7 Hanover Square, Part 5 of 6

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APPENDIX F

PIPE ANALYSIS

by Diane Dallal

Introduction

The 7 Hanover Square excavation yielded a total of 9,460 fragments of clay tobacco pipes, representing an extensive collection of primarily 17th and 18th century Dutch and English clay tobacco pipes. The majority of pipes were manufactured of ball clay. Exceptions were several fragments of red clay bowls and stems.

A total of 6,429 measurable stem fragments was examined and measured. Table 1 shows a breakdown of the site-wide bore diameter measurements. From this table, it is clear that the 6/64" group contains the largest percentage of pipe stems (40.5%) with the 7/64" group (33%), in second place.

The vast majority of bowls and stems recovered were unmarked and undecorated. The 307 individual pipes (constituting 3% of the total pipe sample) which were marked by individual manufacturers, provided information about trade networks. There was a total of 100 separate and distinctive makers' marks or motifs (not including stem decorations, i.e. Bristol Diamonds, runs of dots, fleur de lys), which revealed that the products of at least six different cities were represented at Hanover Square. These were: Amsterdam, Gouda, Bristol, London, Bremen, HANOVER SQUARE, and, possibly,

Table 1

Total Measurable Bore Diameters

Bore Diameter	Total #	% of Measurable Bores
9/64"	37	0.6%
8/64"	646	10.9%
7/64"	2124	33.0%
6/64"	2606	40.5%
5/64"	816	12.7%
4/64"	200	3.1%

	6429	

Copenhagen. Five or six countries were also represented: England, the United States, Germany, the Netherlands, and possibly Canada and Denmark. Of the makers' marks, 56% were Dutch, 38% English and 6%, other.

It is interesting to note, that when the 7 Hanover Square site sample was compared with that of the Stadt House Block, the proportions were almost identical; when compared with the Broad Financial Center, also in lower Manhattan, the percentages were roughly reversed.

	Stadt Huys	7 Hanover Square	Broad Street
Dutch	60%	56%	36%
English	35%	38%	64%

Although all pipes from the 7 Hanover Square site were measured and analyzed, budget constraints did not allow for an intensive interpretation of those pipes excavated either from stratigraphically defined contemporaneous units or from separate fill sequences. The pipe data are available, however, and await further study and interpretation.

Clay tobacco pipes are useful temporal indicators of site occupation periods. Clay pipes were easily broken, making their period of utilization fairly short. For the purposes of study, they can be examined in a number of different ways to determine relative date of deposit, name of manufacturer and place of origin. In particular, three factors permit us to use pipes as a dating tool. First, there was a gradual but continuous trend toward the reduction of the size of the bore

diameter through time (Harrington 1984; Binford 1962). Secondly, stylistic and morphological changes occurred which had to do with size, bowl shape and the angle of the stem in relationship to the bowl. Finally, manufacturers identified their products with specific marks which provide archaeologists with key chronological indicators.

Clay tobacco pipemaking formally began in England with the granting of a charter by James I to the Worshipful Company of Pipemakers of Westminster in the city of London in 1619 (Jackson and price 1974). Prohibitions against the importation of tobacco, a monopoly on the import of clay, and strictures against the manufacture of smoking pipes caused the infant pipemaking industry to be concentrated in London.

Removal of these prohibitions later in the 17th century allowed the growth of manufacturing centers in areas outside of London. Bristol formed its own guild in 1652. The Bristol industry was initiated by English pipemakers who settled there in the 17th century. By the advent of the 18th century, Bristol was the primary center of the pipe trade to New York and possibly all of the British Colonies. It has been suggested by Bristol pipe specialists, Jackson and Price (pers. comm., Sept. 1984), that the decline of the Bristol Industry in the late 18th century was initiated by the loss of the American Colonies, although a resurgence occurred in 1815, when 24, 045 boxes of pipes were exported to America after the War of 1812 (Jackson and Price 1974).

"During the late 16th and early 17th centuries, waves of English-speaking peoples immigrated to the Netherlands" (Dallal in Grossman, 1985:VII-2). Perhaps the earliest wave had been sent by Elizabeth I to gain "a Protestant foothold on the Continent" and to battle against the Spanish occupation of Dutch territories (Duco 1981:371). Ca. 1609, English soldiers belonging to the armies of Prince Maurits, set up business as pipemakers in various towns of the Netherlands (Brongers, 1964). The first pipemaker of record, was an English printer named William Boseman, who "...now maketh tobacco pipes" (Duco 1981:391).

As stated above, the English introduced tobacco smoking to the Netherlands by the end of the 16th century, dominating the Amsterdam industry between 1630-1660. Amsterdam reached its zenith as a pipemaking center in the 1640s and 1650s. Its success as such may have been due to the interconnection between the city's tobacco trade and its pipe industry, both industries employing an equal number of people (Duco 1981). Because of this relationship, Amsterdam might have maintained an advantage over other Dutch cities which had no tobacco trade.

With the founding of the Gouda Guild in 1660, the Amsterdam industry began its decline. By the third quarter of the 17th century, Gouda pipes dominated the Netherlands, as well as Dutch-occupied sites in the New World.

DATING PIPESTEMS

In 1954, Dr. J.C. Harrington published his observation that smoke hole diameters consistently changed through time. Harrington noted that older pipes had relatively larger bore holes through their stems than more recent ones which were narrower. After measuring 330 pipe bores from sites with known occupation periods, he applied this gradual reduction of size through time from 1620-1800, to a bar graph expressed in percentages.

Based upon Harrington's research, Lewis R. Binford (1962) devised a straight line "regression formula which could be applied to statistically large enough samples of pipestems to arrive at a single date, theoretically the median figure for the occupation time of the sample" (Dallal in 1985:VII-2). The formula was $Y = 1931.85 - 38.2x$. Y represents the date, 1931.85, at which the bore diameter theoretically reaches zero, and 38.26 is the slope of the line representing the number of years between each 1/64" decrease in size. X is the mean bore diameter for the sample to be dated. The equation resulted in a single median figure for the occupation period of the sample under examination (Walker 1971).

Many researchers have noted limitations with the pipestem dating techniques. Audrey Noel-Hume (1963) noted that a minimum of 900 stem fragments was necessary to produce reliable results with the Williamsburg, Virginia collection. She also demonstrated that the Binford formula was unreliable

for dates preceding 1670 and post dating 1760. Stems from more recent sites yield dates which are consistently too early as one progresses towards the 19th century. Walker (1977) explained the phenomenon as the result of an increase in the general variability in pipe manufacture due to an increase in production. Walker explained (1977) that pipe bores could not have continued to contract indefinitely without great difficulty in drawing smoke through the stem. However, Hanson and Hsu (1975) reported that a total of 15 pipestem fragments were excavated at Fort Stanwix with a bore diameter of 3/64", suggesting that narrower bore diameters had indeed been attempted.

Harrington (1954) and Binford (1962) also recognized the limitations of pipestem dating techniques for mixed Dutch and English samples of pipestems. The mean date formula was based upon size variation in English pipes and could not be assumed to be directly applicable to pipes of Dutch manufacture. However, the analysis of the pipe sample from the Broad Street excavation in Manhattan, showed that mean dates calculated from distinct stratigraphic units of 17th century deposits of mixed Dutch and English pipes correlated well with ceramic and glass terminus post quem. "For archaeologists working with 17th century sites containing Dutch or mixed Dutch and English pipe remains, the use of Binford or Harrington's statistical methods is not possible without some interpretation and/or modification" (Dallal 1985:VII-5). When

working with the type of mixed material typical of 17th century deposits of New York State sites, McCashion (pers. comm., Oct., 1984) subtracts ten years from mean dates before 1660 and adds ten years after 1660. He finds this a valid method of dealing with the differences in Dutch and English stem bore diameters.

DECORATIVE ELEMENTS

Decorated or ornamented pipes can be dated within periods of time during which certain styles were popular and in vogue. During the 17th century ornamentation was concentrated mainly on the stems. Bristol diamonds, runs of dots, fleur de lys and rouletting were popular 17th century stem decorations. Pinched stems, occasionally found on New york City sites, were manufactured in both Holland and England. These stems were molded between the fingers while the boring wire was till in the stem, producing a "tortuous effect...possibly deriving from a pattern popular in furniture legs popular in Holland during the 1650s" (Duco 1981:454). Pinched stems were found at both the 7 Hanover Square and Stadt Huys sites in lower Manhattan. Originally pinched stems were thought to be a Dutch phenomenon but at the Broad Street site, one was found on a pipe manufactured by Robert Tipper II of Bristol (1678-1722) (Dallal 1985).

Elaborately decorated bowls were also popular during this time period. Walter Raleigh or "Jonah" pipes, popular with

sailors, were molded in the shape of a man being spat out by a reptilian creature or crocodile (see below) (Duco 1981). "Orange" pipes depicted Stadtholders, royalty and/or motifs related to the Dutch House of Orange and were also popular during this time period.

During the late 17th and early 18th centuries, Dutch and English pipes seem to have been produced predominantly with only the simple mark of the manufacturer's name of initials on the bowl or heel. Hand-applied rouletting around the bowl rim, popular in the 17th century, died out ca. 1710 in England (McCashion 1979). although the Dutch continued this motif throughout the 18th and 19th centuries, the results were molded imitations, immediately noticeable to the trained eye.

During the second half of the 18th century, elaborately molded bowls which were decorated with heraldic figures, masonic emblems, Royal Arms and Prince of Wales' feathers became popular in England. Heraldic marks were relatively scarce before 1750, came into their fully developed form after that date, and were out of style by 1800 (Atkinson and Oswald 1969). American evidence of armorial pipes is heavily in favor of a post-1750 date.

Decorated, two-piece, relief-molded bowls with scalloped ridges or fluting flourished and predominated in the late 18th through 19th centuries. A wider range of design motifs (including fluting, ribbing, bars and beads, scallops, floral and botanical decorations) proliferated in the 19th century.

Oswald dated one specific motif commonly found on London, and therefore, American sites--leaf decoration along the mold seams--to between 1790 and 1830 (Walker 1966).

During the 19th century, the previously almost non-existent American pipe industry burgeoned. Short stub-stemmed pipes which needed a reed stem and anthropomorphic pipes became popular.

Stub-Stemmed Pipes

The earliest known stub-stemmed pipe industry in the United States was that established by Gottfried Aust in 1755 at Bethabara, North Carolina. The stub-stemmed pipe was based upon Turkish models and had Central European origins. A number of stub-stemmed pipes were recovered from the 7 Hanover Square site.

BOWL MORPHOLOGY

In 1588, William Harrison wrote that "the taking in of the smoke of the Indian herb called Tobacco by an instrument formed like a little ladle...is greatly taken up and used in England" (Oswald 1951:153). The earliest English pipes were based upon the Indian models. These primitive pipes, called fairy bowls," had swollen bellies which contracted slightly at the rim and were attached at an obtuse angle to thick, crudely-made stems. Duco (1981) hypothesized that bowls became larger in the mid-17th century reflecting a reduction in the cost of tobacco as well as a habituation to the effects

of tobacco upon the human body. For nearly 100 years, the wide angle between bowl and stem was maintained. Simultaneously, "the plane of the rim of the bowl, which, if projected, formed an acute angle with the stem in the older pipes, now became parallel with the plane of the stem. This latter change was so noticeable that it is regarded as a valid criterion for pipe dating" (Omwake 1967:1).

F.H. Friederich (1964) evolved a dating method based upon the three morphological elements which changed through time: the height of the bowl, the outer bowl diameter and the widest internal diameter of the mouth of the bowl. Budget constraints prevented us from using this potentially important, but labor intensive, method of dating pipes. In addition, size is not a consistent element in the dating of pipebowls. Early 17th century pipes of exaggerated size have been excavated from 7 Hanover square, the Stadt Huys block and other New York State sites. Only the shape of the pipe has consistently changed through time, establishing this fact as of primary importance in dating clay tobacco pipes.

Bowl shape typologies and dates were based primarily upon Atkinson and Oswald's (1969) 17th-19th century typology for London pipes, Duco's (1981) comprehensive study of 17th century Dutch pipes, Jackson and Price's (1974) and Iain C. Walker's (1977) studies of the Bristol clay pipe industry.

MAKERS' MARKS

Pipe makers often stamped their products with distinctive marks. These typically consist of the manufacturer's initials and can be traced to specific pipe makers working within a particular time period. Historic records exist in the form of marriage licenses, freedom roles (which give the dates of an apprentice's release from servitude and his entry into independent pipe-making), wills, deeds and parish registers. Unfortunately, the earliest London records have been traded away and/or lost as has been the Registry of Dutch Guild marks for the period of 1660-1720. Fortunately for the archaeologist, Duco in the Netherlands and Jackson and Price in Bristol are conducting and publishing their ongoing research into the early pipe making industry of their respective regions. In addition, archaeological evidence has filled in pertinent and glaring gaps in the pipe record (McCashion 1979); Bradley and DeAngelo 1981; Dallal 1985; Sudbury 1981).

A pipe maker's initials cannot always be assigned to one specific individual. Marks had the status of chattel and were bought, sold, rented or inherited. Widows were permitted to carry on their deceased husband's business and to take new apprentices into their shops. Occasionally, a widow would place her initials alongside those of her husband or son, e.g., Joan Tippet, widow of Robert Tippet I and mother of Robert Tippet II.

Additionally, several generations of a family utilized the same mark and/or had the same name as is evidenced by the three generations of Robert Tippets. To further complicate matters, a mark which had acquired prestige in one period might be re-used by a second or third manufacturer many decades or even centuries later. This is evidenced by TD pipes which span the entire 19th century and the name of which became synonymous with clay tobacco pipes. They were manufactured by many pipemakers and in many countries. Double marks such as RT and EVANS on the same pipe clearly suggest a partnership. These are found particularly often on early 18th century Bristol pipes.

Three major types of marks were associated with Dutch pipes. Like their contemporary British counterparts, one type consisted of the maker's initials. These were sometimes crowned and sometimes joined together (Omwake 1967). Seventeenth century Dutch marks were often representations of mythological figures (e.g. David with a shield and sword), objects or animals (horn, bell, deer), trades (trowel), facets of everyday life (a milkmaid carrying buckets) and/or comical marks such as Jacob on the dung hill. Numbered marks, both crowned and uncrowned, were also popular. A shield-shaped mark consisting of the Arms of the City of Gouda was established in 1739 to distinguish finer pipes from ordinary ones. In 1740, an additional ruling was established which allowed pipemakers to accompany the Gouda Arms with a letter

"S" (first letter of the Dutch work, "sleight," meaning "ordinary") on both sides of the heël or bowl.

A raised dot on one or both sides of the heel of some Dutch pipes may have been a "quality control" mark (McCashion 1979), but additional research is needed to determine the validity of this interpretation.

"In addition to elements of style, the placement of the maker's mark has chronological significance" for the archaeologist (Dallal 1985:VII-7). The earliest marks were stamped on the base of the heel. If a pipe was spurred, the mark was placed on both heel and bowl. The placement of the maker's initials shifted to either side of the heel ca. 1670 in London (Oswald 1951). Eighteenth century Bristol pipes are often identified by the distinctive cartouche located on the right side of the bowl and by impressed initials stamped into the back of the pipebowl (Jackson and Price 1974).

METHODOLOGY

The pipe collection was analyzed in a standardized manner utilizing the diagnostic attributes of clay pipes: Stems, bowls and makers' marks. The pipes from each catalog number and test cut were measured and defined in terms of the fragment's specific characteristics.

As stated above, although pipes generally increased in size until the late 18th century, size alone is not a secure diagnostic feature. It is not always consistent with

stylistic or other technological and chronological indicators (Oswald 1951). Measurements were taken of the pipes in the Hanover Square collection, however, in order to establish the range of variation present as well as to aid in the dating of specific strata and features and to add to the corpus of knowledge by recording these elements for future groups of researchers. The following measurements were consistently recorded:

1) Bore diameters in 1/64" increments
2) Makers' marks in millimeters
3) Measurements of selected bowls in millimeters
   a) height of bowl
   b) circumference of bowl
   c) heel dimensions
4) Bowl/stem angles of selected pipes (measured with protractor)

The measurement of stem bore diameters was undertaken with the use of a set of drill bits gauged in 1/64" increments, from 4/64" to 10/64", the expected size range for stem diameters. As stated above, bowl/stem angles are a valid criterion for dating clay tobacco pipes since the angles of the bowl to the stem changed through time. Decorative motifs were tabulated, since this information is temporally and nationally specific, and therefore helps to date and define deposits.

Fleur de lys types were placed into five specific categories modified from Bradley and DeAngelo's typology (1981), although they are slightly different than those types

described by Bradley and DeAngelo. Type 1 consisted of a single plain fleur de lys mark; type 2 was a single fleur de lys surrounded by a beaded design; type 3 consisted of a single fleur de lys surrounded by any other design; type 4 was multiple fleur de lys in a linear pattern; type 5 consisted of the 4-in-diamond motif. The fleur de lys stem marks are associated primarily with early-mid 17th century Dutch pipes. The totals were:

Type 1 = 6 Type 2 = 0 Type 3 = 3 Type 4 = 3 Type 5 = 32

HISTORY OF SPECIFIC MARKS

A brief summary of the most common makers' marks excavated at 7 Hanover Square follows. In addition, a unique Walter Raleigh pipe is described.

EB Pipes

EB pipes were manufactured in Amsterdam by an Englishman from Surrey named Edward Bird (Burt). Documents list Bird as a pipemaker in 1630 (Duco 1981). After his demise in 1655, Bird's son Evert, continued manufacturing pipes, probably using the EB mark.

The quantity of EB pipes on New York sites as well as the high frequency of EB's on Amsterdam sites suggests that Bird was manufacturing pipes for one or more prosperous merchants who exported pipes to areas and countries outside of Holland in general, and Amsterdam in particular.

Seventy eight (78) EB pipes were recovered from the 7

Hanover Square site. This constituted 25% of the total number of marked pipes. The heel mark consisting of the letters EB within a beaded circle ("parelcircel") numbered fifty three - 68% of the total EB pipes. This particular mark was found in strata dating ca. 1650-1664 at Fort Orange, Albany, NY (Huey, pers. comm., May 1985). There were eleven plain EB marks, or 14% of the total number of EB marks at Hanover Square. These dated ca. 1647-1676 at Fort Orange (ibid). Six crowned EB's, which constituted 7% of the total EB marks, were also excavated at Hanover Square. Huey did not find crowned EB's at Fort Orange.

The EB mark within concentric circles constituted a total of four, or 5% of the EB marks. These were dated ca. 1650-64 by Huey. Three EB's within sunbursts or cogwheels (4%) were also excavated from Hanover Square as well as one EB with a raised dot between the letters. The sunburst/cogwheel EB mark was dated ca. 1640-47 from contexts at Fort Orange. The dotted model was not listed by Huey (ibid).

HG Pipes

There were 21 HG pipes excavated at 7 Hanover Square. These constituted 7% of the total number of pipes with makers' marks. Hendrik Gerdes pipes span the years 1668-88.

Gerdes was originally a baker who married Edward Bird's widow and became a pipemaker in Amsterdam. HG and EB pipes are roughly contemporaneous on New York sites with the HG being slightly later than the EB mark (McCashion, pers. comm.,

April 1982).

For a complete breakdown of Gerdes motifs see the Chart of Marks below.

WE Pipes

RT marked pipes are probably the most commonly represented pipes excavated from New York City archaeological sites. Manufactured by at least three generations of Robert Tippets of Bristol, they spanned the years 1660-1713 or possibly 1660-1722. In addition, Joan Tippet (ca. 1680-1700), widow of Robert Tippet I was known to have manufactured clay tobacco pipes with her own mark and subsequently was probably in partnership with her son, Robert Tippet II.

Thirty three RT pipes were excavated from the 7 Hanover Square site. These constituted 11% of the total number of marked pipes. Additionally, three pipes with the insignia of Joan Tippet were also found.

It is believed that Robert Tippet II was in partnership for a time with Isaac Evans between ca. 1698-1713. Four pipes with both the RT mark and the Evan's Anchor motif were excavated at 7 Hanover Square.

Walter Raleigh Pipes

Walter Raleigh pipes were manufactured in Holland during the 17th century. Legend says that they portray Sir Walter Raleigh, who fell overboard during one of his voyages, and was swallowed by a crocodile. Evidently, Raleigh's taste was so bitter because of his nicotine habit, that the crocodile spat

him out immediately. It has been theorized that English pipemakers in Holland considered Raleigh a hero because of his association with the introduction of tobacco and his subsequent execution by James I, an anti-nicotine fanatic.

Another hypothesis for the origins of this delightful pipe states that it represents the biblical tale of Jonah and the whale. Whale fishing began in Holland in the beginning of the 17th century. In Amsterdam, these pipes are found in areas known to have been frequented by sailors (Duco, 1981).

Walter Raleigh pipes were in vogue throughout the 17th century. Their popularity began to wane, however, after 1645-50 (Duco 1981). There was only one Walter Raleigh or Jonah pipe excavated from the 7 Hanover Square site.

7 Hanover Square

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Computer Code #	Decorative Element	Mark	Mark Location	Maker	Place of Manufacture	Date	Reference	Total
755	Type #1 Fleur de lys	Fleur de lys	stem	unknown	Holland	17th C.	Bradley & De Angelo, 1981	6
757	Type #3	Fleur de lys Single surrounded by beaded design	"	"	"	"	"	3
758	Type #4	Fleur de lys Multiple in Linear Pattern	"	"	"	"	"	3
759	Type #5	Fleur de lys Four-in-Diamond	"	"	Holland or England	"	"	32
760	Type #6	Fleur de lys Other Multiple Pattern	"	"	Holland	"	"	4
766		Mulberry Tree	bowl	"	England or Holland	1670-1680	McCashion, 1979	7
769	Walter Raleigh		stem	"	Holland	1630-50+ began to diminish after 1645/50	Duco, 1981	1
777		Tudor Rose	heel	"	Holland or England	1628-1768 *mid-late 17th C.	Duco, 1976 Bradley & De Angelo, 1981	5
778		Gauntlet	heel	"	Gouda	3rd quarter 17th Century	Bradley & De Angelo	1

Computer Code #	Decorative Element	Mark	Mark Location	Maker	Place of Manufacture	Date	Reference	Total
779		Orb & Cross	heel	unknown	Gouda	1660-80	Duco, 1981	3
780		Alcantara Cross w/ BI	heel	Bastiaan Janse van Owerwesel	Gouda	1686-1705	Duco, 1981	5
781		Milkmaid	bowl	Spaarnay?	Gouda	19th C. to 1898	Duco, 1976	1
782	"Quality control" dots		either side of heel	unknown	Holland Amsterdam?	1th C.	McCashion, 1979	16
783		Rad/Wiel (wheel)	bowl	"	Gouda	pre-1724-1759	Duco,1978	2
784		Trumpet	heel	"	"	1660-1685	Duco, 1981	5
785		"Man en Vrǿuw" (Two Figures)	bowl	"	"	3rd quarter 17th C.	Bradley & De Angelo, 1981	1
786		"Glaasje" (goblet)	heel	"	"	1667-1693	McCashion, pers. comm. Oct. 1982	1
791	Two Shields	Arms of the City of Gouda	either side of heel	"	"	post	Duco, 1976	1
795	Ribbed/ Molded		bowl	"	unknown	19th C.	Sudbury, 1979	18
796		Woman with Churn	heel	"	Gouda	1660-1700	pers. observ. (Dallal)	1
797		Bird	heel	"	Gouda	1670-90	Duco, 1981	3

Computer Code #	Decorative Element	Mark	Mark Location	Maker	Place of Manufacture	Date	Reference	Total
800		David with Shield and Sword	heel	unknown	Gouda	1675+	Duco, 1976	1
802 (see 914)	Stars	13 star patriotic	bowl	unknown (TD pipe)	U.S.A.	1845-1875	Andersen, 1982	1
825		EB (plain)	heel	Edward Bird	Amsterdam	1630-83	McCashion, 1979	11
826		EB (in beaded circle)	heel	Edward Bird	Amsterdam	1630-83	McCashion, 1979	53
827		EB (in cog wheel or sun burst)	"	"	"	"	"	3
828		EB with crown	"	"	"	"	"	6
829		EB with Dot	"	"	"	"	"	1
831		L	bowl	prob. Lluellin Evans	Bristol	1661-89	Walker, 1977	1
832		LE	"	"	"	"	"	5
833	Bristol Diamonds	LE	stem	"	"	"	Alexander, 1979	4
834		WE	stem	William Evans I or II	"	1660-1700	Walker, 1977	19
835		WE	bowl	"	Bristol	"	"	10
836		W or E	bowl	"	"	"	"	1
838		PE	heel	Phillip Edwards I	Bristol	1649; fl. 1668/9; dead by 1683	Walker, 1977	1

Computer Code #	Decorative Element	Mark	Mark Location	Maker	Place of Manufacture	Date	Reference	Total
839		HG	heel	Hendrik Gerdes	Amsterdam	1668-88	McCashion, 1979	6
840		HG in double concentric circles	heel	"	"	"	"	5
841		HG with crown	"	"	"	"	"	2
842		HG with beaded circle	"	"	"	"	"	2
843		HG w/ crown & dot above and/or below letters	"	"	"	"	"	3
844		GOUDA	stem	Spaarnay?	Gouda	19th C.	Laansma, 1960	2
845		IB	either side of heel	unknown	London	18th C.	Dallal, pers. observ.	1
847		CH	bowl	Charles Hickes	Bristol	1721/22; fl. 1740; dead 1747	Walker, 1977	2
848		Evans Anchor	bowl	Isaac Evans	Bristol	1698; fl. 1700-13+	Walker, 1977	1
849		IH	either side of heel	unknown	London	18th C.	Atkinson & Oswald, 1969	4
852		HI	either side of heel	unknown	London	18th C.	"	1
853		II	either side of heel	James Jenkins	Bristol	1707-38+	Jackson & Price, 1974	1

Computer Code #	Decorative Element	Mark	Mark Location	Maker	Place of Manufacture	Date	Reference	Total
854		AI	heel either side of heel & crowned	unknown	Amsterdam London	1636 1700-40	Duco, 1976 Marx, 1968	3
856		WE in beaded cartouche w/ fleur de lys	bowl	William Evans I or II	Bristol	1660-ca. 1700	Jackson & Price, 1974	1
857		WE floral design & rouletted cartouche	bowl	"	"	"	Walker, 1977	8
858		IM	heel	Jan Muur	Amsterdam	1630-mid 17th C.	Bradley & DeAngelo, 1981	1
859		J	bowl	unknown	Bristol	18th C.	Dallal, pers. observ.	1
861		TO	bowl	Thomas Owens	Bristol	1668-1725	McCashion, 1979	2
862		CDP	heel	Cornelus Dircxzn. Peck	Gouda	1667-79	Duco, 1981	6
863		WN with flower above name in cartouche	bowl	William Naylor William Nicholas	Bristol Bristol	1722-39+ 1730-75	Walker, 1977 Walker, 1977	1
865		ER	bowl	Edward Reed Edward Randall	Bristol Bristol	1706-34+ 1668-99+	Walker, 1977 Walker, 1977	1
866		---OL 8	stem	unknown	Bristol	19th C.	McCashion, pers. comm., 1982	1

Computer Code #	Decorative Element	Mark	Mark Location	Maker	Place of Manufacture	Date	Reference	Total
867		HS in beaded circle	heel	Hendrik Stevensen	Gouda	1662-1702	Duco, 1981	1
				Hendrik Smit	Gouda	ca. 1636	Duco, 1981	
868		$	bowl	unknown	England	1680-1710	Bradley & De Angelo, 1981	1
				Samuel Burton	Copenhagen	1748	Ahlefeldt-Laurvig, 1981	
869		WS	heel	Walter Smith	Amsterdam	1640-50's	McCashion, pers. comm., 1982	1
870		WE	upside down on bowl	William Evans I or II	Bristol	1660-1700	Jackson & Price, 1974	1
871	initials only	RT	Bowl	Robert Tippet	Bristol	1660-1713+	Walker, 1977	9
872		R/TIP/PET in cartouche	bowl	Robert Tippet	"	"	"	1
873		R or T	bowl	"	"	"	"	9
874		BS in beaded circle	heel	unknown	Holland	mid-late 17th C.	Dallal, pers. observ.	1
876		Tippet frag. w/ indeterminate spelling	bowl	Robert Tippet	Bristol	1660-1713+	Walker, 1977	3
878		RT on back; R/TIPP/ET in cartouche	bowl	"	"	"	"	2
879		R/TIPP/ET in cartouche	"	"	"	"	"	2

Computer Code #	Decorative Element	Mark	Mark Location	Maker	Place of Manufacture	Date	Reference	Total
881		RT mark on back of bowl w/ Evans' Anchor Cartouche on r. side	bowl	Isaac Evans & Robert Tippet II	Bristol	1698-1713+	Walker, 1977	1
882		RT w/ EVANS	bowl	"	"	"	"	2
883		RT w/ illegible cartouche	"	Robert Tippet	"	1660-1713+	Walker, 1977	3
885		I/TIP/PET in cartouche	"	Joan Tippet	"	1680-96	"	1
886		I-R/TIP/ET in cartouche w/ RT on back of bowl	"	"	"	"	"	1
887		LE w/ floral design	"	Luellin Evans	"	1661-84	"	1
888		--R/TIP/PET	"	Joan Tippet	"	1680-96	"	1
889		----S. SP-RNAA--OUDA HOLL---	stem	Spaarnay	Gouda	19th C.	Laansma, 1960	1
890		HG w/ crown & dot	heel	Hendrik Gerdes	Amsterdam	1668-88	McCashion, 1979	1
891		IAB	heel	unknown	Gouda	17th C.	Duco, 1981	2
892		Empty Cartouche	bowl	unknown	Bristol	18th C.	Dallal, pers. observ.	1
893		WG	either side of heel	"	unknown	1775-1830	Reid, 1976	1

Computer Code #	Decorative Element	Mark	Mark Location	Maker	Place of Manufacture	Date	Reference	Total
894		WG w/crown	either side of heel	unknown	London	18th C.	Atkinson & Oswald, 1969	2
895		IW	heel	John or Jane Wall	Bristol	1630/1-1660	Walker, 1977	6
896		TW	bowl	Thomas Watts	Bristol	1675-1717+	Jackson & Price, 1974	1
897		IDW	heel	Joris de With Jan Dircxs. Wanda	Gouda Gouda	1640-70 1693-1705	Duco, 1981 Duco, 1981	1
898		WTW	heel	unknown	Holland or England	1650-60	McCashion, 1979	1
900		RC/PW	bowl	unknown	Bristol	1690-1710	McCashion, 1979	1
902	quality control dots	DV crowned or VD	heel	Dirck Volckertsz.	Gouda	1648-70	Duco, 1981	1
904		VC or UC	bowl	unknown	Bristol	ca. 1750	McCashion, pers. comm., 1982	1
906		TD	either side of heel	unknown	unknown	common in 18th & 19th Centuries	Walker, 1983	2
907		* IW	heel	unknown	Amsterdam	3rd quarter 17th C.	Bradley & De Angelo, 1981	2
908		IC	bowl	Israel or John Carey	Bristol	1757-1815+	Jackson & Price, 1974	1
910		DUBLIN w/ shamrock	bowl	unknown	Germany	ca. 1918	McCashion, pers. comm., 1982	1
911		IR/TIP/ET with TP	bowl	Joan Tippet	Bristol	1682-ca. 1710	Walker, 1971	1

Computer Code #	Decorative Element	Mark	Mark Location	Maker	Place of Manufacture	Date	Reference	Total
914	13 star patriotic	TD in 13 stars	bowl	unknown	U.S.A.	1845-75	Anderson, 1982	2
915		WH	base of bowl	Willem Hendricxzn Heptenstal (Willem Hendriks)	Amsterdam	1644-73	Duco, 1981	2
919		WW	bowl	William Williams	Bristol	1661-1685+	Walker, 1977	1
920		WE in cartouche w/ fleur de lys	bowl	William Evans I or II	"	1660-ca. 1700	Jackson & Price, 1974	2
922		crowned post-horn	heel	unknown	Gouda	mid-late 17th C.	Duco, 1976	1
923		HG w/ crown & dot in beaded circle	heel	Hendrik Gerdes	Amsterdam	1668-88	McCashion, 1979	2
924		EB in concentric circles	heel	Edward Bird	Amsterdam	1630-83	McCashion,1979	4
925: (others)		NY 34th St.	stem	American Clay Tobacco Pipe-works	New York City	19th C.	McCashion, pers. comm., 1982	1
		Verzy/Gouda	stem	unknown	Gouda	19th C.	"	1
		* Evans *	bowl	Isaac Evans	Bristol	1698-1713	Walker, 1977	1
		BC	heel	unknown	Amsterdam	pre-1650	Bradley & De Angelo,1981	1
		AIO	heel	Andries Jackobsz.	Amsterdam	ca. 1686	McCashion, 1979	1
		Heye/Bremen	bowl	Heye	Bremen	19th C.	McCashion, pers. comm 1982	1

Computer Code #	Decorative Element	Mark	Mark Location	Maker	Place of Manufacture	Date	Reference	Total
925: (others)		LW	bowl	Lewis Williams ?	Bristol	ca. 1662	Walker, 1977	1

Appendix G

ARTIFACT CLASSIFICATION SYSTEM

by Nancy Stehling

In order to create a database comparable with one already in use, and to allow for future comparative studies, the tabulation system for the 7 Hanover Square collection was based on Stanley South's Artifact Classes and Groups (South 1977). This system is composed of nine groups broken down into 42 separate classes. The classes are based on form and sometimes function. "The groups are based on functional activities related to the systemic context reflected by the artifactual record" (South 1977:93). It has been recognized by South that a particular artifact class is potentially part of more than one functional group. The system is organized so as to allow expansion should it become necessary for site-specific research and analytical issues to be addressed. The nine groups will be discussed below.

The Hanover Square artifacts (except for faunal and floral materials), were initially classified during the tabulation phase to reflect their temporal sensitivity. Artifacts were defined as either "diagnostic" or "non-diagnostic". Diagnostic artifacts, which are more temporally sensitive, include but are not limited to ceramics, glass, clay pipes and coins. Non-diagnostic artifacts were primarily construction/hardware related.

All artifacts recovered during excavation were tabulated using an established format based on South's Classification System. Entries were hand written, and later computer coded. All artifacts were counted and several classes were weighed as well. Weights in grams were computed using O Haus triple beam balance scales. Measurements were taken in both English and Metric units wherever appropriate.

THE ARTIFACT GROUPS

The Kitchen Group: This group contains classes of artifacts centered primarily on the storage, preparation, and service of food. Ceramics, container glass, glass tableware, tableware such as cutlery, and kitchenware (such as kettles, pots and pans) are included in this group. Cutlery and kitchenware were fairly well represented in the collection from Hanover Square. Portions of eight cooking vessels were recovered, including an iron and copper pot or porringer from Test Cut D. A total of 16 utensil handles were recovered including a bone and iron knife handle from Test Cut X and a silver-plated copper alloy spoon from Test Cut AK. Portions of two other cutlery handles were also identified.

The Bone Group: This group consists of faunal remains. Initial tabulation separated shell from bone and then mammal versus bird bones from fish scales and bones, and further identified cut versus sawed and fractured ones where possible. Eggshells were also identified. Bone identification on the species level requires specialized analysis and was subsequently completed by faunal analysts under a separate grant.

Shells were identified, counted, and weighed during tabulation. Cut shells, which may relate to wampum manufacture, were noted, and of those recorded, almost all were hard shell clam. Molluscs recovered were oyster, scallop, mussel, hard shell clam, soft shell clam, surf clam, limpet, cockle, and ark shell. Gastropods identified included snail, whelk, and oyster drill. Jingle, slipper barnacles, conch and worm shells were present. Crustaceans identified include lobster and crab. Large quantities of coral were recovered from particular areas of the site. Its origin was probably ship's ballast.

The Architectural Group: This group was divided into six classes: building materials; other construction hardware, miscellaneous construction materials, stone, non-domestic tile, and 20th century debris. Building materials were further divided as follows: Glass: window, plate, reinforced safety, or "other"; Nails: square cut, wrought, wire, or "other"; Brick: red, yellow, buff fire brick (boxtile); or pantiles. Other construction hardware included: window cames, doorknobs, spikes, nuts, bolts, screw, tacks, hinges, door lock, and "unidentifiable". Miscellaneous construction materials were: mortar, plaster, cement, concrete, coal, roofing slate, charcoal, slag, cinder, wood, wire, linoleum, tar, macadam, and "unidentifiable metal". Stone was identified as cut, cut and polished, or "other". Tile was identified as sewer pipe, bathroom fixture, or floor tile. Twentieth century debris contained a wide

variety of artifacts from plastic to styrofoam to aluminum can flip-tops. Construction material artifacts were weighed as well as counted. O Haus gram scales were utilized during tabulation. Bricks were tabulated as fragments versus whole for all types. Whole bricks and other measurable artifacts were described using both English and Metric systems. Examples of all of the above mentioned artifact types were recovered from the 7 Hanover Square Block in every lot of the excavation.

As a result of the existence and destruction of 19th and 20th century buildings on the block, enormous quantities of certain materials were present. These categories of artifacts were sampled in the field, then weighed and discarded during fieldwork. Sampled artifacts included red brick, mortar, concrete, coal, macadam, stone, and slate. The weights taken in the field were incorporated with those tabulated in the lab.

The Furniture Group: The group contained recognizable furniture hardware such as hinges, locks, handles, drawer pulls, escutcheon plates and keyhole surrounds. A very low percentage of artifacts recovered could be attributed to this group. Three furniture-related parts were identified from Hanover Square. A copper alloy hinge was found in Test Cut Z, another from SHovel Test 20, and a copper alloy doorknob was recovered from Test Cut L. Five copper alloy furniture tacks were also identified.

The Arms Group: This group contained musket balls, lead shot, gunflints, gunflint spalls, bullets, cartridge cases, bullet molds

and gun parts. A musketball and cannonball (both from Test Cut G) were recovered from the site as well as 261 gunflints. Of these, a cache of 245 flints was found in Test Cut Z on a mortar floor (see Chapter Six).

The Clothing Group: This group consists of artifacts associated with the making of, wearing of, and repair of clothing. Buckles, thimbles, buttons (based on South's typology, see Noel Hume 1976:91), scissors, pins, hook and eye fasteners, bale seals and glass beads. Many clothing related artifacts were recovered across the site. The most common clothing artifacts were buttons, 81 of which were identified. Buttons of several types were present: 9 were made of wood, 28 of metal (mostly copper alloys), eight were mother of pearl or shell, 26 were bone, two were fabric-covered, two were glass and one was ceramic. Where possible, dates were assigned based on South's typology. Other clothing fasteners such as hooks and eyes were identified from Test Cuts A, K, V, Y, AD, and AP. Many beads were recovered from across the site. Bone, shell, synthetic, and glass beads were identified. Six buckles were identified from the site. Copper buckles were identified from Test Cuts L and Y, copper and iron from Test Cut O, an iron buckle was identified from Test Cut AF, and three copper buckles were noted as stray finds.

Artifacts related to clothing manufacture and repair were also plentiful. A needle was recovered from Test Cut A. Four thimbles were identified from Test Cuts D, F, X, and Z. 34 iron and copper alloy straight pins were recovered from Test Cuts D, F, G, L, N, O, Y, and AP. A pair of scissors was identified from Test Cut Y. A bale seal

from a bolt of cloth (probably wool; Noel Hume 1976) was identified from Test Cut Z. Textiles were also recovered. Twenty-six fragments of fabric, nine leather shoes, two leather shoe blanks, and almost 700 scraps of leathe have been identified.

The Personal Group: This group was comprised of the artifact classes of coins, keys, and "personal items". Personal items included wig curlers, brushes, combs, mirrors, jewelry, watch parts, fan parts, slate pencils, eyeglasses, etc.. Personal items were found across the site, although in a lower percentage than some of the other groups. Portions of 11 combs and 11 brush handles were tabulated. Two wig curlers were found in Test Cuts O and AJ. Jewelry was also recovered from the excavation. A finger ring and a key chain were found in Test Cut G, and an additional ring was found in Test Cut Y. Keys were recovered from Test Cuts W and Y. Many fragments (95) of glass pocket flashes were found on the site. Writing implements were also recovered. Thirty-one slate pencils were identified, and a lead pencil was found in Test Cut G. A variety of coins were recovered from the site. Twelve coins were identified, three with visible printing. A Liberty Head United States one cent piece was identified from Test Cut AA, dated 1845. A British George II half penny (1727-1760) was found in Test Cut AE. In Lot 13 a Liberty Head nickel dated 1883-1912 was identified. The remainder of the coins excavated were not legible.

The Tobacco Pipe Group: This group consisted of only one class of artifacts, those related to tobacco smoking. Nearly 10,000 stems and/or pipe bowl parts were recovered. They are described in Appendix F.

The Activities Group: This group was by far the most diverse group of artifact classes tabulated from the 7 Hanover Square collection. Artifact classes included construction tools; farm tools; toys such as marbles and doll parts; fishing gear and tackle; storage items (non-kitchen), such as barrels; floral remains such as nuts, seeds, and husks; horse tack and related stable hardware; miscellaneous hardware; specialized activities hardware such as kiln wasters; printing artifacts; and military objects such as sword parts, insignia, and bayonet parts.

The activities group was well represented in the Stadt Huys collection. Many toys were recovered from the excavation. Forty-eight marbles, 42 of which were stoneware, were identified. Two die (or domino faces) were recovered as well as 18 other gaming pieces. Sixteen additional toys such as doll parts were also found. Much miscellaneous hardware not possible to identify, except as construction-related, was excavated. These items include an iron strap with hinge from Test Cut S, a copper alloy gear from Test Cut AM, and an iron crank handle from Test Cut Z. Many artifacts that may belong to this category could only be identified as to material. These objects were coded under Miscellaneous Hardware and include over a thousand metal objects, cut stone, and wood.

The macrofloral remains were identified, counted, and weighed during the tabulation. The system for tabulation was organized on the botanical family level. Multiple listings indicate that fragments could not be further identified. The family Cucurbitaceae included squash/pumpkin/cucumber/watermelon and cantaloupe. The family Fagaceae included oak acorn, chestnut, cork wood, beech nut, hazel nut, and Brazil nut. The family Juglandaceae included walnut, black walnut/butternut, hickory nut, and pecan. The family Leguminoseae included peanut and pea. the family Oleaceae contained olive pits. The family Palmae included coconut husk and date pits. The family Rosaceae included apricot/plum/prune pit, pear pit, peach/nectarine pit, cherry/beach plum pit, apple seeds, and almond. The family Rutaceae included orange/tangerine/grapefruit/tangelo pit and lemon/lime pits. The family Pinaceae included pine cone, pine needle, and pine bark. The family Ulmacae included hackberry. A final category, "other floral", included leaves, bark, twigs, and straw. Seaweed was given its own category. Macrofloral remains of the Hanover Square block were primarily identified from the cucurbitaceae, rosaceae and rutaceae families.

Eighteen aboriginal artifacts were also recovered from the excavation, including flakes, bifaces, and a projectile point. Most of these artifacts were found in Test Cuts D and F.

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Appendix H

THE GLASS CODING SYSTEM

by Meta F. Janowitz

In general, the glass classification system was based on categories that are more descriptive and less useful for dating purposes than the ceramic codes. There are several reasons for this: fewer published sources for dating glass were available to us, these sources often disagreed, and a large part of the most temporally significant changes in glass technology and use occurred in the 19th and early 20th centuries. Since few 19th or 20th century contexts were excavated at either site, it was decided to devote relatively more of the research time available to ceramics rather than to glass. However, the glass fragments were described as fully as possible on the tabulation sheets and dates or date ranges were assigned whenever possible.

As was the case with ceramics, glass artifacts were initially tabulated in narrative, descriptive form. After the coding system was developed, laboratory analysts took the longhand sheets and assigned the proper code to the glass sherds. The codes were then entered into the computer. Information about color or size or detail of finishes was not included in the computer code, but these characteristics are included on the tabulation sheets.

The most frequently used computer codes are the general, undated ones. Any specific dating information (embossed names on bottles, bottle seals, particular shapes, and mold seams, etc.) can also be found on the tabulation sheets. The computer printouts show the form/function code and the number of fragments in each category. The computer printouts also list all glass pieces for which precise dates are available. The codes for specific bottle forms (i.e. wine/liquor, vial, etc) were assigned when enough of the bottle was present to determine form. Except for the glass from the Lovelace Tavern, crossmending was not generally attempted, but when it was obvious during tabulation that plain pieces came from the same bottle as pieces whose form or decoration could be determined, the plain pieces were assigned a more specific code.

Wine/Liquor Bottles

Nine dated and three undated codes were used. The dated codes were based on the characteristics of overall shape, type of finish, and presence/absence and location of mold seams as shown in McKearin and Wilson (1978:187ff.,205ff). Information about Dutch bottles was supplied by Richard Ryan of the Nassau County Museum (Ryan 1980: personal communication). The dated codes are #303 (1630-1685, apple/onion), #304 (1680-1730, apple/onion), #305 (1730-1760, bell shape), #306 (1740-1790, tall bell shape), #307 (1780-1810/1830, usually dip molded), #308 (1800-1840/1850, full size mold), #309 (post-1840/1850, specialized lipping tool), and #311 (post-1821, Ricketts ring). Code #310 (post-1810, undated mold made) was used for bottles whose precise shape could not be determined but which

had mold seams. Since these codes were developed, Joseph Diamond has pointed out that wine/liquor bottles were sometimes made in dip molds as early as 1760 (1983: personal communication).

The undated wine/liquor codes were #66 (base only - sand pontil), #667 (base only - glass-tipped pontil), and #668 (undated other). The distinction between sand and glass-tipped pontils was included in the coding system based on Jones (1971). She writes that glass-tipped pontils were used on dark green English tradition wine bottles before 1720; after this time sand pontils were the only ones used (1971:68). However, we did not use the presence of glass-tipped pontils on dark green wine bottles as a definite indication of a pre-1720 date because of the as yet unknown influence of the Dutch on glass importation and manufacture in New York. Description of other types of pontil or push-up marks are on the hand tabulated sheets.

Other Bottle Glass

For most of the codes, 1800 was used as a rough starting date for mold-made forms. Mold-made bottles of all types did become much more common in the first quarter of the 19th century than they had been before, but bottles had been made in molds before this: dip molds for fashioning general body shapes and more elaborate molds for embossing bottles are known from the 17th and 18th centuries (McKearin and Wilson 1978 passim; Noel Hume 1969 and 1970; and others). Therefore, the 1800 date is a general temporal indicator rather than a firm terminus post quem. Patent proprietary and mineral soda bottles which were mold-made were assigned a general starting date of 1750, because the above

sources illustrate pre-19th century mold made bottles in these forms. Based on these sources, and Baugher (1982) and Jones (1981), it seems that these bottles became fairly common after 1750. Again, however, this date should not be given the weight of a terminus post or ante quem.

Code #312 was assigned to Patent/proprietary bottles, plain with pontil; #313 to Patent/proprietary, plain without pontil; and #316 and #317 describe the same characteristics for Mineral/soda bottles. Code #314 and #315 are for decorated Patent/proprietary bottles, with and without pontils; while #318 and #319 are decorated Mineral/soda bottles with and without pontils. Codes #671 and #672 are Patent/proprietary bottles, base unknown, plain and decorated; while codes #673 and #674 are Mineral/soda bottles, base unknown, plain and decorated.

The snap-case, which eliminated the need for holding the bottle with a pontil rod or blowpipe, was patented in 1857 (Lorraine 1968: 44, McKearin and Wilson 1978:14). By the 1870s, the snap case had generally replaced pontils (Baugher 1982:267, Jones 1971:72). When a code is listed as "decorated," it signifies embossed decoration which was part of the mold.

"Other utilitarian bottles" refers to "utilitarian containers used for many and diverse contents" (McKearin and Wilson 1978:246). They were both mold made and free-blown and are found in various colors (ibid.). The mold-made codes (#320 and #321) were dated post-1800, but it is probable that molds were being used for at least some of these bottles during the 18th century (see dating comments above).

"Vials" are generally cylindrical and/or tapered with a flaring lip. As with the above categories, mold-made vials were dated

post-1800, but they were made in simple clay dip molds as early as the 17th century (McKearin and Wilson 1978:287). However, most of the vials are coded as #676 (undated vials).

Code #325-327 "Perfume/toiletry bottles" are ornate bottles used to hold perfume, scent or cologne. Munsey writes that bottles "of great beauty" began to be produced in hinged molds around the turn of the nineteenth century (1970:154).

The remaining dated codes: #328 (19th century beer/ale), #329 (food storage, post-1850 and milk bottles, post-1870), #330 (20th century bottle glass), and #331 (ink bottles), were identified and dated based on McKearin and Wilson (1978) and Munsey (1970).

The remaining bottle glass codes are general categories which are intended to give more indication about form, such as #677 (case bottle) and #678 (flacon), or technology used in manufacturing, such as #669 (sand pontil), #670 (glass tipped pontil), #332 (other mold-made), #679 (other free blown). Code #680 (other bottle glass - unidentified) is the catch-all category for miscellaneous unidentifiable glass pieces.

Table Glass

Table glass was divided into two categories: general table glass and wine glass stems. These categories were sub-divided into decorated, undecorated, dated, and undated types. No specific dates were included in the code, but when a piece is listed as "dated", the date and the reference can be found on the original tabulation sheet.

Noel Hume (1969 and 1970) and Hughes (1958) were the sources cited most often, especially for wine glass stems which were the most common form of dated glass. Code #336 (prunts) was included both for dating purposes and to enable us to quickly locate these diagnostic pieces. Prunts are commonly found on 17th century drinking glasses (Roemer glasses) and are illustrated in many Dutch genre paintings.

Other

Codes #684 (other decorated glass) and #685 (miscellaneous undecorated glass) were used for pieces which did not fit into any of the above categories. Code #687 (lamp glass) was used when both the form and the color of the glass indicated this function. Code #688 was used for all milk glass regardless of its form (almost all milk glass sherds were very fragmentary). Code #686 (burned/melted bottle or table glass) was used for those pieces which were so badly burned that very little could be determined about their original forms.

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Appendix I

CONSERVATION

by Nan Rothschild

During the spring of 1981, while lab analysis for the Stadt Huys Block was continuing, and before excavation began at 7 Hanover Square, it was decided that chemical treatment of certain categories of artifacts was essential in order to conserve them for future study. Two advanced graduate students from New York University's Conservation Program in the School of Fine Arts were retained as expert consultants. Their tasks were to examine the material which had been excavated, decide which classes of artifacts were in need of treatment, and establish treatment protocols.

James Roberts was in charge of the conservation program, and focused on organic materials (particularly leather), glass, and ceramics. Deborah Schorsch was a specialist in the conservation of metals. She treated all metal objects herself, mostly at NYU's Conservation Center Laboratory, and at the conservation lab of the Metropolitan Museum of art. She also assisted with some of the treatment of ceramics. Roberts established procedures for the other categories of material; the conservation of these objects was carried out partially by him, but predominantly by Diane Dallal; with the assistance of Paolo Codrino, a Bennington student; Jim Sibal, a volunteer; and several Barnard students. These artifacts were treated in two anthropology department laboratories, one at New York University, and one at Columbia University.

Procedures

Leather was cleaned in an ultra sonic cleaner if stable, then a mixture of EDTA and water was applied, followed by treatment with Bavon. Approximately 20 large artifact bags (quart size) of leather were treated. Some of the intact shoe parts were preserved between sheets of plastic, and the outlines of all recognizeable pieces were drawn before treatment.

Glass was first evaluated in terms of the need for treatment. Those pieces which were thought to require it were treated with B72, dissolved in Toluene, and the glass was then put in a dessicator and dried in a vacuum. More than 5100 pieces of glass from the Stadt Huys Block (some of which were whole or large portions of bottles), and more than 4500 pieces from the Hanover Square Block (also including some whole bottles and a number of prunts) were conserved.

Bone objects were treated by soaking in a mixture of Acrysol and S12. None of the food bone was treated as it seemed relatively stable, and the collection was so large. Bone objects include buttons, utensil handles, a domino, toothbrushes, a comb, and beads.

Ceramics such as delft, majolica, and slipwares were also evaluated in terms of the need for treatment. Those that were found needy were soaked in de-ionized water, followed by a dilute solution of nitric acid. They were then brushed with B72, and the glaze was glued back on if it had separated from the body of the sherd. 1800 sherds from the Stadt Huys Block and 500 from Hanover Square were conserved. Some special objects from Hanover Square including a toy tea set and porcelain doll parts were also treated. Any important artifacts were photographed after treatment.

The treatment for metals has not been recorded. Objects were cleaned initially by hand, then further by chemical means, and finally were stabilized chemically, and packed in bags with silica gel. All significant objects treated (coins, a spur, buckles, buttons, silverware, ornaments) were photographed.

Appendix J

COLLECTION MANAGEMENT

by Nan Rothschild

The Stadt Huys Block and 7 Hanover Square Collections have been moved several times. This was necessary because there was no existing repository that had both the space for, and an interest in, housing the entire collection in a manner which would allow research access by interested scholars. Original storage for each site was in the field laboratory (on Front Street for the Stadt Huys Block site, and on Pearl Street for Hanover Square). Both collections were then moved, with the architectural materials (nails, architectural hardware, window glass, brick, stone, mortar, etc.) going to the John Street office of the Center for Building Conservation, and all the other artifacts going to New York University's Anthropology Department at 25 Waverly Place, in temporary facilities in the basement. It should be noted that both CBC and NYU performed an extremely important service by offering space at a time when there was no other space available.

Finally in 1984 the collections were moved from New York University to Columbia University's new William Duncan Strong Museum of Anthropology, started with the assistance of a grant from the National Science Foundation for Systematic Collections. The artifacts are stored in Room 156, Schermerhorn Extension, in new steel museum storage cabinets, where they are arranged by site, and within the site by test cut, then by catalog number (reflecting strata). Most of the

artifacts are not separated by material, so glass, ceramics, pipe stems etc. are all together. Those items which were conserved are bagged separately. All faunal and vegetal material is housed in a separate cabinet. Shell is housed in boxes, and bulk samples (mostly shell and coral) are stored in a separate room in Schermerhorn. The South Street Seaport Museum has assumed the care of the architectural materials stored at 171 John Street.

Parts of the collection have been used for exhibit purposes in a number of museum or gallery exhibits. Two shows at the New York Historical Society, one commemorating 200 years of trade relations between The Netherlands and the United States, and one on the China Trade, used significant quantities of artifacts from the Stadt Huys Block and 7 Hanover Square sites. Exhibits at Rutgers University, Newark, Columbia University, Barnard College, the Fraunces Tavern Museum, the Collegiate School, the Brooklyn Historical Society, the South St. Seaport Museum (two) have all involved objects from the collections. In addition Richmondtown Restoration has taken as part of their permanent collection some of the stone and brick found from the Lovelace Tavern at the Stadt Huys Block site.

There are also two permanent exhibits which use some of the excavated material. One will open on 17 October at 17 State St. and will have some of the Hanover Square material. An outdoor display on the plaza of 85 Broad Street shows the partial reconstruction of the foundation walls of the Lovelace Tavern and a circular eighteenth century brick well, along with written and photographic interpretive material. This exhibit was designed by Tom Killian of Skidmore, Owings

and Merrill and Nan Rothschild and Diana Wall. There is also a small exhibit planned for the lobby of 7 Hanover Square, designed by Kornelia Kurbjohn with the assistance of Nan Rothschild. This includes artifacts, photographs and artwork and interpretive material, but its opening date is unknown.

Appendix K

Preliminary Report

on

Paleobotanical Remains from Three Urban Sites in Lower Manhattan:

Stadt Huys Block, 64 Pearl Street, and 7 Hanover Square

by

Josselyn Flowers Moore

Paleobotanical samples were collected during the 1979-81 excavations of three urban archeological sites in lower Manhattan. The sites, all located south of Wall Street on contiguous blocks, represent various periods of colonial New Amsterdam and New York settlement between 1625 and 1875.

Stadt Huys Block was excavated in 1979-80 by Diana Rockman and Nan Rothschild. Stadt Huys Block A produced samples from features -- 17th and 18th century wells and a privy used until the 19th century. Samples from Stadt Huys Block B were taken from a stratified sequence in a sidewalk/street area representing original ground surface.

64 Pearl Street was excavated in 1980 by Nan Rothschild and Arnold Pickman. Samples here are from landfill, laid in place between 1687 and 1697. It is notable that the organic artifacts from this landfill are in better condition than those from original land surfaces.

Arnold Pickman, Diana Rockman and Nan Rothschild excavated 7 Hanover Square in 1981. A number of features underlying 1687-1697 landfill were sampled at this site, including a cistern, privy, midden and basement floor (Rothschild: personal communication).

Methodology

It is important to note that the flotation samples taken from these sites were processed in two different ways: samples from 7 Hanover Square and Stadt Huys Block A were floated in a machine (Sandy-Cresson Enterprises, Moorestown, NJ) which utilized the city water supply. Water entered the 55-gallon drum through a sprinkler head and percolated up through 16 mesh nylon screening. The light

fraction was caught in 80 mesh nylon bags and the heavy fraction in the 16 mesh nylon screening.

Samples from 64 Pearl Street and Stadt Huys Block B were floated in a stream in the fall. The light fraction was hand-skimmed off and the heavy fraction collected in a .52mm wire mesh. This second group of samples was then passed through 2mm, 1mm and .5mm screens and seeds and plant parts sorted out (Rothschild: personal communication).

Nan Rothschild, Barnard College, then transferred to me 21 bags of unsorted flotation samples and 26 vials of floated and sorted paleobotanical material. I analyzed all the sorted samples from the 64 Pearl Street landfill and the Stadt Huys Block B ground surface since: 1) the 64 Pearl Street organic remains were well-preserved, 2) the Stadt Huys Block B samples represented the only stratified sequence among these three sites, and 3) significant labor had already been invested in sorting. I analyzed only three (50%) of the six samples from Stadt Huys Block A, drawing one sample from each of the three features, and five (33%) of the 15 samples from 7 Hanover Square, sampling each of the four features/structures represented.

Analysis

One feature about the sample weights is notable: one site, 7 Hanover Square, yielded flotation samples of exceptionally high weights. The average weight of a two quart sample from Stadt Huys Block A was 5.7 grams, from Stadt Huys Block B 6.7 grams, and from the well-preserved organic remains of 64 Pearl Street 5.5 grams. However, the average weight of the five samples from Hanover Square

was 37.4 grams per two quart sample (weight adjusted from figures in Table 1). The largest sample, from the privy, yielded well over 100 grams of material in a two quart sample. Even omitting this massive sample, the average would still be 16.9 grams, nearly three times the average weight of the other sites. The large size of this set of samples is apparently due to the large amounts of wood charcoal these Hanover Square features contained.

Of the 25 species of seeds identified from the flotation samples, two-thirds (16) were from herbaceous plants, four from trees, three from shrubs and two from vines. Nearly half (11) of these species are generally regarded as "weeds". That is, they are frequently among the first plants to invade disturbed soils and therefore often appear in places where they are interpreted as being unwanted intruders. Six of these species are of clear economic value: the strawberry, raspberry, blueberry, grape, cherry and watermelon.

One-fifth (five) of the species represented by seeds in these samples are plants which prefer moist to wet soils. These plants include three trees, one shrub and one herbaceous plant. This is not unexpected given the propinquity of the shoreline at that period. (Rothschild: personal communication).

The most noticeable characteristic of these samples from three different sites is the ubiquity of the berries -- raspberry and strawberry. They are both widespread and numerous.

Stadt Huys Block A

Seeds from these samples were primarily from these two prevalent berries. Some weedy species were present.

Two wells, one 17th century and the other 18th century, produced paleobotanical remains. Samples from like features from two different time periods may permit a few cautious comparisons. The earlier well produced a paleobotanical sample which had a higher species diversity, as well as a higher seed count, than the later well (Table 12). The two berry species are strongly represented in the fill of both wells, but five of the weedy species present in the 17th century well sample are missing from the 18th century well sample. The wood charcoal varied between these features as well: the 17th century well sampled contained virtually all oak charcoal, whereas the 18th century well contained primarily hickory charcoal, with traces of conifer and diffuse porous (Table 3).

The other feature excavated at this site was a privy, used into the 19th century. The privy sample contained wood charcoals which were predominantly oak, with some hickory and diffuse porous. This sample clearly produced the largest chunks of wood charcoal (see the count/weight ratios in Table 3).

Stadt_Huys_Block_B

This street/sidewalk sequence of twenty samples produced about 490 seeds of which 47% (231) were raspberry. The bugleweed was also well-represented -- nearly 20% (94) of the sample (see Table 4). Some strawberry seeds appeared, as well as an assortment of weedy herbaceous plants. Two shrub species were present.

Table 12 presents data on species diversity and quantity of seeds for each sample which may suggest variation over time.

64 Pearl Street

The great species diversity and large number of seeds per sample (Table 12) produced by these deposits indicate that landfill provided better preservation conditions for organic materials than either original ground surfaces or features; with a single remarkable exception -- the 7 Hanover Square privy. However, many of these seeds and plant parts were more fragile than those found in the other types of deposits. This resulted in higher unidentified seed fragment counts.

The seed list was headed, again, by the raspberry and strawberry. In addition, I found blueberry and a wide array of weedy plant species (Table 5). In all, five economic species, all fruits, were identified: the three berries, watermelon and grape.

7 Hanover Square

The seeds from these samples contained four economic species: raspberry, strawberry, grape and cherry. Most of these economic species were located in the privy, which was high in both seed count and species count (Table 6). A shrub and weedy plants were also present. The privy sample stands out because of its wide species diversity and its exceptionally large number of seeds, many of which represent economic species. Neither the midden nor the basement floor were particularly rich in number or diversity of seeds.

Wood charcoals were present in these samples. Cistern G yielded charcoal which was predominantly oak (some white group), with smaller amounts of hickory, conifer and diffuse porous. Privy J charcoal consisted of oak (red group) and conifer. Like the privy in Stadt

Huys Block A, privy J produced the largest pieces of charcoal (Table 7) of this set of samples. The basement floor contained mostly diffuse porous charcoal, with some hickory and conifer, while the midden produced oak (red group), conifer and diffuse porous. The conifer wood charcoal was present in all the features sampled at this site and constituted the largest single species component -- one-third of the charcoal by weight.

Conclusion

This is a preliminary report on the flotation samples from these three urban sites. There is much more analysis that can be done with this data set.

Nearly 60% of the plant species represented by seeds are of economic importance--all fruits. Approximately two-thirds of these economic plant seeds are from raspberries, and one-third from strawberries. Only traces of the other economic species appeared.

Another 20% of the seeds belonged to a wide variety of weedy species. Only two percent of the seeds at 7 Hanover Square were from weeds, whereas 19% from Stadt Huys Block B, 34% from 64 Pearl Street and 43% from Stadt Huys Block A were from seeds.

Of the remaining seeds, 10% were unidentified fragments, eight percent were wildflowers (the wetland bugleweed), and 1.5% were trees and shrubs.

The paleobotanical remains from the two wells in Stadt Huys Block A suggest that the weedy species may have diminished in number and variety of species over time, from the 17th to the 18th century. This might be tested by examining the Stadt Huys Block B series in proper temporal sequence.

TABLE 1

Volumes and Weight of Analyzed Samples

Catalog Number	Original Sample Volume (quarts)	Floated Sample Weight (grams)
Stadt Huys Block A		
775-782	2.25	2.9
1016,1030	2	2.1
1149	2	12.2
Stadt Huys Block B		
1710	2	3.1
1724	2	12.7
1728	2	4.8
1738	2	10.3
1739	2	0.5
1740	2	1.4
1742	2	2.4
1743	2	2.5
1753	2	1.1
1759	2	2.2
1765	2	10.3
1768	2	8.1
1769	2	11.1
1772	2	11.9
1773	2	25.9
1779	2	7.2

TABLE 1

Volumes and Weight of Analyzed Samples -- continued

Catalog Number	Original Sample Volume (quarts)	Floated Sample Weight (grams)
1781	2	6.2
1783	2	3.2
1807	2	8.5
1810	2	0.9
64 Pearl Street		
FS 1	2	.2
FS 2	2	6.0
FS 3	2	3.3
FS 4	1	2.6
FS 5	2	12.2
FS 6	2	6.0
7 Hanover Square		
175	4	32.1
198	4	14.8
293	4	238.7
760	4	15.6
845	4	72.6

TABLE 2

Stadt Huys Block A, Historic Lower Manhattan

Archeobotanical Seed Remains.

Provenience		Rubus	Fragaria	Brassica	Chenopodium	Polygonum	Polygonum
Cat. No.	Context	Occidentalis?	Virginiana	sp.	sp.	pericaria	sp.
775-782	17th century well	6	4	1	9	6	18
1016, 1031	18th century well	4	24				
1149	privy	12	3	1	4		

* Materials uncarbonized except where noted by asterisk.

TABLE 2

Stadt Huys Block A, Historic Lower Manhattan

Archeobotanical Seed Remains.

Provenience		Portulaca	Eleusine	Plant	Unidentified
Cat. No.	Context	sp.	Indica	Parts	Seed Fragments
775-782	17th Century well	1	1		
1016, 1030	18th Century well	1			
1149	privy			1*	2*

* Materials uncarbonized except where noted by asterisk.

TABLE 3

Stadt Huys Block A, Historic Lower Manhattan

Archeobotanical Wood Charcoal: Count/Weight (grams).

Provenience		Quercus	Quercus	Carya		Diffuse		Unidentified
Cat. No.	Context	(white Group)	sp.	sp.	Conifer	Porous	Bark	Charcoal
775-782	17th century well		10/.29					1/.01
1016, 1030	18th century well			14/.16	2/.01	3/.01		1/.01
1149	privy	11/.98		1/.18		2/.38	1/.01	5/.25
	Totals	11/.98	10/.29	15/.34	2/.01	5/.39	1/.01	7/.27

TABLE 3

Stadt Huys Block A, Historic Lower Manhattan

Archeobotanical Wood Charcoal: Count/Weight (grams).

Provenience		Count/Weight
Cat. No.	Context	Totals
775-782	17th century well	11/ .30
1016, 1030	18th century well	20/ .19
1149	privy	20/1.80
	Totals	51/2.29

Prunus sp. (Rosaceae) Cherry

These trees produce edible fruits, make good ornamentals and are valuable for their wood.

This genus was represented in the flotation samples by just two individuals, possibly from different species. With such a small seed population, identification on the species level is tenuous. Likely candidates include the pin cherry (P. pensylvanica) and the sour cherry (P. cerasus).

The sour cherry, or 'pie cherry', grows along roadsides, fences and borders of woods. Long cultivated in the Old World, it is now naturalized in the eastern and northwestern United States. The pin cherry, or 'fire cherry', prefers moist soils in burned areas or clearings. Its cherries can be made into a jelly.

Rubus (occidentalis?) (Rosaceae) Raspberry

These bramble bushes are noted for their edible fruits. They grow even on barren soils. The fruits may be made into jams or desserts.

Rumex crispus (Polygonaceae) Curly Dock

This European weed is now widespread throughout the United States. It prefers old fields and waste places.

Setaria lutescens (Poaceae) Bristlegrass

This grass weed grows in cultivated soils, waste areas, roadsides and other disturbed ground. The plant was introduced from Europe.

Vaccinium sp (Ericaceae) Blueberry

This genus includes cultivated and wild plants. Wild blueberries are often found in wet areas. These bushes provided an important food source for wildlife and humans.

Vitis sp. (Vitaceae) Grape

These climbing vines are important for their fruits, which are eaten by humans and wildlife alike.

TABLE 4

Stadt Huys Block B, Historic Lower Manhattan

Archeobotanical Seed Remains.

Provenience Cat. No.	Context	Polygonum persicaria	Polygonum sp.	Portulaca sp.	Rumex crispus	Eleusine indica	lutescens	Graminae
1710	street/ sidewalk							
1724	street/ sidewalk	1						
1728	street/ sidewalk							
1738	street/ sidewalk							
1739	street/ sidewalk	1						
1740	street/ sidewalk							
1742	street/ sidewalk	1						
1743	street/ sidewalk							1
1753	street/ sidewalk							
1759	street/ sidewalk	4						

* Materials uncarbonized except where noted by asterisk.

TABLE 4

Stadt Huys Block B, Historic Lower Manhattan

Archeobotanical Seed Remains.

Provenience Cat. No.	Context	Polygonum persicaria	Polygonum sp.	Portulaca sp.	Rumex crispus	Eleusine indica	Setaria lutescens	Graminae
1765	street/ sidewalk		11		17	3		1
1768	street/ sidewalk						1	1
1769	street/ sidewalk							
1772	street/ sidewalk	1						
1773	street/ sidewalk			1				
1779	street/ sidewalk							
1781	street sidewalk							1
1783	street sidewalk			1				
1807	street/ sidewalk	4						
1810	street/ sidewalk							3

* Materials uncarbonized except where noted by asterisk.

TABLE 4

Stadt Huys Block B, Historic Lower Manhattan

Archeobotanical Seed Remains and Plant Parts.

Provenience Cat. No.	Context	Lonicera sp.	Carpinus sp.	Unidentified Seed Fragments	Graminae Parts	Plant Parts
1710	street/ sidewalk					1*
1724	street/ sidewalk					
1728	street/ sidewalk					
1736	street/ sidewalk					
1739	street/ sidewalk					
1740	street/ sidewalk				1	
1742	street/ sidewalk					3
1743	street/ sidewalk			1	1	1
1753	street/ sidewalk					
1759	street/ sidewalk					
1765	street/			19		

* Materials uncarbonized except where noted by asterisk.

TABLE 4

Stadt Huys Block B, Historic Lower Manhattan

Archeobotanical Seed Remains and Plant Parts.

Provenience Cat. No.	Context	Lonicera sp.	Carpinus sp.	Unidentified Seed Fragments	Graminae Parts	Plant Parts
1768	street/ sidewalk					
1769	street/ sidewalk		3*	6*		
1772	street/ sidewalk		2*			
1773	street/ sidewalk	4*				
1779	street/ sidewalk			9		
1781	street/ sidewalk			2*		1*
1783	street/ sidewalk					
1807	street/ sidewalk					3
1810	street/ sidewalk			9		2

* Materials uncarbonized except where noted by asterisk.

TABLE 5

64 Pearl Street, Historic Lower Manhattan

Archeobotanical Seed Remains.

Provenience		Fruit					Grass	
Cat. No.	Context	*Rubus occidentalis?*	*Fragaria virginiana*	*Citrullius vulgaris*	*Vitis* sp.	*Vaccinium* sp.	*Setaria lutescens*	*Eleusine indica*
FS 1	landfill	4		3				
FS 2	landfill	10	41				1	
FS 3	landfill	10	13			10		
FS 4	landfill	2	3			6		
FS 5	landfill	5	65		1*	1	7	2
FS 6	landfill		20		1	4	4	

* Materials uncarbonized except where noted by asterisk.

TABLE 5

64 Pearl Street, Historic Lower Manhattan

Archeobotanical Seed Remains.

Provenience Cat. No.	Context	Polygonum persicaria	Polygonum sp.	Portulaca sp.	Chenopodium sp.	Amaranthus sp.	Asteraceae
FS 1	landfill						
FS 2	landfill	2	8	1	1	1	1
FS 3	landfill		20	8	1	5	
FS 4	landfill		12	1		14	2
FS 5	landfill	8	19			2	
FS 6	landfill	5	3	1	1		1

* Materials uncarbonized except where noted by asterisk.

TABLE 5

64 Pearl Street, Historic Lower Manhattan

Archeobotanical Seed Remains and Miscellaneous Plant Parts.

Provenience Cat. No.	Context	Lycopus americanus	Datura stramonium	Unidentified Seed Fragments	Plant Parts	Juniper branchlets	Cedar branchlets	Monocot stems
FS 1	landfill							
FS 2	landfill	4	2	11		1		
FS 3	landfill		12	9				
FS 4	landfill	1	4	8				
FS 5	landfill	1		11	1		12	4
FS 6	landfill	1		10		1		

* Materials uncarbonized except where noted by asterisk.

TABLE 6

7 Hanover Square, Historic Lower Manhattan

Archeobotanical Seed Remains.

Provenience		Fruit				Shrub
Cat. No.	Context	Rubus occidentalis?	Fragaria virginiana	Vitis sp.	Prunus sp.	Lonicera sp.
175	cistern 6	25	7			
198	cistern 6	4	1			
293	privy J	158	62	16*	2*	5*
760	basement floor	7	1			
845	midden	4	1			

* Materials uncarbonized except where noted by asterisk.

TABLE 6

7 Hanover Square, Historic Lower Manhattan

Archeobotanical Seed Remains.

Provenience Cat. No.	Context	Ambrosia sp.	Chenopodium sp.	Datura stramonium	Polygonum persicaria	Portulaca sp.	Unidentified Seed Fragments
175	cistern 6		2				
293	privy J	1			1		33
845	midden			2		1	5

* Materials uncarbonized except where noted by asterisk.

TABLE 7

7 Hanover Square, Historic Lower Manhattan

Archeobotanical Wood Charcoal: Count/Weight (grams).

Provenience Cat. No.	Context	Quercus (red group)	Quercus (white group)	Quercus sp.	Carya sp.	Conifer	Diffuse Porous	Bark
175	cistern 6		11/.60	2/.08		1/.05	1/.07	
198	cistern 6		7/.58		2/.08	3/.09	5/.43	
293	privy J	6/3.98				13/10.83		
760	basement floor				8/.22	2/.12	10/4.87	
845	midden	5/2.84		1/.57	6/1.36	1/.18	5/1.88	1/.26
	Totals	11/6.82	18/1.18	3/.65	16/1.66	20/11.27	21/7.25	1/.26

TABLE 7

7 Hanover Square, Historic Lower Manhattan

Archeobotanical Wood Charcoal: Count/Weight (grams).

Provenience Cat. No.	Context	Unidentified Charcoal**	Count/Weight Totals
175	cistern G	5/ .23	20/ 1.03
198	cistern G	3/ .52	20/ 1.70
293	privy J	1/ .38	20/15.19
760	basement floor		20/ 5.21
845	midden	1/ .75	20/ 7.84
	Totals	10/1.88	100/30.97

** Diseased, fungal infestation.

TABLE 8

7 Hanover Square and Stadt Huys Block A, Historic Lower Manhattan

Nonvegetal Components: Present (X).

Provenience Cat. No.	Context	Bone Fragments	Fish Scales	Snail Shells	Nodules
7 Hanover Square					
175	cistern G	X	X		X
198	cistern G		X	X	X
293	privy J	X			
760	basement floor			X	
845	midden				X
Stadt Huys Block A					
775-782	17th century well		X	X	X
1016, 1030	18th century			X	X
1149	privy		X		X

TABLE 9

Stadt Huys Block B, Historic Lower Manhattan

Nonvegetal Components: Present (X).

Provenience Cat. No.	Context	Fish Scales	Snail Shells	Insect Parts	Coal	Approximate Count Nodules
1710	street/ sidewalk					70
1724	street/ sidewalk				X	
1728	street/ sidewalk				X	20
1738	street/ sidewalk			X		40
1739	street/ sidewalk					
1740	street/ sidewalk					2
1742	street/ sidewalk	X		X		20
1743	street/ sidewalk					14
1753	street/ sidewalk					15
1759	street/ sidewalk		X			10
1765	street/ sidewalk					1000's

TABLE 9

Stadt Huys Block B, Historic Lower Manhattan

Nonvegetal Components: Present (X).

Provenience Cat. No.	Context	Fish Scales	Snail Shells	Insect Parts	Coal	Approximate Count Nodules
1768	street/ sidewalk			X		1000+
1769	street/ sidewalk			X		4000
1772	street/ sidewalk					50
1773	street/ sidewalk	X		X		800
1779	street/ sidewalk			X		200
1781	street/ sidewalk					1000's
1783	street/ sidewalk					100
1807	street/ sidewalk	X				150
1810	street/ sidewalk			X		10

TABLE 10

64 Pearl Street, Historic Lower Manhattan

Nonvegetal Components: Present (X).

Provenience Cat. No.	Context	Insect Parts	Approximate Count Nodules
FS 1	landfill		
FS 2	landfill		10
FS 3	landfill	X	30
FS 4	landfill		12
FS 5	landfill	X	
FS 6	landfill	X	10

TABLE 11

Historic Lower Manhattan

Frequency of Occurrence of Paleobotanical Seeds,
in Rank Order

Stadt Huys Block A.

Total Number of Samples Analyzed = 3

Species	Number of Samples in Which Species Appeared
Rubus sp.	3
Fragaria virginiana	3
Brassica sp.	2
Chenopodium sp.	2
Portulaca sp.	2
Polygonum persicaria	1
Polygonum sp.	1
Eleusine indica	1

TABLE 11

Historic Lower Manhattan

Frequency of Occurrence of Paleobotanical Seeds,
in Rank Order

Stadt Huys Block B.

Total Number of Samples Analyzed = 20

Species	Number of Samples in Which Species Appeared
Rubus sp.	18
Fragaria virginiana	7
Brassica sp.	6
Polygonum persicaria	6
Graminae	5
Chenopodium sp.	4
Lycopus americanus	2
Portulaca sp.	2
Lonicera sp.	1
Carpinus sp.	1
Acalypha sp.	1
Asteraceae	1
Polygonum sp.	1
Rumex crispus	1
Eleusine indica	1
Setaria lutescens	1

TABLE 11

Historic Lower Manhattan

Frequency of Occurrence of Paleobotanical Seeds,
in Rank Order

---

64 Pearl Street

Total Number of Samples Analyzed = 6

Species	Number of Samples in Which Species Appeared
Rubus sp.	5
Fragaria virginiana	5
Polygonum sp.	5
Vaccinum sp.	4
Lycopus americanus	4
Portulaca sp.	4
Amaranthus sp.	4
Datura stramonium	3
Chenopodium sp.	3
Polygonum persicaria	3
Setaria lutescens	3
Asteraceae	3
Vitis sp.	2
Citrullus vulgaris	1
Eleusine indica	1

TABLE 11

Historic Lower Manhattan

Frequency of Occurrence of Paleobotanical Seeds, in Rank Order

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7 Hanover Square

Total Number of Samples Analyzed = 5

Species	Number of Samples in Which Species Appeared
Rubus sp.	5
Fragaria virginiana	5
Vitis sp.	1
Prunus sp.	1
Lonicera sp.	1
Ambrosia sp.	1
Chenopodium sp.	1
Datura stramonium	1
Polygonum persicaria	1
Polygonum sp.	1
Portulaca sp.	1

TABLE 12

Historic Lower Manhattan

Paleobotanical Seeds: Quantity and Species Diversity, by sample.

Stadt Huys Block B.

Samples	Number of Samples Present*	Number of Seeds Present*
1710	0	0
1724	2	2
1728	1	3
1738	1	21
1739	2	20
1740	2	9
1742	4	5
1743	4	12
1753	1	10
1759	2	5
1765	8	61
1768	3	3
1769	4	11
1772	4	12
1773	5	68
1779	3	10
1781	3	37
1783	4	36
1807	3	12
1810	4	107
	3 Average per sample	444 Total

*Counts from 2 quart samples 22 Average per sample

TABLE 12

Historic Lower Manhattan

Paleobotanical Seeds: Quantity and Species Diversity, by sample.

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64 Pearl Street.

Samples		Number of Samples Present*	Number of Seeds Present*
FS 1	landfill	2	7
FS 2	landfill	11	72
FS 3	landfill	8	79
FS 4	landfill	9**	90
FS 5	landfill	10	111
FS 6	landfill	10	41
		8.3 Average Per Sample	400 Total
			66.7 Average Per Sample

* Numbers reflect counts from 2-quart samples.
** Count from a 1-quart sample and not corrected.

TABLE 12

Historic Lower Manhattan

Paleobotanical Seeds: Quantity and Species Diversity, by Feature.

Stadt Huys Block A.

Feature	Number of Samples Present*	Number of Seeds Present*
17th century well	7	41
18th century well	3	29
privy	4	20
	4.7 Average Per Sample	90 Total
		30 Average Per Sample

7 Hanover Square.

Feature	Number of Samples Present**	Number of Seeds Present
cistern	2.5	19.5
privy	7	245
basement floor	2	8
midden	4	8
	3.9 Average Per Sample	280.5 Total
		70.1 Average Per Sample

* Numbers reflect counts for 2 quart samples.
** Numbers reflect counts for 4 quart samples.

TABLE 13

Historic Lower Manhattan

Summary Table: Seed Counts by Site and Category (number of seeds/ percentage of total number of seeds from that site).

	SHB-A	SHB-B	64P	7HS
Economic Plants				
Citrullus			3/.8%	
Fragaria	31/32%	8/ 2%	142/36%	72/21%
Prunus				2/ 6%
Rubus	22/23%	231/48%	31/ 8%	198/59%
Vaccinium			21/ 5%	
Vitis			2/.5%	16/ 5%
SUBTOTAL	53/55%	239/50%	199/50.3%	288/85.6%
Weedy Plants				
Acalypha		1/.2%		
Amaranthus			22/5.6%	
Ambrosia				1/.3%
Asteraceae		1/.2%	4/ 1%	
Brassica	2/ 2%	38/ 8%		
Chenopodium	13/13%	9/ 2%	3/.8%	2/.6%
Datura			18/4.6%	2/.6%
Eleusine	1/1%	3/.6%	2/.5%	
Polygonum p.	6/6%	12/2.5%	15/4%	1/.3%
Polygonum sp.	18/18%	11/2%	62/16%	1/.3%
Portulaca	2/2%			
Rumex		17/3.5%		
Setaria		1/.2%	12/ 3%	
SUBTOTAL	42/43%	93/19%	138/135.5%	7/2.1%

TABLE 13

Historic Lower Manhattan

Summary Table: Seed Counts by Site and Category (number of seeds/ percentage of total number of seeds from that site).

	SHB-A	SHB-B	64P	7HS
Wildflowers				
Lycopus		94/19%	7/2%	
SUBTOTAL		94/19%	7/2%	
Shrubs and Trees				
Carpinus		3/16%		
Lonicera		4/18%		5/1.5%
SUBTOTAL		7/1.4%		5/1.5%
Unidentified	2/2%	48/10%	49/12%	38/11%
Total Number of Seeds	97/99%	481/99.9%	393/99.8%	338/100.2%
Total Number of Samples	3	20	6	5
Average Number of Seeds Per Sample	32.3	24.1	65.5	67.6

TABLE 14

Historic Lower Manhattan

Summary Table: Seed Counts by Category for All Sites
(number of seeds/percentage of total number of seeds from all four sites).

Economic Plants	
Citrullus	3/.2%
Fragaria	253/19%
Prunus	2/.1%
Rubus	482/37%
Vaccinium	21/1.6%
Vitis	18/1.4%
SUBTOTAL	779/59.3%
Weedy Plants	
Acalypha	1/.08%
Amaranthus	22/1.7%
Ambrosia	1/.08%
Asteraceae	5/14%
Brassica	40/3%
Chenopodium	27/2%
Datura	20/1.5%
Eleusine	6/.5%
Polygonum p.	34/2.6%
Polygonum sp.	92/7%
Portulaca sp.	2/1.5%
Rumex	17/1.3%
Setaria	13/1%
SUBTOTAL	280/22.7%

TABLE 14

Historic Lower Manhattan

Summary Table: Seed Counts by Category for All Sites
(number of seeds/percentage of total number of seeds from all four sites).

Wildflowers	
Lycopus	101/8%
SUBTOTAL	101/8%
Shrubs and Trees	
Carpinus	3/.2%
Lonicera	9/.7%
SUBTOTAL	12/.9%
Unidentified	137/10%
Total Number of Seeds	1309/100.9%
Total Number of Samples	34
Average Number of Seeds Per Sample	38.5

APPENDIX 1

Acalypha sp. (Euphorbiaceae) Copperleaf

This genus contains about 200 species. These are common weeds in pastures, gardens and waste places in the southern United States, and to a lesser extent in the northeast United States. The copperleaf, or mercury weed, seeds are eaten by birds. Some species are not propogated as house plants.

Amaranthus sp. (Amaranthaceae) Pigweed

Pigweed is common throughout the United States. The remarkable success of this weed in the United States is due in part to its tremendous seed production. Pigweed prefers the cultivated soils of gardens and orchards, but does quite well in waste places, fallow ground, fence rows, etc. Many species of Amaranthus are foreign. The few species indigenous to the United States were probably native only to the Great Plains. These seeds are an important source of food for songbirds.

Ambrosia sp. (Asteraceae) Ragweed

Many species of ragweed are both widespread and abundant. The plant is particularly partial to fields, roadsides and waste areas in the northeast and midwest United States. The oil rich achenes are a valuable food to song and game birds during the fall and winter.

Asteraceae Aster, Daisy or Sunflower Family

This large, worldwide family includes some 920 genera and 19,000 species, including many economic and ornamental plants. These herbaceous plants are notable for their small flowers which are organized into a larger head resembling a single, symmetrical flower head ringed by green bracts.

Brassica sp. (Brassicaceae) Mustard

Six species in this genus occur in the eastern United States. Mustard prefers field and waste areas. This genus contains many common garden vegetables: cabbage, cauliflower, broccoli, and brussel sprouts. The seeds are eaten by songbirds.

The mustard identified may be B. nigra, black mustard. This European immigrant produces seeds useful for seasoning in pickles and mustard sauce. These seeds are also found in commercial bird food. Mustard oil has been used in medicines and soap.

Appendix 1-2.

Carpinus caroliniana? (Betulaceae) Ironwood - Hornbeam

Ironwood is found in the eastern United States, prefering moist rich soils, often along streams and ravines. The charcoal was reportedly once used in the manufacture of gunpowder. The fruits (nutlets) are eaten by gamebirds and some squirrels.

Cedar (Cupressaceae) Cedar

Cedars are common in moist or boggy areas.

Chenopodium sp. (Chenopodiaceae) Lambsquarters - Goosefoot

Nineteen species of this genus are found in the eastern United States. The genus prefers disturbed or cultivated land and roadsides. Most of these prolific and prevalent weeds are foreign annuals. Perennial goosefoot was introduced from Eurasia as a potherb and is still grown or gathered today for greens.

Citrullus vulgaris Watermelon

Datura stramonium (Solanaceae) Jimsonweed

This weed is found in waste places, fields and barnyards throughout the United States. All parts of the plant are very poisonous. The name 'jimsonweed' is presumeably a corruption of Jamestown where the plants grew near the colonists' homes. The plant is also called stinkweed due to the rank odor emitted by crush leaves.

Eleusine indica (Poaceae) Goosegrass

This grass, naturalized from the Old World, grows in waste places, fields, gardens and roadsides. This plant is a common weed, particularly in the warmer regions of the United States.

Fragaria virginiana? (Rosaceae) Strawberry

The strawberry, known for its sweet, edible receptacle which is covered by embedded fruits, occurs wild and its hybrid is grown commercially.

Juniper (Cupressaceae) Juniper

This juniper is most probably Juniperus virginiana, considering its morphological characteristics and its geographic distribution. This tree prefers moist to swampy soils, but can occur anywhere from dry uplands to flood plains and swamps. It can often be seen in abandoned fields and fence rows.

Early accounts indicate that the tree was prized by colonists for building furniture, rail fences and log cabins as early as 1564 in Virginia. The aromatic wood is favored for cedar chests and cabinetwork. The "berries" are eaten by a variety of wild life.

Lonicera sp. (Caprifoliaceae) Honeysuckle

A few species of this shrub are considered weeds.

Lycopus americanus (Lamiaceae) Bugleweed - Horehound

This non-aromatic mint prefers moist sites and wetlands, hence the name 'water horehound'.

Monocot (Poaceae) Grass, and Other Families

Polygonum persicaria (Polygonaceae) Lady's Thumb

This abundant weed is common in the United States, and is most frequently found along roads, in damp clearings and in cultivated ground. The seeds provide a valuable source of food for game- and songbirds.

Polygonum sp. (Polygonaceae) Knotweed

Some of these species may have come from Eurasia. They are all abundant and widespread in the United States now. The plants are common pests in gardens and lawns.

Portulaca sp. (Portulacaceae) Pursland

This weed is both widespread and well-known. Apparently, it was introduced from Europe. The plant has some nutritive value for humans: at one time it was used as a potherb because of its high iron content.

APPENDIX 2

Carya sp. (Juglandaceae) Hickory

Some 16 species of hickories occur in this area of the United States. Many of these species prefer moist or wet soils, a few actually grow in swamps, but some may be found in drier upland soils.

Most of these species produce a nut which wildlife consumes, and a few species produce nuts which are considered edible by humans. The pignut hickory was named after the custom of feeding its nuts to hogs. The nuts also produce oils for lamps, and the husks, dyes. The timber has value as a raw material for building furniture and tools, for fuels and for smoking meats.

Diffuse Porous

This group of woods includes many hardwoods including maples (Acer sp.), willow (Salix sp.), poplar (Populus sp.), birch (Betula sp.), sycamore (Platanus sp.), cherry (Prunus sp.), basswood (Tilia sp.) and dogwood (Cornus sp.).

Quercus sp. (Fagaceae) Oak

Two subgenera of oaks are distinguishable: white and red oaks. White oaks produce acorns which mature in one season whose meat is not as bitter as the red oak acorns and is sometimes edible. Red oak acorns take two seasons to mature, and the meat is bitter.

The white oak group includes white oak (Q. alba), chestnut oak (Q. prinus) and swamp white oak (Q. bicolor). Red oaks include northern red oak (Q. rubra), black oak (Q. velutina), scarlet oak (Q. coccinea), and pin oak (Q. palustris).

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