TRADE AND TABLEWARE: A HISTORICAL AND DISTRIBUTIONAL ANALYSIS OF THE CERAMICS FROM FORT ROSS, CALIFORNIA

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Abstract

of

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by

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Statement of Problem:

The aim of this study is to use the ceramic assemblage from Fort Ross and the historic record to address the question of how and from whom the Russians acquired manufactured goods and to test established models regarding historic archaeological site chronology, social stratification and dietary patterns.

Sources of Data:

Ceramic assemblage from For Ross State Historic Park, published literature and archival sources.

Conclusions Reached:

By means of hypotheses developed from the historic record and tested against the archaeological record, the ceramic assemblage yielded information about trade patterns, status differentiation and, to a lesser degree, about the dietary patterns of the Russian-period inhabitants of Fort Ross.

Committee Chair's Signature of Approval Howard P. Goldfried

ACKNOWLEDGEMENTS

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INTRODUCTION

For many people, the study of ceramics is a particularly fascinating subject simply because ceramic vessels are functional expressions of artistry and technical skill. They reflect the aesthetic values and design principles of the potters and, in turn, the people for whom the vessels were intended. This is as true for the industrially manufactured items we buy today as it is for the handmade wares of the past.

In an archaeological context, ceramics play an important role in our understanding of certain aspects of man's past. As artifacts, ceramics are durable. Unlike many materials which were once part of the archaeological record, ceramics have a high rate of preservation in the soil. Archaeologists have traditionally relied heavily on the analysis of ceramic assemblages to identify the cultural affiliation of a site, to ascertain the relative level of technology of its inhabitants, to trace their migrations, to examine their trade networks and especially to define a site's relative chronology within a regional context. Basic chronological principles, such as stratigraphy and seriation, were developed by observation of the distribution of ceramic types within a site or group of sites (Deetz 1977).

Most of these formative archaeological studies focused on prehistoric or ancient sites and cultures. In the last few decades,

however, archaeologists have become increasingly interested in studying the ceramics of the historic period to address research questions dealing with behavior as well as site chronology, site function and trade. Historic archaeologists, of course, have the very significant advantage of being able to use the historic record to aid in their reconstructions of past lifeways. There is a sizable body of information about the manufacture and distribution of historic period ceramics, especially British ceramics, in the form of factory records, shipping records, account books, advertisements, probate records, bills of sale and other such documents, not to mention information gained from museum collections of the ceramics themselves. Curators, collectors and antique dealers have written exhaustively about the characteristics of various ceramic wares and their manufacturers. Such sources provide the basic information needed for the identification of archaeological specimens. Nearly all of the information on British and Chinese ceramics, for example, comes from collectors and antique dealers.

I was introduced to the large collection of archaeological material recovered from Fort Ross, California while employed as an Archaeological Aide with the California Department of Parks and Recreation in 1978. During that time, I became intrigued with the idea of conducting a ceramic analysis on historic-period material. Several years later, when I began to contemplate a thesis topic, my thoughts returned to Fort Ross -- not only because the site had yielded a large and varied ceramic collection but because Fort Ross itself could provide the opportunity to work on and study an unusual frontier case.

Fort Ross was the furthest outpost of the Russian Empire, which had been expanding eastward since the 16th century. Nearby, in the San Francisco Bay area, was one of the most far-flung posts of the vast, though deteriorating, Spanish Empire, which had expanded into California just a few decades before the Russians. Fast on the heels of these old and well established empires came the Yankees, first as maritime traders, then as merchants and finally as conquerors. In the first half of the 19th century, the "frontiers" of three imperialistic forces came together in Northern California.

By analyzing the ceramic artifacts recovered from Fort Ross, I could combine my interest in learning to analyze historic-period ceramics with research questions pertaining to the Russians' occupation of California. The California State Department of Parks and Recreation kindly granted me access to the Fort Ross ceramic collection.

When I began this analysis, my principal goal was to determine what kinds of ceramic wares the Russians used at Fort Ross and how they acquired these goods. Later, I became interested in testing the applicability of Stanley South's Mean Ceramic Date Formula, which is an analytical tool designed for 18th century British-American sites, to a 19th century Russian-American site. After reading John Solomon Otto's study (1977) of status differentiation among slaves, overseers and plantation owners as revealed in archaeological ceramic assemblages, I wondered if there were patterns in the frequencies and distributions of ceramic types and vessel forms at Fort Ross that could be attributed to differences in status among the inhabitants.

I decided to concentrate my efforts on tablewares rather than such ceramic items as doorknobs and doll parts because tablewares would be likely to reveal more information about patterned behavior and because doorknobs, doll parts, ale bottles and other such miscellaneous ceramic items did not appear to reflect the Russian period but, rather, the late 19th century American ranch era. I also focused my attention on the excavation areas inside the fort stockade itself for two reasons. The first is that the areas inside the fort can be linked directly to the former locations of Russian-period buildings of documented function. Secondly, unit maps of the excavations exist for those areas inside the fort but not for areas outside the stockade walls. The general location of these areas is known, but maps showing the placement of excavation units could not be located.

The problems I encountered in conducting the analysis of these ceramics were numerous, some could be resolved, others could not. One of the major problems is that there are no published works which provide procedures guiding the actual conduct of an analysis of historic-period, industrially produced ceramics. While there are numerous reference books on maker's mark identification, histories of various factories, discussions of technological innovations in the industry and characteristics of some kinds of wares, there is little or no information to permit a novice analyst to decide whether the sherd in his or her hand is in fact the same type as is described in the literature. For this very basic step, the novice must rely on the expertise of experienced ceramic analysts.

After sorting the collection on the basis of visual attributes into wares (porcelain, stoneware and earthenware) then into types on the basis of the decorative technique, I took examples of each type to Dr. James Deetz of the University of California at Berkeley for verification. Dr. Deetz confirmed most of my identifications of the types. He also was kind enough to explain some analytical methods used to determine the vessel forms from small sherds.

The small size of the vast majority of the sherds also presented a number of problems, especially in the identification of vessel forms but also in the correct identification of the ceramic types. It is impossible to determine how many of the apparently undecorated sherds came from plain areas of otherwise decorated vessels. This situation would tend to skew the results of ceramic type frequencies and distributions because it causes the "undecorated" category to be over-represented in the counts. There is really no way to compensate for this except to bear the problem in mind when considering the significance of the "undecorated" specimens.

The size of the sherds also made vessel reconstruction and cross-mending studies next to impossible. I attempted cross-mending only for decorated types and was able to join only a few sherds. The only case of cross-mending that accomplished more than joining a sherd from one level to an adjacent level of the same unit or two contiguous units, was when a fragment of Chinese Export porcelain from the Officials' Quarters fitted together with a piece from the "Trash Dump" area outside the fort and down a gully.

Another problem involved the scarcity of English-language literature about 19th century Russian ceramics. This lack of reference material hampered the identification of the only maker's mark, though a partial mark, of definite Russian origin.

Despite these initial obstacles, I felt certain the thousands of tiny sherds could yield information about the Russian occupation of Fort Ross. What kinds of ceramics were used there and by whom? How were they acquired? Are there patterns in the distribution and frequencies of the ceramics types and forms that can address behavioral questions? Do theoretical models developed for American Colonial and Antebellum cases apply to a 19th century Russian-American settlement in California? By using the historic record to develop hypotheses and then testing them against the archaeological collection, I hoped to address these questions.

The first chapter outlines the history of Fort Ross as a Russian and later, as an American settlement, followed by a brief discussion of the archaeological investigations conducted at the fort. The analytical methods used to establish the typology and to conduct an analysis of vessel forms are presented in the second chapter. The third chapter focuses on ceramics as chronological indices, and their utility in determining the absolute date range for the occupation of the site. Three hypotheses regarding the means by which the Russians acquired ceramics are presented and tested against the archaeological record in the fourth chapter. Chapter 5 tests the applicability of John Solomon Otto's model of the correlation between

ceramics and status using three hypotheses tested against the archaeological record and and extrapolated distribution of vessel forms.

CHAPTER I

HISTORY AND ARCHAEOLOGY OF FORT ROSS

A Brief History

Chartered in 1799 under the auspices of the tzarist government, the Russian-American Company was given a commercial monopoly for the exploitation of the fur resources of Alaska and the Pacific Northwest. It also served as a semi-official arm of the Empire, in much the same way the British East India Company functioned for Great Britain in the Orient and India founding and maintaining colonies for the Crown.

The foundation of the Russian fur trade was the sea-otter, whose rich fur was very valuable and especially favored by the Chinese upper classes of the time. Using Aleut hunters, the Russian fur traders had nearly depleted the sea-otter population in Alaska by the end of the 18th century. They then turned to the waters of California and the Pacific Northwest (Ogden, 1933; Hatch, 1922).

The Colonial arm of the Russian-American Company operated from its settlement at New Arkangel (now Sitka), Alaska from its inception until its dissolution in 1869 when the United States purchased Alaska from Russia. In the beginning, the inhabitants of New Arkangel were entirely dependent on Russia for provisions. Supply ships departed annually from St. Petersburg with the much needed food and other necessities but they often failed to reach their destination.

The Company was forced to consider alternate means of securing food and other goods. Ross Counter, as it was known, was founded in 1812 ostensibly as an agricultural colony to supply the Russian settlements in Alaska although it likely also served to gauge the strength of the Spanish hold in Alta California.

As the agricultural pursuits of Fort Ross waned in the 1830s because of repeated crop failure and disease, the Company began to consider other ways of securing food and other provisions for the Alaskan departments. In 1835, The Company negotiated a contract with the Boston merchant house of Boardman to supply "tobacco, rum, sugar, treacle, hardtack, calico, etc., as well as a steam engine for a ship to be built in New Arkangel" (Tikhmenev 1978:220). These goods arrived in 1837 and the contract was renewed in 1838 (Tikhmenev 1978:220). Also in that year, the Governor of the Company, Baron Wrangel, concluded a contract with the British trade monopoly in North America, the Hudson's Bay Company, "to carry cargoes of goods from England to New Arkangel at prices reasonable compared with the previous freightage. The superiority of manufactured goods obtained from English factories over similar goods previously obtained from American ships were also significant" (Tikhmenev 1978:236).

This supply contract with the Hudson's Bay Company guaranteed that the Alaskan departments would be provisioned, thus permitting the Russian-American Company to consider withdrawing from California. Fort Ross was up for sale for several years, and in 1841 the Russians left California having sold the fort and lands to John

Augustus Sutter of New Helvetia. Sutter purchased the fort itself, three inland Russian ranches, the facilities at Bodega Bay, much of the stock and agricultural implements and title to all the Russian-occupied land. The real property at Fort Ross included:

Inside Ross:

1. 1 square fortress, surrounded by palisade of posts 1032 feet, height 12 feet. 2 towers at corners.
2. Old house of commandant - 2 stories, 48' long, 36' wide. 6 rooms & kitchen.
3. New house of commandant, 48' long, 24' wide, 6 rooms and vestibule.
4. House of Company employees. 10 rooms, 2 vestibules, 60' long x 21' wide.
5. Barracks - 8 rooms, 2 vestibules, 66' long x 24' wide.
6. Old Store House - 2 stories 48' x 24'.
7. Wheat store house -
8. One Kitchen - 24' x 21'.
9. Supply Store house w/adjoining prison
10. Chapel w/bell tower
11. Well.

Outside Ross:

1. Blacksmith shop & house
2. Tannery
3. Bath house
4. Cooperage
5. Boat shed

Around the fort:

1. One public kitchen.
2. Two cow houses.
3. One corral.
4. One sheep shed.
5. One hog shed.
6. One dairy.
7. One stable.
8. One bin for cleaning wheat.
9. One threshing floor.
10. One windmill & stone.
11. One old windmill & stone.
12. One horse power mill.
13. One machine to make rope.
14. One Carpenter shed.
15. One square bin for cleaning wheat.
16. One well.
17. 24 houses (Sutter n.d., Box I, Vol. 2.).

Sutter shipped most of the movable property and stock to New Helvetia, subsequently hiring agents to manage the fort and land. After an involved title dispute with the Mexican government, Sutter's agent, William Benitz, purchased the land for himself. He later sold it to a Mr. Dixon and Lord Fairfax, who in turn sold it to George W. Call in 1873 (Hatch 1922:60-61; Essig 1933:199-200). By 1880, the Fort Ross Ranch was a small community consisting of a hotel and saloon, post and telegraph offices, and various stores. During the "American Ranch" period, the agricultural and stock-raising potential of the ranch continued to be developed. In addition, timber and roughly milled lumber was shipped from a wharf built into the cove. In 1903, George Call sold the fort itself to a party who deeded the property to the newly formed California Historical Landmarks Committee. In 1906, in recognition of its historical significance, the fort became one of California's first publicly-owned historical sites, and later, a state historic park. Restoration of the fort to its Russian-period appearance began in 1906 after many of the buildings were damaged in the earthquake. Restoration efforts have continued intermittently with most of the work conducted since 1970.

Archaeological Excavations

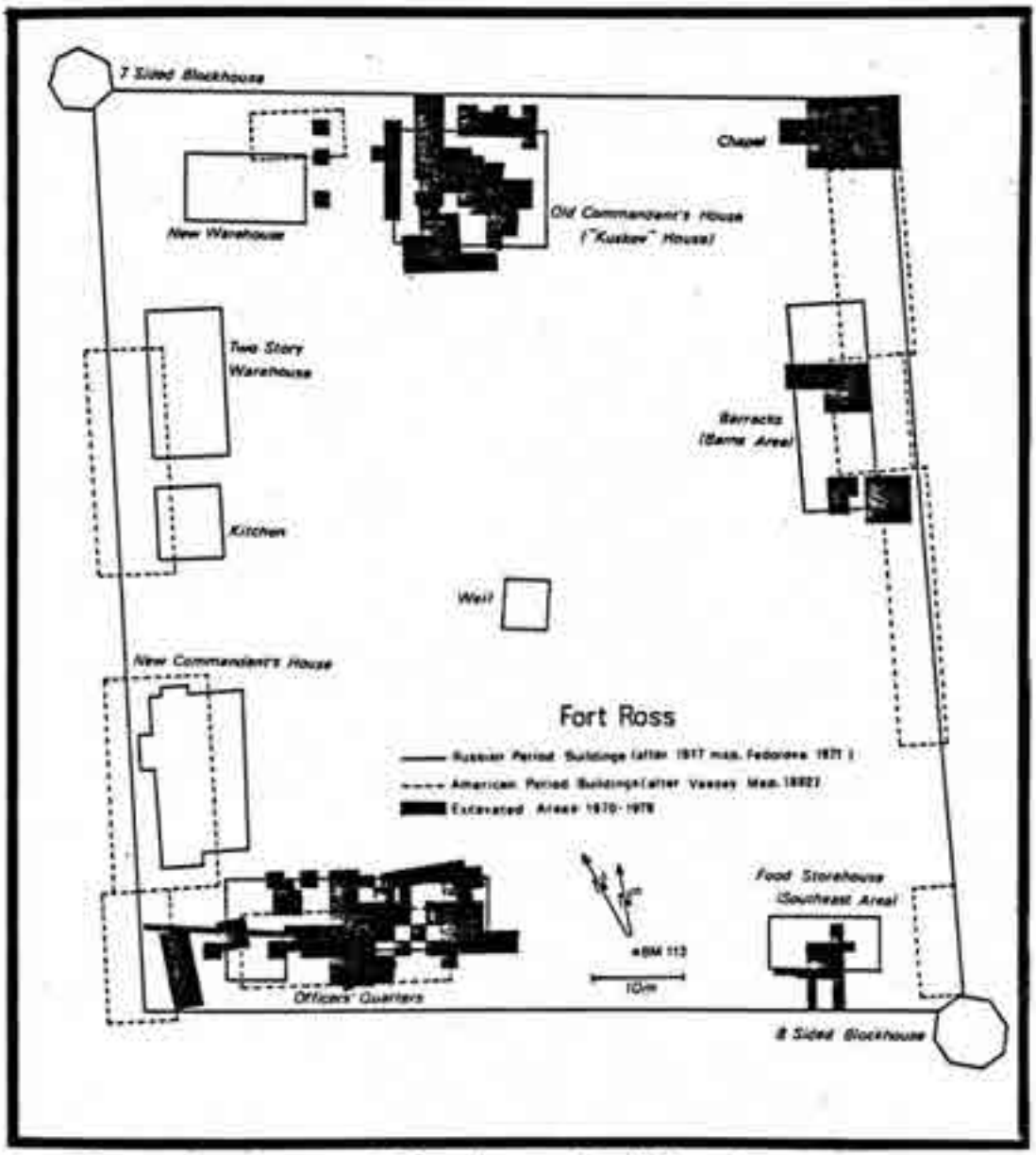
Fort Ross State Historic Park has been the subject of numerous archaeological investigations during the last thirty years. The goal of most of these efforts has been to gather information about the Russian-period buildings to aid in the reconstruction of the fort for public interpretation. Little attention was paid, until very recently,

to acquiring data to address research questions of an anthropological nature, such as intrasite demographics, status differentiation among the inhabitants, dietary patterns and the like. Regardless of the goals of the research, no reports have been completed as yet for the excavations that took place between 1953 and 1976. Map 1 depicts the stockade with the Russian-period buildings, the American-period buildings, and the locations of the archaeological excavations conducted from 1970 to 1979.

Various sections within the stockade have been investigated as have a few areas outside the fort walls. In 1953 parts of the perimeter of the stockade itself were tested to ascertain its exact alignment. The Old Commandant's House, also called the Kuskov House for the first commandant, has been thoroughly explored by excavations conducted in 1971, 1972, 1975, and 1976 by the Department of Parks and Recreation (Map 2). The Officials' Quarters, also called the Officers' Barracks, was investigated in 1970, 1971, 1972, 1975, 1976 and 1979 (Map 3).

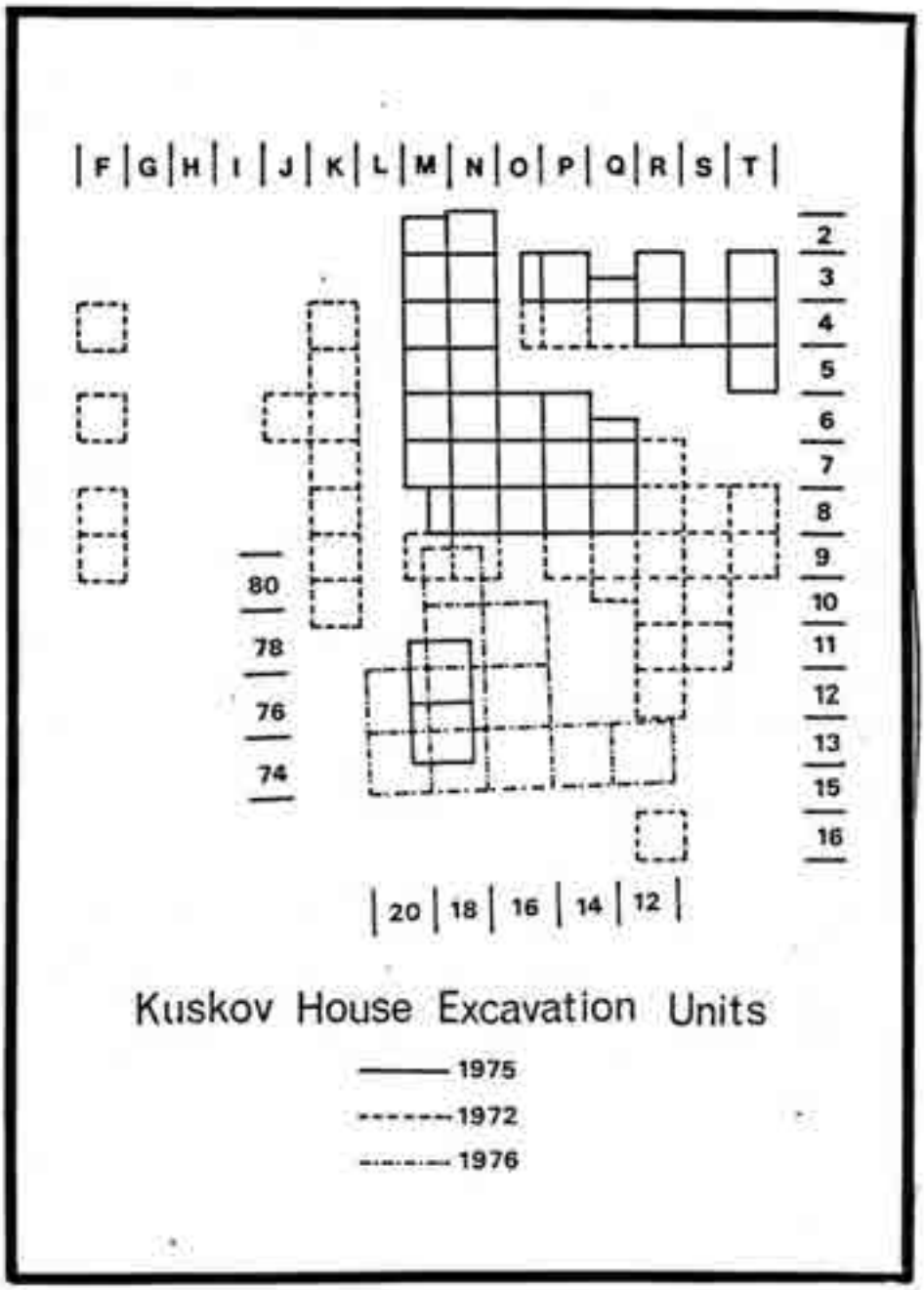
The Chapel area was excavated in the 1971-1972 season. A spot near the octagonal blockhouse called the "South-East Area" was examined in 1975, as was the former location of a Russian-period enlisted men's barracks known as the "Barns Area" after the American-period barns that stood on the spot. Outside the stockade, a trash dump was investigated in 1970 as was a former Pomo site known as Mad-Shui-Nui, and the former location of an American period dance hall. A portion of the then-future alignment of Highway 1, dubbed the "Highway Area" was excavated in 1972.

A large number of vessels and sherds have been collected by visitors and given to the park becoming part of an extensive collection of specimens with no provenience. Unfortunately, this collection includes nearly all of the whole or reconstructable vessels, however, these specimens do not reflect the Russian period, but are late 19th century examples. In the analysis, I have only considered those archaeological specimens with provenience, however, Appendix II includes all sherds bearing maker's marks regardless of provenience or lack thereof.

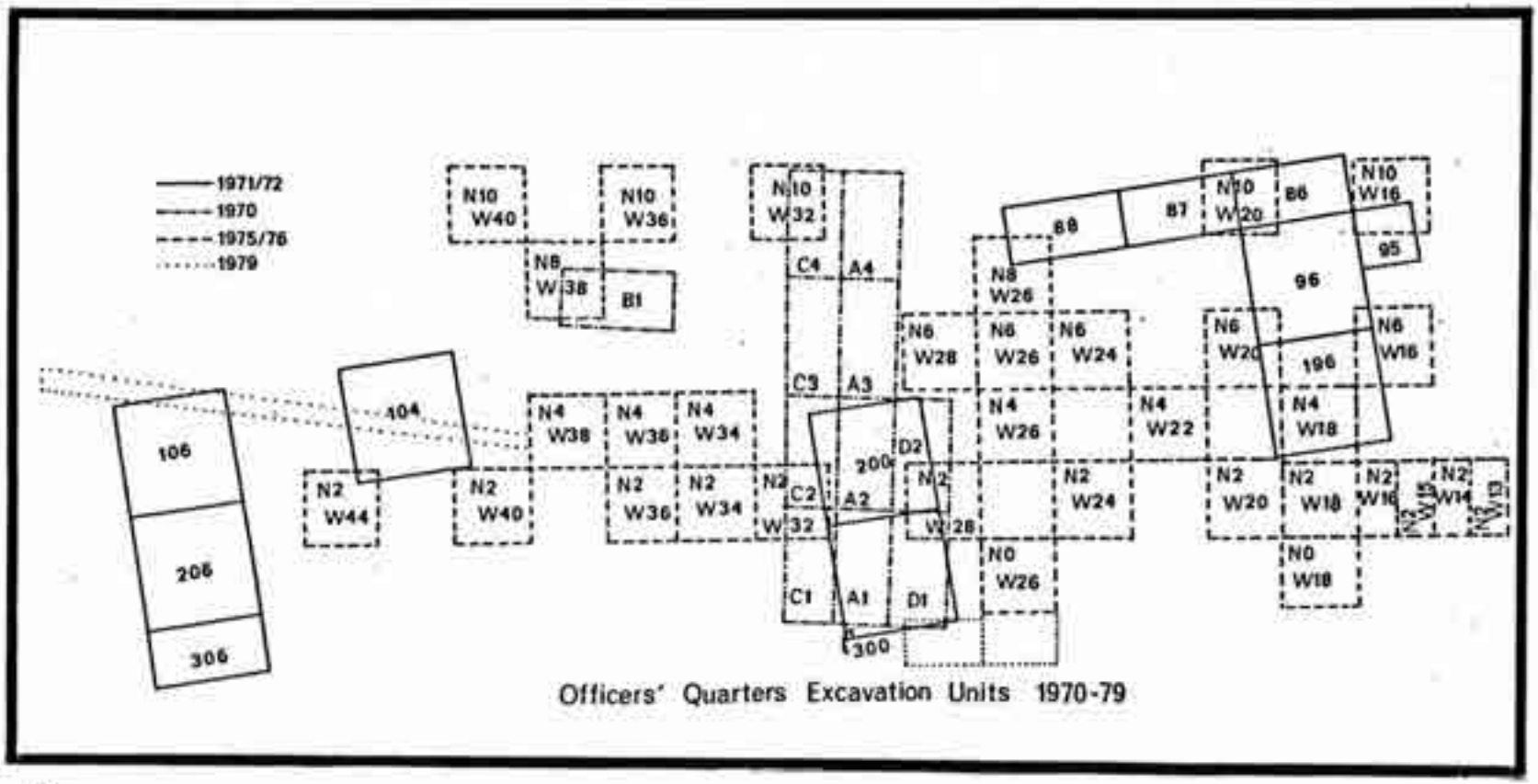


Excavation Areas and Locations of Buildings in the Stockade

Map 1

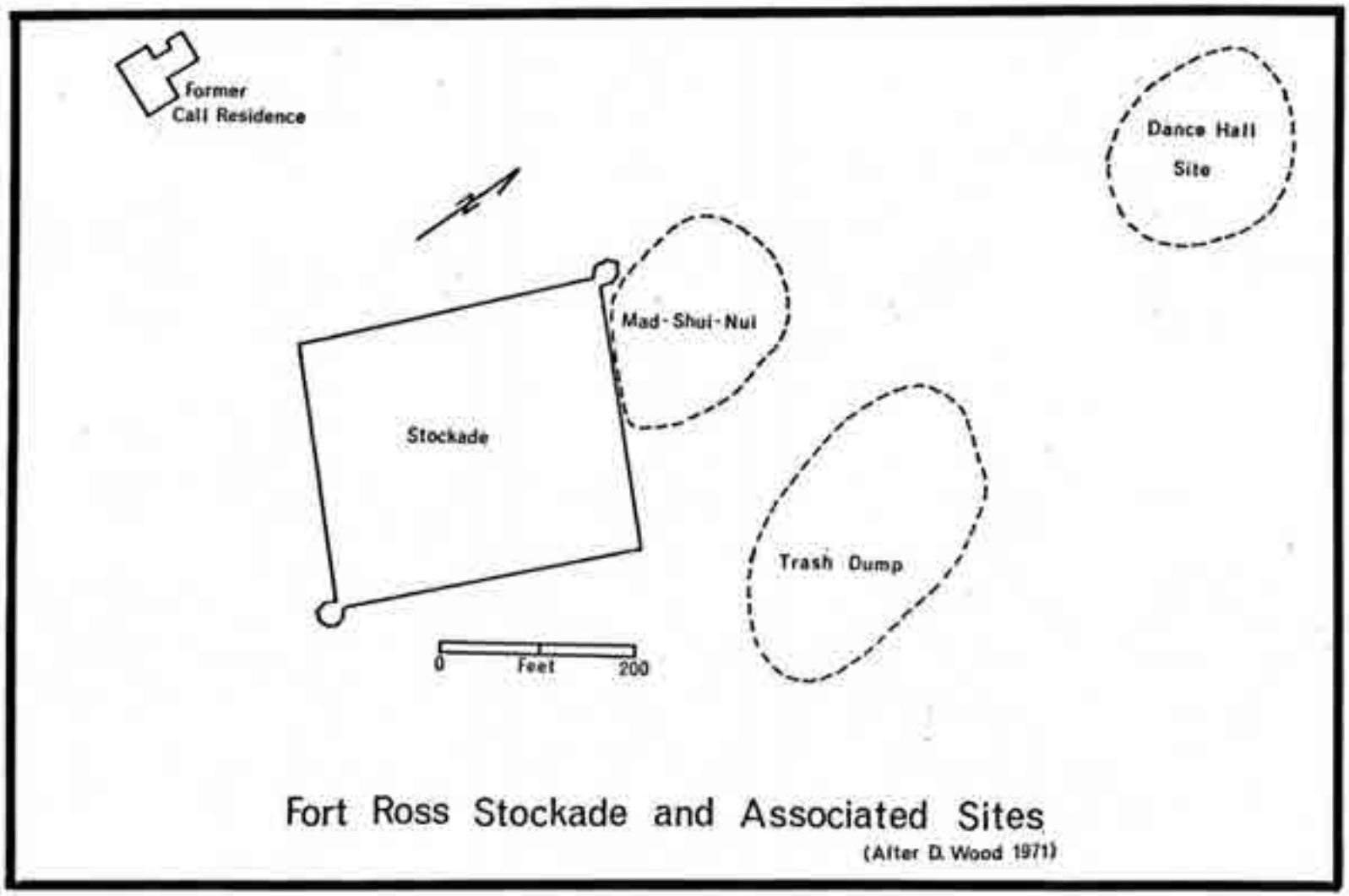

F G H I J K L M N O P Q R S T
2 3 4 5 6 7 8 9 10 11 12 13 15 16
80 78 76 74
20 18 16 14 12
Kuskov House Excavation Units
1975
1972
1976

Map 2



Officers' Quarters Excavation Units 1970-79

Map 3



Fort Ross Stockade and Associated Sites

(After D. Wood 1971)

Map 4

Previous Ceramic Analysis

Although no formal reports have been prepared for the archaeological investigations conducted at Fort Ross from 1953 to 1976, there was a preliminary report made for the 1976 excavation of the Officials' Quarters. This report included an analysis of the ceramics recovered during that investigation. Paulette Barclay and Sylvia Olivares (n.d.) classified the sherds using a class/group/type/variety system that is essentially the same system used in this analysis. They included a table depicting the horizontal and vertical distribution of the sherds by type or, in some cases, by variety. While I examined the sherds from that investigation, I relied on Barclay and Olivares' report for quantification and classification of the sherds. I did not attempt to reclassify or recount the specimens from that excavation.

Because of its relative lack of development and isolation during the 19th century and its protection as a state historic park in the 20th century, Fort Ross has retained its potential to yield information about the Russian occupation of the site. The numerous systematic excavations conducted by the Department of Parks and Recreation provide sufficient data to conduct analytical studies directed toward a wide variety of research topics.

CHAPTER II

THE ANALYTICAL METHODS

Many of the ceramic sherds recovered from Fort Ross had not been sorted into wares or types before being catalogued in the field laboratories. As a result, during several of the excavation seasons, all of the ceramics from a given level within an individual excavation unit or feature were bagged together and assigned one catalogue number. One level bag may have contained any number of different ceramic types. Occasionally the sherds were bagged together with and assigned the same catalogue number as the glass fragments. I therefore had to begin the analysis by separating the glass from the ceramics. Because I was primarily interested in studying the tableware, I then sorted out other ceramic items, such as the door-knob fragments, stoneware ale bottle sherds and porcelain doll heads and hands. I did not assign new catalogue numbers to the sherds. As a result, there are instances when one catalogue number is assigned to many sherds, all of which were recovered from the same level or feature. Because I maintained the original cataloguing systems, there are also different accession numbers for most of the excavations. Appendix I lists the various excavations, their dates, and the accession numbers assigned to the collections.

The Classification System

Table 1 schematically presents the classification system used in this study. There are three broad classes: porcelain, stoneware and earthenware. These classes are based on certain characteristics of the ceramic body itself which result from different chemical constituents of the clays and other ingredients combined with the effects of the firing process.

The classes have been subdivided into groups on the basis of the color of the ceramic body, the color of the glaze, or both. Color variation, of course, is also the result of the chemical components of the clay, additives, and the glaze ingredients.

The types were derived from the method by which the item was decorated. Thus we have a distinction between glazed and unglazed; undecorated, underglaze decoration and overglaze decoration; edge-decoration, transferprinted decoration, and banded, incised decoration.

The variety subdivision has no particular morphological basis, rather it permits each individual type to be further subdivided as needed, often into stylistic or color variations such as different monochromatic or polychromatic schemes. For example, overglaze decorated, non-white porcelain (Type 5) is divided, at the variety level, into gilded, polychrome and monochrome because these particular distinctions are required to fully describe that type; whereas in the case of Type 4 (underglaze decorated non-white porcelain), it is important to consider stylistic variations. Only those variations that are present in the Fort Ross collection were included in the

classification scheme. Thus, yellow and brown edge-decorated pearlware was not included because those color variations were not found at Fort Ross.

TABLE 1
The Ceramic Typology

Class	Group	Type #	Description	Variety Letter	Description
Porcelain	White	1	Undecorated	a	Molded Relief
				b	Plain
		2	Underglaze-Painted		
		3	Overglaze-Decoration	a	Gilded
				b	Enamel-Polychrome
				c	Enamel-Monochrome
		4	Underglaze-Painted	a	"Canton"
				b	"Nanking"
				c	Misc. Monochrome
	Non-White	5	Overglaze-Decoration	a	Gilded
				b	Enamel-Polychrome
				c	Enamel-Monochrome
Stoneware	Grey	6	Slip Decorated		
		7	Glazed		
		8	Underglaze-Painted		
	Buff	9	Unglazed		
		10	Glazed	a	Clear
				b	Brown
	White	11	Salt-Glazed		
		12	Glazed	a	Ironstone
				b	Blue-Glazed
Earthenware	Grey	13	Unglazed		
	Red	14	Glazed	a	Moko
				b	Lusterware
				c	Clear-Glaze
	Buff	15	Glazed	a	Maiolica
				b	Painted

TABLE 1 (Continued)

Class	Group	Type #	Description	Variety Letter	Description
Earthenware	Cream Colored	16	Undecorated	a	"Creamware"
				b	Other
		17	Transfer-printed	a	Iron Red
				b	Blue
		18	Annular		
	White	19	Undecorated Pearlware	a	Plain
				b	Molded Relief
		20	Edge-Decorated	a	Shelledge-Blue
				b	Shelledge-Green
				c	Embossed-Blue
				d	Embossed-Green
		21	Annular		
		22	Mocha		
		23	Underglaze Painted	a	Blue
				b	Polychrome
		24	Transfer-printed	a	Blue
				b	Green
				c	Pink/Red
				d	Purple
				e	Black
				f	Light Blue
				g	Brown
		25	Undecorated Whiteware		
		26	Slip-Decorated		
		27	Transfer-printed & Enameled		
	Yellow	28	Glazed	a	Molded
				b	Plain

Description of Ceramic Types

Porcelain

The salient characteristics of porcelain are its highly vitrified, dense "paste" (clay body) and its translucence (when it is thin-walled). The term refers to any ware exhibiting these characteristics regardless of the chemical constituents of the paste. The porcelain assemblage from Fort Ross is divided into two groups on the basis of the color of the glazed item: white and non-white.

White Porcelain

The white procelain specimens all have a clear glaze and most were decorated with overglaze enamels (Types 3b and 3c) or gilded (Type 3a). With the exception of a molded relief covered box (Type 1a, Photograph 1), the white porcelain sherds appear to be remnants of tableware. Three unidentified maker's marks on examples of white porcelain indicate that some of it was made in Germany (two maker's marks) and in Japan (one maker's mark). (All of these marks were found on sherds with no provenience.) Aside from these instances, there is no firm indication of the countries of origin for the white porcelain tableware. The covered box bears a maker's mark that is tentatively identified as Russian. Please refer to Chapter 3 for a discussion of this mark.

Non-White Porcelain

This designation refers not to the color of the clay body but to the greenish blue-grey tint of the glaze. All the non-white porcelain recovered from Fort Ross was produced in China for the European

and American markets. It is known collectively as Chinese Export porcelain or Chinese Trade porcelain.

The main ingredient in Chinese porcelain is kaolin, a clay containing feldspar, granite and pegmatite which fires to a pure white under the proper conditions. The kaolin is combined with petuntse (pai-tun-tzu), a feldspar which vitrifies when fired. The glaze is a mixture of fern-ash and lime combined with petuntse (Beurdeley 1962:12; Noel Hume 1970:258). Chinese porcelain is soft-paste porcelain; the broken edges reveal the granular texture of the clay body, while the surface has a slightly softened sheen described by one authority as being "musliny" (Gordon 1977:22). Soft-paste porcelain does not exhibit the sharp, conchoidal fracture which characterizes hard-paste porcelain and glass. In fact, there is no absolute distinction between Chinese stoneware and Chinese porcelain. It is rather a "porcelaneous stoneware" with different degrees of refinement (Beurdeley 1962:12). For export wares, at least, Chinese potters did not attempt to achieve the full potential, the pure whiteness and fine translucency, of the ware. While most of the overglaze enamel (Type 5) has thin walls and is moderately translucent, those specimens with underglaze decoration (Type 4) are typically heavier, thicker and opaque.

Underglaze Painted

For centuries, Chinese blue-on-white porcelain was of exquisite quality, especially during the Ming Dynasty (1368 to 1644). By 1750, however, as the world demand for this ware rose, the quality and

artistic craftsmanship declined. By the beginning of the 19th century the patterns had degenerated to the point of being crude and mechanical and the quality of the ceramic body, the paste, had become uneven. Underglaze blue-on-white porcelain was decorated at the factory, usually at Ching-te chun, then shipped to Europe via Canton or Nanking, hence the names of the patterns (Savage, Newman, Cushion 1974:64; Noel Hume 1970:262). The most popular varieties of blue-on-white Export porcelain were the Canton (Type 4a), the Nanking (Type 4b) and the Fitzhugh patterns. (The Fitzhugh pattern was not recovered at Fort Ross.) Other patterns were also exported for the European and American markets.

The Canton pattern was popular from the 1800s to about the 1830s. The design consists of a central landscape with a house, tree, boat and bridge. A blue band and stylized cloud motif comprise the border (Noel Hume 1970:262) (Photograph 3). The Nanking pattern has a similar central scene but has a chain-like border design with a spearhead inner edge. Nanking occurs on a finer quality whiter clay body than the Canton pattern (Noel Hume 1970:262) (Photograph 3). Like Canton, Nanking dates from the late 18th century to the first third of the 19th century. Fitzhugh consists of a border, sometimes the Nanking border, with four cut pomegranites arranged in a quatrefoil with Greek fretwork (Beurdeley 1962:26-28).

Overglaze Enamel

Export porcelain decorated with overglaze enamel was also made in Ching-te chun but decorated in the enamelling shops of Canton,

sometimes to the customer's special order (Savage, Newman and Cushion 1974:64). It was exported to Europe and America in the late 18th century and early 19th century. Ivor Noel Hume distinguishes between Export porcelain, with a date range from 1660 to 1800, and Trade porcelain dating from 1790 to 1825 (Noel Hume 1970:258,261). Trade porcelain is the type present at Fort Ross.

The overglaze enamel porcelain recovered at Fort Ross comes in monochromatic designs in orange, blue or grey or in polychromatic combinations of orange and blue, or blue and grey. Indications of fugitive gilding are discernable on some specimens as bands of matte surface against the normal shine. Enamel colors and gold are applied over the glazed vessel which is then refired at a low temperature. Since it lies on top of the surface, the decoration occasionally comes off, especially when the vessel has been buried for decades.

Like blue-on-white ware, the quality of overglaze enamel porcelain declined in the latter half of the 18th century. By that time the design motifs were reduced to "wiggly lines, dashes, thin swags... and...dots with small foliate sprays in the centers" (Noel Hume 1970:261). The Chinese potters sometimes imitated design motifs and vessel form details, particularly handle shapes, from current English patterns. Noel Hume illustrates a Leeds style cup (copied from a style manufactured in Leeds, England) with a pointed and scalloped rim and a handle which terminates in floral sprays which was made in China between 1790 and 1820 (1970:258). Trade porcelain teaware excavated at the Royal Presidio in San Diego includes "handled" teacups of the same decorative design as specimen a (Photograph 4)

(Krase 1979). Teaware of that period also included handleless cups, similar in form to traditional Chinese teacups, that were set into deep, wide saucers, not unlike bowls. These handleless cups and saucer forms were used along with "handled" cups with Leeds style teapots, milk jugs and sugar bowls. The Leeds style in England and in Chinese imitations is noted for having double-entwined handles ending in molded foliate sprays decorated in overglaze enamels. The lids of the teapots and sugar bowls had fruit or nut shaped handles and molded-relief leaves, again highlighted in overglaze enamels. Specimens a, b and k in Photograph 4 illustrate these design elements. Specimen a is likely a teapot lid judging from comparison with a photograph of Chinese Trade teaware made between 1800 and 1820 (New Haven Colony 1968:75).

The major design variants of the Chinese Trade porcelain found at Fort Ross are shown in Photograph 4. The specimens labeled a and d have a popular border and inner band motif called the husk border. This motif occurs on vessels made between 1790 and 1820 (the Ch'ien Lung and Chia Ch'ing periods of the Ch'ing dynasty) (Gordon 1977; Noel Hume 1970:258). Specimen c is particularly interesting as it is one of the few cases of crossmending between excavation areas at Fort Ross. One fragment was recovered from the Trash Dump site located outside the stockade in the ravine and the other two fragments were found in the Officials' Quarters area.

Stoneware

Stoneware has a dense, vitrified clay body that is extremely hard and non-porous. It is fired at a higher temperature than earthenware. The stoneware class in this study was divided into three groups on the basis of the color of the clay body. This classification system differs from that of Barclay and Olivares (n.d.) with regard to stoneware since it includes white stoneware (Types 11 and 12) while theirs considers only grey and buff.

Grey-bodied stoneware decorated with an earthenware slip is considered as Type 6. Only five sherds of this type were identified, all from the Kuskov area. It is not identified with any historically known product. Types 7 and 8 are also grey-bodied stoneware but represent Chinese overseas wares, temmoku and celadon rice bowls, respectively. Temmoku is a type of brown-glazed grey stoneware usually in the form of crudely made bottles and jars used to ship condiments such as soy sauce from China. Types 7 and 8 are very common in later 19th century sites associated with the presence of Chinese laborers. Overseas ware rice bowls are typically grey porcelaneous stoneware with a light celadon colored glaze and underglaze painted decoration. There are three or four standard designs for the decoration. Types 9 and 10 are simply unglazed and glazed versions of buff-colored stoneware. These types have not been linked to an historically-known product and are not present in any significant quantity at Fort Ross.

White salt-glazed stoneware (Type 11) was very common during the latter half of the 18th century in Britain and America. Although

it was produced as plain plates, the most characteristic form is a molded plate usually in very elaborate pierced and relief designs. All of the examples identified at Fort Ross are plain pieces with the distinctive "orange peel" surface texture which identifies the type. This texture is the result of the addition of rock salt to the kiln during firing which causes a slightly pitted surface.

In their efforts to produce stronger and whiter clay bodies, British ceramic manufacturers also developed an improved variety of white stoneware in the early years of the 19th century. This ware is characterized by a hard, dense, greyish-white clay body with a heavy, clear glaze (Type 12a). It is usually referred to as ironstone. Spode introduced his version of "stone china" in 1805. C. J. and G Miles Mason patented their "ironstone" in 1813 (Honey 1962:222; Noel Hume 1970:130-31).

Earthenware

Until about the middle of the 18th century, the British and European ceramic industries produced a wide variety of earthenwares and stonewares including white salt-glazed stoneware, tin-enamelled earthenwares (known as delft in England, maiolica in Spain and Italy and faience in France) and glazed redwares in addition to other ceramics. About that time, major innovations in ceramic technology, coupled with the greater availability of raw materials and improved industrial processes in England, enabled British potters to develop a high quality, refined cream-colored earthenware. Examples of this ware produced in the late 18th and early 19th centuries are known

today as creamware (Miller 1980:1; Towner 1957:1). The superior qualities of this ware as well as "tariffs against Chinese porcelain, favorable trade treaties with the continent, and astute marketing of creamware...culminated in English domination of the world ceramic tableware trade by the 1790's" (Miller 1980:1). Creamware rapidly replaced salt-glazed stoneware and tin-enamelled earthenwares for domestic and commercial use throughout Great Britain, Europe and America.

Creamware

The first creamware was likely produced by Thomas Astbury between 1720 and 1740 using calcined flint and Devonshire clay fired at a relatively low temperature. Experimentation with the effects of different clays led to a refinement of the early cream-colored earthenwares. Cornish china clay and china-stone were found to produce a very pale ceramic body as opposed the deep yellow wares achieved by the use of other clays (Towner 1957:3).

The introduction of fluid glaze around 1740 led to the use of a double-firing process whereby the unglazed piece was fired to form bisque or biscuit ware, then the liquid glaze was applied and the piece refired (Towner 1957:2). The use of liquid glaze also permitted greater variation in the methods by which an item could be decorated. By the 1760s Josiah Wedgewood was producing a pale cream-colored ware with a slightly yellowish-green glaze (Towner 1957:3; Savage, Newman and Cushion 1974:88). Although true creamware was made in a range of yellowish shades, the classic version is the pale variety

with the slightly green cast to the glaze where it pools around the base and handles. Individual factories made either pale or deep yellow creamware but could not produce both color varieties at the same time (Towner 1957:3). In the 18th century, creamware was most often decorated, using either stencilling or transferprinting. The warm yellowish ground lent itself particularly well to black or iron red designs.

Pearlware

Between 1765 and the early 1770s, Josiah Wedgwood developed a ceramic body whiter than the classic creamware. Containing increased amounts of flint and small amounts of cobalt, it was known as "Pearl White" (Noel Hume 1970:128). Although pearlware, as the type became called, eventually displaced creamware from the dominant position in the world tableware market, the two varieties of earthenware were produced simultaneously and often employed the same vessel shapes and decorative methods. Transferprinted and annular decoration, for example, appear on both creamware (Types 17a, 17b and 18) (Photograph 11) and on pearlware (Types 21 and 24) (Photographs 7, 10, 11 and 12).

Pearlware has a cool greyish-white color which complements blue decoration especially well. Pearlware with blue or polychromatic hand-stenciled floral motifs (Types 23a and 23b) was extremely popular during the late 18th and early 19th centuries. Handpainted decoration in underglaze blue (Type 23a) was applied to creamware and on pearlware until about 1805 or 1810 (Noel Hume 1970:129).

> From about 1795, pearlware was also decorated in underglaze polychrome colors usually in floral or geometric patterns. Examples of 1795-1815 are generally in soft pastel hues [which is the palette found on sherds from Fort Ross], but thereafter, and continuing to about 1835, directly stenciled floral patterns in bright blue, orange, green, and a pinkish red became the vogue among the poorer classes (Noel Hume 1970:129). Photographs 8 and 9 illustrate blue hand painted pearlware (Type 23a) and polychrome hand-painted pearlware (Type 23b), respectively.

The most common form of pearlware in Colonial America is blue and green shell-edged (Types 20a and 20b) (Photograph 6). "Early examples (c. 1780-95) are generally well-painted,.... but later,...it was common to sweep the brush laterally around the edge to produce a mere stripe. Such debasement is usually found on examples dating later than 1800 or 1805" (Noel Hume 1970:131). All but one of the shell-edge pearlware sherds found at Fort Ross exhibits the characteristics of the later, poorer quality wares. "Sometimes the rims were embossed with feather-like devices, fish scales, floral garlands, and even human and animal figures...they are unlikely to date prior to 1800" (Noel Hume 1970:131). These embossed edge-decorated types are classified in this analysis as Types 20c and 20d (Photograph 6).

The second most common kind of pearlware in Colonial contexts is annular ware. It is characterized by horizontal bands of color, a combination of black, green, light brown, or pale blue. Often annular wares had lathe-turned grooves in rectilinear patterns in addition to the painted banding (Photograph 7). This method of decoration on creamware is classified as Type 18, and Type 21 when it appears on pearlware. Annular pearlware was popular from 1795 to 1815, occurring on mugs, jugs, and bowls (Noel Hume 1970:131).

One of the more interesting types of ceramics from a technological point of view is mocha ware (Type 22). It is essentially annular ware with a tree-like ornament, sometimes appearing between the bands of color. It was made throughout the 19th century usually in the form of mugs and pitchers. The earliest dated example is a mug from 1799 (Noel Hume 1970:131). The decoration was created by the chemical reaction of an acidic colorant, called "tea", applied to an alkaline ground. The tea consisted of a mixture of tobacco juice and urine. Mocha was an inexpensive, utilitarian ware often found in public houses (Godden 1974:222; Noel Hume 1970:131). Mocha decoration was used on creamware, pearlware, and on white earthenware beginning before 1785 according to some ceramic experts (Savage, Newman and Cushion 1974:194). Photograph 7, specimens g and h are examples of mocha recovered from Fort Ross.

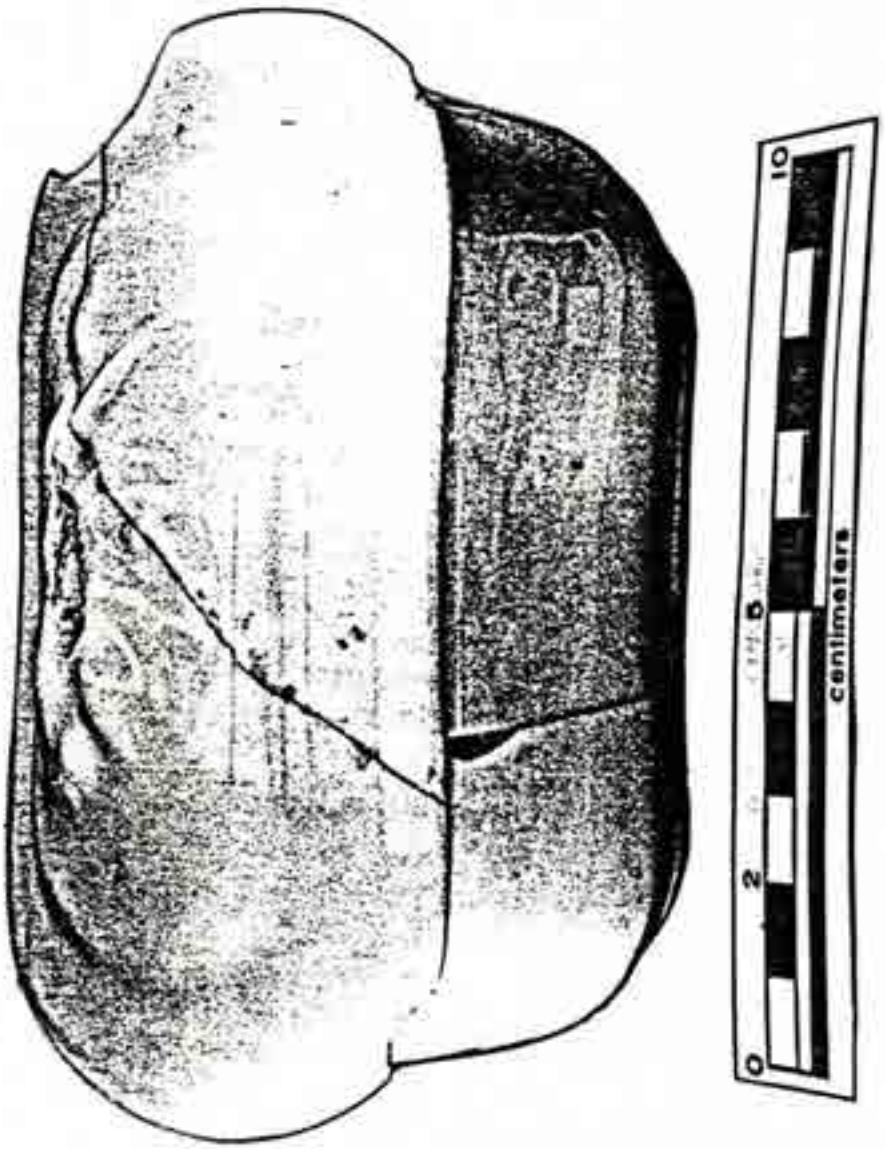
Transferprinting is a method of decoration in which a design, engraved on a copper plate, is transferred to a ceramic vessel by means of a paper (or later, a glue) vehicle. The vessel would then be refired to seal the decoration. This process was first developed in the mid-18th century (Godden 1974:228; Honey 1962:222) when it was used to decorate creamware. As early as 1787, transferprinting was used on china glaze (another term for pearlware) (Noel Hume 1970:128). The Fort Ross collection includes four examples of transferprinted creamware (Type 17) (Photograph 11, specimens a and b) and 759 fragments of transferprinted pearlware (Type 24) (Photographs 10, 11, 12 and 13).

Whiteware

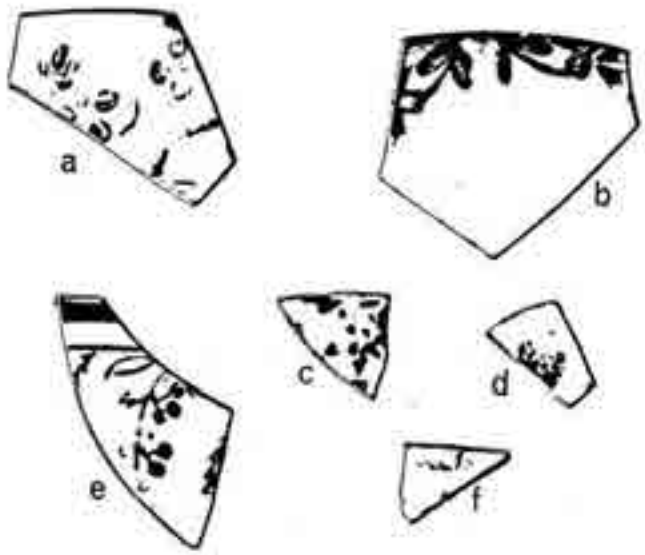
In the 1820s, British potters began to produce the white pearlware clay body with a clear glaze rather than a bluish one. This product, known today by the generic term whiteware (Type 25) persisted with modifications throughout the 19th century (Miller 1980:1). A cream-colored ware, distinct from true creamware, was produced during the 19th century and is, indeed, still manufactured as very inexpensive earthenware. This cream-colored ware, called "CC" in the 19th century literature, is difficult to distinguish from genuine creamware in the Fort Ross assemblages. One of the characteristics of true creamware is its thin, delicate walls which give creamware a very light weight. The specimens classified as 16a (creamware) exhibit this characteristic. The vast majority of cream-colored sherds could not be reliably assigned to the genuine creamware category and are therefore classified as Type 16, which would include all cream-colored wares produced during the 18th, 19th, and 20th centuries.

By the time whiteware had evolved from its creamware and pearlware antecedents in the 1820s, and white stone china and ironstone developed from 18th century white stoneware, the observable differences between ceramic wares diminished to the point that 19th century wares cannot be readily distinguished from one another. Within a range of degrees of density and variations of glaze characteristics, 19th century earthenwares and stonewares are relatively homogeneous. It is for this reason that pearlware and white-ware are not distinguished in th typology.

Table 2 presents the distribution of the ceramic types by excavation area. When more than one excavation took place in an area (the Kuskov House and the Officials' Quarters), the counts for each season's excavations were combined to yield one total for each type. All the subsequent analyses are based upon these figures except the vessel form analysis which relies solely on the 211A (1970-1971) assemblage from the Officials' Quarters (called the Officers' Barracks at that time).

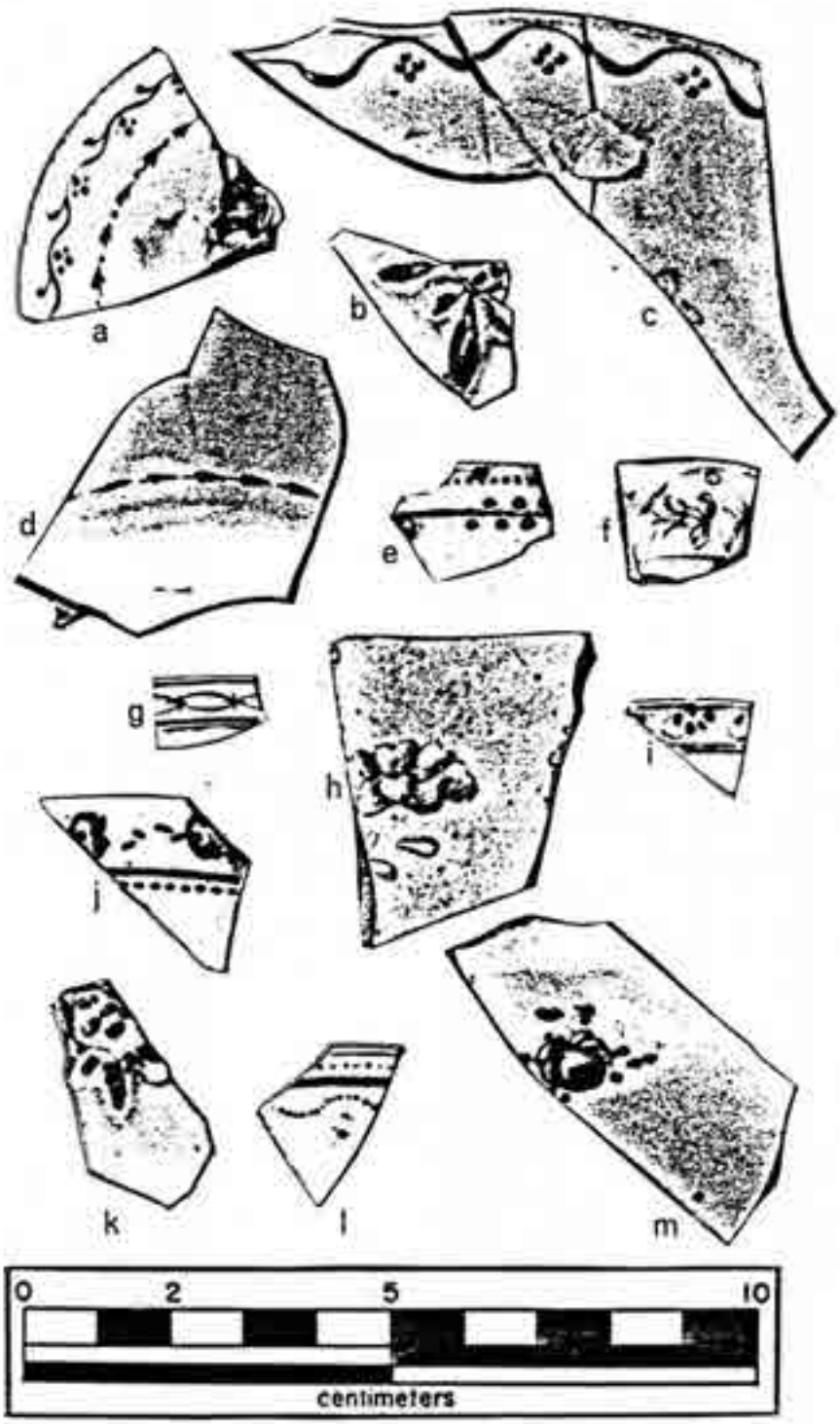


Photograph 1. Type 1a



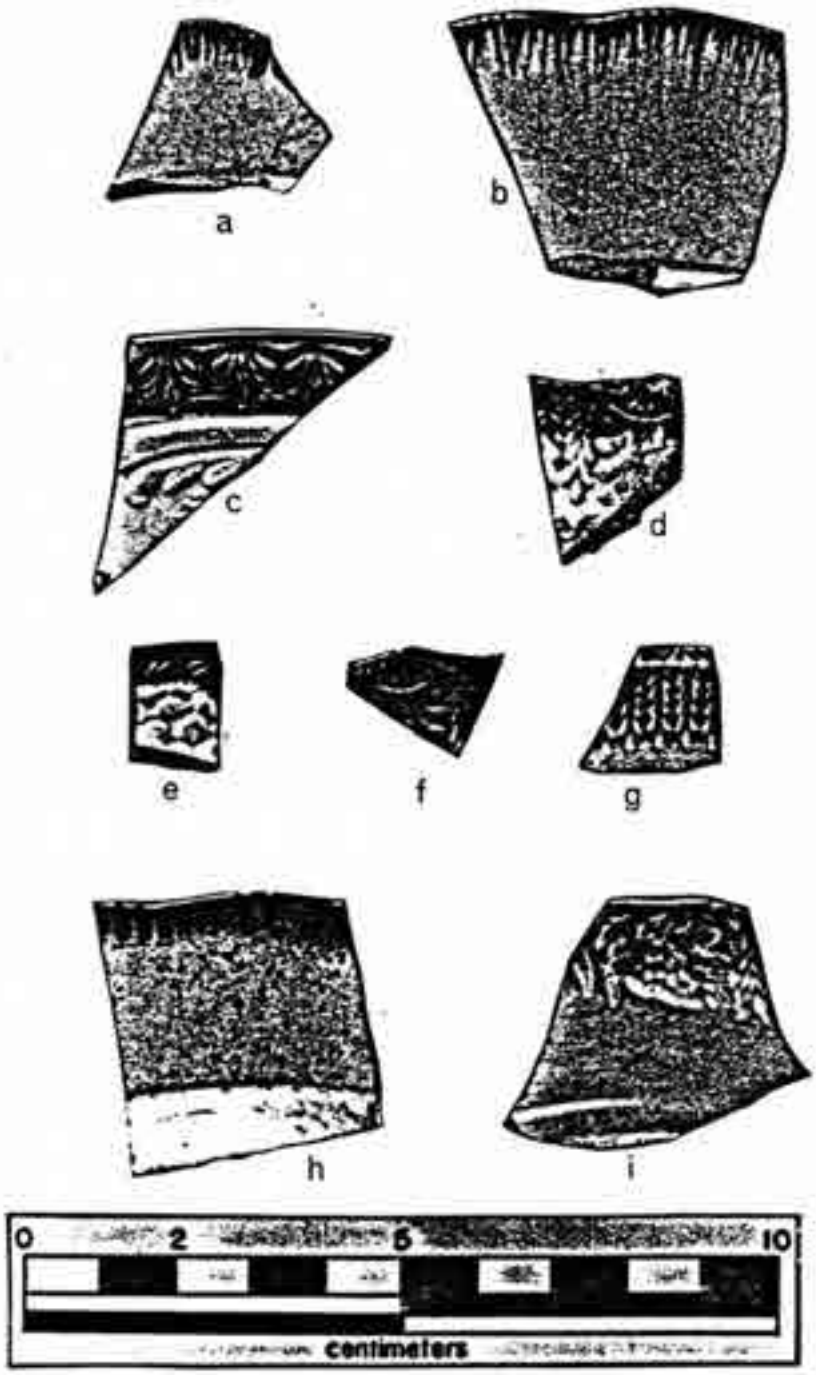
Photograph 2. Type 3b

Photograph 3. Type 4

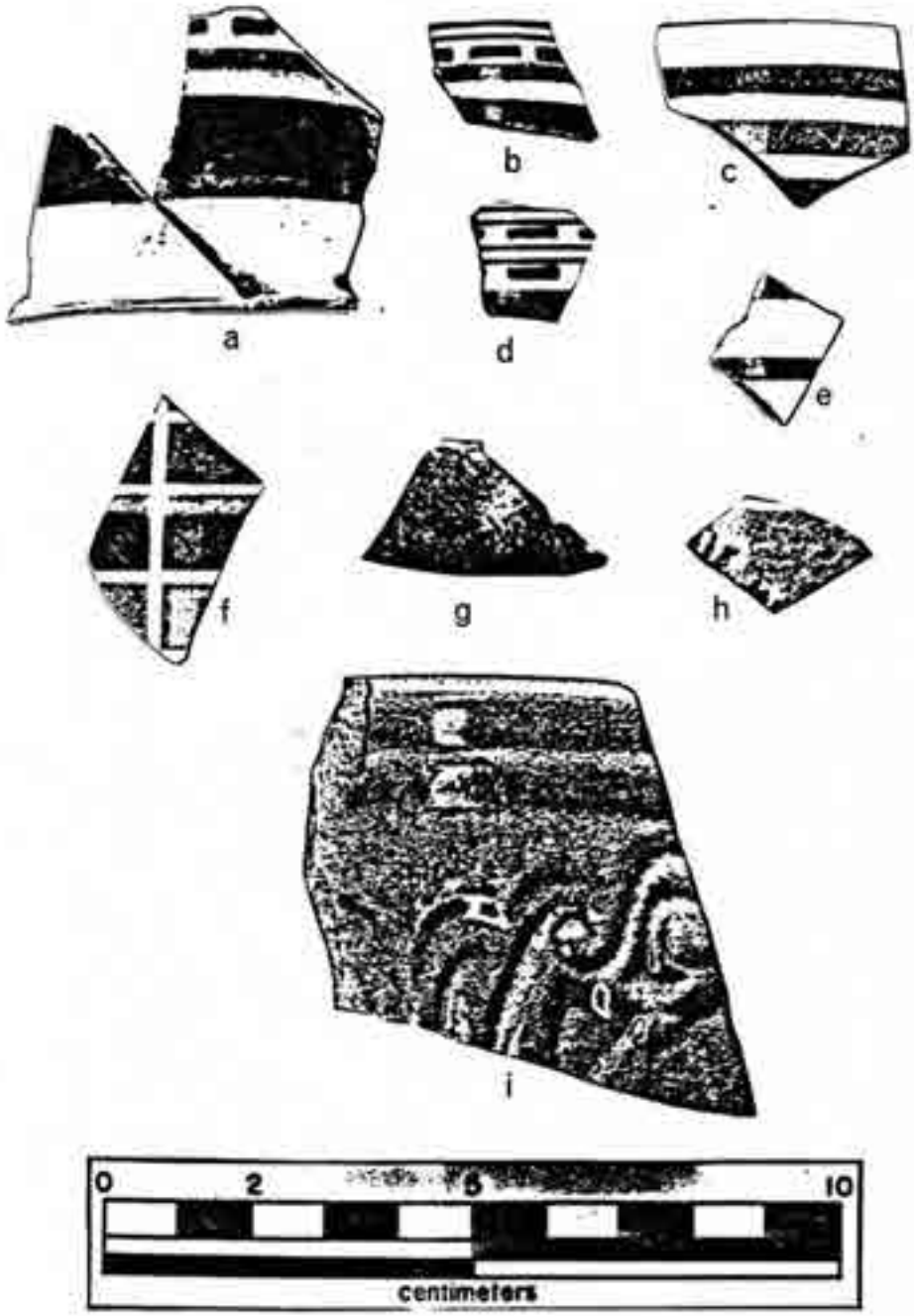


Photograph 4. Types 5b and 5c

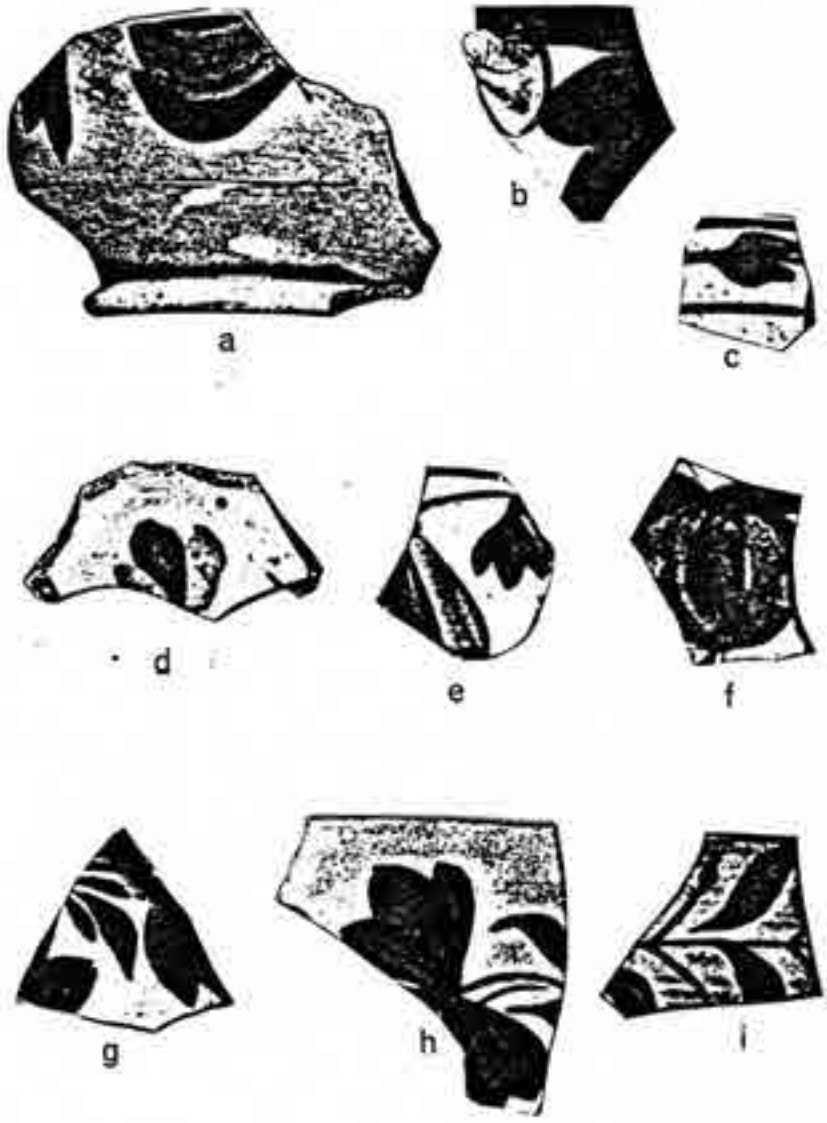
Photograph 5. Type 13



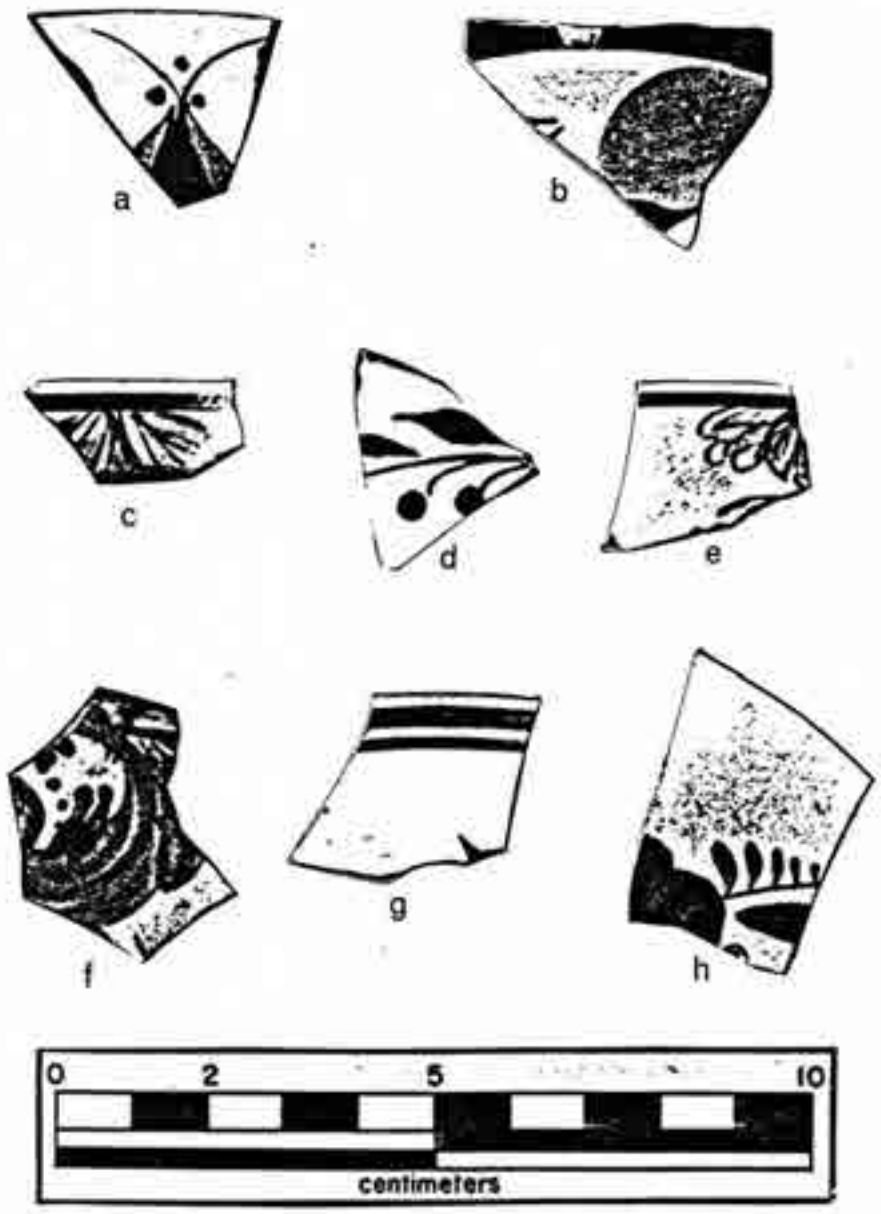
Photograph 6. Type 20



Photograph 7. Types 21, 22 and 28



Photograph 8. Type 23a

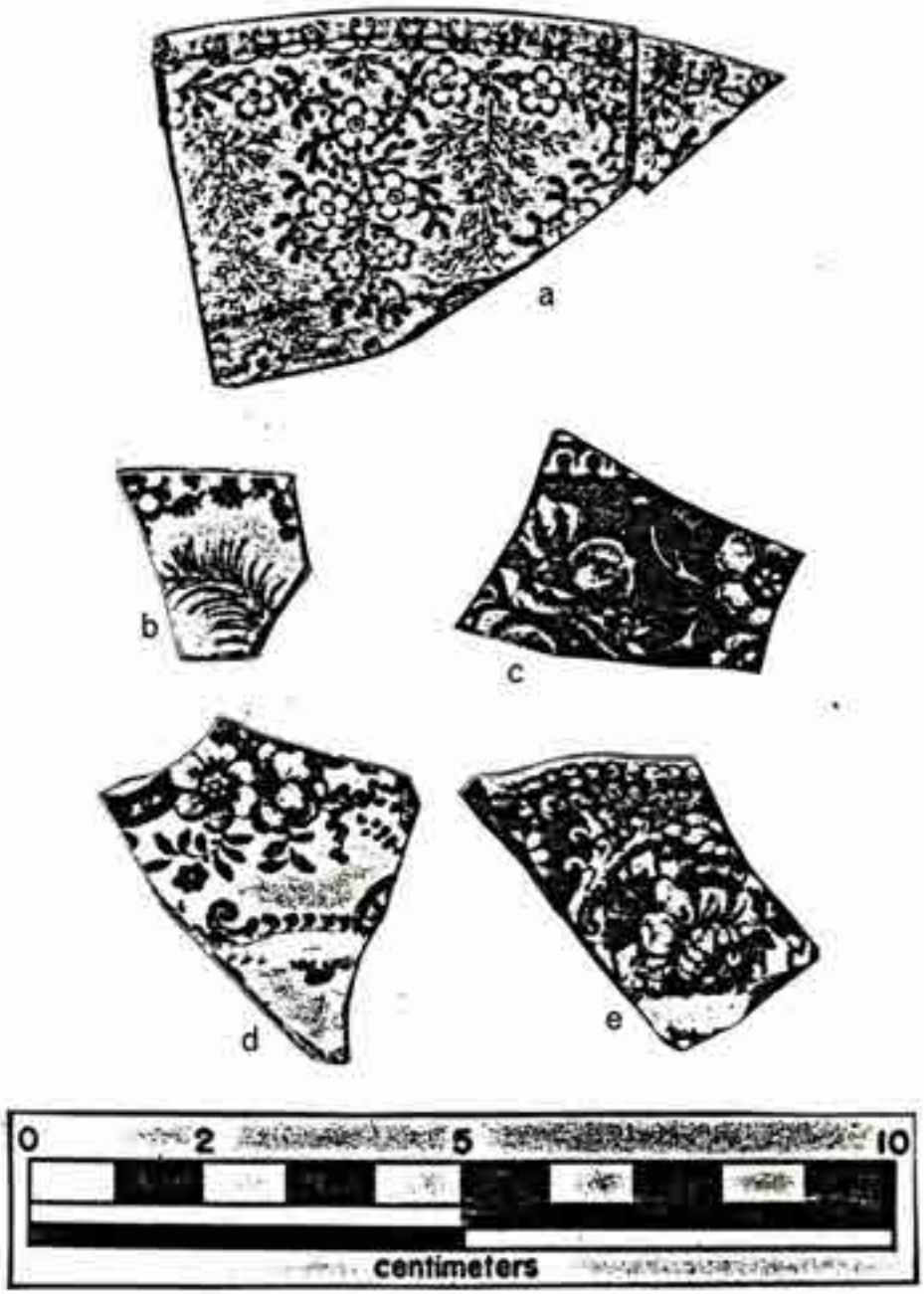


Photograph 9. Type 23b

Photograph 10. Type 24a

Photograph 11. Types 17a, 24b, 24d, 24e, 24

Photograph 12. Type 24c



Photograph 13. Types 24a and 24f

Table 2

Distribution of Ceramic Types by Excavation Areas, 1970-1979

Type	Barns	SE Area	Kuskov	Off Qtr	Chapel	Mad-Shui-Nui	Trash	High-way	Total
1a	4	0	1	15	0	0	0	2	22
1b	51	22	41	289	9	27	5	171	615
2	0	0	1	10	0	0	0	0	11
3a	2	0	2	24	0	0	0	0	28
3b	10	4	12	85	0	8	4	4	127
3c	0	0	0	10	0	0	0	0	10
4	25	2	29	270	0	20	8	90	444
5a	0	0	0	7	0	0	1	0	8
5b,c	16	0	12	114	0	0	6	6	154
5d	18	5	13	94	0	5	1	14	150
6	0	0	5	0	0	0	0	0	5
7	0	0	0	25	0	0	0	0	25
8	0	0	0	2	0	0	0	0	2
9	0	0	0	1	0	0	0	0	1
10	2	0	0	5	0	0	0	2	9
11	0	0	2	13	0	0	0	0	15
12a	51	27	45	320	9	8	16	0	476
12b	0	0	2	0	0	0	0	0	2
13	0	0	0	9	0	0	0	0	9
14a	0	0	3	0	0	0	0	0	3
14b	0	0	0	1	0	0	0	0	1
14c	0	0	0	7	0	0	0	0	7
15a	0	0	2	9	0	0	0	0	11
16	164	50	322	1260	10	118	68	539	2531
17	0	0	0	4	0	0	0	0	4
18	0	0	0	5	0	0	0	0	5
19a	6	19	1	167	0	8	76	79	356
19b	0	1	1	26	0	0	1	0	29
20	2	3	17	67	0	4	2	22	117
21	1	0	18	30	0	6	0	17	72
22	1	0	1	2	0	0	1	7	12
23a	71	4	43	273	3	38	14	178	624
23b	18	3	16	126	0	10	2	27	202
24	32	5	32	358	2	66	10	254	759
25	11	35	0*	683	18	56	0*	0 *	803
26	0	0	1	8	0	0	0	0	9
27	3	0	0	27	0	0	0	0	30
28	0	4	28	44	0	1	0	47	124
Total	488	184	647	4393	51	371	215	1459	7812

*Type 25 is included under Type 19 counts for these excavation areas' collections.

Vessel Form Analysis

One of the questions I had hoped to address was whether specific ceramic types corresponded to particular vessel forms. To address this question, I began a vessel form analysis which involved taking a large sample of sherds and examining them for specific attributes related to vessel form. I chose to the "211A" collection from the 1970 through 1972 excavations of the Officials' Quarters because it contained the largest number of sherds found in any single excavation area at the fort.

Each sherd from the 211A collection was examined for remnants of a rim or a footring. Once these diagnostic sherds were sorted out, each sherd was measured to determine the arc of the rim or the footring. This arc can then be used to calculate the original diameter of the rim or the footring. Based on comparison of these diameters with rim and ring diameters on contemporaneous and modern vessels, we can estimate the size of the whole vessel. I also noted the angle of the vessel wall in relation to the rim. Plate walls, for example, will have a relatively flat angle in relation to the rim, since the "wall" of a plate rim is roughly parallel to the table surface, whereas the wall of a cup or bowl must be angled enough to enable the vessel to contain liquid. Sherds which have a 0 to a 45 degree angle were considered to represent flatware and those with a 45 to a 90 degree angle were interpreted as being holloware.

Table 3 is a summary of the broad categories of vessel forms (holloware and flatware, i.e. cups and bowls and plates) per type as represented in the 211A Collection sample recovered from excavations

conducted at the Officials' Quarters from 1970 to 1972. As we can see from the totals the holloware category contains about 40 percent more sherds than the flatware category. When we break the ratios down by ceramic types we find that there is a 3/1 ratio of transfer-printed (Type 24) holloware to flatware, almost all the underglaze painted pearlware (Type 23) is holloware, all the annular (Type 21) and mocha (Type 22) specimens are holloware while all the edge-decorated pearlware (Type 20) is flatware. When we look at the porcelain category overall, we find a 2/1 ration of holloware to flatware, but when we exclude the Canton pattern, we find a 9/1 ration of cups and bowls to plates. Only the cream-colored earthenware category (Type 16) shows a nearly equal distribution of vessel forms. Type 16, we must remember, represents undifferentiated cream-colored wares which include true creamware but also include any cream-colored wares produced throughout the 19th century. Type 16 is therefore not a reliable indice of Russian-period ceramic use or distribution.

Table 3

Vessel Forms Identified in the 211A Sample

Type	Description	Holloware	/	Flatware
Porcelain				
3a	White:Gilded	4	/	0
3b	White:Polychrome	10	/	0
4a	Canton	3	/	14
4b	Nanking	4	/	0
4c	Nonwhite:U.G. Monochrome	2	/	3
5b	Nonwhite:Polychrome	4	/	1
5c	Nonwhite:Monochrome	13	/	0
	Subtotal	40		18
Stoneware				
11	White:Saltglazed	4	/	9
12a	White:Ironstone	0	/	4
	Subtotal	4		13
Earthenware				
16	Cream-colored	51	/	48
18	Annular creamware	2	/	0
19a	Undecorated pearlware	8	/	3
20a	Shelledge:Blue	0	/	14
20b	Shelledge:Green	0	/	4
20c	Embossed:Blue	0	/	4
20d	Embossed:Green	0	/	2
21	Annular pearlware	1	/	0
22	Mocha	1	/	0
23a	Painted pearlware:Blue	43	/	1
23b	Painted pearlware:Polychrome	13	/	0
24a	Transferprint:Blue	24	/	3
24b	Transferprint:Green	0	/	2
24c	Transferprint:Red	6	/	0
24e	Transferprint:Black	1	/	0
24f	Transferprint:Light Blue	0	/	1
24g	Transferprint:Brown	1	/	4
	Subtotal	151		86
	Total	195		117

Figures 1 and 2 illustrate the relative frequencies of these vessel forms by ceramic type. We can see that for the 211A collection cream-colored earthenware (Type 16), blue underglazed painted pearlware (Type 23a) and blue transferprinted pearlware (Type 24a) dominate the holloware category. These specimens likely represent teacups. Cream-colored earthenware (Type 16) was the most common ceramic type found in plates in this sample. While the various kinds of earthenwares were the most common ceramics, there is a relatively high percentage of porcelain. In the porcelain holloware category, there was a higher proportion of white polychromatic enamelled porcelain (Type 3b) than Chinese Export porcelain (Types 4 and 5). It is also apparent from the bar graphs (Figure 1) that decorated earthenware, whether painted underglaze or transferprinted occurred overwhelmingly as small holloware items, probably cups, but not as plates, suggesting that the more highly decorated and expensive ceramic items were those associated with consuming beverages rather than eating solid foods.

Figure 1

Holloware by Type

Cups and Teabowls
(Rim diameter is less than 15 cm)

Type	Count (X = 1)
3a	XX
3b	XXXXXXXX
4a	XXXX
4b	XXX
5b	XXXX
5c	XXXXXX
11	X
16	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
16a	XXXX
18	X
19	XXXXXX
20c	X
23a	XXXXXXXXXXXXXXXXXXXXXXXX
23b	XXXXXXXXXX
24a	XXXXXXXXXXXXXXXXXX
24c	XXXXX
24e	X
24g	X
25	X

Large Bowls
(Rim diameter exceeds 15 cm)

4c	XXX
5b	XXX
5c	X
6	X
16	XXXXXXXXX
19a	XX
20a	X
21	X
23a	X
23b	XXXXX
24a	XXXXX
24c	X

Figure 2

Flatware by Type

Type	Count (X = 1)
Small Plates (Base diam. < 12cm; rim diam. < 23cm)	
4a	XX
5b	X
11	XX
12a	XX
16	XXXXXXXXXXXXXXXXX
20a	X
23a	X
24	X
24g	XX
25	X
Large Plates (Rim diam. 24-28cm; base diam. 23-16cm)	
4	X
4a	XX
4c	X
11	XXXXXX
12a	X
16	XXXXXXXXXX
20a	X
20c	X
24g	X
Platters (Rim diam. exceeds 28cm; base diam. exceeds 16cm)	
4a	XX
24g	X

If we were to extrapolate the frequencies of these vessel forms-per-type to other Fort Ross collections, we could predict the vessel forms of each ceramic type that were used elsewhere at the site. For example, based upon the results of the analysis of the 211A sample, how many blue underglaze painted cups (Type 23a) would we expect at the Kuskov House area? Of the 169 sherds in the 211A sample that are Type 23a, only 27 of them were diagnostic for vessel form, that is, they had parts of rims or bases. Of these, 25 represented cups. Therefore, roughly 15 percent of the total number of Type 23a sherds in the sample were determined to have been fragments of cups. The nature of the ceramic assemblage at Fort Ross prohibited a determination of the minimum number of vessel forms. The 15 percent figure is a valid representation of the number of cup fragments, but not the number of cups in the sample. There were 43 Type 23a sherds recovered from the Kuskov area, meaning that roughly six of these sherds (15%) would be expected to represent cup fragments.

Now let us predict the number of Type 23a cup fragments there may have been in the entire Officials' Quarters area (combining the 211A collection with the 1976 Officials' Quarters collection and the 1979 utility line in that area). Altogether there were 273 Type 23a sherds found at the Officials' Quarters. Applying the 15 percent factor would yield 40 sherds representing Type 23a cup fragments. There were therefore almost 7 times more Type 23a cup fragments at the Officials' Quarters than there were at the Commandant's house. This is not surprising, of course, since more people lived at the

Officials' Quarters than at the Commandant's house. Table 4 presents the results of this extrapolation for the Kuskov House, the Barns Area, the entire Officials' Quarters' collection and Mad-Shui-Nui.

Table 4

Application of Vessel Form Analysis Results
To Selected Collections**

		Kuskov		Barns		Total Officials' Quarters		Mad-Shui-Nui	
Type #	% of v.f. in 211A	#s.	#v.	#s.	#v.	#s.	#v.	#s.	#v.
					Cups and Teabowls				
3a	15	2	0	2	0	24	4	0	0
3b	17	12	2	10	2	85	14	8	1
4	4	29	1	25	1	270	10	20	0
5b,c	23	12	3	16	5	114	26	0	0
16	9	322	29	164	15	1260	113	118	11
18	20	0	0	0	0	5	1	0	0
19	6	6	0	2	0	193	11	8	0
23a	16	43	7	71	11	273	44	38	6
23b	16	16	3	18	3	126	20	19	2
24	15	32	5	32	5	358	54	66	10
25	2	0	0	11	0	683	14	56	1
Total			50		41		311		31
					Large Bowls				
5b	75	12	9	16	12	114	85	0	0
20a*	7	17	1	2	0	67	5	4	0
21	5	18	0	1	0	30	2	6	0
23b	8	16	1	18	1	126	10	10	0
Total			11		13		102		0
					Large Plates				
4	1	29	0	25	0	270	3	20	0
16	3	322	10	164	5	1260	38	118	4
20	8	17	1	2	0	67	5	4	0
24	.5	32	0	32	0	358	2	66	0
Total			11		5		48		4

Table 4 (continued)

Application of Vessel Form Analysis Results
To Selected Collections

		Kuskov		Barns		Total Officials' Quarters		Man-Sui-Nui	
Type #	% of v.f. in 211A	#s.	#v.	#s.	#v.	#s.	#v.	#s.	#v.
				Small Plates					
4	1	29	0	25	0	270	3	20	0
5b,c	2	12	0	16	0	114	2	0	0
16	4	322	13	164	7	1260	50	118	5
20	4	17	0	2	0	67	3	4	0
23a	.5	43	0	71	0	273	1	38	0
24	2	32	0	32	0	358	7	66	1
Total			13		7		66		6

*The 7% factor is based on only one sherd. While Type 20a did occur as hooloware, it is very unlikely that 7% of the collection would be expected to be holloware.

**v.f. - vessel form; #s. - actual number of sherds; #v. - projected number of vessels.

In this chapter, I classified the sherds into a typology and presented the distributions of the types by excavation areas. I then analyzed a sample of the assemblage to discern the vessel forms present. This information was then used to extrapolate a distribution of vessel forms to other areas of the site. Having established the classification system and presenting the distributions and frequencies of ceramic types and vessel forms, I can now apply this data to a

number of research questions. First, I shall turn to the question of site chronology.

CHAPTER III

THE CHRONOLOGICAL STUDIES

Mean Ceramic Date Formula

The historic record provides precise information regarding the occupation periods of Fort Ross. Such information, however, is seldom available for historical archaeological sites, especially those in remote areas or dating to the 18th or early 19th centuries. In these cases, the archaeologist must develop analytical tools with which to extract chronological information from the archaeological record.

One of the most important recent contributions to the study of industrially produced ceramics in archaeological contexts is the Mean Ceramic Date Formula developed by Stanley South. He builds a chronological model on which to base his analytical tool (the formula). The model was constructed using information on ceramic manufacture date ranges provided by Ivor Noel Hume in his book A Guide to Artifacts of Colonial America (1970). South calculated the median date for over 70 ceramic types found in British-American archaeological sites. The formula considers the presence of all ceramic types found at the site and the frequency of sherds of each type to arrive at the mean ceramic date for the site (South 1978).

"Where the mean ceramic date Y is expressed:

$$Y = \frac{\sum_{i=1}^{n} x_i \cdot f_i}{\sum_{i=1}^{n} f_i}$$

where x_i = the median for the manufacture of each ceramic type
f_i = the frequency of each ceramic type
n = the number of ceramic types in the sample "(South 1978:72

Table 5 illustrates the application the this formula to the collection at Fort Ross. The sherd counts were derived from all the excavation areas within the stockade, the Trash Dump, the Highway Area and Mad-Shui-Nui.

Table 5

Application of South's Mean Ceramic Data Formula

Type #	Median Date	Sherd Count	Product
12a	1857	476	883932
16	1820*	2531	4606420
17	1790	4	7160
18	1798	5	8990
19a	1805	356	642580
20	1805	117	211185
21	1805	72	129960
22	1843	12	22116
23a	1800	624	1123200
23b	1805	202	36461
25	1860	803	1493580
Total		5202	9493733

$$\frac{9493733}{5202} = 1825.0$$

*Median date for #16 was derived from the date of creamware's introduction (1740) through the end of the 19th century (1900) since cream-colored wares were produced for utilitarian vessels throughout the 19th century.

According to South's formula the mean ceramic date for Fort Ross is 1825. The actual median date for the Russian occupation is 1826.5 (1812-1841) while the median date for the entire occupation of the site (1812-1906) is 1859. Obviously the mean ceramic date most accurately reflects the Russian period. This is because the majority of the sherds are from types dating to the late 18th or early 19th centuries. In fact, at most only 18 percent of the sherds recovered at Fort Ross represents wares produced after 1850. Figure 3 presents the mean date and date ranges within the context of the site's history.

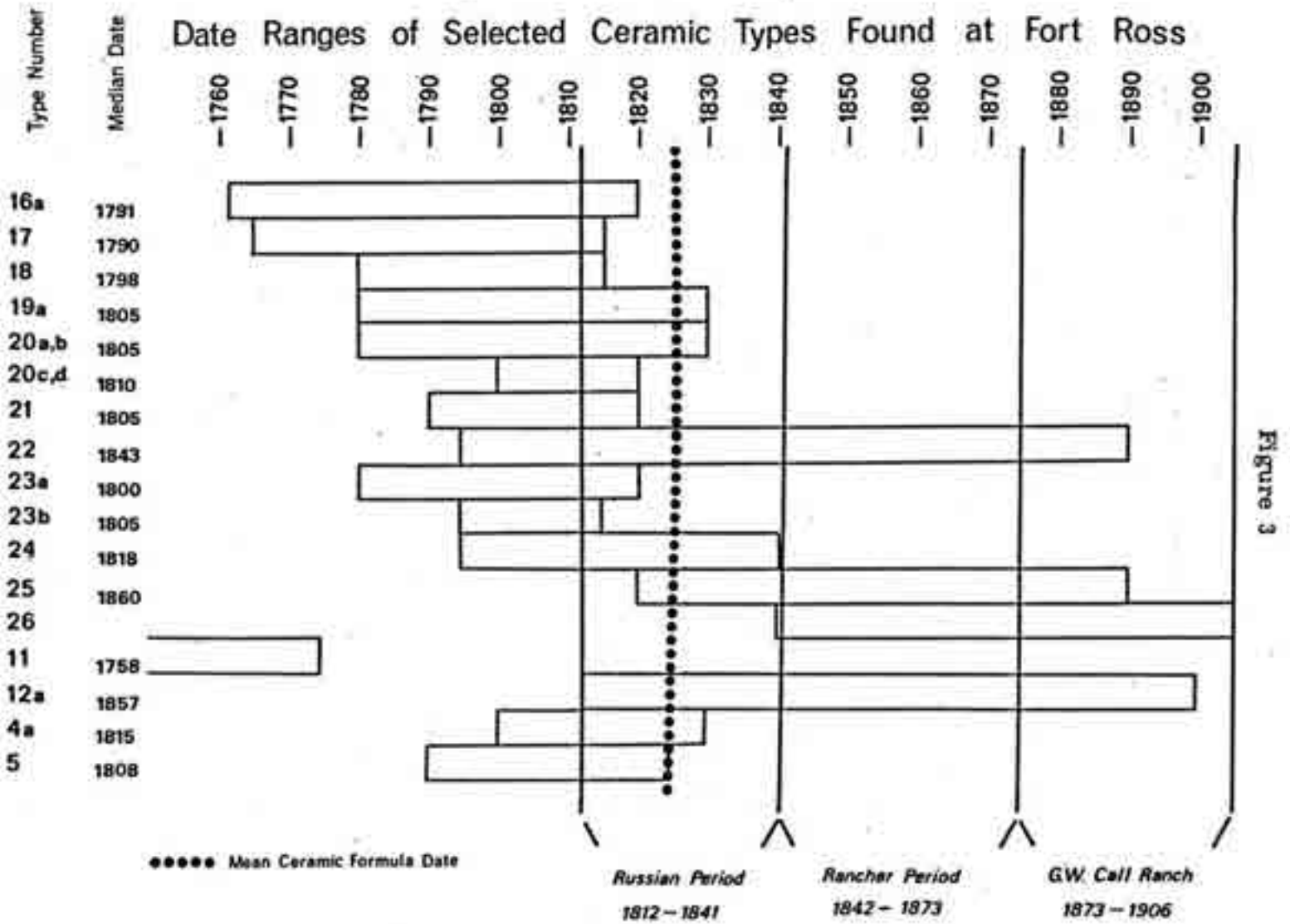

Date Ranges of Selected Ceramic Types Found at Fort Ross
Type Number
Median Date
1760
1770
1780
1790
1800
1810
1820
1830
1840
1850
1860
1870
1880
1890
1900
16a 1791
17 1790
18 1798
19a 1805
20a,b 1805
20c,d 1810
21 1805
22 1843
23a 1800
23b 1805
24 1818
25 1860
26
11 1758
12a 1857
4a 1815
5 1808
●●●●● Mean Ceramic Formula Date
Russian Period
1812 – 1841
Rancher Period
1842 – 1873
G.W. Call Ranch
1873 – 1906

Figure 3

Maker's Marks

Yet if we look at manufacturer's marks as an indicator of the site's date range, there is a different story. Table 6 uses the principles behind the Mean Ceramic Date Formula to arrive at a median date of 1862.4 based on maker's marks. We can see that this date more closely matches the actual mean date of 1859 for the entire occupation of Fort Ross (1812 to 1906). When we look at Figure 4 which graphically depicts the maker's marks date ranges, we see that the majority of the marks date from the latter half of the 19th century when it was more common to use maker's marks on ceramics.

A few marks, however, reveal that the specimens on which they occur were produced in the late 18th or the early 19th centuries. As these date ranges roughly coincide with the Russian period at Fort Ross, it is likely that these specimens were used during the Russian occupation of the fort. There are eleven maker's marks on British earthenware whose date ranges indicate the piece was or could have been made before 1841. One mark identifies the manufacturer as Joseph Clementson of Sheldon, England whose factory operated from 1839 to 1864 (Mark 14, Appendix 2). Three sherds bear a mark of the James Clews factory of Cobridge, Staffordshire, England which dated from 1818 to 1826 or 1836 (Mark 15, Appendix 2). Six specimens bear a mark used in the Hartley, Greens and Company of Leeds, Yorkshire between 1781 and 1820 (Mark 24, Appendix 2). The earliest maker's mark in the collection is from the Josiah Wedgwood factory of Eturia, Staffordshire, England. The mark has individually

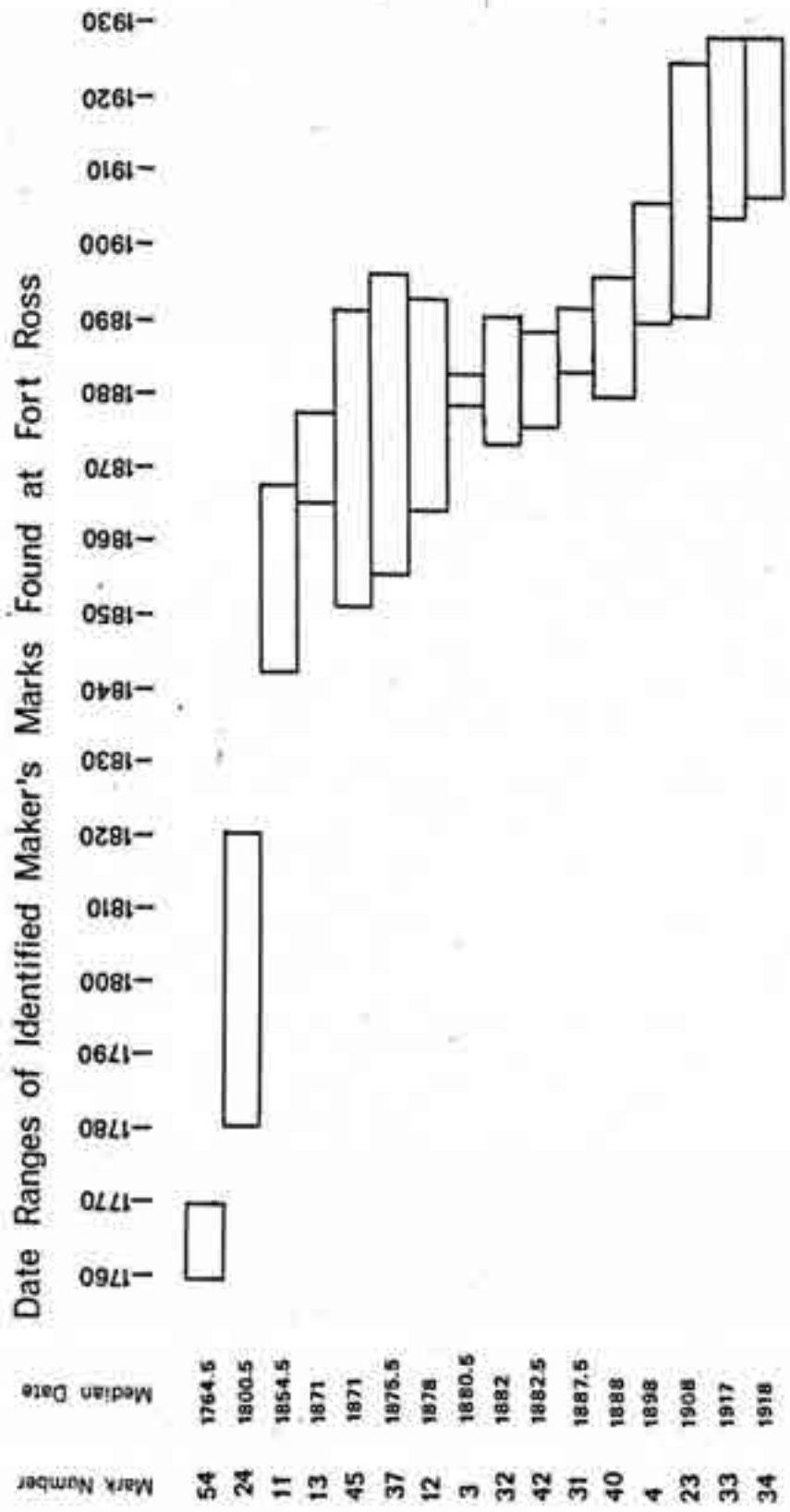
Table 6

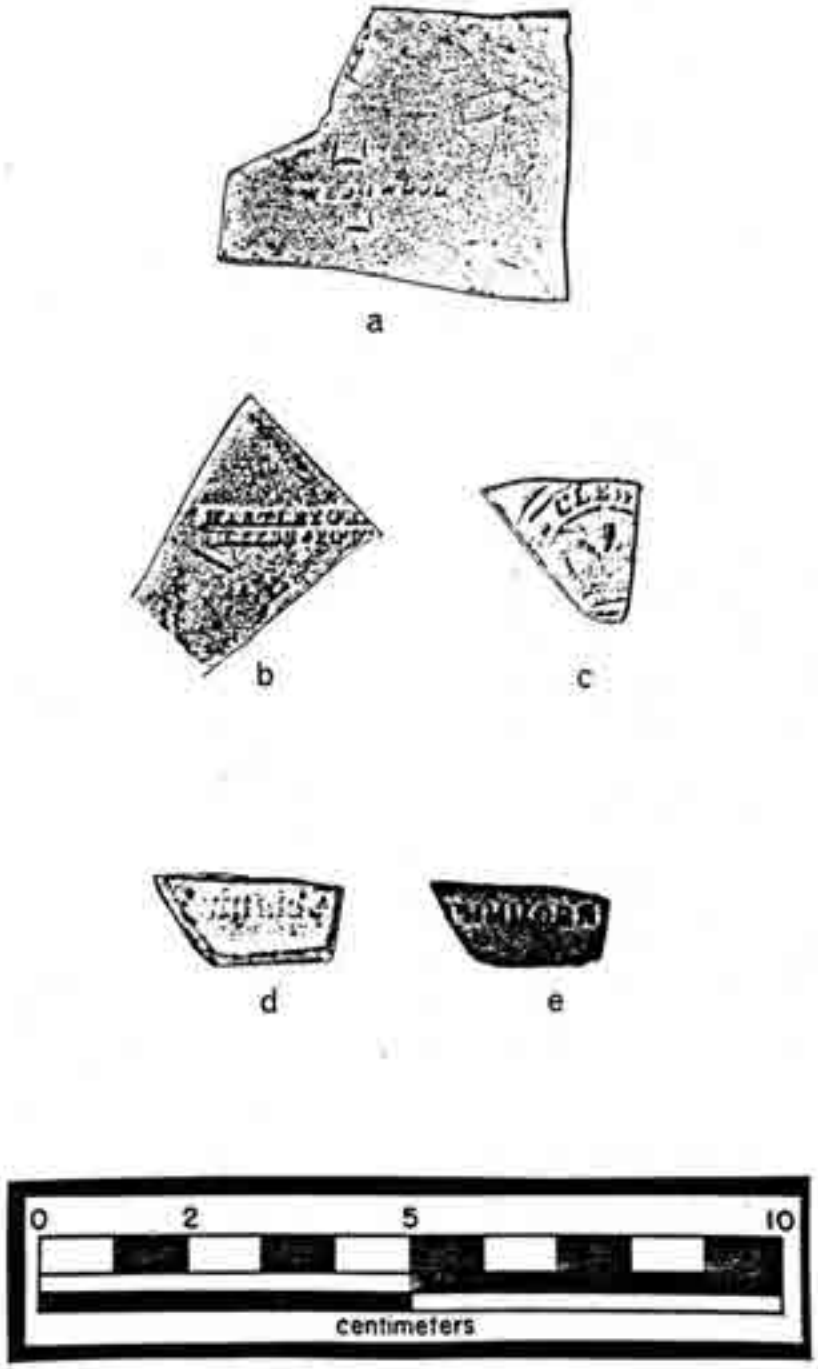
Mean Date Derived from Maker's Marks

Type #	Median Date	Sherd Count	Product
54	1764.5	1	1764.5
24	1800.5	5	9002.5
11	1854.5	4	7418
13	1871	1	1871
45	1871	1	1871
37	1875.5	1	1875.5
12	1878	1	1878
3	1880.5	2	3761
32	1882	1	1882
42	1882.5	3	5647.5
31	1887.5	1	1887.5
40	1888	1	1888
4	1898	2	3796
23	1908	1	1908
33	1917	1	1917
34	1918	1	1918
Total		27	50285.5

$$\frac{50285.5}{27} = 1862.4$$

Figure 4


Date Ranges of Identified Maker's Marks Found at Fort Ross
1760
1770
1780
1790
1800
1810
1820
1830
1840
1850
1860
1870
1880
1890
1900
1910
1920
1930
Mark Number
Median Date
54 1764.5
24 1800.5
11 1854.5
13 1871
45 1871
37 1875.5
12 1878
3 1880.5
32 1882
42 1882.5
31 1887.5
40 1888
4 1898
23 1908
33 1917
34 1918



Photograph 14. Late 18th and early 19 century maker's marks

stamped letters indicating a date between 1759 and 1769 (Mark 54, Appendix 2). Photograph 14 illustrates Marks 15, 24, 54, 79.

One maker's mark that has not been positively identified as to the manufacturer is definitely of Russian origin. It is a partial mark written is Cyrillic script impressed into a piece of glazed earthenware, possibly faience or semi-faience. The letters are (in English transliteration) "...tnikova" (Photograph 14). This may be the mark of E. M. Gusyatnikov, a master potter of Gzhel during the late 18th and early 19th centuries (Popova 1957:126). This publication unfortunately does not provide illustrations of any marks but the name "Gusyatnikov" is the only name of a Russian potter of that time period that contains the same sequence of letters. An attribution of this partial mark to the factory of Gusyatnikov must therefore be considered tentative as best.

Another mark previously identified as being that of Alexsei Gavrilovich Popov (Barclay and Olivares n.d.) should also be considered somewhat tentative since the exact configuration of the mark cannot be discerned. The mark, impressed into a white porcelain covered box, consists of a two-letter monogram the second letter of which is obscured by a break in the vessel. Figure 5 illustrates the mark and the breaks because the mark is not visible in photographs. The Popov factory was started in 1806 by Karl Melli who sold it to Popov in 1811. Popov was at that time a merchant involved in the China trade. If the mark on the box is indeed an "A. P." monogram, it may be one of Popov's "early empire" marks which were either impressed or painted underglaze onto porcelain (Ross 1968:203,206).

However, the "v" shaped crossbar on the "A" does not appear in the published references of Popov's marks. Several Continental and British factories used an "AP" monogram (Cushion and Honey 1965; Chaffers 1946) but these appear mainly on faience, not porcelain, and it is not stated whether they were painted, printed or impressed marks. Given the fact that Popov had a similar mark and used it on porcelain, it is reasonable to assume the covered box is his work.

In this chapter, it was discovered that South's Mean Ceramic Date Formula yields a median date which accurately reflects the Russian occupation of Ross. A date derived from maker's marks alone is remarkably close to the actual median date of the entire occupation of the site. The fact that South's formula accounts for the frequency of types present in a collection is, of course, the key to its success. It is likely South's formula, using distinct ceramic types as the analytical tool, is not applicable to late 19th century sites due to the relative homogeneity of the wares of that period. However, the principles involved in the formula (especially the consideration of frequency) can be successfully applied to later collections using marks rather than ceramic types to derive dates.

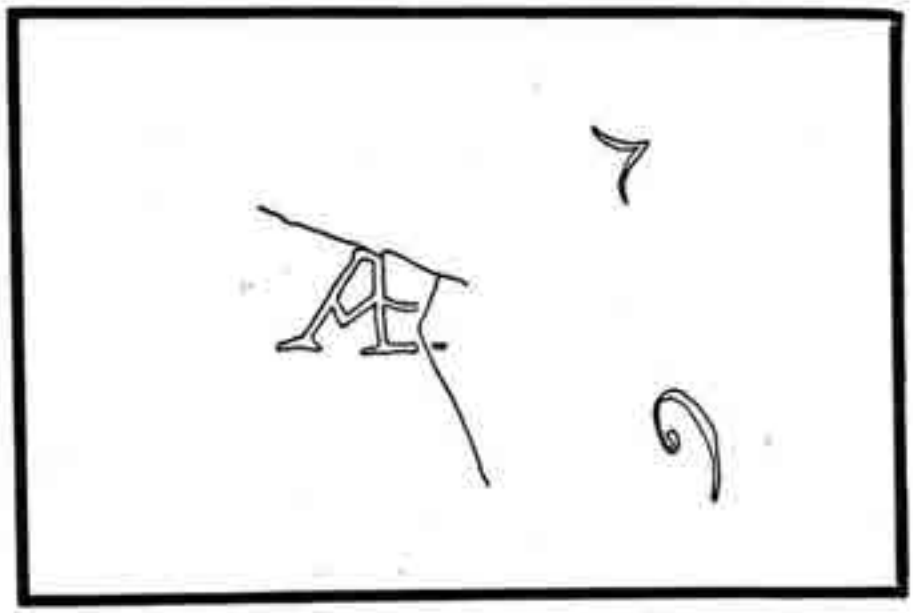


Figure 5. Impressed Mark on Porcelain Box

CHAPTER IV

RUSSIAN ACQUISITION OF CERAMIC GOODS

As I began the historic research on the question of how and from whom the Russian-American Company employees in Alaska and California acquired ceramic goods, I envisioned several alternative methods which can be expressed as three hypotheses:

1) The Russians in Alaska and California produced their own ceramics,
2) They were supplied exclusively from Russian sources,
3) They acquired ceramics from foreign sources by purchase or trade.

I shall examine each hypothesis first with regard to the historic record and then from the archaeological record.

Hypothesis 1

Turning to the first hypothesis, is there evidence in the historic record to indicate the presence of a pottery at Fort Ross? Emil Bunje (1937) states that "wheels, china-ware and other articles manufactured at Fort Ross and New Archangel were sold in California... but, later, the competition of English and American traders ended this commerce." On the other hand, official lists of the workshops

and mills throughout the colonies do not include mention of a pottery (Kostlivtzoff 1860: Appendix; Khlebnikov 1976:75). Kyrill T. Khlebnikov, administrator of the Russian-American Company's New Arkangel office, mentions that as of 1825 the coppersmiths had three workshops in New Arkangel. Two of these shops produced kitchen utensils of copper and tin "such as kettles, drinking cups, teapots, coffeepots, siphons, funnels and other utensils...used for trade...as well as to supply other colonies because utensils are not supplied from Russia" (1976:75).

There is historic evidence that there was a brick kiln in the vicinity of Fort Ross. Khlebnikov reported that the Company's colonists at Fort Ross "make a large amount of brick from a very fine clay, and frequently ship these to Sitka. The clay is found in various qualities" (Khlebnikov 1976:122). In addition to bricks, tiles were reportedly made at Fort Ross and shipped to New Arkangel and to Spanish California (Hatch 1922:32). It would not be unreasonable to assume that the kiln may have been used to produce pottery as well as bricks. But, the most convincing piece of evidence that the Russian-American Company did <u>not</u> produce their own ceramics is found is Kyrill Khlebnikov's letter of the early 1830s to the Board of Directors suggesting that various kinds of manufacturing operations should be established at Fort Ross:

> Introducing a factory to make cooking ware and other crockery from a low grade clay would not be as complex an operation (as glassmaking) and the technique is familiar to many persons. Clay of good quality is to be found in various places...Simple pots are necessary for making local butter. Earthenware could very well be used in the colonies to replace the presently used copper pots...Not

> only can an experienced master make pots, he can also make plates, mugs, cups and other small goods which are needed everywhere; and because there are no simple ones, we have to buy expensive ones (Khlebnikov 1976:128).

Proposition

The Russians produced their own ceramic goods at Fort Ross.

Test Implications

The assemblage would include a significant amount of handmade ceramic goods and there may be archaeological evidence of the manufacturing process such as a kiln.

Results

One pottery pitcher was recovered from the Officials' Quarters which is undoubtedly handmade and with considerable skill (Photograph 5). It was recovered from a feature interpreted as a privy. This feature yielded ceramics dating primarily from the second half of the 19th century (Barclay and Olivares n.d.). The origin and date of manufacture of this pitcher are unknown. It is possible, though unlikely, it represents a local Russian manufacture. There is no archaeological evidence to date which would suggest the Russians operated a pottery at Fort Ross. No kiln site has been found, nor have any pottery sherds that could be interpreted as manufacturing waste.

Hypothesis 2

The second hypothesis states that the Russians in America received ceramic goods directly from Russian sources. What does the historic record reveal about Russian supply of her American colonies?

Between 1803 and 1864 there were at least 65 voyages from the Baltic to the Bering Seas, 46 of these were supply ships with provisions (mainly food) bound for Russian-America (Gibson 1976:76,77). Most of these called at New Arkangel (Sitka) but not at Fort Ross or Bodega. Only four ships owned by the Russian-American Company are documented as having called at Bodega Bay, the harbor for Fort Ross. These are the Chirikov in 1811-1812, captained by Ivan Kuskov, bearing him and 86 Kodiak hunters with 40 baidarkas (kayaks) to Bodega on their way to found Fort Ross, the Ilmen in 1814 and again in 1815, the Chirikov and the Kutusov in 1817 and the Okhotsk in 1818 (Ogden 1941: Appendix). Their cargoes are not documented.

Part of the cargo of at least one ship owned by the Russian-American Company bound for New Arkangel is known. In 1834, Amerika, originating in Russia, called at Portsmouth to load English woolens which the Russian-American Company had ordered (Tikhmenev 1978:220). Another reference to goods sent from Russia for "American delivery" included "Circassian tobacco, Chinese tea, sugar, flour, butter and beef" (Gibson 1976:56).

We know then that although provisioning the colonies directly from Russia was unreliable and unprofitable, ships did carry food and

presumably goods to America. What is the likelihood that Russian ceramics were aboard?

Of all the countries of Europe, Russia had the least developed ceramic industry (Penkala 1951; Cushion and Honey 1965; Chaffers 1946). It consisted of a handful of porcelain factories centered around Moscow and scattered earthenware factories. Faience and maiolica were made from the second half of the 18th century. Blue, brown and green decorated maiolica was made at a number of factories located in Gzhel from the 1820s (Bubnova 1973:85). Gzhel potteries also produced faience, china and semi-faience (a rough, porous ceramic body either off-white or light grey covered with glaze) (Bubnova 1973:11).

I shall now turn to the archaeological record to see if there is evidence to confirm the hypothesis that the inhabitants of Fort Ross were supplied with ceramic goods from Russia.

Proposition

The Russians in Alaska and California were supplied with ceramic goods exclusively from Russian sources.

Test Implications

We would expect a significant percentage of the ceramic assemblage at Fort Ross to consist of goods produced in Russia.

Results

Of the 7,812 sherds recovered from excavations within the stockade, the Trash Dump, the Highway area and Mad-Shui-Nui, only one sherd is of definite Russian origin and one vessel, a covered porcelain box, may be Russian. The one Russian sherd is a variety of

maiolica or faience, possibly the "semi-faience" mentioned above. It bears part of a maker's mark in Cyrillic script. The covered box also bears a mark but its exact configuration is obscured by a break in the vessel. Please see the discussion of maker's marks in Chapter 3 for further information on the identification of these vessels.

The negligible presence of Russian-made goods at Fort Ross would tend to refute Hypothesis 2. However, even if the Russian-American Company in America was directly supplied from Russia, it is likely they would have received the least expensive and most readily available goods--British earthenwares, so the results of this test must be seen as being inconclusive.

Hypothesis 3

Now I shall turn to the third hypothesis and examine the historic documentation regarding the Russian-American Company's acquisition of ceramic goods from foreign sources. Khlebnikov states that:

> In general, with the exception of those items supplied from Ross, the subsistence needs of the colonies were obtained from foreigners. This is done in two ways: from ships that come to New Arkhangel; or from California, [meaning Spanish California] in which case Company ships are sent. It is obvious that these are not always reliable means. They depend on the arrival of foreign ships, and on continued friendly relations with the government of California. It is apparent that knowing the colony's needs, the foreigners have the opportunity to increase prices, and the Company administration is forced to pay much more than is really necessary. (1976:131)

There was, in fact, a warehouse in New Arkangel specifically intended to store "goods brought from Russian or purchased from foreigners" (Khlebnikov 1976:71).

James Gibson (1976:168) tells us that "of the approximately 120 trading vessels [involved in commerce with the Russian-American Company], only nine were not American". These American vessels were almost exclusively part of what was known as the Boston Trade. There were three phases to the Yankee's trade with the Russian-American Company:

1) 1801-1814 when it was the colonies' chief source of provisions, more than two ships per year sold about 83,000 rubles worth of goods,
2) 1815-1824 when the colonies began to acquire provisions from Alta California and Russian California, and the Boston Trade was banned, two ships a year sold only about 63,000 rubles worth of goods,
3) 1825-1841: crop failures and secularization of the missions which devastated Alta California's crops, 3 ships per year sold 168,000 rubles worth (Gibson 1976:168).

What was the nature of this Boston Trade? Invoices for Boston ships indicate that between 1797 and 1800 an average of $17,000 worth of outward cargo consisting "mostly of tin and iron holloware, brass kettles, wire, beads, lead, knives, nails, small looking glasses, bar iron, hatchets, firearms, powder, flints, rum and molasses" was transported to the Northwest Coast to exchange for furs (Phelps n.d.:76) with the Indians and the Russians who were then on Kodiak Island. William Dane Phelps (n.d.:9) also tells us that "Messrs. Boardman and Pope and others of Boston and New York...were the owners of fifteen vessels employed on the coast, trading for furs in the year 1800." The Yankees were able to control direct trade between the American coast and China because the Russians could not trade directly with the Chinese (except at Kyakhta on the Chinese/Siberian border) as they were banned from Chinese ports and the British could not trade

in China due to the opposition of the East India Company. Therefore, "a large portion of the furs [bound for China], were obtained [by the Yankees] from the Russians, who were glad to exchange their peltries for European manufactures, ammunition, sugar, spirits, wine &c." (Phelps n.d.:9)

In a secret letter to the Directors of the Company dated 1806, Nikolai P. Rezanov, a Russian courier diplomat visiting the colonies, discussed the potential for trade between the Bostonians and the Company if the Company moved down the coast into New Albion (California). He states:

> Now the Bostonians carry on on the American shores the trade in cloth, guns, powder, steel and ironware, canvas and many other goods which they purchase of the English since they have no manufactures of their own, and cruising along the coast they purchase beaver and sea-otter, paying for them almost their market value, expecting to make their profit on a cargo of Chinese goods, and... they pass one or two years on these shores and then sail for Canton where they trade their furs for Chinese cloth, tea and other goods ...and then return to Boston with them. They cannot go directly to Canton with their cargo of English manufactured goods, and it would be impossible to find sale for them at the same rates at which the English sell them and therefore they are compelled by necessity to obtain their desired cargo in such a troublesome way. But when the Company has increased its business, its trade with Canton will go also and then, in place of sending vessels around the world, it can carry on trade at Canton, avoiding all the risks of long voyages and pirates, by shipping a portion of the goods to Siberia, via Okhotsk, and the remainder to Novo-Arkangelsk, where the chief depot of supplies will be and where the Bostonians will willingly come to buy them as it would be incomparably more convenient for them to get them here as they could come and return almost inside of a year and would not have to run their [illegible word] into such dangers as now threaten them from savages on our Sounds. They will also bring us flour, groats, butter and oil, tallow, vinegar, pitch and similar productions of their country for which they now have but little sale which they are much in need for foreign goods...The

> Boston Captain Swift has already promised to make the first experiment in this trade (Tikhmenev 1863, trans. by I. Petroff in Russian America Vol. 2., Part 1).

Although the Russian-American Company did expand its operation into New Albion, this plan was never implemented.

The Russians continued to exchange furs for manufactured goods, cloth and food with the Boston traders at New Arkangel. Little is documented regarding acquisition of ceramic goods except that in 1806 the Russians purchased plates from Captain Jonathon Winship at 3 piastres per dozen. (Three piastres was the equivalent of two fur-seal skins.) Winship was involved with the Russian-American Company in a joint hunting expedition on the California coast during the summer of 1806 (Khlebnikov 1976:6,10).

In July 1810, the Company entered into a contract with John Ebbetts, who was in the employ of the American Fur Company owned by merchant John Jacob Astor, to take Company furs to Canton and there exchange them for Chinese merchandise to be shipped to New Arkangel. Ebbetts sold 74,021.50 piastres worth of Company furs and purchased 64,388.34 piastres worth of Chinese goods, mostly cloth, tea and sugar. Among the Chinese goods received from Ebbetts were 10 cases of tea services (at 2.40 piastres), 22 cases of table china (at 23 piastres) and 2 cases of plates (at 50 piastres). Governor Aleksandr Andreivich Baranov marked up the goods received from Ebbetts 60 percent and imposed a tax on their sale within the Company departments (Khlebnikov 1976:12,13). "The goods were resold in the colonies to the company's employees at the following prices:...tea service--12 rubles, dinner service--80 rubles"

(Tikhmenev 1978:118). This china was almost certainly Chinese Export porcelain made exclusively for trade with British and Americans. (The value of these goods cannot be determined since the invoice does not indicate the quantity of goods per case.)

The Russians continued to contract with American captains to exchange furs for Chinese goods in Canton. Between 1797 and 1821 furs valued at "3,647,002 paper rubles were exchanged with the Americans in Canton for goods and supplies" (Tikhmenev 1978:153). In addition to chartering American ships to exchange their furs, the Russians also purchased supplies and goods from foreign ships calling at New Arkangel. Most of these ships were American. In 1826 Khlebnikov writes from New Arkangel that:

> trade with foreigners (at New Arkangel) does not comprise a real advantage because they are able to sell their goods everywhere...Some ships come into Sitka from the Sound who have only a small part of their cargo left. There have been times when ships came here from the Sandwich Islands and even from Boston, and no goods were bought from them, either because they were too expensive or because they were not needed...One would hope that ships will come every year from Boston, Canton or the Sandwich Islands, stop here, and then go on to California and all the way to Chile to sell their goods ...Americans...go directly from Boston to Sitka, then stop for three to five days in the Sandwich Islands (Khlebnikov 1976:100).

The majority of the Russian-American Company's trade with foreigners involved Americans, however, in 1831, the British ship Caernarvon was commissioned to carry cargo from England and Brazil to the Russian colonies (Tikhmenev 1978:220). The French were also engaged in the Pacific fur trade, although they do not seem to have called often at Russian ports, rather at Monterey and San Diego. In fact,

only one French ship, the Bordelais, captained by Camille de Roquefeuil, is recorded as having called at Russian ports. It was in Nootka Sound from September 1 through 18, 1817 and at Bodega Bay from October 13 through 15 of the same year (Ogden 1941:167-68). We know, however, that at least one other French ship called at Fort Ross. This was Heroes out of Havre, captained by Auguste Bernard du Haut-Cilly and stocked by the firms of Martin Lefitte of Havre and the Javal Brother of Paris (Ogden 1941:174; Duflot de Mofras 1937:262). Captain Bernard du Haut-Cilly visited Fort Ross in 1828, commenting that in Director Shelikof's house "are found all the conveniences which Europeans value and which are still unknown in California" (Bernard du Haut-Cilly 1946:10).

Proposition

The Russians obtained ceramics by trade with foreigners.

Test Implications

The ceramic assemblage would contain a large proportion of foreign-made goods.

Results

Ninety-nine percent of the ceramics recovered from the stockade, the Trash Dump, the "Highway" area and Mad-Shui-Nui are remnants of British earthenwares and Chinese porcelain. Based on the archaeological remains and on the proposed test implications of Hypothesis 3, it would appear the Russians acquired their ceramic goods by trade. Hypothesis 3 is confirmed. The archeaological record does not inform us, however, whether the Russians traded directly with the British or the Chinese, or whether these goods were obtained by

means of intermediaries. Only the historic record provides that information.

In conclusion, Hypothesis 1, which proposed the idea that the Russians produced their own ceramic goods, was refuted by the archaeological record. Although the historic record suggests the presence of a Russian pottery at Fort Ross, there is no evidence in the ceramic assemblage to suggest that pottery was made locally, nor has a kiln been located. Hypothesis 2 can be neither confirmed nor refuted since there is no way to determine whether the Company in Russia purchased foreign goods to send to America rather than supplying the American colonies with Russian-manufactured ceramics. Given the historic record and the archaeological evidence, taken together, it is most likely that Hypothesis 3 is closest to the truth.

Trade With the Spanish and Mexicans

What did the Russians do with the goods they received from Russia and from American traders? A portion of the goods were distributed to the various department of Russian America for sale to Company employees. Most of the goods were reserved to exchange with the Indians for furs and to the Spanish and later the Mexicans/Californios for provisions, primarily foodstuffs.

> Goods which can be traded in California for profit, or for hard cash, or in exchange for provisions, are kept separate and are not sold in the colonies unless absolutely necessary. The most important of these [goods] are: glassware of medium quality, pottery and porcelain of medium quality, sittsy and mitkal calico, narrow Flemish white goods, white goods and other yardage, blue and scarlet woolens, cast iron utensils (Khlebnikov 1976:85).

This trade was not sanctioned by the Spanish government; in fact, commerce between the Spanish colonials and any foreigners was strictly prohibited. In 1807, Nikolai Petrovich Rezanov reported "the shortage of necessities in the Spanish settlements and the prohibition against trade with foreigners frequently forced the settlers there to obtain supplies secretly from the mariners, and apparently the missionaries were the chief participants in this contraband trade" (Tikhmenev 1978:96).

Shortly after Ross was founded, Manager Ivan Kuskov proposed establishment of a trade relationship between themselves and the Spanish. In 1813, he received word that Governor Don Arillaga would permit trade on the condition that until official permission was granted by the Viceroy in Mexico ships could not enter port and the goods must be brought ashore in rowboats. Kuskov thereupon sent agent Slobodchikov to San Francisco with trade goods to exchange for grain. The exchange continued uninterrupted throughout all of 1813 (Tikhmenev 1978:136). In 1814, Governor Arillaga died and the temporary governor, Jose de Arguello, demanded the destruction of Fort Ross and withdrawal of the Russians in accordance with the Viceroy's wishes. Rumors that the Russians were planning to seize San Francisco caused alarm among the Spanish. Kuskov received orders to cease trade with the Spanish and to prohibit Russian ships from approaching Spanish ports (Tikhmenev 1978:138). A new governor, Pablo de Sola, required strict enforcement of the prohibition of Spanish commerce with foreigners. When the Russian captain of the Ilmen, Boris Tarasov, ignored the regulation and put ashore on

September 17, 1815 at San Pedro with canoes laden with satin, wool and rice, he and 24 Aleuts were captured (Ogden 1933:231-32). Earlier that summer Kuskov himself and the Company trade superintendent, Dr. John Eliot, had visited San Francisco on two occasions trading "Virginia tobacco, sugar candy, Nankeen cloth, cast iron boilers, Bengal calico, chintz, pewterware, English thread, coffee, cotton stockings, iron, coarse ware [pottery?] and wax candles" for food. "This visit of 1815 was the last occasion that a sizable interchange of goods took place" (Bunje 1937:24).

Between 1817 and 1818, little trade took place between the Russians and the Spanish. One ship each year supplied the Spanish needs for iron and simple tools (Tikhmenev 1978:141). Small quantities of "yellow crockery" among other items were exchanged when Russian ships secured provisions in Spanish ports. Agents from the ship Kutuzov sold 4 piastres worth of this yellow crockery in Monterey in 1818; 5 piastres worth of it was sold from the brig Buldakov in San Francisco in 1821; 3.4 piastres worth were sold from the brig Riurik in Monterey and Santa Cruz in 1824 (Khlebnikov 1976:64). After Mexican independence from Spain was gained in 1821, the Californios were permitted to trade with all foreigners.

When the American ship Eagle arrived in San Francisco on September 1, 1821, Eliab Grimes recorded that there was little prospect of their selling goods to the Californios since:

> First - There has been a Russian ship here not long ago which collected about $1500, Second - The troops have not been paid off for the last 10 or 12 years in consequence of which there is little or no money in circulation, Third - ...add to this that the Russian ship now at

> Monterrey (sic) has been there for a month past & is being only about 50 miles from here The probability is she has drawn the Funds from all parts of the vicinity (Grimes 1822).

By 1834, however, Baron Wrangel complained that sales of Russian goods to the Californios were negligible because the Americans controlled the trade and supplied the Californios with everything they need at prices so low the Russians could not match them (Gibson 1976:117).

CHAPTER V

CERAMIC TYPES AND VESSEL FORMS AS INDICATORS OF STATUS AND DIETARY PATTERNS

Having determined the means by which the Russians procured ceramic items, I shall now examine how these goods were distributed and whether the distribution reflects differential status and dietary habits of the inhabitants of Fort Ross.

In his article entitled "Artifacts and Status Differences: A Comparison of Ceramics from Planter, Overseer, and Slave Sites on an Antebellum Plantation", John Solomon Otto (1977) tested the hypothesis that ceramics from 19th century sites reflect status differences between inhabitants of contemporaneous sites. He conducted this study by examining the ceramic assemblages from refuse sites associated with the dwellings of slaves, overseers and the plantation owner on Cannon's Point Plantation, Saint Simon's Island, Georgia. These groups of people represented the lower, middle and upper socio-economic classes commonly found in the Antebellum South. Otto used the historic record to establish the relative socio-economic position of the various inhabitants and to identify the dwellings each group occupied on the plantation.

The analysis relied on examination of the distribution of both the ceramic types and the shapes of the vessels in the assemblages. Otto found correlations between the ceramic types and the vessel shapes at the sites which suggested differences in diet, status and the acquisition and distribution of ceramic items to the various groups of people. Otto found that the slaves and the overseers likely received their ceramic goods directly from the planters who purchased special wares especially for distribution to them. Both the slaves and the overseers used blue and green edge decorated plates and blue banded bowls while the planter's family used transferprinted plates, platters and soup plates.

The difference in the shapes (a predominance of bowls for the slaves and the overseers as opposed to a predominance of flatware for the planter family) was seen as being an indication of dietary differences. The slaves and overseers ate liquid-based foods, such as soups and stews, while the planter family ate meat, fish and vegetables which were prepared and served as separate dishes. The differences in the types was interpreted as an indication of status. Otto found that the differential distribution of the ceramic types did not provide a basis to distinguish between the slaves and the overseers (the two groups on the lower end of the scale at the plantation), but that the distinction between the planter family and their hired (and slave) labor could be seen in the distribution of ceramic types. Interestingly, the presence of porcelain was not a factor in the isolation of the socio-economic groups; rather transferprinted earthenware seemed to be the high status item (Otto 1977).

A similar, though less rigid, demographic situation existed at Fort Ross. It was also a relatively isolated community, roughly contemporaneous with the Antebellum South. The inhabitants of Fort Ross fit into a socio-economic hierarchy based on one's position with the Russian-American Company. The "upper class" can be seen as represented by the Commandant and the Officials, the "middle-class" by the promyshlenniks (hunter/fur trappers) and the "lower-class" by the Indians who were virtual slaves.

In 1818 and 1819, the population of Fort Ross included between 21 and 27 Russians, 75 to 78 "natives", the majority of whom would have been Aleuts, and no "Creoles", people of mixed native (usually Aleut) and Russian blood. Most of the Russians were meshchanins, lower-class to middle-class townsmen from Siberia. By 1833 there were 50 Russians including four women and five children, 88 Creoles, 83 Aleuts and 72 adult Indians, likely Kashaya Pomo (Gibson 1969:-210). When Baron Ferdinand Petrovich Wrangel, governor of the Russian colonies in America from 1830 to 1835, visited Fort Ross he noted that the Russians and Creoles worked as artisans, sentries and the like, the Aleuts hunted sea-otter, and the Indians labored in the fields and hauled clay for brickmaking (Gibson 1969:211).

In a report dated 1825, Kyrill Khlebnikov discussed the salaries and food rations allotted to Company employees at the settlement in New Arkangel. These allotments were made in accordance with Company regulations, so it is reasonable to assume that the same compensation applied to employees at Fort Ross. Khlebnikov reports that "all officials, from the Chief Manager on down, are paid a salary, and

in addition receive from the Company their living quarters, wood, candles and fish, as needed. All the rest of the necessities of life they buy from their wages, which are sufficient" (Khlebnikov 1976: 42). The promyshlenniks, however, received a salary of 350 rubles per year and a monthly ration of 1 pud (36.11 pounds) of flour. Clothing, footwear, additional food and other articles were made available by the Company for sale. The Company agreed to sell from the store each month, over and above the portion of flour alloted:

1) To an unmarried promyshlennik, 15 pounds of flour, six pounds of groats and six pounds of peas.
2) To a married promyshlennik without children, 30 pounds of flour, eight pounds of groats and 10 pounds of peas.
3) To a married promyshlennik with family, flour, groats and peas, the same as above; and for each child, four pounds of groats and six pounds of peas.

Depending on availability, each person receives a monthly allotment from other supplies as follows: from three-quarters to one pound of tea, two to three pounds of granulated sugar, one bottle of molasses and one pound of tobacco (Khlebnikov 1976:44).

These goods were no doubt available for the employees to buy. In addition, the Company gave each promyshlennik and creole one cup of rum eight times a year on holidays. They were permitted to purchase one bottle of rum on their birthdays (Khlebnikov 1976:45). The strict rationing of rum was prompted both by an effort to avoid drunkenness among the employees and by a scarcity of the liquor in the colonies (Khlebnikov 1976:49). Khlebnikov attributed the general good health of the employees and lack of scurvy to regular consumption of rum, tea and potatoes. "Every service person receives four or five cups of rum per month during the rainy season [at least in

New Arkangel]. They drink tea twice a day and always have potatoes" (Khlebnikov 1976:49).

The variety of food would have been more diverse at Fort Ross than at New Arkangel since Ross was the agricultural colony. The inhabitants of Ross cultivated wheat and a number of fruits and vegetables including peaches, grapes, melons, squash, pumpkins, beets, cabbage, turnips, radishes, lettuce, peas, and beans. Because of the relative bounty of produce, Kuskov was able to supply vegetables to all the ships that called at Fort Ross and "he frequently pickled beets and cabbage and sent a large amount to Sitka" (Khlebnikov 1976:121).

Luxury items as well as necessities were apparently available in the Company stores. Captain Bernard du Haut-Cilly noted in 1828 that Director Shelikof's house had all the latest conveniences (Bernard du Haut-Cilly 1946:10) revealing that the highest ranking official, at least, had access to luxury goods. While luxury items were available for sale, the average promyshlennik could barely afford to purchase the necessities of life. In his account of the fort's activities in 1833, Governor Wrangel cites the example of one promyshlennik with a wife and five children whose debt to the Company store in 1832 was more than double his income. This was apparently a typical case. Most of this man's expenses were for food, cloth, blankets and tobacco. With the exception of the tobacco, he did not buy any luxury goods during that year. As far as tableware or cooking items are concerned, he purchased some unspecified copper utensils but no ceramics. The Indians were even less likely to

have been able to buy some of the finery available. They were paid in meager food allotments and sometimes in money (Gibson 1969:211).

Hypothesis 4

Not surprisingly, purchasing power of the classes at Fort Ross was also stratified along rank lines as determined by one's position in the Company. Is the difference of status and therefore in purchasing power observable in the archaeological record? Ideally, we would like to examine discrete areas of the fort that are exclusively associated with each of these "classes" to determine whether there are discernable differences in the ceramic types or vessel forms that can be ascribed to the differences in status. Unfortunately, no such discrete deposits have yet been found at Fort Ross. Our knowledge of which class occupied which buildings is limited to those buildings inside the stockade. The manager lived in either the "old" commandant's house or the "new" commandant's house, built in the early 1830s. (The new commandant's house has been the park museum for many years and has never been the subject of archaeological excavations.) The unmarried officials would have lived in the Officials' Quarters while the enlisted men, presumably the unmarried promyshlenniks and perhaps artisans, resided in the "enlisted mens' barracks" shown on the 1817 map. Others, the married employees and the local Indians who worked for the Company, would have lived in houses clustered around the fort.

Excavations have been conducted at the Kuskov House, the Officials' Quarters, the "Barns Area" where the enlisted mens' barracks once stood (Map 1) and at Mad-Shui-Nui, the former Pomo Indian site located directly adjacent to the stockade (Map 4). We can assume with some degree of certainty that artifacts recovered from these areas are associated with the structures there and, by extension, that the artifacts are associated with the occupants of the buildings. It must be remembered that there are no sealed deposits dated to the Russian period so these excavation areas do not reflect the buildings' occupants as well as Otto's intact refuse deposits do for each of his socio-economic classes. In the case of Mad-Shui-Nui, however, there is no map or other evidence in the historic record of any buildings having been there nor exactly who may have occupied that part of the fort exterior. Therefore, it is difficult, if not impossible, to isolate the "middle class" from the "lower class" outside the fort.

The commandants and officials had higher rank and status and greater purchasing power (because of their higher wages) than the promyshlenniks and certainly the Indians. This difference should be discernable in the ceramic assemblages. Otto found that transfer-printed earthenware was the indicator of high status in his study and that porcelain was "neutral" as an index of status in his 19th century Antebellum plantation. I will now test whether his observation holds true for a contemporaneous site of a different cultural affiliation.

Proposition

The presence of highly decorated earthenware, particularly transferprinted earthenware, is the indicator of high status and that porcelain is "neutral" in this regard.

Test Implications

The percentages of highly decorated earthenwares, especially transferprinted earthenwares, should be higher in those areas associated with high-ranking people. The distribution of porcelain throughout the site should be relatively homogeneous.

Results

Table 7 confirms the homogeneity of the distribution of porcelain and therefore the "neutrality" of porcelain as an index of high status. In fact, the porcelain percentage at the Kuskov House is lower than at Mad-Shui-Nui. The percentage of earthenware as a class is higher outside the stockade (80% or more) while inside the fort earthenware makes up only about 63 to 75% of the assemblages.

Table 8 shows the distribution of three earthenware types, edge-decorated pearlware (Type 20), a relatively plain decoration; underglaze painted pearlware (Type 23), a moderately decorative type; and transferprinted earthenware (Type 24), the most highly decorated type available at that time. The distribution refutes Hypothesis 4: transferprinted earthenware is not indicative of higher status. Mad-Shui-Nui has the highest percentage of transferprinted earthenware of any of the areas while the Kuskov House, presumably the highest status house in the settlement has only 30% transferprinted earthenware. Type 20, edge-decorated pearlware, is the least decorative of

the types, and should be the least expensive. Yet, in all the living areas, it occurs with the highest frequency at the Kuskov House and the lowest frequencies at the Barns Area and Mad-Shui-Nui, the opposite of what one would expect.

It would seem that at Fort Ross highly decorated earthenware does not function as an indicator of high status. Perhaps the difference between the findings for Cannon's Point Plantation and Fort Ross is attributable to cultural differences. The Russians may not have regarded the decorative differences in the ceramics as being important. Perhaps the nature of the trade in ceramic goods somehow equalized the normal price differences between plain and fancy ceramic types, or perhaps the internal distribution of ceramic goods to the Company employees reduced the price differential among types. Whatever the reason, there is a relatively homogeneous distribution of types throughout the fort.

Table 7

Percentages of Wares by Areas
Percent/Count

	Porcelain	Stoneware	Pottery	Earthenware
Barns	25.2%/126	10.4%/53	0%/0	63.4%/309
Kuskov House	14.5%/111	8.3%/56	.3%/2	74.4%/478
Officials' Quarters	21.3%/918	7.8%/366	.5%/29	66.9%/3080
Chapel	18%/9	18%/9	0%/0	65%/33
Mad-Shui-Nui	16%/60	.02%/8	0%/0	82%/307
Trash Dump	12%/25	7%/16	0%/0	81%/174
Highway	20%/287	.001%/2	0%/0	80%/1170

Table 8

Percentages of Certain Decorated
Earthenware Types by Areas

Types	20	23	24	Total
Areas Barns	2%/2	72%/89	26%/32	123
Kuskov House	16%/17	55%/59	30%/32	108
Officials' Quarters	8%/67	48%/399	43%/358	824
Chapel	0%/0	60%/3	40%/2	5
Mad-Shui-Nui	3%/4	41%/48	56%/66	118
Trash Dump	7%/2	57%/16	36%/10	28
Highway	5%/22	43%/205	53%/254	481

Hypothesis 5

The other aspect of Otto's study dealt with the dietary patterns of the plantation's occupants. He based the analysis on the assumption that the different socio-economic groups had different dietary patterns caused by differential access to kinds of food and methods of preparation. These dietary patterns affected the ceramic needs of the groups and were therefore observable in the archaeological record. His conclusion confirmed the hypothesis. Bowls were associated with the laborers while flat dishes were associated with the planter family. Is the correlation of flatware with the higher status groups and bowls with the lower status groups valid at Fort Ross?

Based on the historic record, we know that the promyshlenniks and the Indians were issued rations of flour, groats and peas. The promyshlenniks, at least, could purchase more food from the Company store and could grow vegetables in the gardens around the fort. The officials purchased their own food but may have raised some vegetables in gardens as well. Records show that cattle, sheep and hogs were raised, that a wide variety of vegetables and fruit were grown and that wheat and other grain was grown, or purchased for use at Ross and for shipment to Alaska. Produce that could not be preserved was consumed at Fort Ross and sold to ships calling there. A variety of food was available. We can assume that the officials and the commandant could buy a wider variety of food than the groats and flour issued to the promyshlenniks and the Indians. Flour and groats would likely be consumed as bread and gruel, with the diet

probably supplemented with fresh vegetables. The officials may have eaten more meat and separate dishes of vegetables.

Proposition

The higher and lower status groups at Fort Ross had different ceramic needs based on different dietary patterns resulting from different access to food.

Test Implications

There will be a higher percentage of flatware in the Kuskov House area and the Officials' Quarters and a higher percentage of large bowls in the Barns and Mad-Shui-Nui areas.

Results

Table 4 (Chapter 2) presents the results of predictions of vessel forms at selected locations at Fort Ross. Based on the analyzed sample and resulting extrapolation of vessel forms, we find that the Kuskov House and the Officials' Quarters would indeed have a significantly higher number of plates than the Barns or Mad-Shui-Nui, thus confirming that part of Hypothesis 5. The extrapolated distribution of large bowls, however, does not support the hypothesis. It is possible that the lower status employees did not use ceramics but rather metal or wooden dishes.

Hypothesis 6

All service people in Sitka are reported to have drunk tea twice a day. Is this the case at Fort Ross?

Proposition

Tea was consumed regularly by all "classes" of people at the Fort.

Test Implications

Fragments of cups and teabowls will be evenly distributed throughout the excavations areas, regardless of the ranks of the former inhabitants.

Results

Table 4 confirms this contention. The Kuskov House, Barns Area and Mad-Shui-Nui areas have more or less the same number of predicted cup and teabowl sherds. The larger quantity of projected vessel fragments at the Officials' Quarters may be a reflection of the fact that ten times more sherds were recovered from that excavation area and therefore caused higher predictions.

As a result of the vessel form analysis, it was found that John Solomon Otto's conclusions regarding the correlation of ceramics to status differentiation and dietary patterns on a 19th century American plantation do not apply to a contemporaneous Russian-American settlement. This difference is likely the result of less marked social stratification at Fort Ross than at Cannon's Point Plantation although another factor may be a cultural difference regarding the perceived value of decorated and undecorated ceramics which may have neutralized any actual cost differences.

CHAPTER VI

CONCLUSIONS

By means of a typological classification system, a quantitative analysis and a morphological analysis of vessel form, this study has attempted to address several questions pertaining to the Russians' behavior at Fort Ross. I have employed the historical record to provide a context within which to develop hypotheses regarding the Russians' acquisition of ceramic goods at Fort Ross. These hypotheses were then tested using the archaeological record. The results suggest that the Russians did not produce ceramics locally as had been reported, nor did they receive Russian-made goods as may be expected. Rather they purchased ceramic goods from foreigners who either peddled British earthenwares and Chinese porcelains on the West Coast or who contracted with the Russians to exchange furs for Chinese products in Canton.

The study also tested the applicability of Stanley South's analytical tool for dating 18th century British-American sites to a 19th century non-British-American site. The results prove that South's Mean Ceramic Date Formula is indeed applicable and accurate for early 19th century sites, especially when there is a large ceramic assemblage. The formula is valid even for non-British-American sites when the assemblage is composed primarily of British ceramics.

John Solomon Otto's correlations linking ceramic type and vessel forms with status differentiation on an Antebellum plantation provided a focus of study as well. Otto's confirmed supposition that highly-decorated (and therefore more expensive) earthenwares were associated with higher status people was disproven in the test of the Fort Ross collection. There was no evidence that transferprinted earthenware or even painted pearlware was archaeologically linked to those areas of the fort where the higher status, higher-paid employees lived. Otto's contention that flatware (plates, platters, soup plates) was used primarily in high status households while bowls predominated in low status households (as reflections of different dietary patterns), seems to hold true at Fort Ross for the flatware but not for the bowls. Teaware (cups and teabowls) was evenly distributed at Fort Ross, confirming the hypothesis that all service people at Fort Ross drank tea regularly as they did in Sitka.

Future research into questions of status and diet would require archaeological data from additional areas of the fort, primarily the kitchens inside and outside the fort (if they can be identified archaeologically). Other classes of artifacts must also be analyzed to fully address the question of ceramic use among the different socio-economic groups inhabiting the settlement.

Aside from learning quite a lot about late 18th and early 19th century ceramics and about the Russian-American Company, this study reaffirmed for me two basic tenets of archaeology -- the critical need to integrate other available records with the archaeological records as thoroughly as possible, and not to assume blindly that the

principles and assumptions set forth in another study apply directly to your study. I found this rule in effect when testing John Solomon Otto's status study. Although perfectly valid in the case for which they were developed (and likely equally well suited to other Antebellum cases), unknown factors at Fort Ross negated the validity of Otto's contentions. The concept that the most highly decorated and most expensive ceramics would be associated with the wealthiest occupants is a logical and reasonable contention -- one that was proven at Cannon's Point. Why it was not true at Fort Ross is unknown. A lesser degree of social and economic stratification, possible equalizing effects of trade conditions, and cultural differences may have been factors in the outcome of this test.

It is imperative that archaeologists, whether studying prehistoric or historic people, remember that they are anthropologists studying the physical remains of past and usually foreign cultures. As archaeologists, we face the same challenges and complications that ethnographer faces -- interpreting another culture through our eyes, and the further challenge of doing it using only the material remains, whether artifactual or documentary. We must be aware that our cultural biases intrude upon our interpretations, and we must account for our biases as best we can. Even when studying members of our own culture, removed from us by mere generations, not centuries, we cannot assume that our perception of the world is the same as theirs. So, while archaeologists are able to uncover the tangible aspects of past lifeways and imply certain kinds of behavior from the patterning of the remains, we must be very cautious when making interpretations

about the intangible aspects of past peoples' lives.

It is tempting to believe that archaeology, especially historical archaeology with its synthesis of the historical and archaeological records, can reveal such intangibles as ideology or attitudes. We must recognize and accept the limitations of the records, both documentary and artifactual, as well as their potential.

APPENDIX I

ACCESSION NUMBERS OF COLLECTIONS DISCUSSED IN THIS ANALYSIS

Accession Number	Excavation Area	Project Date
200	Mad-Shui-Nui	1970
207-486	Highway Area (211M)	1970
207-487	Chapel	1972
207-488 (1-644)	Kuskov House	1972
207-488 (645-5936)	Kuskov House & SE Area	1975
207-488 (6189-7399)	Barns Area	1975
207-488 (6001-6183)	Officials' Quarters	1976
207-488 (7410-11150)	Kuskov House & Officials' Quarters	1976
211A	Officers' Barracks	1971
211B	Trash Dump	1970
P-302	Officials' Quarters	1979

APPENDIX II

MAKER'S MARKS FROM FORT ROSS

Mark	Manufacturer	Catalog #/Provenience	
1)	William Adams and Sons Tunstall and Stoke Staffordshire Date range of mark: 1896-1914 Reference: (Praetzellis et al 1983:5, Mark 10)	211-58* 211-91* 211-92* 211-109* 211-139* 211-36* 211B-38* 211B-42*	Surface No Location Pipeline North of Stockade (0-18") No Location Surface " "
2)	Richard Alcock Burslem, Staffordshire Date range of factory: 1870-1882 Reference: (Praetzellis et al 1983:8)	211-34*	No Location
3)	Richard Alcock Burslem, Staffordshire Date range of mark: 1878-1883 Reference: (Barclay and Olivares n.d.)		Feat. 109** (70-80cm) N2/W40** (0-10cm)
4)	T. & R. Boote Burslem, Staffordshire Date range of mark: 1890-1906 Reference: (Praetzellis et.al. 1983:12, Mark 35)	211-27* 211-42*	No Location Surface

5)	T. & R. Boote Burslem, Staffordshire	211-49*	Surface
	Date range of factory: 1842-1906		
	Reference: (Praetzellis et.al. 1980:12, Mark 33)		
6)	William Brownfield Cobridge, Staffordshire	211-124*	No Location
		211-125*	"
		211-127*	"
		211-128*	"
		211-129*	"
		211-130*	"
	Mark dates to 1875	211-131*	"
		211-132*	"
	Reference: (Wood 1971)		
7)	Buffalo China Buffalo, New York	30-189*	Surface
	Mark dates to 1919		
	Reference: (Wood 1971)		
8)	Henry Burgess Burslem, Staffordshire	211-32*	No Location
		211-50*	Surface
		211-52*	"
		211-78*	No Location
	Date range of factory: 1864-1892	211-113*	Wall Trench or Well
	Reference: (Praetzellis et al 1983:17, Mark 46)		
9)	Henry Burgess Burslem, Staffordshire	(5 pcs)	Feature 109** (40-140cm)
		(3 pcs)	Feature 109** (40-60cm)
	Date range of factory: 1864-1892		
	Reference: (Praetzellis et al 1983:17)		

10)	E. & C. Challinor Fenton, Staffordshire Date range of factory: 1862-1891 Reference: (Praetzellis et al 1983:18, Mark 50)	211-87*	No Location
11)	E. Challinor & Co. Tunstall, Staffordshire Date range of mark: 1842-1867 Reference: (Wood 1971)	211-116* 211-28* 211-118* 211-120*	No Location " " "
12)	E. & C. Challinor Tunstall, Staffordshire Date range of mark: 1864-1892 Reference: (Barclay and Olivares n.d.)		Feature 109** (50-70cm)
13)	Edward Clarke Tunstall, Staffordshire Date range of mark: 1865-1877 Reference: (Praetzellis et al 1983:21, Mark 65)	211-18*	No Location
14)	Joseph Clementson Sheldon, England Date range of factory: 1839-1864 Reference: (Praetzellis et al 1983:22, Mark 70)	211-80*	No Location
15)	James Clews Cobridge, Staffordshire Date range of factory: 1818-1829 or 1836 Reference: (Wood 1971)	211-51* 211-73* 211A-527	Surface No Location (Photo. 14) D2 (0-6")

16)	Robert Cochran & Co. Glasgow, Scotland Date range of factory: 1846-1918 Reference: (Praetzellis et al 1983:24,25, Mark 78)	211-43* 211-69*	Surface No Location
17)	C. P. Co. (Dixie) No information	211-20* 211-47* 211-67*	No Location Surface No Location
18)	John Edwards Fenton, Staffordshire Date range of factory: 1847-1900 Reference: (Praetzellis et al 1983:33)	211-11*	No Location
19)	Empire Pottery Trenton, New Jersey Date range of factory: 1863-1875 Reference: (Wood 1971)	211B-46* 207-488-7034	Surface N48-50/E23-26 (40-50cm) Barns Area
20)	Thomas Furnival & Sons Cobridge, Staffordshire Date range of factory: 1871-1890 Reference: (Barclay and Olivares n.e.)		Feature 109** (70-80cm)
21)	W. S. George Pottery Co. East Palestine, Ohio Factory est. 1910 Reference: (Wood 1971)	211-13* 211B-49* 211B-51*	No Location Surface "

22)	Glasgow Pottery Co. Trenton, New Jersey Date range of factory: 1863-1890 Reference: (Wood 1971)	211-45* 211-86*	Surface No Location
23)	W. H. Grindley & Co Tunstall, Staffordshire Date range of mark: 1891-1925 Reference: (Praetzellis et al 1983:41, Mark 129)	211-83*	No Location
24)	Hartley, Greens & Co. Leeds, Yorkshire Date range of mark: 1781-1820 Reference: (Godden 1964)	211A-176* 211A-297 207-488-7903 207-488-8511 207-488-7887	A1 (6-12") (Photo. 14) D1 (0-6") N2/W20 (0-10cm) Off. Qtrs Trench 1 N6/W24 (10-20cm)
25)	Hope & Carter Burslem, Staffordshire Date range of factory: 1862-1880 Reference: (Praetzellis et al 1983:43, Mark 136)	211-117*	No Location
26)	Thomas Hughes Burslem, Staffordshire Date range of factory: 1860-1894 Reference: (Barclay and Olivares n.d.)		Feature 109** (50-150cm) Feature 109** (50-80cm) Feature 109** (40-90cm) Feature 109** (60-90cm) Feature 109** (70-89cm)

27)	Thomas Hughes Burslem, Staffordshire Date range of factory: 1860-1894 Reference: (Praetzellis et al 1983:44, Mark 139)	211-81* 211-77* 211-29* 211-31* 211-61* 211-66* 211-94* 211-95*	No Location " " " Surface No Location Pipeline North of Stockade (0-18"0 Surface
28)	Thomas Hughes Burslem, Staffordshire Date range of factory: 1860-1894 Reference: (Praetzellis et al 1983:44, Mark 142)	211-35*	No Location
29)	J. E. Jeffords Philadelphia, PA Date range of factory: (?) 1868-1890 Reference: (Barclay and Olivares n.d.)		Feature 109 (40-50cm)
30)	Johnson Brothers Hanley and Tunstall, Staffordshire Factory est.: 1883 Reference: (Wood 1971)	211-23* 211-75* 211-114*	No Location " "
31)	Johnson Brothers Hanley and Tunstall, Staffordshire Date range of mark: 1883-1892 Reference: (Barclay and Olivares n.d.)		Feature 109** (40-80cm)

32)	George Jones and Sons Stoke-on-Trent, Staffordshire Date range of mark: 1873-1891 Reference: (Praetzellis et al 1983:46, Mark 148)	211-110*	No Location
33)	Knowles, Taylor & Knowles East Liverpool, Ohio Date range of mark: 1905-1929 Reference: (Gates and Ormerod 1982:126)	200-571*	Near new Ranger's house (?)
34)	Homer Laughlin East Liverpool, Ohio Date range of mark: 1907-1929 Reference: (Gates and Ormerod 1982:134)	211A-532*	Feature 1 (24-30")
35)	Livesley & Powell Hanley, Staffordshire Date range of factory: 1850-1865 Reference: (Wood 1971)	211-24*	No Location
36)	George Morley and Sons East Liverpool, Ohio Date range of mark: 1884-1891 Reference: (Gates and Ormerod 1982:200)	211-17*	No Location

37)	John Maddock & Sons Burslem, Staffordshire	211-12*	No Location
	Date range of mark: 1855-1896		
	Reference: (Praetzellis et al 1983:50, Mark 159)		
38)	John Maddock & Sons Burslem, Staffordshire	211-19* 211-111*	No Location "
	Date range of mark: 1906+		
	Reference: (Praetzellis et al 1983:51, Mark 163)		
39)	John Maddock & Sons Burslem, Staffordshire	211-26* 211-60*	No Location Surface
	Date range of mark: 1906+		
	Reference: (Praetzellis et al 1983:51, Mark 162)		
40)	John Maddock & Sons Burslem, Staffordshire	211-126*	No Location
	Date range of mark: 1880-1896		
	Reference: (Praetzellis et al 1983:50, Mark 160)		
41)	Alfred Meakin Ltd. Tunstall, Staffordshire	211-115* 207-488-5118	No Location N3 (0-6") Kuskov House
	Date range of mark: post-1891		
	Reference: (Wood 1971)		

42)	Charles Meakin Burslem, then Hanley, Staffordshire Date range of mark: 1876-1889 Reference: (Praetzellis et al 1983:55, Mark 179)	211B-41* 211-90* 100-569*	Surface No Location "
43)	Charles Meakin Burslem, then Hanley Staffordshire		Feature 109** (30-80cm)
44)	J. & G. Meakin Hanley, Staffordshire Date range of mark: 1851+ Reference: (Praetzellis et al 1983:57, Mark 184)	211A*	Feature 1
45)	J. & G. Meakin Hanley, Staffordshire Date range of mark: 1851-1891 Reference: (Praetzellis et al 1983:57, Mark 181)	211-121*	No Location
46)	J. & G. Meakin Hanley, Staffordshire Date range of factory: 1851+ Reference: (Godden 1964:427)	211M ----	Trench A Feature 109** (50-80cm)
47)	Mercer Pottery Co. Trenton, New Jersey Factory est.: 1868 Reference (Wood 1971)	211-16*	NE Fence of Stockade

48)	Pinder Bourne & Co. Burslem, Staffordshire Date range of factory: 1862-1882 Reference: (Praetzellis et al 1983:66, Mark 201)	211-96*	No Location
49)	Popov, Aleksei Gavrilovich Russia Date range of factory: 1811-1850 Reference: (Ross 1968) Note: The mark is not definitely attributed to Popov, it could be Continental European.	207-488: -10033 -10059 -10085 -10090 -10128 -10145 -10337 -10764 -10848 -10649	Feature 109** (40-90-cm)
50)	Sterling China Co. East Liverpool, Ohio Date range of factory: post-1917 Reference: (Wood 1971)	211-37*	No Location
51)	Taylor, Smith & Taylor Chester, West Virginia Date range of mark: ca. 1925 Reference: (Gates and Ormerod 1982:269)	211-89*	No Location
52)	Trenton Pottery Works Trenton, New Jersey Date range of factory: Late 19th century Reference: (Wood 1971)	211B-15*	No Location
53)	Turner, Goddard & Co. No information	211-65*	No Location

54)	Josiah Wedgwood Eturia, Staffordshire Date range of mark: 1759-1769 Reference: (Godden 1964:657 Mark 4074; Towner 1957:222-225)	211A-362	DI (6-12") (Photo. 14)
55)	J. Wilson & Sons Fenton, Staffordshire Date range of factory (?) 1898-1926 Reference: (Godden 1971:675)	211-59*	Surface
56)	A. J. Wilkinson & Co. Burslem, Staffordshire Date range for mark: post-1891 Reference: (Wood 1971)	211-21*	No Location
57)	Undetermined Mark	211-10*	No Location
58)	"	211-14*	"
59)	"	211-22*	"
60)	"		"
61)	"	211-26*	"
62)	"	211-30*	"
63)	"	211-33*	"
64)	"	211-36*	"
65)	"	211-57*	"
66)	"	211-62*	"
67)	"	211-63*	"
68)	"	211-64*	"
69)	"	211-71*	"
70)	"	211-72*	"
71)	"	211-79*	"
72)	"	211-88*	"
73)	"	211-97*	"
74)	"	211-119*	"
75)	"	211-122*	"
76)	"	211B-37*	Surface
77)	"	211B-30*	"
78)	"	211B-48*	"

79)	" (..tnikov)	207-486-3342	Barns Area
80)	"	211-93*	Pipeline North of Stockade
81)	"	207-488-2820	
82)	"	211A-	Feature 1 Section C (36-42")
83)	"	211A-315	
84)	"	211A	Unit 106 (6-12")
85)	"	211A-81	
86)	"	207-488-6266	
87)	"		No Location
88)	"	211-68	"

*Mark included in Wood 1971.
**Mark identified in Barclay and Olivares n.d.

APPENDIX III

CERAMIC TYPES AND CATALOGUE NUMBERS OF PHOTOGRAPHED SPECIMENS

Photograph 1. Type 1a: Cat. # 107-488-10033

Photograph 2. Type 3b:
a. Cat. # 207-488-8543
b. Cat. # 211A-459
c. Cat. # 211A-200-341
d. Cat. # 211A-44
e. Cat. # 211A-Unit 306 (N. half)
f. Cat. # 211A-Unit 88

Photograph 3. Type 4:
a. Canton Pattern, (Type 4a) Cat. # 207-488-6267 (Barns Area)
b. Canton Pattern (Type 4a), Cat. # 207-488-9372
c. Type 4c. Cat. # 211A-Unit 306
d. Type 4c. Cat. # 207-488-6267
e. Nanking Pattern (Type 4b), Cat. # 207-488- (Officials' Qtrs.)
f. Type 4b. Officials' Qtrs.
g. Type 4c. Cat. # 211A-Unit 106

Photograph 4. Types 5b and 5c
a. Type 5b. Cat. # 211 (Surface)
b. Type 5c. Cat. # 211 (Surface)
c. Type 5b. Cat. # 211B-13 and P302-3
d. Type 5c. Cat. # 207-488-9741
e. Type 5b. Cat. # 211A-351
f. Type 5c. Cat. # 211A-Unit 104 0-6"
g. Type 5c. Cat. # 211A-Feat. 1
h. Type 5b. Cat. # 207-488-8117
i. Type 5b. Cat. # 207-488-9741
j. Type 5c. Cat. # 211A-Unit 86
k. Type 5c. Cat. # 211A-Unit 206
l. Type 5c. Cat. # 211A-195
m. Type 5b. Cat. # 211A-44

Photograph 5. Type 13: Burnished pottery pitcher of unknown origin, Cat. # 207-488-10933

Photograph 6. Type 20:
a. Type 20a. Cat. # 211A-169
b. Type 20a. Cat. # 211A-Unit 104 0-6"
c. Type 20c. Cat. # 211A-Unit 206
d. Type 20c. Cat. # 211A-44
e. Type 20e. Cat. # 211A-320
f. Type 20d. Cat. # 211A-223
g. Type 20d. Cat. # 211A-Unit 206
h. Type 20b. Cat. # 211A-320
i. Type 20d. Cat. # 207-688C

Photograph 7. Types 21, 22 and 28:
a. Type 21. Cat. # 207-488-507 & 207-488-1100 (Kuskov House)
b. Type 21. Kuskov House
c. Type 21. Cat. # 211A-68
d. Type 21. Kuskov House
e. Type 21. Cat. # 211A-Unit 106
f. Type 21. Cat. # 207-488-7594
g. Type 22. Cat. # 207-488-7594
h. Type 22. Cat. # 207-488-547
i. Type 28. Cat. # 207-488-9178 (Officials' Qtrs.)

Photograph 8. Type 23a:
a. Cat. # 565b
b. Cat. # 1-14 (No location)
c. Cat. # 211A-195
d. Cat. # 211A-195
e. Cat. # 211A-400
f. Cat. # 211A-Feat. 1, 30-36"
g. Cat. # 211A-380
h. Cat. # 211A-Feat. 1, 42-48"
i. Cat. # 211A-183

Photograph 9. Type 23b:
a. Cat. #629-11a
b. Cat. # 211 (Surface)
c. Cat. # 211A-Unit 104, 6-12"
d. Cat. # 211A-Feat. 1
e. Cat. # 211A-351
f. Cat. # 211A-Unit 87
g. Cat. # 207-488-7621
h. Cat. # 211A-575

Photograph 10. Type 24a:
a. Cat. # 211A-246
b. Cat. # 211A-Unit 96
c. Cat. # 207-645
d. Cat. # 211A-169
e. Cat. # 207-488-6160
f. Cat. # 211A-Unit 206
g. Cat. # 211A-Unit 104
h. Cat. # 211A-Unit 106, 6-12"
i. Cat # 211A-Unit 106
j. Cat. # 211A-56 and 107-488-8644

Photograph 11. Type 17a, 24b, 24d, 24e and 24g:
a. Type 17a. Cat. # 211A-96
b. Type 14a. Cat. # 211A-Feat. 1
c. Type 24d. Cat. # 211 (Surface)
d. Type 24d. Cat. # 211A-Unit 104
e. Type 24b. Cat. # 207-488-8355
f. Type 24b. Cat. # 211A-Unit 104

g. Type 24b. Cat. # 207-488-8355
h. Type 24b. Cat. # 207-488-8532
i. Type 24e. Cat. # 211A-Unit 106
j. Type 24g. Cat. # 207-629N1

Photograph 12. Type 24c:
a. Cat. # 211A-315
b. Cat. # 211A-Unit 106
c. Officials' Quarters, Feat. 109
d. Cat. # 211A-Unit 306
e. Cat. # 211A-Feat. 1
f. Cat. #211A-Unit 106
g. Cat. # 211 (Surface)

Photograph 13. Types 24a and 24f:
a. Cat. # 207-488-9833
b. Cat. # 211A-Unit 206
c. Cat. # 207-488-9833
d. Cat. # 211A-Unit 206
e. Cat. # 211A-200-341

Photograph 14. Late 18th and early 19th century maker's marks:
a. Wedgwood, 1759-1769 (See Appendix 2, Mark 54)
b. Hartley, Greens and Co., 1781-1820 (See Appendix 2, Mark 24)
c. James Clews, 1818-1826 or 1836 (See Appendix 2, Mark 15)
d. Partial mark in Cyrillic script, possibly the mark of E. M. Gusyatnikov of Ghzel, late 18th or early 19th centuries (Appendix 2, Mark 79)
e. X-ray of Cyrillic mark clearly illustrating the letters "..tnikova"

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