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APPENDIX A

HANOVER SQUARE SITE ARCHITECTURAL ANALYSIS

Prepared by
Mary Dierickx

This report was prepared by Mary B. Dierickx, Architectural Preservation Consultant in consultation with Raymond Pepi, Center for Building Conservation and Sidney Horenstein, for Nan Rothschild, Hanover Square Archeological Project.

Hanover Square Site
Architectural Analysis

Introduction

This report is divided into a general and a specific section. An essay will examine the whole site while individual forms will provide information such as type, size, material and construction for the early, approximately early 18th century, walls on each lot excavated. There is an appendix containing the independent mortar analysis by Raymond Pepi. The stone analysis performed by Sidney Horenstein is included on the forms. Photographs (by the author) and maps illustrate the report.

Architectural Analysis

The block at Hanover Square was an illustrious place where Robert Livingston lived in a mansion once owned by Captain Kidd on land that had been only recently reclaimed from the East River. Manhattan Island was extended one block from Pearl to Water Street in the late 17th or early 18th century. (see John A. Kouwenhoven, The Columbia Historical Portrait of New York (NY, 1972) p. 53 for information and an illustration of the block)

The walls uncovered by the 1981 archaeological dig are foundation walls. Traditional materials and building methods were used; coursed stone rubble construction and mortar of earth and lime. Various sizes of stone were laid up in rough courses, or layers, in thick mortar, to create a serviceable, and apparently long-lasting, wall. Coursed rubble bonding was used for foundation walls for several centuries in America, up to the 20th century.

At first the walls appeared to be dry-laid, laid without mortar. Mortar sampling and analysis by Ray Pepi, however, showed that the walls were laid up in a mixture of sand, clay, earth, and lime mortar. There are many examples of clay mortar in the 18th and early 19th century, where it was even used for exposed walls on upper stories. Clay will wash out, though, and it is not good for permanent construction on walls exposed to the elements. (see Harley McKee, Introduction to Early American Masonry (Washington, DC, 1973) p. 61)

The mixture of earth and lime found at the Hanover Square site is less common and not well-known. It is not an effective use of lime, which won't stick together when mixed in with a lot of dirt. Ray Pepi found references to this mix of earth and lime in English construction but there are few examples in this country. Earth mortars in general were used in the 17th and 18th centuries in America, and perhaps as late as the 19th century. The presence of earth mortars implies an early date for a structure, or wall. (Please see Appendix for a much fuller discussion of mortar)

Some of the walls were packed, or pointed, with mud. The mud was probably used to hold the stones in place and help waterproof the walls. It is also a traditional technique which is probably early but was also probably used sporadically into the 19th century.

The stone used in all of the early walls on the site was brownstone, schist and boulders. This glacially deposited stone was available to builders locally and could have been used in walls from the 17th to the 20th century. There was a very small quantity of coral in some of the walls, particularly those in lot 9/11. This would have been imported, probably as ballast for ships. There were shells attached to some of the stones, and shells are prominent in the landfill. This suggests that some of the building materials came from the site.

The walls are very wide - 3' - 4' - and deeper than usual. The width and depth might have been increased for strength, to make up for the instability of the fill. The original foundation walls were used for later buildings. Walls of slate, granite and marble, dating from a later period, were laid on top of the early foundation walls in lot 9/11.

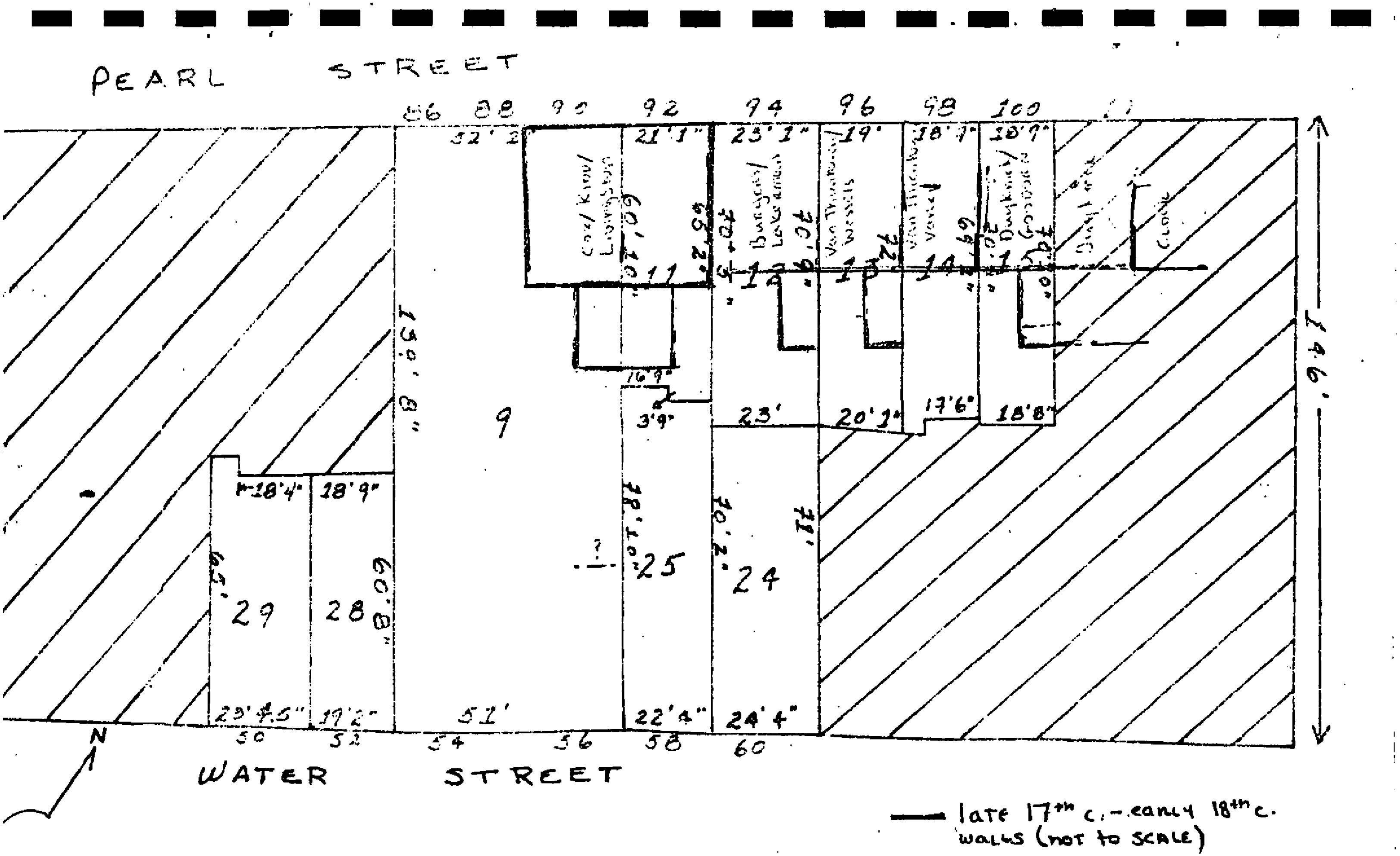
The foundation walls on lots 12 - 15 apparently enclose very small structures. Even with the attached south extensions, the buildings are less than half the size of the Livingston mansion on lot 9/11. The common south wall of lots 12 or 13 - 19 implies that the structures were built at the same time by the same person, perhaps a developer or speculator.

There are several other types of structures on the site. Wooden, box-like structures might have been part of the docks which were there before the landfill, or even yard structures, maybe used for storage. The brick or stone-lined pits were probably cisterns.

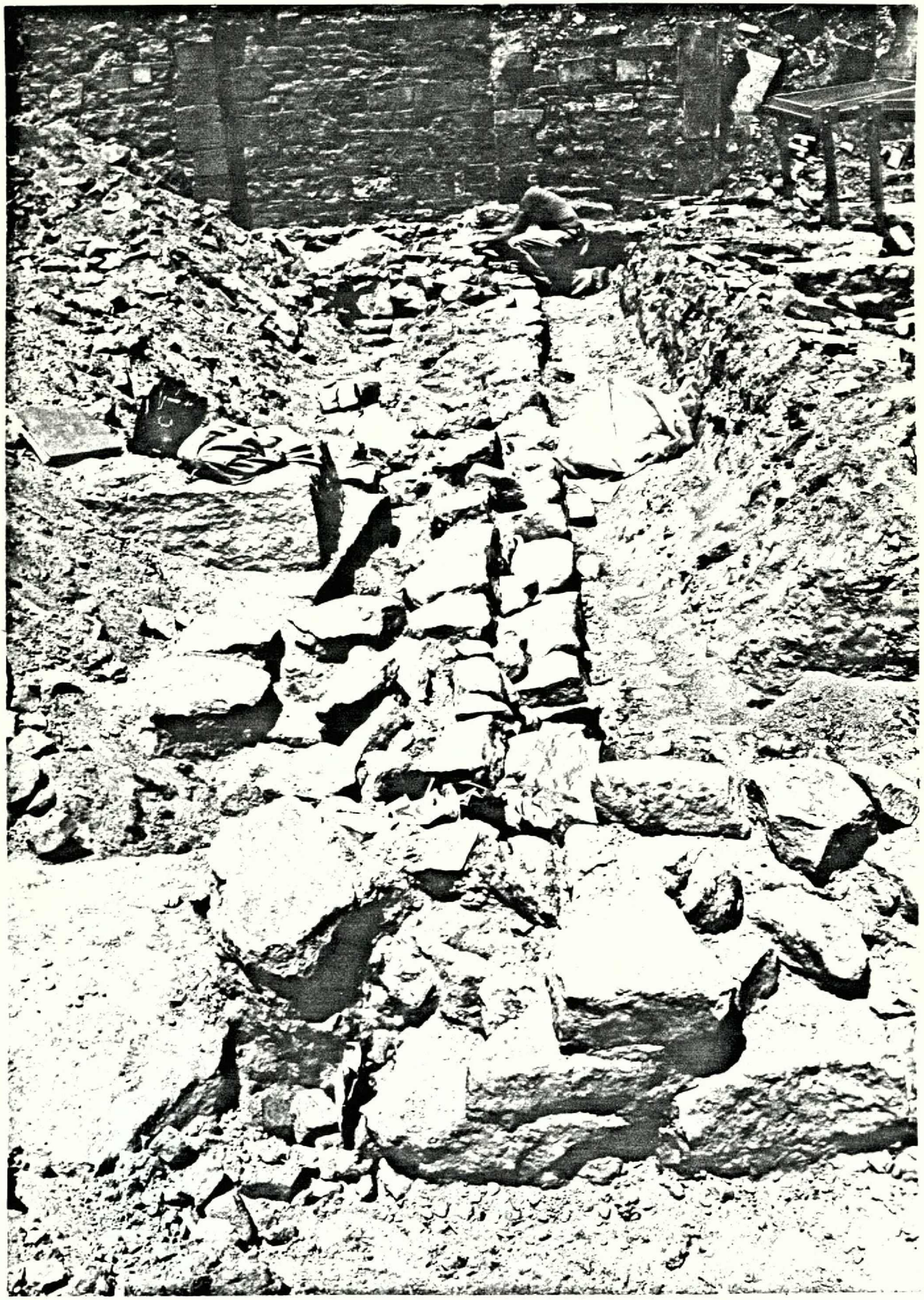
The construction details of the foundation walls at the Hanover Square site - local stone laid up in coursed rubble in an earth and lime mortar with mud pointing - are consistent with the techniques of the late 17th or early 18th century. The extreme width and depth of the walls suggests that they were built for somewhat unstable ground, such as landfill.

Unfortunately, foundation walls were built using traditional methods for centuries. One mason using his grandfather's techniques can throw off dating for a century. Foundation walls are also only a small percentage of the total structure. The evidence provided by archaeological excavations as well as historical research is vital in dating these fragments of buildings. The more information we find and catalogue about materials used, contruction techniques, mortar content, etc., the easier it will be to date walls. Right now there is only isolated data rather than the quantity needed to produce more reliable conclusions about 17th and 18th century building techniques.

An archaeological excavation in the canyons of Lower Manhattan is a magical sight. The old stone or brick walls delineating centuries-old houses vividly evoke a past which has otherwise been obliterated by generations of real estate development. Perhaps in the future New York City will be enlightened enough to take steps to save one of these sites for its citizens. In the meantime, we must make due with the fleeting but tantalizing glimpses of the past these excavations expose.



7 Hanover Square Archeological Project Map
late 17th - early 18th c. walls



Hanover Square Site — Lot 9/11, Early walls, west wall looking north

Hanover Square Site — Lot 9 & 11
Architectural Analysis — EARLIEST WALLS

Location

4 walls of a house, a north, south, east, and west wall plus what appears to be a small extension, to the south of the main house

Material

brownstone and schist - glacially deposited stone available locally from the 17th to the 20th centuries. There is also a small amount of coral in nearly all of the walls, amounting to less than 1%. Not a local material, it would have been imported to New York, probably in the form of ballast. The top two courses of the south wall belong to a later structure which was built on top of some of the old foundation walls. They (over

Construction

The coursed rubble walls were laid up in an earth and lime mortar and pointed with mud. (see Appendix: Raymond Pepi, Mortar Analysis) The upper courses belong to a later wall and are laid up in a soft lime mortar.

Type & Size

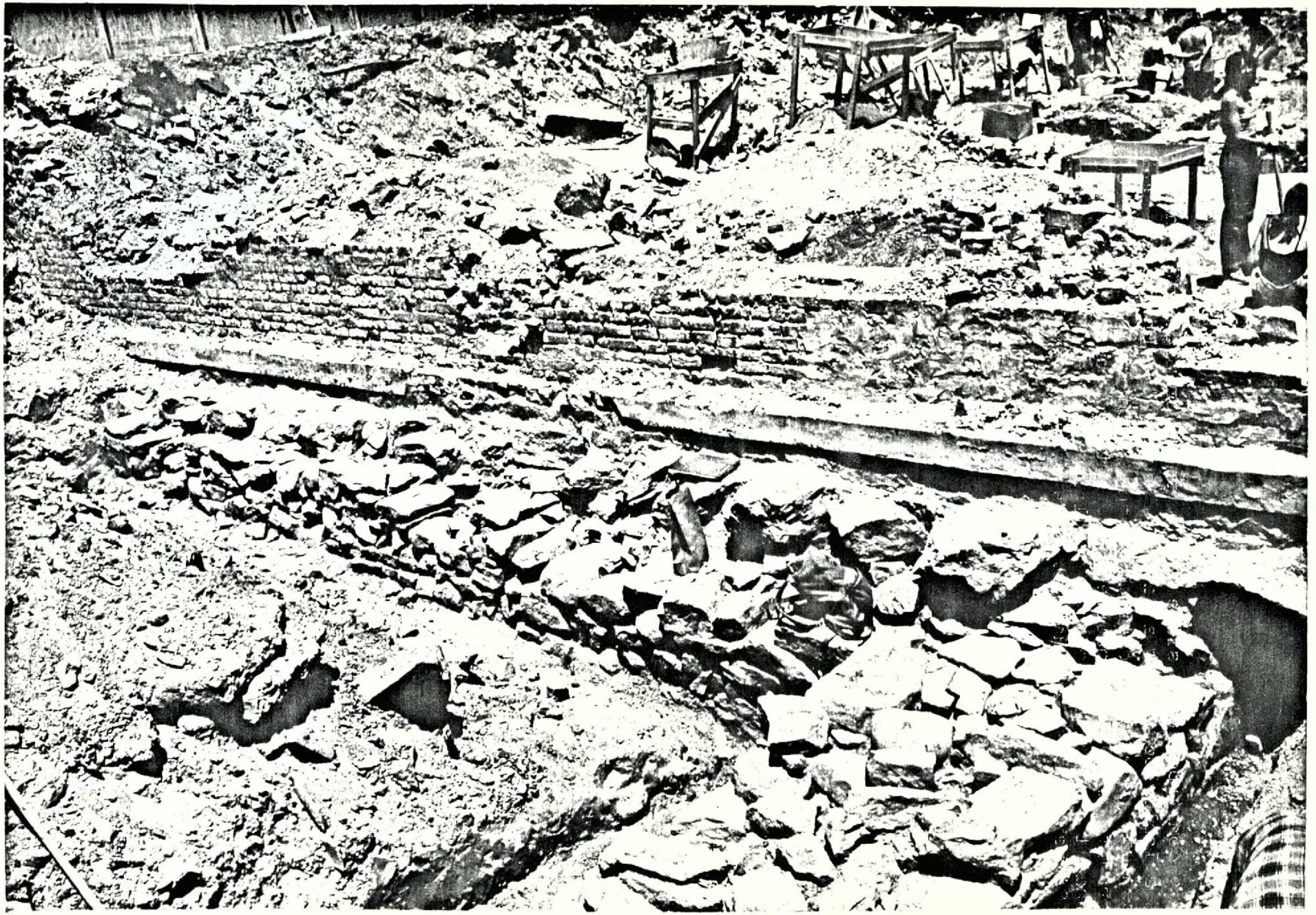
foundation walls, approximately 4' wide, extension walls approximately 2' wide

Date

the walls were laid after the land was filled in, which ocurred in about the late 1600's - the walls might be part of a house built for the Livingston family

Notes

the foundation walls are deep, perhaps because of the nature of the landfill, which might not have provided enough support for a shallower wall.



Hanover Square Site Lot 9/11, Early walls, east wall looking north east

Hanover Square Site Lot 12
Architectural Analysis

Location — There are fragments of walls probably forming the remains of a structure and an extension to the south. The east half of the south wall, which runs east/west, is extant, as are the south and west walls of the extension, running, respectively, east/west and north/south.

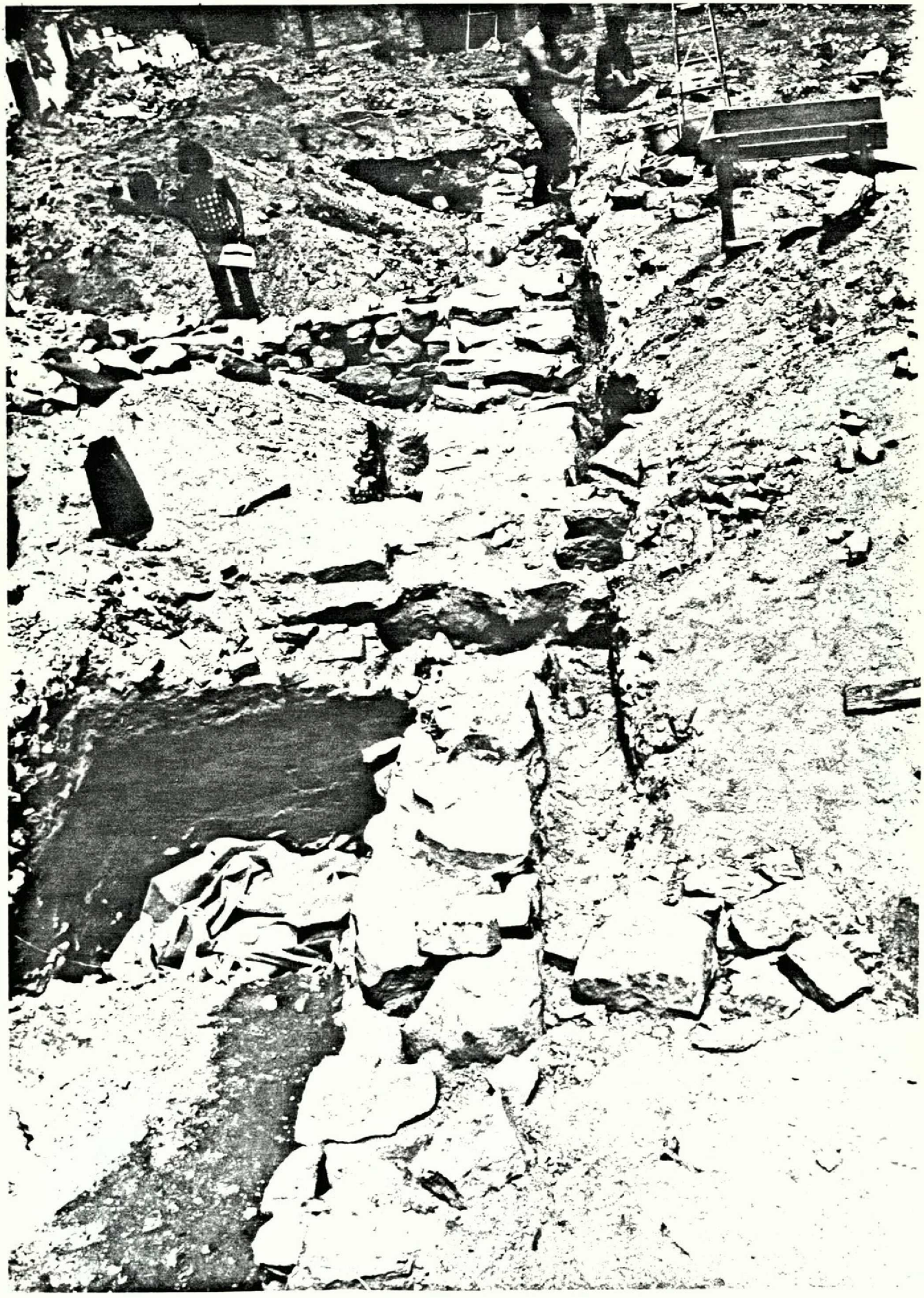
Material — there is very little stone left in the wall fragments, but it appears to be, like the rest of the early walls on the site, brownstone, schist and glacial boulder

Construction — there is too little left of this rubble wall to accurately analyse the contruction and mortar material

Type & Size — approximately 2-3' wide, with the extension walls about 2' wide

Date — after the landfill, see lots 9/11

Notes



Hanover Square Site Lots 13 - 15, Early south wall looking east

Hanover Square Site Lot 13
Architectural Analysis

Location there is part of a south wall, which runs east/west, a fragment of an east wall, running north/south, and fragments of an extension to the south: a south wall, running east/west and a west wall, running north/south

Material brownstone and schist - glacially deposited stone available locally from the 17th to the 20th centuries. (Sidney Horenstein, Hanover Square Site consultation on stone, 1981)

Construction coursed rubble wall laid up in an earth and lime mortar, no evidence of mud pointing but this might have been disturbed with digging (see Appendix, Raymond Pepi, Mortar Analysis)

Type & Size foundation, 2-3', extension walls, 1½-2' wide

Date walls were builtany time after the land was filled, which was probably in the late 1600's

Notes there are wooden structures made up of beams and planking in the rear of lots 13, 14 and 15, they are quite well-preserved, but there is still not enough of them left to explain their use. It is possible that they were pier structures, but they could have been used for some purpose in the yards as well. All the structures are at the rear of the lots on the west side, the stone extensions of lots 13 and 15 are on the east side.

Hanover Square Site Lot 14, Early walls, looking south

Hanover Square Site Lot 14
Architectural Analysis

Location a south wall runs east/west; an east wall runs north/south; there are fragments of a north wall and a west wall

Material schist and glacial boulder, some rocks out of the water with shells still attached - all stone locally available from the 17th to the 20th centuries (Sidney Horenstein, Hanover Square Site stone consultation, 1981)

Construction coursed stone rubble wall, laid up in an earth and lime mortar and pointed with mud (see Appendix, Raymond Pepi, Mortar Analysis)

Type & Size foundation, approximately 3', but the east wall varies, getting as much as 5' wide where an apparently later wall was built next to it, at the northern half of the lot

Date the walls were built any time after the land was filled in, which was approximately in the late 1600's

Notes there is a wooden structure at the rear, west side of the lot, see lot 13 for description

Hanover Square Site Lot 15, Early walls, south extension looking north west

Hanover Square Site Lot 15
Architectural Analysis

Location the south wall runs east/west, the west wall runs north/south At the rear of the lot, three walls may or may not be part of an extension. Three south walls run east/west, two west walls run north/south. The northernmost west and south walls are connected, while the farthest south wall runs into lot 19. SEE SKETCH ON BACK

Material glacial schist and boulder, all locally available from the 17th to the 20th centuries, There is also a Hudson highlands rock in the extension wall, which was also available locally at the same time. The far south wall has a very small amount of coral (see lot 9/11) (Sidney Horenstein, Hanover Square Site stone consultation, 1981)

Construction coursed stone rubble laid up in an earth and lime mortar, it might have been mud pointed but there is no evidence of this now (see Appendix, Raymond Pepi, Mortar Analysis)

Type & Size foundation, approximately 3' for the south wall, see lot 14 for the west wall; the extension walls are approximately 1½-2½' wide

Date the walls were built any time after the land was filled in, which was probably in the late 1600's.

Notes there is a wooden structure at the rear on the west side of the lot, see lot 13 for description

Hanover Square Site Lot 19, Early walls, south and west walls looking east

Hanover Square Site Lot 19
Architectural Analysis

Location the south wall runs east/ west, the west wall runs north/south; there is a fragment of a north wall at the north west corner; there is a far south wall, perhaps part of an extension, which runs east/west into the far south wall of lot 15

Material glacial schist and boulder, locally available from the 17th to the 20th centuries (Sidney Horenstein, Hanover Square Site stone consultation, 1981)

Construction coursed stone rubble laid up in a clay-like earth mortar, no evidence of mud pointing but the wall might have been packed with mud (see Appendix, Raymond Pepi, Mortar Analysis)

Type & Size foundation, 3-4' wide, the far south wall is 2-2½' wide

Date the walls were built any time after the land was filled in, probably in the late 1600's

Notes

Hanover Square Site Lot 25
Architectural Analysis

Location fragments of walls and a round structure, might be a cistern

Material rubble, schist and boulder
the round structure is also stone but some of it is reused stone, with tool marks - some of the stones are shaped like lintels

Construction rubble, laid with a mud mortar and packed on the outside with mud - the walls are packed with a clay-like dirt, the round structure is packed with sandy dirt

Type & Size the walls are low, the round structure is about 3' in diameter

Date the wall was built any time after the land was filled in, probably in the late 1600's
the round structure has reused stone, something not found in the early walls on the site, and could be of later construction

Notes On the south half of the lot there are two wooden boxes, the northernmost has a wooden floor on brick which is on stone rubble. They are about 4' wide and are constructed of wooden boards.

Hanover Square Site
Architectural Analysis

APPENDIX

MORTAR ANALYSIS

by Raymond M. Pepi

Center for Building Conservation

SEVEN HANOVER SQUARE

MORTAR ANALYSIS OF FOUNDATION RUINS

JULY 12, 1982

prepared by: Raymond M. Pepi

CENTER FOR BUILDING CONSERVATION
171 JOHN STREET, NEW YORK, N.Y. 10038

INTRODUCTION

This study was conducted by the Center for Building Conservation (CBC) at the request of Mary B. Dierickx. It summarizes the findings of laboratory research concerning mortar samples removed from several foundation walls that were part of the "7 Hanover Square" archeological site before it was demolished.

Our objective was to gather technical and historical information regarding the composition and type of mortar found at Hanover Square. Where possible we have attempted to interpret this information and compare it to other studies that have dealt with the analysis of historic mortars, particularly in New York.

It is usually acknowledged that mortar investigation is not a reliable method for dating purposes; it is rather a comparative tool, used to verify other known information about a site or to suggest new ideas about construction practices and building technology (it is often recommended in restoration projects for the purpose of determining replacement mixtures).

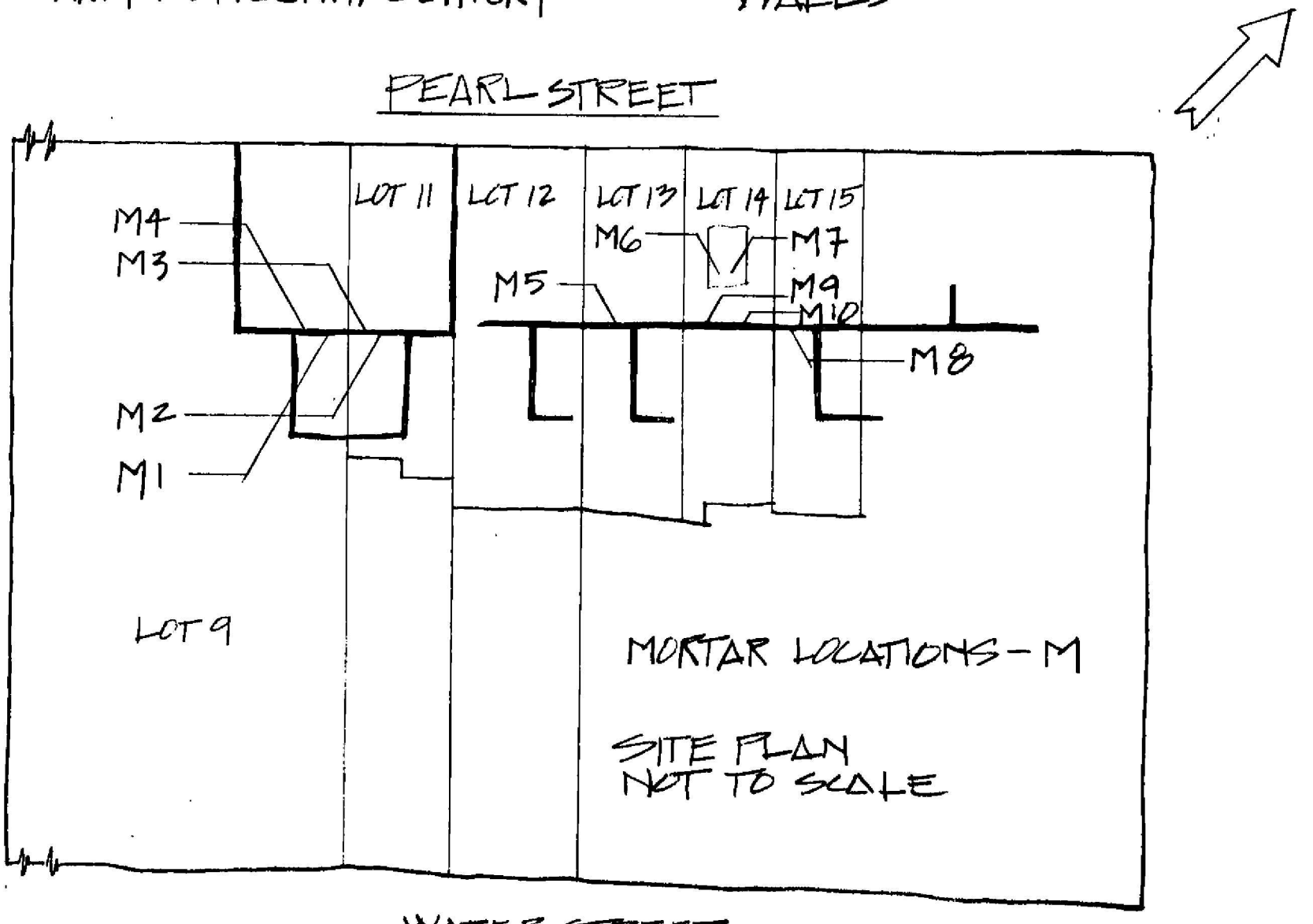
Historical documentation, primarily in the form of a site map, was made available by the archeological team excavating Hanover Square. This piece of research indicates that all of the foundation walls sampled were probably built in the late seventeenth or early eighteenth century (see site map).

TABLE I

SAMPLE INVENTORY

SAMPLE #	LOT #	CATEGORY	LOCATION
1	9	mortar	south side foundation wall, approximately 3 feet below existing grade.
2	9	mortar	south side foundation wall, upper course.
3	9	mortar	north side foundation wall, upper course, bedding mortar beneath bluestone.
4	9	mortar	north side foundation wall, lower course.
5	13	mortar	rear foundation wall, north side, upper course.
6	14	sand	west wall of excavated pit
7	14	sand	east wall of excavated pit
8	15	mortar	south side foundation wall, lower cours.
9	14	mortar	north side rear foundation wall, upper course.
10	14	mortar	north side, rear foundation wall, upper course, about four feet from no. 9.

LATE SEVENTEENTH
EARLY EIGHTEENTH CENTURY — WALLS



7 HANOVER SQUARE ARCHEOLOGICAL PROJECT

PROCEDURE

Nearly all samples were taken from solid masonry foundation walls that were constructed in coursed rubble with flush joints of varying widths. Mortar was removed to a depth of 1-2 inches, from locations judged to be free of alterations. Apart from the mortar, subsoil sand was also sampled where relatively large quantities of it were being excavated.

Cross sections of each sample were examined with the aid of a stereo binocular microscope in order to record overall appearances. Munsell soil color notations were used for recording general color characteristics.

Approximately half of each sample was prepared for chemical analysis by reducing it to powder consistency. Most of the pulverized samples had to be thoroughly dried using a heat lamp prior to weighing. They were treated with dilute acid (HCl) until gas evolution (CO_2) ceased. The acid insoluble residues (sand and fines) were segregated from each other by levigation and decanting. Sand was washed with water, dried, and weighed when it reached room temperature. Fines were allowed to sediment and were also dried and weighed.

The weight of the acid soluble component was calculated as the difference between the combined sand and fines weights, and that of the entire sample. Table II records the tabulated results of this procedure, Table III shows the percentage distribution of each constituent.

TABLE II

TABULATED WEIGHTS*

SAMPLE #	WEIGHT OF SAMPLE	WEIGHT OF SAND	WEIGHT OF FINES	WEIGHT OF ACID-SOLUBLES
1	10.2	7.8	1.7	0.7
2	10.8	5.6	1.4	3.8
3	13.9	6.7	1.7	5.3
4	6.8	4.3	2.3	0.2
5a	5.7	0.4	0.3	5.0
5b**	----	-----	----	-----
6	26.6	25.6	0.9	0.3
7	23.4	22.9	0.3	0.2
8	33.8	29.8	2.8	0.8
9	13.6	3.6	4.7	5.3
10	13.4	4.3	6.7	2.4

*All weights are in grams

**Data for this portion of sample no. 5 was not recorded; see observations.

TABLE III

TABULATED PERCENTAGES*

SAMPLE #	PERCENTAGE OF SAND	PERCENTAGE OF FINES	PERCENTAGE OF ACID-SOLUBLES
1	76.5	16.7	6.9
2	51.8	13.0	35.2
3	48.2	12.2	38.1
4	63.2	33.8	2.9
5a	7.0	5.3	87.7
5b	-----	-----	-----
6	95.5	3.4	1.1
7	97.9	1.3	0.8
8	89.2	8.4	2.4
9	26.5	34.5	39.0
10	32.0	50.0	18.0

*All data are given as weight percentages

TABLE III

SAND SIEVES*

SAND SAMPLE #	28 mesh	28-60 mesh	60-80 mesh	80-115 mesh	115-170 mesh	170 mesh
1	14.3	44.1	10.4	11.7	7.8	13.0
2	10.9	34.5	12.7	16.3	10.9	12.7
3	6.0	24.2	16.7	21.2	13.6	18.1
4	2.9	11.8	8.9	20.6	20.6	35.3
5**	----	----	----	----	----	----
6	26.2	62.5	6.6	2.3	0.8	1.2
7	0.9	66.2	23.7	6.6	0.9	1.3
8	19.2	52.5	8.0	6.7	5.0	8.0
9	2.8	13.9	8.3	13.9	19.4	41.7
10	16.3	20.9	7.0	16.3	18.6	30.2

** Insufficient sands for sieving.

*Reported as weight percents

OBSERVATIONS

1. All of the mortars were relatively soft, easily broken by hand. Some samples (particularly nos. 1, 4, 5b, and 8) crumbled into a powder soon after being sampled.

2. Mortar colors ranged from pale brown, no. 9 (Munsell soil color: 10 YR 7.5/3) to reddish brown, no. 1 (5 YR 6/3). Some mortars were whiter than others, due to the uneven distribution of lime, but only sample 5a was uniformly white without brownish lumps.

3. Brown lumps of earth, and white lumps of lime appeared in all the mortar samples, with the exception of 5a, which had lime lumps only, and 5b (discussed below).

4. Mortars were composed of lime, earth, sand, and smaller amounts of charcoal fragments, oyster shells, and sandstone fragments. There was no evidence of fiber or hair in any of the samples.

5. Visually, sample 5 appeared to be composed of two distinct types of mortar cemented together. It consisted of a white lime portion (no. 5a) attached to an earthy portion (no. 5b). Sample 5b did not evolve any detectable amounts of carbon dioxide when spot tested with acid; no laboratory data was collected for this portion.

6 .Sands recovered from the mortars were primarily pale brown, nos. 4, 9, and 10 (10 YR 9/3), and reddish brown, nos. 1, 2, 3, 5a, and 8 (5 YR 6/2). Sample no. 6 sand was collected loose from a pit at the site, it was a reddish brown color most closely resembling the sand from no. 8. Sample no.7 was also a loose sand collected from a source being excavated at the site; it was a white beach sand that contained small bits of crushed brick, and could not be correlated with any other sample examined.

7. With the exception of no. 7 all the sands contained, more or less, the same minerals; clear quartz, cloudy quartz, mica, magnetite, and other colored minerals, probably feldspars (pink, red, yellow, green). There also appeared to be small amounts of red detrital stone fragments integrated into each sand. Nearly all of the constituent minerals appeared to be either sub-angular or sub-rounded in shape (1). No attempt was made to interprete the significance of size and shape of minerals in terms of geologic origin or sediment morphology.

OBSERVATIONS CONT'D

8. The sands were segregated according to particle size and color, three sets emerged. Set A: nos. 1, 6, and 8; Set B: nos. 2, 3, and 4; Set C: nos. 9 and 10.

9. The sands in Set A closely resembled in particle size and color sands isolated in other studies of brick mortars in lower Manhattan, particularly the Schermerhorn Row Block (ca. 1811-1868), and the Jasper Ward House (ca. 1807).

10. The fines or clay sediment collected from each sample ranged from pale brown, no. 9 (7.5 YR 7/2), to reddish brown, sample 6 (7.5 YR 5/4). Both samples of sand which,were thought to be, naturally occurring contained significant quantities of fines.

11. Two sets of mortar samples emerged when they were grouped according to weight percent: nos. 2 and 3; nos. 6, 7, and 8.

12. When the samples were grouped according to physical characteristics, three sets emerged; nos. 1-4; nos. 6 and 8; nos. 9 and 10. Sample 5 was not grouped due to its unusual features.

13. The samples exhibiting the lowest percentage of acid-solubles (lime) were those sampled from the lowest courses on the foundation walls.

CONCLUSIONS

With the exception of sample no. 8, all of the mortars appeared to be composed principally of lime, sand, and earth mixed in varying proportions. They may be referred to as hybrid mortars since they combine the main ingredients of two distinct traditional types: lime mortars, and earth mortars. The lime was probably derived from the calcining of sea shells (and limestone if it was available); the earth prepared as a mud; and the sand quarried from a local source on Manhattan.

These ingredients, along with accompanying adulterants such as lumps of charcoal bits carried over from the calcining process, were mixed together in uneven ratios, reflecting a practice of rough proportioning. This conclusion seems to be verified by the analysis and comparison of mortars derived from the same undisturbed feature (see Table III, sample nos. 1,2; 9,10).

The question of a sand source available to the early European builders on Manhattan Island has not been satisfactorily answered (2). To our knowledge the loose sub-soil sand (sample no. 6) collected near the foundation walls at the Hanover Square site is the only recently documented sand supply on Manhattan that resembles sand recovered from seventeenth, eighteenth, or nineteenth century mortars from the same vicinity. Until further evidence is produced to the contrary we have concluded that the sands from at least some (nos. 1 and 8) of the Hanover Square Mortars are native to the site. More significantly, the link between native quarried sand and building mortar sand establishes a precedent for a traditional local source, available to builders on Manhattan for about two hundred years. Sand that is nearly identical to the quarried Hanover Square sand is documented from a mortar taken from a 1868 alteration on the Schermerhorn Row Block (3).

The use of clay, earth, or lime mortars has been thoroughly documented in Europe and in North America, particularly in pre-twentieth century structures. The hybrid lime/earth type described in this paper is less well known as a standard type, but was perhaps none the less prevalent. Plaster from the Voorleezer House (Richmondtown, Staten Island, ca. 1700), analyzed by the Center for Building Conservation, was composed of lime and earth mixed together.

CONCLUSIONS CONT'D

Foundation mortars from another archeological site in lower Manhattan (175 Water Street) that were sampled and examined but not analyzed by CBC, indicated that they too may have been composed of lime mixed together with earth.

A different, and possibly more common type of construction, is mud packing that has been pointed over with a thin coat of lime. This may have been done in order to reduce costs at the same time maintaining the appearance of lime mortar. This practice has been observed in many stone foundations in Ulster County, New York; it has recently been documented at 1700 Bergen Street (Weeksville, ca. 1885), Brooklyn, New York; and it may explain the composition of sample no. 5 (see observations), which was removed from the inside part of the foundation wall near the top course.

Some historical perspective on this subject is provided by C. F. Innocent, writing about the development of English building construction in 1916.

> The rough stones of the walls of a primitive kind do not always fit accurately together, and the stones were bedded in earth at a very early period. W. Marshall writing of the Rural Economy of Yorkshire in the year 1796, says that 'formerly ordinary stone buildings were carried up entirely with "mortar," that is common earth beaten up with water, without the smallest admixture of lime. The stones themselves were depended upon as the bond of union, the use of the mortar being merely that of giving warmth to the building and a degree of stiffness to the wall.' Here there was only the idea of bedding and not of adherence, but the old builders early saw the advantage of stickiness in mortar, and so used clay, mud, lime, and cow dung; they seem to have thought only of the present, knowing nothing of the chemistry of mortars, and making little distinction between lime and other materials. This is the reason for the apparently rubbishy mortar in some Anglo-Norman great stone piers and walls rather than a desire to scamp the construction. (4).

The use of a modified earth mortar (containing lime) may have represented a transitional practice in North America,

CONCLUSIONS CONT'D

that was eventually superceeded by what is today considered traditional lime mortar. The use of pure mud packing appears to have persisted nevertheless into the period of lime and cement construction, i.e. into the nineteenth century.

The fines data reported in the analysis can be accounted for in part by the earthy portion of the mortar, however, since clay is also found, to some degree, in lime (from limestone), and sand (particularly from river banks), small fractions of clay residue from these constituents may also be represented by the fines data. It is, therefore, not possible at the present, to deduce the original mix ratio for the mortar samples since it is not known what quantity of clay matter originated from the sand, and lime.

The identification of hybrid mortars has resulted from gross physical examination, reinforced by the results of chemical analysis. The laboratory data by itself, however, appears to suggest another type of mortar (natural cement) for samples 1, 4, 9, and 10. The data alone is misleading; natural cement mortars would have been very hard, and relatively homogeneous compared to the Hanover Square mortars, and were not common in North America until after the first quarter of the nineteenth century.

The data produced from the analysis of sample no. 8 is unique because although it appeared to be used as mortar, and was sampled from between stone rubble, it was composed primarily of sand (89%), and was nearly identical to the loose reddish sand found at the site (no. 6).

If sample no.8 is indeed mortar, as we suppose, and not loose fill that had somehow found its way deep into the stone joints, it may represent a loamy sand mortar that was taken directly from the ground (or river bank) and used for packing between mortar joints. No. 6 (sand) and no. 8 are similar in physical characteristics, and exhibit comparable weight percentages.

It was observed that the samples with the lowest percentages of acid solubles were those sampled from the lowest stone courses. It is possible that over a long period of time the lime content of these samples (no.1 and no.4) was leached out of the mortar. Cyclical wetting and drying, due to tidal action, or some other water source, might account for such a phenomenon.

CONCLUSIONS CONT'D

Finally, there was no evidence to contradict a seventeenth or eighteenth century date for the construction of the foundation walls based upon the examination and analysis of the Hanover Square Mortars. In fact, the use of such crude types, as described above, appears to reflect an early practice found in Europe and transported to North America by the first inhabitants.