7 Hanover Square, Part 4 of 6

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Appendix C - Red Sand Analysis

Appendix D - Ceramics

Appendix E - Ceramic Shop Deposit

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APPENDIX C

ANALYSIS OF 'RED SAND' LAYER AT HANOVER SQUARE ARCHEOLOGICAL SITE

Steven Selwyn, Ph.D.

REPORT

Objective: To determine the nature of the stratum in question to the end of determining if the layer was of 'natural' origin or comprised of fill material.

Methodology: The stratigraphy of the site was observed in situ (in several test trenches) and the red sand layer sampled. Two large boulders lying conformably in the stratum were also sampled.

The sand was subjected to visual microscopic examination, at 120x, after drying at 105°F and being passed through a magnetic separator.

The rock samples were crushed and microscopically examined at 60x.

Findings: The sand is primarily composed of angular to sub-angular quartz grains with surficial iron stains. Small amounts of biotite mica and magnetite are present. The size of particles is in the 1.5-1.0 0 (500 μ) range.

The rock sample is a dark, coarse-grained gabbro. It is very similar to the rocks found on the western side of the Hudson River in the formation known as the 'Palisades Sill'.

Conclusion: The stratum is 'natural' rather than fill. The sand came from the northwest of the site and shows indications of being glacial outwash till from the Newark Triassic 'red-bed' series. The sand was deposited underwater by a stream which trans-ported it only a relatively short distance. The glacial period was not the most recent "Ice-age" ice sheet (of 10,000 yr. BP) but rather the result of a 40,000 yr. BP glaciation. The more recent glacier came from the north and northeast and deposits a yellow colored sand as outwash.

The sand layer does not comprise 'beach' horizon but rather is the result of fluvial (river or stream) deposition.

Appendix D

THE CERAMIC CODING SYSTEM

by Meta F. Janowitz

Ceramic analysis in general is designed to enable archaeologists to date specific contexts, identify related strata, and, ultimately, address questions related to issues such as the trading patterns and socio-economic status of the people who were responsible for the formation of archaeological deposits. The first step in this analysis is, naturally, the creation of a typology which to be used to date the sherds. The following is the result of our own and others' research combined with the typology developed by Stanley South in consultation with Noel Hume (South 1977). It is a working typology and dates for particular types. Identification of more named types will be added as more research in ceramic history is accumulated. [Whenever possible, these changes have been noted although they could not be incorporated into the quantitative analysis used herein.]

The dates given by South were used for most 18th-century and some late 17th-century wares. For most 17th century wares, especially Dutch ones, types were assigned dates based on the advice of Paul Huey (State Office of Historic Preservation, Albany, N.Y.), Charlotte Wilcoxen (Albany Historical Museum), and Jan Baart (Amsterdam Historische Museum), and on our own readings. Information on late 18th-century and 19th-century wares was given by George Miller (Colonial Williamsburg), Jed Levin (University of Pennsylvania) and Sherene Baugher (Landmarks Preservation Commission).

The help of all these individuals was invaluable, but we alone are responsible for any errors of interpretation.

The emphasis in this project has been on developing a reliable dating tool for New York City ceramic assemblages from the early 17th to the late 19th-century. Such a typological tool has not previously been developed for this area. The Dutch presence and influence in New York makes typologies formulated for use in New England or Virginia unsuitable. Even after the English take-over of the colony of New Netherland in 1664, and in spite of the various,restrictive trade acts passed by Parliament, trade continued with the Netherlands at least until the 1690s (Ritchie 1976). In addition, locally-made wares show Dutch influence into the 18th-century (Janowitz, Morgan and Rothschild 1986).

The first, and most important, goal of our typology is, thus, dating. A secondary goal is simple description and enumeration of types and quantities of ceramics. Finally, we tried to isolate types of ceramics not adequately described in the literature of historic archaeology and to gather information about these wares from the works of ceramic historians.

Since our typology evolved during the course of cataloging the artifacts, and since the Stadt Huys and Hanover Square projects represented the first large excavations in New York City. The sites contains idiosyncracies which make them rather site specific and not entirely consistent. The biggest problem that we had was trying to reconcile our desire to give definite beginning and end dates with our fear of oversimplifying or misrepresenting the facts of ceramic history. We are not, therefore, presenting it as a finished product but as a classificatory scheme that was useful and will continue to be refined.

Initial tabulation of the ceramics was recorded by hand on standardized forms. The information was then transferred to a computer, which greatly facilitated the location of particular types and calculation of mean ceramic dates. A disadvantage of the computer system was that vessel form was not included in the computerized information. However, whenever it could be determined, it was noted on the original hand-tabulated sheets. As Beaudry et al (1983) have pointed out, vessel forms must be included before meaningful comparisons can be made between assemblages.

The Ceramic Codes

In the following section, we describe only those wares not described, or only partially described, by Noel Hume (1969). Particular attention is paid to early red and buff earthenwares, delftwares, and oriental porcelains. Some undated and purely descriptive types are included on the code list: for example #7 (red-bodied black glaze). These are intended to be general categories for sherds which could not be more specifically identifed and dated. Whenever possible, definite names were given - for example, Buckley Ware, Jackfield Ware - but when it was not possible to identify sherds with named types, descriptive names were used, i.e. "red bodied", "green/ginger glazed" etc..

A full list of the ceramic codes is in Appendix L.

COARSE EARTHENWARES

The codes for red, salmon and buff-bodied earthenwares consist of undated descriptive types, named and dated types from South and Hume, and a group of types which are collectively called "17th-century" wares.

Descriptive, Undated Types

These codes are descriptive of glaze and paste color. For the red-bodied earthenwares they are the following: #1 (Unglazed); #2 (Clear-Glazed); #5 (Brown-Glazed); #7 (Black-Glazed); and #10 (Black-Glaze on a Bright-Red Body). Code #14 (Iberian Storage Jars) does not follow South's date range of 1745 - 1780 for this type. Based upon the contexts from which sherds of this type were excavated in New York City, South's time range is too narrow.

Undated salmon-bodied earthenwares include #20 (Unglazed) and #23 (Green-Glazed). Buff White-bodied undated types are #30 (Unglazed) and #33 (Green-Glazed).

South/Hume Types

Our #4 is South's #51 (Astbury, 1725-1750), our #8 is South's #47 (Buckley Ware, 1720-1775), and #15 is a combination of South's #35 and 42 (Agate Wares, 1740-1810). These categories were derived from South (1972).

"Seventeenth-Century" Wares

The following are red-bodied earthenwares: #3 (Clear-Glaze, 17th-Century Rim Profile), #6 (Brown-Glaze, 17th-Century Rim Profile), #11 (Green/Ginger Glaze), #12 (Green-Glaze), and #17 (Clear-Glaze with Speckles).

Salmon-bodied earthenwares include: #21 (Clear-Glaze) and #22 (Mustard Glaze). Buff/White bodied types are #31 (Yellow-Glaze) and #32 (Yellow and Green-Glaze).

These types were based upon similarities noted by Paul Huey in November 1979 between earthenwares found at the Stadt Huys Block and his excavations at Fort Orange in Albany. These describe paste and glaze, although #3 and #6 also note a 17th-century rim profile. The end date of 1700 is provisional and should probably be advanced to 1720/5 since examples of many of these types were found above the fill in lots 13 and 14 at 7 Hanover Square. None were found in the well (Feature 10 or Test Cut CD) at the Stadt Huys Block which contained white salt-glazed stonewares and English buff-bodied slipwares, and which dates to the first quarter of the 18th century.

The red-bodied types in this group are at least in part locally made. There was a potter in New Amsterdam at least as early as 1655 and perhaps earlier (Ketchum 1970:20). Five earthenware bottles found in the basement of the Lovelace Tavern are almost certainly locally made: their shapes are bulbous, and their capacity ranges from 3 3/4 cups to 4 1/4 cups. Body pastes appear to be the same with some color differences due to firing, but they have five differently colored glazes (Dark-Green, Green/Ginger, Clear-Glaze, and both a Light and Dark-Brown). One of the bottles has kiln damage on the bottom which prevents it from standing steadily.

The "17th-century rim" profile is characteristically Dutch (Janowitz, Morgan and Rothschild 1986) . It is frequently, but not exclusively, found on a distinctive body type which has been identified by Jan Baart as coming from the town of Bergen-op-Zoom in the Netherlands. Bergen-Op-Zoom redwares have a very sandy, red-orange body which is so soft that it can rub off on the hands. It is used for large cooking and storage vessels. A group of fragmentary Bergen-op-Zoom vessels was found beneath the fill in TC R at the 7 Hanover Square site (see Appendix M).

Other Dutch characteristics are the "ear" and "celery-shaped" handles. Ear handles are usually found on pipkins (small, deep, earthenware cooking pots), storage jars, and, occasionally, on dishes. Celery-shaped handles are found generally on earthenware "skillets" (flat cooking vessels). (See Janowitz, Morgan and Rothschild (1986) for a more detailed discussion of Dutch and Dutch-tradition earthenwares.) The presence of these handle forms is noted on the original hand-written tabulation sheets.

It was not possible to reconstruct any of the salmon-bodied vessels so we have no specific information about forms. Mustard and clear glazed sherds were frequently found in the same contexts as the "17th century" group of redwares, but were not as common as the redwares.

Buff/white bodied vessels include pipkins, storage jars and skillets. Most vessels with only yellow-glaze are completely glazed on the interior and partially glazed on the exterior. There is sometimes a thin pink slip over the body. Yellow and green-glazed vessels have yellow on the exterior and green on the interior. Identification of the place of manufacture of these vessels is problematical. Buff/white

bodied vessels with yellow and pale-green glazes were made in England in the 17th-century, but many of our examples have dutch ear and celery handles rather than the typically English rod or tubular handles, (Noel Hume 1969:102, Rackham and Read 1924: passim). The Netherlands have no white-firing clay (Jan Baart 1982: personal communication), and, although white clays were imported there for the manufacture of delftwares, as yet we have found no references to the use of imported clays to make coarse earthenwares. It is also possible that these wares were made in the Southern Netherlands (present day Belgium) where there was white firing clay. Noel Hume says that English yellow-glazed vessels occur on American sites of the first half of the 17th-century, but we found examples at 7 Hanover Square above the land-fill which was deposited in the 1680s/90s. They are probably not locally made as local earthenware clays fire red. More research is needed to determine the origin and precise dates of these vessels.

SLIPWARES

The dates of all buff-bodied slipwares are from the South/Hume typology.

For red-bodied slipwares, code #71 (Green-Glazed), #72 (Trailed and Green-Glazed), #74 (Trailed/Dutch Style), and #77 (Trailed - Wrotham, Limbourg, etc.) belong to the 17th-century group of earthenwares. Identification as "Dutch style" and Wrotham, Limbourg, and Metropolitan were based upon illustrations and descriptions in Noel Hume (1969:138-139) and (de Kleyn 1982). The dates for codes #70 (Combed/Zig-Zag, 1670-1795) and #73 (Sgraffito, 1650-1710) were given the South/Hume dates for

similarly decorated buff-bodied wares. Code #75 (1620-1850) is a general category for all other red-bodied slipwares. These red-bodied slipware dates are very general and should be refined based upon vessel forms and style of decoration.

DELFTWARE

We chose to use the term "delftware" for all ceramics glazed with a lead glaze to which tin oxide has been added. The resulting glaze is a thick, white enamel which does not bond well with the body, but which does provide a background for painted decoration. This ware is also known as tin-enamelled earthenware, galley ware, or faience. The use of the term delftware does not mean, of course, that all of these ceramics were made in the Dutch town of Delft or even in the Netherlands. Delftwares were made all over Europe, but the overwhelming majority of those found in new York came from the Netherlands or Great Britain.

We have used the term "majolica" as a sub-type within the delftware types. This follows Wilcoxen, Van Dam, and Archer who use "majolica" or "maiolica" to denote a ware which was lead and tin oxide glazed on the face, but simply lead glazed on the base or bottom. It pre-dated delftware proper and was the first type of tin-glazed ware made in the Netherlands in the 16th-century. (See the explanations of the codes below for further delftware/majolica differences.) Unfortunately, the same words were also used by 19th-century potters for a highly colored, hard white-bodied earthenware, often molded in various vegetable, floral, or marine forms (Barber 1976:18).

The method of tin-glazing on earthenware was brought to the Southern Netherlands (now Belgium) in the early 16th-century by immigrant potters from Italy (Neurdenburg and Rackham 1923:22; Van Dam 1982:88). The technique reached the Northern Netherlands about 1550. It appears that until the latter part of the 16th-century, tin-glazed wares were made along with lead-glazed late-Medieval type wares in shops organized by the artisan system of production (Van Dam 1982:88). However, by the end of the first quarter of the 17th-century, the production of delftware had been organized into an industry rather than a craft with specialists in different phases of the manufacturing processes and investor/owners who were not potters (Neurdenburg and Rackham 1923:8, Van Dam 1982:89-90). Delftwares were thus the first European ceramics to be made using a factory system of production (unless German stonewares were produced earlier in this manner).

The production of tin-glazed earthenwares in England was begun by potters from Flanders (the Southern Netherlands) in the late 1560s (Archer nd:6-7, Noel Hume 1977:20, 1969:105). During the last half of the 16th-century and the first decades of the 17th-century, connections between the Lowlands and England were close and friendly. Communication between the Netherlands and Southeastern England by sea was easy, and the Netherlands were rebelling against Spanish rule and found their closest ally in Protestant England. As a result of the geographical and political connections between the two areas, both people and materials moved relatively freely between the two. This creates problems for archaeologists seeking to study patterns of trade through ceramics, as it is difficult to determine the country of origin of many delftwares either

on the basis of decoration or clays used in their manufacture. Archer (nd:6) states "it is known that English clay from Norfolk and Suffolk was exported to Holland and that English pot-painters were employed in Dutch factories, while a number of their Dutch counterparts were at work in England." Neurdenburg and Rackham concur, specifically noting the export of clay from England in the 17th-century (1923:9). Dutch-made delftware was being imported into England to such an extent that, starting in the 1670s, English potters petitioned for, and received official bans on the importation of painted earthenwares (Archer nd:7; Noel Hume 1969:140-141). It is not known to what extent these bans were avoided or ignored, especially after the assumption of the English throne by William and Mary in 1688. Archer (nd:7) sums up the situation: "In any case Dutch delftware and the presence of Dutch potters in England had a marked influence on English tin-glazed wares throughout the late 17th-century and until 1740."

While this mixing of cultural influences makes the determination of place of manufacture difficult in general, it <u>is</u> sometimes possible to determine probable place of maufacture of individual pieces on the basis of decoration or design motifs, especially if the piece is intact or almost so. A salt cellar found at 7 Hanover Square (624.1105.1) was identied by Jan Baart as coming from Haarlem. This identification was subsequently reinforced by illustrations in Korf (1981, pp. 220ff). Archer (nd), Korf (1981), Noel Hume (1969; 1977) and most others generally assign place of manufacture to archaeological delftwares on the basis of comparison to pieces of known provenience which are in museums or private collections. The same holds true for dating of individual pieces.

Noel Hume and Archer both note differences in the Dutch and English depiction of trees: Dutch trees are generally painted as naturalistically as possible, but English trees are more impressionistically represented frequently shown with "long thin trunks and lumpy sponged foliage" (Archer nd:43) or as "small whirlwinds speeding across the countryside" (Noel Hume 1969:290). Difficulty in origin of style remains as some pieces attributed to London factories have naturalistically painted trees as well (Archer nd:86-89, for instance).

Nothing is said here about identifying pieces by makers' marks because it is very seldom that archaeological specimens will have any. Ordinary, everyday delftwares were seldom marked and English delftwares of any kind were only very infrequently marked (Archer nd:6).

Since the potters who brought the technique of tin-glazing to the Netherlands were from Italy, it is not surprising that the majority of early decorative motifs on majolica were Mediterranean or Italianate in style. Decorations were usually polychrome and often quite Baroque. A major change in style ocurred in the early 17th-century when Chinese, and later Japanese, porcelains began to appear in the Netherlands and England. (See Porcelain section, below, for the history of oriental ceramics in Europe in the 17th-century.) The demand for the attractive blue-on-white Oriental porcelains was tremendous. Delftware, in spite of the artistic limitations imposed by the porosity of the glaze (which prevented very delicate painting), was an acceptable substitute: the white glaze provided a good background for blue chinoiserie designs and, especially from a short distance, delftware gave a creditable imitation of porcelain. (When looking at sherds, of course, there is no possibility of confusion between delftwares and porcelains; but when looking at whole vessels from a moderate distance away, delftwares closely resemble porcelains).

By the mid-seventeenth-century, the decorations on delftwares were almost entirely blue-on-white designs derived from the orient. These wares were popular and widespread. An additional boost was given to the delftware industry when trade was interrupted with China after 1647 (see Porcelain section). The delftware potters were able to meet at least part of the demand for blue-on-white ceramics. It was during this mid-century period that Delft became the center of Dutch production of tin-glazed wares (Warren 1975:246).

According to Noel Hume, plain white delft vessels began to be made in the 1640s in England (1969:108). Jan Baart supports this mid-century date for plain plates in the Netherlands (personal communication: 1982). It appears, however, that plain vessels were never as popular as the blue-decorated ones. At the end of the 17th-century, polychrome decoration on delftwares were common and continued to be so throughout the 18th-century. Designs were usually European in style and included landscapes, groups of people, and floral motifs. These motifs were also found on the blue-decorated delftwares.

THE DELFWARE CODES

The delftware codes fall into two separate groups: general types whose primary function is dating and more specific types which are descriptive of glaze colors and/or decorative motifs. The latter group was designed to enable us to locate particular sherds for further analysis. Unless identified as "majolica", all these ceramics are tin-glazed on both surfaces.

Code #49 through #55 are taken directly from the South/Hume typology and will receive no further comments here (see Noel Hume 1969:105-111). The other codes were compiled by us after consultation with Charlotte Wilcoxen and Paul Huey, and with reference to Archer (nd:), Van Dam (1982), Korf (1981), Warren (1975; 1982), Noel Hume (1969; 1977) and Neurdenburg and Rackham (1923).

Majolica Codes:

Code #37 (Polychrome Majolica) and #47 (Majolica, referring to all codes except #37, 39, and 48) are general categories. The end date for majolica is given here as 1720, which is a very conservative date. Van Dam (1982:90) states that, except in the province of Friesland, majolica production ceased in the Netherlands between 1650 and 1675. He does not give an end date for Frisian majolica. Korf (1981) includes illustrations of vessels with lead-glazed backs which date to the last half of the 17th-century (see for example Figs. #758, 713, and 711). Noel Hume dates vessels with a "semi-transparent and yellowish lead-glaze" on their backs to the first 70 years of the 17th-century (1977:1). It is probable, therefore, that 1720 is too late an end date for majolica, but until more is known about its production and export to the North American colonies, an end date cannot be firmly established.

General Delftware Codes

For the following general codes the beginning and end dates of 1620 to 1780 were used. The beginning date is consistent with the rest of the typology, and was chosen to reflect the earliest date of settlement in New Amsterdam, but the end date is problematical. Due to the development of

white salt-glazed stoneware, delftwares became less popular and production declined during the second and third quarters of the 18th-century, but it was creamware that replaced delftware as the most popular type of earthenware (Noel Hume 1973:passim; 1969:107). By the end of the 18th-century, most English and Dutch delftware factories had been forced either to close or to make creamwares (Archer nd:7-8; Hudig 1979:48-50; Warren 1975:250; Noel Hume 1969:107). The end dates which South/Hume give are 1800 for plain white delftware and 1802 for "decorated delftware". Noel Hume (1969:205) also mentions delftware ointment pots which bear the names of shops which did not exist before 1820 or 1830, but he does not say if these shops were in England or North America. Until more research is done on what ceramics were being imported into and sold in New York City after the Revolution and in the first years of the 19th-century, it is difficult to assign an end date to delftwares. We chose to use the early date of 1780 because we felt that it was probable that very little delftware was imported into New York after the Revolution. While this date may ultimately prove to be more realistic, it might have been more suitable, for the sake of consistency, to continue to use the generally accepted end date of 1800 until the issue was clarified.

#40 (Unglazed) - this category is for body sherds which have lost their glaze. Delftwares, except for improperly made pieces, were always completely glazed. #41 (Plain White-Glaze), #42 (White-Glaze with Blue Decoration) and #38 (White-Glaze with Purple Decoration) are general categories.

More Specific Codes

#43 (Blue-Glaze) and #44 (Blue-Glaze with Blue Decoration) refer to a robin's-egg-blue glaze seen frequently on 18th-century delftwares.

#45 (Manganese Stippling) is also seen most frequently on 18th-century pieces although it is sometimes seen on 17th-century vessels (Archer nd:41). The manganese was applied by blowing it in powder form onto the vessel while portions of the piece were covered so that they would remain white. The white portions of the glaze were then usually painted in blue (ibid.).

#46 (Polychrome Delft) includes all sherds with more than blue decoration on white or blue glaze. Colors range from simple yellow highlights on a basically blue design to elaborate designs with four or more colors. In general, polychrome decorated delftwares (not majolicas) are more likely to be from the 18th rather than the 17th-century, but pieces were individually assigned specific dates when possible.

#56 (Debased Rouen Faience) is a late type of delftware made, as the name suggests, in France. It had a red body, white tin glaze with blue decoration on the face, and a dark brown lead glaze on the back. most of these vessels were used in food preparation, but plates are not uncommon.

#58 (Nevers Blue) was made not only in France, but also in the Netherlands and Great Britain. This type of delftware has a very dark blue glaze which is decorated with white painting.

#36 (Red-Bodied Delft) (except code 56) was included to monitor this category. Paul Huey (personal communication:1981) had suggested that red-bodied Dutch delftwares were earlier than the more common buff or

yellow-bodied wares. In general, the few red-bodied sherds which were recovered from these sites were from the earliest contexts.

#39 (Chain Border) and #48 (Blue Dash Border) are border motifs which are found on both delftwares proper and majolica, but which are more likely, especially #39, to be found on majolica. They occur on both English and Dutch vessels.

CREAMWARES

These types are essentially the same as those of South/Hume with minor modifications. We did not distinguish between lighter-bodied versus darker-bodied creamware as this was too subjective a distinction to make in light of Noel Hume's comment that potters found it hard to control the hues of their products from one kiln firing to another (Noel Hume 1973:239). The South/Hume type #8 "finger-painted wares" was subsumed under our type #104 for all annular wares. This was done because vessels with the "finger-painted" motif can have other annular-type decorations as well (Van Rennsselaer 1978: passim). For the same reason, we included all of the various annular or banded decorations under this one code. On a site with more 19th-century contexts, it would be advisable to have several codes for these types of decorations on creamwares, pearlwares, and whitewares.

We expanded South's basic types (our codes 91-101) but left the dates the same as for creamware in general. In addition, three varieties of early cream-colored earthenwares (which are not actually "creamware" if this latter term is used only for Wedgewood Queensware types of

earthenwares) were included in this category in the coding system for the sake of simplicity: #103 (Green-Glazed) and #106 (Clouded-Glaze) use dates from South/Hume but the date for #107 (Early Cream-Colored Ware) is a composite date from Virginia Myles of Parks Canada (1981:personal communication) and South/Hume. This early (1740-1780) refined earthenware has a color which is usually darker than creamware proper, sometimes verging on a mustardy color, and is often found with intricate sprigged decoration.

Code #109 (Marbelized) refers to the technique of decorating the surface of an object with tiny chips of colored clays. These clays were usually ground or polished to a smooth surface which resembles agate ware or very finely marbeled slips. Occasionally, the chips were left unsmoothed and a very rough surface results. Van Rennselaer illustrates a teapot decorated with ground chips, which she calls "speckled" (1978:241).

PEARLWARE

The basic date 1780-1830 which South/Hume assign to plain and edge-decorated pearlwares was used for pearlwares in general with five exceptions: #135 (Transfer Printed) and #132 (Underglaze-Blue) retain their South/Hume dates of 1740-1795 and 1780-1820 respectively; #133 (Underglaze-Brown) was given a date corresponding to underglaze-blue; annular wares (#134) are dated from 1790-1820 by South/Hume, but we advanced the end date to 1850 based upon Noel Hume 1978, Van Rennselaer 1978 and our own observations. Finally, Underglaze-Polychrome Pearlware is divided by South/Hume into later (1820-1840) and earlier (1795-1815) types. Since the basis for this distinction was not clear to us, we

combined the two into one type dated 1795-1840. However, almost all of the underglaze-polychrome decorated pearlware from these sites comes from contexts which can be dated by other means to before 1820. For a more detailed description of the underglaze polychrome pearlwares which were excavated from an early 19th-century china shop dump see appendix E.

WHITEWARE

The period 1800 to 1830 was a time of transition in the development of refined earthenwares in which creamware and pearlware bodies were gradually lightened until they became the ceramic type which is now called "whiteware". It is also probable that a change was made from lead glazes to alkaline glazes during the last decade of this period (Goring 1981:9, Lofstrum 1976:10). The separation of pearlwares from whitewares has been a problem for archaeologists, but most ceramic historians are in agreement that the name given to the wares is not very important: design motifs, decorative elements and techniques, and vessel forms are the significant attributes which should be used for dating and socio-economic interpretations (Goring 1981:12, Miller 1983:passim).

If decoration was present on a sherd, it was almost always possible to assign a sherd to a particular type, but plain sherds were a problem. To simplify classification, we made a distinction between pieces with blue-green puddling or over-all tint and those with ice-blue puddling or tint: the blue-green was classified as pearlware while the ice-blue was classified as whiteware. This division was based upon our observation of decorated sherds which could be unequivocally classified as one or the other.

It might be best to standardize the term "cream-colored" or "c-c ware" as used by Miller (1980: passim) to cover all of these miscellaneous 19th century refined earthenwares. Barber, writing in the 1890's, defines cream-colored ware as follows:

> Known as C.C. ware by the trade, because of its yellowish tint in former years, (it) is the cheapest grade of reliable whiteware. It is now made of excellent quality, almost equal in appearance to the higher grade of goods, (these are listed by Barber as white granite, semi-porcelain, and porcelain) and is used for cooking and table purposes. Barber 1976:18-19

The term "ironstone" has also been a source of confusion for archaeologists. Charles and George Mason took out a patent in England in 1813 for a new process of producing porcelain and earthenware; this ware came to be called "ironstone" (Fisher 1978:263). A similar process had been used since 1805 by Spode, Minton, and John and William Turner to produce a body called "stonechina" (Fisher ibid., Noel Hume 1969:131). Masons's wares were "useful and ornamental vessels ... whenever possible imitating Chinese shapes and decorations" (Fisher ibid.). Many of Mason's wares were quite ornate and were deocrated in Imari-style colors, and it is probable that very few plain wares were made in the early years of ironstone production. Therefore, the identification of pre-1820 ironstone should be based both upon body type and decoration, and the possibilites of confusion with later 19th-century ironstones (a reason advanced by some archaeologists for starting their whiteware dates as early as 1805) are

minimal. We did not include a separate category for ironstones or stone chine for several reasons: we felt that the decorative elements rather than the body type should be emphasized; there is little agreement among archaeologists as to what constitutes ironstone; and, most importantly, 19th-century contexts on the site were few. On a 19th-century site it would be useful to define the differences between ironstone, common white earthenware, semi-porcelain, and stone. (For varied uses of these terms see, for instance, Barber 1976:18-19 and Gates and Omerod 1982:7-8.)

The starting date for whiteware in the South/Hume typology is 1820. We chose to use 1810 instead because we hoped to reduce dating distortions caused by the overlap of creamwares, pearlwares and whitewares. The end date for all but the feather and shell edged and decal decorated types is 1900, which is consistent with the other dates in our typology and which reflects the nature of the deposits which we chose to excavate. Feather and shell edged wares were given the end date of 1865 (Miller 1980:10).

YELLOWWARE

This is a general group based on color of the body and includes both nineteenth-century "yellowware" and earlier yellow-bodied earthenwares. The nineteenth-century categories are #80 (Clear Glaze),

#81 (Annular Yelloware). They were dated 1820 to 1920 (Gates and Armerod 1982:7). #83 (Mottled-Brown Glaze - Rockingham Type) was dated 1780 to 1900, but a recent reference (Garrow 1982:238) suggests that a starting date of 1790 would be more accurate.

#84 (Mottled-Brown Glaze - 18th-century type (1660-1750)) refers to a ware which has a buff body and a medium to dark brown glaze, mottled and streaked with darker brown. The body resembles some yellow slipware pastes, but is usually thinner and harder than most slipwares. The forms which could be inferred were mugs with cordonned bases. This ware was probably made in the Midlands of Britain during the latter 17th and first half of the 18th-centuries (artifacts on exhibit, Parks Canada, Ottowa). We dated this ware 1660 to 1750, but Davey (1975:Fig. 3 and 4) gives similar wares the dates of c.1680 to 1780. Most of our sherds of this type were found in pre-creamware contexts.

#85 (Mottled-Polychrome Glaze) (1740-1770) refers to a Whieldon-type or clouded glaze on a mustardy or dark cream body.

WHITE SALT-GLAZED STONEWARES

Most of these codes are from the South classification: our #170 (Plain) corresponds to his #40; #172 (Molded Decoration) to #16; #173 (Slip-Dipped) to #48; #174 (Scratch blue) to #34; #175 (Debased Scratch Blue) to #24, #176 (Scratch Brown or Trailed) to #55; and #177 (Transfer Printed) to #30.

Code #171 (Overglaze Decoration) refers to handpainted decorations in polychrome colors. Floral motifs are common and the decorations often

resemble those on early creamwares. South does not include this type and no specific dates for overglaze decoration are mentioned in Noel Hume (1969 and 1978), so the general dates for white salt-glazed (1720-1805) were used. However, Barber (1907:21) writes that this technique began about 1740 and was out of popularity by 1780, and Mountford (1973:209) says it starts about 1750 and was well established by the 1760s. Therefore, it would be better in the future to date this category 1740 to 1780.

GREY AND BROWN SALT-GLAZED STONEWARES

We decided to combine the groups of grey and brown bodied wares because there are many intermediate colors and hues and because grey bodies are often given brown surface treatments (for example Nottingham, Bellermine, and British-Brown wares) which make assignment to one group or another difficult.

Codes #189 to #194 (German Stonewares)

#189 and #190 ("Bellarmine" or "Tiger" Ware) 1620-1725

We are using the above terms rather than the alternative ones found in the literature ("Frenchen Ware", "Rhenish-Brown stoneware", "Cologne ware", "Greybeards" or "Bartmann Bottles") to follow the usage in Noel Hume's Guide and to stay away from the controversies about putative place of manufacture. Bellarmines have a grey or taupe body which is covered with an iron-oxide slip which forms a light brown to dark-brown mottled surface after firing. In form, they are bottles with bulbous bodies and

fairly narrow to fairly wide necks. A sprig-molded man's bearded face on the neck of the bottle and an armorial, pseudo-armorial, or coin-like sprigged medallion on the body are found on 17th-century vessels, but Noel Hume says that bottles without these decorations were made and exported throught the first quarter of the 18th-century (1969:57). Bellarmines were made in several pottery centers in the Rhineland and Flanders and the shapes, styles of decorations, and shades of mottling vary over both time and between potteries (Barber 1907:ill. 21-25; Noel Hume 1969:ill. 4-6)

No reconstructable or almost whole bellarmines were recovered from either site and fewer than one half-dozen sherds with partial faces or medallions were found. South's ceramic typology dates bellarmines in two separate types, "well-molded human face 1550-1625" and "deteriorated 1620-1700". Since the vast majority of our bellarmine sherds are body sherds without decoration, and because of Noel Hume's comment on 18th-century production, we have used the dates of 1620 (our site-wide beginning date) to 1725 for all bellarmine sherds.

It should be noted that there is a possibility of overlap between our bellarmine codes #189 and 190, and #210 and 211, "British-Brown Stonewares". Because of the popularity of German salt-glazed stonewares, John Dwight and others in England tried to imitate them. Efforts were made to copy the bellarmine body, glaze, and form, the latter especially in the 17th-century (Barber 1907:10 ff.; Mountford 1973:199ff,; Noel Hume 1969:111-112; Rackham and Read 1924:70ff.). The success of the English imitations is in some doubt. Rackham and Read (ibid.) say that John Dwight's bottles "might be mistaken for German but for their glaze coagulated into thick glue-like tears." Barber (loc.cit) notes that "Few pieces of his (Dwight's) work are known, but those which have survived are of the highest merit."

However, this reference is slightly ambiguous as Barber might be referring to Dwight's sculptural works in white and colored stonewares. Noel Hume (1969:112) characterizes pieces attributed to Dwight's pottery as "not very well-made". Be that as it may, there are tankard sherds from test cuts Y and AH at 7 Hanover Square which closely resemble bellarmine sherds in their body and glaze. Their form distinguishes them, since bellarmine bottle sherds are more curved than mug/tankard sherds, but many sherds are so small that form can not be determined. In general, sherds with grey bodies and mottled brown exteriors were coded as #190 unless they were clearly not bottles.

Codes #194 (Embellished Hohr type, 1690-1710), #191 (Rhenish 1650-1725) and #192 (Westerwald, 1700-1775) correspond to South's #59, #58 (Sprig-Molded, Combed Lines, Blue and Manganese Decoration), and #44 (Stamped-Blue Floral Devices, Geometric Designs) respectively. Code #193 (Rhenish/Westerwald) was used when the thinness of the body and well-executed decoration pointed to German manufacture but the type of decoration could not be determined.

Codes #195 (Nottinghan Type, 1700-1800), #210 (British-Brown Stoneware, 1690-1790), #211 (Brown Saltglaze Mugs, Fulham, 1690-1790), #212 (Ralph Shaw-Type, 1732-1750), and #213 (Brown Stoneware Bottles, 1820-1900) are South's codes #46, 54, 53, 50, and 1.

The remainder of the codes are descriptive and are undated except for the two Albany-slip codes (#198 and 214) which are dated 1800 to 1900. The descriptive codes are the following: #196 (Plain - Gray Body) and #216 (Plain - Brown Body); #197 (Miscellaneous Blue Decoration - Gray Body), #215 (Miscellaneous Blue Decoration - Brown Body); and #199 (Other Brown Slip (non-Albany) - Gray Body).

NON-SALT GLAZED STONEWARES

The non-salt glazed stoneware codes consist of three dated types from South and five undated descriptive types. The dated types are #220 (Elers Type, 1690-1775; South's #37); #221 (Red-Bodied Engine-Turned, 1763-1775; South's #28); and #223 (Black Basalts, 1750-1820; South's #27). The descriptive types are #222 (Miscellaneous Red Body), #224 (Miscellaneous Black Body), #225 (Miscellaneous Brown Body), and #226 (Miscellaneous Gray Body).

PORCELAIN

Methods for distinguishing between hard and soft paste porcelains are commonly found in the "Antique" literature. Various techniques have been advocated, some more esoteric than others, but two are the most reliable: irradiating the sherds with a short-wave ultra-violet light and examination of the broken edges of the sherds. Ron Whate of Parks Canada introduced us to the first method, which is also used by glass analysts to separate soda from lead glass. When the ultra-violet light is shined on the sherds in a dark place, hard-paste sherds will floresce a dark, brillant purple, but soft-paste sherds will simply reflect the purple of the light.

Examination of the fractured edges, especially with a hand-lens, can also be useful. Hard paste sherds show concoidal fractures while soft-paste sherds have granular or "sugary" edges (Spargo 1974: 30-31). Unfortunately, there are several problems with this method. The sherds are likely to be so thin that the fracture-lines are difficult to see. In addition, fractures sometimes appear to be both conicoidal and granular,

so that the separation of the two becomes a matter of judgment.

Oriental porcelains, which are almost always hard-paste, can be identified by their decoration (Gordon 1979; Curtis 1979; McFadden 1979; Palmer 1976; Mudge 1962; Medley 1976 and others in the bibliography contain many excellent illustrations). For identification of hard-paste, one technological feature is particularly useful: the foot rings of Chinese vessels are unglazed and not infrequently have rough spots (Whate 1981:25). The color of the unglazed portions is often a light-orange, but can be buff or greyish. The bodies of Chinese vessels range from very thin to thick depending on the type of vessel and the quality of the potting. Thicker pieces often have a slightly "curdled" or "orange peel" texture, but are not pitted like salt-glazed sherds.

Chinese Export Porcelains, especially those decorated with an underglaze-blue, often have landscape, floral, or landscape-floral designs with geometric borders. A landscape-floral design is one in which the large-scale flower elements grow up from a ground (Whate 1981:26). People, dragons and waterscapes are also common. Overglaze designs, especially in the last half of the 18th-century, are often small-scale floral patterns which show European influence.

Chinese porcelains are much more common on colonial sites than are European hard or soft-pastes. Noel Hume states that "although English and European porcelains are found in small quantities on colonial and Early American sites of the second half of the 18th-century, they were not present in anything like the quantities provided by the Chinese..." (Noel Hume 1969:257). At Ft. Michilimackinac, there were 61 sherds of English soft paste compared to 3,082 sherds of Chinese Export Porcelain (Miller and Stone 1970:90). Miller and Stone conclude that European porcelains

"did not occupy a major place in the material culture of the colonial period" because of "factors of price and supply" (ibid.). Production costs in China were very low and even the considerable shipping costs did not raise the price of Chinese porcelains to that of European ones. The quality of Chinese porcelains during the colonial period was at least equal to, and usually better than, European wares. Of the soft paste types, English underglaze blue decorated was generally the cheapest because it did not require an additional firing to fix the decoration. The China trade declined during the last years of the eighteenth and the first half of the 19th-century, and Chinese porcelains were replaced by Continental hard-paste porcelains and English bone-china in North American homes. The quality of decorations on Chinese porcelains had deteriorated and many European countries, in particular England, had begun to impose heavy tariffs to protect their own porcelain factories. The Western potters had also managed to improve their ware's quality while reducing their relative prices (Mudge 1962: 123-127).

We recommend that porcelain not be used to calculate mean ceramic dates. For one thing, it is difficult to establish sufficiently narrow temporal limits for many types of porcelains, and porcelains as a class are much more likely to be curated than are other ceramics. At the 7 Hanover Square site, for example, Test Cut J had Chinese Export Porcelains which dated from the 1740s to circa 1805 which came from one depositional episode. (These sherds were dated by Mr. David Howard for inclusion in an exhibit.)

Porcelain Codes

European hard and soft paste porcelains were generally not dated. The date range for these wares is long (see below) and the sherds were generally too fragmentary to be confidently identified. If a vessel could be given a specific date, it was noted on the original tabulation sheets, but these individual dates could not be included in the computer program.

Soft-Paste Porcelain

Soft-paste porcelain is an "imitation" porcelain because it does not contain pententsue and kaolin clays. Its composition varied and "often included finely ground glasslike materials which, when mixed with clay, produced a white, translucent body ... other additives to the mixture were alabaster, steatite, and ground animal bones... fired at much lower temperatures than hard-pastes" (McFadden 1979:20). Soft-paste porcelain was first made in France in the 1670's and by the 1740's in England. As noted above, soft-paste porcelains are not common on North American colonial sites, but the most frequently found type of soft-paste is English underglaze-blue decorated. Its decorations are very similar to those found at a somewhat later date on pearlware (innovations in ceramic decorations like the shell-edged motif and transfer-printing are generally used earlier on porcelains than on earthenwares). Ceramic historians and collectors have devoted much effort to the study of porcelain decorations, and it is often possible to date transfer-printed and hand-painted decorations from their publications.

Hard-Paste Porcelain

The first successful European hard-paste porcelain was made about 1708 by an alchemist named Johann Friedrich Bottger who was employed by Augustus the Stong, Elector of Saxony. The Meissen factory was founded on his discoveries. A second hard-paste factory was established in Vienna in 1719 and other hard-paste factories appeared in France, Austria, Germany and Italy from 1730 to 1750 (McFadden 1979: 12-20). Many of these factories still exist today. Most were established by princes or other aristocrats or soon came under royal protection, and thus were able to withstand the financial problems which beset them all in the early years of production (McFadden 1979:20). In general, the early factories began with imitations of Chinese decorative styles, but by the second-half of the 18th-century a distinctively European style with baroque and rococco motifs was common (op.cit. p. 24 and passim).

Hard-paste porcelain was first made in England at Bristol in 1768 but production had stopped by 1778 or 1781 (Cooper in Atterbury 1978: 91-102). The patent for porcelain was bought by other potters who produced the ware at New Hall until 1810, but English potters in general directed their main efforts toward perfecting soft-paste bone china (ibid.). Hard-paste was first made commercially in the United States about 1825. There had been earlier experimental wares, but "beginning in 1825 there was a period in which the manufacture of (hard-paste) porcelain in America passed from the stage of laboratory experiment and became an important factor in the ceramic industry" (Spargo 1926:227).

As was stated above, it is probable that very little European hard paste reached the American colonies or the early Republic. Therefore, in

order to minimize distortion in calculating the mean ceramic date, we decided to use a starting date of 1800 for all non-Oriental hard-paste porcelains. This decision is not entirely satisfactory but awaits further research on the distribution of European porcelains within North America.

The number of sherds identified as non-Oriental hard-paste porcelain at both the Stadt Huys Block and 7 Hanover Square is small. Thirty sherds at the 7 Hanover Square site and 87 sherds at the Stadt Huys Block site were assigned to this type. (At the latter site, due to our initial inexperience, some of these sherds are probably actually Oriental.) Most of the sherds, 18 at 7 Hanover Square and 51 at the Stadt Huys, were undecorated. There were none of the elaborate, overglaze-decorated wares which are characteristic of 18th-century European vessels.

Oriental Export Porcelain

The term "Oriental Export Porcelain" will be used here for all Oriental porcelains found at the 7 Hanover Square and Stadt Huys Block sites. "Oriental" is used rather than "Chinese" because we thought it likely that porcelains from Japan would be found in New York City. That we have not yet identified any sherds as Japanese, is probably more a factor of the difficulty of identifying fragments than of the absence of Japanese wares here. Chinese porcelains made for export to the West have been called Chine-de-Command, Oriental Lowestoft, or China Trade Porcelains, but the currently accepted term is Chinese Export Porcelain as used by Mudge, Palmer, Gordon and others. "O.E.P." when used below will

refer to Oriental porcelains in general, and "C.E.P." will refer to Chinese porcelains specifically.

Chinese Export Porcelains were made in China for Western markets to different standards than those made for internal Chinese markets. Some of the latter wares were imported by Europeans, but so far none have been identified from either site.

When Chinese porcelains first appeared in Europe during the late Middle Ages, their beauty and rarity caused Europeans to equate them with jewels and precious metals and they were usually possessed only by sovereigns. During the 17th-century the Vereenigde Oostindische Compagnie, the V.O.C., (Dutch East India Company), imported such quantities of underglaze-blue export wares that it became possible for Dutch middle class householders to have cupboards full of porcelain (van der pijl-Ketel 1982:30). It is not yet known to what extent this availability of porcelain extended to the Dutch 17th-century colonies, but in the 18th-century English colonies, Oriental porcelains were a standard item in middle and upper class inventories (Noel Hume 1969:257, Deetz 1973: passim, Brown 1973: passim).

Sources of O.E.P. and a Brief History of the Trade

The first organized European sea trade with the Orient was initiated by the Portuguese in the 16th-century. They reached China in 1514, but the Chinese did not permit them to set up a permanent trading base until 1557, when they were allowed to settle at Macao. Macao is located at the mouth of the Pearl River 80 miles downriver from Canton. Before this time, the Portuguese traded along the coast by establishing

annual trade fairs (Beurdeley 1962:69-70). From the 1560's, at the least, porcelains were a regular part of the goods shipped to Europe, but, since the trade was controlled by the Portugese, it could only be obtained in Lisbon. When Phillip II of Spain laid claim to Portugal in 1580, this intra-European trade became difficult for the Dutch. The Netherlands were in the midst of a revolt against Spanish rule in the Netherlands, and Phillip officially closed Portguese ports to the Dutch (Curtis 1979:3-4, Beurdeley 1962:89ff). Unsanctioned trade continued, but there was frequent confiscation of ships and cargoes by the Spanish. The Dutch merchants responded by trying to establish direct trade with the Orient. They set out for the East Indian islands where they expected to find fewer Portguese than on the mainland of China (van der Pijl-Ketel 1982:9). Many of the cities of the Netherlands formed companies to trade with the Indies, and these small companies were in competition with each other until 1602 when they were amalgamated into the V.O.C.. By 1606, the V.O.C. had established a trading base at Bantam where Chinese merchants brought goods to trade with Indonesian as well as Dutch and other European traders. Because the Dutch could not obtain a monopoly in the markets at Bantam, they moved in 1619 to Jakarta Island where they established the town of Batavia (van der Pijl-Ketel 1982:10). The Chinese government did not allow the Dutch to trade directly on the mainland, so the V.O.C. continued to meet Chinese merchants at Batavia and on Formosa, which was settled in 1624. In 1640, the Dutch captured the strategic port of Malacca from the Portugese, and the Netherlands became the dominant European power in the trade with the Orient (Curtis 1979:4).

During the first quarter of the 19th-century the English began to dominate the trade with China through ports in India. The first English ships sailed for China in 1596, just one year after the first Dutch fleet, but all three vessels were lost at sea. English trade to the Orient was sporadic throughout the 17th-century, although two separate East India companies were merged into the Honorable East India Company and by 1725 the English accounted for 70% of Chinese imports to Europe (Curtis 1979:4).

The Chinese government continued to limit contact between foreigners and Chinese, and in 1757 trade with Europeans was restricted to Canton. Canton, formerly the center of the medieval sea trade with the Arabs and the Persians, had been opened to European trade in 1699. The trade at Canton was strictly regulated and the movement of foreigners beyond the waterfront district of the "hongs" - the trading buildings - was prohibited. (See Mudge in particular for a detailed description of the organization of trade at Canton.) Trade was limited to Canton until the Opium Wars of 1839-1842, when the western powers, led by England, imposed new trading agreements upon the Chinese.

There is no evidence of direct trade between New York and China before the Revolution. Once the war was over, the merchants of the American port cities lost no time in trying to meet the demand for Chinese goods. The first American ship, "The Empress of China", financed by Robert Morris of Philadelphia and Daniel Parker of New York, left New York City on February 22, 1784 and returned on May 11, 1785 with, among other goods, 962 boxes of porcelain (Mudge 1963:14). By the 1830s, the United

States was challenging England's trade domination, but the China trade in general had fallen off. European porcelains had replaced Oriental ones in fashion as the quality of the Chinese wares, and the price of European wares, declined (Mudge 1962:127).

The amount of porcelain imported into Europe was quite large. Gordon, quoting from Voler's work on the V.O.C. records, states that "on a conservative basis, approximately 12 million pieces were imported during the period (1602-1682) by the Dutch alone" (Gordon 1979:9). Medley uses the figure of three million pieces annually at the height of the trade in the late 17th-century (Medley 1976:261). Curtis summarizes various sources to estimate 60 million pieces by the end of the 18th-century (Curtis 1979:5). At present, we do not know how much of this porcelain found its way to the American colonies or if it was part of a general trade in ceramics between the Netherlands and England and their colonies.

It is possible that many 17th and 18th-century porcelains were brought in to North America by specific individuals for their own use, but we know, from archaeological evidence and from Mudge's extensive documentary research, that C.E.P.s were common in New York City china shops by the end of the 18th-century.

The main soruce of Oriental porcelain was China and the principal place of manufacture was the state-administered kilns at Ching-te Chen (Jingdezhen). Ching-te Chen had been a specialized pottery manufacturing center since the Sung Dynasty (1127-1279) (Medley 1976:164 ff.). Various political and financial factors caused the kilns to be "transformed from privately owned craftsmen's kilns into a series of industrial complexes" (op.cit. p.117). Throughout the Ming Dynasty (1368-1643) the kilns at

Ching-te Chen supplied porcelains for the Imperial households and for domestic markets. By the 16th-century the potters were suffering from a decline in Imperial orders due to the financial troubles of the later Ming emperors, but partial relief came through orders from the Japanese and later the Portugese and Dutch (Medley 1976:224-225). The Chinese potters were not hesitant to cater to the Occidental market (specially decorated wares and forms had been made for the Arabic and Persian markets since at least the 14th century). Chinese forms decorated to European specifics are known from the 16th-century (Le Corbeiller in Gordon 1979:82), but the first evidence of European forms sent to China for copying comes from the V.O.C. records for 1635, in which the Dutch governor reported that he had sent a large assortment of wooden models of ceramics to Chinese merchants (ibid.).

Chinese porcelain production suffered from the fighting and general unrest that marked the end of the Ming and the establishment of the Ching Dynasties (1635-1680). The kilns at Ching-te Chen itself were destroyed during the 1670s and were not rebuilt until 1683. During this quarter century of disruption in Chinese production, Dutch trade with Japan was the principal source of Oriental ceramics for Europe (Palmer 1976:10, Whate 1981:27).

When the kilns at Ching-te Chen were rebuilt, they were also reorganized. Production for the Imperial households was overseen by a superintendant appointed by the emperor. The Ching emperor, K'ang-hsi, was very interested in porcelain and in improving the organization of its manufacture. Some kilns made wares only for the Imperial palaces, while

other kilns made wares for domestic markets and for export (can der Pijl-Ketel 1982:41). The quality of porcelain bodies varied with the proportions of pentuntse and kaolin as well as with the skill and care of the potters, and inferior bodies were often used in export wares (Mudge 1962:49-50, 75). By 1700, Ching-te Chen was one of the largest cities in the world, with over 1,000,000 people and approximately 3,000 kilns (Curtis 1797:5). Production was organized along a type of assembly line in which one person was responsible for only one small part of the entire process (see Curtis p. 5, van der Pijl-Ketel p.41 ff., and, especially, Mudge chapter 5, for details of manufacturing at Ching-te Chen.) These manufacturing methods resulted in speed and standardization. Quality of decoration also varied considerably and ranged from extremely well executed paintings to those which are almost scribbled.

Some provincial kilns, notably those of Fukien and Swatow, also made porcelains which found their way, particularly in the 17th-century, to European markets (van der Pijl-Ketel 1982:6, 45; Mudge 1962:54-55), but "Ching-te Chen and the minor kilns in Jae-chou prefecture (where Ching-te Chen is located) were responsible for the great bulk of the ceramic output" (Medley 1976:217).

Some porcelains, especially in the later 18th-century, were not decorated at their place of manufacture, but were sent plain to Canton where they were painted with polychrome-overglaze colors and gilding, and refired. This was done in order to reduce the time needed to fill special orders. Orders for special shapes or underglaze decorations had to be

placed at least a year in advance, but standard forms were kept in stock at Canton and were decorated to order. Monogramed and pseudo-armorial designs were commonly done in this manner.

Oriental Porcelain Codes

Identification of porcelains was complicated by several factors: the small size and unmendability of most of the sherds; our far from complete knowledge of C.E.P. designs; and the unfortunate propensity of overglaze colors to come off in the ground. Overglaze decorations tend to adhere to dirt rather than to the surface of vessels. "Shadows" of the decorations are left on the glaze and designs can thus be determined, but colors are lost. Most Chinese porcelains were unmarked, but reign marks of the Ming and Ching emperors were occasionally used. None were found at the Stadt Huys Block or 7 Hanover Square sites. Hume (1969:264) and Medley (1976:277-278) illustrate reign marks.

The dates used are a combination of Medley, Mudge, Palmer and Whate, for the most part. They do not include all of the possible types of porcelains made during the 200+ years of the China trade, but they do include the most common ones and should be useful for 17th, 18th, and early 19th century sites. The end date of 1840 was used for most of the categories because, following Mudge, it is likely that "Chinese export porcelain, suffering from breakage, poor quality, and competition ... had been fairly well superceded by European wares by 1841" (Mudge 1962:127). This does not mean, of course, that all importing of Chinese porcelains stopped; however, amounts greatly declined.

#249 (*Encre de Chine*, also called "pencilled" or "en grisaille", 1720-1795). This type has overglaze painting in a brown/black manganese based ink. Designs were usually finally drawn and the technique was most probably inspired by contemporary European engravings. Flesh tones and gilt highlights were sometimes added. This technique was developed during the last years of the reign of K'ang-hsi (circa 1720) and its greatest popularity is said to have been between 1730 and 1750 with dated examples found through 1795 (Palmer 1976:17-18).

#250 (Plain, i.e. white without decoration; undated). Most Chinese vessels were decorated with either underglaze or overglaze colors, but some plain white wares were made at Ching-te Chen in the same shapes as decorated wares and differed only by being glazed "with a perfectly colourless glaze of great brillance" (Medley 1976:259). All of our plain white sherds, except for undecorated portions of plate bases, are small and we could not reconstruct any plain white vessels. It is likely that most all of the plain sherds are pieces of decorated vessels.

#251 (Underglaze-Blue - Canton or Nanking patterns, 1790-1840). This category was used when these specific patterns could be identified. Both were used on a wide variety of vessel shapes. The central motif of both is some combination of islands, bridges, willows and houses. The borders differ: "Canton ware customarily has a dark-blue lattice or network border on a solid light-blue ground with a wavy or scalloped line above. The Nanking border consists of a closer network with a small ornament in each

mesh of the net. Instead of the scalloped line of the Canton ware, it has a spearhead border." (Mudge 1962:140).

The similarily dated "Fitzhugh" pattern has not been identified from either site. Mudge (1962:141) discusses and illustrates this pattern.

#252 (Underglaze-Blue with Brown Line Atop the Rim, 1700-1840). It had been suggested to us that the brown rim was found on vessels made before the Revolution. Ron Whate, however, states that this technique was used into the 19th-century but was not used before about 1700 (1981:pers.comm.). It is common at both sites and is found on cups, plates, and shallow bowls.

#253 (Underglaze-Blue - general; undated). This is a general category for all blue and white sherds except those coded as 251 or 252. Our eventual goal is to be able to create more tightly dated categories based on design; blue and white porcelains were by far the most common C.E.P.s and it will be most important for archaeologists to learn about decorative styles and motifs from ceramic historians and antiquarians. Designs are the key, for once the underglaze-blue technique was fully developed in the 14th-century, dating sherds becomes a matter "of art rather than of technology, and it is decorative style and fashion which take first place" (Medley 1976:191).

#254 (Famille Rose, 1720-1840). This overglaze decorative technique is defined by both its palette (i.e. a particular combination of colors) and its style. It was developed about the same time as encre-de-Chine from European methods for enameling metals with opaque colors (Palmer 1976: 16, Medley 1976:246). Color included an attractive rose-pink, which gave this palette its name, as well as other pinks, greens, blues, yellows, and opaque white. The Chinese potters experimented with these colors throughout the 1720s, and by 1730 had mastered the technique (Medley ibid.). Famille rose designs are likely to be floral and according to Noel Hume, show "large and rather blowzy pink peonies" (Noel Hume 1969:259). Delicate floral designs, birds, and figures are also common. Medley characterizes famille rose designs as showing "meticulous treatment of detail, while the stability of the enamel pastes permitted delicate shading of tones and a wide variety of colour combinations: (Medley 1976:247).

#257 (Famille Verte, (1660-1745?). This overglaze decorative technique became common after the reorganization of the kilns at Ching-te Chen (Gordon 1975:9). The colors are translucent enamels with green as the dominant color. Designs are often outlined in brown or black and early (pre-1700) pieces often show underglaze-blue in combination with overglaze colors (Medley 1976:243; Palmer 1976:15-16). These translucent colors were largely replaced by the opaque colors of the famille rose palette by 1735 (Palmer ibid.). The end date of 1735 was therefore provisionally chosen although the famille verte palette is still occasionally used today.

#256 (Famille Noir) is, according to Medley, a variant of famille verte (Medley 1976:244). Famille jaune is another variant and the three "use the same palette but the emphasis is either on the black or the yellow rather than the green, and in both cases these tend to be background colours" (ibid.). Famille noir should not be confused with encre de Chine (#249 above). Famille noir is polychrome while encre de Chine is a monochrome technique that may occasionally be used in combination with colors, usually of the famille rose palette.

#255 (Overglaze-Decorated, "European" style, predominantly red, 1750:-1840)

#258 (Overglaze-Decorated "European" style decoration, 1750?-1840). These codes are based upon style rather than palette. European style decorative elements or European subjects (Biblical, mythological, genre scenes, etc.) were used by Chinese decorators as early as the late 17th century, and encre de Chine and famille rose decorations are often influenced by European designs. These codes, however, refer to simplified designs which were based on those found on contemporary European porcelains. These are the designs referred to as "crudely decorated" (Gordon 1975:9), "declined to a point where very little craftsmanship was involved" (Noel Hume 1969:261), and "(with a) lack of imagination and vitality" (Curtis 1980:6). The designs are extremely simplified and borders are often merely wavy lines, dots, dashes, or sketchy spearheads. Frequently, there is a small scale, rather delicate, floral design in the centers of tea cups, saucers and shallow bowls and on the exteriors of tea cups.

At the Stadt Huys Block and 7 Hanover Square sites these wares are found with creamwares and pearlwares. We know, from the matched sets of cups and saucers which were found in the ceramic shop refuse at 7 Hanover Square, that the same shops which sold European refined earthenwares also sold C.E.P.s at the end of the 18th and early 19th centuries.

The beginning date is provisional. None of the sources consulted mentions when these simplified decorations began to be made, but all are in agreement that the majority of overglaze C.E.P.s were done in this style by the end of the 18th century. Further analysis of archaeological collections should help to establish a beginning date.

#255 is a separate code for two reasons: many of our sherds seem to be decorated only with reds and we wanted to be able to isolate them for further study; and we encountered some difficulty in separating "red only" fragments from rouge-de-fer designs (see 263 below).

#259 (Overglaze-Decorated - general, undated). This is a general category for sherds which were too fragmentary or too poorly preserved to identify further, or which did not fit into any identifiable category.

#260 (Brown-Glaze - usually external, 1720-1780). Colored monochrome glazes were a standard Chinese decorative technique since early times. (They were not included in this typology since these were rarely used on export porcelains.) However, coating the exteriors of vessels with an opaque brown glaze became common in the 18th century (Palmer 1976:18).

Reserve panels were sometimes decorated in famille rose colors or underglaze-blue. When famille rose colors are used with a brown glaze, the vessels are called "Batavian ware" since much of it was reputedly shipped from this Dutch settlement (ibid.). Noel Hume says that the brown external glaze is most common in the years 1740-1780, but Palmer illustrates a 1720-1740 cup and saucer (Noel Hume 1969:260, Palmer 1976:43).

#261 (Underglaze and Overglaze Decorated, 1700-1780). This code was originally intended to include only the Chinese Imari-style porcelains which date, according to Noel Hume, from 1700-1780 (1969:258). The Imari style was developed in Japan and received its name from the port of Imari. It became popular during the circa 1650-1680 disruption of the China trade (Whate 1981:27). Underglaze-blue was combined with overglaze-red and gold to create attractive and distinctive designs. The Chinese copied this technique, especially for floral and landscape-floral designs (Palmer 1976:18). Again, none of the other sources give dates for the start of production of Chinese Imari, so it was decided to use Noel Hume's dates. We did not use the beginning date for Japanese Imari, but it is possible that some of this original Imari reached New York in the 17th century.

Some underglaze-blue decorated vessels were embellished with gilding to enhance the decoration or to personalize a standard design, especially in the late 18th and early 19th

centuries. This gilding is frequently lost in the ground, but sometimes hints of it remain on sherds. Even though these sherds are technically under and overglaze-decorated, they should not be classified in this category, which should be reserved for Imari style, but some may have inadvertently been included.

#263 (Rouge de Fer, undated). Rouge-de-fer is an overglaze coloring first used in the 15th century (Palmer 1976:34). It is a bright red usually found in combination with other colors. In the early part of the 18th century, it was often used with underglaze-blue and famille verte; during the latter part of the century, the rouge-de-fer palette frequently included gold, black, gray, and hints of famille rose colors (Whate 1981:pers. comm.). Rouge-de-fer designs in this later period, generally rococco, were most common as tea wares.

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APPENDIX E

THE CERAMIC SHOP DEPOSIT

by Meta Janowitz and Marie Lorraine Pipes

A ceramic dump located in Lot 27 was sampled with a test pit (AO) and two shovel tests (17 and 22). The deposit was sealed by an overlying brick floor which extended over the foundation wall next to which the deposit had accumulated. The field notes of the excavator (JL) say that "the trash deposit itself was about 50-60% ceramics in a sand matrix (a small quantity of silt and/or clay was mixed with the sand). Small quantities of bottle glass, bone, and oxidized metal were recovered as well. The ceramics and their matrix were not packed, there were air spaces between some of the sherds. The large size of many of the sherds indicate that they were not subject to extensive trampling and breaking after deposition. The many fresh breaks can be attributed to the passage of heavy euqipment over this area.... Under the deposit was a mortar floor."

The deposit contained 15,582 sherds of undecorated creamware, 227 sherds of decorated creamware, 11,740 sherds of underglaze polychrome handpainted pearlware, 5794 sherds of plain pearlware, 621 sherds of other pearlwares, and 1759 sherds of Chinese export porcelain, making a total of 35,814 sherds.

Almost all of the pottery is unmarked and only two

trademarks were observed: D.D. and Co. (David Dunderdale of Castleford, who was in business from 1790 to 1821); and Herculaneum (established in 1796). There are a dozen Dunderdale marks and only one Herculaneum. All are on plain creamwares.

We believe that this deposit accumulated rapidly and represents a limited number of dumping episodes rather than normal, occasional breakage from a china shop. The reasons for our opinion are as follows: there are sherds which crossmend throughout the deposit, vessel forms and decorations are uniform, matched sets of pearlwares and Chinese porcelain are present, and there is a rather limited number of vessel forms represented overall. The sherds are likely to be the remains of a merchant's disaster of one sort or another. They might have broken in shipment from England or represent some stroke of ill luck that fell upon the shop's inventory. It is also possible that the wares were discarded because they were no longer in fashion and thus unmarketable, but this is unlikely because it would be unusual for a merchant to dispose of outmoded wares by throwing them out rather than by selling them at reduced prices.

Description of Vessels

The overwhelming majority of the pearlwares are underglaze polychromes handpainted in greens, brown, yellows, oranges, reds and blues, in at least 42 different designs. Underglaze polychrome pearlware was made from 1795 to 1830 and was most popular in the period from 1800 to 1820, according to Noel Hume

(1969; 1978). The designs used are generally floral or geometric and Noel Hume says that: " these designs also occur in silver-lustre resist and ... are most common on pitchers and mugs. Many ceramic historians ungenerously dismiss them as 'peasant' styles, and while it is true that they belonged in village homes rather than in aristocratic town houses, designs, shapes and thinness of potting are frequently all of a high standard" (1978:47). With the exception of some large bowls, the decorations, in our opinion, are not so much "peasant" or "rustic" as neoclassical; they generally show restraint and balance of design. They are certainly no more flamboyant than some decorations found on contemporary European porcelains. The fact that this collection of polychrome pearlwares was found in Lower Manhattan in a fashionable turn of the century shopping district might indicate their use as favored tea and table wares for middle and upper class urban families rather than as the simple crockery of country folk.

The forms which we have been able to reconstruct are almost entirely tea wares and serving vessels. They include handle-less tea cups and matching saucer bowls and deep bowls of at least three sizes. There are also a few large "breakfast size" cups. There are three fluted tea pots decorated in a pattern which is also found on fluted tea cups and saucers, and unfluted cups and saucers. A fourth teapot has a more neoclassical shape and a design which shares elements of several other designs but does not precisely match any.

There are at least six large bowls which could have been used as serving vessels, as fruit bowls, or as small punch bowls. On all of these bowls the exterior designs are similar but the interior designs show great variety. The exteriors have four large motifs separated by scattered leaves or blossoms. The large motifs are stylized peonies, daises or roses. Some of the bowls also have smaller blue or orange flowers surrounding the large ones. The leaves on all the bowls are the same shade of green. Interior central decorations are floral with geometric border designs.

There is only one plate in polychrome. This small vessel has a rather atypical (for this deposit) decoration. Other types of vessels which are represented by only one piece are a large pitcher and a small pitcher or creamer. The design on the large pitcher is similar to those on the large bowls, but the tiny floral design on the small vessel in unlike the rest of the collection.

The designs on the teawares are less flamboyant than those on the large bowls. Tea cups are shaped like small bowls and have no handles. Some tea cups and their accompanying saucer bowls are molded with swirled flutes. Two designs are found on these fluted teawares: a yellow-green floral, which is also found on the fluted teapots, and a simple geometric design in blue and brown. Many of the fluted teawares and some unfluted vessels have marks on the bottom in dark brown which are probably decorators' marks. Since the designs are all hand-painted, they

naturally show individual variations and it is interesting to match up these variations with the different decorator's marks. The same decorator's marks are found with different designs. There are also two saucer bowls with blue hatchmarks along the inside of the footrings, which are probably tally marks of some sort.

Flatwares are rare and all, except for the small plate mentioned above, have blue or green shell edge decoration. One platter has been reconstructed and other sherds appear to represent plates as well as platters. There are only 175 blue edged and 81 green edged sherds. As far as we have been able to determine, there are no plain pearlware vessels of any type. The approximately 5,800 plain sherds almost certainly belong to decorated vessels.

One of the most unusual characteristics of this collection is its relative lack of underglazed blue pearlware - only 279 sherds. All are teawares and most are from only two patterns. Shapes of cups and saucer bowls are the same as those in polychrome. Only nine transfer printed fragments of pearlware were recovered. All are quite fragmentary and are decorated in blue or black. No vessel forms could be determined or patters identified.

Attempts to find information on hand-painted pearlware designs and their makers from written sources were unsatisfactory. We were rather surprised to find that little has been written about polychrome pearlwares. Most writers simply

say that a certain manufacturer made polychrome along with underglaze blue and edgewares, but few illustrate these designs and even fewer talk about how important this type of design was in the output of a pottery. Noel Hume's articles noted above have been the most helpful but he only illustrates a few patterns.

The range of forms in creamware is more varied than in pearlware. There are chamber pots, pitchers, basins, bowls of various sizes, plates, handleless tea cups, saucer bowls and at least one tea pot. Most of the vessels are undecorated and most plates have the "royal" style rim. The D.D. & Co. marks are found only on the bottoms of plates. The quality of the creamwares varies from rather coarse to quite fine.

The most interesting creamwares are the half-dozen pitchers with overglaze transfer printed designs in dark red or black. With one exception, all have ship motifs on one side and sentimental or patriotic motifs on the other. One pitcher in particular shows the last two lines of a poem "Sweet William's Farewell to Black Eyed Susan" by John Gay. The lines are "Her lessening boat unwilling rows to land. Adieu! she cries and waves her lilly hand". John Gay lived from 1685 to 1732 and is best known as the author of "The Beggar's Opera". "Sweet William" was published in 1720 and the use of this poem almost 100 years later is in keeping with early 19th century sentimentality. On the other pitchers, one ship flies a sixteen star American flag and another sports a Union Jack. One of the

black prints is washed in green and yellow and at least one was highlighted with small additions of yellow/orange. Identical prints are found in black and dark red on different vessels.

The one non-nautical pitcher was unfortunately too faded to see clearly, but close examination in a strong light shows a variety of Masonic symbols: a beehive, points of the compass, death's head, columns, a cross, the sun, etc..

Diana Roussel in her book on the Castleford pottery (1982) says that the creamwares made by David Dunderdale were primarily "useful" wares in which table wares predominated. Not many teawares were made and problably none date before 1800. Pearlwares comprised about 40% of the total output of the factory and, still according to Roussel, few were handpainted. If this were true, it is unlikely that the polychrome pearlwares from the 7 Hanover Square site are from Dunderdale's factory. However, a 1947 Antiques Magazine article (reprinted in Attebury 1978) dealing with late 18th century refined earthenwares illustrates (p. 126) a handpainted creamware plate marked D.D. & Co. whose floral decoration closely resembles some of the floral sprays on the pearlwares in the ceramic dump.

It has been established that Dunderdale was exporting his own and other manufacturers' earthenwares to the United States in the 1790's. Among others, he exported Wedgewood's wares but they were of such poor quality and were so poorly packed that Dunderdale asked Wedgewood for a 15% discount for breakage.

The Chinese export porcelains in the ceramic dump are all

teawares. Once again there are handleless tea cups and matching saucer bowls. Only four designs are present with five variations of the most common one. The decorations are typical of the end of the 18th and first years of the 19th centuries (David Howard, personal communication). Red is the predominant color and the designs can at best be described as sketchy rather than elaborate.

In both pearlware and Chinese export porcelain, the sets of tea cups and saucers have the main decorative motifs on the interiors of saucers and the exteriors of tea cups. There are sometimes simple lines or swags, as well, on the other surface around the rim.

Teapots in redwares of various types are also found: there are 2 engine-turned lead-glazed earthenware teapots and a fine-bodied red stoneware coffee pot lid (also lead glazed). At least three black glazed bulbous bodied teapots are represented.

In summary, the general picture of this collection is of food storage and preparation, with "sanitary" vessels of creamware and teawares and serving vessels of pearlware, Chinese porcelain and some creamwares. The collection does not represent the complete range of forms and decorations of the period; in particular, there are very few underglaze blue pearlware sherds, and few tablewares.

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