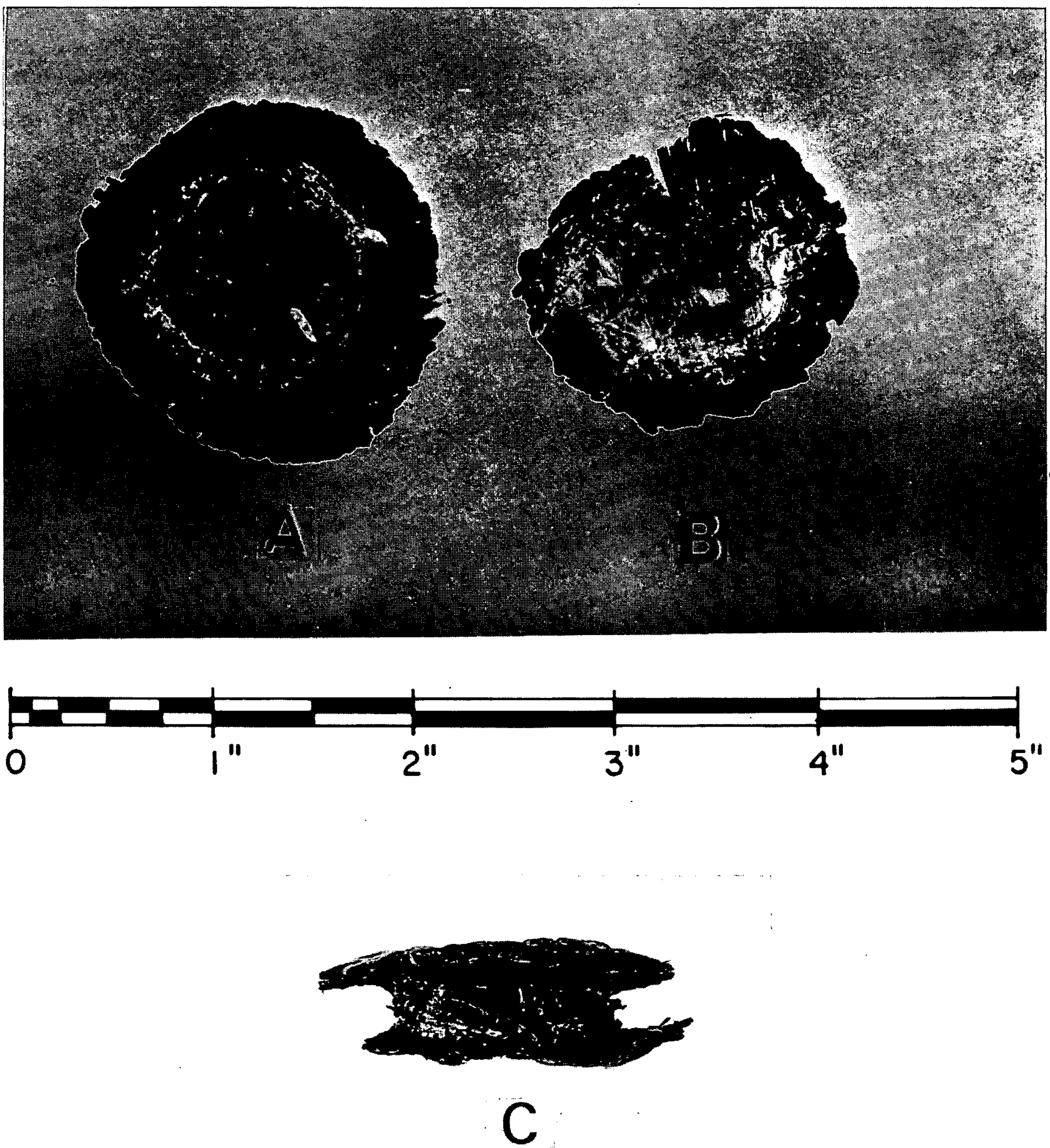


Figure 2.120: Basketry with copper ring attached. a) flips over onto b); c) side view.

daguerrotypes or trade mirrors. Woodward (1976:23) notes that many trade mirrors consisted of small circular or quadrilateral pieces of glass coated with mercury. With time, the mercury peels off, and all that remains is the glass. Several pieces of isingglass (mica) were found in the vicinity of these objects, so it is possible they may have been mirrors. Mica windows were often used in stoves and ovens, as well.

Eighteen cleaning sponge fragements were also identified. These may have been used either for housekeeping or in a health care context at the hospital.

Fragments from two decorative round milk glass cylinders were found in Feature 12. These have an opaque white core with "candy cane" stripes of amber, green, and red around the outside (figure 2.118e). The two pieces may mend to form a 3-inch diameter bracelet, or they may be parts of a handle or knic-knac of some kind.

One ferrous japanned handle (figure 2.118d) has also been included in this group as it is too fragmentary to conclusively determine function. It may be part of a cooking pot, stove lid, or a tool of some sort.

FIGURE 2.121: AMBIGUOUS GROUP

	Feature 12	Outside Feature
Basketry		
plaited	5	-
coiled	1	-
twined	3	-
unknown	1	-
Fake Glass Gems	3	-
Flat Glass Plates	3	-
Milk Glass Cylinder	2	-
Sponges	17	1
Ferrous Handle		1

CLOTH (AMOUNTS IN SQUARE INCHES)

	Feature 12	Outside Feature
Wool		
Plain weave	894	-
rib weave	39	-
twill weave	424	-
satin weave	101	-
crepe weave	4	-
Novelty weave		
double cloth	33	1
mock leno weave	5	-
pile weave		
twining	2.5	-
Non-woven fabrics		
felt	11.5	-
jersey/stocking knit	14	-
other	117.5	-
Wool-Cotton Blend		
Broken twill weave	228	-
Cotton		
Braid	3	-
Unknown		
Plain	-	6

UNCLASSIFIED GROUP

Artifacts which could be classified neither by function or means of manufacture were included in the unclassified group. These include items the cataloguer could not recognize, but someone else may be able to (whatsits); items no one could identify (unknowns) and items which have been changed in some manner to make their original function meaningless (changed). Of the artifacts in the latter category, all have been burned.

Figures 2.122 and 2.123 summarize artifacts in the unclassified group. Those included in the whatsits class are also illustrated in figure 2.124 in the event someone else may be able to identify an item we could not.

FIGURE 2.122: UNCLASSIFIED - UNKNOWN

Artifacts	Inside Feature 12	Gram Weight	Outside Feature
Miscellaneous Metal			
Ferrous	249	(1108.7)	
		(232.1)	18
Cuprous	21	(30.5)	
		(6.7)	3
White Metal	10	(20.3)	
		(1.0)	2
Lead	18	(108.4)	
		(2.8)	1
Plastic Fragments			
Red			1
Yellow			5
Black	1		
White			1
White Vinyl w/ Pink Flowers			1
Black Composition Fragment	1		
Ferrous Bars/Rods/Cylinders	11		4
Milk Glass Sherds			
Blue	1		
White			7
White Gum-Like Substance (Putty?)	1		

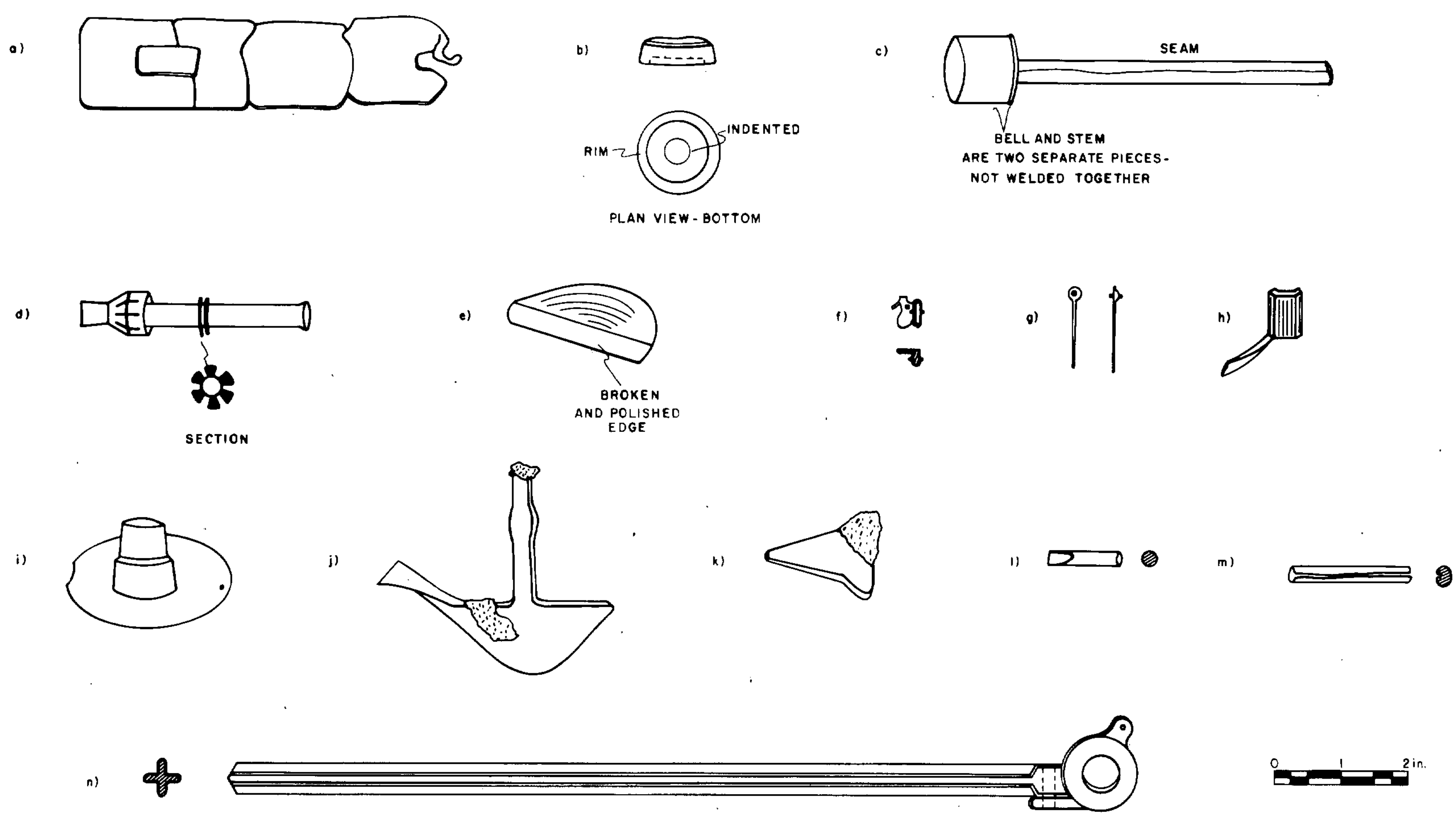
UNCLASSIFIED - WHATSIT

Iron Objects			3
Stainless Steel Objects			1
Cuprous Metal Objects	7		
Ceramic Objects			1
Lead Objects	2		
Glass Objects	1		

FIGURE 2.123: UNCLASSIFIED - CHANGED

Artifacts	Inside Feature 12	Gram Weight	Outside Feature
Burned Coal		(11.0)	1
Burned Brick	3	(53.2)	
		(34.8)	2
*Charcoal	1620	(236.5)	
		(31.6)	87
Clinkers	1	(67.2)	
Burned White Metal Cylinder			1
Burned Glass			
clear	20		
aqua	2		
amber			1
cobalt blue	1		
green	2		
green center/white exterior			2
Burned Milk Glass			1
Burned Ceramic	2		

*Total number/volume represents a sample of this material only. Charcoal was collected in a random, non-systematic manner.



Materials: a,b,c,f,g,i) cuprous metal d) steel e) clear glass h,m) lead j,k,n) ferrous metal l) buff colored porous ceramic

Figure 2.124: Whatsits.

CONCLUSIONS

It was hoped that through analysis of the artifacts recovered, the nature, origin, and date of the Feature 12 deposit could be determined. Unfortunately, the artifactual evidence presents a confusing and not entirely conclusive view of these questions.

FUNCTION/ORIGIN

Excluding the Unclassified and Ambiguous Groups, figure 2.125 presents the functional distribution of artifacts found in Feature 12. This distribution is based on number of sherds or fragments rather than minimum number counts, since it was impossible to quantify many of the structural artifacts in other terms.

The medical class has the highest frequency of non-domestic artifacts recovered (10.2%), suggesting that at least part of the deposit originated from one of the hospital occupations. The relatively high frequencies of domestic group and personal group artifacts need explanation in light of this interpretation, however.

Certainly the presence of large numbers of beverage storage, food storage, and food serving vessels is relatively easy to explain. As mentioned previously, liquor bottles in the Beverage Container class could easily represnt a medical association, as could two of the food storage bottles. Even if the latter do not represent a direct medical use, they are easily explained refuse from food preparation activities at the hospital kitchen. Certainly, the large number of tea sets recovered also suggests an institutional rather than single family origin.

More difficult to explain in connection with a hospital interpretation is the large number of personal artifacts found. Perhaps in part, this can be explained by the maintenance of personal residences at the hospital. Historic sources indicate that during the American period, at least,

Figure 2.125: Functional Distribution of All Artifact Classes in Feature 12

DOMESTIC	5,198	46.3%
Food storage	1,559	13.9%
Beverage Containers	2,548	22.7%
Food Serving	1,091	9.7%
PERSONAL	1,016	9.1%
Clothing	663	5.1%
Coins	1	0.1%
Grooming	47	0.4%
Ornamentation	305	2.7%
ACTIVITIES	2,014	18.0%
Medical	990	8.8%
Education	5	0.1%
Communication	3	0.1%
Boating	1	0.1%
Children	4	0.1%
Construction	1	0.1%
Furniture	1	0.1%
Ethnographic	1	0.1%
Hunting/Warfare	9	0.1%
Smoking	6	0.1%
Bulk Storage	993	8.9
STRUCTURAL	1,504	13.4%
Window Glass	743	6.6%
Nails	708	6.3%
Hardware	51	0.4%
Utilities	2	0.1%
Materials	1,487	13.3
TOTAL	11,219	

medical officers and their families resided at the hospital. Describing the post hospital at Sitka, Dr. Brooke (1875:408) writes:

> The portion of the first floor which is on the east side of the hall is divided into five rooms of reasonable size, and is used as quarters by the medical officer resident at the hospital.

That this residence was used by families as well as bachelor officers seems certain. Sophia Cracroft (DeArmond 1981:16) writes:

> . . . in the afternoon we took a walk which led us past the Hospital which is certainly one of the most attractive buildings here--Dr. and Mrs. Ensign live here, in charge of it and we went in receiving a cordial welcome.

DATES

Examining the assemblage as a whole we find a terminus post quem of 1860 (figure 2.126), and a mean artifact date of 1857.1± 14.7 (figure 2.127). The mean bottle glass and ceramic dates are 1864.4± 11.0 (figure 2.128) and 1842± 9.3 (figure 2.51), respectively. As mentioned previously, the large difference between these two dates is likely due to the shorter period of use of bottle glass as compared to ceramics, indicating the former more closely approximates the period of deposition.

The principle investigator believes a date of 1860 to be the most likely based on this data. It is very likely that the mean ceramic dating is not accurate after about 1830 when generic whitewares became ubiquitous and decorating techniques became somewhat institutionalized. The long manufacturing ranges for most ceramic types after this date, and the increased durability of wares results in a skewing towards too early dates. Bottles are much more likely to be deposited soon after manufacture. Since both the bottle date and the combined date approximate the terminous post quem of 1860, Blee regards this as the likely date of deposition.

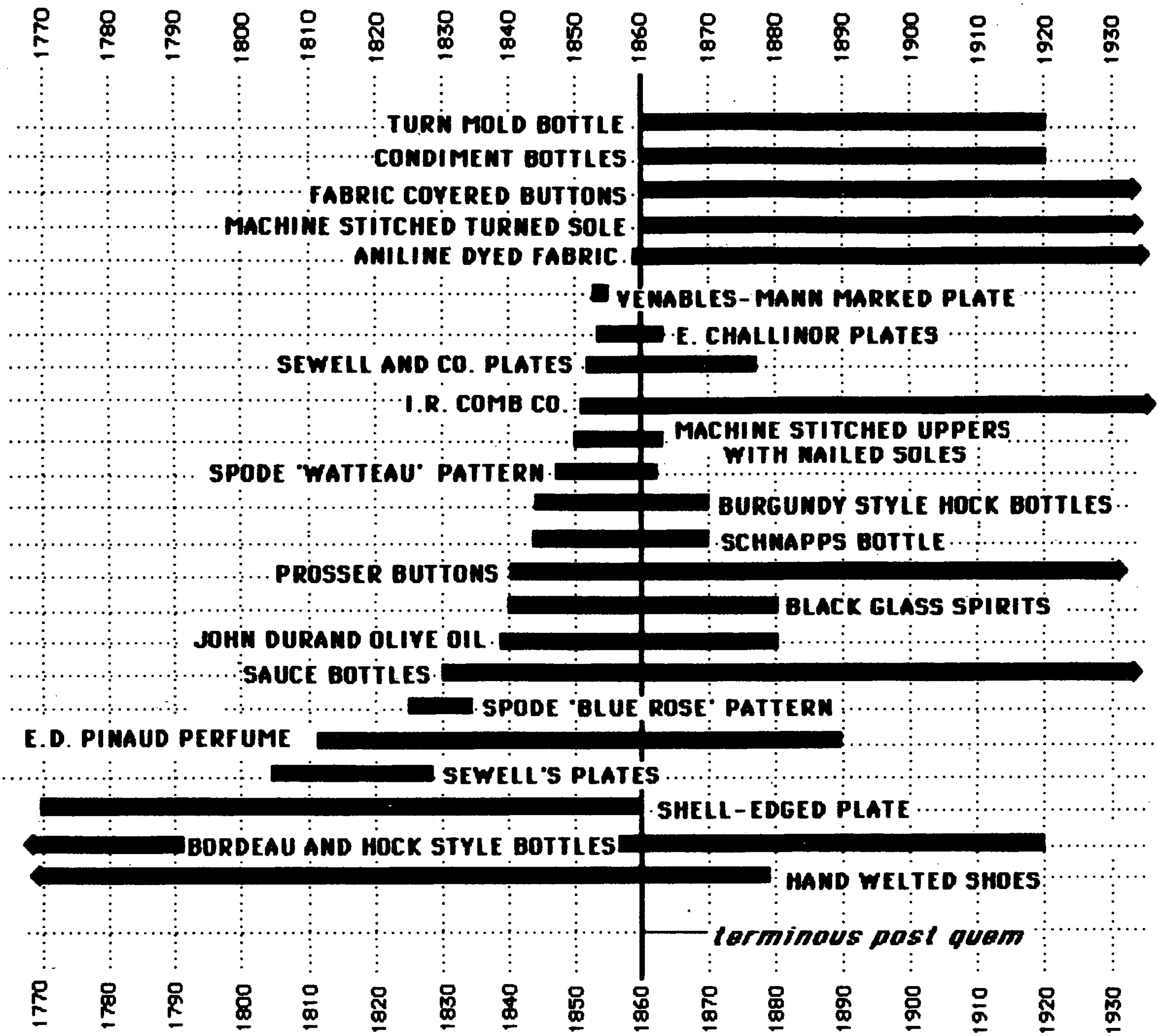


FIGURE 2.126: MANUFACTURING DATES OF ARTIFACTS IN FEATURE 12.

FIGURE 2.127: MEAN ARTIFACT DATES

Artifact	Date Range	(x_i) Median Date	(f_i) Min. Vessel	($f_i . x_i$) Product	($f_i . x_i^2$)
Burgundy style wine bottles	1845-1870	1857.5	7	402.5	23143.75
"Black" glass spirits bottles	1840-1880	1860	25	1500	90000
Schnapps bottle	1845-1870	1857.5	1	57.5	3306.25
Turn mold bottles	1860-1920	1890	2	180	16200
John Duran olive oil	1837-1880	1858.5	1	58.5	3422.25
Sauce bottle	1830-1920	1875	1	75	5625
Condiment bottles	1859-1920	1889.5	4	358	32041
Wide mouth case bottles	1830-1920	1875	1	75	5625
Sewell Manufactures	1804-1878	841	14	574	23534
E. Challinor Manufactures	1853-1861	1857	2	114	6499
Venables-Mann Manufactures	1853-1855	1854	1	54	2916
Watteau Pattern	1847-1861	1854	1	54	2916
Blue Rose Pattern	1825-1833	1829	1	29	841
Shell Edge plate	1770-1860	1815	1	15	225
Machine stitched upper w/ nailed soles	1850-1861	1855.5	1	55.5	3080.25
			63	3602	219374.50

$$Y = 1800 + \frac{3602}{63} \qquad S = \frac{219374.5 - \frac{(3602)^2}{63}}{62}$$

$$Y = 1857.1 \qquad S = 14.7$$

Mean Date = 1857.1± 14.7

FIGURE 2.128: COMBINED MEAN MANUFACTURING DATE OF BOTTLE GLASS IN FEATURE 12

Artifact	Date Range	(x_i) Median Date	(f_i) Min. Vessel	($f_i \cdot x_i$) Product	($f_i \cdot x_i^2$)
Burgundy style wine bottles	1845-1870	1857.5	7	402.5	23143.75
"Black" glass spirits bottles	1840-1880	1860	25	1500	90000
Schnapps bottle	1845-1870	1857.5	1	57.5	3306.25
Turn mold manufactured liquor bottles	1860-1920	1890	2	180	16200
John Duran olive oil	1837-1880	1858.5	1	58.5	3422.25
Sauce bottle	1830-1920	1875	1	75	5625
Condiment bottles	1859-1920	1889.5	4	358	32041
Wide mouth green case bottle	1830-1920	1875	1	75	5625
			42	2706.5	179363.25

$$Y = 180 + \frac{2706.5}{42} \qquad S = \frac{179363.25 - \frac{(2706.5)^2}{42}}{41}$$

$= 1864.4$

Mean Date = 1864.4± 11.0 $\qquad$ S = 11.0

It must be remembered the dates obtained are a measure of the period of manufacture only. While there may be some correspondence between the period of manufacture and period of use/deposition, the relationship is by no means clear. The phenomena of time lag must be taken into consideration when interpreting these results. Even with bottle glass, which is assumed to have a relatively short lag, the difference between period of manufacture and period of deposition has been shown to vary between three to thirty-three years on other late nineteenth century sites (Hill 1982). This suggests that although the artifacts recovered seem to have been manufactured during the Russian period, the actual period of deposition may be much later, possibly even representing the American occupation. Although the presence of a few Cyrillic marked artifacts and numerous tea sets seems to suggest a Russian occupation, these items are not found in large enough quantities to be conclusive. Other data besides strictly artifactural ones must be used to date the deposit.

CHAPTER 3

THE QUANTITATIVE ANALYSIS

OF THE ARTIFACTS

By

Catherine Holder Blee

THE QUANTITATIVE ANALYSIS OF THE ARTIFACTS

This chapter is essentially a quantitative analysis of the artifacts found in the trash pit by means of two different artifact characterisctis: the function of the item, and its position within the pit. One way to determine who was responsible for the deposition of the trash was to place artifacts with similar uses into functional groups. This construct could then suggest the range of activities that contributed to the pit's formation. The presence of unusually high relative frequencies of certain types of artifacts could elucidate the problem of who was throwing away the trash. High frequencies of religious or educational materials might suggest the Russian Bishop's House as the point of origin; medical artifacts would be associated with the hospital; military items would imply the presence of the Army; and craft tools and educational materials might suggest the Sitka Industrial School. Determining what constituted a high relative frequency of these items was the crux of the functional analysis, for certain amounts of all types of items might be expected from any of the possible sources.

It was further important to establish the degree of representativeness of the deposit in order to evaluate the application of the data to the three research-oriented questions. The more specialized the activities represented by the trash, the more narrow the interpretation that could be put on the results of the hypothesis testing. Comparison with assemblages from sites of a similar time period could illuminate the generalized or specialized nature of the pit. For instance, the presence of such diverse items as nails, dishes, liquor bottles, pharmaceuticals, and bones suggested that a variety of daily, routine events were represented, rather than one, unique occurance which might have yielded only a limited number of types of artifacts.. This implied, but did not confirm, that the remains in the pit were fairly representative of ordinary activities in Sitka at the time of deposit.

The spatial analysis was undertaken for three main reasons. As Mustelli noted, although the manufacturing dates clustered around 1860, it was possible that either the occupants of the Russian Bishop's House or the hospital were the source of the trash. Since it appeared that some qualifiers would need to be placed on the general applicability of the research hypotheses, it was necessary to know who, specifically, the depositors were. It was expected that a detailed analysis of the way the trash lay in the pit would tell us from which direction the trash was being deposited, and thus contribute to our knowledge of who was doing the depositing.

Secondly, as noted in Chapter 1 on the excavation methodology, it was difficult to discern microstratigraphy under the given work conditions (i.e., limited work space, limited time, and poor lighting). The statistical techniques used in this analysis were devised to infer the presence of microstratigraphy and to establish whether more than one group of people were contributing to the trash in the pit. This, in turn, would affect the interpretations of representativeness. For example, it was suggested that perhaps initial deposits were built by the hospital occupants and the later ones by the people in the Sitka Industrial School. Since the two groups were operating under very different social and economic systems, depositor identity was important in understanding the supply system, use of alcoholic beverages and intercultural relationships.

Finally, the spatial analysis was undertaken because it was interesting. As will be demonstrated in Chapter 4, a spatial analysis of faunal elements had yielded important information about how many meal preparation events were represented, thus helping us to establish temporal limits on the length of time the pit was used, and helping to elucidate problems of assemblage representativeness. During excavation, we had noted that certain types of artifacts tended to be clustered in certain portions of the pit. This analysis, then, was at least partially intended to explain the clustering, and to see if, like the faunal analysis, any unanticipated information was forthcoming. In addition to its usefulness in the application of the data to the research hypotheses, this analysis was intended to induce new information.

FUNCTIONAL ANALYSIS

In this study of the functional distribution of artifacts, I compared the relative frequency (percent) of statistically frequent types of artifacts as they change through time and as they compare with other types of sites from the same general time period. It appears that those types of artifacts that appear most frequently in archeological sites tend to appear in relatively uniform percentages at any given time period and for any given type of general site function. Because of this relative uniformity, variances from the "normal" distribution can yield information about specific site function and change through time.

Several of the research propositions rely upon information derived from the analysis of the relative functional distribution of artifacts to confirm or reject posed hypotheses as stated in the Research Design (Blee 1983b:4-8). This study assists in the determination of the origin of the trash deposit, and provides useful information bout the irregularity of supplies, the control of alcoholic beverages, and the degree of Native influence on the material culture of the Russians.

Statistically Frequent Artifact Types

Figure 2.125 shows the relative percentage of each artifact class found in the excavations under the Old School Building. As can be seen at first glance, only a few of the classes contain more than 1% of the total assemblage, and most contain less than 5% of the artifacts. However, a few of the classes contain as much as 10-25% of the artifacts found in the excavation. Obviously, these high frequency types contain more functional information than do the very low frequency classes.

Nine of the 24 artifact classes in the assemblage contain 96.1% of the artifacts. The statistically frequent classes are: food storage containers, beverage containers, food serving vessels, clothing, medical implements, bulk storage containers, window glass, nails, and structural materials. All other artifacts appear in such low frequencies that they are statistically meaningless. While their presence can contribute qualitatively to the understanding of some of the activities that contributed to the accumulation of trash, they are relatively unimportant in an quantitative analysis of the material.

Two of these nine classes present additional problems in an analysis which involves relative frequency calculation. The Structural Materials class is composed of fragments of brick, wood, shingling, paint, etc., which were not collected consistently in the field. Bricks, especially, are a source of collection bias, since there tends to be much more variable fragmentation depending on the softness of the brick, whether it has been heated again after firing, whether it was exposed to weathering, and other sorts of taphonomic events. Wood decomposes differentially than brick or asphalt shingling, and paint chips are even more ephemeral due to their extreme fragility. Wood was collected only when it was obvious that it served some structural function, by having a cut or sawed edge; therefore its sampling was different than the brick, where both inner and outer fragments were collected. Unlike the other seven classes of artifacts, the material composition of the artifact types varies in degree of fragmentation and resistance to decomposition. The wood and ceramic bricks in the structural materials class decompose at substantially different rates than glass and ceramics in the Food Serving class, for instance.

The Clothing class presented a similar problem. Because the cloth, which constitutes a large portion of the class, was so fragile and deteriorated, it was quantified in terms of how many square inches of fabric were present. It is not possible to compare square inches with numbers of sherds in the statistical analysis.

For these reasons, I decided to eliminate the Structural Materials and Clothing classes from much of the quantitative analysis. It should be remembered, however, that both classes were present in considerable quantity. The remainder of the discussion will deal with the remaining seven classes of artifacts.

Food Storage. Artifacts that held food during storage. It primarily includes glass food jars, condiment bottles, and tin can fragments. Since very few of the latter could be identified, this class is essentially bottle glass.

Beverage Containers. Bottles that contained beverages. This includes wine, liquor, and beer bottles. They were separated as a class from the Food Storage bottles because the drinking of beverages often serves more than mere subsistence needs. It can also be medicinal or social in nature.

Food Serving. These artifacts were used to serve food and drink. They include plates, bowls, dishes, tumblers, wine glasses, and utensils. Others (South 1977, Comer 1980, Sprague 1981) have separated food serving from the beverage serving vessels and the utensils into separate classes, but the frequency of the latter two types are so small that it did not seem useful to split them from. All three types help us understand that food of a nutritional nature was being served by the depositors of the trash.

Bulk Storage. These items would have contained consumables that stayed in storage for some length of time. While they could have held food in bulk quantities, they might also have held chemicals, medicines, powders, gun powder or any other of a number of items. It includes large glass carboys, barrels, and crocks. The appearance of these items implies that consumable items were being stored for later use by the trash disposors.

Medical. This class includes any items whose primary function would have been in a medical context. Many of the other class artifacts could have been used to contain or process medicines, but such use cannot be probablistically determined from the form. Medical artifacts imply the diagnosis and treatment of illness.

Window Glass. Any consistantly flat glass sherds were assumed to be window glass fragments.

Nails. Not only entire nails, but also straight ferrous or cuprous shanks of the appropriate diameter were included in the class.

A Note on Bottle Glass Function. As Musitelli explained (p. 47), when no functionally diagnostic characteristics were present on a glass bottle sherd, function was assigned based on color. It was assumed that clear, aqua and "rare" colored glass contained food. Green and brown glass were assumed to have come from beverage containers. Very thin clear curved glass sherds were assigned to the Medical class due to the high frequency of mended tincture bottles found in the deposit. Although it is recognized that such glass could have been from lamp chimneys, all mended sherds were parts of tincture bottles. No evidence of rim sherds or reconstructed portions, were recovered from the deposit. Thick green tinted glass with a wide radius was assumed to be carboy glass, and so assigned to the Bulk Storage class. Since the determination of central tendencies is the goal of quantification anaylsis, it is not believed that infrequent exceptions to these rules substantially biased the results.

Grouping the Classes

In studying the seven classes, it becomes readily apparent that it is not appropriate to compare window glass with bottle glass, or nails with ceramic sherds. The processes that lead to the accumulation of nails, for instance, are entirely unrelated to the events that lead to the disposal of broken dishes. Artifacts associated with the construction, repair or demolition of buildings should not be compared directly with artifacts that result from the daily breakage and disposal of household items. For that reason, inter-class comparisons will be made only between classes of a given group.

The two major groups considered are Structural and Non-Structural Artifacts. One of the research hypotheses postulates that the trash pit was the result of cleanup activities of the Hospital building upon acquisition by the US Army, and that acquisition was accompanied by minor renovations to the structure. It is therefore important that the repair activities be isolated in this analysis.

For comparative purposes, the functional distribution of artifacts in and above the trash pit are compared with the assemblages collected during the 1981 excavations at the Russian Bishop's House and Old School (Blee 1985). Because these tests were well distributed across the site and represent a variety of different activity areas, it is assumed that the relative frequencies are representative of the functional distribution of artifacts from Sitka. Comparisons are further divided into 19th and 20th century assemblages to adjust for changes in technological advances between the two centuries. Since the Feature 12 assemblages were taken primarily from the ca. 1860 trash deposit and the post-1897 accumulation above, they are compared to the 19th and 20th century assemblages respectively from the earlier excavations.

The distribution of Structural to Non-Structural artifacts in the deposits above the trash pit compared to the relative frequency of each to all other 20th century deposits can be seen in figure 3.1. There is a significant difference in the distribution. The deposits above the trash pit consisted of 34.3% Structural artifacts, compared to an average of 51.0% on the rest of the site for the same general time frame, which is a much lower percentage. This relatively low ratio might be explained by the selecte origin of the fill, and by a kind of dilution of the freguency when Non-structural artifacts were introduced into the fill from the lower levels upon the addition of the 1808 foundations.

Figure 3.2 compares the 19th century deposits with the trash pit contents itself. Once again, there is a substantial difference in distribution. Only 16.4% of the trash deposit is composed of Structural artifacts, compared to 41.6% on the rest of the site. It is readily apparent that the construction, repair and demolition of structures did not contribute in a normal way to the contents of the pit. The breaking of window panes and minor repairs needing nails apparently were the only types of Structural activities represented by the trash.

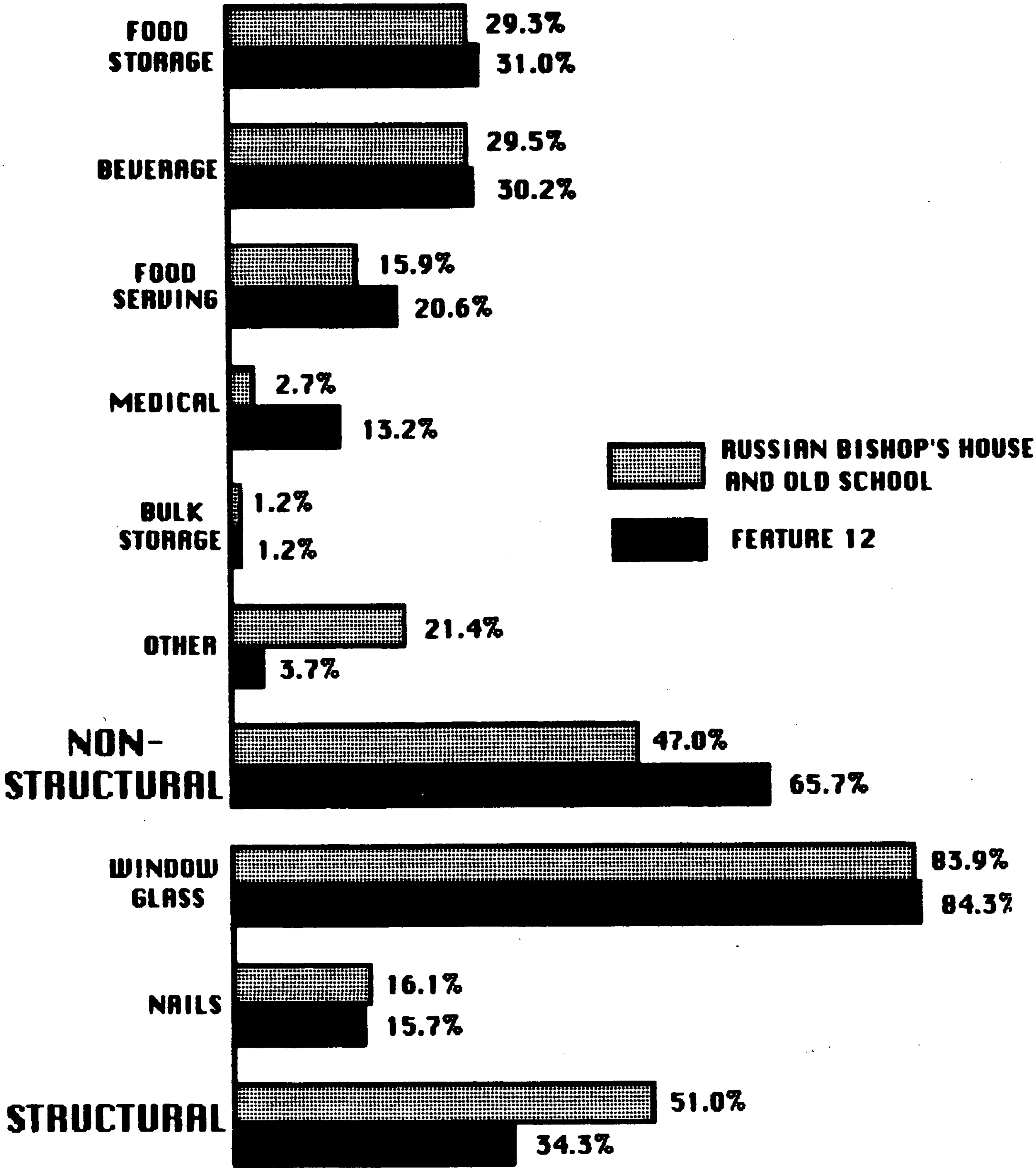


FIGURE 3.1: COMPARISON OF THE FUNCTIONAL DISTRIBUTION OF STATISTICALLY FREQUENT CLASSES IN 20TH CENTURY DEPOSITS

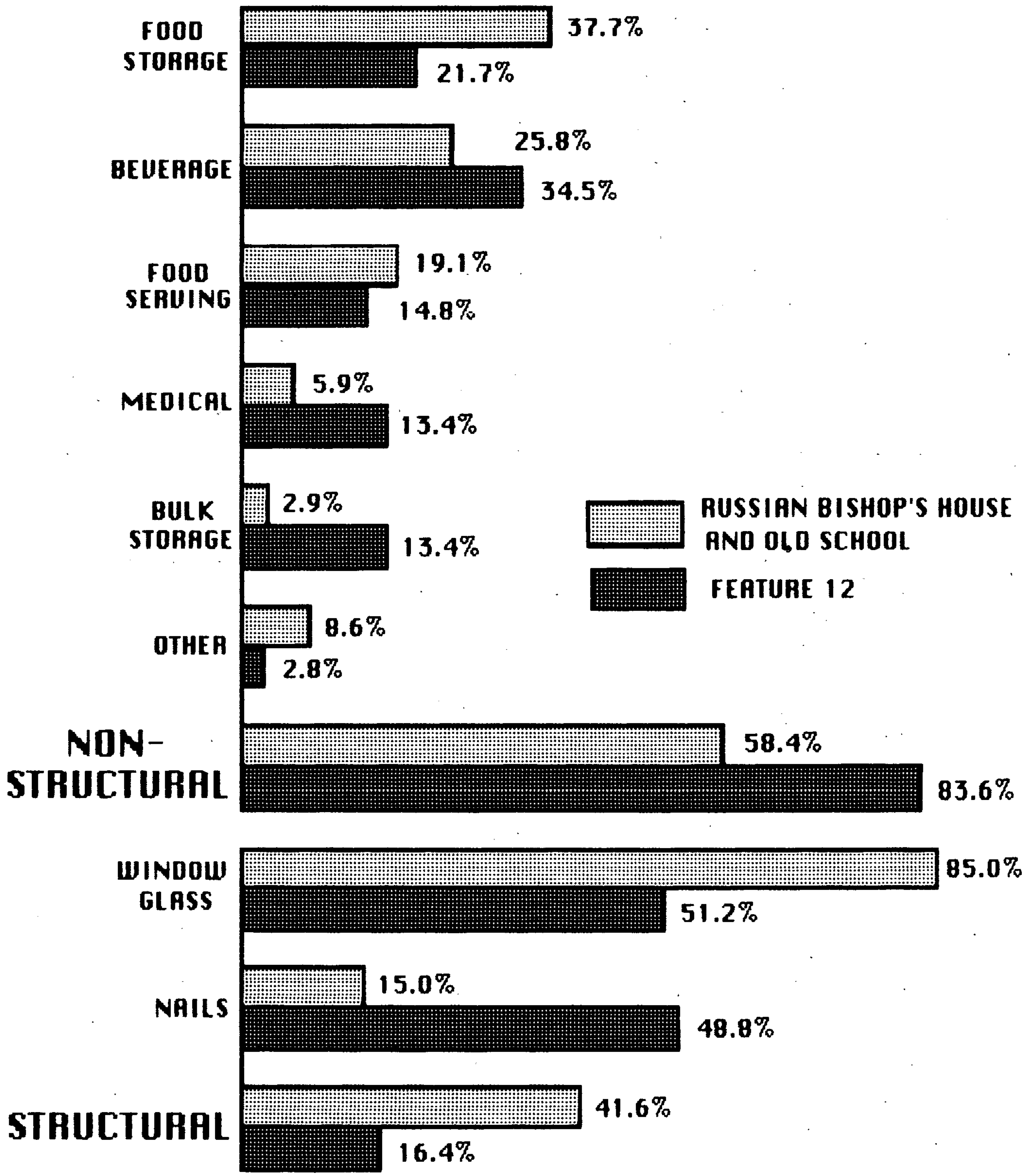


FIGURE 3.2: COMPARISON OF STATISTICALLY FREQUENT CLASSES AND GROUPS IN THE 19TH CENTURY DEPOSITS.

Interclass Comparison

Non-Structural Artifacts. Return now to Figure 3.1. At the class level, some frequencies compare very favorably, suggesting that the processes forming the layers over the trash pit were comparable to those occurring at the rest of the Bishop's House. The Medical class differs substantially: 13.2% of the Non-Structural artifacts were in the Medical class above Feature 12, as opposed to only 2.7% on the rest of the site. Note that the Other class, which is comprised largely of other classes of Activities Group artifacts, compensates for this difference. On the rest of the site 21.4% of the Non-Structural artifacts are in this Other class, as opposed to only 3.5% in the trash pit. When the Medical class is combined with the others in the Activities Group, the frequencies are more comparable.

The relatively high frequency of Medical class artifacts above the trash pit, like the low frequency of Structural artifacts, suggests that some mixing of the upper and lower layers had occurred.

A similar comparison of the trash pit deposit in Feature 12 and other 19th century deposits from around the Russian Bishop's House and the Old School is shown in Figure 3.2. At the interclass level, the two are quite dissimilar, demonstrating the uniqueness of the collection.

Over a quarter of the Non-Structural artifacts in the trash pit are in the Medical (13.4%) and Bulk Storage Classes (13.4%), as opposed to less than a tenth in the other deposits (5.9% and 2.9%, respectively). It is readily apparent that the specialized activities engaged in by the depositors of the trash included the bulk storage of consumables and the preparation, use and storage of medical supplies. When we consider what types of artifacts comprise the Bulk Storage Class, it becomes even more convincing that Medical activities are strongly represented in the deposit. Included in this class are 332 sherds of green carboy glass and 338 sherds of red earthenware crocks, accounting for 67.5% of the class. Both types of artifacts could well have been used to store medical supplies. (The remaining sherds include 320 fragments of ferrous barrel hoops.)

As a reinforcement of the proposition that Medical activities were an important contributor to the trash pit, note that fully 34.5% of the Non-Structural artifacts consist of Beverage class, compared to only 25.8% in the rest of the site. As Musitelli discusses in some detail on page 78, liquor bottles contained important medicine in the 19th century. If the 670 sherds of the Bulk Storage class and the 2,498 sherds of beverage bottles are considered in addition to the 990 Medical class sherds, fully 43.5% of the artifacts (discounting Structural Materials and Clothing) could have been used in a medical context. Add to that the olive oil bottles, cloth, and sea urchin shells (see Chapter 4, page 333), the percentage becomes even greater.

The remaining three classes are all Domestic Group artifacts. The only class that appears not to vary greatly from the other 19th century deposits is the Food Serving Class. A 2 x 2 contingency test (Siegal 1956:107) of the Serving class artifacts and the combined Beverage and Food Storage in the two samples yields a chi square value of 1.84, which is not significant at the 0.05 level of significance. This in essence means that there is no significant difference in the relationship between Food Serving and the other Domestic Group artifacts when the Trash Pit assemblage is compared to other 19th century deposits at the Russian Bishop's House. The trash has an essentially "normal" distribution of Food Serving artifacts.

A similar test on the other two classes yields different results. When the Beverage class artifacts are compared to the Food Serving and Food Storage class combined, a chi square of 92.43 is obtained. When the Food Storage class is compared to the other two, chi square equals 81.63. Since the critical value of chi square at a 0.05 level of significance and one degree of freedom is 3.84, it is readily apparent that a significant difference between the two assemblages exists. There is a significantly smaller proportion of Food Storage sherds and significantly greater proportion of Beverage Containers in the trash pit than in other 19th century deposits around the Russian Bishop's House.

The larger proportion of Beverage Containers appears to make sense in light of the argument presented earlier on the use of alcoholic beverages as medicine. Since the chi square test shows that the lower Food Storage frequency is not a function of the high Beverage, Medical or Bulk Storage classes, some other explanation must exist. It is possible that food in the form of condiments, sauces, or canned goods was not as frequently consumed by the people disposing of trash in Feature 12 as by those disposing of trash around the Russian Bishop's House. This conclusion has some bearing on the discussion of the socioeconomic status of the trash pit disposers.

Structural Classes

The Structural artifacts, for this discussion, are composed of Window Glass and nails. In figure 3.1 it is quite easy to see that there is little difference between the proportion of window glass to nails in the two types of twentieth century deposits. In fact, a 2 x 2 contingency test yields a value of 0.12, which is not significant (alpha = 0.05; df 1; cv = 3.84). However, in figure 3.2 it is equally apparent that other processes were responsible for the relative distribution of window glass and nails. The "representative" 19th century assemblage is compromised of 85.0% window glass and 15.0% nails. This is surprisingly like the 20th century deposits. In fact, a 3 x 2 chi square test shows that it is essentially the same as in the 20th century (chi square = 0.61; df = 2; alpha 0.05). However, the trash pit Structural artifacts are comprised of 51.2% window glass and 48.8% nails. Since window glass tends to accumulate along the outside walls of buildings with windows, this functional distribution suggests one of three things: 1) the pit was some distance from a structure; 2) it represents the accumulation of artifacts from inside a structure; and/or 3) the structural artifacts present represent minor, day-to-day repair activities, rather than demolition activities.

THE SPATIAL DISTRIBUTION OF ARTIFACTS

We know now that the trash pit contained a substantially greater proportion of Beverage class, Medical class, and Bulk Storage class artifacts than other deposits of the same time period in the general vicinity. Likewise, it contained significantly lower proportions of Window Glass and Food Storage items. But these figures were discerned by studying only the relative proportions of artifacts in the pit. What about the absolute frequencies of each type of artifact? What can those figures tell us about the depositors of the trash?

It was initially believed that a study of the spatial distribution of the absolute frequency of given artifact types in the trash pit would tell us two things about the depositors of the trash: 1) who they were; and 2) how the artifacts got there. The first applies directly to questions asked in the Research Design. The second was believed to be useful in determining the length of time in which the deposit was formed, which in turn would help us to evaluate the representativeness of the data; i.e., whether the information extracted from the pit could be useful in interpreting general lifeways in the late Russian period in Sitka. This in turn could help us to evaluate the usefulness of three of the six research hypotheses posed in the Research Design.

The distribution of artifacts through space in the pit was analysed on two dimensions: the horizontal and the vertical. In each case, the absolute frequency of artifacts in a given provenience was adjusted for provenience size to yield an artifact density. Density is defined as the average number of artifacts for a given volume of excavated material.

The trash pit was divided into 50 cm square units; however, very few of the units were actually 50 cm by 50 cm square (2,500 square cm), as described in the first chapter (see page 10). As a result, only two of the units measured an even 2,500 square cm in horizontal extent: N9.5W1 and N10W1. Figure 3.3 is a listing of the horizontal adjustments that

Figure 3.3: Areas and horizontal density adjustments for each unit.

UNIT	Area	H=area/ 2500
N10 E0.5	750	0.300
N10 W0	2402	0.961
N10 W0.5	2488	0.995
N10 W1	2500	1.000
N10 W1.5	2000	0.800
N10.5 E0.5	570	0.228
N10.5 W0	1900	0.760
N10.5 W0.5	1900	0.760
N10.5 W1	1900	0.760
N10.5 W1.5	1520	0.608
N8 W0	3700	1.480
N8 W1	1750	0.700
N8.5 W1.5	1925	0.770
N9 E0.5	750	0.300
N9 W0	1850	0.740
N9 W0.5	1850	0.740
N9 W1	1850	0.740
N9 W1.5	1480	0.592
N9.5 E0.5	750	0.300
N9.5 W0	2163	0.865
N9.5 W0.5	2300	0.920
N9.5 W1	2500	1.000
N9.5 W1.5	2000	0.800
TH*2	707	0.283

were made to the absolute frequency of each provenience to yield the horizontal density of each unit. The adjustment was made by calculating a value (H) which was the area of a unit divided by 2,500 square cm. This value (H) was divided into the number of artifacts found in a given provenience, to yield the density of artifacts in a given unit.

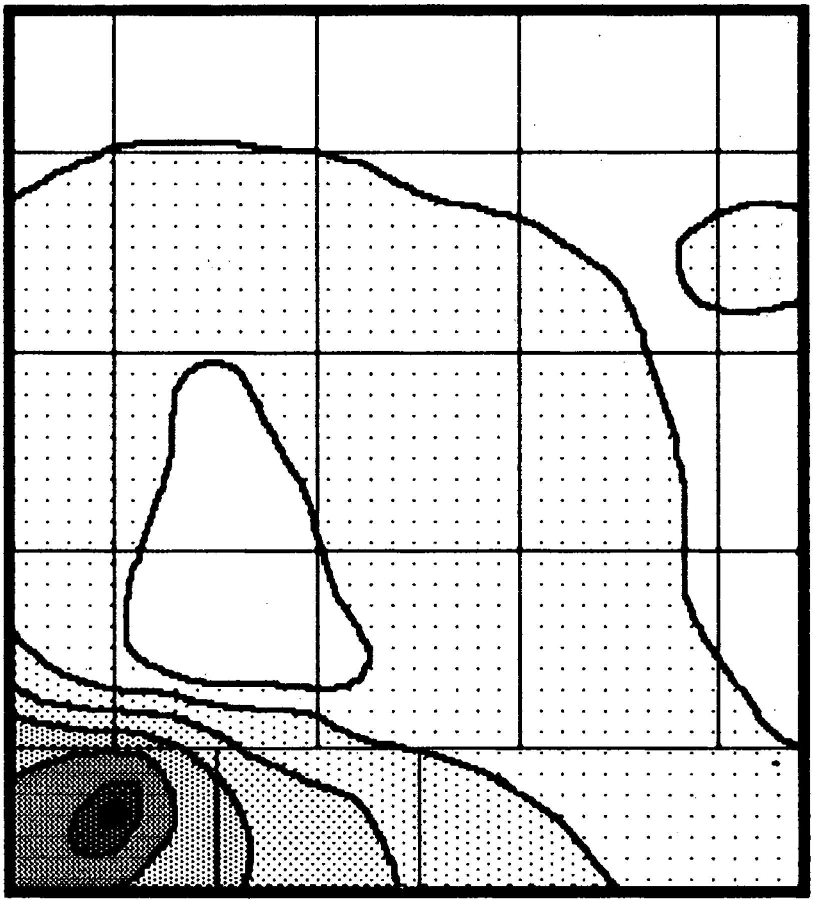
Note that we are only interested in the horizontal distribution of artifacts for this calculation. Depth was not a consideration, so only the surface area was used for adjustment. Likewise, in considering the vertical distribution of artifacts throughout the pit, only the thickness of the deposit was considered. The trash pit was excavated in 10 cm deep levels. Only Level 9 was different; it was 5 cm deep. In order to establish vertical density, the absolute frequency of artifacts in Level 9 were divided by 0.5 to arrive at the adjusted frequency (D) for the density of artifacts in Level 9 compared to those in the other levels.

For the remainder of this discussion, the adjusted density of artifacts will be used instead of the absolute frequency. The density, in essence, is the number of artifacts for each 2,500 square cm, when speaking of horizontal distribution, and for each 10 cm level when discussing vertical distribution.

Bones and Classifiable Artifacts

Figure 3.4 shows the horizontal distribution of all classifiable artifacts. Artifacts are most frequent along the south edge of the pit, with a slightly high frequency in the center and on the east and west edges. The east portion of the north edge is notable in its low frequency of artifacts.

Figure 3.5 shows the horizontal distribution of all bone by weight in the pit. Here it appears that the highest concentration of bone is in the northeast quadrant and along the north edge, with a tongue extending south in the center portion of the pit. As will be shown in the faunal



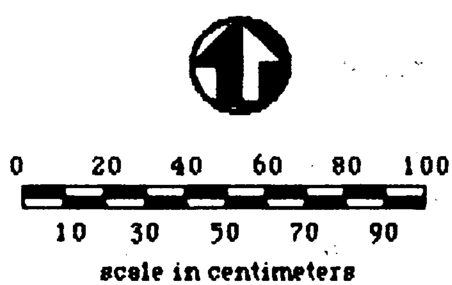


FIGURE 3.4: HORIZONTAL DISTRIBUTION OF CLASSIFIABLE ARTIFACTS IN FEATURE 12 (contour interval = 500 fragments).

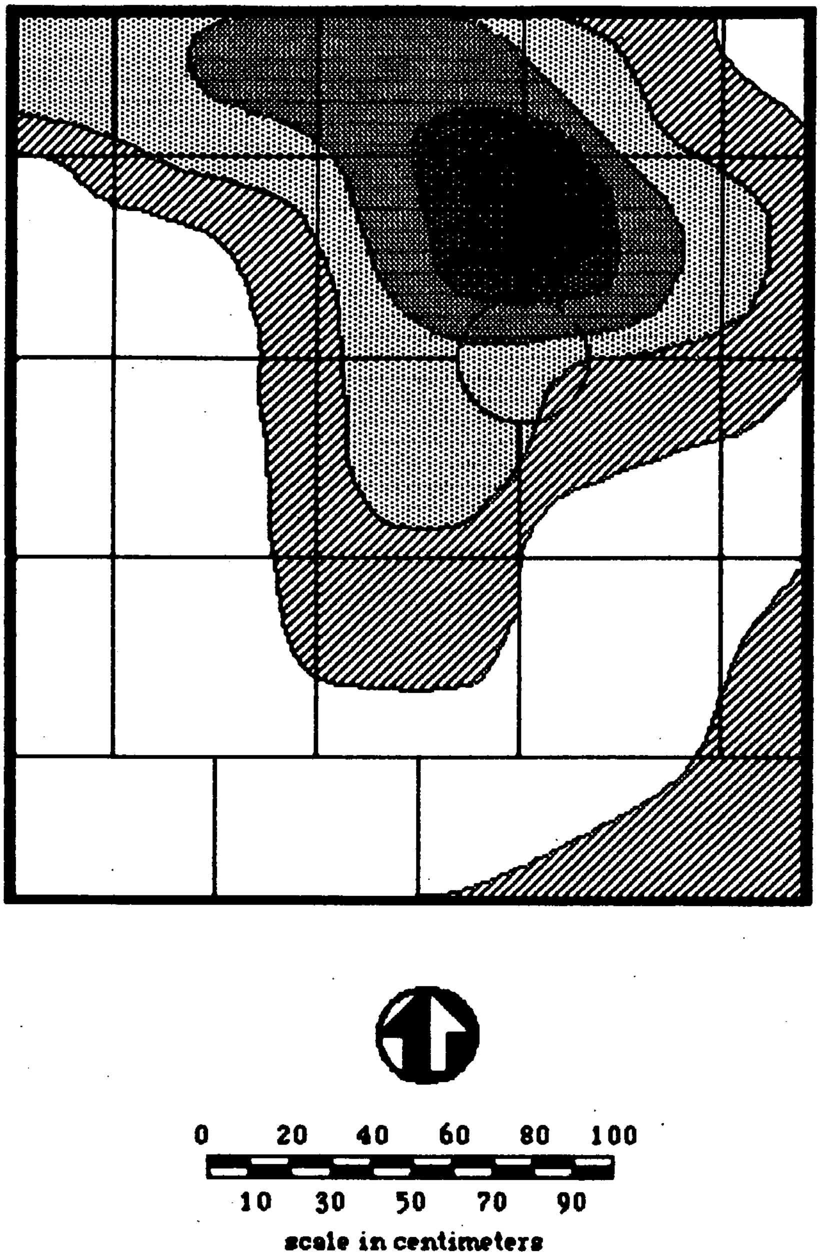


FIGURE 3.5: HORIZONTAL DISTRIBUTION OF ALL BONE BY WEIGHT IN FEATURE 12 (500 gm contour intervals).

analysis, this is actually composed of three separate piles, each apparently of bones and artifacts in Level 9. As can be seen, artifact densities greater than 100 artifacts per 2,500 square cm are concentrated along the south edge; bone densities greater than 100 Number of Individual Specimens (NISP) per 2,500 square cm are in the north and central portions of the pit.

Figures 3.7 and 3.8 also demonstrate how this distribution changes throughout the pit. In Level 8, the bone pile appears to shift up towards the north, and two new concentrations of artifacts appear along the east and west sides of the pit. Artifacts still tend to be falling into places around the bone pile. The appearance of two new concentrations may indicate that the pile of artifacts along the south edge encouraged the creation of new piles in those locations.

By Level 7, total densities of artifacts and bones are decreasing markedly. The top of the bone pile can still be seen in the northeast central portion of the pit, but it is reduced in areal spread. A new concentration of bone is evident in the northwest corner of the pit, and a third concentration appears in the southeast portion. As indicated by Chomko in Chapter 6, these piles probably represent separate meal preparation events. Artifacts, still most abundant along the south edge, now have minor concentrations in the northeast and northwest corners. The latter corresponds to one of the bone piles, suggesting bones and artifacts were being deposited simultaneously. Up to this point, it appears that the two types of remains were being dumped in separate events.

By Level 6 (figure 3.8), the higher densities of bone have all but disappeared while still being deposited in limited amounts, the bone no longer is clearly concentrated in piles. Artifacts are still very abundant in the southeast corner, but now a tongue of concentration intrudes above the bone pile.

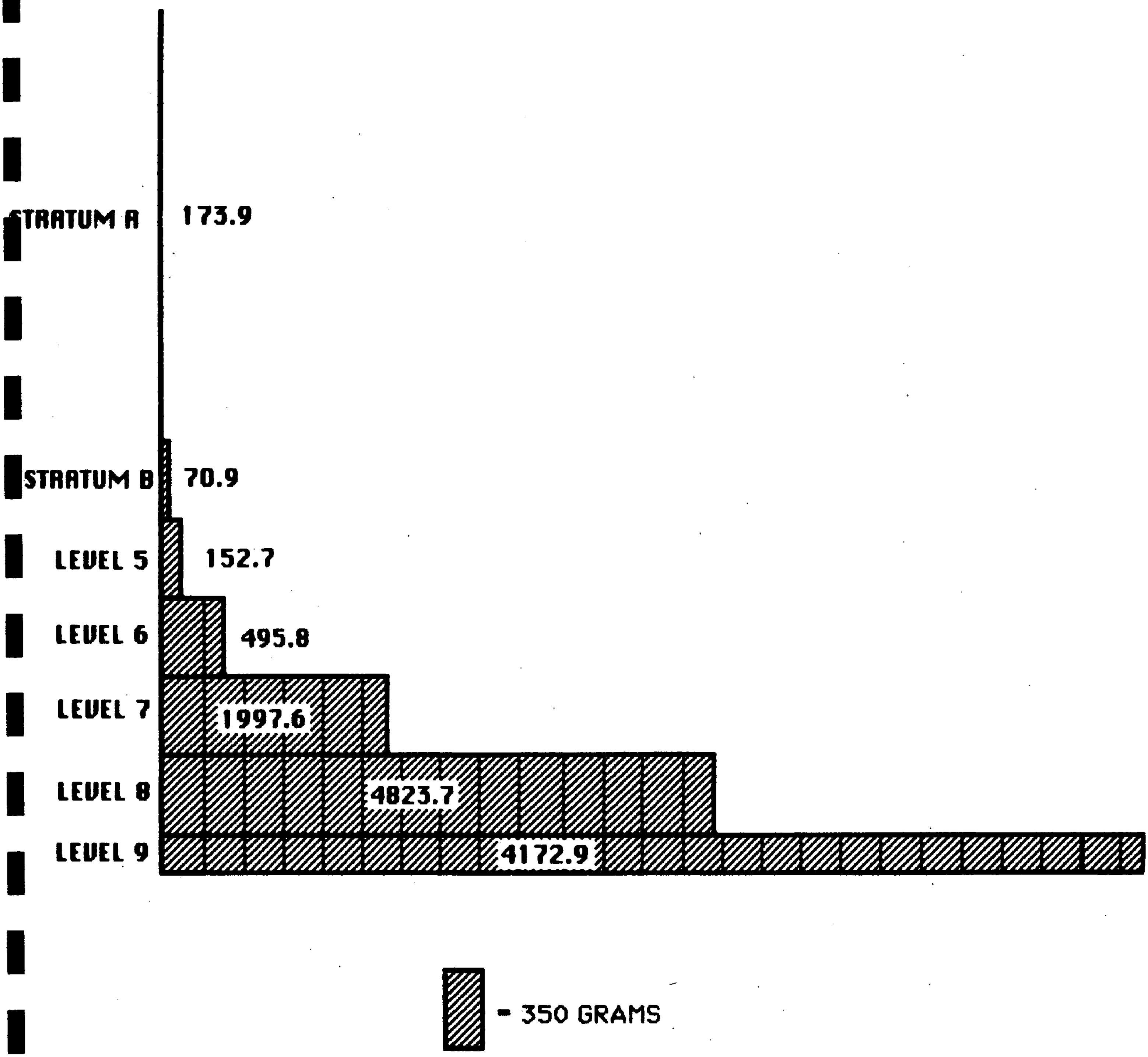


FIGURE 3.6: VERTICAL DISTRIBUTION OF BONES BY WEIGHT IN GRAMS.

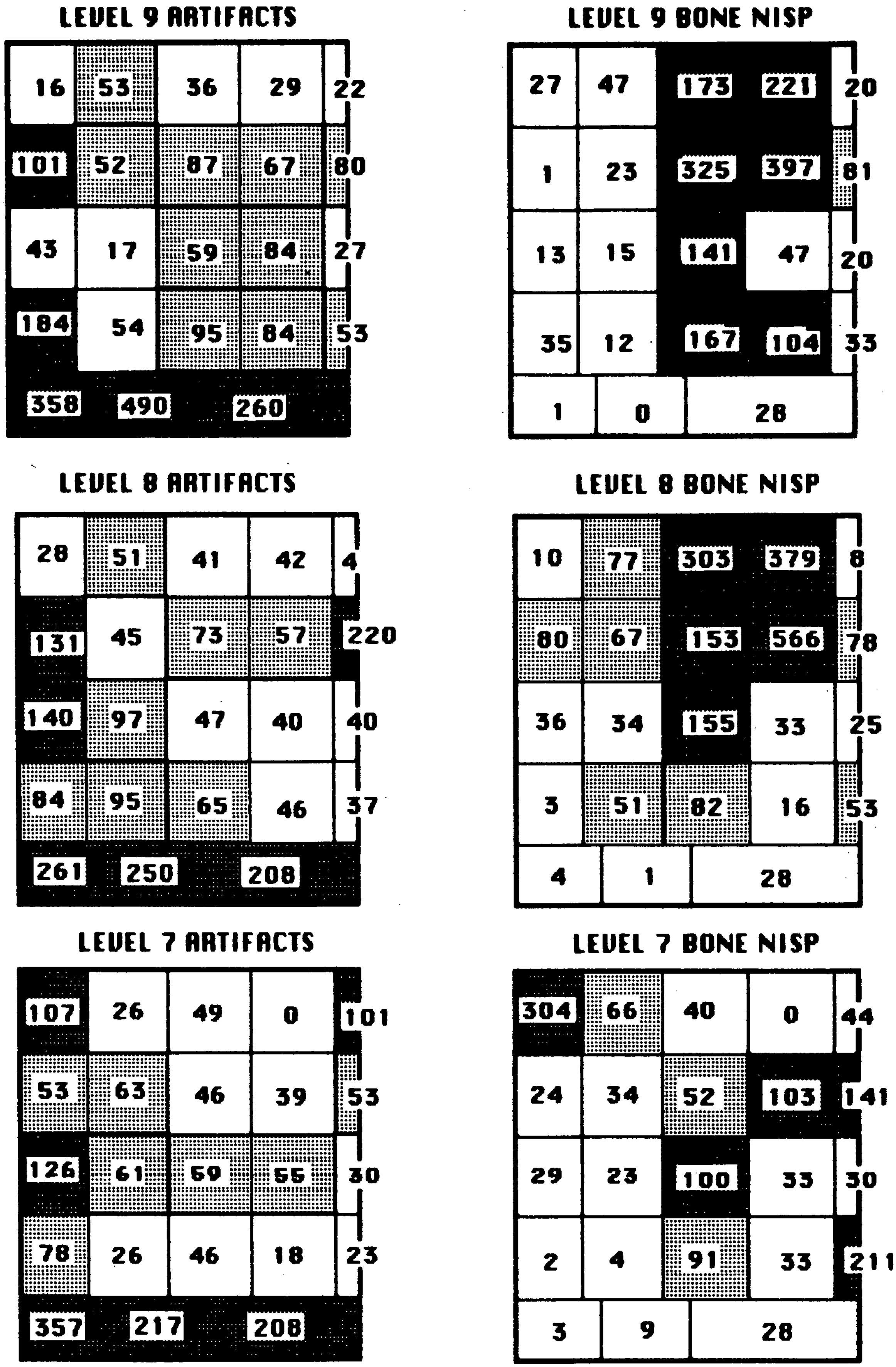


FIGURE 3.7 : HORIZONTAL DISTRIBUTION OF ARTIFACTS AND BONES (NISP) IN LEVELS 7, 8 AND 9.

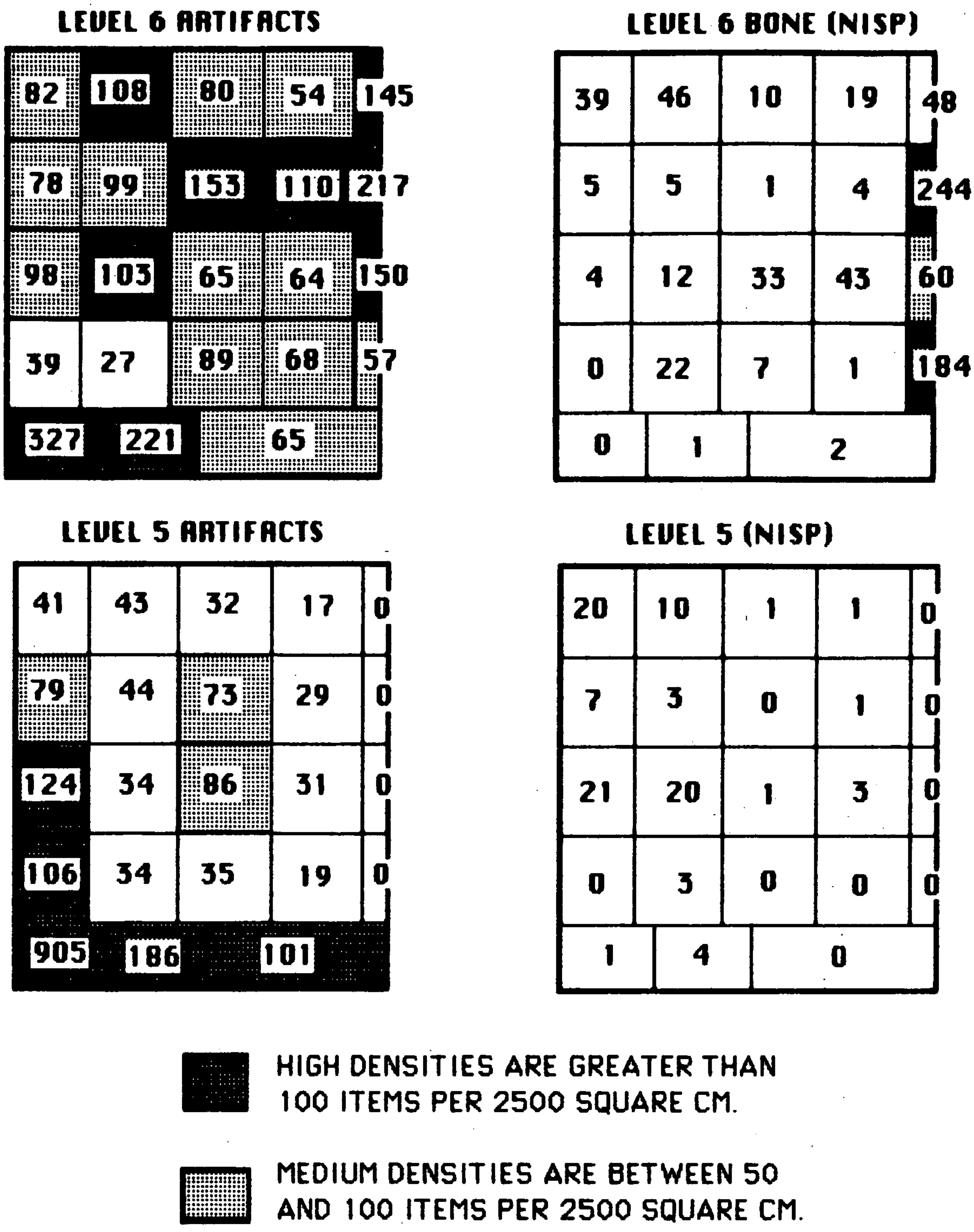


FIGURE 3.8: HORIZONTAL DISTRIBUTION OF ARTIFACTS AND BONE IN LEVELS 5 AND 6.

By the topmost Level 5, bone concentrations are below 20 NISP per 2,500 sq cm. Artifact densities remain high only along the south and west edges, with 905 artifacts per 2,500 sq cm in the far sourthwest corner. All other densities are below 200 artifacts.

It appears likely, therefore, that bones and certain kinds of artifacts were, for the most part, deposited separately. Bone appears to have been deposited before the artifacts. This only makes sense. Unless in the case of a major accident--like a cabinet falling over, or a crate of dishes being dropped--broken bottles, dishes, and other household trash take a few days to accumulate. If they represent the remains of a single meal for many people, a container could be filled with bones in one day, along with whatever artifacts were broken that day. Note that there are artifacts in the bone piles; in Level 9, for instance, N10W0 has 1,072 bones (NISP) and 67 artifacts per 2,500 sq cm, but the density of the latter is relatively insignificant when compared to the high denisity of artifacts along the south and west walls of the pit.

Later trash receptacles appeared to contain few bones, as evidenced by high concentrations of artifacts in areas that contain few bones. These areas appear to surround the bone pile; they do not appear to constitute newly established piles. I suspect that the depositors dumped the contents of the waste receptacles on top of the previous piles, and that the trash rolled down around the pile to fill up the lower spaces to the south and west. This phenomenon would have been facilitated by the fact that bottles are round and roll easily.

As will be shown in Chapter 4, both Golovin (1979:66) and Blaschke (1981:175,176) maintain that hospital patients were given meat only on special occasions. The segregation of artifacts and bone suggests that not every receptacle contained bone. The historic evidence supports an interpretation that the bone in the trash pit is the waste from special meals for large numbers of people, not daily meals for a few people.

A first impression when looking at figures 3.7 and 3.8 might be to believe the artifacts were being deposited from the south and west, and the bones from the north and east. However, on further consideration, it appears that differential collection of bone, as the result of special meals for large numbers of people, would most convincingly account for the piles of bone at the bottom of the pit. The depositor would have been standing to the north or east of the pit when he or she tossed the trash. Later containers could be emptied from the same location, with the result that the artifacts rolled off the bone pile into the lower spaces.

Artifacts

Figure 3.9 shows the vertical distribution of Structural artifacts in Feature 12. The greatest proportion of these items, largely window glass and nails, is in Levels 5 and 6; 56.3% of the Structural artifacts are in the top 45% of the pit. In contrast, Non-Structural artifacts tend to be more frequent in the lowest level of the pit. Figure 3.10 shows how 61.0% of the Non-Structural items are in the lower 55% of the pit, and 23.8% are in the lowest 5 cm.

Once again, there appears to be a differentiation of deposition of Structural and Non-Structural artifacts. Figures 3.11 and 3.12 shows that the highest densities of each group (over 50 items per 2,500 sq cm) do not coincide except in the very highest level. At that point, both appear to be concentrated in the southwest corner. Below that level, non-structural items are in the southwest corner, and structural items tend to be centered in areas that are low in non-structural artifact frequency.

Figure 3.6 shows the vertical distribution of bone by weight in the deposit. Here it is clear that a full 78.0% of the bone was found in the botton 1/3 of the trash pit. This suggests that bone deposition was more frequent in the early depositional history of the pit than in the later. This will be discussed in more detail in Chapter 6. What is important to

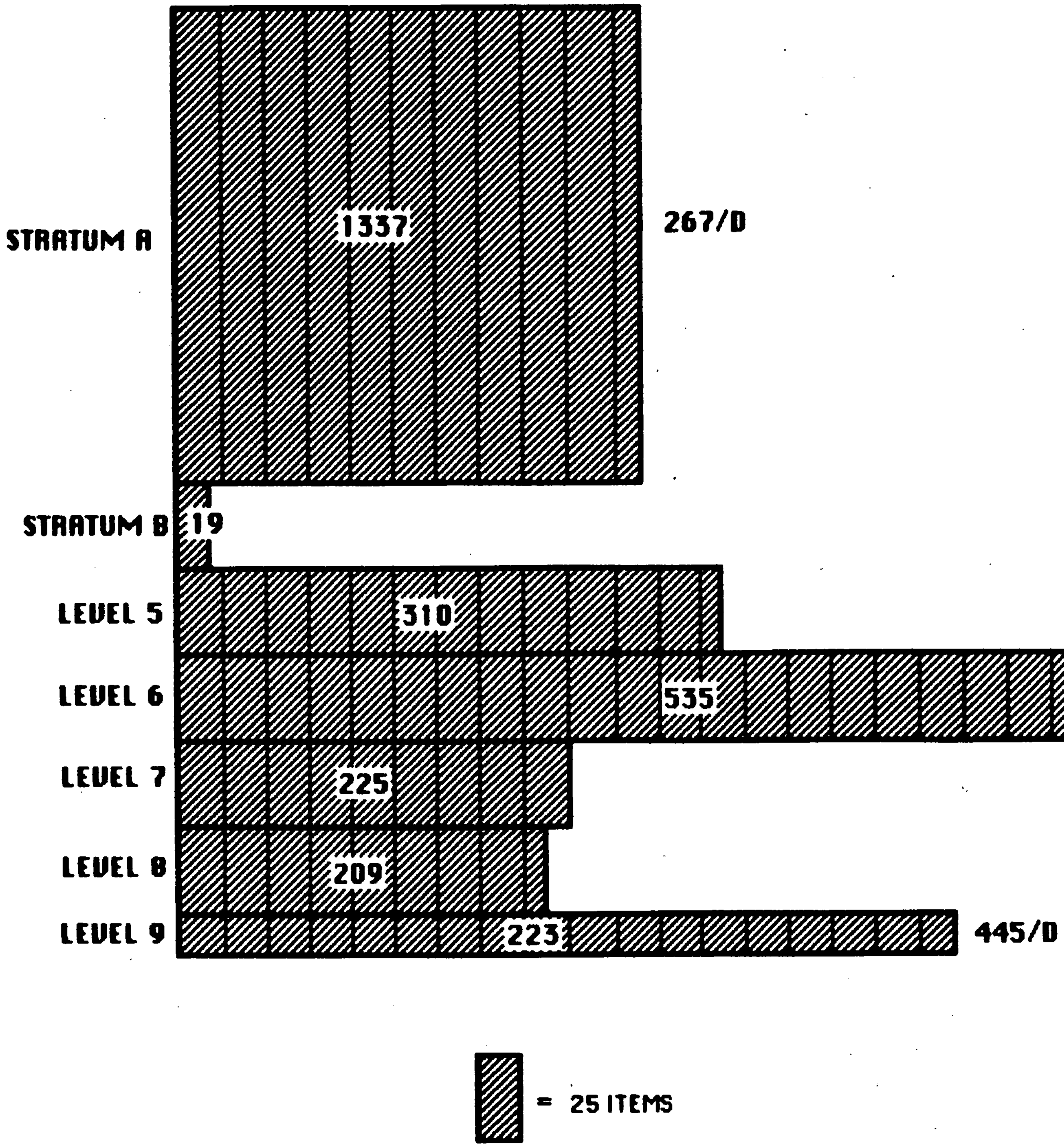


FIGURE 3.9: VERTICAL DISTRIBUTION OF STRUCTURAL ARTIFACTS.

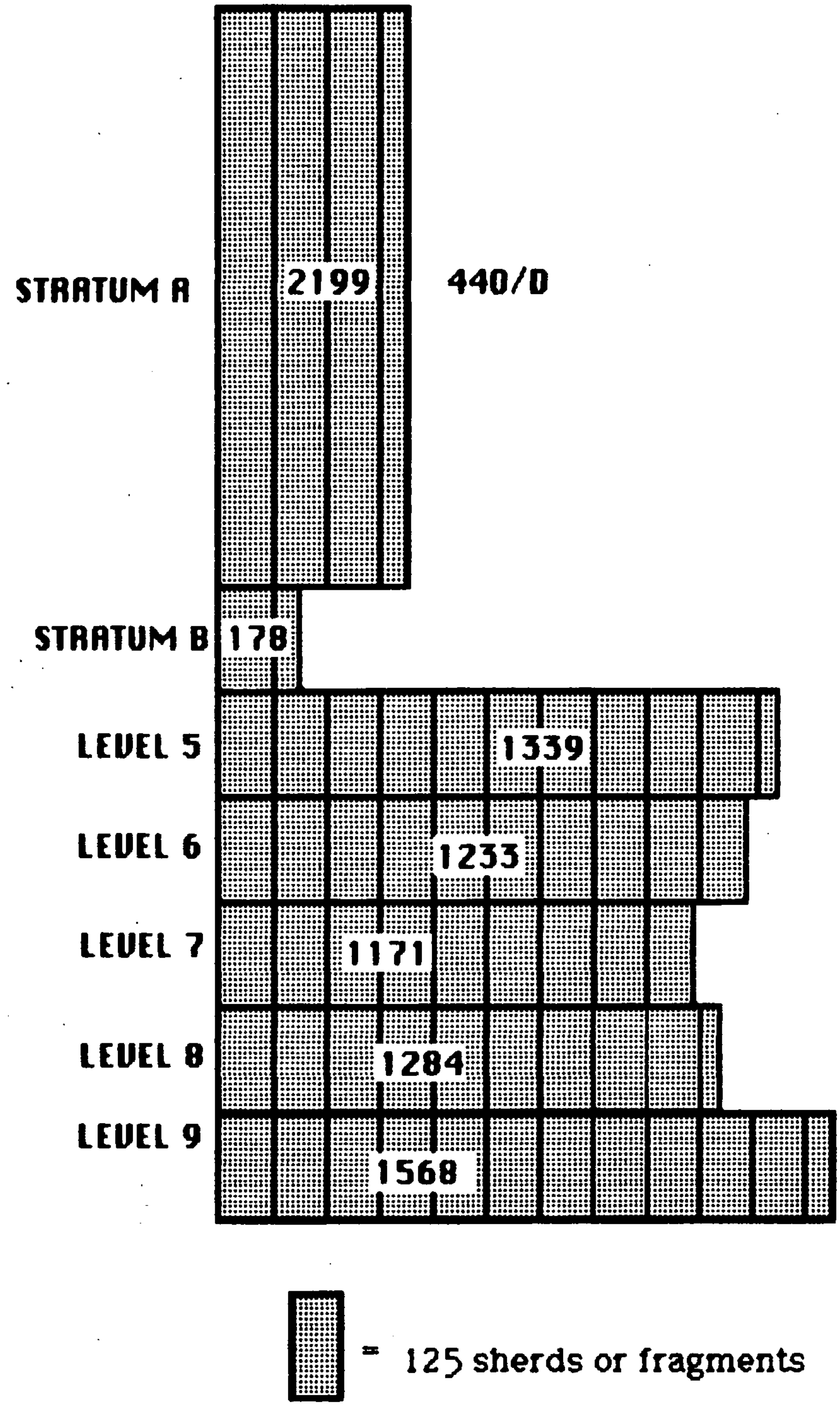


FIGURE 3.10: VERTICAL DISTRIBUTION OF CLASSIFIABLE, NON-STRUCTURAL ARTIFACTS.

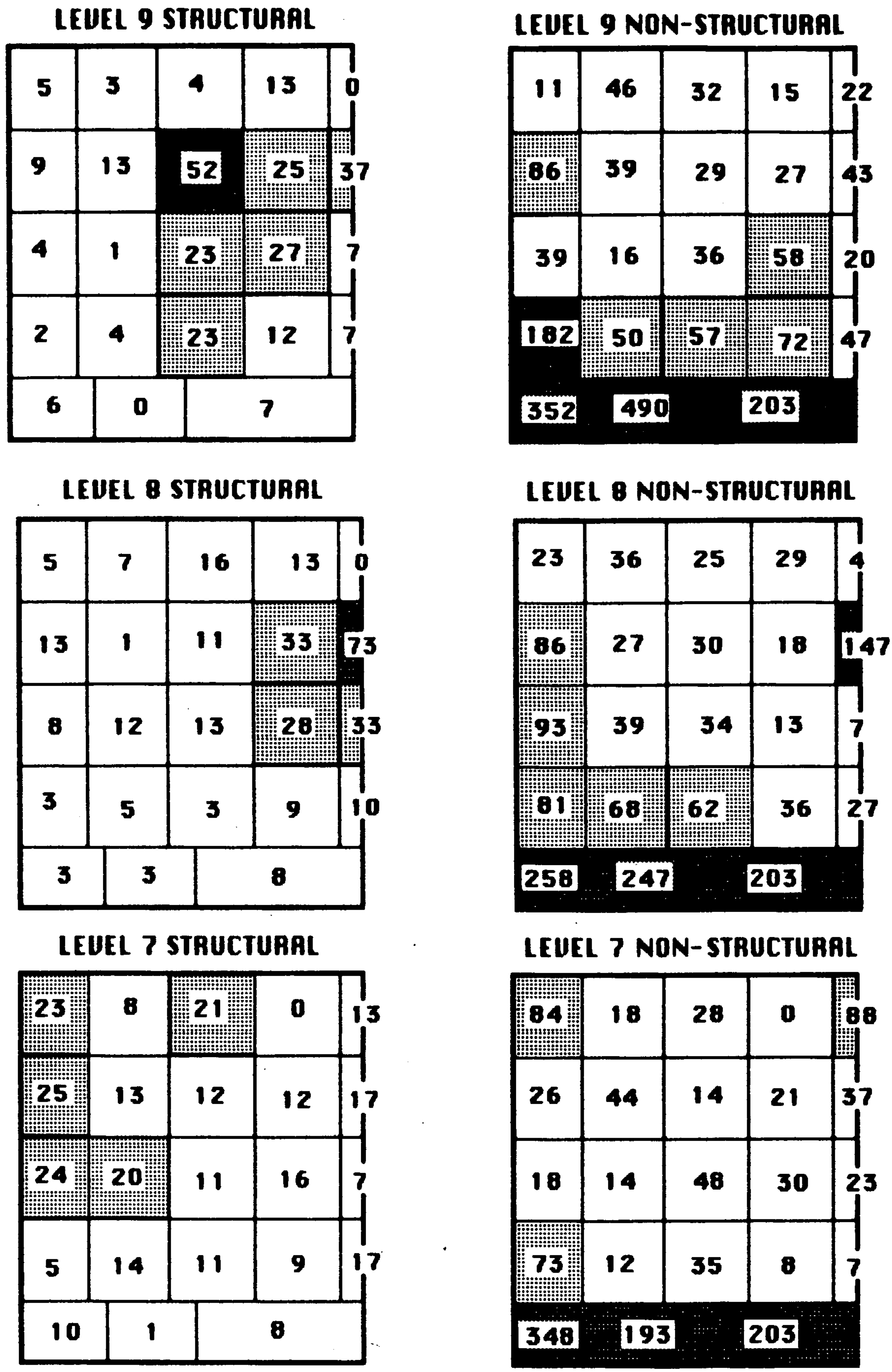


FIGURE 3.11: HORIZONTAL DISTRIBUTION OF STRUCTURAL AND NON-STRUCTURAL ARTIFACTS IN LEVELS 7, 8 AND 9.

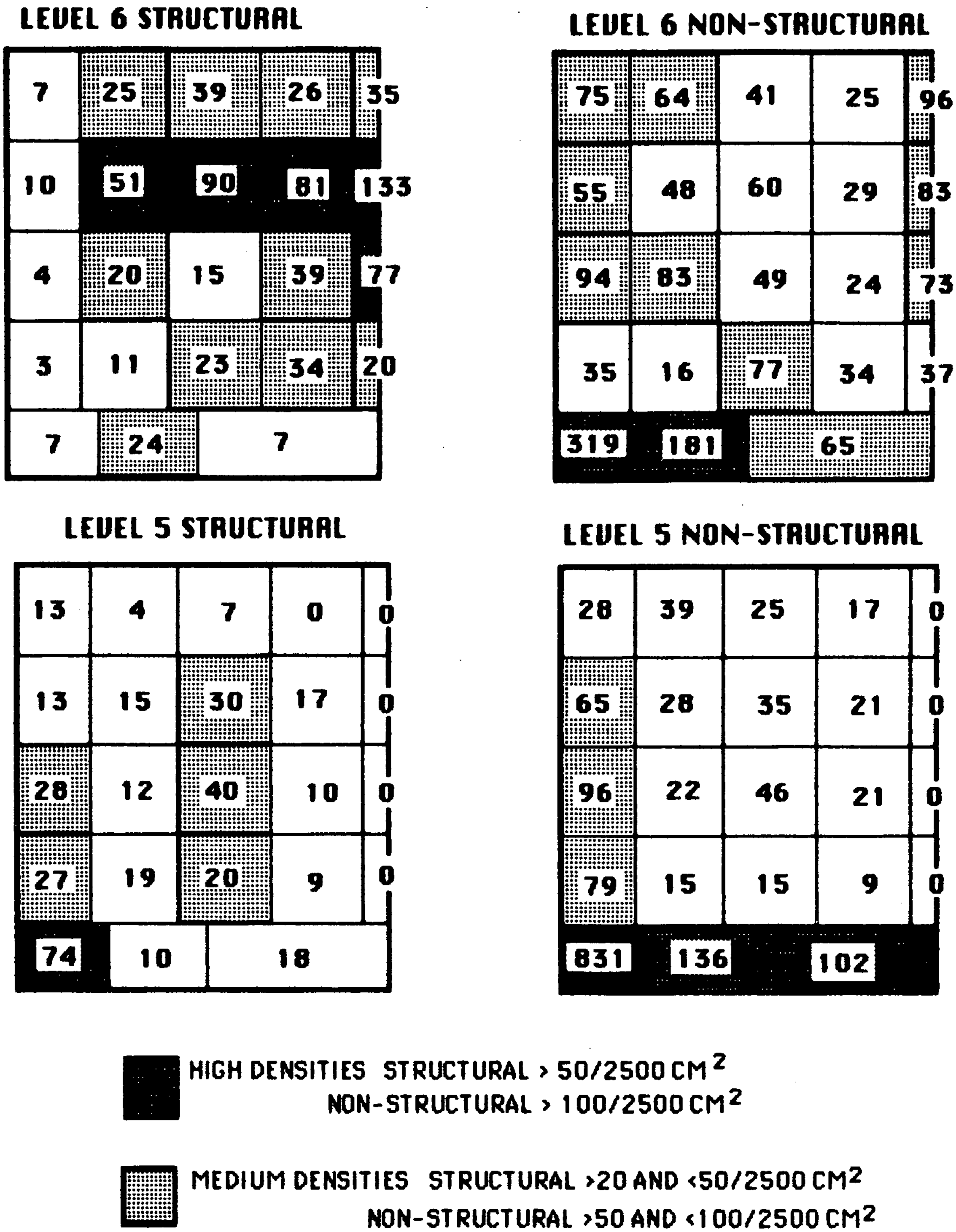


FIGURE 3.12 : HORIZONTAL DISTRIBUTION OF STRUCTURAL AND NON-STRUCTURAL ARTIFACTS IN LEVELS 5 AND 6.

understand for the sake of this discussion, however, is that the horizontal distribution of artifacts in the pit will be influenced by the three to four piles of bones on the bottom of the pit. It can be assumed that artifacts, when tossed into the pit, fell into places where the piles of bone were not.

Level	Artifacts	%	Bone (gm)	%
5	2,029	19.4	147.2	1.3
6	2,284	21.9	490.3	4.4
7	2,684	25.7	1,821.6	16.3
8	1,701	16.3	4,667.0	41.9
9	1,734	16.6%	4,022.5	36.1
Total	10,432	100.0	11,148.6	100.0

This trend can be seen more clearly when the density of Level 9 material culture alone is plotted. Level 9, being the lowest level, was the first material deposited, and so most clearly illustrates the initial deposition in the pit. Figure 3.11 shows the structural artifacts concentrated in the general vicinity of the bone pile or slightly to the east of it.

This can probably be explained by the fact that structural artifacts tend to be linear or flat in form, and do not roll down piles of trash as readily as do the broken bottles, cups, crocks, and other non-structural items. Their occurance in the higher levels suggests they remained near the top of the pile when disposed.

The distribution of the Structural artifacts does not imply a connection with the superstructure of the feature itself. If the nails and window glass were part of the superstructure once covering the pit they would be expected to be distributed around the margins of the pit, or on the floor of the pit before trash was added. The higher densities at higher levels suggest day-to-day deposition as part of the total assemblage of items being thrown away.

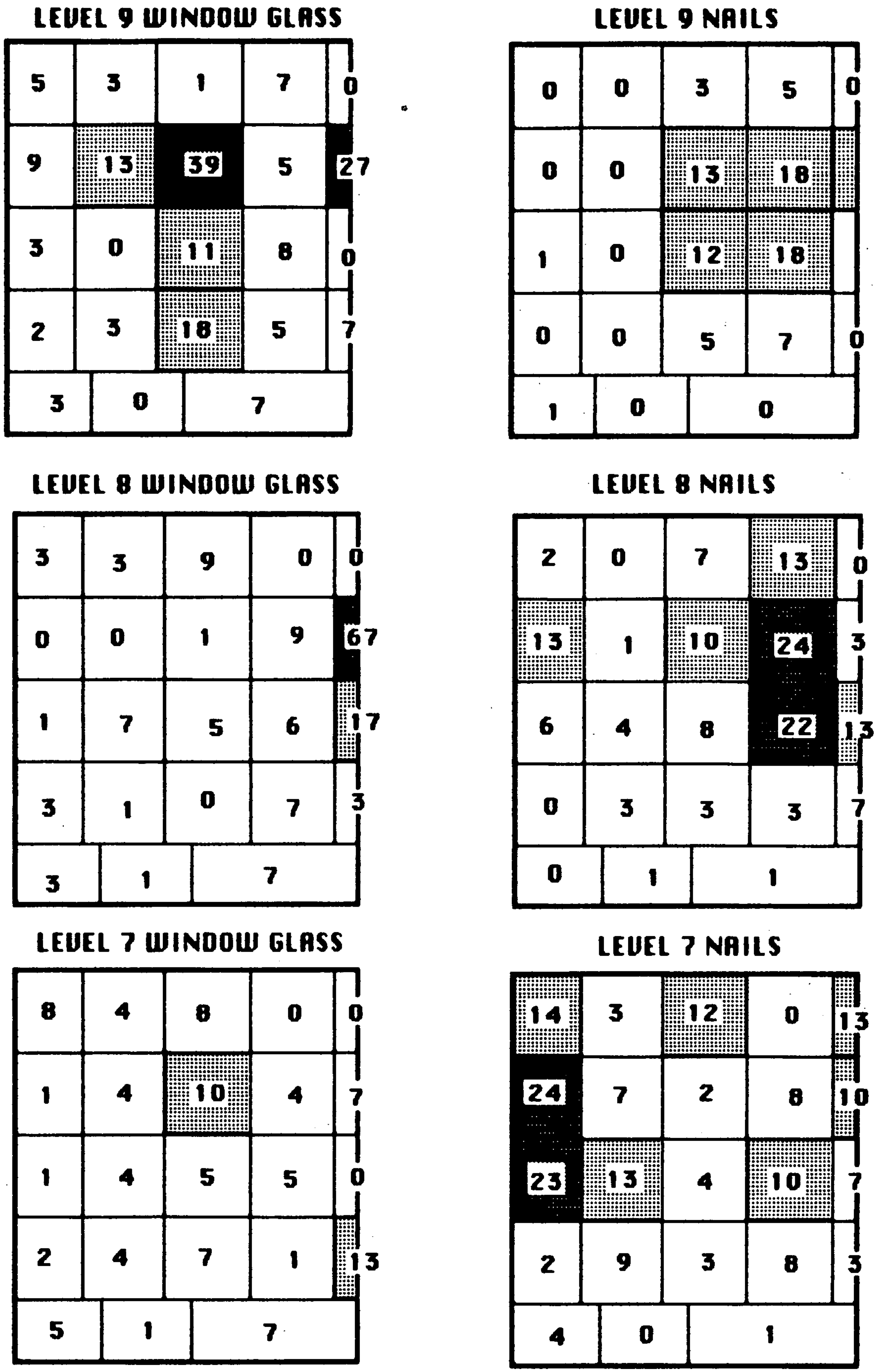


FIGURE 3.13 : HORIZONTAL DISTRIBUTION OF STRUCTURAL ARTIFACTS IN LEVELS 7, 8 AND 9.

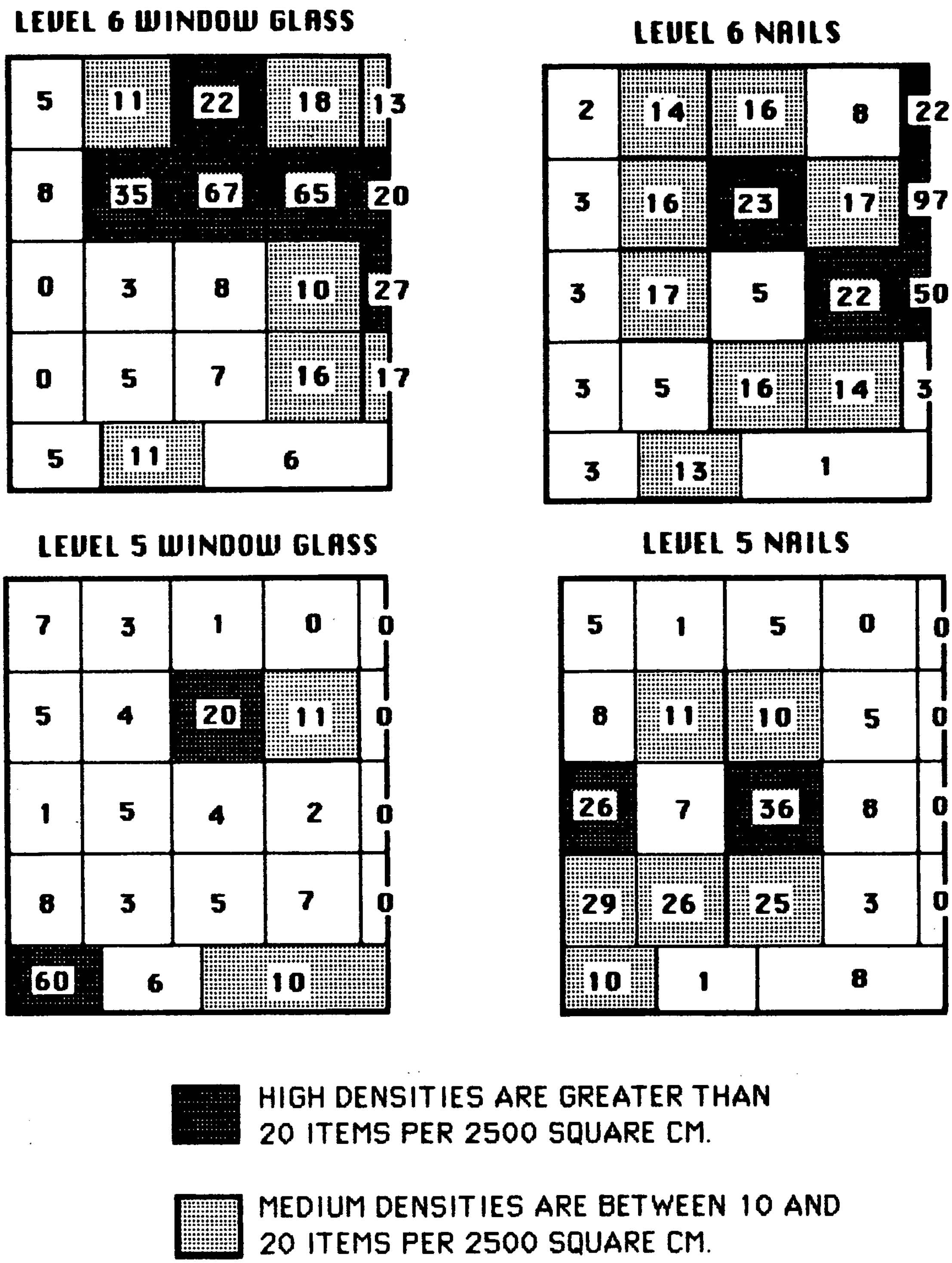


FIGURE 3.14: HORIZONTAL DISTRIBUTION OF STRUCTURAL ARTIFACTS IN LEVELS 5 AND 6.

Structural Artifacts

Figures 3.13 and 3.14 show the horizontal distributions of window glass and nails. Higher density concentrations (greater than 10 items per 2,500 sq cm) are not significantly different between the two classes of artifacts. Both tend to be concentrated in the same areas for each level. This suggests that both window glass and nails were being deposited simultaneously. As was noted earlier, in Level 5, the topmost level of the trash pit, there is a shift in concentration from the northeasterly bone pile to the southwest corner. This may be a function of disturbance caused by the construction of a foundation pier for the 1896 Old School. As can be seen in the vertical distribution graph for Structural artifacts (figure 3.9), the frequency is very high in the 20th century levels above the trash pit.

Non-Structural Artifacts

The Non-Structural artifacts are comprised primarily of five classes: Food Storage, Food Serving, Medical, Beverage Containers, and Bulk Storage. The last two also appear to be related to Medical practices. An evaluation of how these items are distributed in the pit might provide additional information about the trash formation, origin of the trash, and general representativeness of deposits.

Both Food Serving artifacts (figure 3.15) and Medical artifacts (figure 3.16) appear to be relatively evenly distributed vertically throughout the pit, except for an almost double density (artifacts per 210 cm x 205 cm x 10 cm level) in the lowest level. Food Storage items are slightly denser in the topmost level, decrease in density with depth, but like the other classes is very dense in the lowest level (figure 3.17). Conversely, both Beverage class artifacts (figure 3.18) exhibit an irregular vertical distribution, and Bulk Storage artifacts (figure 3.19) are densest at the bottom of the pit and diminish fairly steadily towards the top.

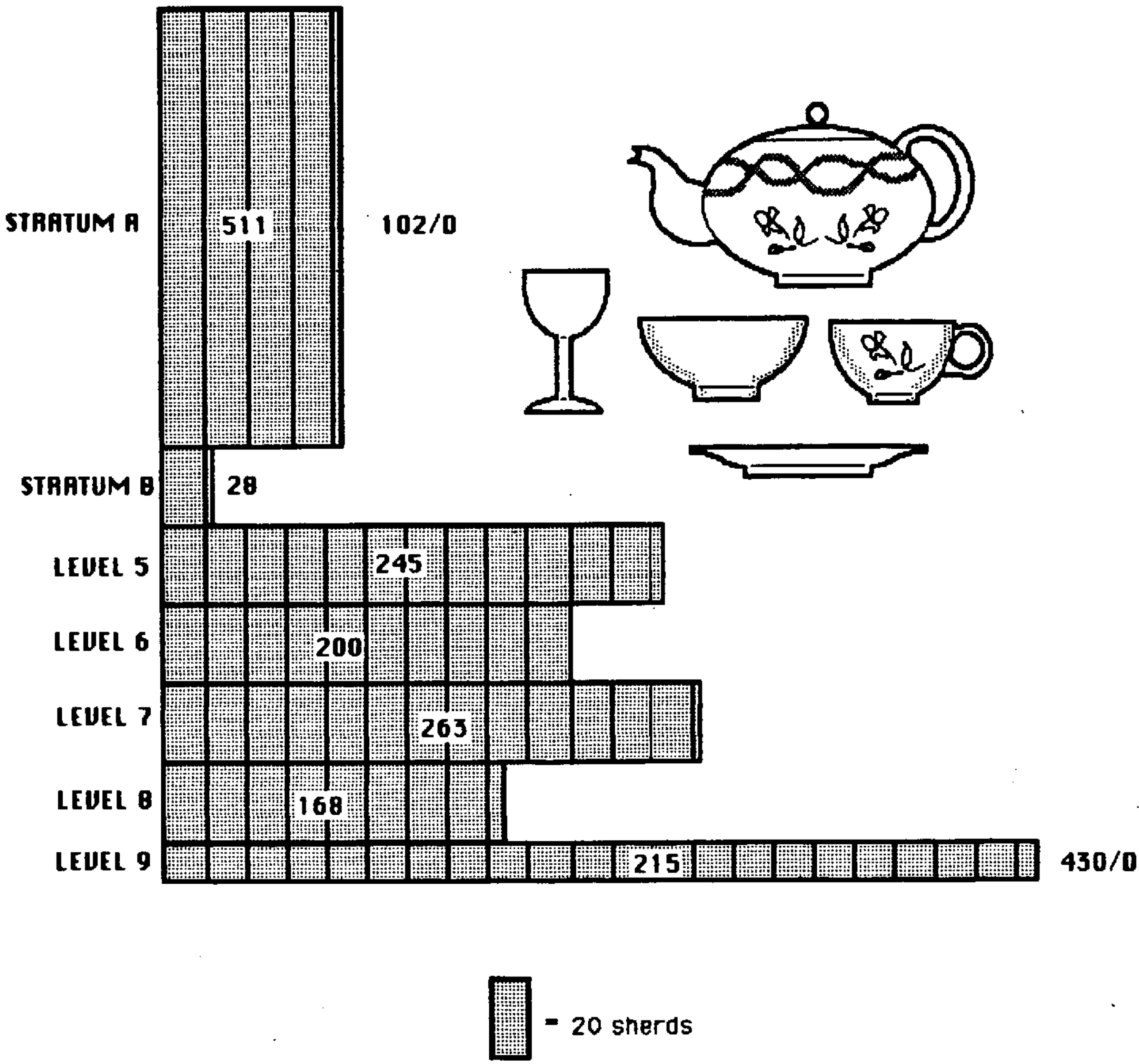


FIGURE 3.15: VERTICAL DISTRIBUTION OF FOOD SERVING CLASS ARTIFACTS.

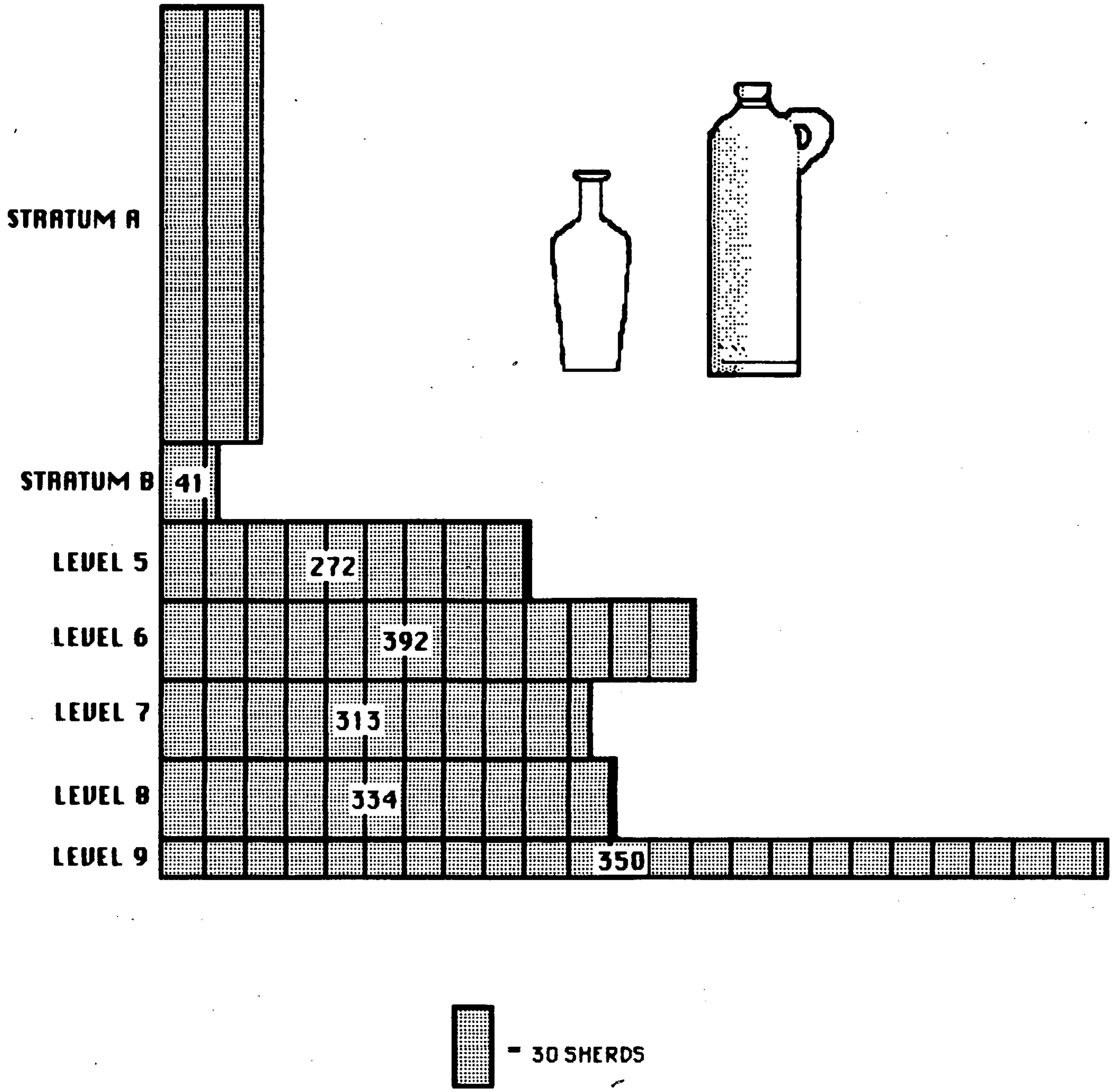


FIGURE 3.16: VERTICAL DISTRIBUTION OF MEDICAL CLASS ARTIFACTS.

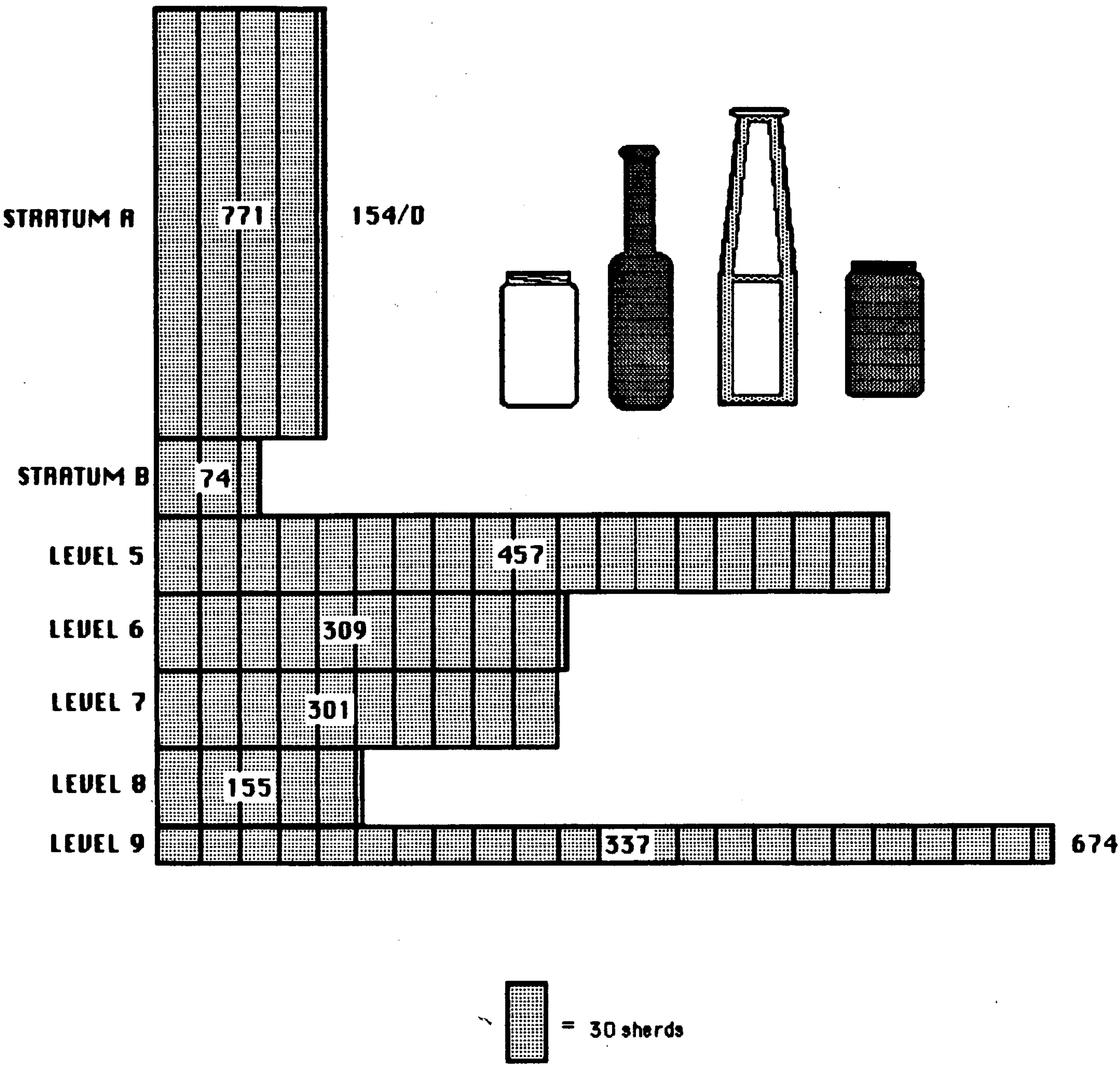


FIGURE 3.17: VERTICAL DISTRIBUTION OF FOOD STORAGE ARTIFACTS.

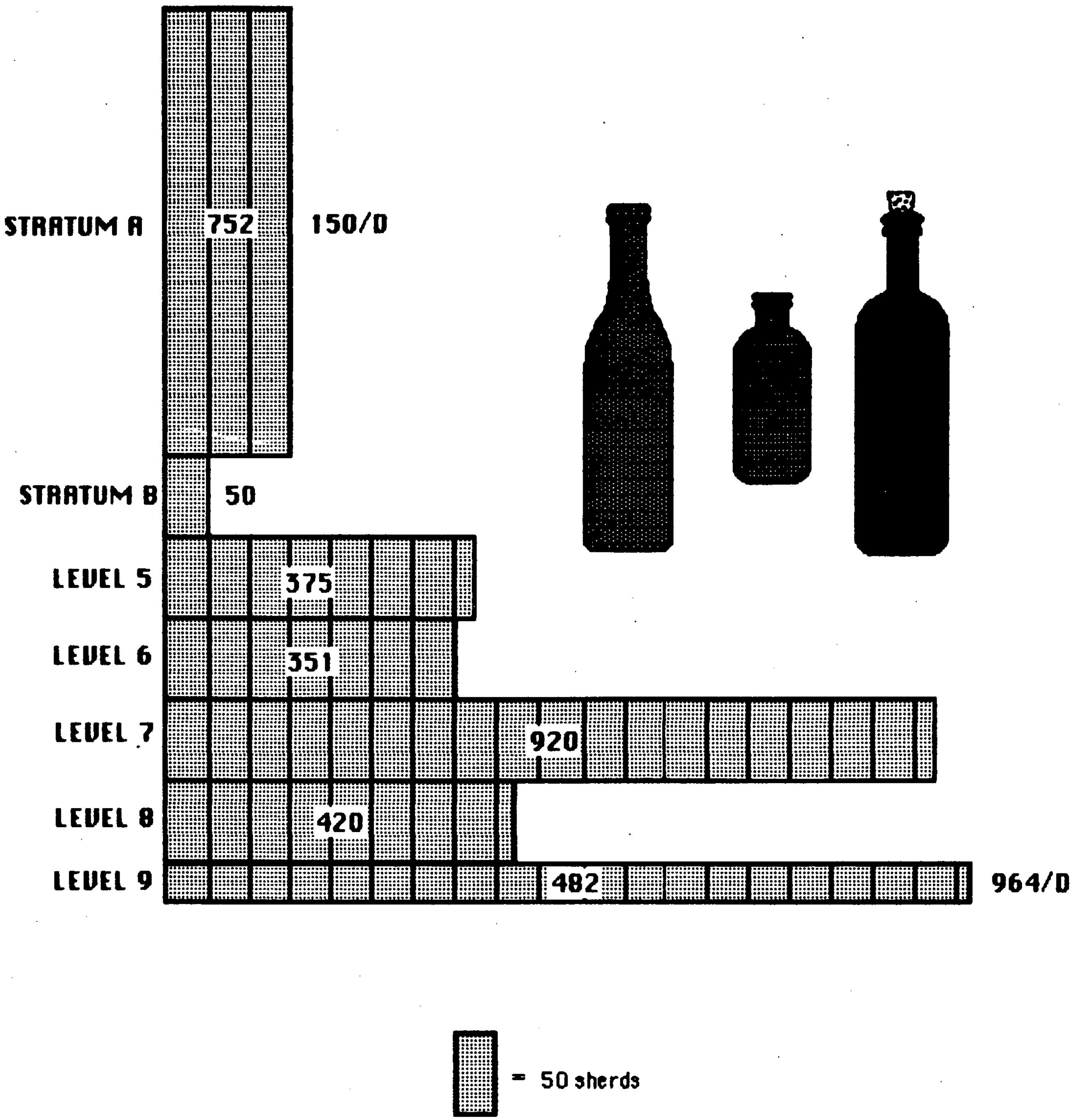


FIGURE 3.18: VERTICAL DISTRIBUTION OF BEVERAGE CONTAINER ARTIFACTS.

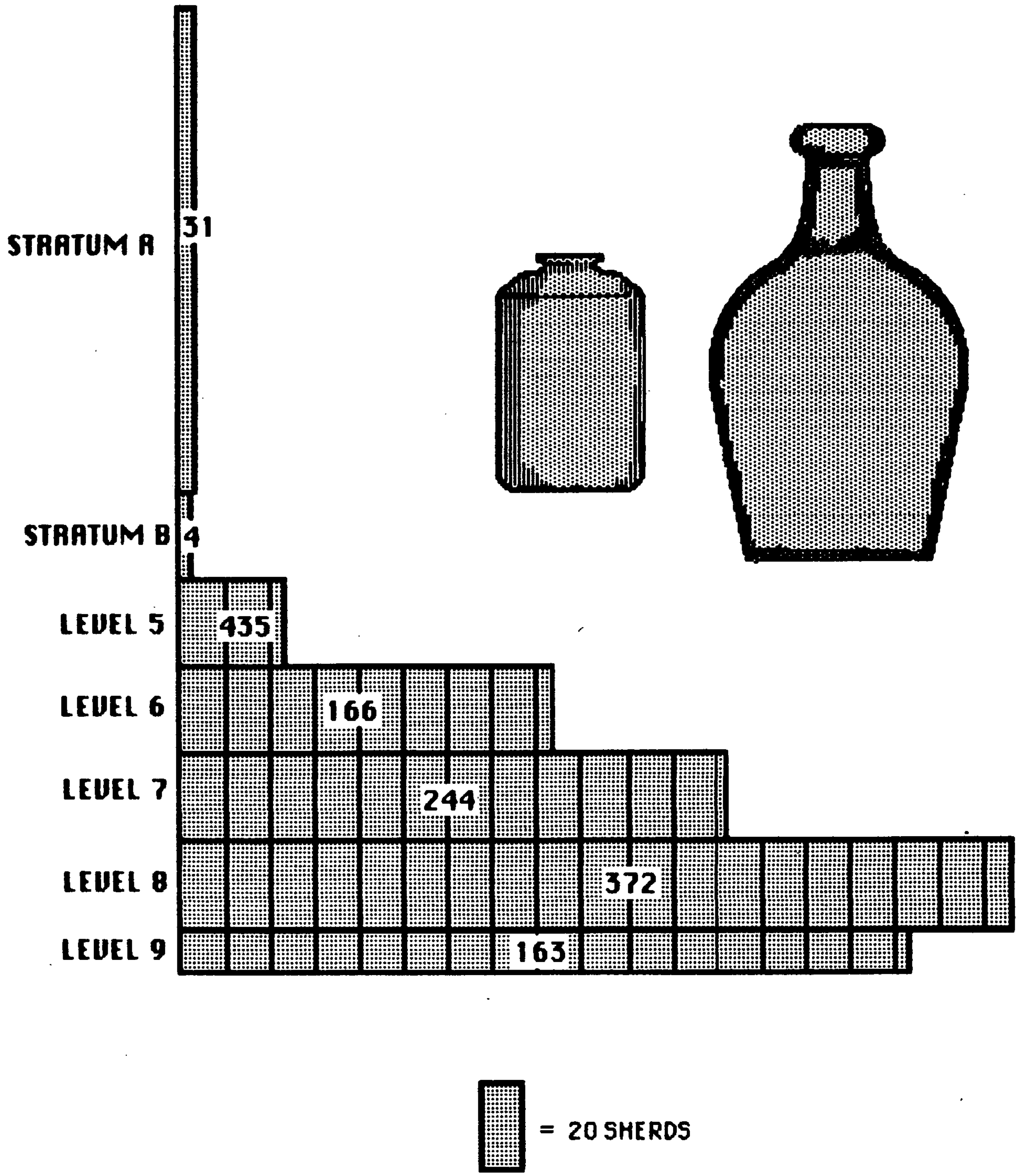


FIGURE 3.19: VERTICAL DISTRIBUTION OF BULK STORAGE ARTIFACTS.

One way these phenomena can be explained is in terms of generalized trash pit formation. In each case, the greatest density of sherds is at the base of the deposit, where the weight of overlying layers is greatest and most likely to break the glass and ceramic items which compose most of each of these classes. This, understandably, increases sherd counts. Also, sturdy round bottles might tend to roll to lower levels when thrown into the pit rather than being broken when tossed onto the pile. Note that it is the classes comprised of sturdy bottles which show the clearest trend of great frequencies at the base and smaller frequencies at the top of the deposit. For instance, the Bulk Storage class consists largely of red earthenware crocks and thick-walled glass carboys; the Beverage class is comprised of thick-walled liquor bottles. Note that these items are greatest in frequency at the base of the deposit. On the other hand, of the 990 items in the Medical class, 818 (82.6%) are tincture bottles, pharmaceutical bottles, or medical flasks which all tend to be thin-walled, fragile bottles. They likely were broken before deposit or immediately upon being tossed in the pit, and would not have rolled into the lower levels like the sturdier wine bottles, crocks and carboys. They are more evenly distributed vertically than the Beverage class bottles, which are sturdier and could roll down the bone pile, because the fragile items were not moving (rolling) after their disposal.

It should be noted that the lower levels of the pit contained practically no soil matrix other than generalized decomposed organics. However, the upper three levels contained some sand and pebbles. It is possible that sand was periodically thrown into the pit to cover the order and/or inhibit the spread of disease. Whatever the reason it was there, its presence would tend to decrease the density of all classes of artifacts.

The Food Storage class is somewhat anomolous, and may indeed suggest a temporal difference in trash disposal. It is possible that the disposers were throwing away canning jars and condiment bottles more during the later pit formation than in the earlier.

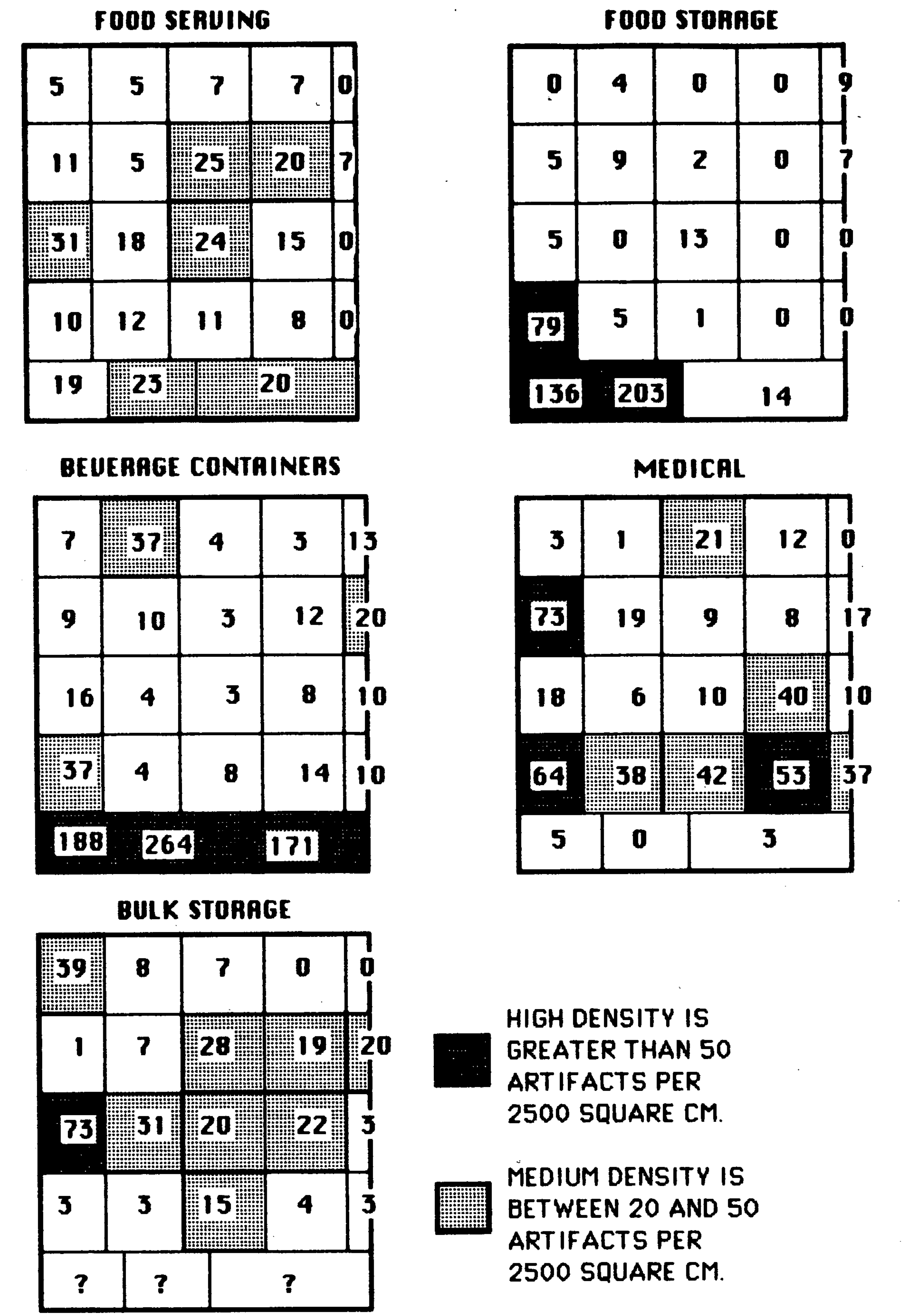


FIGURE 3.20 : HORIZONTAL DISTRIBUTION OF NON-STRUCTURAL ARTIFACTS IN LEVEL 9.

An analysis of the horizontal distribution of each class supports the above explanation. In Level 9 (figure 3.20) the flatter shaped Food Serving vessels tend to be found in the general area of the bone pile. Note on the same figure that the Bulk Storage class is also moderately dense in the bone pile. Their presence in that area suggests they were deposited with the bone rather than being thrown on top of the pile as were most other items. On the other hand, Food Storage containers, Beverage containers, and medical artifacts tend to be concentrated around the periphery of the pile, suggesting later dispoal, after they rolled down the bone piles.

This trend continues in Level 8, although both Food Serving and Bulk Storage items become more diffuse in the area of the bone pile (figure 3.21). Note that in both classes, unit densities do not vary greatly. The highest Food Serving density is 39 artifacts per 2,500 sq cm in Level 8 and the greatest Bulk Storage density is 23. This is compared to 56 for Food Storage, 171 for Beverage Containers and 123 for Medical items. It appears that in the early phases of pit formation, Food Serving and Bulk Storage artifacts were being deposited fairly homogeneously with all other artifacts and bone.

This trend continues throughout the pit formation. Food Serving artifacts tend to be densest in areas where bones are densest (figures 3.21 to 3.24), reflecting a common origin in the kitchen. Bulk Storage artifacts remain relatively diffuse in the upper layers, and display no real tendencies to cluster. They were no doubt being disposed in relatively consistant quantities with each load of trash. Beverage containers, Medical artifacts and Food Storage items are distributed around the bone pile, suggesting later depositon. The relatively high density of Food Storage items in Level 6 can be readily seen in figure 3.23. Most of the items cluster in the southwest corner as do all the Non-Structural artifacts. The moderate densities in the central and northern portions of the pit no doubt resulted because they were tossed onto the heap later than many other items.

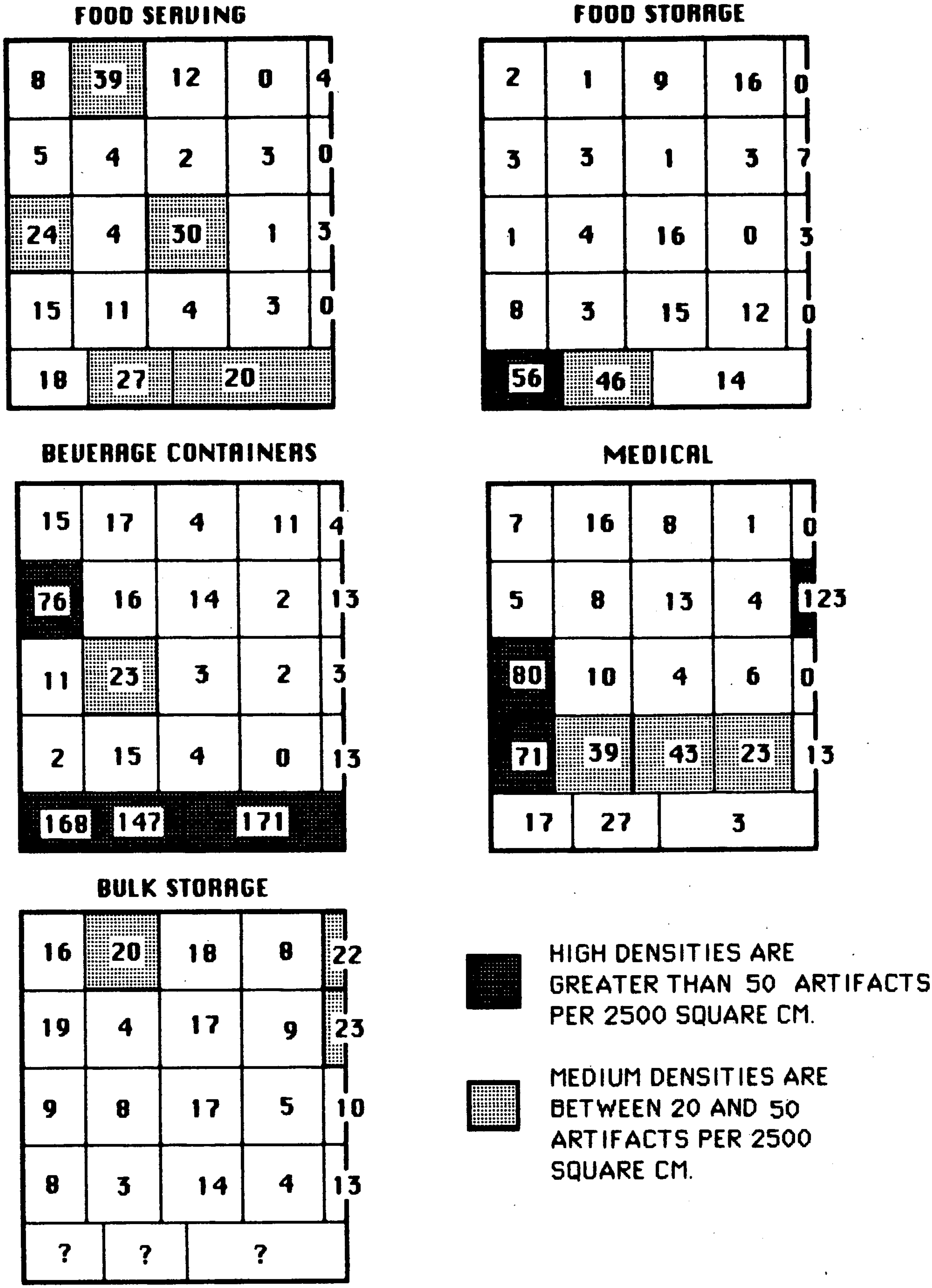


FIGURE 3.21: HORIZONTAL DISTRIBUTION OF NON-STRUCTURAL ARTIFACTS IN LEVEL 8.

FOOD SERVING

2	5	9	0	4
6	14	1	3	3
4	22	2	8	0
8	5	9	3	3
88	64	20		

FOOD STORAGE

0	4	18	0	22
1	4	1	1	10
5	3	24	7	3
15	3	9	0	0
108	97	15		

BEVERAGE CONTAINERS

8	3	1	0	31
6	5	1	3	7
15	4	1	1	7
8	3	4	1	3
108	19	172		

MEDICAL

72	11	7	0	31
18	26	12	15	20
55	4	20	15	10
47	7	19	4	3
39	7	4		

BULK STORAGE

8	1	4	0	0
14	1	0	1	0
9	1	2	7	0
8	1	1	0	0
?	?	?		

HIGH DENSITIES ARE GREATER THAN 50 ARTIFACTS PER 2500 SQUARE CM.

MEDIUM DENSITIES ARE BETWEEN 20 AND 50 ARTIFACTS PER 2500 SQUARE CM.

FIGURE 3.22 : HORIZONTAL DISTRIBUTION OF NON-STRUCTURAL ARTIFACTS IN LEVEL 7.

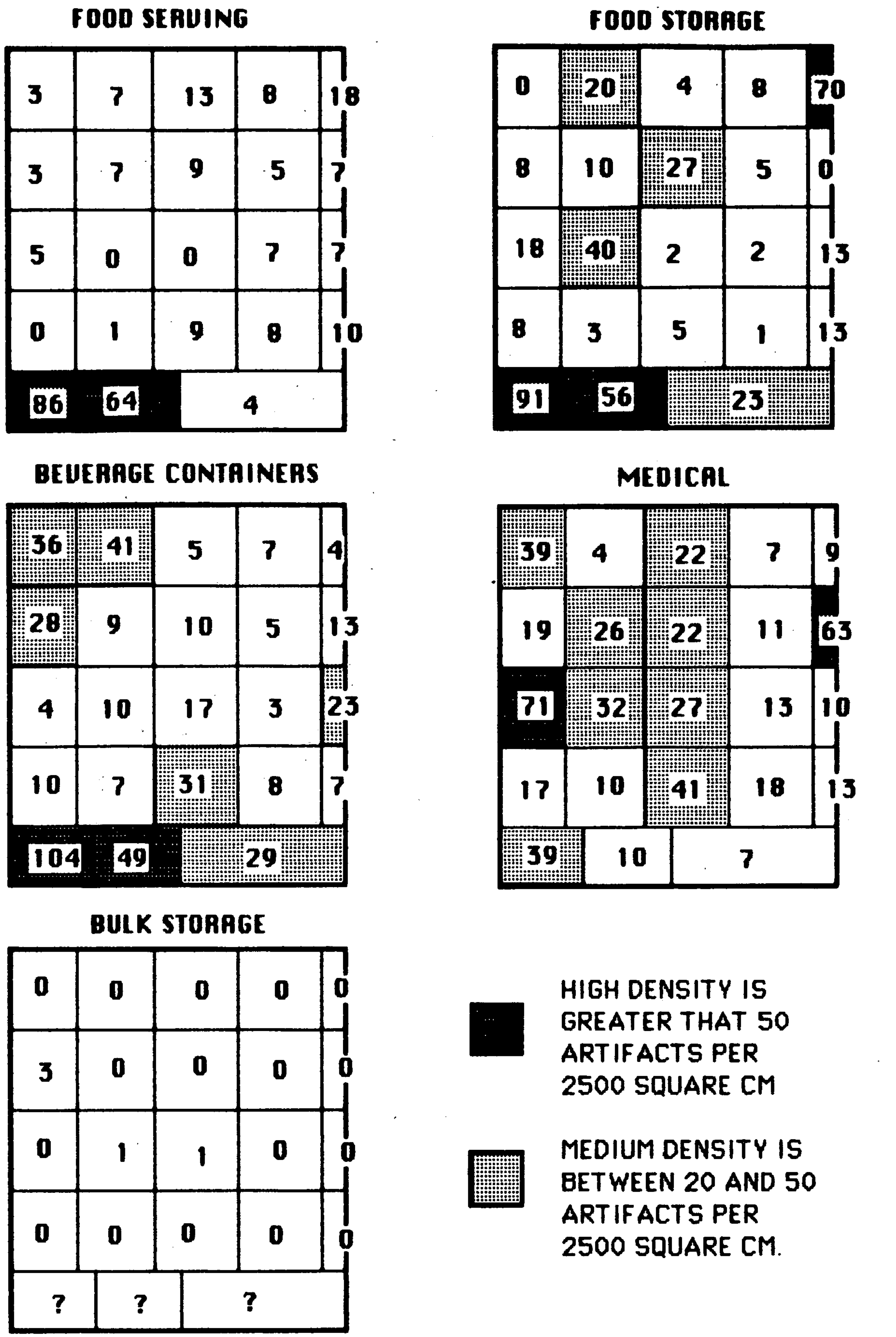


FIGURE 3.23 : HORIZONTAL DISTRIBUTION OF NON-STRUCTURAL ARTIFACTS IN LEVEL 6.

FOOD SERVING

7	3	1	7	0
9	8	8	6	0
13	10	7	1	0
3	4	3	4	0
153	49	10		

FOOD STORAGE

8	1	5	5	0
10	10	9	3	0
0	5	4	1	0
2	3	1	1	0
397	43	42		

BEVERAGE CONTAINERS

7	34	8	5	0
28	3	4	5	0
48	2	11	6	0
46	1	5	3	0
200	17	31		

MEDICAL

11	1	9	4	0
23	5	17	9	0
35	7	29	13	0
30	9	5	4	0
75	20	19		

BULK STORAGE

2	4	1	1	0
9	1	2	1	0
1	0	5	2	0
7	0	1	1	0
?	?	?		

HIGH DENSITIES ARE GREATER THAN 50 ARTIFACTS PER 2500 SQUARE CM

MEDUIM DENSITIES ARE BETWEEN 20 AND 50 ARTIFACTS PER 2500 SQUARE CM

FIGURE 3.24 : HORIZONTAL DISTRIBUTION OF NON-STRUCTURAL ARTIFACTS IN LEVEL 5

Conclusions

We see, then, three grossly defined periods of deposition taking place. First a pile of kitchen wastes (bone and food serving vessels) and a moderate amount of window glass and nails were thrown into the pit, with the depositor standing on the northeast edge of the pit. This was followed by later deposits of Medical artifacts and Beverage containers. The facts that both of these classes surround the bone pile and appear to have been deposited in a similar fashion further strengthen the proposition that alcoholic beverages were truly used for medicinal purposes. Somewhat later in the depositional history of the pit food storage items were added to the trash inventory.

This is meant only as a very generalized summary of trends. It is obvious that all categories of artifacts were present in every unit and every level, and probably in every depositional event. That is, no one class of artifacts is discretely clustered in a particular place to the exclusion of all other types. This fact, therefore, precludes the possibility of any kind of special event accounting for the presence of a given type of artifact. There were apparently no beer bashes or alcoholic binges resulting in a massive concentration of liquor bottles only. There were no incidences of morally minded Presbyterians confiscating illicit booze. There were apparently no epidemics resulting in the rapid consumption of a particular type of medicine. There wre no earthquakes in which a cabinet containing dishes fell over, nor was there a major storm which broke a number of window panes. There was no period of construction or demolition, only a series of minor repairs requiring a few nails. Artifacts seem to cluster somewhat by function only because function tends to correlate with form and durability.

Only the bones show any real and meaningful sort of clustering (see Chomko's discussion in Chapter 6). Only the bones demonstrate the presence of unique, discreet events: i.e., the preparation of three or four meals for a large group of people. All other items suggest a more gradual accumulation of diverse types of materials in one or two receptacles before being dumped into the pit. The generalized difference in Medical/Beverage deposition and kitchen-oriented/Structural (figures 3.25 and 3.26) may reflect the collection of trash in two rather than one recepticle. The wards, laboratory, and storeroom were on the second floor of the structure. Activities in those rooms are likely represented by the Medical and Beverage class artifacts. The doctor's apartments and hospital kitchen were located on the first floor, where the bones, dishes, food storage items, and possibly building repair would have taken place. There may have been a trash receptacle on each floor.

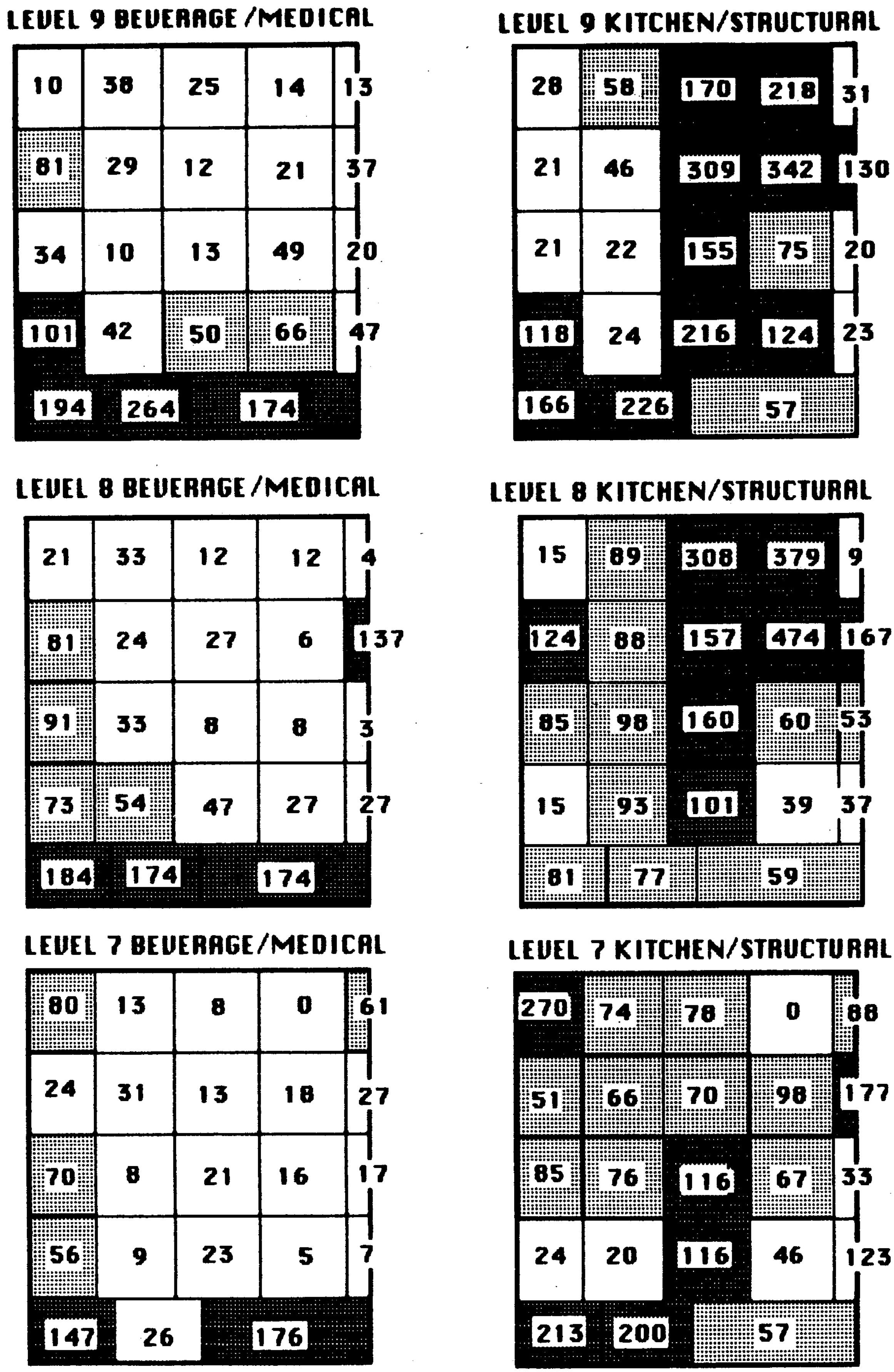


FIGURE 3.25: HORIZONTAL DISTRIBUTION OF COMBINED MEDICAL AND BEVERAGE CLASSES AND KITCHEN DEBRIS WITH STRUCTURAL ARTIFACTS IN LEVELS 7, 8 AND 9.

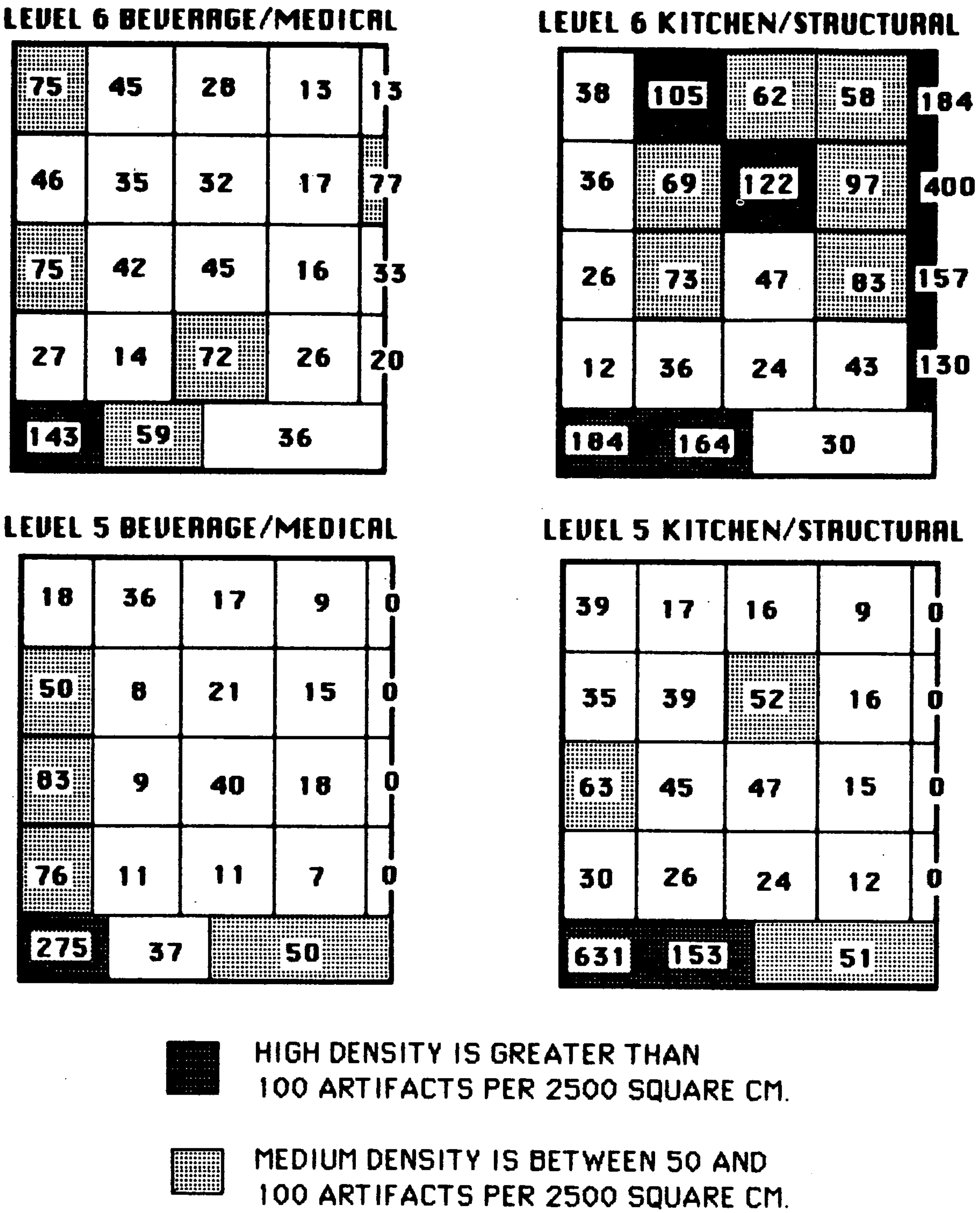


FIGURE 3.26 : HORIZONTAL DISTRIBUTION OF COMBINED BEVERAGE AND MEDICAL, AND KITCHEN DEBRIS AND STRUCTURAL ARTIFACTS IN LEVEL 5 AND 6.

CHAPTER 4

HISTORIC DOCUMENTATION OF SUBSISTENCE

by

Catherine Holder Blee

HISTORIC DOCUMENTATION OF SUBSISTENCE

Based on the data described to this point, it seems evident that the trash pit was deposited around 1860 by the occupants of the Russian America Company hospital. The three particularistic questions have been addressed by almost exclusive analysis of the archeological data. The more general, research-oriented the questions demand a broader use of all available evidence, requiring reference to the substantial historical literature. To ignore the documentary record would be comparable to ignoring any of the other lines of archeological evidence. Its use helps to clarify some of the more ambiguous archeological data.

The first research hypothesis stated that supplies were irregular in Sitka. Chapters 4 through 7 present the historical and archeological evidence which pertains to this problem of subsistence. In the process, data bearing on use of alcohol and intercultural relations are also introduced. At Sitka I was somewhat handicapped by the fact that most records of the Russian period were written in Russian. Historians and geographers reading Russian have written some interpretive works regarding the supplying of the Russian colonies based on the records of the Russian American Company, which became the property of the United States upon the purchase of Alaska and are now in the National Archives. In addition, I have had substantial assistance from NPS historian Dr. James Mote and contract historian Antoinnette Shalkop, both of whom are fluent in Russian.

COMMON MEAT FOODS

In many cases, I have chosen to quote exactly the words of the original writer, in an attempt to eliminate any unintentional biases on my part in the interpretation of the historic data on subsistence. As a result, the mid-19th century Euramerican views towards Tlingits and Aleuts are presented precisely as their authors, in the context of their own society, believed was correct. Most were not trained observors of non-European societies, and thus display their cultural own biases. These sources must be read in the context of the times.

The following is a description of the historic references to meat foods, which are most likely to leave archeological remains. Major sources were: Gibson (1976, 1978), a geographer studying Russian American supply systems; Khlebnikov (1976), a Russian accountant reporting on conditions of the colony in the early period; Golovin (1976, 1979), a Russian government official who investigated the Company in 1860; Tikhmenev (1978), a historian of the Russian-American Company commissioned to write an official history in 1860; Blaschke (1971, 1972), the Company physician in the mid-19th century; and Federova (1973), a modern Russian historian who wrote on the circumstances of Russians in Alaska in the 19th century. Of particular help from the American period were the letters by Emily Fitzgerald, wife of the U.S. Army surgeon stationed in Sitka from 1874 to 1876 (Laufe 1962); and the journal of Sophia Cracroft, niece of Lady Franklin, who stayed in Sitka from May 12 to June 15, 1870 (DeArmond 1981). Reference is also made to the observations of Emil Teichmann (1963), a representative of Oppenheim and Company, a furier who purchased furs from the Russian American Company, and who was sent as a spy to protect his employers' interests as the company moved out of Alaska in 1868.

Cattle

The Sitka area was too mountainous to maintain cattle of any kind, as there were very few flat places to raise grain or hay, and the climate was too wet. Grain became diseased and did not produce; hay could not dry out for cutting and storage. In the 1820s the area near Sitka could rarely provide enough hay for ten head of cattle (Khlebnikov 1976:78). Two citizens, Ovchinnikov and Makarov, kept "a small number" of livestock near New Archangel, but the effort was abondoned in 1855 (Golovin 1979:34). Gibson (1976:102) reports that less than a dozen cattle were found on the whole of Baranof Island in 1860. "Animal manure was so scarce [in New Archangel] that seaweed was used as a fertilizer" as well as herring roe, fish remains, ground mussels, chopped twigs and leaves (Gibson 1976:107). Captain Collinson (1978:199), an English officer visiting in 1850, reported "As for fresh beef, there were only four bullocks in the collony, but a vessel was daily expected from Kodiak, and she most likely would bring some. . ." Tikhmenev (1978:369) did not mention fresh beef at all in his discussion of local food resources. He says that "cattle, fruit and other food are shipped from San Francisco and sold by the company at cost."

> As for meat, the situation in Novo-Arkhangel'sk, as in other settlements was very bad. In all of Russian American in 1860 there were 218 head of cattle belonging to the Company and 20 head belonging to private owners. Naturally local resources could not supply meat for the population, and they imported salted beef into Novo-Arkhangel'sk from Aian, from the Amur, and from California in quantities of 1,500 to 2,000 puds[15] a year. Consequently, each inhabitant received an average of 70 grams a day. The salted beef did not always arrive on time, and for the inhabitants of Novo-Arkhangel'sk it was expensive (Federova 1973:235).

The Russian-American Company raised most of their cattle on Kodiak Island and at Fort Ross in northern California before 1845. Both ventures were only marginally successful, for reasons too numerous to describe here, and usually provided only enough beef for use at the colony where they were raised. Surpluses were shipped to Sitka when they occurred (Gibson 1976). Khlebnikov (1976:62) reported that ". . .we occasionally received rawhide from California [Fort Ross], sometimes soap and salt, and always live steers, both for food for the crew and to make salt beef on Sitka."

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15. A pud equals 36.11 pounds (Federova 1973:283). The word is sometimes transliterated as "pood."

After about 1850, the Russian-American Company began to rely heavily on both Siberia and American sources in California for its supply of beef. All references to beef in the literature describes only salt beef. Blaschke (1961:176) states that beef was salted in California. Siberian cattle were driven over 1,000 miles from the interior to the port of Okhotsk where they were killed, salted and barrelled. They arrived in poor condition and there was rarely time to fatten them before salting and shipping (Gibson 1976:58). Federova reports that 1,500 puds of "corned beef" were used yearly by the Russians in Alaska, and sold at 5 rubles 71-1/2 kopeks per pud from California. Aian (Siberian) corned beef was sold at 2 rubles 86 kopeks per pud.

Salted beef from Siberia was tough, spare and expensive. In addition, the animals were small, and "notable for [their] comparatively low productivity and live weight" (Vainshtein 1960:72). Little data could be found about the exact size of these cattle. They were apparently related to Mongolian breeds, which were estimated to weigh only about 600 pounds when mature, and were used by their original herdsmen as milk and draft animals rather than for beef (Rouse 1970:693). Because Siberian cattle were driven through areas of poor forage, they arrived in Okhostsk thin. Little time was allowed for them to fatten. They were immediately butchered, salted and packed in barrels. Often the salting was not done properly. All of the five tons sent to Alaska in 1850 and 90 of 96 barrels sent in 1853 were spoiled (Gibson 1976:68). It appears that the fresher, larger beef from California were preferred.

Even in the early American period, cattle were few and far between. Emily Fitzgerald, wife of the Army physician stationed in Sitka between 1874 and 1876 wrote home to her mother in 1875:

> Did I tell you what a time we had getting a cow? They cost awfully out on this coast. We brought one from Portland with us and as soon as it got here it went dry and is almost dried up by this time. The horrid thing has just had a calf, too, so there was 75 dollars lost! But Doctor thought he could better afford to send for another one than do without the milk, so he sent, but one thing and another prevented the boat bringing it

to us and we are still buying pale blue milk at 20 cents a quart (Laufe 1962:86).

Other Domestic Animals

Other domestic species were sometimes, but not as frequently used. Blaschke states that pork was rare (1981:178). "Pork is of some use, but since pigs here usually eat fish and shellfish, their meat is disgusting" (Golovin 1979:37). Gibson (1976) does not mention it as a trade item. Blaschke (1981:178) wrote that pigs and sucklings were used only on feast days. Tikhmenev (1978:369) states that 12 pounds of pork were issued to each member of a ship's crew each month, but if pork was not available, 12 pounds of corned beef was substituted.

Gibson (1976:98) suggests that the Tlingits also kept some pigs by the 1820s. Considering the traditional animosity felt by many Tlingits towards the Russians and the fact that they were not an agricultural people, I assume that the number of native people actually engaged in raising domesticated animals was small. Gibson (1978:370) states that the Tlingits raised potatoes, but adoption of root crops by a sedentary people accustomed to annually harvesting wild roots would have required less of a cultural adjustment than that of caring for domesticated animals.

Federova does not mention pork at all. The lack of pig bones in the trash pit may reflect this lack of interest in pork or general unavailability of the item, despite its popularity in the United States and Britain at the time.

It is interesting to note that the English furrier Emil Teichmann reported in 1868 that the remaining Russian workmen lived in barracks of 30 to 40 people, including their families, and who shared their quarters with dogs and pigs (Teichmann 1962:186). This may reflect his general disdain for the Russians in Sitka more than an actual observation.

As early as the 1820s Khlebnikov (1976:100) wrote:

> Swine and poultry have also been introduced here in large number. Swine that are fed on fish and shellfish have a bad flavor, but those fed on grain and potatoes are quite delicious. The price for small piglets is from five to seven rubles [$2.50 to $3.50]; larger pigs weighing from five to six puds sell for 60 to 80 rubles. Chickens usually cost four or five rubles, and eggs are from three and one-half to five rubles for ten. Both pigs and chickens can be bought from the local inhabitants at all times of the year.

By 1860, though, it appears that chickens were only occasionally kept. "As far as poultry is concerned, there are only chickens in the colony and they too are often fed on fish and have a bad flavor" (Golovin 1979:37). Chickens and eggs are used only on feast days (Blaschke 1971:178). "Birds and eggs were entirely unavailable for 'the simple class.' Chickens cost 5-6 rubles paper, and eggs 70 kopeks to 1 ruble." Annual salaries of the workmen were less than 350 paper rubles and expenses for clothing and non-food necessities often amounted to 300 rubles a year (Federova 1973:236-237). The expense of the birds may account for the absence of chicken bones in the deposit.

Pork and poultry may have been more common in the American period. Sophia Cracroft reported:

> The Island [Japonsky] is used by the officers for keeping pigs, poultry, &c, and there is a garden belonging to the soldiers, under the care of 2 men who live on the Island. . . The garden is not large, but well kept & looking flourishing (DeArmond 1981:57)

Japonsky Island may be where Dr. and Mrs. Fitzgerald kept the cow they brought from Portland. It may also have housed their horse, an animal which was probably rarer than other domesticated animals in the settlement during both Russian and American times. In describing a Christmas party in 1875, Emily Fitzgerald explains that all the guests had to draw lots for costumes to wear.

Doctor drew a jockey's cap. Since he brought an Indian pony up from Portland so he could draw his forage, and as it is the only horse in the Territory, they all thought it was a good joke (Laufe 1962:172).

Yaman[16]

There is frequent mention of an animal called a iaman or yaman (pronounced yah-man) the Russian period. The word was often translated as "sheep" or "goat". Frequent allusions are found to iaman, yaman, yamanina, wild sheep, chamois, mountain sheep, and even Dall mountain sheep. However, both Alaska State, and U.S. Fish and Wildlife officials in Sitka assure me that neither *Ovis canadensis* nor *Ovis dalli* were ever found on Baranof Island, and that *Oreamus americanus* (mountain goat) was imported for the first time in 1923 (Johnson 1984, Huges 1984). English documents of the same time period never mention sheep or goats in Sitka area; however, they often mentioned deer. Only one English translation of a Russian document concerning the Sitka area ever contained the word "deer" (Blaschke 1971:178), despite the fact that it is the only herbivore native to the area.

The problem was partially resolved when I read the introduction to Tikhmenev's 1860 history of the Russian-American Company. The translators commented on the difficulty of translating names of plants and animals due to the absence of scientific names. They mentioned that olen is sometimes translated as caribou and sometimes as deer (Pierce and Donnelly 1978:viii). This suggests to me that the Russians tended to think of a deer as a caribou-like animal and the gracile Sitka black-tailed deer as a goat- or sheep-like animal.

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16. I have elected to use Dr. Gibson's transliteration of this word as it is easier to pronounce correctly than the more common transliteration iaman.

The word iaman appears in brackets after "mountain goat", "mountain sheep", "chamois" or "wild mutton" in Tikhmenev (1978), Golovin (1979) and Federova (1973), all English translations of Russian texts. It is obvious that the translators had problems with the word that they would include it after their translation. The Russian word for "deer" is zver, usually used to denote the red deer (Cervus elaphus), an animal we would call a wapiti. As Pierce and Donnally note, olen' is also used for "deer", but more often for "reindeer" (Ragifer tarandus). The word sametz refers to the roe deer. Ovtsa is the word for sheep, kozel for goat, serna for chamois. As can be seen, none of these words approximate iaman.

Gibson (1986) tells me that yaman is a Tatar word for the domestic goat, and derives from the Turkish root for "bad". Dmystryshyn and Crownhart-Vaughn (Golovin 1979) often use the word "chamois" before yaman. The chamois (Rupicapra rupicapra) is a close relative of the wild goats and lives in the mountain ranges of Europe and Asia Minor, close to the area from which the word yaman derives. The chamois' eating behavior is much like the Sitka black-tailed deer. Both animals browse on alpine forbs, herbs and flowers in the summer, descending to lower elevations in the winter to reach lichens and even conifers (Walker 1974:1469; Denver Museum of Natural History). As can be seen in figure 4.1, the Sitka deer bears a striking resemblance to the chamois. The Russian identification of the animal was no doubt further confused by the fact that yaman were usually obtained in winter when they came down in lower elevations, and might have been without antlers at that time of year.

The Sitka deer weighs between 35 to 45 kg (Hughes p.c.) and the chamois weights from 24 to 50 kg, so they are similar in size. Note that the deer the Siberians most often encounter are the caribou, weighing as much as 318 kg (Walker 1975:1402) and the red deer, varying from 100 to 250 kg (ibid 1389). Both Ovis canadensis and Ovis dalli weigh between 75 kg and 200 kg (ibid 1478), and Oreamus americanus from 75 to 140 kg (ibid 1468). Khlebnikov (1976:99) noted that "a ram weighs about two

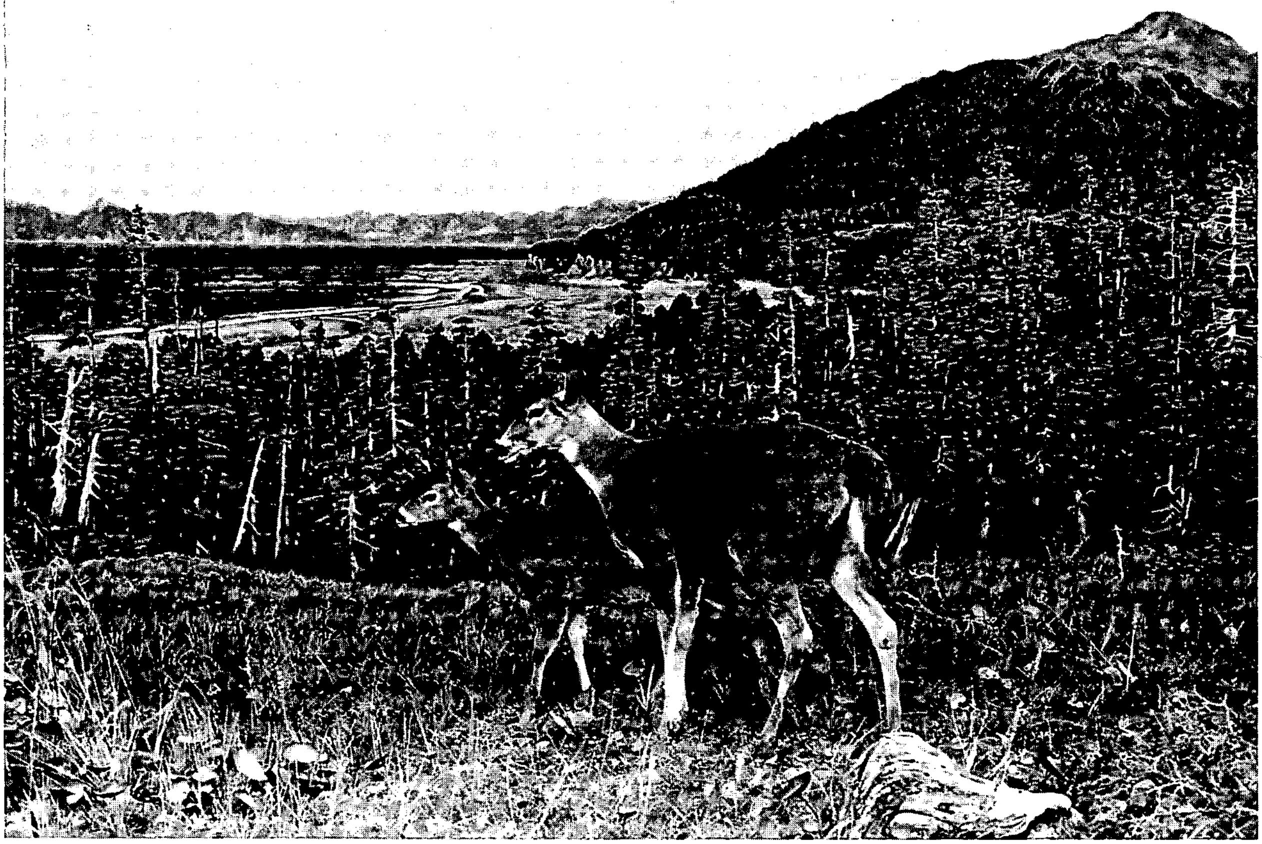

Figure 4.1: Photograph of the Sitka Black-tailed deer (Denver Museum of Natural History).

pud when it is fat." Two puds would be about 32 kg, which is much closer to the weight of the Sitka black-tailed deer than any of the other Alaskan artiodactyls.

For these reasons, I have assumed that the yaman, wild mutton, wild sheep, chamois, wild goat, and sheep referred to in Russian documents are really the Sitka black-tailed deer (Odocolius hemionus sitkensis). The use of the word for the Sitka deer says more about the ethnic background of the original Russian explorers into Southeast Alaska than about Russian ignorance of animal classification. It is likely that people of Siberian background were the first to see the Sitka black-tailed deer, and that the later, European Russians kept the word used by their predecessors.

Mention of yaman and deer in the literture is extensive. It appears to have been the primary source of fresh meat (Gibson 1976:13, 215; Golovin 1979;38; Blaschke 1971:178), and was procurred through trade with the Tlingits.

> Wild sheep is almost the only fresh meat the Kolosh bring in. They are the only ones who can hunt the chamois in the high mountains which are covered by impenetrable forests. This hunting task was assigned to a group of Russians and creoles, but the attempt was not successful (Golovin 1862:38).

Collinson (1978:199), in 1850, wrote "Deer might occasionally be purchased from the Indians in the market. . ." Sir George Simpson (1976:167-168), head of the Hudson's Bay Company, wrote of Sitka in 1841, "The surrounding country abounds in the chevreuil, the finest meat that I ever ate, with the single exception of moose. . ." The chevreuil is also called a roe deer or roebuck by Europeans. It scientific name, Capreolus capreolus, is Latin for "diminutive goat" (Gotch 1979:210) indicating that even zoological classifiers believed the roe deer to be a goat-like animal. The roe deer and the Sitka black-tailed deer are very similar in appearance, the roe deer weighing 15 to 30 kg.

During the 1850s up to 400 "mountain sheep" were consumed annually at New Archangel. They were clubbed along the seashore in the winter, and along with "grouse" and halibut, constituted the only fresh meat in winter (Gibson 1976:214). Tikhmenev reinforces the concept that deer were mostly available in the winter.

> The Kolosh of Sitkha bring wild goats and halibut to New Archangel to sell--almost the only fresh food there in the wintertime. There was a shortage of goat meat during the first ten years of the present period, but there has been plenty in recent years. During the winter of 1861, deep snow in the mountains forced the goats down to the low ground, where the Kolosh had no trouble getting them. They brought 2,774 into port, an unbelievable quantity compared to that of the past (Tikhmenev 1978:369).

The "present period" referred to by Tikhmenev was from 1840 to 1865.

Gibson (1978:373) shows the number of <u>yaman</u> purchased each year by the Russian-American Company from 1844 to 1866 (figure 4.2). In the last twelve years before the transfer to the United States, annual take varied from 15 to 2,774. The years 1859 to 1862 were particularly productive. Remember that the trash pit dates to about 1860.

Khlebnikov (1976:99), writing about the mid-1820s in Russian-America, goes into some additional detail about the winter procurement of deer, which he calls "mountain ram."

> The hunt for mountain rams by the Aleuts[?] deserves notice. The hunt begins in November and continues until May. It is impossible to determine the exact number taken, but in a good year they take at least 200 head. This hunt provides good meat for the officials, and a profit for the Aleuts who receive from ten to fifteen rubles[17] for one ram. This hunt makes it possible to have fresh meat quite inexpensively throughout the entire winter. A ram weighs about two puds[18] when it is fat.

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17. One ruble equalled $.50 U.S. in the 19th century.

18. One pud equals 16.38 kilograms.

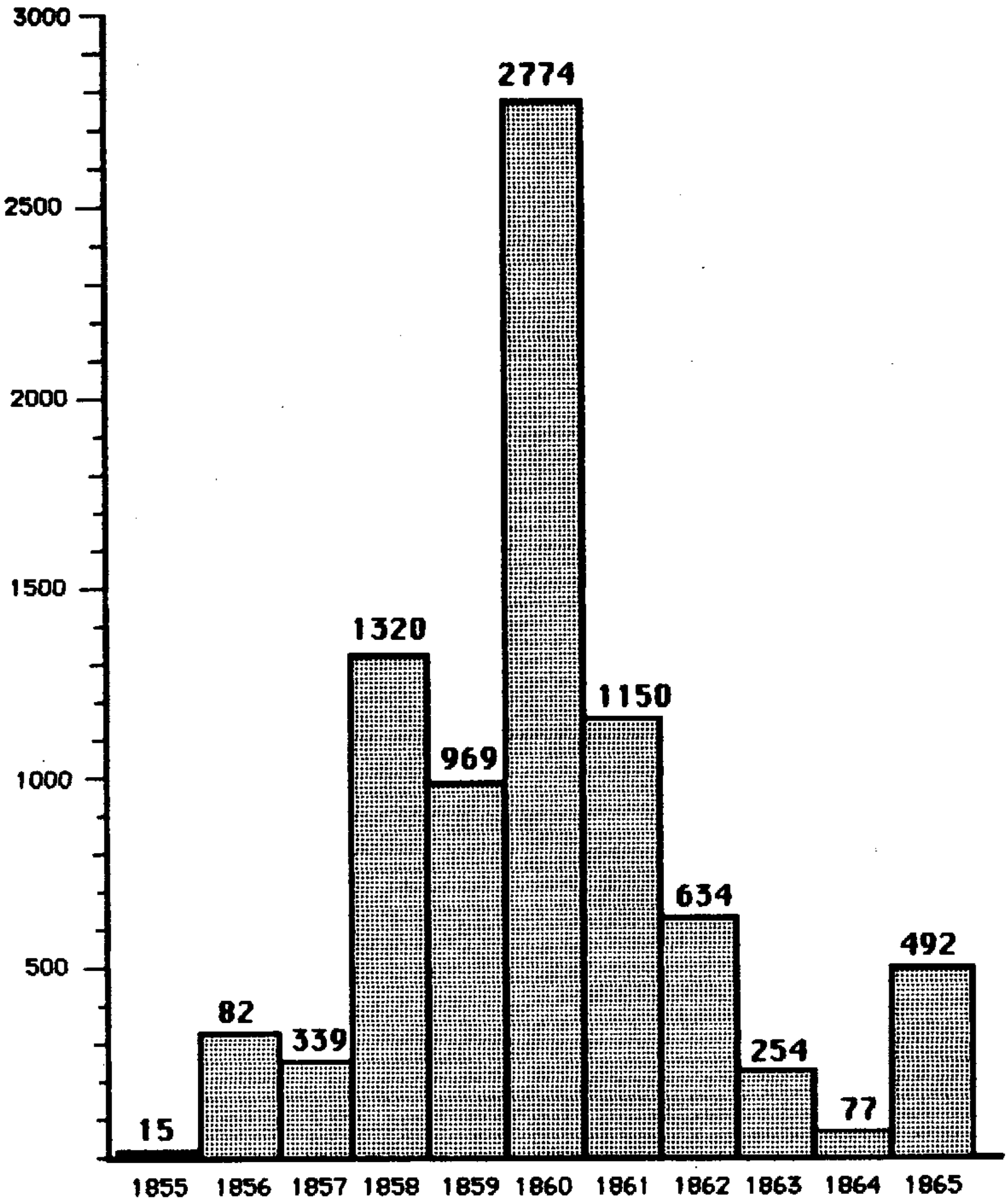

FIGURE 4.2: NUMBER OF YAMAN PURCHASED BY THE RUSSIAN AMERICAN COMPANY FROM THE TLINGIT FOR EACH YEAR BETWEEN 1855 AND 1865. FROM GIBSON (1978: 373).

Euramerican dependence on the Tlingits to supply deer meat was continued in the early American period. Sophia Cracroft, a relative of Lady Franklin, visiting Sitka in 1870 wrote:

> . . . we went to the Indian Village & came first (after passing the gate in the stockade wh. is locked every night) to the market, a long low shed, on the walls of which were hung several good sized deer, wild ducks, with fish whole, & cut up (DeArmond 1981:24).

And finally, Emily Fitzgerald, wife of the U.S. Army physician in 1874-76, complained about having to eat venison so often:

> We have a roast of venison for dinner. How I hate it. It is a thing one will tire of soon, but for several days every week we have to depend upon the Indian market. The things are cheap enough, but I don't like game. We have mallard ducks and teal ducks often, and grouse, too. The nicest thing I have had was a pheasant I got, or Noah got for me, the other day for ten cents (silver, of course). The meat was as white and as tender as a chicken's. But I hate venison. We buy a hind quarter for 50 cents (four bits, they say) and often can get both hind and forequarter for the same. Beef is only issued to us once a week and we can't get much more than 20 to 25 pounds. You know that won't last such meat eaters as Doctor and me a week. I believe they have fish in great abundance here sometimes in in the year, but this is not the fish season (Laufe 1962:61).

Mrs. Fitzgerald provides a wealth of information on food sources in 1874 in this one paragraph, and I will return to it later. While it is readily apparent that venison was one of the primary sources of fresh meat, it was also salted for later use. Gibson (1976:215) reports that "salted wild mutton was given to the workers only three or four times during the year (mainly during Easter)."

Game Birds

Wild fowl is usually mentioned at the same time as venison in the literature, and was likewise obtained through trade with the Tlingits.

Grouse, ducks, geese, teals, cranes, herons, and swans (Belcher 1978:141; Gibson 1976:102; Blaschke 1971:178; Khlenikov 1976:37) are specific types listed. Surprisingly, Golovin does not mention birds at all, but does frequently write of game, which might include birds. Commander Edward Belcher (1978:141), in 1837, wrote "Game very scarce; one goose and a small blue-winged duck were all the birds that were brought for sale." As shown above, Emily Fitzgerald wrote that she had obtained a pheasant (Laufe 1962:61), but as they are not native to the area, it is difficult to know what animal she refers to. In 1860, 1,000 grouse were purchased by the company from the Tlingits in New Archangel (Gibson 1976:102). In describing the Indian market, English furrier Emil Teichmann wrote in 1868 ". . . every morning several stags were brought in as well as snow-geese, ptarmigan, hazel-hens and other wild game" (Teichmann 1963:214). What a hazel-hen is, I could not determine.

Fish

Fish was without doubt the primary source of food for the Tlingits; their entire culture was centered around the exploitation of fish resources. English Commandor Edward Belcher (1978:141), in 1837 reported that berries and salmon were the chief food of the naive Tlingits.

Fish are mentioned in the historic record perhaps more frequently than any other food source. Blaschke (1971:175) said it was the principle food of the colonies for both Russians and native groups. "All inhabitants of the colonies provide themselves with fish--either fresh, salted or dried" (Golovin 1979:36). Fresh fish was available for eight months of the year; dried fish was consumed in the winter. While several types were available in the summer, only halibut could be obtained in the winter months (Gibson 1976:40). George Simpson (1978:167-168), in September, 1841, remarked:

> . . . halibut, cod, herrings, flounders, and many other sorts of fish are always to be had for the taking, in unlimited quantities. In a little stream, which is within a mile of the fort, salmon are so plentiful at the proper season, that, when ascending the river, they have been known literally to embarrass the movements of a canoe. About a hundred thousand of the last-mentioned fish, equivalent to fifteen hundred barrels, are annually salted for the use of the establishment.

Captain Collinson (1978:199), however, in December 1850, disagreed with Simpson about the unlimited nature of this food source. "I learned with regret, that the salmon fishing having failed this year, we could not expect a supply of what I had hoped to obtain in abundance." Yearly fluctuations in fish catch apparently were great.

In May, 1870, Sophia Cracoft mentioned that the Indians sold "fish whole, & cut up" (DeArmond 1981:24).

Fish was the staple for the employees of Native ancestry working for the Company, but was apparently used less by the Russians. Gibson reports that halibut and cod predominated the types. In the 1850s, 380,000 dried, 114,000 salted and 64,000 fresh fish were stocked by the Company. New Archangel was apparently the source of winter halibut for the colonies. Company laborers (who for the most part were Aleut or of mixed Russian-Native parentage) were reported to have lived solely on salted fish for four months and fresh fish the rest of the year (Gibson 1976:40).

Tikhmenev (1978:422) also reports large numbers of fish:

> Fish caught include red salmon, dog salmon, silver salmon, humpback, and king salmon. Halibut is caught year-round. Herring are caught mainly during February and March, but sometimes appear in the fall. (So numerous are they during their periodic runs that around small islands and in narrow straits the water takes on a milky color. One need only put into the water a pole with nails driven into one end to pull out several fish at once).

Golovin (1979:38) talks a bit more about how fish were prepared and for whom:

> It has been noted that up until now livestock production in the colonies has been insignificant, because all inhabitants of the colonies provide themselves with fish--either fresh, salted or dried (iukola). The latter is mainly used for food by the natives. . . The colonies abound in fish; they are especially plentiful when they swim up the rivers and creeks to spawn. At that time the Company puts up various supplies for winter. Part of the fish is salted to be sold or supplied to Company service personnel, and iukola is prepared for the Aleuts. Aleuts, who are left in the settlement after the others have gone out on the sea otter hunt, catch fish for themselves and dry it. A sufficient amount is distributed free of charge to all settlements, and there is also a large supply left in the colonial stores so that it will be possible to supply the Aleuts when they have used up their own provisions.

Fedorova likewise reported that the main food of the colonies was fish, which was most abundant in the summer. Because of this seasonal excess summer fish was salted, dried, and sometimes smoked for winter use. She quotes an otherwise unidentified source named Kostlivtsev who stated that "fish is the main food of the population of the Novo-Arkhangel'sk fort, from three ot four summer months it is used fresh, and for the rest of the time is salted" (Federova 1973:234, 236).

Khlebnikov (1976:53-54), observing the operations of the Russian-American Company in the late 1820s, described processing fish in a way that probably continued until the 1860s:

> In February and March herring appear near the shore; they are taken in nets in various places near the fort. The promyshlennicks[19] will not eat fresh herring, and therefore herring from the first catch are salted and given out in that condition. As long as they run, they are continuously salted, and they are stored in from six to eight tubs or in from 20 to 30 barrels. Blueback salmon are taken in traps set in the lake redoubt. At first there are only a few, but from the middle of June on, there are more and more. This is followed by the

19. Russian fur trappers.

> humpback salmon, dog salmon, and then the silver salmon. As long as the run of fish is small, they do not salt it, but send the fresh fish by baidarka to the port for consumption. Salting begins in June and continues until September. Between 120 and 180 barrels of fish of all kinds are salted in the redoubt. This requires five puds of salt per barrel. The amount of salted fish per barrel may be stated as follows: blueback 200; dog salmon and silver salmon, 100; considering an average to be 150 per barrel, this means that some 20,000 fish are salted in the redoubt. In addition, the Aleuts dry about 10,000 fish for iukola. . .
>
> At the end of June and in July the humpback salmon comes in near the fort, then the dog salmon and silver salmon, which are taken with nets. . . This catch supplies all three forts with fresh fish, and in addition provides from 20 to 30 barrels of salted fish.
>
> From November on the Aleuts go out in one or two rowing vessels to fish for halibut.

Between October, 1825 and April, 1826, Khlebnikov reports that 860 puds (31,055 pounds) of halibut were caught.

Frederick Whymper, an American gentlemen visiting New Archangel in 1862, described the processing of fish for use in the community.

> Immediately upon the arrival of a boat-load of fish at the wharf, a number of the poorer women, some of them Indians, arranged themselves in two long lines, and very rapidly cleaned and gutted the salmon. A few buckets of water were then thrown over the heap, and they were carried to the vats, and put in brine at once (Whymper 1868:77).

It is assumed that the brine was used either for salting or preparatory to smoking.

Fish was the staple food for the workers, although the officers and company officials fared somewhat better. ". . . soldiers receive rations from the communal kitchen. This food consists of soup made from salt fish, or fresh fish in summer; occasionally there is salted meat, and once a week peas and kasha" (Golovin 1979:40).

The communal kitchen usually served salted fish; salted meat

> is given out only on holidays, and fresh game only when it is available in a larger amount that is needed for distribution to top ranking persons such as the Chief Manager, his assistant, the office administrator, ships' captains and senior prikashchiks.[20] But wild sheep is eaten only on Sitka; it is not available in other parts of the colony where fish and salt meat are the usual diet (Golovin 1979:36).

Golovin (1979:38) also reports:

> The Kolosh bring game, fish, greens, etc., to the market and exchange it all in the Company stores for blankets, rice, flour and other things they need. Everything that is bought from the Kolosh is sold to the inhabitants at a set price. Naturally such things go first to persons of high rank, then to those of lower rank, and then to ordinary persons. Anything left over is given to the communal kitchen.

It should be noted that fish was considered sufficient food for the natives in the employee of the company, "Creoles," and common working men, as well as their families. Khlebnikov (1976:54) remarks, rather matter-of-factly, that the children in the schools run by the Company " . . . should also be supplied with such edibles as garden produce, fresh fish, salted fish and whale and seal meat." He later stated that "A shortage of fish, which rarely occurs on Sitka, forced them [the working men] to be permitted to purchase the following supplies at the store, in addition to their rations . . ."

Other Animal Foods

Only a few other animal foods were mentioned in the literature. According to Blaschke (1981:178), marine bird eggs, sea urchins, cockles, mussels, chitons, Kamchatkan quahogs, and cuttlefish were sold

20. Minor administrative officials.

by the Tlingits. Gibson suggests that the Russians sometimes bought slugs for food and in 1805, there was such a famine that people ate "eagles, crows and cuttlefish" (1976:14, 214). Crows are not found in Sitka, but ravens are ubiquitous. In 1876, Mrs. Fitzgerald also reported that "When the tide is out, the beach is covered with Indians and Russians getting clams" (Laufe 1962:178). Gibson (1976:40) reports that shellfish and sea mammals were also eaten.

Sophia Cracroft describes the Tlingit capture of hummingbirds. The Indians catch them (in what way we have not heard yet) alive and tie them by the legs to a stick 10 or 20 in a row--& bring them into the Town for sale" (DeArmond 1981:52). Whether they were eaten or not is hard to say, but it is interesting to note that Golovin mentioned them in a list of economically important animal species.

Severely fragmented sea urchin remains were found in two locations in the trash pit, as well as a number of unidentified bivalve shells. Khlebnikov described both animals being eaten by the Russians. In addition, the sea urchin was believed by Dr. Blaschke to have medicinal qualities.

> This man believes that nature in this fashion endows poorlands to equalize them with others. He finds the demand for sea urchin great, for in addition to a delicious flavor, it has healing properties. It can cure stones, also tuberculosis in its early stages. In fact, it is a universal medicine for all illnesses (Khlebnikov 1976:37).

In addition, Northwest Coast peoples considered the sea urchin to be good for old people. The roe, especially, was used medicinally (Gleeson 1986).

No hummingbird or squid remains were recovered. The lack of the former may be due to the 1/4 mesh used for screening. The squid leaves only a cartilaginous plate, which may or may not have survived both the elements and our recovery technique.

SUPPLYING THE HOSPITAL

The company hospital was used to treat male employees of lower rank. Higher ranked officials and their wives were treated in their residences. Most lower ranking wives were Tlingit or of mixed blood and were not treated by the Russian officials, except in cases of venereal disease outbreaks (Blaschke 1971). In view of the previous discussion of distribution of fish, the rank of the patients alone would suggest that fish was the primary diet.

> The infirmary suffers from shortages of fresh food in New Arkhangel. Sick persons very rarely get wild mutton or other fresh meat. Their usual diet is a soup made of salted meat or salted fish. In summer they have fresh fish when there is a big catch. They also receive rice (Golovin 1979:66).

Blaschke (1971:175, 176), the company physician, reported that "Dried meat from California is used in the hospital" and that "Halibut is made use of chiefly at the hospital and school. . ."

The higher ranking officials of the Company usually were issued or purchased the fresh meat that was available, and since the hospital served low ranking employees, it is unlikely they received fresh meat except in times of extreme plenty. Fresh game was distributed to the communal kitchen serving the common employees "only when it is availble in a larger amount than is needed for distribution to top ranking persons such as the Chief Manager, his assistant, the office administrator, ships' captains and senior prikashichiks" (Golovin 1979:36). At another point he says:

> The Kolosh bring game, fish, greens, etc., to the market and exchange it all in the Company stores for blankets, rice, flour and other things they need. Everything that is bought from the Kolosh is sold to the inhabitants at a set price. Naturally such things go first to persons of high rank, then to those of lower rank, and then to ordinary persons. Anything left over is given to the communal kitchen (Golovin 1979:38).

Fedorova (1973:235-236) comments that "iaman meat from the bazaar is supplied first of all to the senior people; the second-class people are supplied little and rarely, and the simple class do not have iaman in the kettle at all."

Conversely, "fish goes first to the hospital patients, then to the garrison and to officials" and potatoes were grown "primarily to feed the sick and the school children each day" (Golovin 1979:54).

CHAPTER 5

ENVIRONMENT OF SITKA AND MACROFLORAL ANALYSIS OF A SAMPLE FROM FEATURE 12

by

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and

D. Kate Rasen

THE SITKA ENVIRONMENT

Situated on the west coast of Baranof Island in the Alexander Archipelago of the southeast panhandle of Alaska, Sitka is surrounded by the steep Coast Range Mountains of Alaska. The city is on the north side of a large natural bay (Sitka Sound) at an elevation of 22.68 feet. Rising to the north of Sitka is Mount Edgecumb, a 3,201 ft. volcanic cone, whose most recent eruptions date to the 18th century.

> The 'Panhandle' comprises a strip of mainland approximately 30 miles wide and about 350 miles long, with a few large islands and a great many small islands and reefs. The partial submergence of this portion of the Coast Range accounts for the maze of islands, channels, inlets, and fjords that gives the region much of its scenic beauty and its many good harbors. Mountains rise from the seacoast and there is very little coastal plain anywhere (Hulley 1970:7-8).

The mountains vary in height from 5,000 to 8,000 feet, with timberlines from 2,000 to 3,000 feet, above which tundra is recorded. The mountains of the archipelago are similar to those on the mainland, albeit lower and usually fully timbered (Shelford 1926:142). Generally, the coastal environment is characterized by steep, rough topography.

Sitka enjoys a maritime climate, which is characterized by relatively high precipitation and mild temperatures. Summers are cool and winters are moderately cold. An average of 96.6 inches of rain fall in Sitka a year between mid-summer and late winter. Average temperatures range from an average daily minimum of 26.7 degrees in January to 62.0 degrees in August. Temperatures hover in the 40s and 50s for most of the day from February through November (Blee 1985:2).

Coniferous forests of Sitka spruce (_Picea sitchensis_), western hemlock (_Tsuga heterophylla_), and western red cedar (_Thuia picata_) dominate the Pacific slope between California and south, central Alaska as part of the Pacific Coastal Forest (Heusser 1985:141) (figure 1.1). These trees comprise the bulk of lowland forests below 600 meters along the immediate coast and below 1,000 meters on the western slope of the inland cordilera. Other tree species found within this forest include Douglas fir (Pseudotsuga menziesii), mountain hemlock (Tsuga mertensiana), grand fir (Abies grandes), sequoia (Sequoia sempervirons), Pacific silver fir (Abies amabils), and Alaska cedar (Chamaecyparis nutkatensis) (Heusser 1985:143).

Red alder (Alnus rubra) and Sitka alder (Alnus sinuata) commonly grow along streams, beach fingers, and on recently disturbed soils, as do willows (Salix spp.) (Ager and Brubaker 1985:356; Vireck and Little 1972:14-15). Black cottonwood (Populus tricocarpa) occurs on floodplains and recently deglaciated areas. Subalpine fir (Abies lasiocarpa) and Pacific silver fir grow occasionally at both treeline and sea level.

Common understory shrubs on hillsides in the coastal forest include: blueberries (Vaccinium spp.), huckleberry (Vaccinium parviflorum), copperbush (Cladothamnus pyrolaeflorus), devilsclub (Oplopanax horridus), salal (Gaultheria shallon), salmonberry (Rubus spectabilis), currants (Ribes spp.), elderberry (Sambucus callicarpa), and thimbleberry (Rubus parviflorus) (Hulley 1970:6; Vireck and Little 1972:14-15; Shelford 1926:142). Poorly drained areas at lower elevations are characterized by open muskegs of low shrubs, grasses, and moss. Often treeless, these areas may also exhibit a few scattered lodgepole pine (Pinus controta), western hemlock, mountain hemlock, Alaska cedar, and Sitka spruce (Vireck and Little 1972:14). Grass and flowering plants are scant in the heavily wooded areas, but occasional grass meadows do occur (Hulley 1970:6). Mosses, lichens, and ferns are abundant in the coastal forest, as well (Goodrich, 1983). Other herbaceous species mentioned in the historic record for the Sitka area include solomon seal (Smilax), cowparsnip, and parsley (Blaschke 1971; Blee 1985:4).

Plants that are noted to have been commonly utilized by the Russians during the 19th century include items purchased from the local Tlingit population, as well as plants that were grown in the gardens. Items which were purchased from the local population included smilax, cowparsnip, hemlock, parsley, raspberries and salmonberries (Blaschke 1971). Local gardening produced such crops as potatoes, turnips, radishes, rutabagas, carrots, and beets. Occasionally cabbage, lettuce, and cucumbers were grown with mixed success in hot frames (Blaschke 1971; Golovin 1979; Tikhmenev 1978:369; and Gibson 1976:98, 100).

MACROFLORAL ANALYSIS

Although several soil samples were taken, only one was subjected to a detailed analysis of macroflora analysis. Approximately two liters of organic fill were removed from beneath a copper lid (figure 2.42) in Feature 12 yielded a very large quantity of woody debris (Table 5.1). The majority of the larger pieces (4 mm and larger) of wood recovered from this sample were identified as belonging to the juniper family (Cupressaceae), which was also the dominant charcoal type. In addition, Sitka spruce (Picea sitchensis) twigs were also recovered from the midden fill. The majority of the conifer needles recovered from the sample belong to western hemlock (Tsuga heterophylla), although Sitka spruce (Picea sitchensis) was also well represented (Table 5.1). Western red cedar (Thuia picata) is frequently employed to make roof shingles, while Alaska cedar (Chamaecyparis nutkatensis) is used on boatbuilding since it is a highly resistent wood, although it has a wide variety of uses (Selkregg n.d.:147). Both are members of the juniper family (Cupressaceae).

Several types of seeds and fruits were recovered from the fill. The most numerous seed type was Rubus (salmonberry, thimbleberry, or raspberry). The seeds were uncharred and appear to represent the discard of these berries with trash. Salmonberry, thimbleberry, and raspberry are all edible and available in this area (Angell 1981; Blaschke 1971; Hitchcock and Cronquist 1973). Rubus fruits ripen from July to September, and thus the presence of these seeds suggests that this trash was deposited during the summer of early fall. Probable pine nut hull fragments present in the trash suggest long distance trade, perhaps down

TABLE 5.1

CONTENTS OF MACROFLORA SAMPLE UNDER COPPER LID IN MIDDEN

Material	Quantity: Number	Quantity: Weight
Wood		
Cupressaceae (juniper family) stem (Thuja or Chamaecyparis)	4 frags	
Cupressaceae bud	1	
cf. Cupressaceae wood	52 frags	26.25g
	1 (partially charred)	
cf. Cupressaceae inner bark	3 frags	
cf. Cupressaceae bark	3 frags	
cf. Tsuga heterophylla (western hemlock) bark	1 frag	31.24g
Picea small branches	23 frags	8.87g
cf. Pseudotsuga (Douglas fir)	1 fragq	1.35g
Unknown twigs, cf. Salixi (willow)	6 frags	1.25g
Needles		
Picea sitchensis (Sitka spruce)	532	
Tsuga heterophylla (western hemlock)	891	
Conifer	31	
Charcoal		
Cupressaceae	40	3.31g
Unknown 1	1	.4g
Unknown 2	3	.3g
Unknown 3	4	.39g
Seeds and Fruits		
cf. Penstemoni (penstemon) fruit	2 frags	
Picea (spruce) seed	1	
Pinus (pine) nut hull	7 frags	
Rubus (salmonberry or raspberry) seeds	122	
Unknown seed	1 frag (charred)	
Conifer hull	1 frag	
Other Organic		
Monocot stem, cf. Gramineae (grass family)	1 frag	
Moss	2 frags	
Leather, cowhide	15 frags	
Hair, cow	numerous	
Wool fabric, brown, woven	1 frag	
Wool fabric, blue, woven	1 frag	
Unprocessed wood, matted	6 frags	

Table 5.1 (continued)

Material	Quantity: Number	Quantity: Weight
Faunal		
Spines (estimated weight)		4.5g
Shell (cf. crab)		10.48g
Fish scale	3	
Fish vertebrae	2	
Bone	24 frags	
	2 frags (charred)	
Bone	64 frags	
Bone	18	
Feathers	298	
Insect fragments	134	
Inorganic		
Glass	60	
Metal hook	1	
Bead, blue glass seed bead	1	
Conglomerate: mixture of pebbles, sediment, unburned wood, charcoal, hair, feather frags, cemented with iron oxide		16.75g
Gravel	general component	
Sand	general component	
Silt	general component	

OTHER SELECTED SAMPLES

N10W1, Level 6	Leather (cowhide) containing small quantity of hair (#133.0967).
N9.5W1, Level 7	Leather (cowhide) containing small quantity of hair (#133.0962).
N9W0, Level 8	Mat or "nest" of hair (deer/caribou) and a few feathers.
N9.5W1.5, Level 7	Leather (cowhide) containing small quantity of hair (#133.0964).
N10W0, Level 6	Hair, cow (#133.0966)
N10W0, Level 9	Copper impregnated wood containing hair tufts wood is unidentified, hair is rabbit (Lepus).

the west coast, for these items do not grow in the vicinity of Sitka. No other seed remains were evident in this sample from the midden fill to indicate the exploitation of native vegetal resources.

Various elements of the faunal community, both native and domestic, were represented in this sample. The majority of the remains are listed, but not interpreted, as they will be discussed in Chapter 6. Several fragments of leather were recovered from the fill, and were identified as cowhide based on the few remaining hairs adhering to the leather. Many sources note that domestic cattle were rare in the community. The leather recovered may either have been imported or perhaps locally tanned. In addition, a mat or "nest" of Cervidae hair was removed from N9W0, Level B. The hair was identified as belonging to either deer (Odocoileus) or caribou (Rangifer). The hair of these two genera are virtually identical under the microscope, so the archeological specimens remain identified to the family level. A few small, unidentified feathers were contained in this matting of hair. The fragmentary pieces of crab shell recovered suggest that the occupants of the hospital were eating a diet that was at least supplemented by local resources.

A few small pieces of woven woolen fabric were also recovered in the trash fill. One piece was natural in color, while the other was blue. In addition, several pieces of matter, unprocessed wool were also retrieved. These, also, were a natural color. A few inorganic remains contained in the organic trash fill analyzed duplicate those retrieved from the greater quantity of fill from this feature.

The macroflora record from the trash fill under the copper lid in Feature 12 is composed mostly of wood fragments, which may represent part of the superstructure or roofing shingles of a building which was dismantled. The conifer needles and spruce twigs recovered are representative of trees that were growing in proximity to the feature as it was filling with trash. Little evidence was obtained from this analysis to shed light either on the function of the feature (except that at this point trash accumulation is evident), or on long-term subsistence at the hospital. The wood fragments and needles are probably representative of construction materials and elements of the local environment respectively. They indicate utilization of the local resources, as well as probable accidental introduction through proximity to other elements of the local vegetation, such as spruce twigs and various conifer needles.

In general, the trash fill reflected in this small portion of the feature appears to represent trash accumulation from the hospital residents, local vegetal debris, and perhaps even the superstructre of the original structure. While use of native plants is indicated, and perhaps long range trade as suggested by the pine nut hull, no vegetal remains were recovered that could be attributed to garden activities at the site.

CHAPTER 6

FAUNAL ANALYSIS

by

Stephen A. Chomko

INTRODUCTION

The vertebrate faunal remains from the Old School House were identified to the lowest specific taxonomic level possible by comparison to specimens in the Paleo-Environmental Consultants comparative osteology collection and through the use of standard reference manuals such as: Brown and Gustafson (1979), Gilbert (1980), Lawrence (1951), and Olsen (1960 and 1964) for large mammals; Chomko (1980) for rodents; Olsen (1968) for fish; Olsen (1968 and 1972) and Gilbert, Martin and Savage (1981) for birds; and Sisson and Grossman (1953) provide osteological information on domestic animals. All bones were assigned specimen numbers (identical bones in the same analytical unit were given a single number). Bone was identified to anatomical element and side then was compared to known specimens.

Fragments which could not be assigned to a specific taxon due to lack of diagnostic features were sorted to class (ie, mammal, bird, fish, etc.) then separated into descriptive categories. Mammal bones were identified as "unidentifiable large mammal" (ULM) if the fragment could be expected to be from an animal deer-size and larger; "unidentifiable small mammal" (USM) bone includes fragments which could be expected to be from animals smaller than deer (based on cortical thickness). Bone identified as ULM was further sorted into "ULM-Bovidae" and "ULM-*Odocoileus*" based on size. "Unidentifiable Large Bird" refers to animals teal-size and larger. The categories of "Unidentifiable Mammal," "Unidentifiable Bird," and "Unidentifiable Fish" are self explanatory.

All fragments were weighed to the nearest tenth of a gram using a triple beam balance. Notations were made as to whether the bone was weathered, rodent or carnivore gnawed, charred (shows some evidence of burning), carbonized (heavily calcined), mineralized, pathological, or exhibited evidence of butchering other than green bone breaks (see Bonnichsen 1979, for a discussion of green bone breaks occurring through agencies other than human modification of bone). Age was recorded as fused or unfused for epiphyseal ends of long bones and as adult or juvenile for permanent or deciduous dentition, respectively. Notations of sex and seasonality were recorded if data were available.

Each fragment was counted as a single element except for dentition; if a tooth was embedded in the bone it was counted as two elements (the tooth and the bone). Computation of minimun numbers of individuals (MNI) was based on analytical unit and follows the method outlined by Shotwell (1955; 1958). The Feature 12 material (levels 5 to 9) and the overlying fill or overburden (levels 1 to 4) were treated as separate units of analysis. An MNI based on analytical unit will result in a higher total MNI than had the determination been based on the entire assemblage (see Grayson 1973).

IDENTIFICATIONS

No special sampling or excavation techniques were employed for recovery of fauna. All fill was water screened through 1/4-inch hardware cloth (Blee 1983a:3; 1983b:9). This technique would recover most large mammal bones but is biased against the smaller mammals, fish, and birds. While it is likely that the collection technique has biased the sample, it is unlikely that the bias will significantly affect the interpretation of the remains with respect to subsistence. The almost complete lack of rodents, fish and small birds suggests that they were never well represented in the assemblage.

Bone preservation is fair. The bone was in saturated sediments with a low, acidic pH (Blee 1983a) which has leached the mineral content leaving it friable and easily fractured. It was treated with a fungicide (lysol disinfectant) and a preservative (ethulose). Bones were soaked in a solution of ethyl hydroxyethlcellulose (Ethulose 400), ethyl alcohol and distilled water. After drying, they were sprayed lightly with lysol disinfectant.

This process did not completely stabilize the bone. The cortical surfaces are fractured and exfoliation of the cortex has obscured and obliterated surface features. This has affected all classes of bone but is more prevalent on immature mammals and birds. In the latter case, it has obliterated the diagnostic features making specific identifications difficult (also see Gilbert, Martin and Savage 1981 on the problems of bird bone identifications). Although leaching and mechanical alteration from stress and frost action have altered the bones, it is unlikely that these factors have selectively preserved classes of animals. For instance, the lack of fish in the assemblage is probably not due to selective destruction of these bones.

This state of preservation results in the obfuscation of the surface character of the bones making observations of butchering marks and rodent/carnivore gnawing difficult. In general, only deeply incised cut marks and obvious gnawing (such as canine punctures) remain visible. Carnivore modification of long bone epiphyses if present has been masked by subsequent deterioration of the bone.

In the following discussions, patterning in the frequency representation of elements is interpreted as representing cuts of meat. The names of cuts of meat follow modern terminology and are used for purposes of discussion only. They are not intended to denote actual cuts of meat on the site nor to denote cultural comparisons.

Table 6.1 presents a summary of the fauna in the assemblage. The fauna is composed of both domestic (cattle and pig) and wild species. The bovid is exceptionally small, with fine gracile bones. One radius examined was found to be an extreme example in comparison to contemporary Acadian cows in Nova Scotia (Leslie Still, personal communication). Contemporay historical accounts further document the small size of the Russian cattle (Vainshtein 1980:72). With the exception of the lynx (Lynx canadensis), rat (Neotoma/Rattus), and three birds all exhibit evidence that they were utilized as subsistence species. The deer (Odocoileus sp.) is probably O. hemionus sitkenensis or Sitka blacktail deer (Hall and Kelson 1959, Burt and Grossenheider 1976).

OVERBURDEN

The fill overlying Feature 12 (levels 1-4) contained 54 bones (weighing 550.2 grams). Three large mammals are present: cow, deer, and pig. The cow (Bovidae) is represented by three identifiable bones and one ULM fragment large enough to be from a cow. A single adult is present. One long bone fragment (from level 1) was saw cut perpendicular to the long axis of the bone both proximally and distally (it is approximately 1.8 cm wide). Bone cut this way might be from a cut of meat such as a round steak or arm pot roast. A single element, a humerus, from a pig (Sus scrofa) was in level 4. One adult deer (Odocoileus sp.) is

TABLE 6.1: SUMMARY OF THE FAUNA FROM THE TRASH PIT SITE.

UNIT	TAXON	BONE COUNT	BONE WEIGHT	MNI ADULT	MNI SUB-ADULT
FILL	Bovidae	3	249.7	1	0
	ULM-Bovidae	1	4.8	N/A	N/A
	Odocoileus	17	178	1	0
	ULM-Odocoileus	1	5.3	N/A	N/A
	Sus Scrofa	1	21	1	0
	ULM	25	88.2	N/A	N/A
	USM	1	0.4	N/A	N/A
	UM	3	0.3	N/A	N/A
	Anatinae	2	2.5	2	0
TOTAL		54	550.2	5	0
Feature 12	Bovidae	56	1879.6	7	1
	ULM-Bovidae	353	2941.4	N/A	N/A
	Odocoileus sp.	456	2534.2	12	4
	ULM-Odocoileus	245	885.1	N/A	N/A
	ULM	2084	2415.2	N/A	N/A
	Lynx canadensis	1	6.9	0	1
	USM	9	1.9	N/A	N/A
	Neotama/Rattus	1	0.2	1	0
	UR	1	0.2	N/A	N/A
	UM	387	122.4	N/A	N/A
	Aythyinae	26	16.2	3	0
	Aythya sp.	1	1	1	0
	Bucephala sp.	3	3.8	2	0
	Lophodytes sp.	7	3.6	3	0
	Branta canadensis	7	18.1	2	0
	Anatinae	19	15	5	0
	Anas sp.	3	1.8	1	0
	Ardeidae	1	6.8	1	0
	Accipitridae	1	0.4	1	0
	Buteoninae	1	0.9	1	0
	Passeriform	1	0.1	1	0
	ULB	87	49.1	N/A	N/A
	U Bird	12	1.8	N/A	N/A
	U Fish	2	0.1	N/A	N/A
	U Bone	24	0.9	N/A	N/A
TOTAL		3788	10906.7	41	6
SITE TOTAL		3842	11456.9	46	6

represented by 17 identifiable framents and one ULM assigned to deer which were scattered throughout levels 1 through 4. Only one element, a right distal humerus, exhibited evidence of butchering in the form of cut marks on this posterior lateral aspect of the bone just above the condyles. An acetabulum (from level 1) was carnivore gnawed and had been punctured by canines (probably dog). One bone fragment was identified as USM and three could only be assigned to the class mammalia. One of the 25 ULM bone fragments was saw cut and exhibited evidence of butchering marks transverse to the long axis of the bone; it was too fragmentary to determine the purpose of the butchering marks. An MNI of two birds of the family Anatinae were represented by two elements; one individual was teal-sized, the other mallard-sized.

FEATURE 12

A total of 3,788 bone fragments (weighing 10,906.7 grams) were in Feature 12. They represent four genera of mammals, seven families of birds, and an unidentifiable fish. The following presents a discussion of the specific identifications, element frequencies, and butchering patterns. Discussion of intrasite patterning is deferred to a later section of this chapter.

Bos sp. (Cow)

A total of 56 elements (weighing 1,879.6 grams) were assignable to this taxon. An additional 353 fragments (weighing 2,941.4 grams) were identifiable as ULM-Bovidae based on size and cortical thickness. The bone represents a minimum of seven adults and one subadult. Determination of the MNI was based on the presence of seven left proximal ulnae (adults) and an unfused proximal ulna in addition to other unfused elements (subadult).

Table 6.2 presents the frequency representation of cow bone based on MNI. It shows the relative frequency of each element determined by dividing the number of bones representing each element by the number of elements which would be expected based on the MNI. For instance, since the MNI for adult cow is seven we would expect, for paired elements such as the distal humerus, to find 14 of these bones in the assemblage. If six are present then 43% of the expected number are in the assemblage. The frequency represents the relative proportion of each element with respect to the maximum number expected. Divergence from the expected number indicates that the element is underrepresented (White 1954; Shotwell 1958). Patterning in the frequency of related elements can provide insights into the nature of the assemblage.

Table 6.2 clearly shows that most of the expected elements are missing from the sample of cow bone from Feature 12. This could be a result of the animals having been butchered at a different site and then selectively distributed among two or more sites one of which is the hospital trash pit. House. Alternatively, the animals could have been butchered at the present site but with a selective discard of elements into separate features of which Feature 12 represents one discard location. Since the entire site has not been excavated, it is not possible to state which proposition is unacceptable for the trash pit site. However, it is clear that the bone in Feature 12 represents a patterned activity (selective discard).

The frequency of cow elements is highly patterned. The MNI was based on the proximal ulna and 64% of the expected number of ulnae are present. The next most frequently represented element is the distal humerus (43%) followed by the proximal radius (21%) both of which articulate with the ulna. These bones form the mid-foreleg joint. Their high representation indicates that they were selectively discarded at the feature. This body part, the shank, is commonly used as a boiled meat or for meat broths.

TABLE 6.2: FREQUENCY REPRESENTATION OF ADULT AND SUBADULT COW ELEMENTS IN FEATURE 12.

ELEMENT	ADULT MNI	ADULT NUMBER EXPECTED	ADULT NUMBER PRESENT	ADULT PERCENT REPRESENTED	SUB-ADULT MNI	SUB-ADULT NUMBER EXPECTED	SUB-ADULT NUMBER PRESENT	SUB-ADULT PERCENT REPRESENTED
Frontal	0	14	0	0%	0	2	0	0%
Occipital	0	14	0	0%	0	2	0	0%
Petrous	0	14	0	0%	0	2	0	0%
Nasal	0	14	0	0%	0	2	0	0%
Premaxilla	0	14	0	0%	0	2	0	0%
Maxilla	0	14	0	0%	0	2	0	0%
P1	0	14	0	0%	0	2	0	0%
P2	0	14	0	0%	0	2	0	0%
P3	0	14	0	0%	0	2	0	0%
P2-3	0	28	0	0%	0	4	0	0%
M1	0	14	0	0%	0	2	0	0%
M2	0	14	0	0%	0	2	0	0%
M3	0	14	0	0%	0	2	0	0%
Mandible	0	14	0	0%	0	2	0	0%
I	0	84	0	0%	0	12	0	0%
p1	0	14	0	0%	0	2	0	0%
p2	0	14	0	0%	0	2	0	0%
p3	0	14	0	0%	0	2	0	0%
p3-m1	0	14	0	0%	0	2	0	0%
m1	0	14	0	0%	0	2	0	0%
m2	0	14	0	0%	0	2	0	0%
m3	0	14	0	0%	N/A	N/A	N/A	N/A
Misc Skull	N/A	N/A	2	N/A	N/A	0	N/A	N/A
Atlas	0	7	0	0%	0	1	0	0%
Axis	0	7	0	0%	0	1	0	0%
Caudal	1	35	2	6%	0	7	0	0%
Illium	1	14	1	7%	0	2	0	0%
Ischium	2	14	3	21%	0	2	0	0%
Acetabulum	0	14	0	0%	0	2	0	0%
Scapula P	2	14	3	21%	1	2	1	50%
Scapula M	N/A	N/A	6	N/A	N/A	N/A	0	N/A
Humerus P	0	14	0	0%	0	2	0	0%
Humerus D	N/A	N/A	0	N/A	N/A	N/A	0	N/A
Humerus Ds	5	14	6	43%	0	2	0	0%
Radius P	3	14	3	21%	0	2	0	0%
Radius D	N/A	N/A	0	N/A	N/A	N/A	0	N/A
Radius Ds	1	14	2	14%	1	2	1	50%
Ulna P	7	14	9	64%	1	2	1	50%
Ulna D	N/A	N/A	2	N/A	N/A	N/A	0	N/A
Ulna Ds	0	14	0	0%	0	2	0	0%
Carpals	N/A	N/A	7	N/A	N/A	N/A	0	N/A
Metacarpal P	0	14	0	0%	0	2	0	0%
Metacarpal D	N/A	N/A	0	N/A	N/A	N/A	0	N/A
Metacarpal Ds	0	14	0	0%	0	2	0	0%
Femur P	0	14	0	0%	0	2	0	0%
Femur D	N/A	N/A	0	N/A	N/A	N/A	0	N/A
Femur Ds	0	14	0	0%	1	2	1	50%
Patella	0	14	1	7%	0	2	0	0%

TABLE 6.2: FREQUENCY REPRESENTATION OF ADULT AND SUBADULT COW ELEMENTS IN FEATURE 12.

ELEMENT	ADULT				SUB-ADULT			
	MNI	NUMBER EXPECTED	NUMBER PRESENT	PERCENT REPRESENTED	MNI	NUMBER EXPECTED	NUMBER PRESENT	PERCENT REPRESENTED
Tibia P	0	14	0	0%	0	2	0	0%
Tibia D	N/A	N/A	1	N/A	N/A	N/A	0	N/A
Tibia Ds	0	14	0	0%	0	2	0	0%
Fibula P	0	14	0	0%	0	2	0	0%
Fibula D	N/A	N/A	0	N/A	N/A	N/A	0	N/A
Fibula Ds	0	14	0	0%	0	2	0	0%
Calcaneus	0	14	0	0%	0	2	0	0%
Astragulaus	0	14	0	0%	0	2	0	0%
Tarsals	N/A	N/A	0	N/A	N/A	N/A	0	N/A
Metatarsal	0	14	0	0%	0	2	0	0%
Metapodial	N/A	N/A	2	N/A	N/A	N/A	0	N/A
1st Phalange	0	56	0	0%	0	8	0	0%
2nd Phalange	0	56	1	2%	0	8	0	0%
3rd Phalange	0	56	0	0%	0	8	0	0%
Sesamoid	N/A	N/A	1	N/A	N/A	N/A	0	N/A
TOTAL			52				4	

The ischium and proximal scapula are also represented by 21% of the expected number of elements. Both may represent bulk meat or stew meat sections. In addition to the above noted meat sections, cow is well represented by vertebral and rib elements (79% of the ULM-Bovidae bone are vertebrae and ribs). These elements are not easily quantified. Fragments of them can be readily identified but not to exact portion (for instance, a single rib can be broken into many fragments and each fragment may still be recognizable as a rib but the exact portion remains questionable). These elements are broken in approximately 9-13 cm (maximum dimension) sections. This size and the nature of the element is consistent with an interpretation of their use as a soup or stew meat.

The subadult cow is represented by only four elements; it should be noted that the subadult elements (based on unfused epiphyses) are from individuals which would have attained the bulk of their adult size (Sisson and Grossman 1953). As such, there is little to indicate a preference for differential use of juvenile cow. Further, these elements, except the distal femur, are well represented by the adult bone. The unfused elements of one foreleg (scapula, radius, and ulna) may have been from a single individual.

Figure 6.1 represents the bones present and shows the location of observed butchering marks on the cow bone. The ribs have been stylistically shown as cut into ca. 9-13 cm units. They were butchered by both saw cutting and chopping. The meat associated with these bones and the size of the units suggests their use in a soup or stew. Walker (1984) interprets bone fragment size as indicating the size of the pots used for food preparation. While the pot size places an upper limit on the size of the butchered units which can be cooked, their actual size probably depended on the type of food being prepared and cultural preference. In addition to the cut marks, a series of distinct chop marks on the innominate (illium and ischium) are typical of the expedient dissection of the hind quarters of the individual. Evidence for carnivore gnawing was observed on one humerus and one radius.

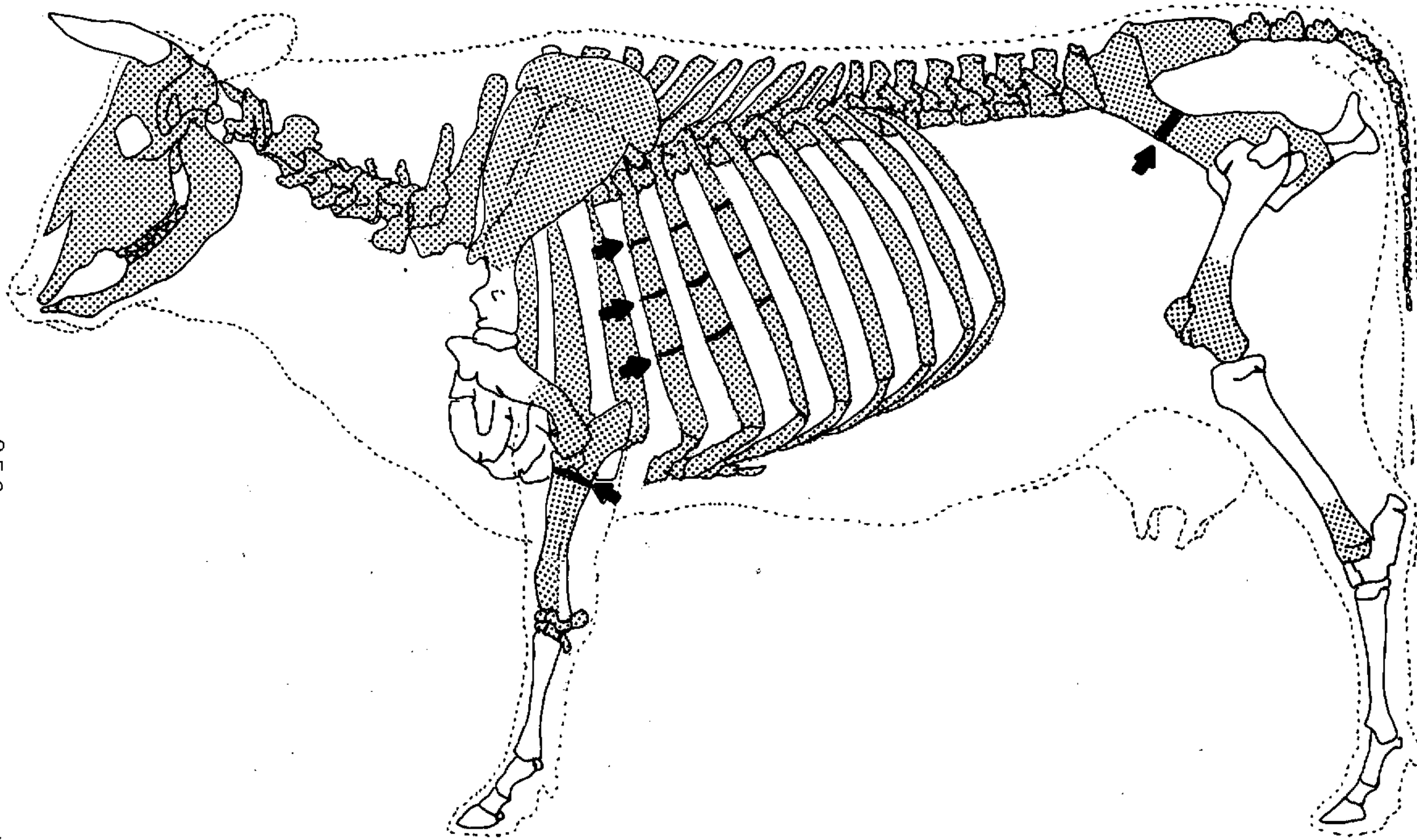


Figure 6.1: Cow elements present and the location of butchering marks on the bone.

Odocoileus sp. (Deer)

A total of 456 elements (weighing 2,534.2 grams) are identifiable as deer (Odocoileus sp.) and an additional 245 elements (885.1 grams) were assignable as ULM-Odocoileus based on size and cortical thickness. Although the species is indeterminate, only the Sitka blacktail deer (O. hemionus sitkenensis) is present in the area (Hall and Kelson 1959; Burt and Grossenheider 1976). Thus, the material is probably referable to this taxon. The bone represents an MNI of 12 adults and 6 subadults. For the adults, the MNI was computed on the basis of the left distal humerus. The number of maxillary third premolars-first molars (P3-M1: these elements are grouped due to the difficulty in distinguishing isolated fragments) determined the MNI of the subadults.

Table 6.3 presents the frequency representation of deer bones. Portions of all major body parts of the adults are present (cranial, axial, appendicular). However, the bone exhibits strong trends in the patterning of element representation. At least part of the cranium is well represented; an adult MNI of eleven was determined from the third mandibular molars. The mandible and associated dentition are well represented. However, the maxilla and associated teeth (except for the P3-M1) are less frequent. This could be due to field dressing of some of the animals wherein the mandible was brought to the site attached to the hide while in other instances (ca. 50%) the skull was also transported to the Old School House. Alternatively, it may be due to selective use of the skull resulting in selective discard of cranial elements. The remaining cranial elements are poorly represented except for the petrous which has 42% of the total expected number present. The discrepancy is likely a result of preservation (the petrous is extremely dense while other skull bones are thin and fragile). Why the petrous and P3-M1 are so well represented and the remaining maxillary dentition (also likely to be preserved) are underrepresented is problematic but is probably due to factors of differential use or discard. The mandible may represent intentional selection for the tongue and the skull has obvious potential for usable meet.

TABLE 6.3: FREQUENCY REPRESENTATION OF ADULT AND SUBADULT DEER ELEMENTS IN FEATURE 12.

ELEMENT	ADULT MNI	ADULT NUMBER EXPECTED	ADULT NUMBER PRESENT	ADULT PERCENT REPRESENTED	SUB-ADULT MNI	SUB-ADULT NUMBER EXPECTED	SUB-ADULT NUMBER PRESENT	SUB-ADULT PERCENT REPRESENTED
Misc Skull	N/A	N/A	1	N/A	N/A	0	N/A	N/A
Frontal	2	24	3	13%	0	12	0	0%
Occipital	1	24	1	4%	0	12	0	0%
Petrous	6	24	10	42%	0	12	0	0%
Nasal	1	24	1	4%	0	12	0	0%
Premaxilla	0	24	0	0%	0	12	0	0%
Maxilla	2	24	4	17%	0	12	0	0%
P1	1	24	1	4%	1	12	1	8%
P2	2	24	4	17%	2	12	2	17%
P3	2	24	3	13%	0	12	0	0%
P2-3	0	48	0	0%	2	24	2	8%
P3-M1	7	48	24	50%	6	24	20	83%
M1	2	24	3	13%	0	12	0	0%
M2	2	24	3	13%	1	12	2	17%
M3	0	24	0	0%	0	12	0	0%
Mandible	9	24	18	75%	1	12	1	8%
I	1	72	1	1%	1	36	2	6%
p1	3	24	6	25%	1	12	2	17%
p2	6	24	10	42%	2	12	4	33%
p3	7	24	11	46%	2	12	2	17%
p3-m1	7	48	14	29%	1	24	2	8%
m1	5	24	10	42%	1	12	1	8%
m2	7	24	14	58%	2	12	2	17%
m3	11	24	22	92%	0	12	0	0%
Mandible frags	N/A	N/A	12	N/A	N/A	N/A	0	N/A
Tooth frags.	N/A	N/A	47	N/A	N/A	N/A	12	N/A
Atlas	6	12	6	50%	0	6	0	0%
Axis	1	12	1	8%	0	6	0	0%
Illium	4	24	7	29%	1	12	1	8%
Ischium	2	24	2	8%	0	12	0	0%
Pubis	1	24	1	4%	0	12	0	0%
Acetabulum	1	24	1	4%	0	12	0	0%
Innominate	N/A	N/A	4	N/A	N/A	N/A	0	N/A
Scapula P	9	24	15	63%	0	12	0	0%
Scapula M	N/A	N/A	11	N/A	0	12	0	N/A
Humerus P	2	24	2	8%	1	12	1	8%
Humerus D	N/A	N/A	9	N/A	N/A	N/A	1	N/A
Humerus Ds	12	24	24	100%	0	12	0	0%
Radius P	5	24	6	25%	0	12	0	0%
Radius D	N/A	N/A	1	N/A	N/A	N/A	1	N/A
Radius Ds	2	24	4	17%	0	12	0	0%
Ulna P	4	24	6	25%	2	12	2	17%
Ulna D	N/A	N/A	2	N/A	N/A	N/A	0	N/A
Ulna Ds	0	24	0	0%	0	12	0	0%
Carpals	N/A	N/A	1	N/A	N/A	N/A	0	N/A
Metacarpal P	0	24	0	0%	0	12	0	0%
Metacarpal D	N/A	N/A	6	N/A	N/A	N/A	0	N/A
Metacarpal Ds	0	24	0	0%	0	12	0	0%
Femur P	0	24	0	0%	0	12	0	0%
Femur D	N/A	N/A	3	N/A	N/A	N/A	0	N/A

TABLE 6.3: FREQUENCY REPRESENTATION OF ADULT AND SUBADULT DEER ELEMENTS IN FEATURE 12.

	ADULT				SUB-ADULT			
ELEMENT	MNI	NUMBER EXPECTED	NUMBER PRESENT	PERCENT REPRESENTED	MNI	NUMBER EXPECTED	NUMBER PRESENT	PERCENT REPRESENTED
Femur Ds	2	24	3	13%	0	12	0	0%
Patella	0	24	0	0%	0	12	0	0%
Tibia P	1	24	2	8%	0	12	0	0%
Tibia D	N/A	N/A	8	N/A	N/A	N/A	0	N/A
Tibia Ds	1	24	1	4%	0	12	0	0%
Fibula P	0	24	0	0%	0	12	0	0%
Fibula D	N/A	N/A	0	N/A	N/A	N/A	0	N/A
Fibula Ds	0	24	0	0%	0	12	0	0%
Calcaneus	3	24	5	21%	1	12	1	8%
Astragulaus	4	24	6	25%	0	12	0	0%
Tarsals	N/A	N/A	0	N/A	N/A	N/A	0	N/A
Metatarsal P	2	24	4	17%	0	12	0	0%
Metatarsal D	N/A	N/A	7	N/A	N/A	N/A	0	N/A
Metatarsal Ds	0	24	0	0%	0	12	0	0%
Metapodia P	N/A	N/A	0	N/A	N/A	N/A	0	N/A
Metapodial D	N/A	N/A	7	N/A	N/A	N/A	0	N/A
Metapodial Ds	N/A	N/A	1	N/A	N/A	N/A	1	N/A
1st Phalange W	0	96	0	0%	0	48	0	0%
1st Phalange P	0	96	0	0%	1	48	2	4%
1st Phalange Ds	1	96	5	5%	1	48	1	2%
2nd Phalange W	0	96	0	0%	0	48	0	0%
2nd Phalange P	0	96	0	0%	1	48	1	2%
2nd Phalange Ds	1	96	3	3%	0	48	0	0%
3rd Phalange W	1	96	2	2%	0	48	0	0%
3rd Phalange P	1	96	1	1%	0	48	0	0%
3rd Phalange Ds	0	96	0	0%	0	48	0	0%
Sesamoids	N/A	N/A	0	N/A	N/A	N/A	0	N/A
TOTAL			389				67	

Vertebrae and ribs were identified as ULM-Odocoileus. They exhibit a high degree of fragmentation (18-12 cm maximum dimensions) resulting from food processing and preparation. One exception is the atlas which has 50% of the expected number of bones present. In disarticulating the skull from the body, the atlas is easily removed with the skull. That the atlas (50%), P3-M1 (50%) and petros (42%) are similarly represented argues that the butchering process did involve removal of the skull and atlas as a unit. The pelvic girdle is generally underrepresnted. One element, the illium, has approximately 29% of the expected number present. It may represent meat cuts similar to a rump roast.

The forequarter is the prominent portion of the deer in the assemblage. The distal humerus provided the MNI determination and 100% of the expected elements are present. The proximal scapula is well represented (63%). The low representation of proximal humerii (8%) to proximal scapulae (63%) may be due to the butchering process (crushing the proximal humerus to disarticulate the foreleg). The distal leg (lower ulna and radius, carpals and metatcarpals) is rare. The distal foreleg does not contain much usable meat and was likely discarded at the butchering site. The proximal radius and ulna have approximately 25% of the expected number of elements present; these along with the distal humerus represent the shank, a cut of meat most suitable for preparation by boiling and for making broths. The upper leg (humerus and scapula) most likely represents cuts of meat such as pot roasts or stew meats.

In contrast, the hindleg is far less frequent than the foreleg with only the calcaneous and astragulus represented by more than 20% of the expected frequency. The high representation of the hock (tibia-metatarsal joint) compared to the rest of the hind leg suggests it was purposefully selected or at least indicates a patterned disposal of it in this area. This cut of meat would be the hind shank and like the shank it is most suitable as a boiled meat and for making broth. Foot bones, particularly phalanges from both fore and hind legs are rare. It appears likely that they were discarded at the butchering site.

Patterning in the bone from the juvenile animals is not as obvious. The subadult deer MNI (6) is based on the maxillary P3-M1. Other maxillary dentition are poorly represented while the mandible is somewhat better represented (as with the adult sample). The lack of juvenile cranial material is due to the nature of the elements; unless clear sutures are present, the bone is grouped with the adult sample.

The post-cranial material is poorly represented with only single examples (except for the two distal radii) of elements. The bone which is present tends to be the same elements which are well represented for the adults suggesting a similar use for both age groups. This is likely since the juvenile post-cranial material is from individuals which would have attained the bulk of their adult weight (Lewall and Cowan 1963).

Figure 6.2 is a stylistic representation of the location of butchering marks observed on the bone. Cut marks were observed on the femur diaphysis and below the neck, on the distal humerus just above the condyles, on the proximal scapula below the articular end and on the acromian process. Cut marks near the epiphyses can be ascribed to disarticulating the elements; those on the diaphyses probably represent attempts to remove meat from the bone. Cut marks were observed on the ventral surface of an atlas; these would be consistent with an attempt to disarticulate the skull from the axial skeleton. The location of all of these cut marks are similar to those noted for aboriginally butchered bone of similar sized animals (see for example White 1952; Guilday, Parmalêe, and Tanner 1962; Frison 1971). While the comparison might suggest that the deer were butchered by the Tlingit, it is just as likely that the comparison indicates a generalized, efficient method for buchering deer more related to anatomy than to cultural preference. Distinct chop (ax) marks were present on the illium, probably as a result of disarticulating the hind quarters. Two lumbar vertebrae had been chopped through longitudinally, suggesting they were split during preparation of the meat for use (possibly in facilitate boiling). One skull was saw cut longitudinally.

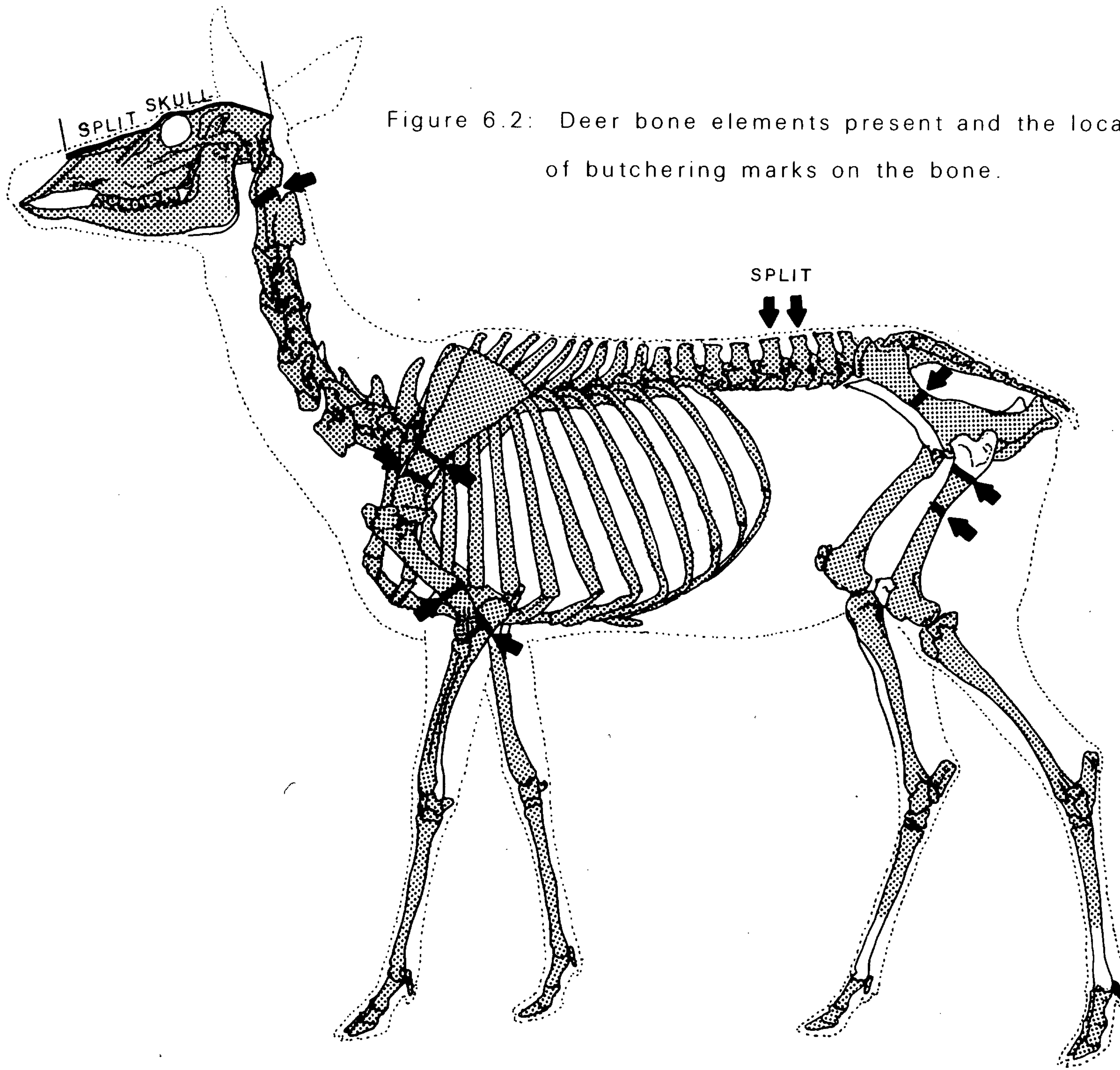


Figure 6.2: Deer bone elements present and the location of butchering marks on the bone.

The frequency of deer elements and evidence for butchering provide a pattern which can be summarized as follows:

1) Apparently the entire skull was present at the site in about 50% of the cases; the mandible (meat associated with it) was important.

(2) Ribs and vertebrae appear well represented (although it is hard to quantify these elements); their preparation by boiling is suggested by lack of butchering marks on the bone and the sizes of elements present.

3) There was a selection for the foreleg, particularly the humerus-radius/joint; this cut of meat is the shank and is suitable for boiling and broth; the upper foreleg may have been utilized as a pot roast or brisket.

4) The hind leg is underrepresented; the only unit which appears to be present is the tibia-metatarsal joint, the hind shank, which is most suitable for boiling.

5) The lack of lower leg bones (both fore and hind quarters) suggests that the animals were butchered elsewhere, or at least, that the elements with little associated usable meat were discarded at a location separate from Feature 12.

In addition to the obvious evidence of cut or chop marks, patterns of element breakage provide clues to butchering and consumption practices. There is a strong tendency for the humerus to be represented by the distal epiphysis and diaphysis. The proximal epiphysis may have been removed (crushed) while disarticulating the foreleg, in an attempt to extract the marrow, or as a result of carnivore gnawing evidences of which has been obscurred. No complete long bones were present suggesting that marrow extraction was important. Phalange were often broken distally. Such a breakage would be associated with marrow extraction but would not be associated with butchering.

There was evidence of carnivore gnawing on one first phalange and a scapula. The latter was both gnawed and punctured by the canines. Additional gnawing may have taken place but the evidence for it has been obscured due to the vagaries of preservation. Deer was the only mammal with evidence of a pathology. A mandible with associated dentition has an abcess between the second and third premolar. The abcess had developed to the point of deterioration of the mandible but it probably had not yet affected the health of the individual.

It was possible to determine the sex of at least two of the individuals. The presence of pedicles on the frontals indicates males. These also provide some indication of the season in which they were killed. Both are from animals which had very recently shed their antlers. This would suggest that at least two animals were taken in January or early February (Burt and Grossenheider 1976:215).

Unidentified Large Mammal

A total of 2,084 bone fragments (weighing 2,415.2 grams) could only be identified as large mammal (deer sized and larger). These are predominately miscellaneous fragments which could not be identified to element but which, based on cortical thickness, are believed to be from large mammals. The bone is most likely from skull, pelvic, scapula (blade), and long bones which were highly fragmented. While the number of fragments is high the fragments are generally very small (average weight 1.15 grams) compared to the identifiable lage mammal bone (average weight for cow was 24.50 grams; ULM-Bovidae, 8.3 grams; deer, 6.06 grams; and ULM-deer, 5.30 grams). The number of bone fragments has been biased (increased) by post-depositional deterioration of the bone. Nevertheless, food preparation techniques and consumption practices did contribute to generating small bone fragments. Prolonged boiling results in bone which is friable and easily fractured. While the bone is not as highly fragmented as one would expect if there had been an attempt to make bone grease (see Vehik 1977), the breakage of all long bones suggests that marrow extraction did take place.

Lynx canadensis (Lynx)

One bone, a scapula (6.9 grams), is identifiable as lynx. The element is not fused and represents a very young individual. Its presence in the assemblage is anomalous. However, the present range of lynx includes the site area (Burt and Grossenheider 1980). There is no evidence to suggest that it represents a food species. Stratigraphically, the bone was in the upper level of the feature fill; it may have been introduced into the assemblage at a latter date and not be contemporaneous with the other osteological material.

Unidentifiable Small Mammal

Only nine bone fragments (1.9 grams) were assigned to the category of unidentifiable small mammal (smaller than deer). This is not surprising in light of the fact that only one mammal, the lynx, was identified in the assemblage in this size range. The fragments are most likely from large mammals but from small bones (hyoids, lateral processes on vertebrae, etc.) which have a thin cortex.

Neotoma/Rattus (Rat) and Unidentifiable Rodent

Only one element, a proximal femur (0.2 grams), was identifiable as a rat. The bone lacked sufficient diagnostic characters to determine if it was from an introduced European rat (either the Norway or Black) or from a native woodrat (Neotoma sp.). Similarly, only one bone fragment (a long bone fragment, weighing .2 grams) was identifable as from a rodent. Blee (1983a) noted the lack of rodent burrows/disturbance of the feature. The lack of rodent bone in the assemblage could be due to the rapid accumulation of the deposits and immediate covering of the debris (no bone was identified as rodent gnawed and evidence for carnivore gnawing was minimal). However, the collection techniques were stongly biased against recovery of this size bone. Therefore comments based on its absence must be tempered.

Unidentifiable Mammal

A total of 387 (weighing 122.4 grams) bone fragments could only be identified to the class mammals. The bone, generally small fragments of long bone (average weight .32 grams) lacked diagnostic features.

Aythyinae (Diving Ducks)

Bird bones assignable to the family Aythyinae and two genera, *Aythya* and *Bucephala*, are in the assemblage. A total of 26 elements (weighing 16.2 grams) were identifiable only to the family level. They represent a minimum of three individuals based on the number of right scapulae. The genus *Aythya* (canvasback) is represented by one element, a coracoid (weighing 1 gram). *Bucephala* (goldeneye) is identified from three elements (weighing 3.8 grams), all humerii, indicating an MNI of 2 individuals. Many of the elements assignable to the family level are probably from either of these two genera.

Observations on bone patterning are limited by the fact that many elements cannot be identified even to the family level. Thus, missing elements may be due to factors other than cultural selection. Table 6.4 presents information on the frequency representation of the elements. As might be expected for a bird of this size, all parts of the body except for the head appear to have been utilized. Evidence of cut marks was present on only one bone, the distal portion of one *Bucephala* humerus.

Lophodytes sp. (Merganser)

Seven elements (coracoids and tibiotarsii, weighing 3.6 grams) were identifiable as *Lophodytes* sp. (merganser). They represent a minimum of three individuals based on three left tibiotarsii. It is likely that additional merganser elements have been grouped with the ULB bone.

TABLE 6.4: FREQUENCY OF AYTHINAE, ANATINAE, AND ULB ELEMENTS.

		AYTHYINAE							
ELEMENT	MNI	NUMBER	FREQUENCY	MNI	NUMBER	FREQUENCY	MNI	NUMBER	FREQUENCY
Cranium	0	0	0%	0	0	0%	0	0	0%
Mandible	0	0	0%	0	0	0%	0	0	0%
Vertebrae	N/A	0	N/A	N/A	0	N/A	N/A	6	N/A
Pygostyle	0	0	0%	0	0	0%	0	0	0%
Scapula	3	5	83%	1	1	10%	1	1	13%
Coratoid	2	4	67%	3	4	40%	2	2	25%
Furculum	1	1	33%	1	1	20%	3	3	75%
Sternum	0	0	0%	0	0	0%	4	4	100%
Humerus	2	3	50%	5	9	90%	2	2	25%
Radius	0	0	0%	0	0	0%	0	0	0%
Ulna	2	3	50%	0	0	0%	3	6	75%
Carpometa	2	4	67%	0	0	0%	2	2	25%
Phalanx	0	0	0%	0	0	0%	2	2	25%
Pelvis	0	0	0%	0	0	0%	2	2	25%
Femur	1	1	17%	1	2	20%	0	0	0%
Patella	0	0	0%	0	0	0%	0	0	0%
Tibotarsus	2	4	67%	1	1	10%	0	0	0%
Fibula	0	0	0%	0	0	0%	0	0	0%
Tarsometa.	1	1	17%	1	1	10%	0	0	0%
Phalange	N/A	0	N/A	N/A	0	N/A	N/A	1	N/A
Miscellaneous	N/A	0	N/A	N/A	0	N/A	N/A	11	N/A
Long bone	N/A	0	N/A	N/A	0	N/A	N/A	45	N/A
TOTALS		26			19			87	

Branta canadensis (Canadian Goose)

Canadian goose (Branta canadensis) is represented by seven elements (weighing 18.1 grams) indicating a minimum of two individuals based on the presence of three modified phalange. The elements represent portions of the wing and leg; it is likely that additional elements are included in the ULB category because they lacked sufficient diagnostic features to permit identification. Evidence of cut marks was present on one femur near the proximal epihysis.

Goose was the only bird with evidence of a pathology. The single tibiotarsus exhibited extreme osteoporosis on the distal end. This was a result of an injury which subsequently developed an infection. The source of the injury is unknown.

Anatinae (Surface-feeding Ducks)

A total of 19 elements (weighing 15.0 grams) representing an MNI of five adults were assigned to this taxon. The family Anatinae includes mallards, teals, and pintail ducks. In addition, three elements (weighing 1.8 grams) representing one individual were identifiable as Anas sp. (probably mallard).

Table 6.4 presents the frequency distribution of the bone. As can be seen, the major body parts except for the cranium are present. It is likely that some missing elements are included in the ULB category. The element representation is similar to that for the Aythyinae. Two mallard bones showed evidence of cut marks. One humerus had butchering marks on the diaphysis; a coracoid had cut marks on the lateral aspect. These likely resulted from stripping meat from the bone and not from disarticulating the carcass.

Ardeidae (Herons)

One element, a carpometacarpus (weighing 6.8 grams), was referable to the family Ardeidae which includes herons. Other elements, although identified only as ULB are within the size range of heron. The element is unmodified and does not exhibit evidence of gnawing.

Accipitridae (Hawks)

One individual, probably a hawk (family Accipitridae) is represented by a single phalange (.4 grams).

Buteoninae (Eagle)

One individual of the family Buteoninae is represented by a tibiotarsus (weight .9 grams). The element conforms most closely to an eagle.

Passeriform (Perching Bird)

One bone, a humerus (weight .1 grams) was identifiable only to the order Passeriformes. The order includes a large number of small perching birds. It is unlikely that the element represents a subsistence species. It may have been introduced into the site as stomach contents of one of the raptors or in a carnivore scat.

Unidentifiable Bird

A total of 88 bone fragments (weighing 49.1 grams) were identified as Unidentifiable Large Bird (ULB) bone. Elements in this group are from individuals at least teal-sized and larger; assignment was based on bone size. The bone accounts for at least four individuals based on four individuals based on four sternums. Table 4 presents element counts. None of the bone exhibited evidence of modification.

An additional 12 bone fragments (weighing 1.8 grams) were identified only as Unidentifiable Bird. Assignment to this category was based on bone morphology. The fragments tend to be very small (.15 grams on the average) and lacked sufficient characters to permit element identification.

Unidentifiable Fish

Two vertebral centrums were identifiable as fish but could not be identified to a more specific level. Both elements are very small and probably do not represent a cultural selected species. They, like the perching bird element, may have been introduced into the site as stomach contents of one of the utilized species.

Unidentifiable Bone

A total of 24 bone fragments, weighing only .9 grams, were only identifiable as bone and could not be confidently assigned to class.

DISCUSSION

The fauna in the feature is composed of both domestic (cow) and wild species. Of the later, deer and fowl exhibit clear evidence of having been utilized as food species. The lynx, hawk, eagle, and heron do not exhibit evidence of butchering and may represent trade items. It is possible that these species are related to Tlingit contact. Blee (Chapter 4) notes that the Russians were dependent on the Tlingit for fresh meat and traded with them for deer, fowl, and fish. The butchering pattern seen on the deer could be aboriginal. However, it is just as likely that the similarity of the Sitka butchering pattern to the material cited earlier merely represents an efficient way of butchering an animal of this size.

Distribution of the bone within the feature can offer some insights into its formation. Table 6.5 summarizes the distribution of all bone within the feature. As is readily apparent the bulk of the material is in Feature 12 with only a minimum of bone in the overburden, and here it is concentrated in the upper 10 centimeters. Within the feature, the bulk of the material is in levels 9 and 8, level 7 shows a marked drop in bone frequency and the trend continues through the upper levels of the feature. Such a pattern clearly indicates that bone refuse was placed in the pit in its early stages of use and that less bone was discarded here later in its history.

Table 6.6 presents the distribution of burnt bone within the pit. As can be seen, burnt bone (including both charred and calcined bone) is a minor component of the assemblage. It accounts for only 1.2% of the bone by weight. Figure 6.3 presents a frequency histogram of all bone by weight (figure 6.3a) and of the burnt bone (figure 6.3b). The relative distribution of the two classes of debris is similar (except in level 9). The low overall percentage of burnt bone suggests that is merely represents the fortuitous burning of some elements. Bone, even in meat which is roasted over an open fire, will not necessarily retain evidence of charring. Thus, the lack of burnt bone does not necessarily support an interpretation that it is from meats that were boiled.

TABLE 6.5: DISTRIBUTION OF ALL BONE BY WEIGHT (GRAMS).

Does not include bone unassigned to a specific level.

UNIT	A	B	L5	L6	L7	L8	L9	TOTAL
N10 E0.5	0.0	0.0	0.0	83.7	66.6	125.1	40.2	315.6
N10 W0	0.0	0.0	0.9	18.9	172.0	1037.6	1043.3	2272.7
N10 W0.5	3.8	5.1	0.0	0.2	114.9	454.4	865.2	1443.6
N10 W1	7.9	0.0	0.2	22.0	92.3	140.5	139.0	401.9
N10 W1.5	6.9	0.0	21.3	4.2	29.2	202.4	0.2	264.2
N10.5 E0.5	0.0	0.0	0.0	4.1	53.2	60.3	0.3	117.9
N10.5 W0	0.4	0.0	0.2	29.4	0.0	755.1	367.7	1152.8
N10.5 W0.5	5.3	0.0	2.9	10.5	51.1	846.7	486.1	1402.6
N10.5 W1	0.0	21.0	4.9	59.5	373.5	458.5	106.6	1024.0
N10.5 W1.5	0.0	0.0	32.9	84.8	377.6	9.0	36.1	540.4
N8 W0	0.0	0.0	1.0	1.0	148.5	148.5	148.5	447.5
N8 W1	0.0	0.0	0.0	0.0	25.6	6.3	0.0	31.9
N8.5 W1.5	1.6	0.0	4.5	4.5	1.9	1.9	1.9	16.3
N9 E0.5	0.0	0.0	0.0	34.8	39.0	2.0	13.3	89.1
N9 W0	0.0	0.7	0.0	1.5	39.9	44.7	82.8	169.6
N9 W0.5	21.5	0.0	0.0	13.7	73.7	94.6	228.9	432.4
N9 W1	0.0	0.0	0.3	14.3	11.6	62.2	24.2	112.6
N9 W1.5	0.0	4.5	0.0	0.0	9.4	18.3	20.0	52.2
N9.5 E0.5	0.0	0.0	0.0	5.3	7.6	3.2	1.9	18.0
N9.5 W0	114.9	12.7	28.5	19.2	60.7	58.7	72.4	367.1
N9.5 W0.5	0.0	26.9	1.1	50.0	181.1	133.3	384.5	776.9
N9.5 W1	0.0	0.0	0.2	28.6	31.2	73.6	99.9	233.5
N9.5 W1.5	13.2	0.0	53.8	5.6	37.0	86.8	9.9	206.3
TH #2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL WEIGHT	175.5	70.9	152.7	495.8	1997.6	4823.7	4172.9	11889.1
D adjustment	35.1	70.9	152.7	495.8	1997.6	4823.7	8345.8	

TABLE 6.6: DISTRIBUTION OF BURNT BONE BY WEIGHT (GRAMS).

Does not include bone unassigned to a specific level.

UNIT	A	B	L5	L6	L7	L8	L9	TOTAL
N10 E0.5	0.0	0.0	0.0	1.1	13.1	0.0	0.0	14.2
N10 W0	0.0	0.0	0.0	0.9	4.8	3.6	4.5	13.8
N10 W0.5	0.0	0.1	0.0	0.0	0.0	3.6	0.0	3.7
N10 W1	0.0	0.0	0.2	3.0	0.0	8.4	0.0	11.6
N10 W1.5	0.0	0.0	8.5	0.0	0.0	1.0	0.0	9.5
N10.5 E0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N10.5 W0	0.4	0.0	0.0	1.3	0.0	17.2	0.8	19.7
N10.5 W0.5	0.0	0.0	0.0	0.8	2.9	0.0	0.0	3.7
N10.5 W1	0.0	0.0	0.0	2.6	1.3	0.0	6.6	10.5
N10.5 W1.5	0.0	0.0	2.1	5.4	0.0	0.0	2.9	10.4
N8 W0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N8 W1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N8.5 W1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N9 E0.5	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.2
N9 W0	0.0	0.7	0.0	0.0	2.5	0.0	6.1	9.3
N9 W0.5	0.0	0.0	0.0	0.1	1.8	1.7	1.7	5.3
N9 W1	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.9
N9 W1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N9.5 E0.5	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.7
N9.5 W0	3.2	0.0	0.0	0.0	0.8	0.9	8.8	13.7
N9.5 W0.5	0.0	0.3	1.1	0.0	0.0	0.0	6.9	8.3
N9.5 W1	0.0	0.0	0.0	0.9	1.6	0.0	0.0	2.5
N9.5 W1.5	0.0	0.0	1.6	0.0	0.0	0.0	0.0	1.6
TH #2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL WEIGHT	3.6	1.1	13.5	16.3	30.4	36.4	38.3	139.6
D adjustment	0.7	1.1	13.5	16.3	30.4	36.4	76.6	

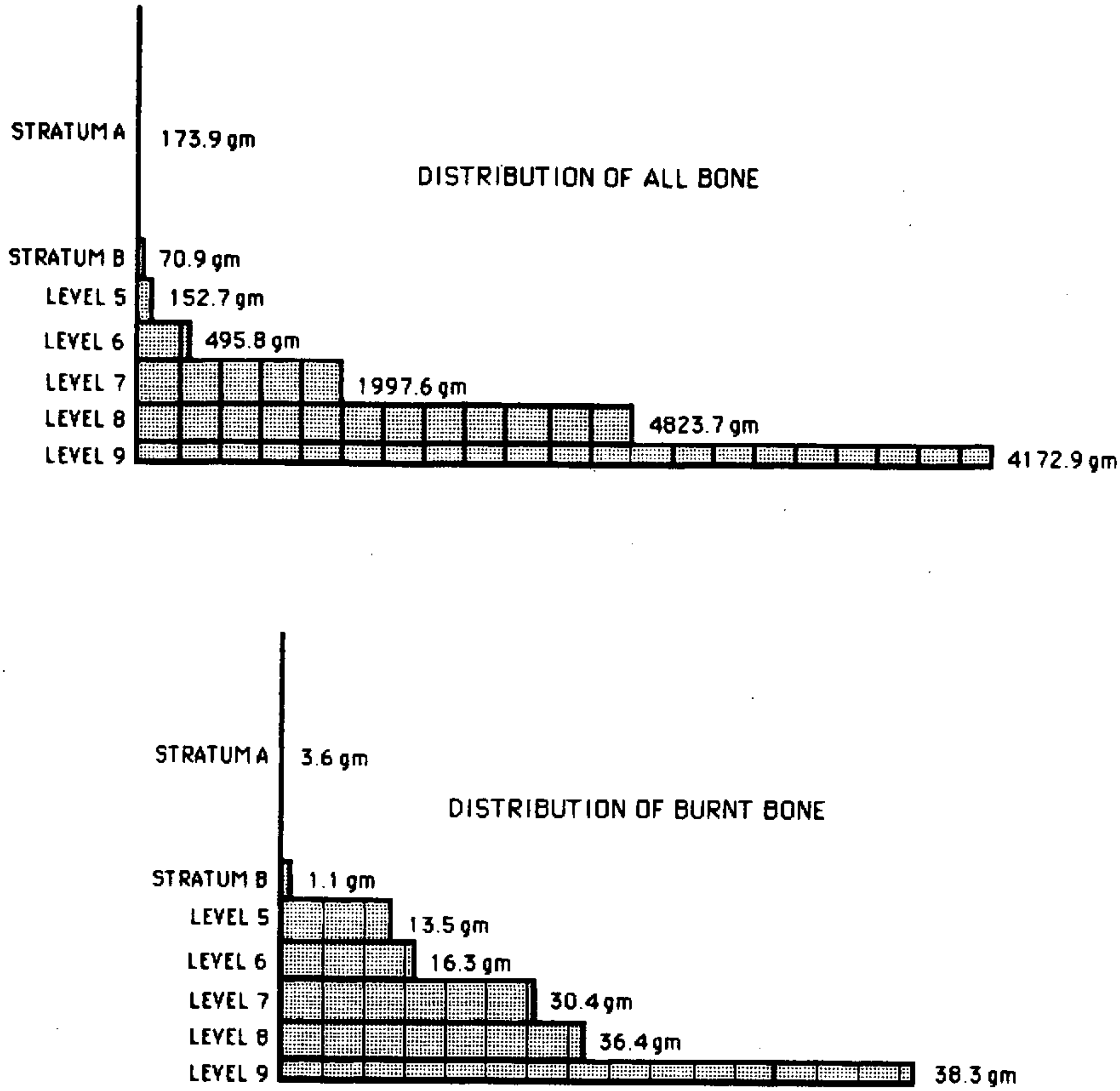


Figure 6-3: Vertical distribution of all bone and burnt bone in Feature 12.

Tables 6.7 and 6.8 present the distribution (by weight) of cow and ULM-Bovidae bone, respectively, by excavation unit. Figure 6.4 is a frequency histogram of cow bone by level within the pit. Clearly, cow is confined to Feature 12 (except for some material in level 1 of the overburden) and the majority is in levels 9 and 8. Figure 6.5a illustrates the distribution of cow bone within the pit using contour intervals to show areas of high frequency. As can be seen, the bone is fairly evenly distributed around unit N10.0W0.0 with a slight scatter to the north and west. Figure 6.5b illustrates the distribution of the ULM-Bovidae bone. This closely approximates the distribution of the cow bone. As noted earlier, the ULM-Bovidae bone may represent fragments created by preparation and consumption activities. The close correlation in the distribution of the two groups helps support this inference. The concentration of material (both horizontally and vertically) suggests that it was dumped into the pit as a unit, thus representing a single discard episode.

Tables 6.9 and 6.10 present the distribution of deer and ULM-Odocoileus bone, respectively, within the pit and Figure 6.6 shows the horizontal distribution of the deer (Figure 6.6a) and ULM-Odocoileus (Figure 6.6b) bone. As can be seen, there are two concentrations of deer bone; one in unit N10.5W1.5 and one in unit N9.0W0.5. The material to the south is predominately dental and other cranial elements while the material to the north is overwhelmingly appendicular bone. The distribution of the ULM-Odocoileus bone correlates extremely well with the identifiable bone and is strongly correlated with the northern distribution of appendicular deer bone.

Figure 6.7 is a fequency histogram of deer bone by level for the entire feature (Figure 6.7a) and for the two areas of bone concentration (Figure 6.7b and c). As with the cow, the deer is almost totally restricted to Feature 12. Within the feature there is a difference in the vertical patterning of bone between the two areas of concentration with the cranial material (N9.0W0.5) resting on the botton of the pit and the appendicular material occurring slightly higher in the fill. The two concentrations are

TABLE 6.7: DISTRIBUTION OF COW BONE BY WEIGHT (GRAMS).

Does not include bone unassigned to a specific level.

UNIT	A	B	L5	L6	L7	L8	L9	TOTAL
N10 E0.5	0.0	0.0	0.0	3.8	0.0	44.5	0.0	48.3
N10 W0	0.0	0.0	0.0	0.0	67.7	287.9	153.4	509.0
N10 W0.5	0.0	0.0	0.0	0.0	10.5	156.3	237.7	404.5
N10 W1	0.0	0.0	0.0	0.0	0.0	38.9	58.6	97.5
N10 W1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N10.5 E0.5	0.0	0.0	0.0	0.0	39.2	0.0	0.0	39.2
N10.5 W0	0.0	0.0	0.0	0.0	0.0	204.5	103.6	308.1
N10.5 W0.5	0.0	0.0	0.0	0.0	0.0	98.2	66.3	164.5
N10.5 W1	0.0	0.0	0.0	0.0	0.0	45.6	28.5	74.1
N10.5 W1.5	0.0	0.0	0.0	0.0	0.0	7.1	0.0	7.1
N8 W0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N8 W1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N8.5 W1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N9 E0.5	0.0	0.0	0.0	0.0	0.0	19.9	43.3	63.2
N9 W0	21.5	0.0	0.0	0.0	0.0	0.0	0.0	21.5
N9 W0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N9 W1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N9 W1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N9.5 E0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N9.5 W0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N9.5 W0.5	0.0	0.0	0.0	0.0	0.0	0.0	90.9	90.9
N9.5 W1	0.0	0.0	0.0	0.0	0.0	0.0	73.2	73.2
N9.5 W1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TH #2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL WEIGHT	21.5	0.0	0.0	3.8	117.4	902.9	855.5	1901.1
D adjustment	4.3	0.0	0.0	3.8	117.4	902.9	1711.0	

TABLE 6.8: DISTRIBUTION OF ULM-BOVIDAE BONE BY WEIGHT (GRAMS).

Does not include bone unassigned to a specific level.

UNIT	A	B	L5	L6	L7	L8	L9	TOTAL
N10 E0.5	0.0	0.0	0.0	3.8	0.0	89.3	26.5	119.6
N10 W0	0.0	0.0	0.0	0.0	67.7	747.2	699.8	1514.7
N10 W0.5	0.0	0.0	0.0	0.0	51.6	333.5	473.5	858.6
N10 W1	0.0	0.0	0.0	0.0	9.5	58.1	86.2	153.8
N10 W1.5	0.0	0.0	0.0	0.0	19.0	0.0	0.0	19.0
N10.5 E0.5	0.0	0.0	0.0	0.0	39.2	58.7	0.0	97.9
N10.5 W0	0.0	0.0	0.0	0.0	0.0	487.9	251.5	739.4
N10.5 W0.5	0.0	0.0	0.0	0.0	0.0	463.4	342.8	806.2
N10.5 W1	0.0	0.0	0.0	11.8	0.0	45.6	59.3	116.7
N10.5 W1.5	0.0	0.0	0.0	10.4	32.3	7.1	0.0	49.8
N8 W0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N8 W1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N8.5 W1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N9 E0.5	0.0	0.0	0.0	0.0	0.0	19.9	47.3	67.2
N9 W0	21.5	0.0	0.0	0.0	0.0	19.4	0.0	40.9
N9 W0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N9 W1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N9 W1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N9.5 E0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N9.5 W0	0.0	0.0	0.0	0.0	0.0	0.0	12.6	12.6
N9.5 W0.5	0.0	0.0	0.0	0.0	0.0	27.4	90.9	118.3
N9.5 W1	0.0	0.0	0.0	0.0	6.5	0.0	73.2	79.7
N9.5 W1.5	0.0	0.0	6.8	0.0	5.8	0.0	0.0	12.6
TH #2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL WEIGHT	21.5	0.0	6.8	26.0	231.6	2357.5	2163.6	4807.0
D adjustment	4.3	0.0	6.8	26.0	231.6	2357.5	4327.2	

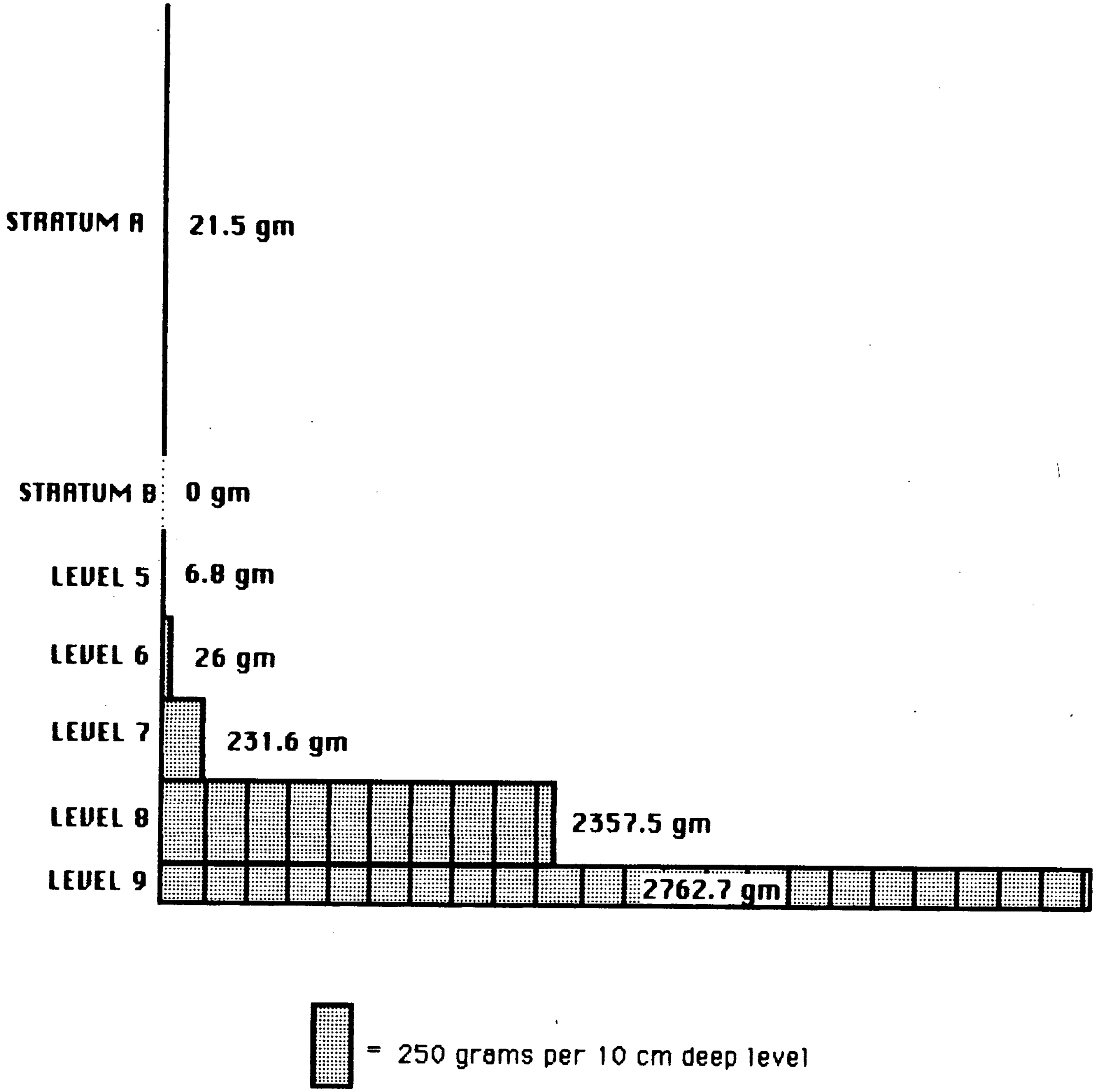
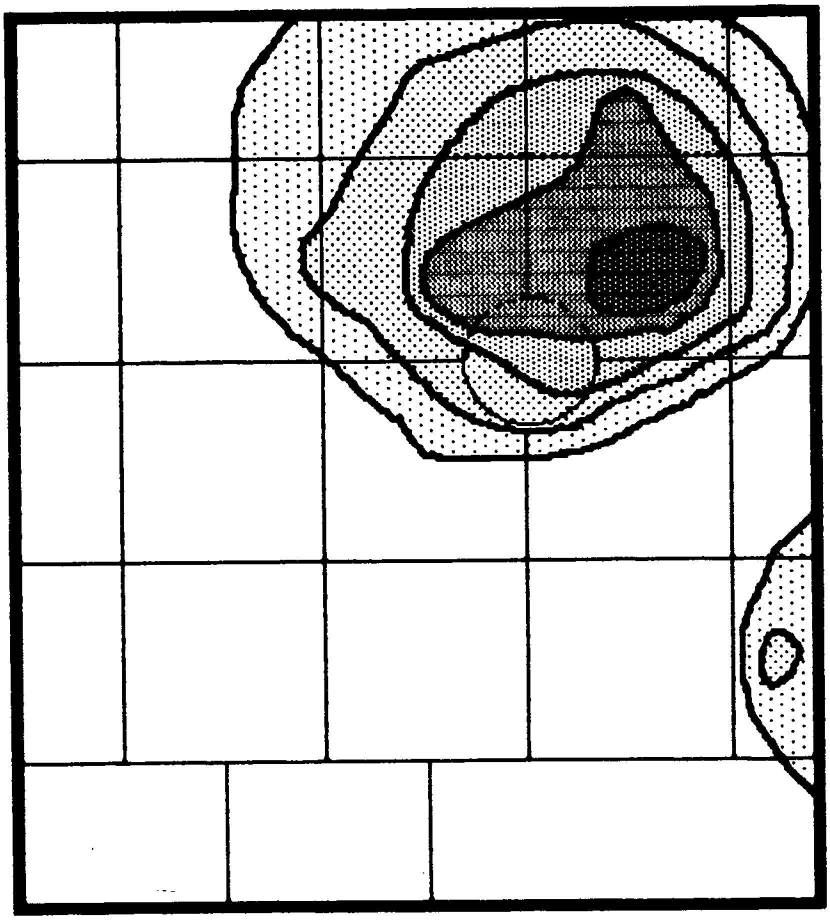
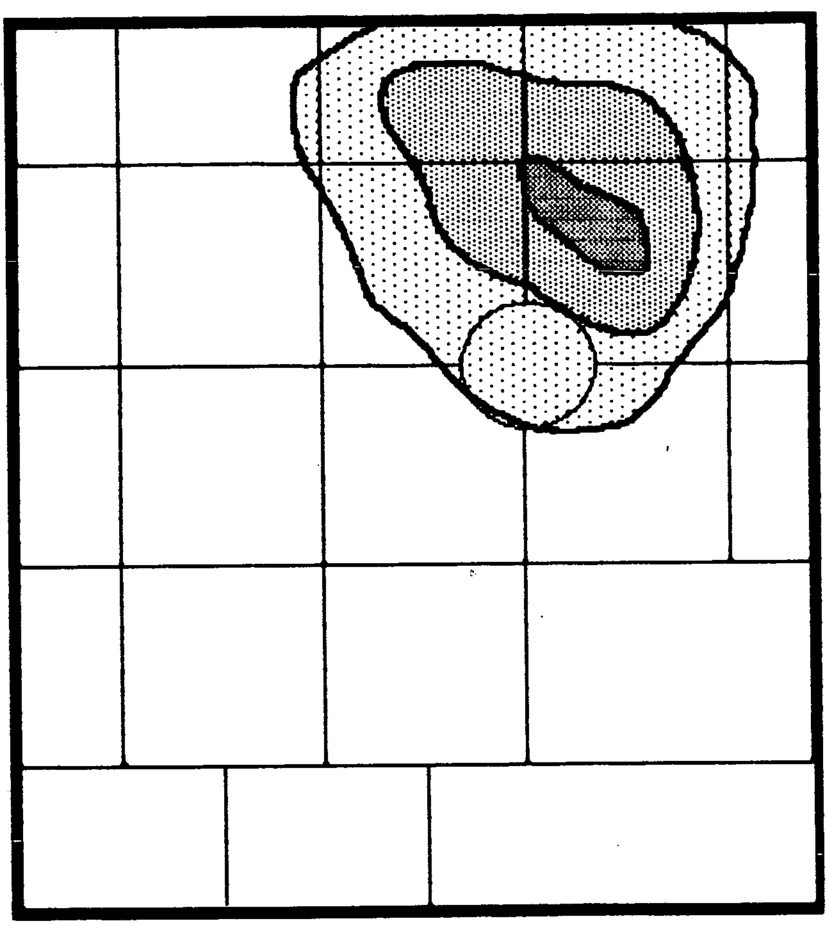


Figure 6-4: Vertical distribution of Cow and ULM-Bos bone.



a. COW BONE

100 gram contours



b. UNIDENTIFIED LARGE MAMMAL -BOS

500 gram contours

Figure 6-5: Horizontal distribution of Cow and Unidentified Large Mammal-Bos bone by weight in grams.

TABLE 6.9: DISTRIBUTION OF DEER BONE BY WEIGHT (GRAMS).

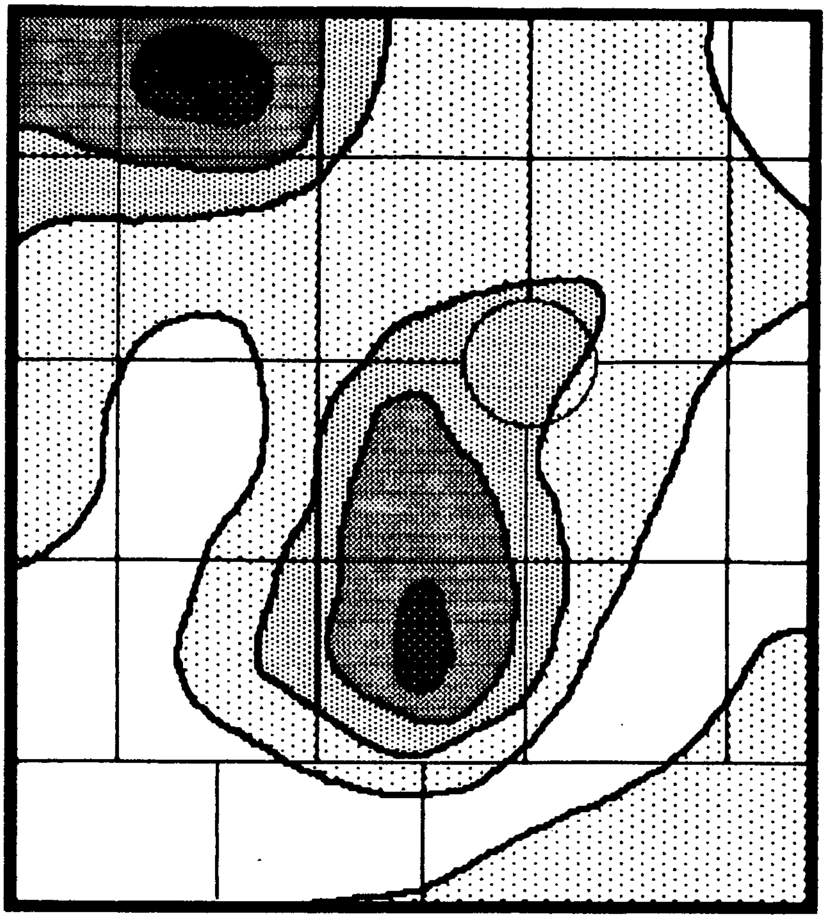
Does not include bone unassigned to a specific level.

UNIT	A	B	L5	L6	L7	L8	L9	TOTAL
N10 E0.5	0.0	0.0	0.0	19.9	8.0	6.6	1.2	35.7
N10 W0	0.0	0.0	0.0	18.0	20.3	38.4	95.0	171.7
N10 W0.5	0.0	0.0	0.0	0.0	21.3	33.0	118.7	173.0
N10 W1	7.9	0.0	0.0	9.8	49.2	50.6	32.8	150.3
N10 W1.5	4.3	0.0	0.0	0.0	1.4	148.0	0.0	153.7
N10.5 E0.5	0.0	0.0	0.0	16.0	0.0	0.0	0.0	16.0
N10.5 W0	0.0	0.0	0.0	25.6	0.0	117.8	8.0	151.4
N10.5 W0.5	5.3	0.0	0.0	4.1	13.3	80.8	18.8	122.3
N10.5 W1	0.0	0.0	0.0	37.0	297.1	16.3	5.0	355.4
N10.5 W1.5	0.0	0.0	0.0	17.4	218.9	0.0	4.6	240.9
N8 W0	0.0	0.0	1.0	1.0	89.0	89.0	89.0	269.0
N8 W1	0.0	0.0	0.0	0.0	4.5	4.5	4.5	13.5
N8.5 W1.5	0.0	0.0	0.0	4.5	4.5	0.0	0.0	9.0
N9 E0.5	0.0	0.0	0.0	1.4	28.9	0.0	0.0	30.3
N9 W0	0.0	0.0	0.0	1.5	16.3	0.9	8.3	27.0
N9 W0.5	0.0	0.0	0.0	11.9	54.7	49.2	182.5	298.3
N9 W1	0.0	0.0	0.0	11.6	0.0	50.9	23.8	86.3
N9 W1.5	0.0	0.0	0.0	0.0	0.0	2.9	0.0	2.9
N9.5 E0.5	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6
N9.5 W0	64.6	2.8	28.5	11.0	22.1	42.2	0.1	171.3
N9.5 W0.5	0.0	23.8	0.0	3.6	87.0	50.6	155.0	320.0
N9.5 W1	0.0	0.0	0.0	0.0	7.1	0.0	18.4	25.5
N9.5 W1.5	0.0	0.0	21.9	0.0	26.6	59.8	0.0	108.3
TH #2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL WEIGHT	82.1	26.6	51.4	194.3	972.8	841.5	765.7	2934.4
D adjustment	16.4	26.6	51.4	194.3	972.8	841.5	1531.4	

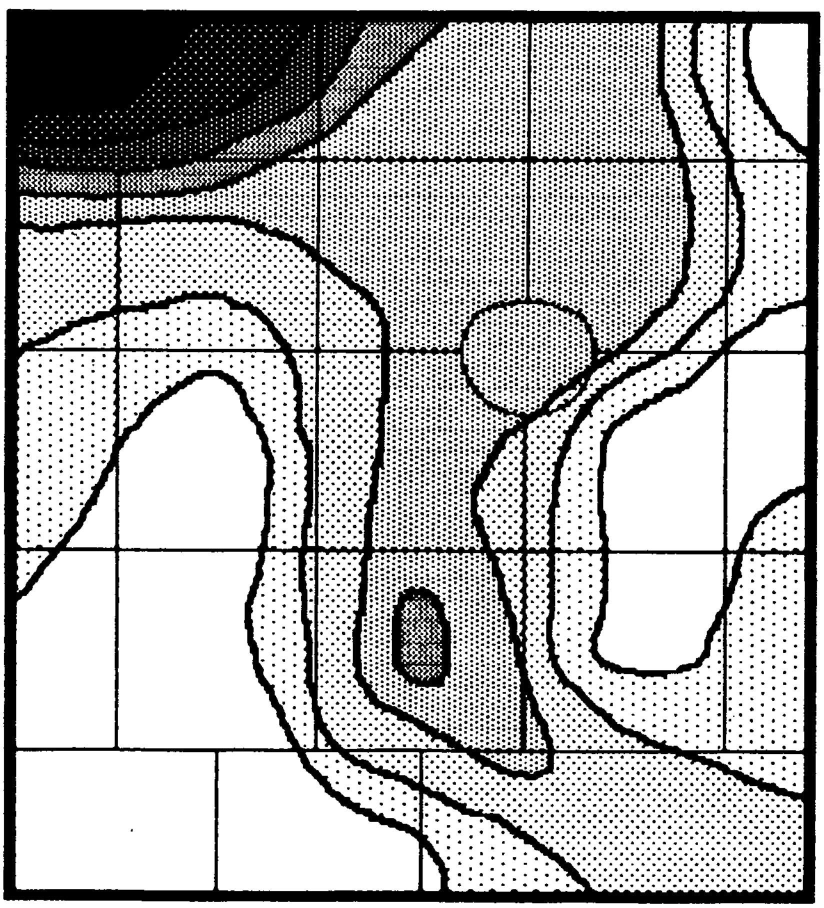
TABLE 6.10: DISTRIBUTION OF ULM-ODOCOILEUS BONE BY WEIGHT (GRAMS).

Does not include bone unassigned to a specific level.

UNIT	A	B	L5	L6	L7	L8	L9	TOTAL
N10 E0.5	0.0	0.0	0.0	23.5	8.0	6.6	1.2	39.3
N10 W0	0.0	0.0	0.0	18.0	20.3	87.8	173.3	299.4
N10 W0.5	0.0	0.0	0.0	0.0	30.0	63.6	210.2	303.8
N10 W1	7.9	0.0	0.0	9.8	72.7	80.4	43.0	213.8
N10 W1.5	4.3	0.0	0.0	0.0	2.3	176.5	0.0	183.1
N10.5 E0.5	0.0	0.0	0.0	16.0	0.0	0.0	0.0	16.0
N10.5 W0	0.0	0.0	0.0	25.6	59.6	117.8	32.3	235.3
N10.5 W0.5	5.3	0.0	0.0	9.7	48.0	131.2	44.8	239.0
N10.5 W1	0.0	0.0	0.0	41.3	364.8	55.5	5.0	466.6
N10.5 W1.5	0.0	0.0	0.0	65.1	340.5	1.5	33.2	440.3
N8 W0	0.0	0.0	1.0	1.0	124.4	124.4	124.4	375.2
N8 W1	0.0	0.0	0.0	0.0	20.6	6.3	0.0	26.9
N8.5 W1.5	0.0	0.0	0.0	4.5	4.5	2.9	2.8	14.7
N9 E0.5	0.0	0.0	0.0	1.4	28.9	0.0	0.0	30.3
N9 W0	0.0	0.0	0.0	1.5	16.3	0.9	10.0	28.7
N9 W0.5	0.0	0.0	0.0	11.9	54.7	49.2	182.5	298.3
N9 W1	0.0	0.0	0.0	11.6	0.0	50.9	23.8	86.3
N9 W1.5	0.0	0.0	0.0	0.0	0.0	2.9	0.0	2.9
N9.5 E0.5	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6
N9.5 W0	64.6	2.8	28.5	11.0	22.1	42.2	0.1	171.3
N9.5 W0.5	0.0	23.8	0.0	10.9	87.0	50.6	155.0	327.3
N9.5 W1	0.0	0.0	0.0	0.0	7.1	0.0	18.4	25.5
N9.5 W1.5	0.0	0.0	21.9	0.0	26.6	59.8	0.0	108.3
TH #2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL WEIGHT	82.1	26.6	51.4	262.8	1341.0	1111.0	1060.0	3934.9
D adjustment	16.4	26.6	51.4	262.8	1341.0	1111.0	2120.0	



a. DEER BONE



b. UNIDENTIFIED LARGE MAMMAL-ODOCOILEUS

Figure 6-6: Horizontal distribution of Deer and Unidentified Large Mammal-Odocoileus by weight in grams. (100 gram contours).

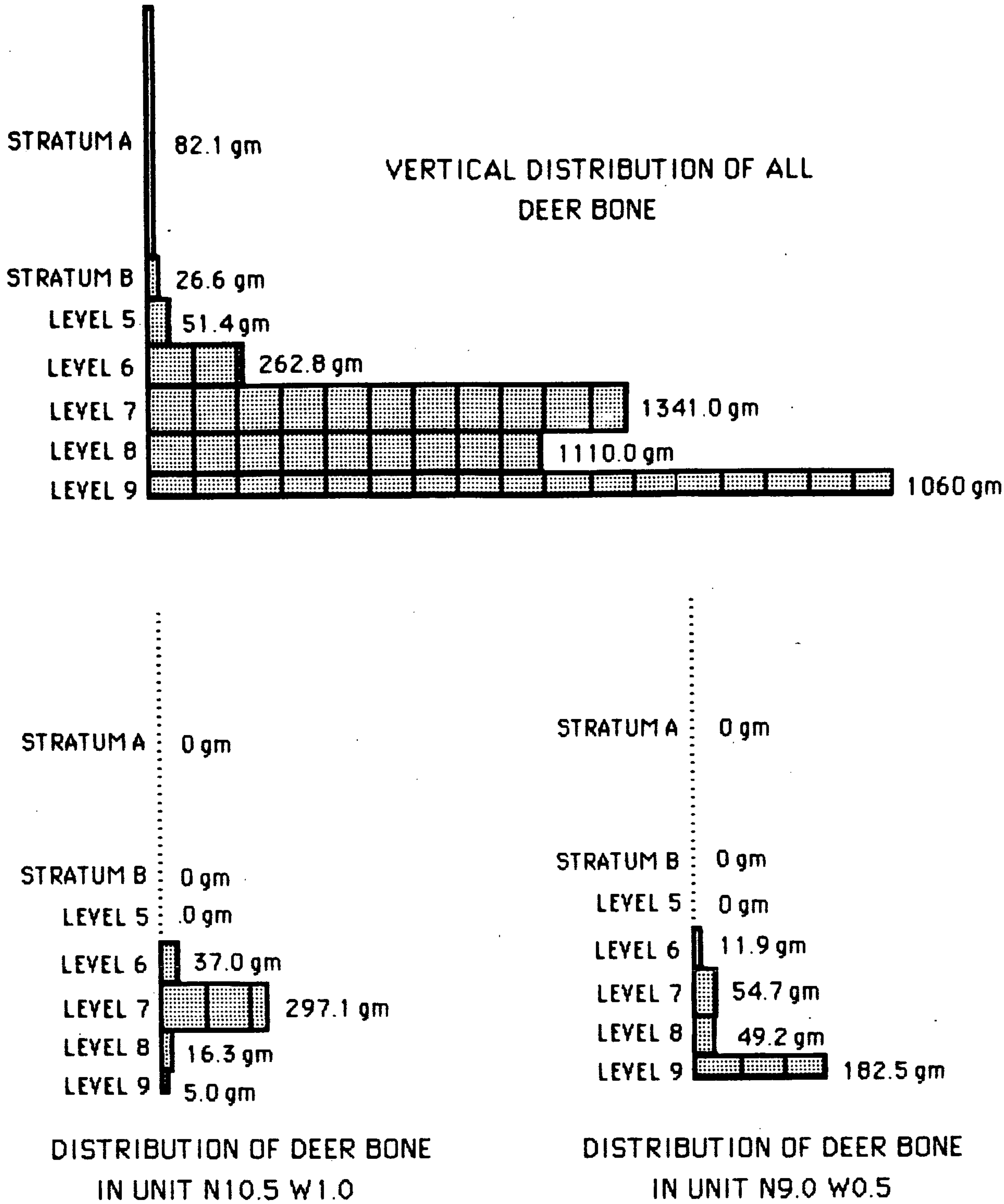


Figure 6-7: Vertical distribution of Deer Bone.

distinctly separated both vertically and horizontally yet each concentration by itself well defined. This would suggest that each group of bone was discarded as a unit and that they represent two distinct discard episodes. The cranial material could represent the production of head cheese-like foods and utilization of the brain; evidence for use of the skull is clear since one cranium had been saw cut. Additional data to support the use of the cranium are the relatively high frequency of cranial elements (approximately 50%) while there is a lack of distal leg bones. The difference in frequency between the lower leg and cranial elements suggest differential discard. It appears reasonable to assume that the distal leg bones were left at the butchering site while the skulls (of some animals) were purposefully brought to the Old School House.

The distribution of the ULM bone (Table 6.11 and Figure 6.8) indicates a pattern which most closely resembles the distribution of the cow bone. There is a high concentration of ULM bone in unit N10.0E0.5, next to the unit (N10.0W0.5) with the high frequency of cow bone. Interpretation of the cow and deer bone concentrations is that each concentration represents a single discard episode. The ULM bone most likely represents fragmentation of bone resulting from preparation and consumption activity. As such, its distribution should closely parallel that of the cow and deer.

There are too few elements in each taxon to permit a meaningful discussion of the distribution of the bird bone. However, grouping the bone based on animal size and form does permit some observation that bear on the interpretation of these remains. Table 6.12 and Figure 6.9 illustrate the distribution of ducks, geese, mergansers and ULB bone. As with the cow and deer, the bird bone is confined to Feature 12. Further, there is a marked concentration of the bone in the vicinity of unit N10.0W0.5. This closely coincides with the distribution of the cow bone. It might be a result of the discard of the cow and bird at the same time or within a short time of each other. Whether the bird bone represents a separate discard episode is unclear.

TABLE 6.11: DISTRIBUTION OF UNIDENTIFIABLE LARGE MAMMAL (ULM) BONE BY WEIGHT (GRAMS).

Does not include bone unassigned to a specific level.

UNIT	A	B	L5	L6	L7	L8	L9	TOTAL
N10 E0.5	0.0	0.0	0.0	59.8	59.0	29.2	10.8	158.8
N10 W0	0.0	0.0	0.0	0.9	79.7	180.6	161.0	422.2
N10 W0.5	3.8	5.1	0.0	0.0	34.3	39.4	171.5	254.1
N10 W1	0.0	0.0	0.0	12.2	6.2	0.0	9.8	28.2
N10 W1.5	2.6	0.0	21.3	4.1	3.6	23.5	0.0	55.1
N10.5 E0.5	0.0	0.0	0.0	2.5	12.8	1.6	0.0	16.9
N10.5 W0	0.4	0.0	0.2	3.8	0.0	171.8	83.9	260.1
N10.5 W0.5	0.0	0.0	2.9	0.8	2.9	169.9	98.5	275.0
N10.5 W1	0.0	0.0	4.9	5.0	4.7	47.1	46.8	108.5
N10.5 W1.5	0.0	0.0	9.0	8.2	89.7	0.4	2.9	110.2
N8 W0	0.0	0.0	0.0	0.0	17.8	17.8	17.8	53.4
N8 W1	0.0	0.0	0.0	0.0	1.7	1.7	1.7	5.1
N8.5 W1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N9 E0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N9 W0	0.0	0.0	0.0	0.0	22.8	19.8	6.4	49.0
N9 W0.5	0.0	0.0	0.0	1.7	15.2	22.0	25.3	64.2
N9 W1	0.0	0.0	0.0	0.0	11.6	6.2	0.0	17.8
N9 W1.5	0.0	4.5	0.0	0.0	0.0	15.4	16.0	35.9
N9.5 E0.5	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6
N9.5 W0	64.6	2.8	28.5	11.0	22.1	42.2	0.1	171.3
N9.5 W0.5	0.0	23.8	0.0	10.9	87.0	50.6	155.0	327.3
N9.5 W1	0.0	0.0	0.0	0.0	7.1	0.0	18.4	25.5
N9.5 W1.5	0.0	0.0	21.9	0.0	26.6	59.8	0.0	108.3
TH #2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL WEIGHT	71.4	36.2	88.7	120.9	507.3	899.0	825.9	2549.4
D adjustment	14.3	36.2	88.7	120.9	507.3	899.0	1651.8	

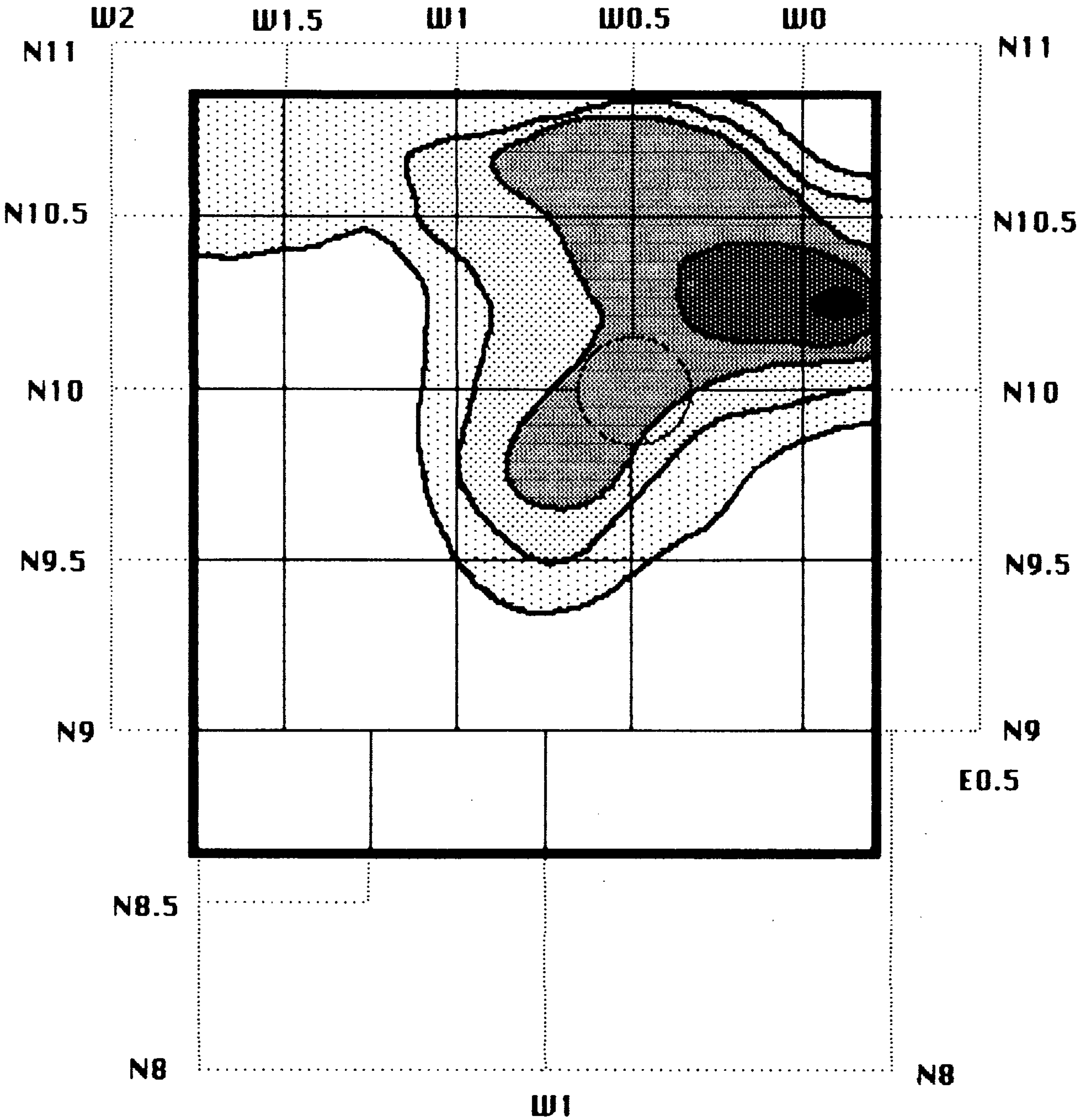


Figure 6.8: The horizontal distribution of Unidentied Large Mammal bone by weight in grams (100 gram contours).

TABLE 6.12: DISTRIBUTION OF DUCK, GOOSE, MERGANSER AND ULB BONE BY WEIGHT (GMS).

Does not include bone unassigned to a specific level.

UNIT	A	B	L5	L6	L7	L8	L9	TOTAL
N10 E0.5	0.0	0.0	0.0	0.0	3.0	0.0	1.7	4.7
N10 W0	0.0	0.0	0.0	0.0	4.3	14.9	8.2	27.4
N10 W0.5	0.0	0.0	0.0	0.0	0.0	17.9	9.9	27.8
N10 W1	0.0	0.0	0.0	0.0	3.8	2.0	0.0	5.8
N10 W1.5	0.0	0.0	0.0	0.1	0.9	2.4	0.2	3.6
N10.5 E0.5	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.2
N10.5 W0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2
N10.5 W0.5	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2
N10.5 W1	0.0	0.0	0.0	2.4	4.0	1.0	0.0	7.4
N10.5 W1.5	0.0	0.0	2.1	0.9	4.8	0.0	0.0	7.8
N8 W0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	1.1
N8 W1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N8.5 W1.5	1.6	0.0	0.0	0.0	0.0	0.0	0.0	1.6
N9 E0.5	0.0	0.0	0.0	1.6	2.1	0.0	0.1	3.8
N9 W0	0.0	0.0	0.0	0.0	0.8	0.4	0.0	1.2
N9 W0.5	0.0	0.0	0.0	0.0	1.1	1.0	2.5	4.6
N9 W1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N9 W1.5	0.0	0.0	0.0	0.0	0.0	0.0	3.3	3.3
N9.5 E0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N9.5 W0	1.8	0.0	0.0	0.7	0.0	0.0	0.2	2.7
N9.5 W0.5	0.0	2.2	0.0	2.8	0.0	0.0	10.7	15.7
N9.5 W1	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.2
N9.5 W1.5	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
TH #2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL WEIGHT	3.4	2.2	2.1	8.6	27.8	40.2	37.2	121.4
D adjustment	0.7	2.2	2.1	8.6	27.8	40.2	74.3	

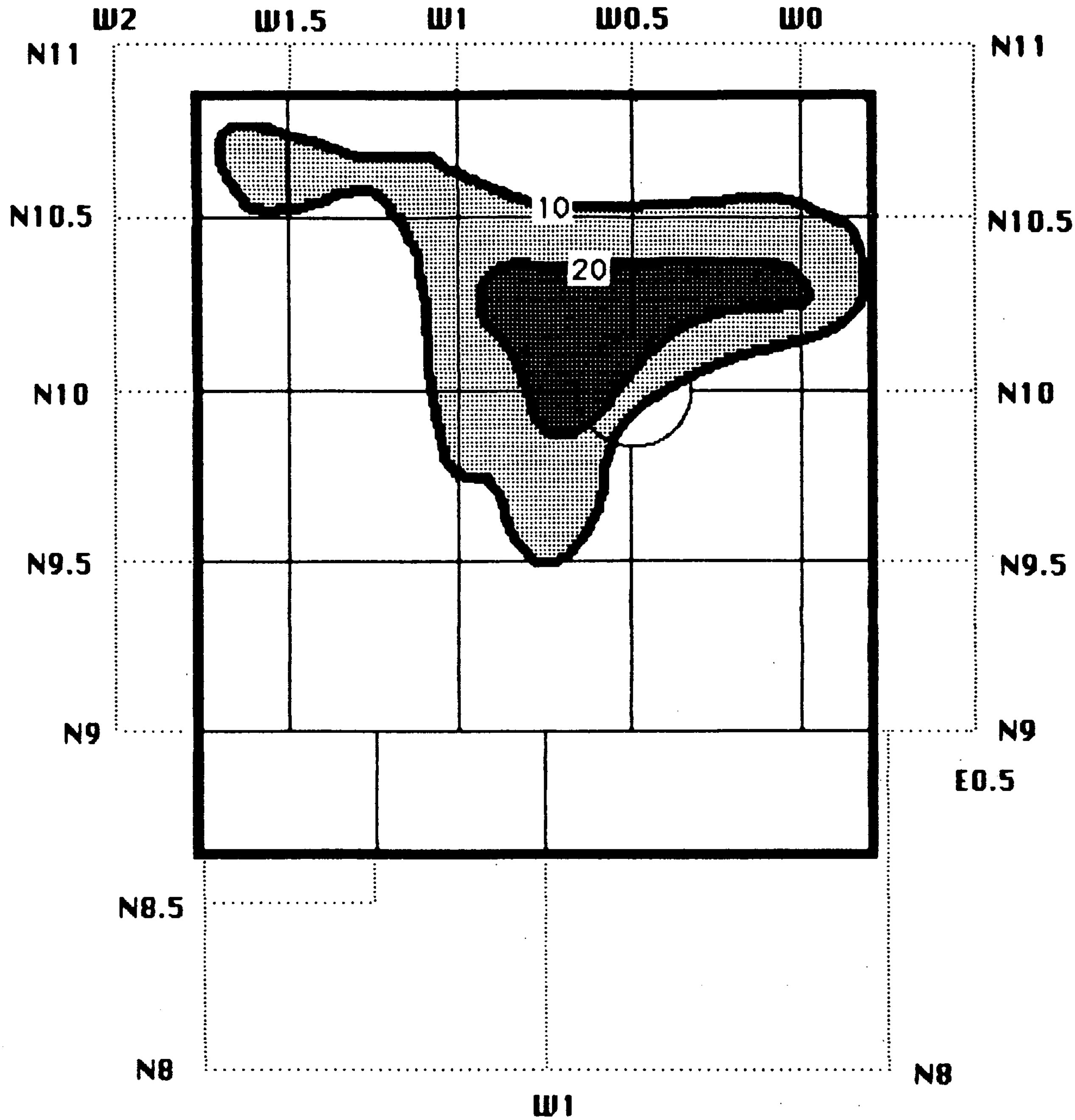


Figure 6.9: The horizontal distribution of bird bone in Feature 12 by weight in grams. (10 gram contours).

The bird bone would suggest that the material was deposited in the warmer (spring) months since that is when these individuals are available. However, the deer (in at least two cases) suggest a mid-winter season for deposition. This apparent contradiction might be due to either a long temporal duration for formation of the deposits (at least 3-4 months) or to storage of some items for use at a later date. The well defined concentrations of bone and lack of carnivore or rodent modification suggests that the pit was not exposed for a long time. Therefore, it would appear that some material was stored for later use.

In preparing birds for storage (freezing, salting or smoking), the skull and feet are generally removed. In support of this interpretation is the marked absence of cranial and lower leg bones in the assemblage. However, it had been noted that the fish and perching bird might have been introduced in the entrals of a raptor suggesting that birds were actually taken at the site.

Patterning of the deer bone (frequency representation) clearly indicates that specific cuts of meat were utilized; those most suitable for boiling to produce meat stock and broths. While these elements can be stored by freezing, salting or smoking these sections would not be economical. Rather, it would be easier to prepare the stock and store it instead of the meat and associated bones. Further, storage of meat on a deer skull is not practical. It was noted that at least two deer were winter kills. Winter deer are not in prime condition but this would have little affect on stocks made from the shank, ribs and vertebrae.

Given the above considerations, it is not clear which, if any, species was intentionally prepared for storage. The amount of deer (and similar cow) bone, the overall nature of the mammalian assemblage, and the nature of the fowl, suggests that the birds would have been most likely the animals which had been stored for later use. If this were the case, then the pit was used during the winter months (January-February). An alternative to storage of a class of animal would be that the pit was subject to intermittent discard of fauna. That is, one bone pile was discarded and fill built up around it (protecting the bone from disturbance) then at a later date a second pile of bone was discarded, and so on.

In the above discussions it has been inferred that concentrations of bone represent individual discard episodes. Tight concentrations of debris, especially of similar items, would appear to represent related accumulations of material. In the case of food debris, bones found together could represent refuse from butchering activity, food preparation activity, or consumption activity. The frequency representation of the bones indicates that initial butchering (such as hide removal, quartering, etc.) was not responsible for forming the assemblage. Further, interpretation of the patterning of the elements is that the preparation activity centered on boiling of the meat cuts. Thus food preparation is indicated. While each concentration could represent the debris of several preparation episodes (temporarily stored in one container) discarded at the same time, one would expect a variety of material in each concentration (such as a mixture of cow and deer elements). That each concentration is homogenous suggests that each represents a single preparation activity.

While each bone concentration probably represents one episode of food preparation, the food which was being prepared (meat stocks and broth) could easily have been stored and was likely used for more than one meal. Thus, it is not possible to state that each bone concentration represents the refuse from a single meal. Information on the number of staff and patients supported by the commissary would help evaluate whether a single dump episode relates to a single meal.

It is not practical to determine the pounds of usable meat represented in each concentration. If the computation is based on the MNI (after White 1953) cow would be greatly over represented since only selected portions of the animals are in the assemblage. Computations based on the usable meat represented by each portion would be arbitrary since the actual butchering practices are not known. Further, it is hypothesized that the meat cuts were used as the basis for stocks, broths, and soups. As such, the "usable meat" represents only a fraction of a potential meal.

CONCLUSIONS

The research design which guided the studies at the Sitka Old School House included two hypotheses dealing with faunal remains (Blee 1983b). One hypothesis questioned whether the pit was intended to be a trash pit. Bones were expected to bear evidence of carnivore modification and bone frequency was expected to be high (Blee 1983b:4). The assemblage did not evidence a high frequency of carnivore or rodent modification. While this could be due to poor preservation of these characters, it could be a result of the rapid filling of the pit which prevented access to the bone. The percentage of bone compared to other feature components is hard to evaluate in the absence of comparative data. It does appear clear, however, that there were three and possibly four episodes involving disposal of faunal remains. Although there were multiple episodes of trash disposal there is no limit as to the amount of time for deposition. The faunal remains do not help clarify whether the pit was purposefully excavated as a trash disposal area but they do indicate that the pit was eventually used for trash disposal.

The second hypothesis deals with the question of whether supplies were regularly transported to Sitka in the nineteenth century. Two propositions were generated: the ratio of domestic to wild species would indicate the dependability of the supply of domestic food; and that the presence of "expensive" cuts of domestic meat associated with wild meat would suggest an irregular supply of domestic food (Blee 1983b:6-7). The first proposition dealing with the ratio of wild to domestic meat is hard to evaluate. Interpreting the ratio of MNI would suggest that wild meat is highly favored. If computations of usable meat based on MNI were computed, the domestic (cow) species would be greatly weighted. As noted above, such a computation would not be representative of the feature remains since they clearly represent selected portions of these animals rather than the whole animal. Computations of usable meat represented by the portions present would be arbitrary since actual butchering practices are not known. We can state that the pattern of remains within the feature indicate disposal of the domestic (cow) and wild (deer and fowl) bone in separate areas at three or four different times. As such, it would appear that the cow bone represents one food preparation episode while the deer bone represents two additional episodes and the fowl probably represents a fourth. This could either be interpreted as a result of the lack of an adequate supply of domestic food or due to an indifference toward the use of either group. Given the historical references to a dislike for wild game, at least among the officers, the former appears a most likely.

The second proposition concerns the association of expensive domestic meat cuts and wild game. "Expensive" is interpreted to mean cuts of meat which are suitable for roasts and steaks, that are generally marbled with fat, and are sought after for the meat itself as opposed to its use as a component of a meat dish such as stew or soup. Here data from the feature indicate that inexpensive cuts of meat (boiled meat, meat suitable for stocks and broths) are most frequently represented within both groups; the expensive cuts of meat, especially from the domestic species, are lacking. While this would appear to support the proposition there is an alternate explanation. The kinds of meats which are present in the assemblage are those most often associated with hospital commissaries. They are the foods (broths and soups) typically given to the sick and injured. Another alternative may deal with status. Blee (Chapter I) has indicated that officers were treated in their homes while enlisted men were cared for in the hospital. The kinds of meat cuts seen in the fill may represent distribution of them to enlisted men, while the more expensive cuts were sent for use by the officers.

The faunal remains from Feature 12 at the Old School House are consistent with an interpretation that the feature represents disposal of trash from the Russian hospital. The remains are from both domestic and wild species, and represent types of meats generally associated with hospital meals (broths and soups). The bone distribution strongly suggests a limited use of the feature (at least for disposal of organic residue) and probably relates to three or four meals. The lack of evidence of carnivore and rodent modification of the bone suggests that the feature or portions of it was rapidly covered preventing access to the debris.

The interpretation of the bone as representative of a limited number of food preparation episodes has serious implications regarding the extrapolation of these remains to infer diet. First, if the remains are representative of individual preparation activities we are able to make very specific comments on patterns of food/meat consumption. Second, the corollary to this statement is that the remains are not representative of the complete diet of the people. Given the interpretation of the pit contents as an example of a few meals rather than representing the full dietary habits of the occupants, the lack of fish (particularly salmon) is understandable even in light of contemporary accounts regarding its frequent use (Golovin 1979:36) and wide availability (McLean and Delany 1978). It also helps explain the apparent lack of use of the wide range of wild species including sea mammals available to the occupants of the site (see LeResche and Hinman 1973; Smith 1979).

CHAPTER 7

SYNTHESIS OF HISTORIC AND ARCHEOLOGICAL EVIDENCE OF SUBSISTENCE

by

Catherine Holder Blee

SYNTHESIS OF HISTORIC AND ARCHEOLOGICAL EVIDENCE OF SUBSISTENCE

Several issues affecting the testing of the research design were generated by Chomko's preceeding analysis. This chapter consists of a reconcilation of the historic doecumentation and the faunal analysis as regards irregularity of supplies in Sitka, the preference for domesticated meats, the lack of fish bones, season of deposit, presence of starvation foods, food preparation techniques, and the socioeconomic status of the patients. All issues have direct bearing on the proposition that support the research hypotheses.

IRREGULARITY OF SUPPLIES

The irregularity of supplies is certainly suggested by the historic literature, but I was very interested in determining whether this was a matter exaggerated by company officials or something that truly posed an undue hardship on the colonists. Gibson tells us:

> Seldom did the colonies have ample provisions, and not infrequently the meager provisions they did receive were low in quality. Food shortages were severe; for example, in the very first years of the 1800's, in the 1820's, and in the mid-1850's. New Arkangel's residents often complained that 'We are hungry, bring us grain soon' (Gibson 1976:213).

He also reports that in 1831 "Company employees at the colonial capital had to buy fish, fowl and slugs from the neighboring Koloshes at high prices for want of beef and butter. Indeed, mountain sheep, grouse and halibut constituted virtually the only fresh food at the capital in the winter" (Gibson 1976:214). "In 1805 at New Archangel, for instance, there was only one pound of bread daily for 200 people, and eagles, crows and cuttle fish were eaten" (Gibson 1976:14). Fedorova (1973:235) estimates that in 1860, each inhabitant of New Archangel would have had only 600 grams of flour per day.

Even in the early American period, after 1867, it appears that supplies were somewhat irregular. Emily Fitzgerald wrote detailed letters home to her mother. In several she complains of the ships not being on time. A letter dated December 16, 1875 was written six weeks after the last ship.

> The contract with the government calls for twelve trips a year, so we fear its [the ship's] not coming is caused by some accident. . . we are beginning to feel its absence, too. There is not a potato in Sitka--has not been for two weeks and though we could not quite starve up here, as fish and game are plenty, we might soon be pretty short if the boat doesn't come. They try to keep about six month's supply in the commissary but the flour is low and is to come on the boat. There is about 20 days' more supply of flour on hand; the corn meal gave out last week (Laufe 1962:73).

The long awaited ship arrived on December 20, 1875.

The fact that Emily is not concerned about starving suggests that the hardship was more psychological than real. It was just such a proposition that analysis of faunal remains was designed to test.

It should be noted that perceptions of starvation and real threats might be two different things. George Simpson (1978:167) reported in 1841 that "The good folks of New Archangel appear to live well." He goes on to describe a country that "abounds in chevreuil," and fish that "are always to be had for the taking in unlimited quanitities." He apparently felt that adequate wild foods equated with plenty to eat, whereas the Russians may have felt differently. It is apparent that Emily Fitzgerald was concerned about a decrease in domestic foods.

PREFERENCE FOR DOMESTIC FOODS

The assumption that Euramericans preferred domestic foods and actively sought them even when local wild foods are plentiful has been suggested by other archeological investigations and the historic literature. Reitz and Scarry (1985:1) showed that, among anthropologists, "colonial foodways are often viewed as unmodified" from their traditional types and called for the need to critically test such assumptions.

The assumption that Euramericans preferred domestic foods when available is also suggested by the historic literature for Alaska. As shown above, Emily Fitzgerald was clearly concerned that they would run out of flour, and already were feeling a shortage of cornmeal and potatoes. Her statement, quoted earlier on page 327, indicates fairly clearly how little she likes venison and other game (Laufe 1962:61). It is clear that even the high ranking Army surgeon did not have universal access to domestic foods. It is interesting to note that Mrs. Fitzgerald found 20 pounds of beef a week insufficient to feed two adults, a small child and a teenager. Even including bone in the weight of the meat, this suggests that the deprivation was more perceived than real.

It was not just the American officers who preferred domestic foods.

> It was the whites--overwhelmingly Russians--who demanded "tame" foodstuffs, that is, those derived from cultivated crops and herded livestock. These "Russian supplies," as the company called them were mainly grain and beef, but included butter, common garden vegetables and tree fruits, sugar, tea and the like (Gibson 1976:48).

TESTING THE PROPOSITIONS

The spatial distribution of the bone in the pit may represent one episode of beef consumption, two of venison, and a fourth of wild bird meat. It is possible that the domestic cow represented only about one fourth of the bone discard during the period of time in which all bone was deposited. An interpretation based only on the faunal remains suggests this is a result either of inadequate domestic meat supply or indifference towards use of any particular meat group. In light of the historic documents quoted above, it appears that the Russians did indeed prefer beef in any form first, and fresh venison second. They would have eaten beef in any form if it was available. Further, in light of the strict ranking system of Russian military society, the low ranking hospital patients would have been receiving among the poorest available meats. In that case, the refuse from the hospital would be a stronger indicator of overall economic conditions of the community than that of the Chief Manager who would have been buffered from poor food supplies. The fact that the hospital trash pit contained as much cow and deer bone as it did, suggests that overall economic conditions were not particularly stressed. This, of course, is a supposition, and can only be verified by additional excavations in other areas where relative socioeconomic status is indicated.

The second proposition is not confirmed as conditions of the proposition were not met. "Expensive" cuts, such as those normally associated with roasts and steaks, were not found in the trash pit. All elements present suggest that the meat was being boiled for soups, stews or broth. These types of cuts are commonly associated with poorer economic conditions as this type of preparation extends the nutritional value of the meat to more people. The articular ends of long bones, skulls, and vertebrae tend to be the cuts that are found on sites where food is prepared institutionally, such as the Sacramento City Jail, dating from the 1870s (Schultz and Gust 1983); slaves on 19th century plantations at Canon's Point (Otto 1975) and Monticello (Crader 1984); or the patients of the Nevada State Insane Asylum (Dansie and Rincob 1979). It also would be the type of food best ingested by sick people, regardless of their socioeconomic status. In contrast, the patrons of Sacramento's Golden Eagle Hotel, one of the most prestiguous hostleries in mid-19th century California, left remains from steak sections, short loins, and sirloins. These cuts, when compared to retail been price lists of the time, proved to be the most expensive (Schulz and Gust 1983:47-49). The results were similar to evidence found for the plantation owners' trash pits at Canon's Point and Monticello.

FISH BONE TAPHONOMY

In view of the several historic references to fish in the diet and especially to the use of fish soup in the hospital, the lack of fish bone in the deposit is explained by their disposal elsewhere. While it is probable that excavation techniques did not recover all the fish bone originally in the deposit, they should have been sufficient for the recovery of the larger elements if they were available. Most of the fish listed in the documents as food species are large enough that some vertebrae and ribs would have been found in the 1/4" screen.

The lack of fish remains in the pit does not mean fish were not being consumed at the hospital. Repeated references in the literature attest to the fact that fresh fish was primarily available only in summer months and that for at least four months of the year, in winter, fish that had been salted, dried or smoked were consumed (see the earlier discussion on fish). Golovin (1979:66) specifically mentions the hospital in his assertion that salted fish was used in the winter and fresh fish were eaten in the summer.

The preferred method of preserving fish appears to have been salting, leaving dried and smoked fish for use by the Aleuts employed by the company.

> The majority will have to eat salt fish, to which, it is true, they are accustomed; but this provides a food that is completely unappetizing and not very nutritious. I must confess that I have never eaten shchee or soup with such a foul taste (Golovin 1979:37).

In order to prepare fish for salting, smoking or drying, they were generally filleted on the beaches or boats where they are procured, or in the area where the preserving was done. Khlebnikov (1976:29) described the Tlingit method of preparing fish at New Archangel: "Salmon is preserved by removing the meat from the bones, drying it in the air, or smoking it. They try to preserve enough of this to last a whole year, and usually it lasts until the new fish come." The lack of fish bones in an archeological context where salt fish was a common food, has also been noted in the excavations at Monticello (Crader 1984:555). Finally, Kirk (1986:82-83) notes that Tlingits traditionally return the bones, head and tail to the water. Tlingits were often employed by the Russians to acquire fish. Whatever the precise reason, it is obvious that fish bones were obviously being deposited elsewhere, than where the fish was being prepared.

If that is indeed the case, it is possible that the bone in the pit represents only the few occasions when better quality meat was available. Even then, the quality of the cuts support Golovin's and Blaschke's statements that the hospital received only the left-over, poorer types of meat. The lack of fish bone in the pit may mean that the deposit occurred during the winter when preserved fish rather than fresh fish was consumed.

OTHER POORLY REPRESENTED SPECIES

A lynx scapula, a rat proximal femur, a hawk phalange, an eagle tibiotarsus, and the humerus of Passeriform (perching bird)[20] were all present in the pit. None of these are likely subsistence species. The lyn was sometimes acquired for its fur, and is usually listed on the fur inventories of the Company. Teichmann reported in 1868 that the Tlingit Indians "Frequently and especially on cold days, they wear cloaks made of fur, particularly that of the lynx, which often become an article of commerce in this form" (Teichmann 1962:196).

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20. It has been pointed out that these are items that might be found in a Tlingit medicine bundle. However, in view of the lack of other Tlingit material culture in the pit, and the historic intolerance of Euramerican physicians to Native healing techniques, this source is not considered likely for these bones.

It is interesting to note that in 1805, a time of famine for the Company, eagles, crows and cuttlefish[21] were eaten (Gibson 1976:14). Among the Tlingit, from whom all wild foods were procured, "All kinds of birds are eaten except for the crow [probably raven], which is sacred" (Khlebnikov 1976:29). It is unlikely that the Russians would have made a practice of eating the ubiquitous bird except in cases of extreme hunger. These apparent starvation foods, present in limited quantities, are ambiguous. They may reinforce the historic record that hospital patients were among the last to receive quality food, and the hospital cook was occasionally forced to resort to much less desirable types of rations.

Blaschke (1971:178) mentioned that sea urchins and mussels were much prized by the Tlingits, and noted the delicious flavor and medicinal qualities of the former (Khlebnikov 1976:37). Remains of both were found in the pit. Of these rarely occurring faunal remains, the sea urchin and mussel were most certainly used for food; the eagle, lynx, hawk and perching bird may only be incidental remains.

EVIDENCE OF FOOD PREPARATION TECHNIQUES

Most of the deer and cow bone was boiled. The bird remains might have been preserved by freezing or salting to reconcile the apparently

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21. A squid-like animal as described by Emily Fitzgerald.

> I have just been down to Old Whitford's to see a devil fish that was brought in yesterday. It is perfectly horrible. Doctor says it is not an octopus at all but a cuttle fish, but it is bad enough anyway. It attacked and almost pulled an Indian canoe to the bottom before the Indians could tumble out into the shallow water and attack it. The body is about as big as old Jack (our old red dog) or bigger. Then it has a tail, broad and flat, larger than the body, and around the head eight of those arms (this one's arms are about a foot and a half long), and two long arms or tentacles or feelers. Way in among all these . . . is its head, a long, sharp beak like a parrot's only much larger. Each of these arms of the horrid thing has a double row of suckers. They are hoof shaped and about as big as a penny. Inside each of them is a row of little bony spikes which would enable the monster to hold on so much better (Laufe 1962:84).

contradictory evidence of migratory birds presumably available only in summer with the evidence of winter use from the deer bone. It is interesting to note Khlebnikov's (1976:70) statement that "in spring the Kolosh supply sea gull and other bird eggs, as well as ducks, geese, grey-hens, roots, herbs and berries in the summer, and in winter, mutton, crabs, shellfish and other crustaceans." Egg remains were entirely missing from the deposit, but deer, shellfish, and echinoderms were present. An alternate explanation to that of preserving the birds could be that the trash accumulated over a period lasting from late winter into early summer. The faunal remains alone were ambiguous in their indications whether the pit was filled over a short or long period of time.

The tight concentrations of faunal material combined with the lack of carnivore chewing suggests only short-term use of the pit for bone deposition. It appears that the pit was initially used for deposition of bone and later for inorganic remains. Fully 78% of the bone, as measured by weight, was found in the lowest third of the trash deposit. Furthermore, only the bone was deposited in discret piles. All other types of artifacts were distributed apparently randomly and without significant pattern in the pit, suggesting all artifacts were deposited as the result of later, day-to-day activities and accumulated somewhat more slowly. This is discussed in more detail in Chapter 3.

Historic evidence demonstrates that salting was the preferred method of preserving not only the fish, but also the cow and deer meat in an area subject to fluctuating abundance and famine. The records indicate that salted beef was almost the only form that cow meat was available. Fish was also salted for preservation through winter months. Deer was consumed fresh if available, but surpluses were salted for later use. It is unclear how birds were consumed.

The cow and deer bone, when present in complete pieces, were uniformly about 9-13 cm long. This is an appropriate size for either boiling or salting.

CONCLUSIONS

The faunal remains by themselves cannot be viewed as truly representative of the total diet at the hospital. It represents only discard episodes. Disposal in discrete clusters suggest that the bone is representive of perhaps four food preparation events of cow, deer and wild birds. Having been deboned elsewhere, fish might not leave remains and therefore not be represented in the assemblage. If so, the deposit could indicate special meals at weekly or monthly intervals as suggested by Khlebnikov, Golovin, Federova, Tikhmenev, and Blaschke. Even then, it is obvious that domestic beef was a less than major portion of the diet.

Gibson (1978:373) demonstrates that both yaman and fresh vegetables were plentiful in the period between 1858 and 1863 (see figure 4.2). The artifacts appear to date the pit to ca. 1860. Since food was relatively plentiful at that time, it seems that low socioeconomic status accounted for both the low percentage of domestic meat and the poor cuts of all meat. The dietary picture is certainly obscured by the tendency to feed soups and broths to ill people of whatever status. The fact that they were using such generally undesirable body parts as deer skulls, and the presence, albeit minimum, of starvation foods such as raptors, scavangers and carnivores, might strengthen the argument that the archeozoological remains indicate low socioeconomic status rather than overall availability of supplies in Sitka.

It is interesting to note that in the Spanish colony of St. Augustine, for instance, Reitz and Scarry found faunal assemblages that suggested starvation was more perceived than real, and that the high ranking officials maintained a more traditional diet than the lower ranking people.

> In the well-documented sites of the eighteenth-century occupation of the town, it was demonstrated that persons of recognized rank, privilege, and wealth were able to maintain a diet more closely conforming to the preferred Iberian foodways.

> Those households without a high rank or income were unable to maintain a traditional Iberian diet and did not do so. They did, however, complain frequently and vocally that they were "starving," in spite of the archaeologically verified presence of a nutritious and utilized food source (1985:ix).

The presence of the deer bone, especially the two skulls with pedicles indicating shed antlers, combined with the lack of fish bone suggesting consumption of dried or salted fish, provides good evidence that the lower portion of the deposit was formed during the winter. Consider also Gibson's assertion that "even wild mutton was given to the workers only three or four times during the year (mainly during Easter)" (1976:215), Golovin's statement that "Sick persons very rarely get wild mutton or other fresh meat," (1979:66), and Blaschke's comment that "Deer . . . and marine birds for the greater part of the winter are sold so rarely that they are insufficient for the supper of the Chief Factor" (1981:178). Historic documents suggest that food was not as readily available in the winter as in the summer. However, the low ranking hospital patients rated at the very least a meal of beef, one of game birds and two of venison in addition to a presumed if unknown number of meals of filleted fish. If indeed conditions as a whole were poorer in the winter, and the patients in the hospital tended to receive poorer types of food, then it appears that Sitka as a whole was not suffering unduly the winter that the trash pit was formed.

CHAPTER 8

RESEARCH SYNTHESIS

by

Catherine Holder Blee

RESEARCH SYNOPSIS

Six questions were posed in the research design for the excavation of the trash pit (Blee 1983b). The first three dealt with what the feature was, how the deposit was formed and when it occurred. The last three were concerned with the daily life on the mid-nineteenth century Euramerican frontier, how they dealt with limited or irregular supplies, frontier law and contact with another culture. Each question was addressed by posing alternative hypotheses that could be tested by the anticipated data. Propositions designed to reject a hypothesis were postulated, and assumptions suggested by historic documentation were stated.

Each question will be evaluated in light of the recovered data as described in the previous sections. In the discussions that follow, the word "Euramerican" refers to both Russians and Americans.

PARTICULARISTIC QUESTIONS

QUESTION A: What is the function of Feature 12?

Hypothesis (1): The feature represents the subterranean portion of an outbuilding such as a cold storage cellar, spring house, wood shed, bania or privy.

Proposition (1): Complete excavation will reveal the feature's structural components. It may have a wood floor, shelves, door window, stove support, spring, or deep pit, depending on its individual function.

Hypothesis (2): Feature is a pit dug into the ground to contain trash.

Proposition (2-1): There will be a consistant lack of structural components. Wood will not be found lining the sides of the pit; no evidence of doors or windows will be discovered in the distribution of artifacts on the outside margin of the pit.

Proposition (2-2): The artifact assemblage will indicate a trash origin. Vessels will be largely incomplete (e.g., teacup handles but no teacup); bones will bear carnivore tooth marks; artifacts will be largely unuseable at the time they were deposited (worn shoes, shattered bottles, broken tools); the bone frequency will be relatively high.

Discussion of Question A: Hypothesis (2) is rejected in favor of Hypothesis (1) by the evidence. It is readily apparent that the pit did contain trash. Proposition (2-2) is confirmed, as all the statements describing a likely trash depoit are substantiated by the data. However, the pit was not originally dug just for the purpose of holding trash. Structural components, particularly wood lined sides, a wooden floor, and postholes in the northeast and northwest corners confirm that it originally was a small outbuilding of some kind. Unfortunately, the structure is so general in conformation that its precise, original function cannot be determined. A discussion of the historic literature and comparable archeological investigations shows that it probably was not a bania. Based more on a lack of data than anything else, it is proposed that Feature 12 was originally an ice-house.

ANSWER A: What was the function of the feature? It was a semi-subterranean outbuilding, possibly an ice-house. The superstructure was later dismantled and the remaining wood-lined pit used as a trash pit.

QUSTION B: What is the nature and origin of the deposit inside the feature?

Assumption: The feature is a portion of a structure, not just a trash pit.

Hypothesis (1): The artifacts found in the feature originated in the feature itself, and were not brought from some other location.

Proposition (1-1): "There is a positive correlation between the function of the feature and the function of the artifacts." This statement cannot be confirmed. Artifact function suggests a combination domestic and medical use. Furthermore, we have established that the contents of the pit was trash and not related to the functioning of the original structure by the high proportion of bone, incomplete artifacts broken before deposit, and the general unuseability of the artifacts upon disposal.

Proposition (2-1): "Reconstructed artifacts will be complete and usable." They were broken only after the structure was abandoned. Once again, the statement cannot be confirmed. Reconstructed artifacts occasionally were complete, but most were incomplete and unuseable. Most were broken before they arrived at the pit, except for the sturdier liquor bottles, crocks, and mineral water bottles, which appear to have been crushed after disposal.

Proposition (1-3): "There is no significant difference between the date of artifacts in the soils surrounding the feature and the date of artifacts in the feature." It is difficult to confirm or reject this statement, as there were practically no artifacts found outside the pit. This is partly due to the fact that jacks placed under the Old School building seriously hampered the amount of excavation that could take place around the pit.

Since two of the propositions supporting Hypothesis (1) are rejected, the hypothesis as a whole is also rejected.

Hypothesis (2): The artifacts found in the feature originated outside of the feature and were deposited after the feature was abandoned.

Proposition (2-1): There is little or no correlation between feature function and artifact function." This is true: artifact function implies a combined domestic and medical use. It is unlikely that the sazhen square pit could have been a hospital doctor's office or residence.

Proposition (2-2): "Fragmented artifacts may not be complete since portions could be lost elsewhere between the time they were broken and when they were deposited in the feature." This is true: most artifacts were incomplete when reconstructed. There are, of course, some notable exceptions, especially the globular medical flask, but for the most part, only the sturdier crocks, liquor bottles and mineral water bottles were found to be mostly complete.

Proposition (2-3): "There may be a significantly greater amount of artifacts represented than could have been conveniently used or stored in the feature." While it is difficult to enumerate precisely how many artifacts could have been stored inside the small outbuilding, intuition suggests there are more items in the pit than could have been logically stored there. The presence of the bones certainly implies that most of the material was coming from a different location. This proposition can neither be confirmed or rejected.

Proposition (2-4): "There is a significant difference between the date of artifacts in the soils surround the feature (i.e., deposited during the use of the feature), and the date of artifacts within the deposit." Once again, this statement can be neither confirmed nor denied. There were practically no artifacts outside the pit.

ANSWER (B): What is the nature and origin of the deposit inside the feature? Hypothesis (1) is rejected in favor of Hypothesis (2): The artifacts found in the feature originated as trash outside the feature and were deposited there after the feature was abandoned.

QUESTION C: What is the time of deposit?

Hypothesis (1): The deposit was formed by the seminarians being taught by the Russian Orthodox Church.

Proposition (1-1): "No artifact will date after 1858." This is not true. The earliest manufacturing date of the youngest artifact in the pit is 1860.

Proposition (1-2): "Artifacts associated with the teaching of religion will be present in the deposit." No artifacts were found which could be associated with the teaching of religion. Five slate fragments were recovered, but their use could include other things than teaching.

Hypothesis (1) is therefore rejected. The deposit was not formed by the seminarians.

Hypothesis (2): The deposit was formed by the occupants of the Russian Hospital.

Proposition (2-1): "No artifact which was made after 1867 will be present; however, those dating between 1858 and 1867 exist." This is true. The earliest date of manufacture of the youngest artifact in the pit is 1860. All artifacts that could be dated could have been manufactured within this time span. The mean ceramic date is 1842, and the mean bottle date is 1864.4 (figures 2.50 and 2.125). Adams and Gaw (1977) showed that, in the late nineteenth century, there is about a 20-year time lag between manufacture and deposition of ceramics, and that bottles tended to be deposited within a short time of manufacture. If this is also true for the mid-nineteenth century in Sitka, then the mean deposition date for the ceramics is about 1862, very close to that of the bottles.

Proposition (2-2): "There will be a significant amount of artifacts which could be used in a hospital." This is true. Of the Non-Structural assemblage, 13.4% were identified as having been used in a Medical context, compared to 5.9% on other nineteenth century deposits around the Russian Bishop's House. In addition, 34.5% of the Non-Structural Assemblage were Beverage containers, compared to 24.8% elsewhere. It has already been shown that alcohol was used extensively as a medicine. The Beverage and Medical artifacts tend to occur in the same locations in the pit, suggesting a similar use. Combined, these two classes comprise 47.9% or almost half of the Non-Structural artifacts.

Hypothesis (3): The deposit was formed by the occupants of the U.S. Army hospital.

Proposition (3-1): "Artifacts dating before 1877 will be present but none which were made after that date exist." This is true, as shown above.

Proposition (3-2): "There will be a significant amount of artifacts which could be used in a hospital." This is also true, as shown above.

Since neither Hypotheses (2) or (3) are rejected, another proposition which would support one but not the other hypothesis must be posed. The presence of Russian artifacts would confirm a Russian presence; the presence of U.S. Army issued bottles or ceramics, used widely and almost ubiquitously by the military at the time, would confirm a U.S. presence.

Proposition (2-3): "There will be artifacts that can be associated with the Russians." This is true. Cyrillic marks on three mineral water bottles and a teacup base, and a 1/2-kopek coin are definite Russian items. In addition, the marked ceramics are all of English manufacture, not American; the Hudson's Bay Company, an English supplier, was the major source of manufactured goods for the Russian-American Company throughout most of mid-nineteenth century. A number of copper items (two rather crudely made lids, a sheet of roofing, and several nails) correlate with the presence of a copper foundary in Sitka during the Russian period. Finally, the red earthenware jars and the stone mortars and pestles do not have a counterpart on any American or British nineteenth century site.

Proposition (3-3): "Artifacts issued for or by the U.S. Army will be present." This is not true of the data. No American ceramics are present; American bottles are present, but not with an Army mark, which was common on supplies issued to the military in the nineteenth century. No Army military buttons were found in the trash pit levels. No bottles were found to be marked "USA HOSP DEPT" or "USA MEDICAL DEPT", which are ubiquitous on other U.S. Army hospital sites. In fact, nothing that could be associated with the U.S. Army or military before 1877 was found in the pit.

Based on these tests, then, Hypothesis (3) is rejected. The deposit was not formed by the occupants of the U.S. Army hospital.

Hypothesis (4): The deposit was formed by the Presbyterian Missionaries at the Sitka Industrial School.

Proposition (4-1): "Artifacts dating before 1882 will be present, but none which were made after that date will exist." This is true. However, the preponderance of artifacts were made before the 1860s. The very low frequency of thick, greyish ironstone, brown bottle glass, decalcomania decorated ceramics, and pressed glass, all characteristic of the late 1870s and 1880s, weaken this proposition.

Proposition (4-2): "Artifacts whose function correlates with known activities in the Sitka Indistrial School will be present." This is true to an extent. The Presbyterian missionaries taught their boarding students "carpentry, blacksmithing, shoe-making, painting, papering, furniture-making, undertaking, curing fish, and useful industries" (Sitka Tribune, February 2, 1889). There are a large number of leather scraps, shoe heels, and fragments of ferrous strapping material. However, it should be noted that most of the shoes appear to have been made for adults, not children, and the Sitka Industrial School made shoes only for the use of the students (The Alaskan, January 16, 1897:4; Austin 1892:244). The strapping material is found distributed with two large barrel hoops, and are probably related to such a function rather than blacksmithing. Nail frequencies, associated with carpentry, are not inordinately high (8.0% of all artifacts in the feature compared to 6.3% in other nineteenth century deposits).

Moreover, for the reasons shown in Proposition (2-3), the assemblage has a decidedly Russian flavor. While it is possible that the Presbyterians could have been using "hand-me-downs", it is unlikely that these would be present in the building twenty years after the Russians left, and after two years of use by the U.S. Army. This tends to refute the proposition.

A fifth hypothesis was proposed by Musitelli (page 70) during artifact analysis.

<u>Hypothesis (5)</u>: The trash pit was used by the occupants of the Russian Bishop's House.

<u>Proposition (5-1)</u>: "Artifacts will date any time after 1842, when the Russian Bishop's House was built." This is true, as shown above.

<u>Proposition (5-2)</u>: "Artifacts will be associated with the practice of religion and education, in addition to ordinary domestic practices." This cannot be shown to be true. While most of the artifacts are reflective of generalized household activities, very few could be shown to have a religious or educational function. Only the three glass "jewels" could be part of the elaborate Russian Orthodox Church iconography. Only the few fragments of slate suggest educational activities.

<u>Proposition (5-3)</u>: "The spatial distribution of artifacts in and around the pit will show they were deposited from the west." This is not demonstrated by the data. Discussions of the spatial distribution of artifacts in the pit show that the depositor was standing to the north or east when emptying his or her receptacle. Furthermore, the detailed discussion of nineteenth century artifact distribution in the Russian Bishop's House report (Blee 1985:103-108) shows that artifacts were densest to the northeast of the pit. Nineteenth century deposits in a test unit 3 meters to the northeast had a non-structural artifact density of 172 artifacts per square meter, compared to a density of 12 in a unit nine meters north, 39 at four meters northwest, 40 at one-half meter southwest, 47 at 10 meters southwest, and 9 at seven meters south.

Finally, both an inventory map made by the U.S. Army before the Russians left Sitka, and a photograph taken in 1867 show a fence between the Bishop's House and Feature 12 (figures 1.7, 1.8, and 1.10). In the photograph, this fence appears old and worn, not newly constructed. Furthermore, it jogs around the pit, suggesting that the fence was built before the original superstructure was dismantled: i.e., before it was used as a trash pit. For these reasons, neither Proposition 5-3 nor Hypothesis 5 can be confirmed.

A sixth possibility was suggested during the artifact analysis:

<u>Hypothesis (6)</u>: "The artifacts were deposited as a result of clean-up activities by the U.S. Army upon acquisition of the building." It has already been demonstrated that the artifacts could have been deposited in 1867, when the transfer occurred. Furthermore, the medical function of the assemblage is amply demonstrated. What would distinguish clean-up activities would be the presence of structural artifacts resulting from repairs to the structure and evidence of massive, single event deposition.

<u>Proposition (6-1)</u>: "Relatively high frequencies of nails and window glass indicate structural repairs." It is shown in the discussion of the history of the hospital that the Army conducted structural repairs upon acquisiton. As shown earlier, the nail frequency in the trash pit is only slightly greater than that for comparable nineteenth century deposits at the Russian Bishop's House. Overall Structural frequency, however, is much lower, at 16.4% of the total artifacts compared to 41.6% in other nineteenth century deposits. This tends to refute the proposition.

<u>Proposition (6-2)</u>: "Clustering of like types of artifacts in different parts of the pit indicate deposition in batches from shelves or storerooms." It was shown in the discussion of spatial distribution that the artifacts were deposited in a homogeneous manner resulting from the day-to-day accumulation of household and medical trash. Clustering that does occur is a result of form rather than function: round bottles roll

into lower corners when tossed onto a pile of debris. The presence of bone piles on the bottom of the pit, mixed with artifacts substantiates supposition that the trash is the result of daily activities rather than deliberate clean-up. The proposition (6-2) is rejected.

ANSWER TO QUESTION C: What is the time and origin of the deposit in the trash pit? The following hypotheses were rejected by the data: (1) the seminary from 1845 to 1858; (3) the U.S. Army from 1867 to 1877; (4) the Presbyterian Mission/Sitka Industrial School from 1880 to 1882; (5) the Russian Bishop's House from 1843 to 1896; and (6) clean-up upon acquisition of the hospital by the Army in 1867. The only hypothesis that withstood testing by the data is (2) the occupants of the Russian Hospital from 1858 to 1867.

LIFE IN SITKA IN 1860

The remaining three research questions deal with life in general for the inhabitants of Sitka in the middle nineteenth century. An assumption, not specifically stated in the Research Design, became apparent during analysis: the artifact assemblage in the trash pit is representative of conditions in general in Sitka. This assumption is crucial to the applicability of the questions to general conditions in Sitka. On the basis of the faunal analysis, it is possible that the assumption could be questioned. However, some limited generalizations about economic conditions in Sitka can be made from the assemblage in the trash pit. This is because it appears that the pit took weeks to accumulate. As shown in the discussion of the historic documentation relating to faunal remains (page 334), yaman meat, birds, and beef were served only on special occasions at the hospital. Distribution of the faunal remains suggest the preparation of three or four meals. The artifacts mixed in and above the bone piles suggest more than four days of accumulation. It is likely that accumulation of material took, at the very least, three to four weeks to accumulate. The presence of deer, available in the winter, migratory birds, available in the spring, and Rubus seeds, which ripen in mid-summer suggest a somewhat longer period, perhaps three to six months. This seems more in keeping with the type of artifacts being deposited. Forty-two liquor bottles, three teapots, 17 shop rounds, two stone mortars, two stone pestles, twelve mineral water bottles, five glass carboys, and 17 redware jars were probably not broken in a matter of a few days.

For instance, if liquor was being used medicinally, which seems likely, and eight doses of "medicine" were available from a single bottle, 336 doses were represented by the 42 bottles. While the building was capable of handling as many as 40 patients, Brooke (1875:481) estimated that there were an average of six patients in the hospital at any one time. In view of the fact that a Russian workman's wages were withdrawn while in the hospital, it is unlikely that the average Russian occupancy was much higher. At one dose a day, six patients would take 56 days to consume 42 bottles of liquor. While I realize a lot of assumptions have been made, this little exercise demonstrates that the artifacts and bone in the pit could have accumulated over a period of several weeks rather than a few days. The length of time to accumulate generalizes the nature of the data. Skewing by unique or idiosyncratic events is thus ameliorated.

The other fact that speaks to the general representativeness of the assemblage in matters pertaining to subsistence and regularity of supplies is the socioeconomic status of the occupants. The hospital treated only the lower status workmen, not the officers or officials of the company. Higher economic groups were the most buffered from the effects of irregular supply; if only one beefsteak was available to the settlement, it most assuredly was on the table of the Chief Manager. The lower economic groups would be expected to be most sensitive to fluctuations in availability of supplies. As shown in the discussions on pages 334-335, the hospital received deer, beef and birds only when sufficient amounts were available for distribution to all others but the communal kitchen; conversely, fish was issued to the hospital before all others. If the availability of supplies to the hospital was good, it can be assumed that the condition of the settlement as a whole was good.

QUESTION D: How did the distance from food and supply centers affect daily life in Sitka in the nineteenth century? This question makes a number of assumptions which were verified by historical documents or strongly supported by the archeological data.

Assumption (1): "Euramericans prefer domesticated to "native" foods." The discussion of historical records concerning food preference on pages 400-401 amply shows the validity of this assumption. The Russians believed themselves to be starving despite the abundance of locally available foods.

Assumption (2): "Farming and ranching were not practiced in the Sitka Area." The historic data supporting this assumption is discussed on pages 316-321.

Assumption (3): "Domestic foods were available only by shipping from distribution centers to the south." The historic data supporting this assumption is discussed on pages 316-321.

Assumption (4): "Euramericans desire matching dish sets when they are obtainable." A sense of symmetry or order is characteristic of most European cultures, including the United States, with its largely European heritage. To my knowledge, this desire has not been extemsove;u tested on archeological sites, but there is no data available to cast the assumption into doubt. Gaw (1975) shows that an effort was made to match dish sets as much as possible in Silcott, Washington in the late nineteenth and early twentieth centuries.

Assumption (5): "Euramericans prefer to use objects for their original, intended purpose." Once again this assumption has not been explicitly tested, but originates in the emic knowledge of the society of observer, in this case, the principle investigator. It is acknowledged that many people pride themselves on their ability to "make do" with things on hand, and that twentieth century Americans, at least those who have experienced the Great Depression, often reuse items long after their original purpose has been served. However, the tendency to reuse items is a mark of depressed economic conditions. The ability to throw something away after it has served its use is the mark of prosperity. Only items intended for repeated use, such as dishes, would be exempt from this generalization.

Hypothesis (1): "Supplies were regular and plentiful to Sitka by 1860." This hypothesis and its supporting propositions were phrased differently in the research design, suggesting irregular supplies in Sitka. However, in order to adequately test the concept, it is scientifically preferable to test the converse: supplies were regular.

Proposition (1-1): "A high ratio of domesticated to wild meats will indicate regularity of commercial supplies." The bone was distributed in four piles representing four meal preparation events. Of the four concentrations, only one was of domesticated beef. Of the meals represented by bones, three-fourths were of native foods. In addition, fragments of echinoderms and mussel shells were also present. Finally, it is presumed, from the historic record, that fish constituted the major proportion of the diet. From that evidence, it is readily apparent that domesticated meat was only a minor portion of the food fed to the hospital patients. The proposition is not confirmed.

Proposition (1-2): "The presence of ceramics with matching colors and patterns will indicate that it was always possible to replace broken dishes with items having the same decoration." As shown in figure 2.34, a minimum of 29 ceramic vessels of 13 different patterns were recovered. Of the 13 patterns, only seven were of colored transfer prints. Four basic colors were represented: blue, purple, red and green. Blue, purple and green vessels are represented by three different patterns each; only the red is found in only one pattern, and it is a single vessel.

The variety in color and decorative pattern is evident. In addition, it struck the principle investigator as unusual that at least two patterns, the "Tiber" pattern and an unnamed one, are found in two and three colors, respectively. It is presumed that a single supplier, probably the Hudson's Bay Company, provided ceramics in a limited number of patterns, but of a variety of colors to appeal to different preferences. There is no preference of color or pattern, although there are almost twice as many blue vessels as any other color. When replacement was required, it appears that neither color nor pattern was the preferred criteria for selection. The purchaser was obviously seriously constrained by availability, and perhaps, economics.

The proposition is rejected, as there is no patterning in selection of color or decorative design.

Proposition (1-3): "Artifacts tend to date around the period of deposition, suggesting reuse was not practiced." Figure 2.124 shows the dates of the bottles and ceramics. The only additional dated item was the half kopek coin made in 1845. This and a serving dish with the Blue Rose pattern, which was manufactured between 1825 and 1833, are the only items which substantially precede the mean deposition date of 1864. All other artifacts could have been manufactured in the late 1850s or early 1860s. The mean ceramic date precedes the mean bottle date by about 20 years, but this appears to be a normal time lag as suggested by Adams and Gaw (1977). Thus the proposition is confirmed.

Proposition (1-4): "All classes of artifacts are consistant with the known source of the artifacts indicating reuse of items for other functions was not necessary." All classes of artifacts can be logically explained by the use of them in the hospital in the early 1860s. The proposition is confirmed.

It is recognized, in fact probable, that the low socioeconomic status of the patients in the hospital could account for the rejection of some of the hypotheses above. In order to test for socioeconomic status, the following propositions are postulated.

Proposition (1-5): "The presence of generally more expensive cuts of meat indicates that socioeconomic status was high and supply was regular." No expensive cuts of meat were recovered. The proposition is rejected.

Proposition (1-6): "A middle or high economic index of ceramics (Miller 1980) indicates middle or high economic status." The bowls, plates, and teacups and saucers were scaled economically (figure 8.1). In this exercise, the sale price of decorated ceramics were compared to the cheapest available ware, usually a common, undecorated whiteware, which was assigned a value of 1.00. The highest priced ware on the list had a value of 6.00 (Miller 1980). In the Sitka hospital trash pit, an economic index of 3.07 was obtained, based on Miller's scaling for 1855. While we have no comparable data from other, similar dated sites for the same time period, it is suspected that this is not a low index.

Figure 8.1: Economic Scaling of Bowls, Plates, Teacups and Tea Saucers

Vessel Type	Ware Type	Decoration	Number	CC Index	Product
bowl	whiteware	undecorated	1	1.00	1.00
plate	whiteware	Blue Willow	1	1.60	1.60
plate	whiteware	shell edged	1	1.20	1.20
plate	ironstone	molded edge	3	1.60	4.80
saucer	porcelain	transfer printed	1	3.00	3.00
saucer	whiteware	transfer printed	5	4.00	20.00
serving dish	whiteware	transfer printed	2	1.60	3.20
teacup	porcelain	over glaze gilded	1	4.00	4.00
teacup	porcelain	undecorated	1	5.83	5.83
teacup	porcelain	transfer printed	1	3.00	3.00
teacup	whiteware	transfer printed	4	4.20	16.80
			21		64.43

CC index = 3.07

This middle to high index can, perhaps, be attributed to the fact that the physician and his family were living at the hospital. Musitelli notes that a woman's shoe, beads, children's toys and a number of other personal items were found in the deposit. The physician was one of the highest ranking officials in the Company. Perhaps the physician and his family were responsible for the majority of ceramics in the deposit. If so, the patients were probably fed from wooden bowls, which, being sturdy and decomposable, might not have survived the 120 years since they were deposited.

An alternative explanation is that the Russian-American Company donated to the hospital whatever odd items were available or left over from company stores after distribution to other officials. If this was the case, economic scaling would be of little value in determining the interrelationship of status and availability of goods.

The proposition (1-5) is not substantiated by the faunal data, and is ambivalent when considered with the historical data and economic indexing of the ceramics. It is obvious that I was not entirely successful in eliminating the effects of socioeconomic status on this test. The low ranking patients, high ranking physician, and corporate ownership of the company hospital made evaluation of this hypothesis very difficult.

Hypothesis (2): The supply of food and sundries were irregular in Sitka by 1860. This is the alternative hypothesis.

ANSWER TO QUESTION D: How did the distance from food and supply centers affect daily life in Sitka in the nineteenth century? Testing of the propostions tend to reject Hypothesis (1) in favor of the alternative hypothesis. The providing of supplies appears to have been irregular, to the occupants of the hospital. In view of the archeological and historical evidence concerning the mixed low (patients) and high (doctor) socioeconomic status of the people contributing to the trash pit, it is not appropriate to accept this assumption; therefore, it is not possible to answer this question. It is evident that, whether due to irregular supplies or to low socioeconomic status, the occupants of the hospital suffered periodic deprivation, and life was not always comfortable for them. One can assume, perhaps, that had supplies been inexpensive and abundant, the patients would have eaten more meat than was evident in this one part.

<u>QUESTION E: How stringently were laws regarding the sale of alcohol enforced on the Russian/American frontier?</u> Both the Russian and American officials attempted repeatedly to control the use of alcoholic beverages in Sitka, especially to the Tlingits, believing them to be ill-equipped to handle the effects. The Russian-American Company rigidly controlled distribution of vodka, rum, "spirits", and wine by issuing about a glass a day to employees and by using additional allotments as reward for hard work. Both types of prohibition were no doubt prompted by the desire of those in control to maintain power by limiting the quantity of a desired substance.

<u>Hypothesis (1)</u>: "The prohibition against the sale of alcohol in Russian America did not result in the abstinence from consumption." The propositions supporting this hypothesis presume that the use of alcohol was morally condoned by the Russian Orthodox Church, but not by the Presbyterian Missionaries. It also assumes that alcohol can be used medically as well as recreationally or religiously. The question being posed says nothing about the function of alcohol in Sitka society.

<u>Proposition (1-1)</u>: The presence of liquor bottles in the deposit demonstrates that alcohol was consumed. This is quite obviously confirmed: 42 bottles is no small amount. It further suggests that consumption was not a minor social activity engaged in by the doctor, who was of a higher class, and therefore less restricted in his access to alcohol. Alcohol was being consumed, despite regulations, for some significant purpose.

<u>Proposition (1-2)</u>: "A positive correlation between the function of other artifacts, date of deposit and the presence of liquor bottles indicates that bottles held liquor immediately prior to deposition (i.e., they were not reused)." The correlation is confirmed. The deposit was

formed about 1860 when the hospital was in existence, spatial distribution indicates they originated at the hospital, and alcohol has medicinal value. In the discussion of the liquor bottles, Mustelli (page 78) demonstrates this value. Furthermore, Medical artifacts and liquor bottles were found distributed together, suggesting simultaneous deposition. The bottles held liquor before being thrown away, and were not reused. The alcohol was used medicinally.

Hypothesis (2): "The prohibition against the sale of alcohol in Russian America resulted in the abstinence from consumption." This is the alternate hypothesis. Since Hypothesis (1) cannot be rejected, this cannot be confirmed.

ANSWER TO QUESTION E: How stringently were laws regarding the sale of alcohol enforced on the Russian frontier? As shown by the archeological data, exceptions to the rule of limited, controlled sale of alcohol were permitted. In the case of the hospital trash pit, it is obvious that the alcohol was used medicinally, and that such use was permitted. This type of research question obviously needs further testing on other types of sites, such as the trash pit of the Chief Manager, the communal kitchen, the officers' quarters and, especially a Tlingit trash pit, in order to establish the efficacy of prohibition laws.

QUESTION F: How much did daily contact with the Tlingit population affect the Euramericans in Sitka? The consequences of culture contact is an issue of perennial concern to anthropologists and archeologists. Ordinarily, when Euramerican cultures contacted Native American groups, the end result was modification and change of aspects of the Native culture by the European one. The rate of transformation took a shorter or longer period of time depending on the economic motives, political organization, demography and other cultural variables of each group. The Tlingits of the Sitka area managed to maintain a separate existance for most of the Russian period, although the type or degree of acculturation that had occurred has not been studied. The Russians maintained a fortified stockade between New Archangel and the Tlingit village, and allowed the Native peoples into the town only in the daytime and under guard, although Russian men were allowed into the Tlingit village at most hours. This suggests that mutual cooperation and the degree of cultural integration were limited.

It is assumed that not only the non-European culture was affected materially by such contact. It is, of course, recognized that the spread of venereal diseases affected both cultures, and that this wrought institutional change. However, it is hypothesized that the Russian culture was to some degree influenced by the Tlingits outside of sexual relations, if only by the Russian dependence on game and wild foods, not to mention the much valued furs. This research question seeks to determine whether there was any evidence of Tlingit influence on the Russians at the hospital.

Hypothesis (1): Culture contact between native Tlingits and Russians resulted in little change for the Russians.

Proposition (1-1): "A low percentage of Tlingit materials in the deposit indicates little effect on Euramerican culture." The only artifacts that were probably made by Tlingits were ten piences of basketry. All display weaves that were known to be used by these people. However, it should be noted that three of the four meals represented by the bones are of wild animal species, which historic documents indicate were procured almost entirely by the Tlingits (see discussion on pages 324-327). This indicates an important, indeed significant, effect on a basic facet of Russian life in Sitka; it made the difference between perceived want and real want. The proposition is rejected.

Proposition (1-2): A positive correlation between Native materials and "forbidden" items such as liquor and tobacco indicates that confiscation occurred, suggesting low Euramerican tolerance for Tlingit culture. There is indeed a high correlation between the two types of evidence; however, previous tests have demonstrated that the liquor bottles were not the result of confiscation, but were used medicinally. Because the stated condition of the proposition is not met, the test is not valid.

Hypothesis (2): Culture contact between Tlingits and Russians resulted in change for the Russians. This is the alternate hypothesis. As proposition (1-1) is rejected, and proposition (1-2) is not valid, Hypothesis (1) is rejected in favor of the alternate hypothesis.

ANSWER TO QUESTION F: How much did daily contact with the Tlingit population affect the Russians in Sitka? As shown in the tests, it is apparent that the Russians remained dependent on their neighbors in the 1860s for much of their food. This is substantiated by the historic literature.

> Whenever the Kolosh are in any way unhappy with the Russians, or when they are quarreling among themselves, or when they celebrate their holidays, they stop bringing in supplies to the market, and New Arkhangel suffers accordingly. There is no need to explain how desirable it is for the Company to liberate itself from this dependence. The only way this can be achieved is through an effort to raise livestock, to train its own hunters so they can eventually supply wild sheep and other game, to increase the number of gardens, and even to force the Aleuts to plant communal gardens. If we have a constant sufficient supply of good salted meat and pickled cabbage, the Kolosh will realize that we can get along without them. Meanwhile, we must establish closer ties with the Kolosh, teach them how to work, and instill certain needs in them of which they presently have no comprehension (Golovin 1979:38-39).

This concern echoed an earlier one expressed by a government inspector in 1860, who stated the complete dependence on the Tlingits more explicity.

> Although in the company's current charter, as well as in the one being re-drafted, these natives are considered to be completely dependent on the colonial authorities and to be residing in the colonial territory, I for my part would deem them more correctly to be completely independent. In no respect can the Kolosh be considered dependent on the

> company; rather, it can be said that the company's very settlements on the American coast depend on them. The latter have only to make a noise, as is said there, and the port of New Archangel and its entire population is deprived of all fresh food and even of the opportunity of showing themselves a few yards outside the palisade (quoted in Gibson 1978:375 from a Russian test).

As can be seen in the preceding excerpts, the Russians readily admitted of their dependence on the Tlingit for food and sought, albeit unsuccessfully, to instill a sort of ideological dependence on the Russians in return. I believe that the ability of the Tlingits to track deer and game insured that they were never totally subjugated by the Russians. It was only after the gold rushes in Juneau and the Klondike that supply ships became frequent and reliable in Southeast Alaska. Only then did Euramericans become independent of the Tlingit, and were able to push an advantage in technology to accomplish cultural integration. It was not until that time that the slow acculturation of Tlingits begun in 1799 by Alexandre Baranov was finally culminated.

This is not a new idea with this particular set of archeological data. As shown above, the historic literature suggests such was the case. Professor James R. Gibson, in an article entitled "European Dependence Upon American Natives: The Case of Russian America" (1978) convincingly develops the case from documentary evidence. The relatively high frequency of deer bones in the trash pit only serves as corroborating evidence.

This data stimulates the type of research question that continues to interest archeologists studying historic sites on Euramerican frontiers. The hospital trash pit, as a microcosm of New Archangel society, tells us something about Russian/Tlingit interaction, despite the fact that Tlingits were infrequently treated at the hospital. The question is not definitively answered by a test of this particular data. Like any good research hypothesis, it deserves repeated testing.

CHAPTER 9

SUMMARY

by

Catherine Holder Blee

SUMMARY

THE STRUCTURE

The one sazhen (ca. 2m) square wood-lined pit intruding an average of 60 cm into the original ground surface, was a small outbuilding used by the occupants of the Russian Bishop's House and/or the Russian Seminary, and was likely constructed about 1845. The two most common small semi-subterranean buildings used by the Russians were banias (bath houses) and ice houses. Since the feature lacked a stone hearth, benches, or other evidence of a bania, and sawdust was common in the lower levels, it is proposed that the original use of the structure was as an icehouse.

THE TRASH FILL

The more interesting archeological data came from the trash that filled the below-ground portion of the feature. Over 11,000 artifacts and almost 12 kg of animal bone, as well as decomposed organics, macrofloral remains, shell, charcoal, and limited sand comprised the trash. Analysis of the material yielded showed that it was probably deposited by the occupants of the Russian hospital in 1860.

The Russian Assemblage

The late date of the deposit posed the problem of whether to regard this as a Russian trash pit, or one formed by the first Americans in Sitka. The fact that the Russians depended heavily on European and American suppliers for manufactured goods confused the picture. However, there are a number of attributes of the assemblage which characterize it as Russian, and which might be useful for future investigators working on potential Russian sites.

1) The ceramics are all British. The Russian-American Company contracted with the Hudson's Bay Company to provide manufactured goods from 1829 to 1840. Even after that time, it is likely that ceramic dishes contined to be supplied by the British company.

2) There were a number of hand crafted copper items. New Archangel had a copper foundry for the manufacture of ship's parts, but other itmes, including domestic ones, were made. Eleven cuprous cast nails, a large section of copper roofing material, and two copper lids for kettles or samovars were recovered. The nails, especially, were unlike nails found on British-American sites.

3) There were a limited number of Cyrillic marked artifacts, including three mineral water bottles, a Russian kopek, and a porcelain cup base.

4) The trash pit contained eighteen hard red earthenware crocks and jars that have not been found elsewhere on American sites. The only comparable item is a preserve jar manufactured by a Quebec factory. These items probably came to Sitka by way of the Hudson's Bay Company.

5) Stone mortars and pestles were not approved for the grinding of medicines by 19th century American and British doctors, yet two of each were found in the deposit.

6) Russians were remarkably fond of tea, and were reported "never" to drink plain water. Remains of 23 different tea sets were found in the pit, an unusual quantity when compared to American or even British deposits of the same size and type.

7) The absence of certain types of artifacts reinforces the Russian-ness of the deposit. The U.S. Army used the hospital after 1867. Other army hospital sites have abundant quantities of bottles marked "U.S.A. HOSP DEPT" or "USA MEDICAL DEPT", but none were found in the trash pit. The lack of ubiquitous American artifacts might be considered characteristic of Russian deposits.

8) The shoe leather appears to be poor in quality and well worn. The high frequency of shoes in the pit (38 heels alone were recovered) may be characteristic of the Russian period. Golovin (1979) complained bitterly of the poor quality of shoes received from Russia and how they only lasted a few weeks before they were useless.

9) A heavy reliance on wild foods in the face of long distances from the source of supplies was characteristic of Russian colonies. Later American and British colonies were better supplied with domestic foodstuffs.

While no one factor stands as evidence by itself, as a whole, these nine factors strongly suggest that Russians made the deposit.

Date of Deposit

Based on two methods of dating the deposit, artifacts indicate it was formed within a few years of 1860. The terminous post quem method of dating operates on the principle that a given archeological deposit cannot be any older than the earliest date of manufacture of the youngest artifact. This method is particularly reliable when used on deposits that took relatively short periods to accumulate. A small trash pit, such as this, is an ideal situation in which to use the method.

The terminous post quem for all artifacts is 1860. For most classes that could be dated (beverage containers, food storage containers, medicine bottles, perfume bottles, and shoe leather), the terminous post quem is also 1860. Only the ceramics had a slightly earlier TPQ, at 1857. It has been shown on other archeological sites that, by the middle to late 19th century, ceramics are very durable and tended to be used for much longer periods of time than other types of frequently occurring artifacts. The slightly earlier TPQ only reinforces what appears to be a tight concentration of dates around 1860.

The other method of artifact dating requires the establishment of a mean date of deposit, based on a mathematical calculation that accounts for artifact frequency and date of manufacture. The mean bottle date is 1864; the mean ceramic date is 1842. The combined mean artifact date, which also includes the shoe leather, is 1857. As explained above, ceramics tend to lag somewhat behind bottles in date of deposit compared to date of manufacture. Adams and Gaw (1977) estimate a time lag of 23.54 years between ceramics and bottles. As shown above, the 22 year difference between the two types in the Sitka trash pit is consistent with their findings. Even so, the combined date of 1857 approximates rather well the terminous post quem of 1860. Because of the ceramic lag, the latter date is preferred.

Medical Use

Two buildings were considered candidates for the original source of the trash: the Russian Bishop's House to the west, and the Russian Hospital to the east. Both buildings were being used around 1860.

Of the artifacts that could be enumerated statistically, 13.4% could be definitely assigned a medical function, compared to only 5.9% in other 19th century deposits at the Russian Bishop's House. Furthermore, many of the artifacts would have been useful in a hospital context, including liquor bottles, olive oil bottles, redware jars, glass carboys, cloth as bandages, and sea urchins, which were sometimes used as a medicine. When combined, the medical and possibly medical artifacts amount to almost 50% of the Non-Structural artifacts. Medical artifacts included apothecary bottles, patent medicines, measuring glasses, mineral water bottles, blood letting instruments, mortars, pestles, evaporating dishes, funnels, and tubes. The relatively high fequency of liquor bottles when compared to other Russian deposits of the same time period, in combination with the other medical items, suggests medical rather than recreational or social use.

Another line of evidence suggests the pit was used by the occupants of the hospital rather than the Russian Bishop's House. An 1867 map (figure 1.8) and photograph (figure 1.10) show a fence between the two structures. The fence jogs around the pit location, and may have been constructed when the superstructure was extant. The trash pit was on the east side of the fence. Furthermore, artifacts were much more dense to the northeast of the pit than to the north, west, or south. Finally, an analysis of the spatial distribution of artifacts shows that the depositor was standing to the northeast of the pit when tossing in trash.

Length of Deposition

There are three ways in which trash can accumulate in a pit: all at once as a result of some catastropic event, slowly, as a result of daily accumulation of household wastes; or a combination of the two. Catastropic or special events considered likely were such things as an earthquake (one was recorded in 1866 [Yehle 1974]); distruction of portions of a building (renovations were made to the hospital by the U.S. Army in 1875); an epidemic; or confiscation of illicit materials, especially alcohol. However, a detailed analysis of the spatial and functional distribution of artifacts demonstrated that only one type of item was patterned in its distribution: the animal bone. Four clusters were recorded; one of deer skulls and jaws, one of deer joints and vertebrae, one of wild birds and a fourth of cow bones. These four clusters probably represent four food preparation events for several people at once.

A few artifacts were found mixed with the bone; these tended to be food serving type artifacts. Artifacts tended to cluster only by durability and shape. The sturdier, round bottles tended to be concentrated in areas where the bone was not, suggesting that they were thrown on top of the bone pile(s) and then rolled into lower corners of the pit. Flatter items that could not roll or very fragile ones which were less likely to survive impact with the bone pile, tended to be on the top or along the sides of the pile(s).

The otherwise homogenous distribution of artifacts in the pit suggests regular daily deposition as opposed to a few isolated events. Given the evidence of four meals of animals that historic documents indicate were eaten only on special occasion, I suspect that the pit took between two and six months to be filled. Two deer skulls had pedicles which indicated the antlers had been shed, suggesting winter procurement, and several Russian sources indicate that deer were obtained in the winter, when the animals migrated down out of the mountains. Birds, however, tend to be used in the spring. Finally, the Rubus seeds suggest a late summer deposition. It is therefore suggested that the trash accumulated between January and August.

Socioeconomic Status

If we accept the proposition that the artifacts were deposited by the inhabitants of the hospital around 1860, we are in a good position to evaluate general conditions of life for Russians in the few years before American possession. The Russian documents indicate that the hospital was used to treat only the lower class workmen of the Company; officers and their families were treated in their homes. Evidence of the low socioeconomic class of the patients can be seen in the artifacts. Bone cuts are the types usually boiled, a method designed to maximize nutrition from meat. Shoe leather is very poor in quality and craftmanship, as is the sewing on the cloth. The food storage class of artifacts is relatively low when compared to other deposits from the same time period. Condiments and sauces, the bulk of the class, were probably not fed to the lower class patients. The fact that three of the four meals represented by the animal bone are of wild species further reinforces the low economic status of the patients, as the higher ranking officials were usually issued the more coveted beef first.

The picture is somewhat confused, however, by a relatively high economic indexing of the ceramics. It is possible that many of the ceramics were used instead by the doctor, the patients using less breakable, but more decomposable wooden bowls and cups. In the American period, the doctor and his family lived at the hospital, and since the apartments were available when the U.S. Army arrived, it is possible that the Russian doctor did the same. A woman's presence is suggested by a small, well-made shoe, three perfume bottles, six cosmetic jars, a possible nurser, and many beads. Of course, the perfumes and cosmetics could have been used in the wards to mask odors and treat skin ailments, so their presence is ambiguous. A kopek suggests the presence of the doctor, as coins were extremely limited in the colony; leather or paper script was used by the Company to pay all its employees, and only the higher ranking officials would have had any access to coinage.

The apparently mixed socioeconomic status represented by the trash pit obfucates some of the questions which might arise concerning regularity of supply in Sitka. However, it seems readily apparent that only the ceramics and personal items are associated with the doctor and his family. The faunal remains appear to be associated with the patients, and thus may provide some information about the treatment of lower class workmen in the colony. It does not appear to have been overly generous. Only four meals of meat were provided over a stretch of time lasting from late winter to spring, and a time when yaman were plentiful (figure 4.2). At the same time, 38 liquor bottles, 18 redware jars, 12 mineral water jars, 19 apothecary bottles, two stone mortars, and five large glass carboys were broken. Also, at least 38 shoes were thrown away. The high frequencies of items that require some time to become useless by wear or breaking, argue strongly against the rapid accumulation of trash. All evidence suggests that the trash pit was filled in a few weeks or months rather than a few days. In that case, it is readily apparent that hospital patients did not eat meat often. It is apparent that, to the Russians, social status was of greater importance than the health of the workmen.

Subsistance and Tlingit Autonomy

As shown in Chapter 8, the Tlingits were able to maintain their autonomy as a people throughout the Russian occupation of Southeast Alaska. Over three-quarters of the meals represented by the bones in the trash pit are from locally procured sources. Historic documents show that the Russians did not obtain this food themselves, but relied on the Tlingits to get it for them. The Russians devoted most of their energies to the acquisition of furs and the procurement of domesticated foods and manufactured goods through the fur trade. Their insistence on eating traditional foods--beef, butter, wheat, and cabbage--drove their efforts towards agricultural pursuits in California. This venture failed. They become dependent on their British enemies and their American competitors to supply them with "Russian" foods. Instead of learning to hunt the ubiquitous yaman and wild birds, and harvest the roots and berries of the lush rain forest, they weakened their position in Alaska by selling their furs for food. They let seal and sea otter carcasses rot in the slaughter fields and cried "We are hungry, bring us grain soon" (Gibson 1976:213). They enslaved Aleuts to get furs, and bemoaned their inability to do the same with the Tlingit. As they ate fresh yaman and bread, they complained bitterly of the Tlingit ability to go on strike.

The historic literatures, supported by this archeological evidence, suggests that much of the reason that the Russians failed in Alaska was their unwillingness to adapt to an environment which precluded agriculture and demanded special hunting skills, combined with their distance from the home base of supplies. Their insistence on maintaining a Russian sense of social order may have contributed to their failure. Instead of dealing on an equal basis with an indigenous people equipped with the resources to assure their mutual prosperity, they treated the Tlingits as they did all peoples not of aristocractic rank. The Russians, as they began to expand across Siberia as early as the 15th century, had subjugated every Native group they had encountered. The Russian economic system demanded a tribute to furs and food in return for religious and political support (Wolf 1982:182-184). The Tlingits were treated as if they were subjugated, where in reality, their superior access to food resources ensured that they were able to continue to live outside the fortified walls of New Archangel in relative autonomy from the Russians. Only the better supplied Americans were able to undercut the Tlingit hegemony and culminate the Euramerican acculturation of these proud Northwest people.

CONCLUSIONS

The title of this report can now be brought into focus. Originally meant as a very small joke, the phrase "wine, yaman and stone" has come to stand for the misfired aspirations of the colonial Russians in America as represented by the remains in a trash pit dating to the eve of American occupation. Visiting ships' captains praised the festive hospitality of the Russian governor. They remarked the gay parties flowing with strong spirits, hosted by gracious officers and their wives, where the beautiful people of New Archangel danced in the light of the midnight sun.

But the literate officers who kept daily written records of their travels had little reason to associate with the vast majority of Russians living in Alaska. For these people, the wine was limited to hospital stays, where the food was no better than in the barracks. While there, a man earned no wages, and likely had his few poor clothes and shoes confiscated for fear of spreading his illness. Often his affliction was his reward for seeking comfort in the arms of a Tlingit woman. Had he a wife in Russia or Siberia, she had been left behind. The Company had no economic incentive to provide transportation, housing and Russian supplies for dependents.

The Russian workman needed the Tlingit for more than just sex. Without knowledge of the habits of the Sitka black-tailed deer, or time to spend hunting, the Russian who wanted fresh meat relied heavily on the surpluses left in the market after the Governor, the visiting Europeans, and the company officials had their fill. Even when sick, he ate fish soup. Only in the good years around 1860 was he able to have yaman or game birds in his wooden soup bowl, and then it was probably only on holidays. His poorly made shoes and crudely sewn clothing fared poorly in the perpetual Sitka rain.

What the Russian sang can never be found in archeological excavations. It might have been a ribald imagining of how good life could be, or a melancholy remembrance of a lost home. Instead, we find the cold stone of mortars and pestles that gound medicines by outmoded techniques. His aches and pains were treated with mineralized water from Germany imported in stoneware bottles. His hospital ward, dimmed by the gloom of the perpetual Sitka drizzle or the long winter nights, was lit by flames struck from old, worn-out gunflints. While the Russian bourdon[22] surely existed, all that survives of the working class Russian burden in New Archangel is the stone.

22. A "bourdon" can be defined as the verse repeated in a song (Gove 1971:298) and is an alternate spelling of "burden."

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APPENDIXES

APPENDIX A

DESCRIPTION OF THE HOSPITAL IN 1875

(An Excerpt from Brooke 1875:480-481)

No. 23 is the post hospital. It stands upon the shore of the bay, about 8 feet above the sea level, fronting toward the southeast, and at a distance of 630 yards from the barracks. It is built of square logs, is weather-boarded on the outside, and lined inside either with dressed boards or canvas; the rear of the building is on a level with the ground, while the front is raised about two feet on a rough stone wall. It was erected by the Russians in 1843, and was intended for a hospital with forty beds. The main building is 85 by 41 feet, and 20 feet to the square. The chief entrance is by a double door in the front, which opens into a wide hall, and from this hall an open staircase leads to the second story, while in rear of the staircase is a room which serves as a post-mortem room. The portion of the first floor which is on the east side of the hall is divided into five rooms of reasonable size, and is used as quarters by the medical officer resident at the hospital. On the opposite side of the hall are also five rooms, one 11 by 13-1/2 feet, used as an office; one 13-1/2 by 7-3/4 feet, which is suitable for steward's quarters; a dispenary, 11-3/4 by 13-1/2 feet; a mess room, 20 by 13-1/2 feet; and a kitchen, 20 by 23 feet. The dispensary is fitted up with a counter, shelves, and drawers; in the kitchen a pump connects with a cistern outside, and a sink for washing dishes, &c., connects with a sewer beneath the building.

The height of the lower story is 7 feet 9 inches in the clear.

The staircase opens on the second floor into a wide hall, which extends from the rear halfway across the building; and from the back end of this hall a door opens upon an outside stairway leading to the ground below, and giving access from the second floor to the woodshed, watercloset, &c. At the other end of this hall is a room 12 by 12-1/2 feet, which has frequently been used for Indian patients. The second floor is a trifle over 8 feet high in the clear.

The east end is 40 by 36 feet, has five windows in front, and the same number in the rear, and probably was originally but one room, but is now divided.

The smaller room has no special use; the larger is used as a store room, and contains only open shelves and a closet for liquors and small stores.

The west end of the second floor is divided into a ward, attendants' room, and laboratory.

The ward is an L-shaped room, the long arm extending across the entire end of the building and the short arm running along the front.

The room is lined and ceiled with boards, painted, is lighted by five windows in front, one in the end, and three in the rear, and has an air space of a little over 9,000 cubic feet. The average number of patients in the ward during the year 1872 was six, which, including one attendant, would give an airspace of at least 1,300 feet per man. A brick chimney passes up at the angle of the room, and is enclosed by a wooden casing which opens beneath a board on the roof. Into this casing there are openings from the ward, and, as there is more or less fire kept up almost the year round, the arrangement answers the purpose of a ventilating shaft quite well. The middle upper light of most of the windows is fixed in a separate frame, which frame is hung upon hinges, so that it can be opened or closed at will. In this way plenty of fresh air can be introduced into the ward, and thorough ventilation secured, the only objection being that the fresh air is necessarily admitted cold.

The ward is heated by means of a wood stove. Adjoining the ward, and opening into it, is the attendants' room, 10 by 13-1/2 feet; and adjoining this, but opening directly into the ward, and also into the hall, is the bathroom and lavatory.

It contains a fixed bathtub, wash sink, and water closet, (the latter not being now used,) all of which communicate by means of lead pipes with the sewer beneath the building.

The sewer commences at the rear of the hospital, and opens into the bay just below high water mark.

There are two commodes for use in the hospital, and an ordinary pit, housed over, a few yards behind the building.

At each end of the main hospital building is a wing 11-1/2 by 30 feet, and two stories high, but they are of little real use.

The hospital is rather dilapidated in some of its parts, but it is nevertheless quite comfortable and serviceable. A considerable space is enclosed both in front and in rear of the building; part of this is cultivated, and yields a moderate supply of potatoes, cabbage, radishes, and lettuce.

APPENDIX B: ARTIFACT INVENTORY

APPENDIX B: The following is an alphatized listing of all the artifacts recovered in these excavations. Unless otherwise noted, the counts are of the number of minimum vessels (NMV). A sherd count of glass and ceramic items follows the main inventory.

OBJECT	TYPE	MATERIAL	DESCRIPTION	GROUP	CLASS	FILL	TRASH
bar/rod/cylinder		ferrous		Unclassif.	Unknown	4	11
barrel hoop		ferrous		Activities	Bulk Storage		3
barrel stay	fragments	ferrous		Activities	Bulk Storage		1338
basketry		fibrous		Ambiguous			10
bead		glass		Personal	Ornamentation		302
bolt		ferrous		Structural	Hardware		2
bottle	ale	stoneware	bristol-glazed	Domestic	Beverage	2	
bottle	beer	glass	brown	Domestic	Beverage	7	
bottle	bourbon	glass	brown	Domestic	Beverage	4	
bottle	case	glass	"black"	Activities	Medical		1
bottle	coke	glass	aqua	Domestic	Beverage	1	
bottle	condiment	glass	light green	Domestic	Food Storage		4
bottle	fluted prescription	glass	clear	Activities	Medical		1
bottle	ink	stoneware		Activities	Communication		1
bottle	liquor	glass	brown	Domestic	Beverage		2
bottle	mineral water	stoneware		Activities	Medical		12
bottle	olive oil	glass	olive green	Domestic	Food Storage		1
bottle	olive oil	glass	aqua	Domestic	Food Storage		1
bottle	perfume	glass	milk	Personal	Grooming		1
bottle	perfume	glass	clear	Personal	Grooming		1
bottle	perfume	glass	blue	Personal	Grooming		1
bottle	pharmaceutical	glass	clear	Activities	Medical		1
bottle	pharmaceutical	glass	light green	Activities	Medical		2
bottle	sauce	glass	aqua	Domestic	Food Storage		1
bottle	schnapps	glass	"black"	Domestic	Beverage		1
bottle	shop rounds	glass	clear	Activities	Medical	1	17
bottle	shop rounds	glass	light green	Activities	Medical		2
bottle	soda	glass	clear	Domestic	Beverage	2	
bottle	spirits	glass	"black"	Domestic	Beverage	1	24
bottle	whiskey	glass	clear	Domestic	Beverage	1	
bottle	wine	glass	brown	Domestic	Beverage		1
bottle	wine	glass	olive green	Domestic	Beverage		10
bottle base	free blown	glass	green	Domestic	Beverage		2
bottle base	ground pontil	glass	clear	Activities	Medical		1
bottle base	mustard barrel	glass	clear	Domestic	Food Storage		1
bottle base	patent medicine	glass	aqua	Activities	Medical		2
bottle base	round	glass	aqua	Domestic	Food Storage	4	2
bottle base	square	glass	clear	Domestic	Food Storage		2
bottle base	square	glass	aqua	Domestic	Food Storage	1	
bottle base	union oval	glass	clear	Domestic	Beverage		1
bottle base		glass	"black"	Domestic	Beverage	3	
bottle base		glass	olive green	Domestic	Beverage	2	
bottle finish	auto. double bead	glass	amethyst	Domestic	Food Storage	1	
bottle finish	bead	glass	aqua	Domestic	Food Storage		1
bottle finish	brandy	glass	aqua	Domestic	Food Storage		1
bottle finish	double bead	glass	aqua	Domestic	Food Storage		1
bottle finish	incomplete	glass	green	Domestic	Beverage	1	
bottle finish	jug	glass	clear	Domestic	Beverage	1	1

APPENDIX B: ARTIFACT INVENTORY

OBJECT	TYPE	MATERIAL	DESCRIPTION	GROUP	CLASS	FILL	TRASH
bottle finish	oil	glass	"black"	Domestic	Beverage	2	
bottle finish	packer	glass	aqua	Domestic	Food Storage		1
bottle finish	packer	glass	bright green	Domestic	Food Storage		1
bottle finish	patent	glass	aqua	Activities	Medical	2	
bottle finish	patent	glass	brown	Activities	Medical	1	
bottle finish	prescription	glass	light green	Activities	Medical		1
bottle finish	screw thread	glass	clear	Domestic	Beverage	1	
bowl		porcelain		Domestic	Food Serving		2
bowl		whiteware		Domestic	Food Serving		1
bracelet	child's	copper		Personal	Ornamentation		1
brick		ceramic	red	Structural	Materials		34
brick		ceramic	salmon	Structural	Materials		1
brick	fragments	ceramic	red	Structural	Materials	462	724
brick	fragments	ceramic	yellow	Structural	Materials		1
buckle	galloshes	ferrous		Personal	Clothing	1	
butt hinge		cuprous		Structural	Door/Window		1
button	Naval	cuprous	gilt	Activities	Hunting/War	1	
button	Prosser	porcelain	white	Personal	Clothing		43
button		celluloid		Personal	Clothing	1	
button		copper and ferrous		Personal	Clothing	1	
button		cuprous	gilt	Personal	Clothing		1
button		fabric covered		Personal	Clothing		7
button		whitemetal		Personal	Clothing		1
button		wood		Personal	Clothing		1
can	beer	aluminum		Domestic	Beverage	1	
can	tin type	ferrous		Domestic	Food Storage	1	1
can lid	rectangular meat	ferrous		Domestic	Food Storage	1	
can opener	strip key	ferrous		Domestic	Food Storage	1	
cannon ball	3-lb	ferrous		Activities	Hunting/War		1
carboys		glass	green	Activities	Bulk Storage	2	3
carton		cardboard		Domestic	Food Storage	1	
cartridge	8mm	cuprous		Activities	Hunting/War	1	
cartridge	.30-30	cuprous		Activities	Hunting/War	1	
case bottle	wide-mouthed	glass	green	Activities	Bulk Storage		1
chain link		ferrous		Structural	Hardware	1	
chamber pot lid		whiteware		Personal	Grooming		1
cigarette	butts	tobacco and paper		Activities	Smoking	3	
closure	screw thread cap	ferrous		Domestic	Beverage	1	
closure	corks	cork		Domestic	Beverage		19
cloth (see Figure 2.121 for quantification)				Ambiguous			
clothespin	spring	ferrous		Activities	Housekeeping	1	
coaster		glass	clear, pressed	Domestic	Food Serving	1	
coin	1/2 kopek	cuprous	1845	Personal	Coins		1
coin	penny	cuprous	1917	Personal	Coins	1	
comb		composition		Personal	Grooming		1
comb	decorative	rubber		Personal	Ornamentation	1	
concrete		concrete		Structural	Materials	3	
container	freezer	plastic	white	Domestic	Food Storage	1	
creamer		ironstone		Domestic	Food Serving		1
crock		redware		Activities	Bulk Storage		2
crock		earthenware	Chinese export	Activities	Bulk Storage		1
cupping glass		glass	clear	Activities	Medical		2

APPENDIX B: ARTIFACT INVENTORY

OBJECT	TYPE	MATERIAL	DESCRIPTION	GROUP	CLASS	FILL	TRASH
cutlery handle		wood		Domestic	Food Serving	2	1
cylinder		glass	milk	Ambiguous			2
dish	"petri"	glass	clear	Activities	Medical		1
dish	evaporating	porcelain		Activities	Medical		2
dish	serving	whiteware		Domestic	Food Serving		2
dish cover	serving	ironstone		Domestic	Food Serving	1	
doll	parts	porcelain		Activities	Children		3
door handle		ferrous		Structural	Door/Window		1
door lock		ferrous		Structural	Door/Window	1	
door lock	fragment	ferrous		Structural	Door/Window		1
drill	hard rock	ferrous		Structural	Tools		1
elect. fixture	base	ferrous		Structural	Utilities	1	
escutcheon plate		cuprous		Structural	Door/Window		1
eyeglass frames		cuprous		Personal	Personal	1	
eyeglass lens		glass		Personal	Personal	2	
faucet		cuprous		Structural	Utilities	1	
file	fragments	ferrous		Structural	Tools		2
flask	globe	glass	clear	Activities	Medical		1
flask	globe	glass	light green	Activities	Medical		1
fork		ferrous	3-tined	Domestic	Food Serving		1
funnel		glass	clear	Activities	Medical		1
"gems"		glass	green	Ambiguous			3
gunflints		flint		Activities	Hunting/War		11
handle		ferrous		Ambiguous		1	
hinge		cuprous		Structural	Hardware		1
hook	brackett	ferrous		Structural	Hardware		2
insignia	military	fabric	anchor	Activities	Hunting/War		1
insulator		porcelain		Structural	Utilities	1	
isinglass		mica		Structural	Materials	3	104
jar	jelly	glass	amethyst	Domestic	Food Storage	1	
jar	cosmetic	whiteware		Personal	Grooming	3	3
jar	cosmetic	porcelain		Personal	Grooming		1
jar	cosmetic	glass	clear	Personal	Grooming		1
jar	cosmetic	glass	green	Personal	Grooming		1
jar	cosmetic	glass	milk	Personal	Grooming	1	
jar	cosmetic	stoneware		Personal	Grooming	1	
jar		redware		Activities	Bulk Storage	1	17
jar lid	cosmetic			Personal	Grooming	2	
jar lid	canning	glass	aqua	Domestic	Food Storage	2	
jar lid	canning	glass	clear	Domestic	Food Storage	1	
lamp chimney	rim	glass	clear	Structural	Utilities	10	13
lid	pry-off	cuprous		Activities	Bulk Storage		1
lid liner	canning	glass	milk	Domestic	Food Storage	1	
linoleum		linoleum		Structural	Materials	2	
mortar		mortar		Structural	Materials	4	91
nails (see list beginning on next page)				Structural	Nails		

APPENDIX B: NAIL INVENTORY

	Feature 12	Outside Feature
Whole Nails		
Spikes		
Wrought - Flat Heads		
5"		1
6-1/2"	2	
7"	1	
9-1/2"	1	
Cut with Wrought Heads		
5"		1
6-1/2"	1	
7"	1	1
8"		2
Wire		
5"		1
Wrought Nails		
Flat, Hand-Applied Heads		
20d	2	
16d	4	
10d	3	
8d	3	
6d	5	
4d	5	1
2d	1	
Flat, Hand-Applied Heads - Brass		
16d	1	
L-Heads		
20d	1	
3d	1	
Casing Heads		
10d	1	
Unknown Corroded Heads		
5d	1	
3d		1
Cut Nails With Wrought Heads		
Flat, Hand-Applied Heads		
40d	1	
16d	1	
10d	3	
6d	2	

APPENDIX B: NAIL INVENTORY

	Feature 12	Outside Feature
5d	1	
4d	1	
Roseheads		
6d	1	
Cut Nails with Cut Heads		
Common Head		
20d		11
16d	1	1
10d	3	2
8d	7	4
6d	6	2
5d	2	1
4d	16	3
3d	15	1
2d	8	
L-Heads		
10d	1	
8d	3	
6d	4	
4d	2	
3d	1	
Finish Heads		
10d		1
4d	1	
Siding/Sheathing Heads		
20d		1
Unknown Corroded Heads		
20d	1	
8d		1
4d	1	
2d	1	
Wire Nails		
Common Heads		
20d		2
10d		8
9d		1
8d		9
6d	3	5
5d		1
4d		6
3d	2	4
2d	2	

APPENDIX B: NAIL INVENTORY

	Feature 12	Outside Feature
Galvanized Common Heads		
16d		2
8d		1
6d		34
2d		1
Galvanized Common Heads/Ring Shanks		
5d		14
Galvanized Roofing Heads		
2d		3
Roofing Heads		
2d		2
Brad Heads		
6d		2
3d		1
Cast Brass Nails		
Countersunk Head		
3d	1	
2d	7	
Flat Heads		
3d		2
2d	1	
Round Head		
2d	1	
Cast White Metal Nails		
Countersunk Head		
2d	1	
Flat Head		
3d	1	
2d	2	
Nail Heads		
Wrought Nails		
Spike Heads - undetermined size	2	
Flat, Hand-Applied Heads - undetermined size	4	2
Unknown Wrought Heads - undetermined size	1	

APPENDIX B: NAIL INVENTORY

	Feature 12	Outside Feature
Cut Nails		
Common Heads		
2-5d	15	1
6-10d	2	2
undetermined size	6	
Cast Nails		
Countersunk, White Metal - undetermined size	1	
Unknown Corroded Nails		
undetermined size	8	
Nail Heads with Partial Shanks		
Wrought Nails		
Spike Heads		
4-5"		1
5-7"	1	1
undetermined size	1	
Flat, Hand-Applied Heads		
2-5d	10	2
6-10d	17	2
over 10d	27	7
Flat, Hand-Applied Heads - Brass		
2-5d	1	
Roseheads		
2-5d	1	
6-10d	6	
over 10d	2	
L-Heads		
2-5d	2	
6-10d	2	
Unknown Corroded Heads		
2-5d	4	
6-10d	1	1
Cut Nails with Wrought Heads		
Flat, Hand-Applied Head		
2-5d	4	1
6-10d	2	1
over 10d	1	
undetermined size		1

APPENDIX B: NAIL INVENTORY

	Feature 12	Outside Feature
Cut Nails with Cut Heads		
Spike Heads		
5-6"		1
Common Cut Heads		
2-5d	84	8
6-10d	27	15
over 10d	7	8
Common Cut Heads - Brass		
2-5d	1	
L-Head		
2-5d	1	
Unknown Corroded Heads		
2-5d	2	
6-10d	1	1
Wire Nails		
Common Heads		
2-5d	1	1
6-10d		8
over 10d	1	1
Countersunk Head		
2-5d	1	
Brad Head		
2-5d		2
Nail Heads With Partial Shanks		
Cast Brass Nails		
Countersunk Head		
10-20d	1	
Unknown Corroded Nails		
2-5d	1	
over 10d	3	1
Nail Shanks		
Wrought Nails		
2-5d	2	1
6-10d	11	5
over 10d	1	2
undetermined size	7	2
6-7" spike		1

APPENDIX B: NAIL INVENTORY

	Feature 12	Outside Feature
Cut Nails		
2-5d	4	2
6-10d	4	11
over 10d	3	
undetermined size	26	12
5-6" spike		2
Wire Nails		
2-5d	3	
6-10d	2	
over 10d	3	
undetermined size	1	12
Cast White Metal		
undetermined size	1	
Cast Brass		
undetermined size		1
Shanks With Tips		
Wrought Nails		
2-5d	1	
6-10d	7	
over 10d	3	
Cut Nails		
2-5d	10	1
6-10d	12	
over 10d	1	
Wire Nails		
2-5d	1	1
6-10d		3
over 10d	1	2
Cast Brass Nail		
4-6d	1	
Tips		
Wrought Nails		
undetermined size	2	
Cut Nails		
2-5d	2	
6-10d	6	
undetermined size	6	1

APPENDIX B: NAIL INVENTORY

	Feature 12	Outside Feature
Wire Nails		
6-10d		1
Cast White Metal Nails		
undetermined size	1	
Cast Brass Nail		
undetermined size	4	
Miscellaneous Fragments		
Ferrous	284	105
Cuprous	1	

APPENDIX B: ARTIFACT INVENTORY

OBJECT	TYPE	MATERIAL	DESCRIPTION	GROUP	CLASS	FILL	TRASH
newspaper	fragments	paper		Activities	Communication	3	
oar lock		ferrous and wood		Activities	Transportation		1
ornament	Christmas ball	glass		Activities	Holiday	1	
page	dictionary	paper		Activities	Communication	1	
paint chip				Structural	Materials	139	2
peg board		wood		Structural	Materials	2	
pencil		slate		Activities	Communication	2	4
pencil shield		cuprous		Structural	Hardware		1
pestle		stone		Activities	Medical		2
phonograph record		plastic		Activities	Children	1	
pin	straight	ferrous		Personal	Clothing		1
pipe		ferrous		Structural	Hardware	1	5
pipe fitting	male	ferrous		Structural	Hardware		1
pipe, ventilating		cuprous		Structural	Materials		1
plate	dinner	whiteware		Domestic	Food Serving		5
plate	dinner	ironstone		Domestic	Food Serving		3
plate	flat	glass		Ambiguous			3
pot lid handle		cuprous		Domestic	Food Serving		1
pot lids		cuprous		Domestic	Food Serving		2
printing type		lead		Activities	Communication	17	
rake	hand	ferrous		Structural	Tools		1
rod	stirring	glass	clear	Activities	Medical	1	
roofing		cuprous		Structural	Materials		1
salt cellar		glass	clear pressed	Domestic	Food Serving	1	
saucer		whiteware		Domestic	Food Serving		6
saucer		porcelain		Domestic	Food Serving		1
screw	wood	ferrous		Structural	Hardware	1	3
seal		lead		Personal	Personal		1
sheathing		felt		Structural	Materials	6	
shoe fragments		leather		Personal	Clothing	5	515
shoe part	partial	leather		Personal	Clothing	1	1
shoe part	uppers	leather		Personal	Clothing		4
shoe part	welts	leather		Personal	Clothing		8
shoe part	soles	leather		Personal	Clothing	2	16
shoe part	heels	leather		Personal	Clothing		39
shoe part	lifts	leather		Personal	Clothing	2	5
shoe part	tongues	leather		Personal	Clothing		1
shoe part	heel w/ outsole	leather		Personal	Clothing		3
shot	grape	lead		Activities	Hunting/War		1
slate	writing	slate		Activities	Communication	4	10
smoking pipe	bowl	ball clay		Activities	Smoking	1	1
smoking pipe	bowl	red ceramic		Activities	Smoking		1
smoking pipe	bowl	earthenware	black glazed	Activities	Smoking		1
smoking pipe	bowl and stem	ball clay		Activities	Smoking		1
smoking pipe	stem fragments	ball clay		Activities	Smoking	3	
smoking pipe	stem fragments	porcelain		Activities	Smoking		1
spade		ferrous		Structural	Tools		1
spindle whorl		wood		Personal	Clothing		1
sponge		sponge		Ambiguous		1	17
sprew		lead		Activities	Hunting/War	1	1
staple	wrought	ferrous		Structural	Hardware	1	2
staple	flat	ferrous		Structural	Hardware		1

APPENDIX B: ARTIFACT INVENTORY

OBJECT	TYPE	MATERIAL	DESCRIPTION	GROUP	CLASS	FILL	TRASH
staple	wire	ferrous		Structural	Hardware	2	
stemware		glass	amethyst	Domestic	Food Serving		1
stemware base		glass	clear	Domestic	Food Serving	2	
stopper	ground	glass	clear	Activities	Medical		3
stopper		glass	light green	Activities	Medical		1
stopper	covers	glass	aqua	Activities	Medical	1	1
string		fibrous		Structural	Hardware		3
syringe		glass	milk	Activities	Medical		1
tack	cast	cuprous		Structural	Hardware		9
tack	decorative	cuprous and ferrous		Structural	Hardware		1
tack	wrought	ferrous		Structural	Hardware		5
teacup		whiteware		Domestic	Food Serving	2	7
teacup		porcelain		Domestic	Food Serving	7	3
teapot		whiteware		Domestic	Food Serving		3
teapot		yellow ware		Domestic	Food Serving		1
teapot lid		whiteware		Domestic	Food Serving	1	4
teapot lid		porcelain		Domestic	Food Serving	1	2
thimble		cuprous		Personal	Clothing		1
toy airplane	parts	plastic		Activities	Children	7	
toy gun	side plate	ferrous		Activities	Children	1	
toy soldier		plastic		Activities	Children	1	
tray		styrofoam		Domestic	Food Storage	1	
trinket	totem pole	plastic		Personal	Ornamentation	1	
tube		glass	clear	Activities	Medical	1	8
tumbler		glass	clear	Domestic	Food Serving		1
tumbler		glass	clear, pressed	Domestic	Food Serving	4	
unidentified		composition		Unclassif.	Unknown	0	1
unidentified		cuprous		Unclassif.	Unknown	3	21
unidentified		ferrous		Unclassif.	Unknown	18	249
unidentified		glass	milk	Unclassif.	Unknown	7	1
unidentified		gum-like	white	Unclassif.	Unknown		
unidentified		lead		Unclassif.	Unknown	1	18
unidentified		plastic		Unclassif.	Unknown	8	1
unidentified		whitemetal		Unclassif.	Unknown	2	10
unknown vessel		whiteware		Domestic	Food Serving		3
vial		bone		Personal	Personal		1
vial	homeopathic	glass	clear	Activities	Medical		1
vial	screw cap	glass	clear	Activities	Medical	1	
wallpaper		paper		Structural	Materials	16	
whatsit		ceramic		Unclassif.	Whatsit	1	
whatsit		cuprous		Unclassif.	Whatsit		7
whatsit		ferrous		Unclassif.	Whatsit	3	
whatsit		glass		Unclassif.	Whatsit		1
whatsit		lead		Unclassif.	Whatsit		2
whatsit		stainless steel		Unclassif.	Whatsit	1	
wheel	carriage	ferrous and rubber		Activities	Transportation	1	
wick trimmer		ferrous		Structural	Utilities		1
window glass		glass	aqua	Structural	Window glass	828	477
window glass		glass	clear	Structural	Window glass	309	193
window glass		plaster	glazing	Structural	Window glass		16
wire		ferrous		Structural	Hardware	4	27
wire		cuprous		Structural	Hardware	1	13

APPENDIX B: ARTIFACT INVENTORY

OBJECT	TYPE	MATERIAL	DESCRIPTION	GROUP	CLASS	FILL	TRASH
wire coils		cuprous		Structural	Hardware		2
wire coils		ferrous		Structural	Hardware	2	
wood, shaped		wood		Structural	Materials	181	528
wrapper	foil	aluminum		Domestic	Food Storage	1	
wrapper	foil	aluminum	green	Domestic	Food Storage	1	
wrapper		plastic		Domestic	Food Storage	1	

APPENDIX B: CERAMIC SHERD INVENTORY

The following is a listing of all ceramic sherds in the Food Serving, Medical and Bulk Storage Classes. Function was assigned by similarity to mended vessels.

WARE TYPE	DECORATION	COLOR	GROUP	CLASS	FILL	TRASH
ceramic, unspecified			Domestic	Food Serving	148	521
creamware	undecorated		Domestic	Food Serving	0	6
earthenware	glazed	green	Domestic	Food Serving	0	1
earthenware	undecorated	burned	Domestic	Food Serving	47	11
earthenware	undecorated	spalls	Domestic	Food Serving	9	1
earthenware	unspecified		Domestic	Food Serving	0	5
earthenware	unspecified	blue	Domestic	Food Serving	0	1
earthenware	unspecified	magenta	Domestic	Food Serving	1	0
pearlware	undecorated		Domestic	Food Serving	1	0
porcelain	glazed	black	Domestic	Food Serving	0	1
porcelain	lustre	gold	Domestic	Food Serving	5	2
porcelain	painted	blue	Domestic	Food Serving	4	7
porcelain	painted	polychrome	Domestic	Food Serving	7	5
porcelain	painted	red	Domestic	Food Serving	1	0
porcelain	painted	unspecified	Domestic	Food Serving	1	0
porcelain	transfer	green	Domestic	Food Serving	4	2
porcelain	transfer	blue	Domestic	Food Serving	2	3
porcelain	undecorated		Domestic	Food Serving	13	57
porcelain	undecorated	burned	Domestic	Food Serving	0	4
porcelain	unspecified	blue	Domestic	Food Serving	2	2
red earthenware	hard	brown glaze	Activities	Bulk Storage	29	338
red earthenware	slip, interior	white	Domestic	Food Serving	0	1
red earthenware	slip	yellow	Domestic	Food Serving	0	2
stoneware	hand painted	blue	Domestic	Food Serving	0	3
stoneware	salt glazed	grey	Activities	Medical	8	121
stoneware	unglazed	white	Domestic	Food Serving	1	0
stoneware		white	Domestic	Food Storage	3	0
stoneware		tan	Domestic	Food Storage	1	0
whiteware	annular	blue	Domestic	Food Serving	2	0
whiteware	edged	green	Domestic	Food Serving	2	0
whiteware	edged	blue	Domestic	Food Serving	0	3
whiteware	edged	unknown	Domestic	Food Serving	0	4
whiteware	finger painted	unknown	Domestic	Food Serving	0	1
whiteware	flow	blue	Domestic	Food Serving	4	5
whiteware	molded	na	Domestic	Food Serving	0	1
whiteware	sponged	blue	Domestic	Food Serving	1	0
whiteware	sponged	purple	Domestic	Food Serving	1	0
whiteware	transfer	black	Domestic	Food Serving	6	1
whiteware	transfer	blue	Domestic	Food Serving	44	101
whiteware	transfer	brown	Domestic	Food Serving	2	3
whiteware	transfer	green	Domestic	Food Serving	0	39
whiteware	transfer	purple	Domestic	Food Serving	3	70
whiteware	transfer	red	Domestic	Food Serving	0	64
whiteware	trimmed	tan	Domestic	Food Serving	2	0
whiteware	undecorated		Domestic	Food Serving	217	145
whiteware	unspecified	magenta	Domestic	Food Serving	1	0
whiteware	unspecified	blue	Domestic	Food Serving	6	0
yellow ware	undecorated		Domestic	Food Serving	1	7

APPENDIX B: GLASS SHERD INVENTORY

The following is a list of glass sherds in the Beverage, Food Storage, Food Serving, Medical and Bulk Storage Classes. Function was assigned by similarity of sherds to mended vessels.

COLOR	DESCRIPTION	GROUP	CLASS	FILL	TRASH
amber		Domestic	Beverage	138	13
amethyst		Domestic	Beverage	2	0
amethyst		Domestic	Food Storage	1	0
aqua		Domestic	Beverage	3	2
aqua		Domestic	Beverage	4	0
aqua		Domestic	Food Storage	141	279
aqua	panelled	Activities	Medical	40	32
aqua	thick carboy	Activities	Bulk Storage	1	0
blue		Domestic	Food Storage	3	2
blue		Domestic	Beverage	1	0
brown		Domestic	Beverage	166	103
clear		Domestic	Food Serving	1	0
clear	molded	Domestic	Food Serving	1	0
clear	cut	Domestic	Food Serving	0	1
clear		Domestic	Food Serving	0	1
clear		Domestic	Food Storage	403	942
clear	panelled	Activities	Medical	1	1
clear	thin	Activities	Medical	302	705
clear		Activities	Medical	0	57
clear		Domestic	Beverage	15	0
clear	red decoration	Domestic	Beverage	7	0
green	thick carboy	Activities	Bulk Storage	1	332
green (black)		Domestic	Beverage	31	299
green, bright		Domestic	Beverage	8	14
green, dark		Domestic	Beverage	19	37
green, olive		Domestic	Beverage	212	303
green, undifferentiated		Domestic	Beverage	199	1760
light green	thin	Activities	Medical	0	16
light green		Domestic	Food Storage	22	325
milk, blue		Domestic	Food Serving	0	1
milk, green		Domestic	Food Serving	1	0
milk, white		Domestic	Food Serving	3	2
other, unspecified		Domestic	Food Storage	0	0
red		Domestic	Food Storage	1	0
turquois, dark		Domestic	Beverage	1	0
unidentified		Domestic	Beverage	25	24

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