
The Lower East Side Tenement Museum

Archaeology at 97 Orchard Street



"Aerial" view of the 97 Orchard Street backyard 8/5/93

Prepared by Joan H. Geismar, Ph.D.
Prepared for The Lower East Side Tenement Museum
January 1999/August 2003

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by

Joan H. Geismar, Ph.D.

**Prepared for the Lower East Side Tenement Museum
97 Orchard Street
New York, New York 10002**

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ACKNOWLEDGMENTS

There are many people, organizations, and institutions that made archaeological exploration of the Lower East Side Tenement Museum possible. Foremost among them is Ruth Abram, President of the Lower East Side Tenement Museum and the guiding light for this wonderful institution. Her enthusiasm, cooperation, and understanding--as well as her vision--have been integral to the research presented here. Rarely in our urban environment is archaeology voluntarily embraced as a research tool, but Ruth eagerly did so, providing the opportunity to discover the "missing link" in the evolution of New York City's sanitary history and to reevaluate the concept of tenement life. I also thank the Ford Foundation for funding the historical research that guided this investigation, and the Polaroid Corporation for sponsoring the backyard "dig."

Also to be thanked are the volunteers who so generously gave their time in the initial stages of the backyard's investigation: Barbara Davis, Laura Grauer, John Killeen, Sophia Perdikaris, and Shelly Spritzer. Also, the crew who diligently excavated our "school-sink," Eliot Hoyt, Shelly Spritzer, and Cas Stachelberg. In addition, the staff of many of New York City's great research institutions, such as the New York Public Library, the New York Academy of Medicine, the New York Historical Society, the New York Society Library, and the Municipal Reference and Research Center Library--particularly Devra L. Zetlan, former Chief of Public Services at this latter institution--who provided invaluable support. And, as always, my thanks go to Shelly Spritzer for research and production assistance, and to Amy Geller for graphics.

This project has been unique in its concept, its structure, and its findings. It is a privilege to be part of the on-going development of the Lower East Side Tenement Museum and to be working with all those involved. In addition to Ruth Abram, this includes Anita Jacobson, Curator, Rene Epps, Deputy Director, Steve Long, Director of The Resource and Study Center, and Sarah Moy, Curatorial Associate. It also includes fellow consultants Andrew Dolkart, the project's architectural historian, and Roz Li and Judith Saltzman of Li/Saltzman, the architects responsible for the physical transformation of the long-abandoned tenement into a vibrant museum.

EXECUTIVE SUMMARY

According to city records, the toilet facility at 97 Orchard Street in 1902 was the backyard "school-sink," but this multi-compartmented, water-cleansed apparatus known from tenement house literature was not a recognized option in the early-1860s when the tenement was built. Consequently, the archaeological investigation of the Tenement Museum's backyard not only sought the school-sink, but also what was used before it was installed. This was assumed to be the ubiquitous, round, deep, dry-laid, stone privy pit documented through archaeology in other 19th-century urban backyards. These were self-contained outhouse pits that required the periodic services of a night-scavenger to empty and keep them clean. But the findings of backyard excavations at 97 Orchard Street proved yet again that even with intensive records research, and even with firsthand knowledge on the part of the investigator, archaeological exploration invariably offers surprises.

In this case, three years of sporadic field research that included testing and, ultimately, a full excavation, revealed that Lucas Glockner, the builder and, for a short time, a resident of 97 Orchard Street, was a man ahead of his time, at least in regard to backyard toilet facilities. It appears that rather than a stone privy pit, Mr. Glockner chose to build a brick vault that functioned first as a water-cleansed privy and then, possibly with new plumbing, was redesignated a school-sink. It seems that Glockner took advantage of newly installed sewers to provide his building with a state-of-the-art backyard amenity well before the law required it. Excavation also revealed that the original yard surface was approximately 2 feet below the modern grade and that it was paved with stone.

The tenement's water-cleansed backyard privy/school-sink vault, the available street sewer, and the description of the district as healthful by a contemporary sanitary inspector--plus the fact that Lukas Glockner, the builder and owner, was himself a resident--dispel the notion of dreadful living conditions at 97 Orchard Street when the building was first occupied in 1863 or 1864. They suggest that for Glockner, a German immigrant who had spent most of his adult life in New York City, and for the other early residents of the building, life at 97 Orchard Street was much pleasanter than the stereotype of 19th-century tenement life would have us believe--a stereotype based on conditions that unfortunately did exist elsewhere in the city at that time.

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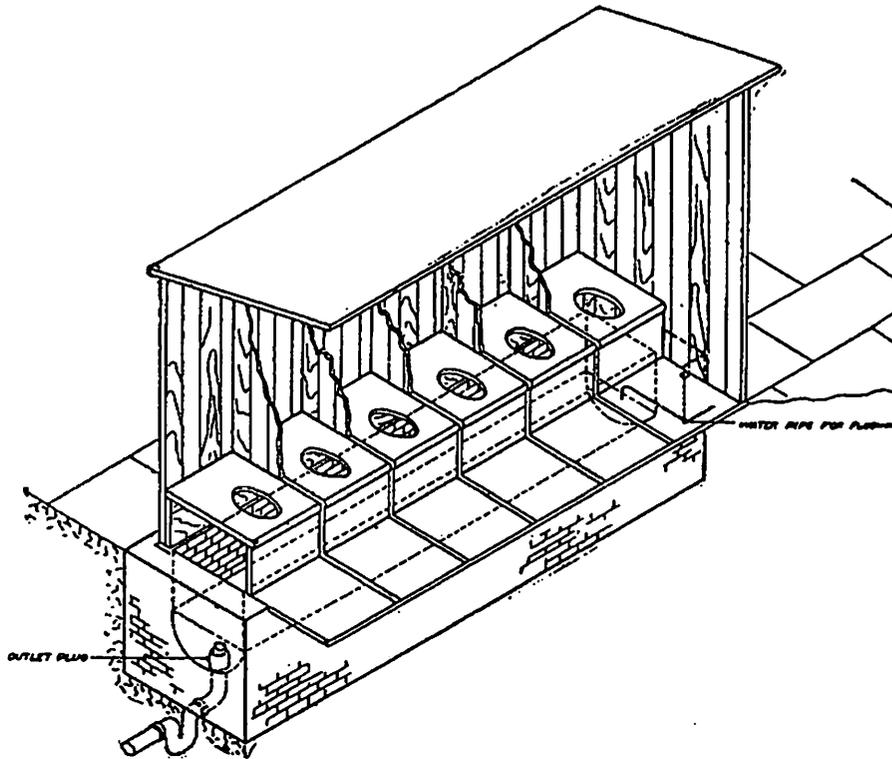
INTRODUCTION

Old toilets fascinate archaeologists. Rather than scatological interest, this fascination emanates from what these sanitary facilities reveal about every day life. Because they can divulge so much, archaeological inquiry at 97 Orchard Street focused on finding evidence of the toilets located in the tenement's backyard before the introduction of indoor plumbing.

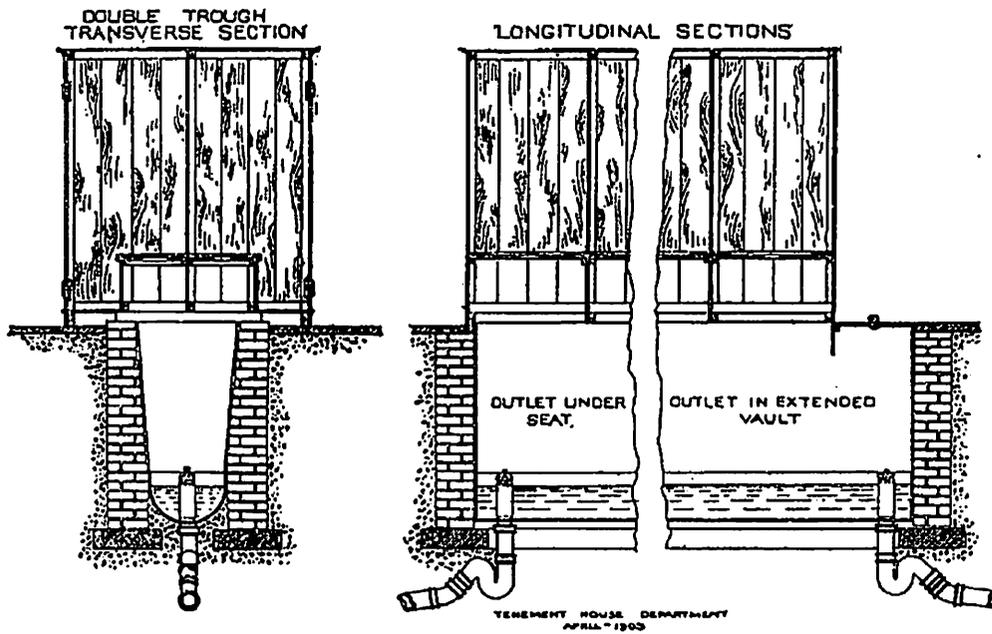
According to city records, the toilet facility at 97 Orchard Street in 1902 was the backyard "school-sink," but this multi-compartmented, water-cleansed system known from tenement house literature (Figure 1) was not a recognized option in the early-1860s when the tenement was built.¹ Consequently, the archaeological investigation of the Tenement Museum's backyard not only sought the school-sink, but also what preceded it. This was assumed to be the ubiquitous, round, deep, dry-laid, stone privy pit documented through archaeology in other 19th-century urban backyards (for example, see Figure 2). These were self-contained outhouse receptacles that required the periodic services of a night-scavenger to empty and keep them clean. The frequency of these cleanings depended on the size of the pit, the time of the year (early on, summertime cleanings required special permission from the City Inspector),² and the wealth of the householder or owner. As we shall see, what was found in the tenement yard proves yet again that even with intensive records research and firsthand knowledge on the part of the investigator, archaeological exploration invariably offers surprises.

METHOD

Between November 1991 and August 1993, the tenement's backyard was tested and then excavated to recapture the building's history preserved in an archaeological context (see Figure 3 for test areas). Mainly, the goal was to uncover evidence of the toilet facilities used from 1863 or 1864, when the tenement was built and first occupied, to 1905, the year an indoor toilet was installed in the hallway of each of its five floors.³ As discussed in the documentary history developed to guide archaeological investigations,⁴ these backyard features were expected to include at least one privy pit and the more technically advanced school-sink. While the stone privy pit did not require a reliable water source, the school-sink did. The school-sink also required either a cesspool or, more ideally, municipal sewers to receive human waste flushed from the vault. In addition to documenting the evolution of the building's toilet facilities, the household trash often cast into privy pits while they were in use might offer details about the building's earliest residents. It might also provide an abandonment date for the privy and, by extrapolation, a



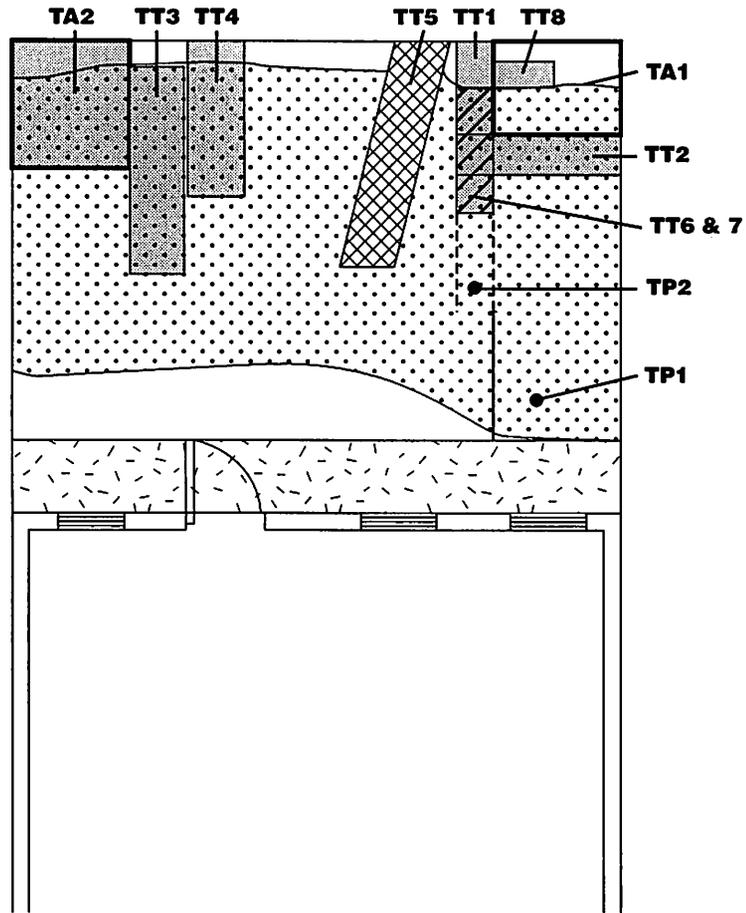
a Diagram of 6-compartmented school-sink

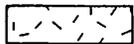


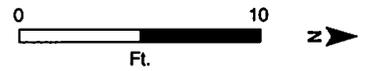
b Structural view of back-to-back school-sinks



2 A dry-laid stone privy pit built in the 1850s in Brooklyn. The backyard pit, now devoid of fill and artifacts after excavation, is over 9 feet deep. Shelly Spritzer, one of the excavators, is standing on the feature floor, and the ladder (black arrow) used for access can be seen on the right. (5/93)



-  cement
-  hand dug
-  backhoe tested (approx.)
-  backhoe trench
-  TT6 & TT7 hand dug; TT7 deeper than TT6

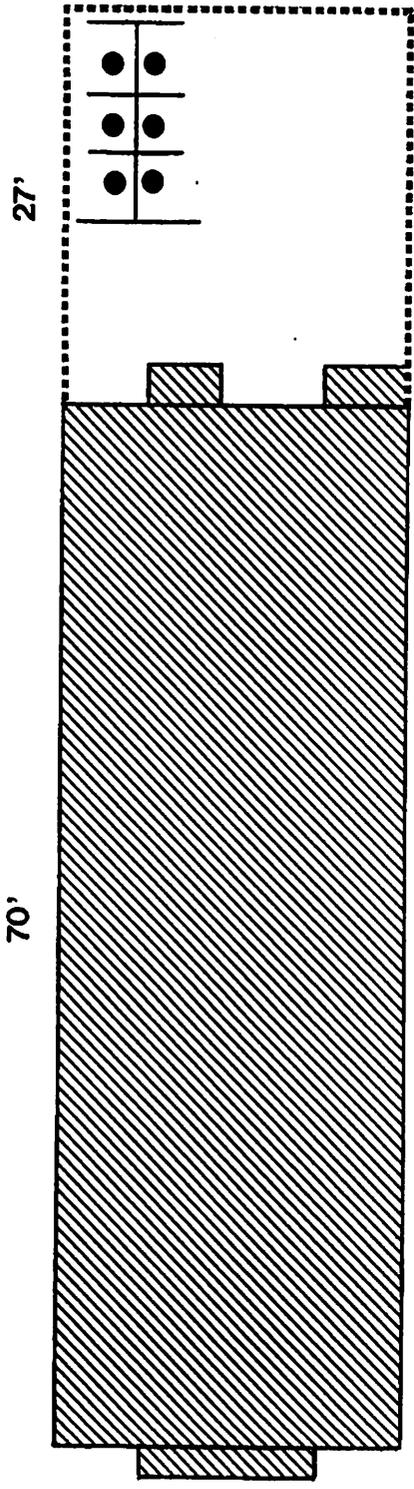


possible construction date for the school-sink. Or the school-sink vault itself might yield this date through artifacts found in the fill introduced when it was abandoned.

A 1902 "I-Card," a New York City building record, noted a six-compartment "school-sink" in the southwestern corner of the yard. According to a sketch found on the card, the school-sink configuration was two rows of three back-to-back compartments that ran perpendicular to the Allen Street fence (Figure 4). Based on this information, the first day of testing--November 23, 1991--focused on the part of the yard nearest Allen Street. It was expected that testing in the southwest corner would expose remnants of the school-sink shown on the I-Card, and it was hoped exploration of the northwest corner might reveal an even earlier privy pit. By law, the backyard outhouse had to be 2 feet from any property line;⁵ by tradition, it was as far from the house as possible.⁶

Hand excavation by volunteers⁷ (Figure 5) on that beautiful November Saturday uncovered a buried layer of paving stones but no foundation in the yard's southwestern quadrant (Figure 6), the school-sink site according to the I-Card. In the northwestern quadrant, it exposed a row of bricks at and just beneath the surface that appeared to define a former garden (Figure 7), an assessment confirmed by Ruth Abram, the Tenement Museum's president. It also revealed part of a dry-laid brick and paving stone box drain about 2 feet below the surface (Feature 1 [F1] shown in Figures 8 and 9). The buried layer of paving stones ultimately found in both corners of the yard apparently represented a former yard surface, one that was level with the bottom of the drain. Since the northeast corner was the most likely location of any privy pit that might have predated the school-sink, the drain feature was a puzzle. Ailanthus trees--the tree that "grows in Brooklyn"--ever present in urban settings, and scattered throughout the tenement yard, hampered excavation in this corner, and the single day of testing raised more questions than it answered.

After a nine-month hiatus, testing resumed on the 5th of August in 1992 (Figure 10). Two days were spent hand digging the yard, but neither a brick vault for a school-sink nor a stone privy pit was found. The exploration did expose an off-center paved walk, again 2 feet below ground, that lined up with the building's yard door and ran west to a metal drain (see Figure 12). Testing also revealed the corner of a brick wall in the vicinity of the brick and stone drain discovered the year before (Figure 11). At the time, it seemed the wall might be a remnant of the Orchard Street Dutch Reformed Church, built about 1828, that had covered the 97 Orchard Street lot and its neighbors on either side. This church, which served a succession of denominations, was the only structure documented on these three lots prior to construction of the tenements still found at 95, 97, and 99 Orchard Street.⁸

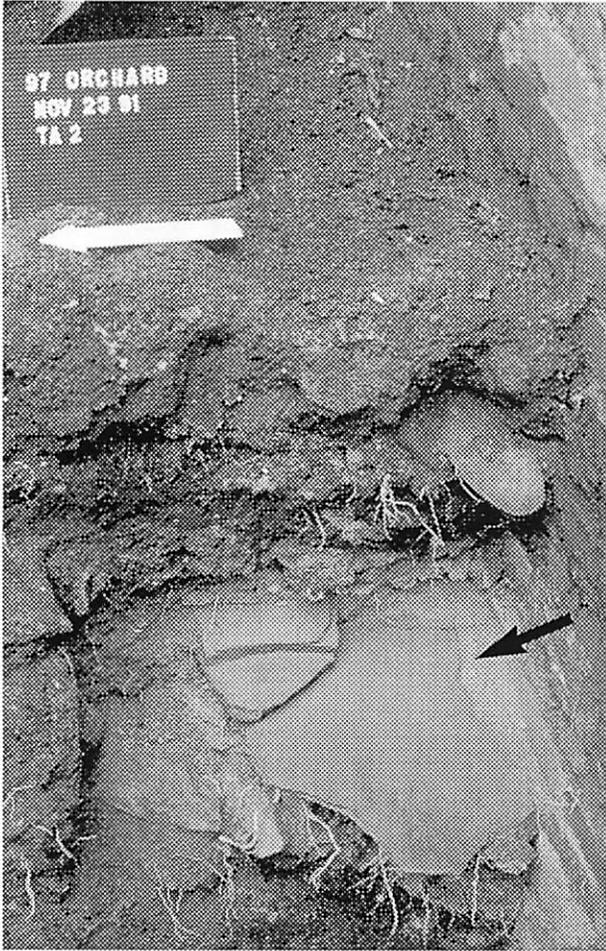


-  97 Orchard Street tenement (structure)
-  yard
-  school-sinks

no scale 



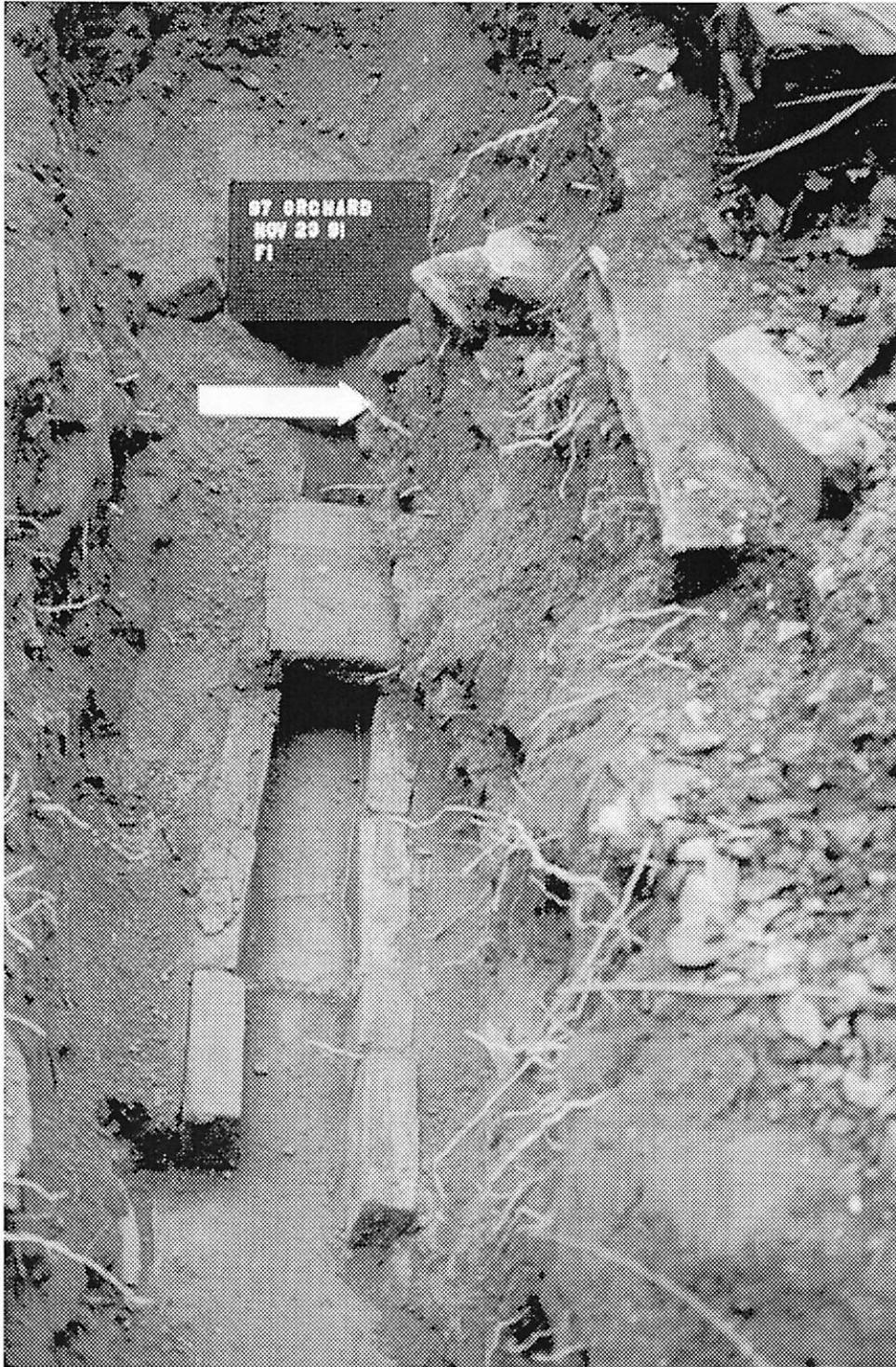
5 Volunteers John Killeen, Shelly Spritzer, and Laura Grauer, clearing in the northwest corner of the tenement's backyard where it was hoped that a privy pit, perhaps like the one shown in Figure 2, might be located. (11/23/91)



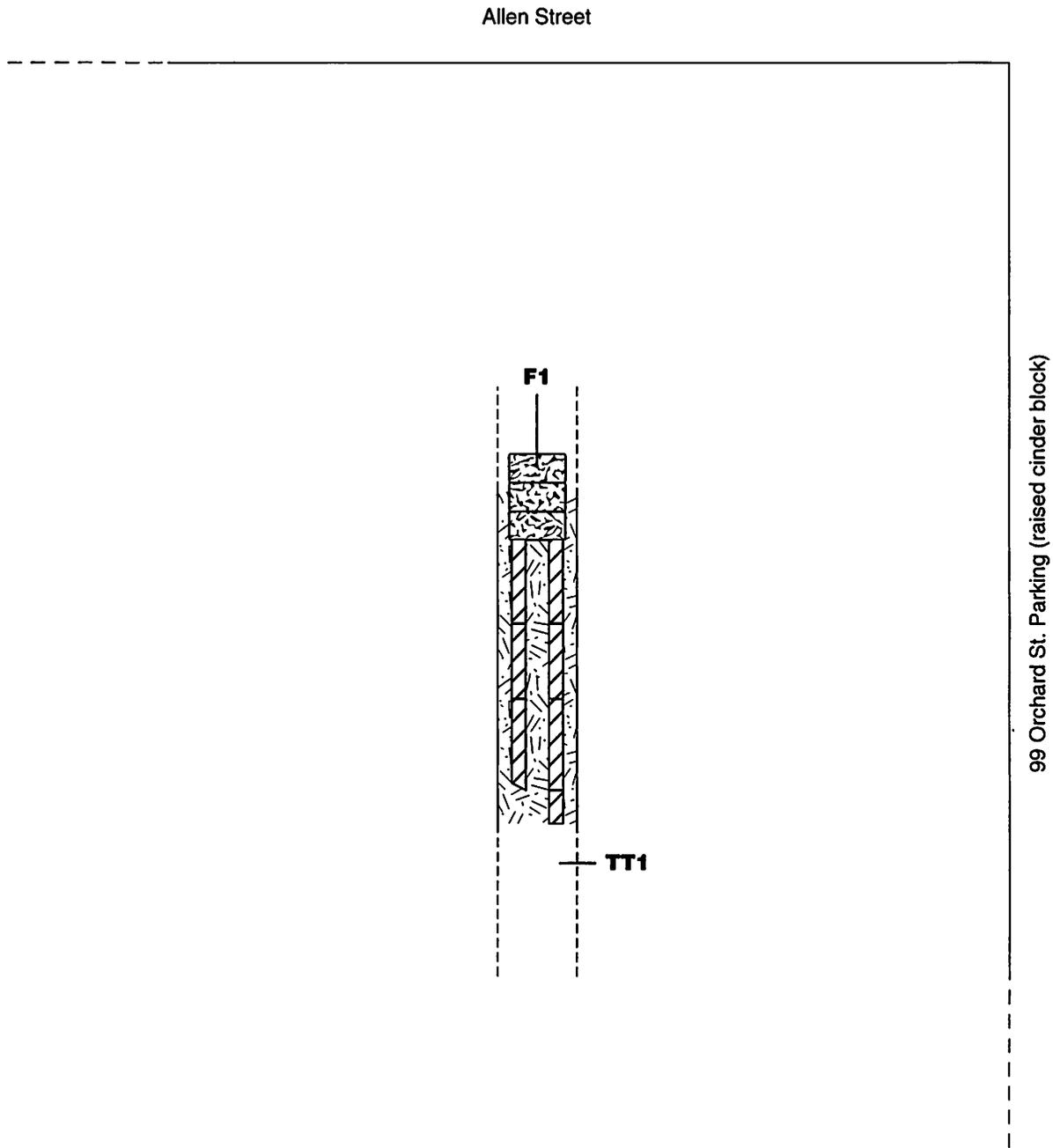
6 Southwestern quadrant in test area 2 (TA2), the location of the building's school-sink according to a 1902 I-Card record. Paving stones (black arrow), uncovered about 2 feet below the yard surface, were found at the same level elsewhere. (11/23/91)



7 Test trench 1 (TT1) in the northwestern part of the yard, adjacent to a brick edging (arrow) that defined a relatively recent but defunct garden. Allen Street is in the background beyond the fence. Note that the yard is well below street level. (11/23/91)

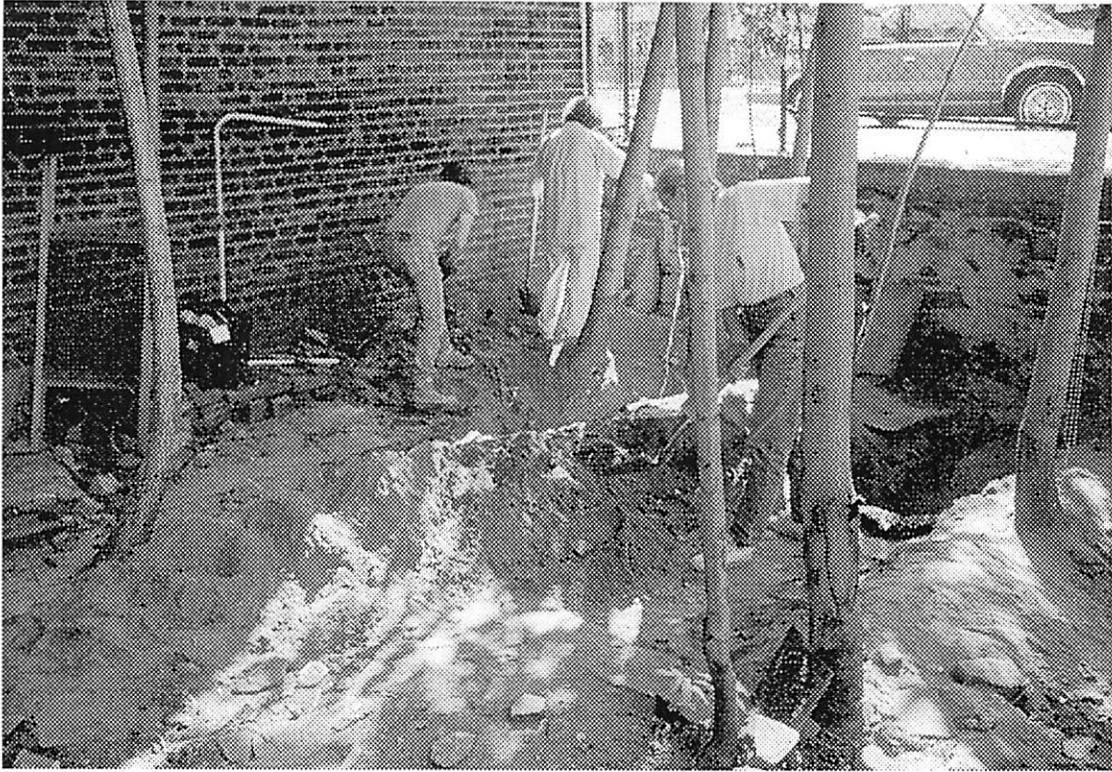


8 A dry-laid brick drain (F1) uncovered in test trench 1 (TT1). The paving stones that form the base are at the same level as those found in test area 2 (TA2; see Figure 6), suggesting a former yard surface. (11/21/91)



-  paving stone
-  brick on side
-  brick flat

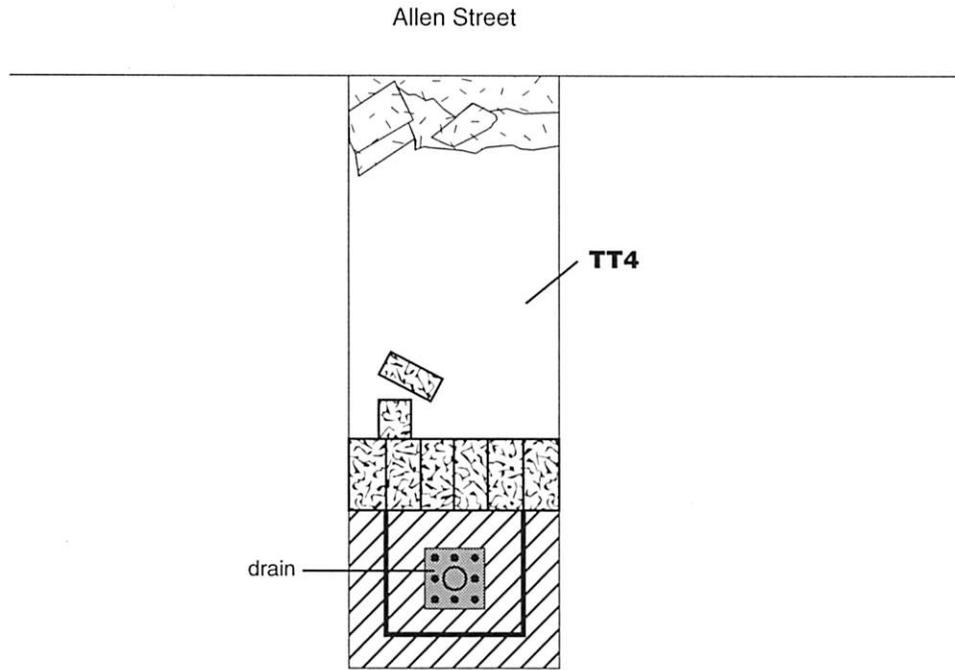


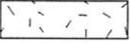


10 Second episode of testing in August 1992. Volunteers are again searching for the documented school-sink in the southwest corner of the yard. (8/5/92)



11 Brick walls in northwest corner of the yard exposed during August 1992 testing. Ailanthus trees beyond the photo hampered excavation. (8/6/92)



-  cement/rubble footing for retaining wall
-  brick
-  metal
-  paving stone
-  groove in paving stone



Unfortunately, the trees scattered throughout the yard hampered investigation of the brick wall, and it was decided they should be removed. On January 23, 1993, the chain-link fence on Allen Street was rolled back and the trees were lifted out with a backhoe and chain (Figure 13). This eliminated twenty-four *Ailanthus* trees that ranged from rooted twigs to good size. The backhoe positioned on the Allen Street sidewalk above the yard offered the opportunity to test more intensively for the sought-after school-sink and privy features. Nothing was found where the I-Card documented the school-sink, nor was there any evidence of a privy pit, although what appeared to be privy-like stones were scattered throughout the yard.

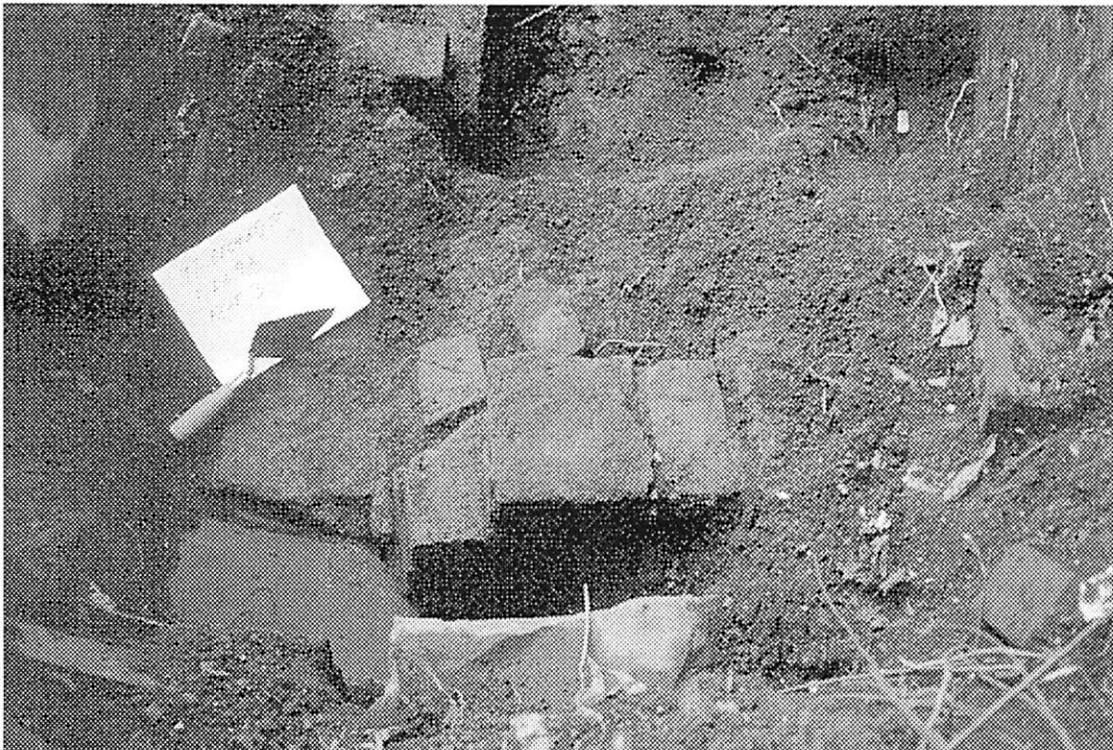
Backhoe exploration and shoveling revealed that the brick walls found five months earlier were not remnants of the former church after all, but the western and southern walls of a narrow, rectangular, mortared brick foundation approximately 11 feet long by 4 feet wide (its actual dimensions proved to be about 12 by 4 1/2 feet).⁹ It appeared that the school-sink vault might have been found (see Figure 15), albeit in the wrong place and with the wrong configuration, but darkness halted further testing. There was one last discovery before leaving for the day: the backhoe exploration exposed a stone and brick construction that appeared to be a more crudely made segment of the brick and stone drain discovered two years before. It ran parallel to the back of the tenement building and perpendicular to the drain found earlier. At the time, this was identified as Feature 3 (F3; see Figure 14), but subsequent excavation indicated it was not a drain at all, but part of the school-sink feature. The drain found in 1991 (F1) was never relocated and appears to have been destroyed by the January backhoe exploration.

Toward the end of July 1993, the Polaroid Corporation, which was documenting the tenement and its renovation, funded a five-day excavation of the suspected school-sink feature, designated Feature 2 (F2).¹⁰ Not surprisingly, a new crop of *Ailanthus* trees had to be cleared before work could begin. This was also true of rubbish that had accrued between the discovery of the brick vault in January and its excavation six months later (Figures 16 and 17).

Under Polaroid's sponsorship, the brick vault of the suspected school-sink was carefully emptied of its soil fill mixed with fragmentary debris. Shoveling and troweling revealed that a terra-cotta pipe noted in the northwest corner of the feature in January, and thought to be a drain, was merely a section of trashed sewer pipe (Figure 18). The brick wall of the vault protruded above remnants of what appeared to be paving stones found at either end of the feature (Figures 18 and 19). These stone fragments, which seemed to be at the same depth as similar stones found elsewhere in the yard, may have covered the fill when the school-sink was abandoned and the yard surface was lower. Or they may have



13 Removal of Ailanthus trees on January 23, 1993. The fence on Allen Street was rolled back and the backhoe to the left removed twenty-four trees, including the good-sized root lying on the sidewalk. (1/23/92)



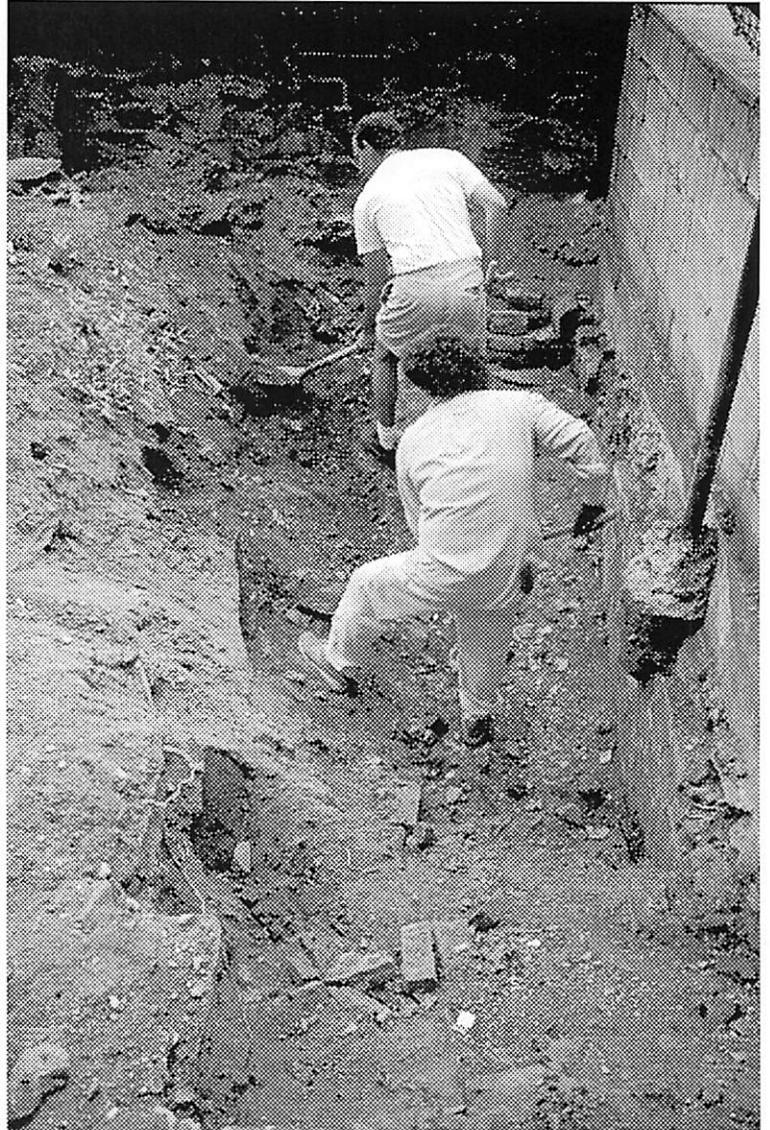
14 Drain-like feature exposed by the backhoe in the northeastern part of the yard. At the time it was thought to be a complete feature (F3), but later proved to be part of the brick vault (F2) partly exposed in the background. (1/23/92)



15 The outline of a brick vault (F2) is barely visible (e.g., arrow) after the backhoe removed some of the yard soil in January 1993. John Killeen is troweling to expose the eastern wall just before testing ended for the day (1/23/93)



16 Site of brick vault in the northwest corner of the yard on July 28, 1993. Note that debris and new Ailanthus trees have appeared since the January tree removal and backhoe testing. (7/27/93)



17 Archaeologists clearing the brick vault (F2) on the first day of excavation. Common wall between 97 and 99 Orchard Street is to the right. (7/28/93)



18 Western end of the brick vault, the Allen Street side, with trashed terra-cotta sewer pipe (arrow). Note broken paving stone (under white directional arrow). This stone lies on fill inside the vault. (7/28/93)



19 Eastern end of the brick vault (F2) with intrusive brick wall (under white directional arrow) and exposed drain or vent pipe (black arrow) between the two brick walls in this part of the feature. (7/28/93)

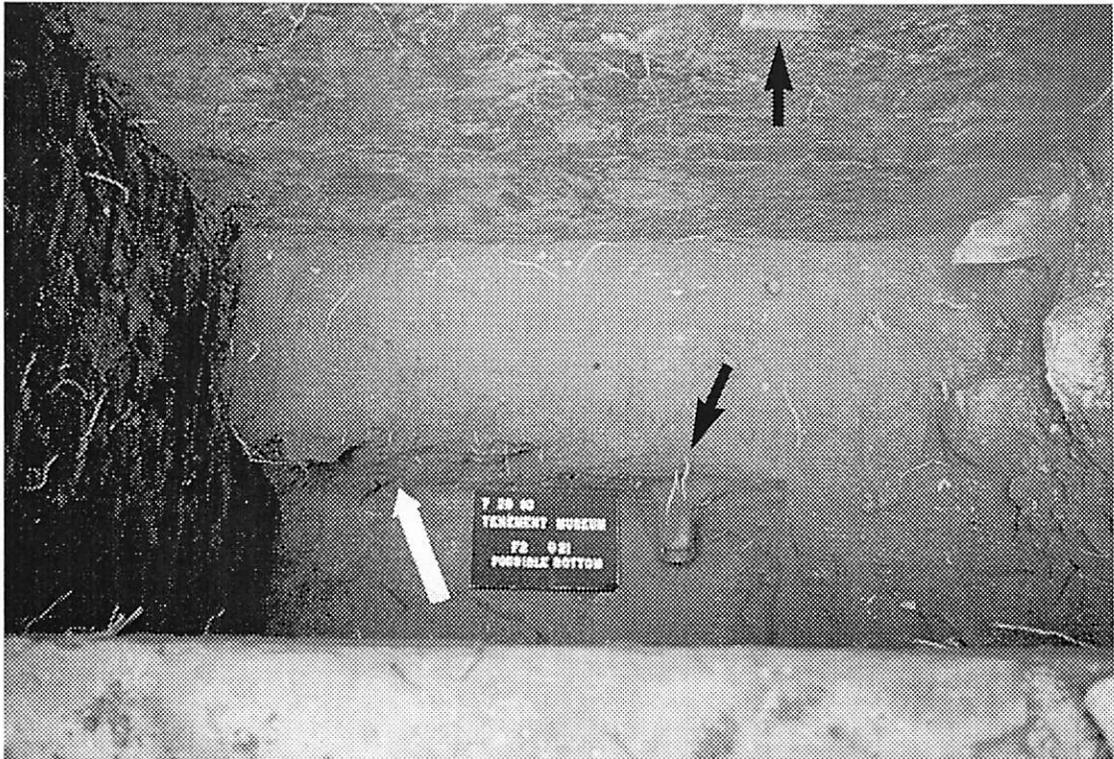
been part of the feature floor paved in some unknown fashion. Whatever their original function, only a few stone fragments were left when the yard was graded up to the level found when testing began in 1991. Excavation near the building, in the eastern part of the feature, revealed a large, upright pipe that appeared to be the remnant of a drain, or possibly a toilet vent, although its proximity to the building tended to negate this latter interpretation¹¹ (see Figures 18 and 25).

A photograph documents the "floor," or bottom, of the brick vault as first glimpsed by the excavators. The base of a glass mug protrudes from the balk "wall" of the surrounding fill (Figure 20). Another photo shows the sheet plastic propped up by metal stakes that protected the excavation at the end of each field day (Figure 21). Yet another records a trashed stone slab that had fallen into the feature during excavation just after it was removed by the archaeologists (Figure 22). Once the western end of the brick vault was excavated, its depth was recorded (Figure 23) and a profile--archaeological parlance for a cross section drawing--of the fill was drawn and photographed prior to continuing excavation (Figure 24).

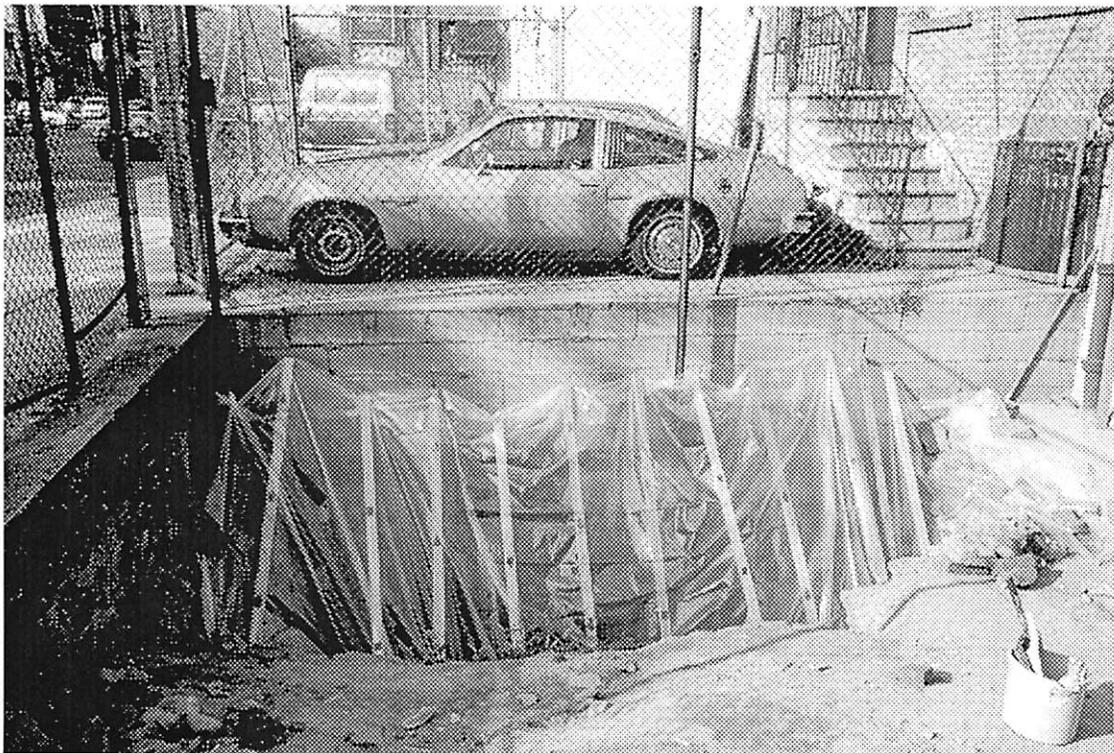
After emptying the western half of the feature, a trench was placed outside its long, southern brick wall to see if any evidence of an earlier privy feature might be found in its vicinity. This trench (TT6)¹² is shown in an aerial view taken from the tenement roof by Klaus Schnitzler, a photographer recording the building's interior renovations, as well as some aspects of the dig, for Polaroid (Figure 25; see also Figure 22). If the privy pit were round, it would undoubtedly have been wider than the brick vault (stone privy pits usually range from 6 to 8 feet in diameter and the brick vault was about 4 1/2 feet wide). But hand excavation in TT6 and, later, in a trench that extended well beneath the vault (TT7), failed to reveal a privy pit, or any other feature.¹³

Excavation of the brick foundation revealed that an uneven layer of mortar sealed its sloping, concave, brick floor. Unfortunately, the plumbing that would have confirmed its school-sink function was missing. In its simplest form, this might be a plug to keep the water in the trough or vault until it was pulled to allow cleaning, or it might include the remnants of more elaborate plumbing, such as the individual traps used to control sewer gases in more sophisticated fixtures.

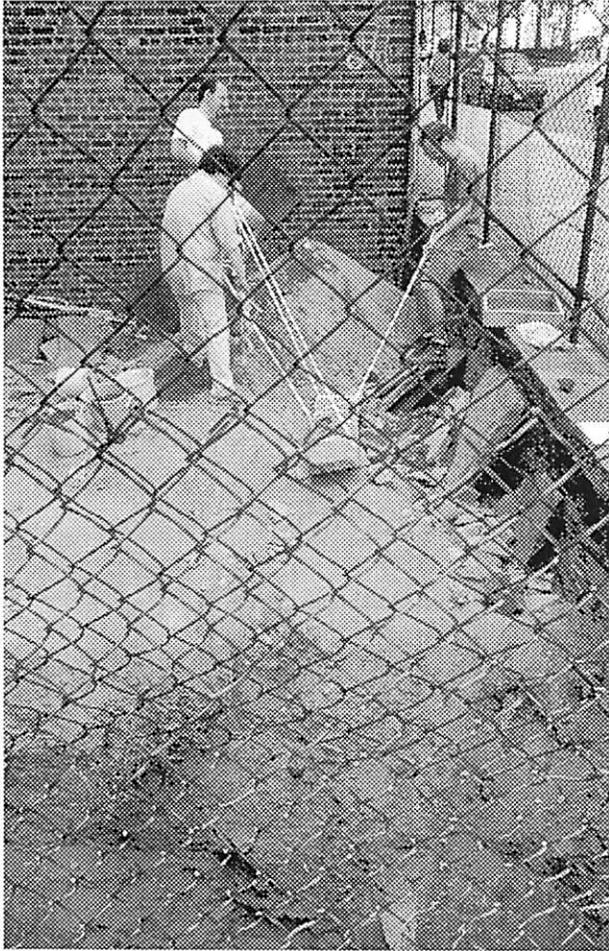
Alterations to the plumbing for the school-sink may have entailed the introduction of the poorly made brick wall that created a narrow chamber at the eastern end of the feature (Figures 26 and 27). Using a jack-hammer, a member of the construction crew working on the building's renovation removed the wall to determine if it hid any identi-



20 Segment of brick vault's floor exposed under story board and white directional arrow. The base of a clear glass mug protrudes from the back wall composed of unexcavated fill (black arrow). Wood-lined drain hole in north wall is indicated by the arrow near the top of the photo. (7/28/93)



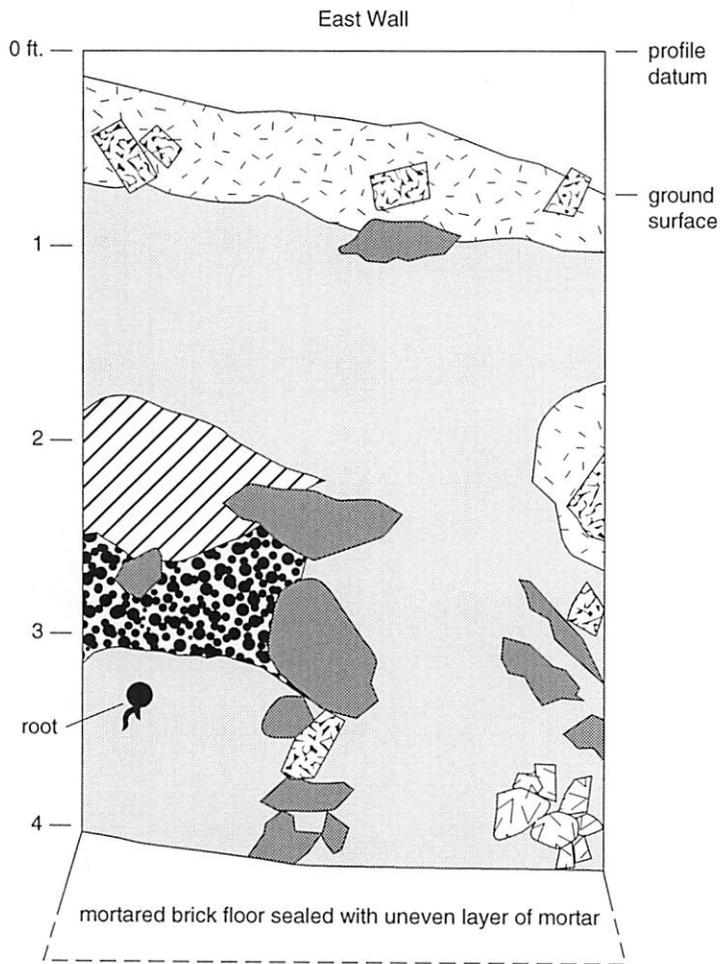
21 Sheet plastic supported with metal stakes protected the excavation at the end of each day. Car in the background is parked behind 99 Orchard Street building where the yard has been elevated with cinder blocks. (7/28/93)



22 Trashed stone slab removed from feature 2 (F2) by excavators. (8/5/93)

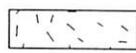
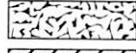
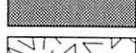


23 Archaeologists measuring depth of western part of the brick vault (F2) after excavation. View is west toward Allen Street. Trench to the left (TT6) is one of two placed outside this part of feature 2. (8/5/93)



no scale

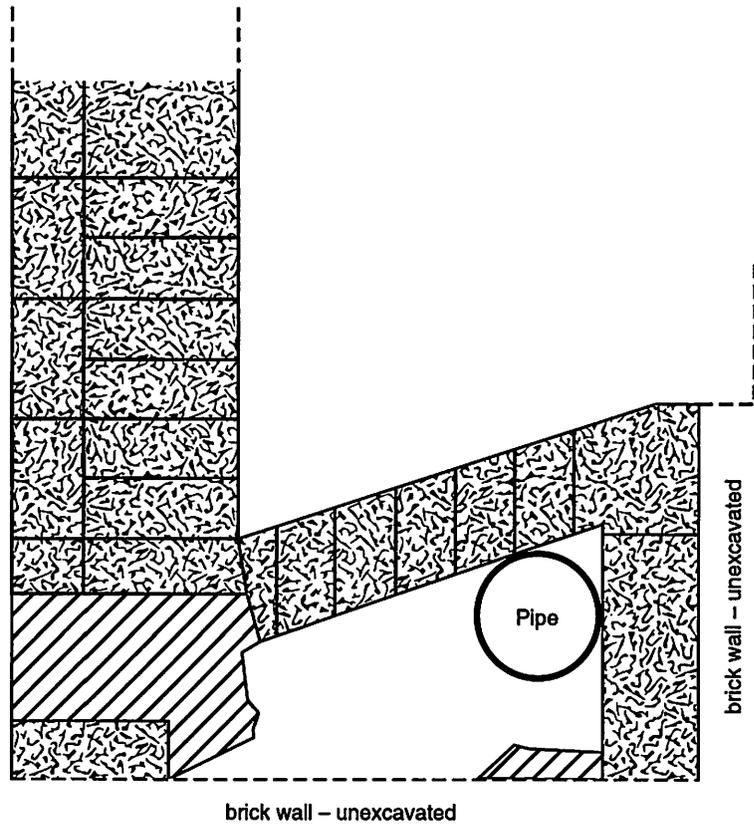


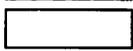
-  brick rubble
-  yellow-brown sandy soil
-  brick
-  ashy fill
-  red soil with black patches
-  rock
-  mortar block

Note: small roots in wall not shown



25 View from roof of 97 Orchard Street. The entire yard, Allen Street, and part of the 99 Orchard Street parking area are documented in this "aerial" view taken by Klaus Schnitzler on August 5, 1993. The partially excavated brick vault (F2) is in the upper right corner of the yard; test trench 6 (TT6), a shallow excavation, parallels the vault's southern brick wall. (8/5/93)



-  brick
-  paving stone
-  open area



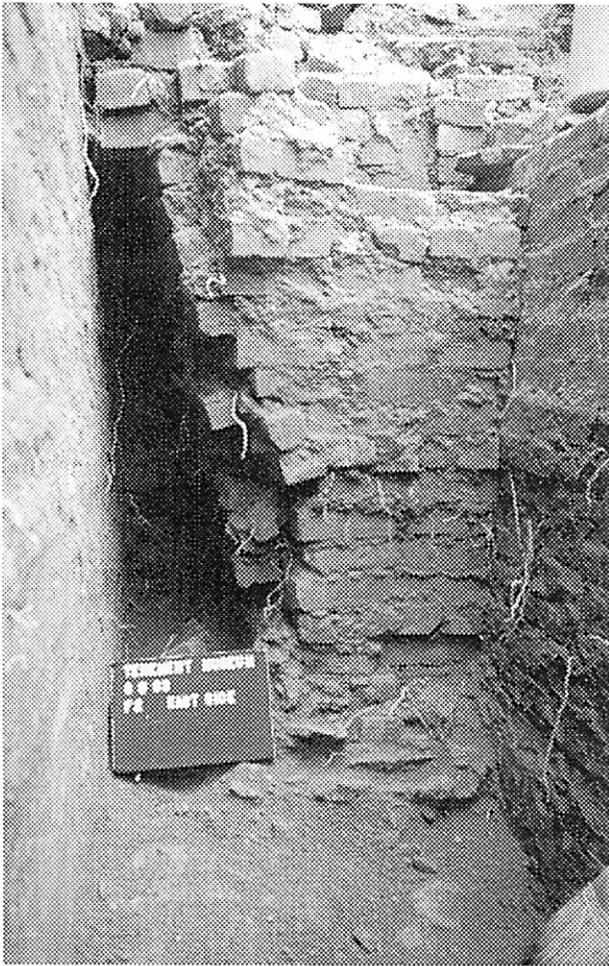
fying plumbing (Figure 28). The slope of the feature's floor suggested the southeast corner, the deepest part, was where an outlet would be found. However, the feature's eastern brick wall had been broken away to accommodate the previously-mentioned drain or vent pipe, and no trace of the original discharge drain remained (Figure 29). The feature was photographed and drawn (see Figures 29 and 31).

Once the brick vault was completely emptied, a small test trench (TT8) was placed outside the end nearest Allen Street (Figure 30). Here the fill was ashy and laden with fragmented artifacts that clearly contained relatively recent material near the surface. This included a 1962 Jefferson nickel, plastic fragments, and a crack vial. The coin may have been associated with yard alterations, and the crack vial was undoubtedly thrown over the Allen Street fence, as was much of the trash strewn about the yard when excavation began.

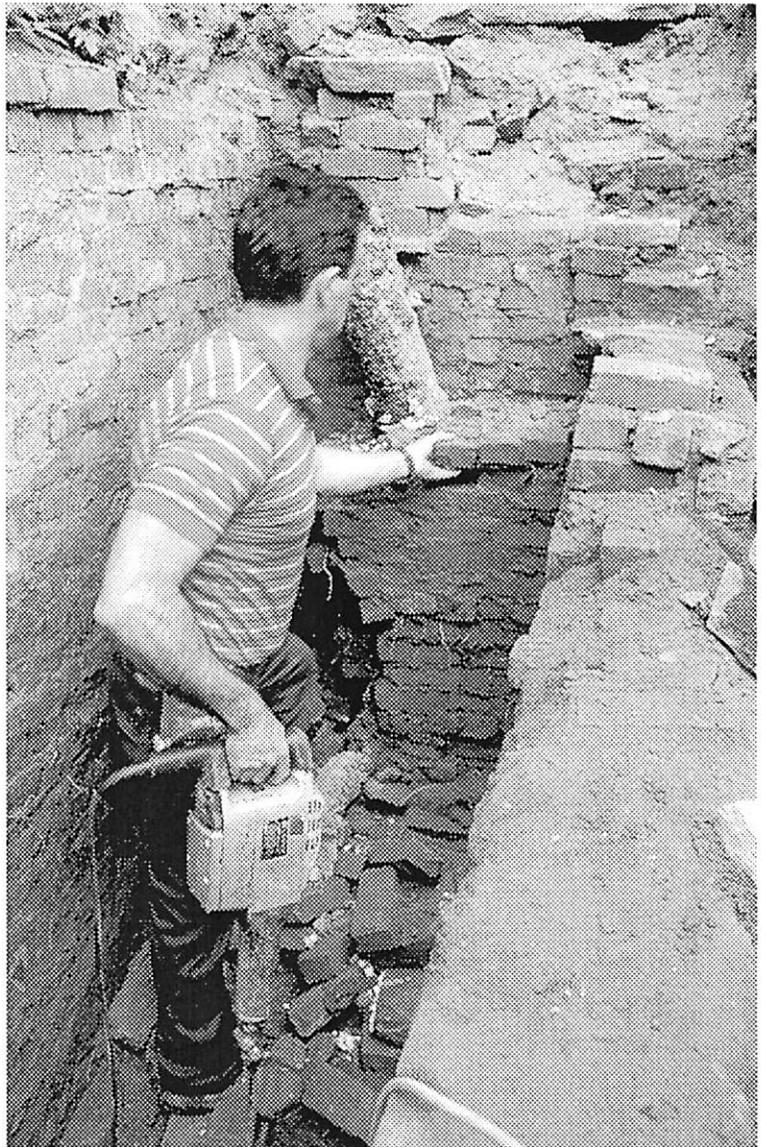
The well-packed fill material in the brick vault--a sandy soil laced with assorted trash, building debris, and pockets of ash (see Figure 24)--included very few "primary" artifacts. These are the whole, nearly whole, or mendable bottles, cups, saucers, plates, and other household items that are typically found in abandoned and filled privy pits.¹⁴ Instead, the fill contained small fragments of bottle glass and ceramics and building debris such as bricks and stones from demolished buildings. While all artifacts that might provide dating or other information were collected, these were mainly "grab samples." In some areas, however, the material was screened through 1/4-inch wire mesh to collect all artifacts.¹⁵ Excavation was in controlled levels, each of them given a catalogue number (see Appendix A, Table 1 for catalogue locations).

We did find at least a few "primary" artifacts; these included copper pennies, one of them recovered from the feature floor (those that could be dated were minted between 1879 and 1883),¹⁶ a fragmented but mendable common ceramic chamber pot, and, near the bottom, the glass mug mentioned earlier, an almost-whole clear vessel with a handle. The glass mug caused some consternation since it seemed modern--possibly early Woolworth--but it was later identified as being made in Germany late in the 19th century.¹⁷

The northern wall of the brick vault was located under cinder blocks used to raise the adjacent yard to street level in the 1980s and create parking behind 99 Orchard Street.¹⁸ This wall appeared to be a common wall between the two yards. Two wood-lined drain holes built into the bricks suggested that a brick vault at 99 Orchard Street may have mirrored the one in the Tenement Museum's yard (see Figures 20 and 29). A soil sample was taken from one of the drains for seed and pollen analysis to see if there was any trace



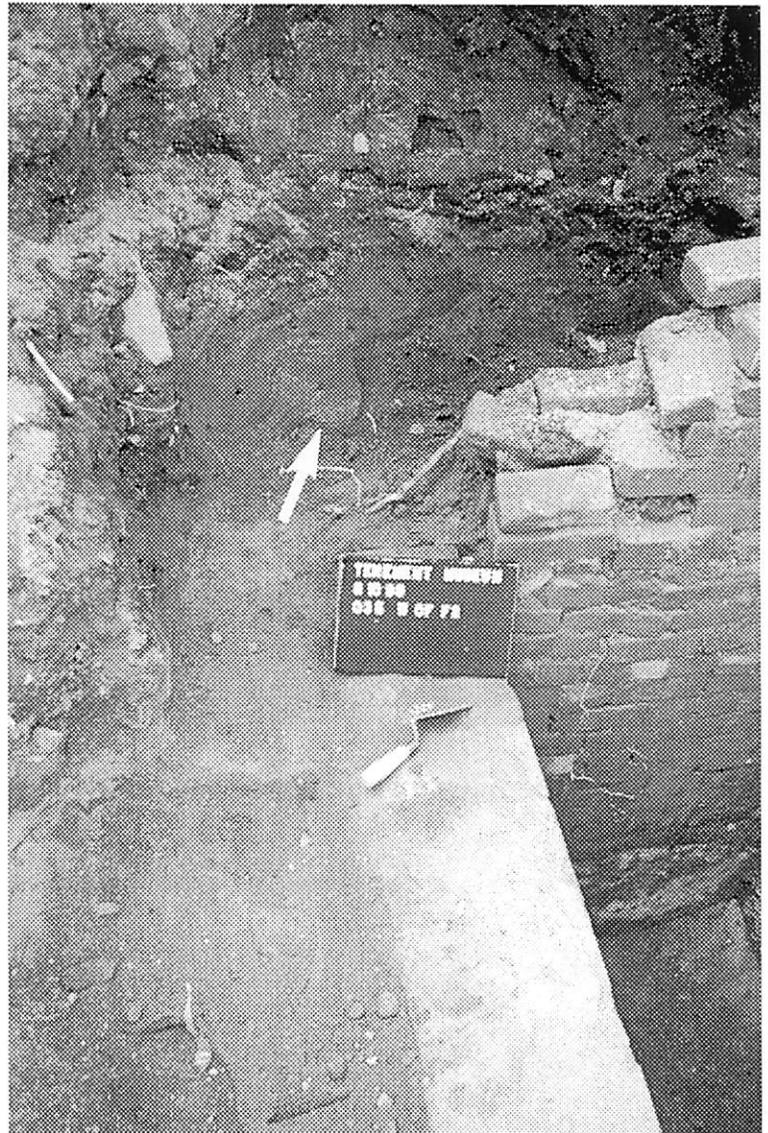
27 Poorly made intrusive brick wall exposed in the eastern part of the brick vault (F2). (8/6/93)



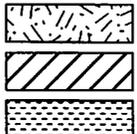
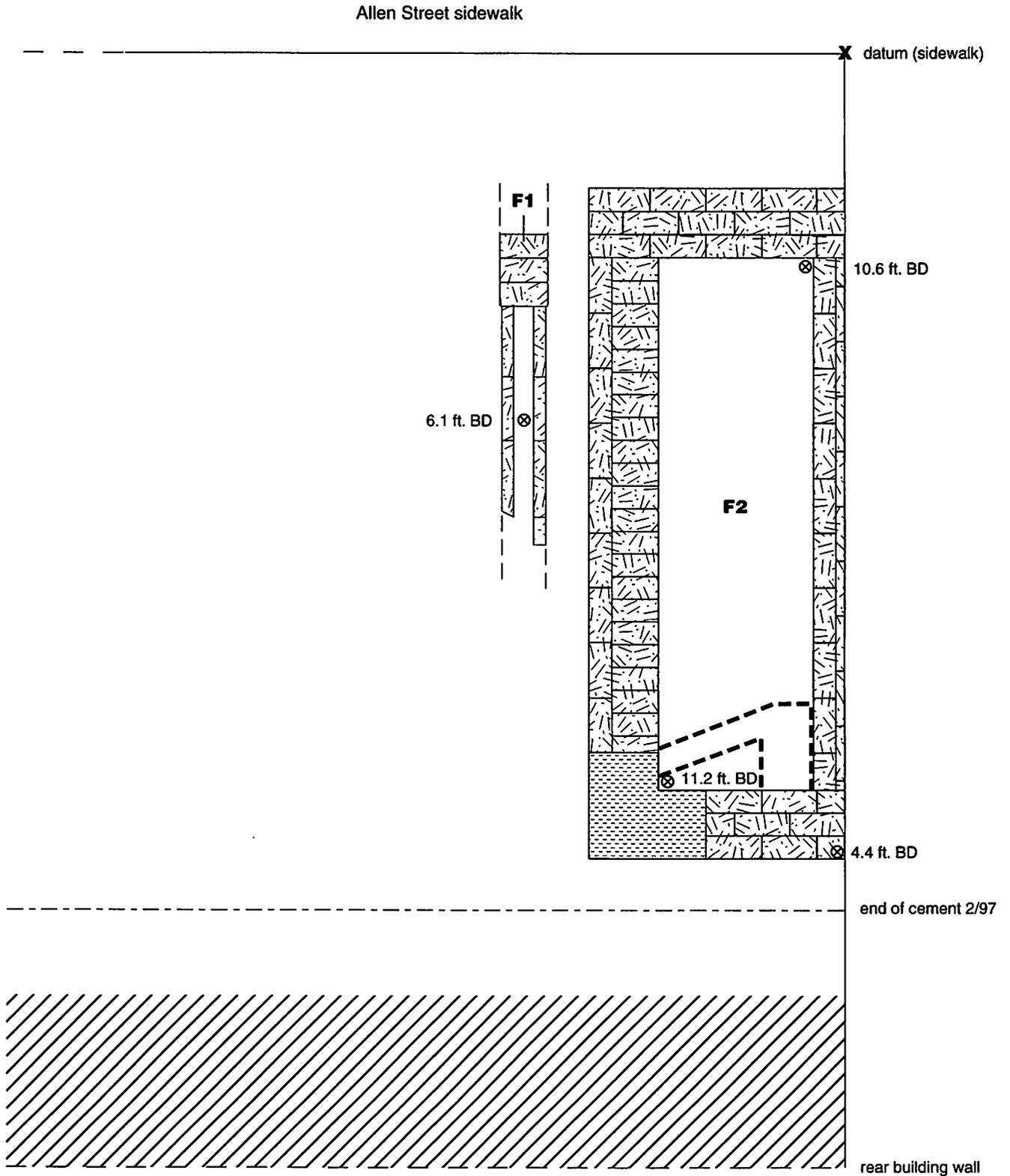
28 Intrusive brick wall being removed by one of the building's renovators. Note partially-exposed metal pipe behind the brick wall, possibly a drain connection or a vent. (8/6/93)



29 Brick vault (F2) fully excavated. View is east with brick wall common to 97 and 99 Orchard Street on the left. Note two wood-lined drains (black arrows), in the common wall. The wall is broken away behind the metal pipe on the eastern end of the feature. Excavation of test trench 7 (TT7) is taking place to the right. (8/6/93)



30 Test trench 8 (TT8) (white arrow) outside (west of) western end of brick vault (F2). (8/10/93)



brick (schematic)
 cement summer '93
 paving stone over brick



X datum
 ⊗ depth measurement BD (below datum)
 - - - - - intrusive brick wall (removed)



Measurements approximate

of human waste in the soil, but fungal spores had obliterated this record.¹⁹ Another sample came from under a large chamber pot fragment,²⁰ and a third was taken from fill in the brick "chamber" at the feature's eastern end.

The fill, the emptied feature, and ultimately the entire excavation were recorded in drawings and photographs. Each day, several passersby on Allen Street stopped to observe our activities, some of them quietly looking on, but others asking questions: "Any gold?" "Any dinosaurs?" "Any bones?" "My ancestors?"

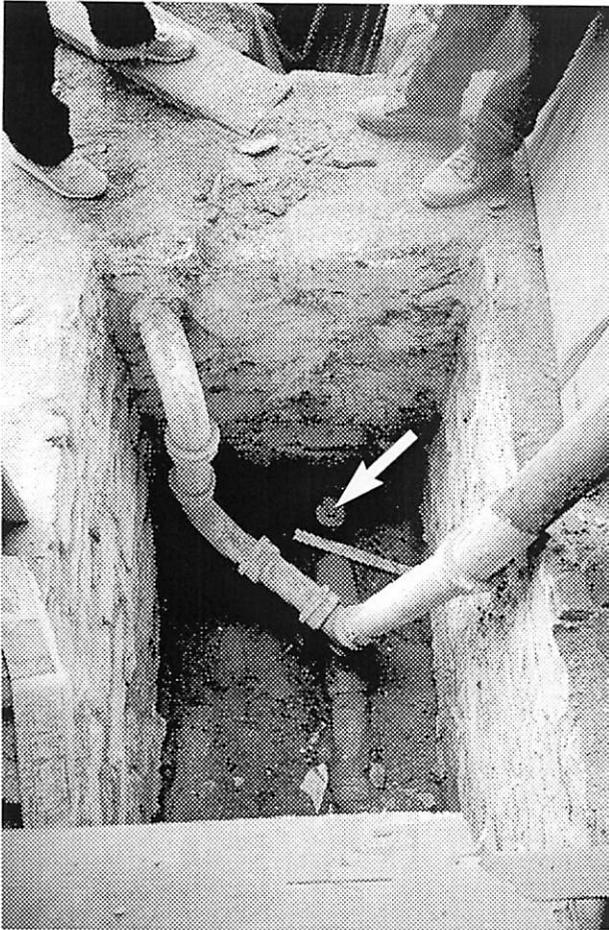
Once the archaeological investigation ended, the building's renovation called for opening the ground between the eastern end of the brick vault and the tenement, an area covered by a cement slab during excavation. This exposed a network of pipes that may have replaced or supplemented the original connection between the brick vault behind the tenement and a municipal sewer on Orchard Street. It also revealed long-hidden cellar steps and a sealed cellar entrance (Figures 32 and 33).

The "dig" captured the interest of the New York press, and photos appeared in the *Daily News*, *The New York Observer*, and the *New York Times*. *The Wall Street Journal* seemed most interested, and one of their reporters was on hand during the last three days of excavation. She was wonderfully enthusiastic, almost wistful (with little provocation I'm sure she would have joined the excavators), and asked pertinent, intelligent questions. We all wondered what she would say. The article, which appeared on August 24, 1993, is a splendid encapsulation of our field activities and the museum's attraction. It is reproduced in its entirety in Appendix B.

FINDINGS

Excavation is the active part of an archaeological investigation; artifact processing and analysis is the passive part. Coordinating the results brings all the labor and energy of excavation and other research efforts together. The backyard features, the artifacts, and subsequent research offer a glimpse into the past at 97 Orchard Street, as mentioned earlier, one with a few surprises. As usual in archaeology, what was not found was as telling as what was found. One of our major "no finds" was the stone privy pit thought to predate the documented school-sink. But the mystery of the missing privy pit seems to be solved, not only through archaeological evidence, but also through ongoing research prompted by what the excavators did and did not find.

An assortment of 319 fragments and a few whole, or almost whole, articles were processed (an artifact catalogue is presented in Appendix A, Table 4). With a few exceptions, such as the aforementioned chamber pot and clear glass mug, the artifactual



32 Unidentified drain and sewer pipe east of feature 2 (F2) exposed by construction work after archaeological excavation ended. Photo is from the building looking west towards the yard. A sewer connection (arrow) is visible below the drain or vent. (8/16/93)



33 Cinder blocks seal cellar entrance exposed after cement slab was removed from behind the building. The stairs, which led to a former cellar entrance on the west side of the building were a surprise. (8/16/93)

material suggests a redeposited fill (see Figures 34 to 41 for photos of selected fragments, coins, the chamber pot, and the glass mug as well as what is probably a Civil War-era glass photographic plate). This is mainly trash used to fill the abandoned school-sink. Based on the earliest manufacture date of the latest recovered artifact--known as the *terminus post quem*, or the date after which, in this case, the fill was introduced--the deposit was made sometime after 1895, the patent date found on a watch case from the eastern end of the feature. However, this dateable case was in a deposit mixed with modern debris.²¹ Historically, the feature was probably filled sometime after the hall toilets were installed in 1905.

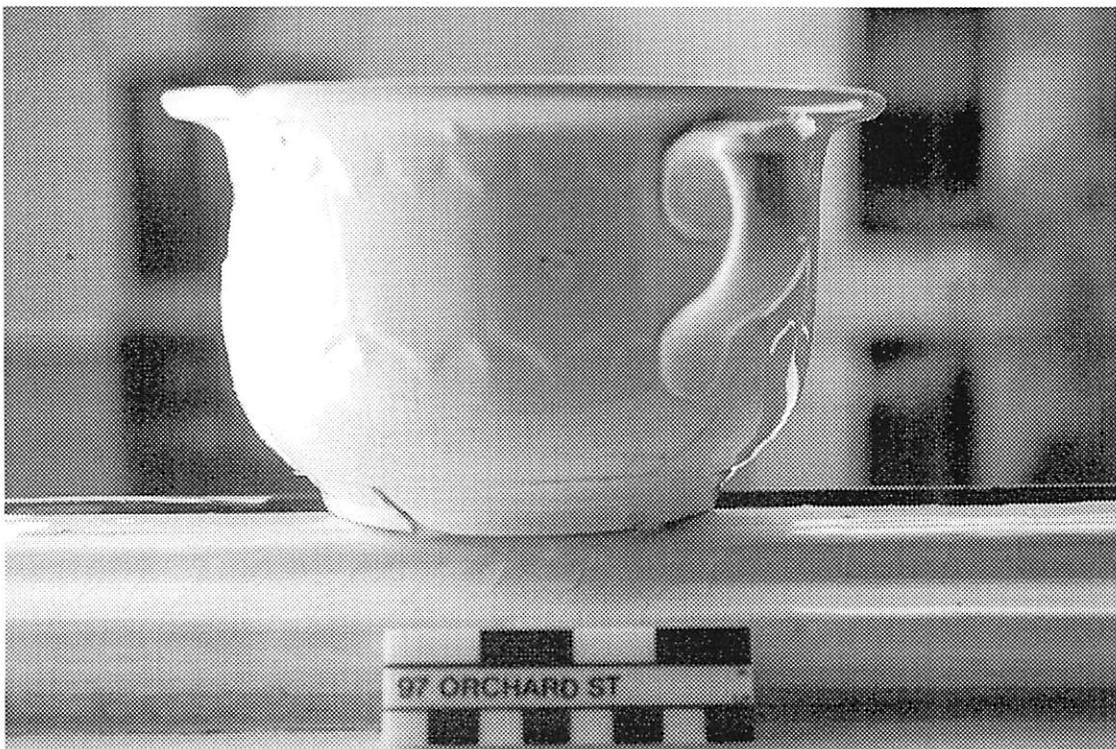
While these fragments and primary artifacts, the latter possibly associated with the building's residents at the time of filling, are interesting, it is the brick foundation, or vault, that is the most revealing and compelling of all the artifacts. For this feature is indeed an artifact, one that is unique in the archaeological documentation of New York City, and one that adds to the story of tenement life. The fragmented trash it contained was mainly from an unknown place, brought in to fill the school-sink foundation once it had fallen into disuse.

It seems likely that water, probably from a backyard hydrant or spigot, was always available to the tenants of 97 Orchard Street.²² It turns out that a privy built in the 1860s and 1870s was no longer the ubiquitous, dry-laid stone leaching pit, but was instead a tightly-sealed, water-cleansed brick vault, and a reliable water source would have been a necessity. Building plans for schools²³ and tenements drafted between 1870 and 1878 indicate this was the case (by this time indoor water closets were also available, but that's another story).²⁴ This was apparently also true of buildings erected in the 1860s, even before the first Tenement House law was enacted in 1867. In theory, if not always in practice, this vault was a great improvement over the stone privy pit. If these water-cleansed vaults were "flushed out" on a regular basis, they could be kept in decent condition.²⁵ If not, they became the abominations described in the tenement house literature.

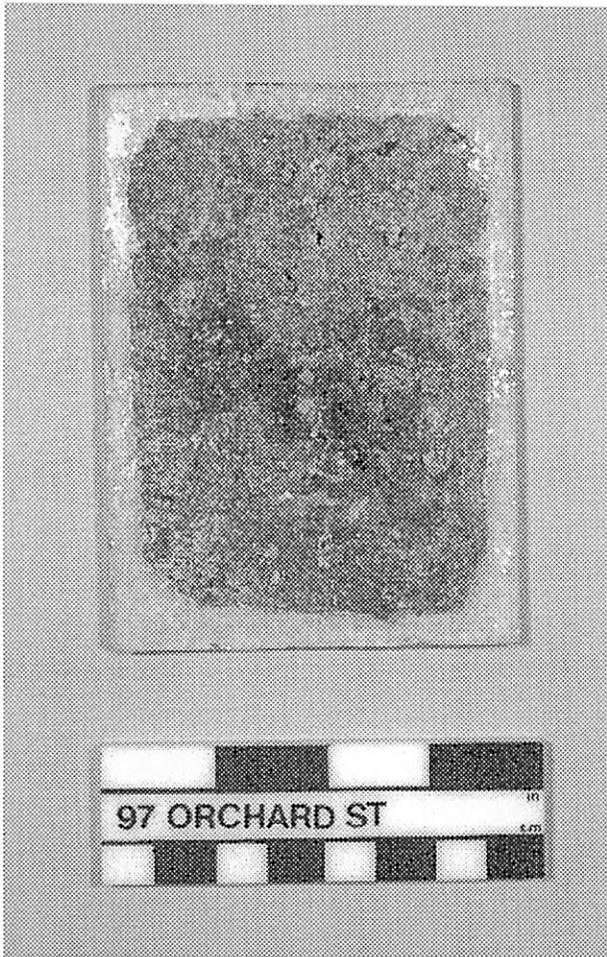
"Flushing" in this case apparently was in the simplest terms. As noted earlier, it was probably as basic as pulling a plug to allow water to run through the vault and then replacing it once the privy was cleansed. Weekly or, even better, daily flushing was recommended, but not necessarily carried out, and clogging was invariably a problem.²⁶ These drawbacks also applied to the school-sink, and this ultimately led to it being reviled by many sanitarians and reformers,²⁷ at least one of whom bemoaned the passing of the simple, old-fashioned leaching privy pit.²⁸



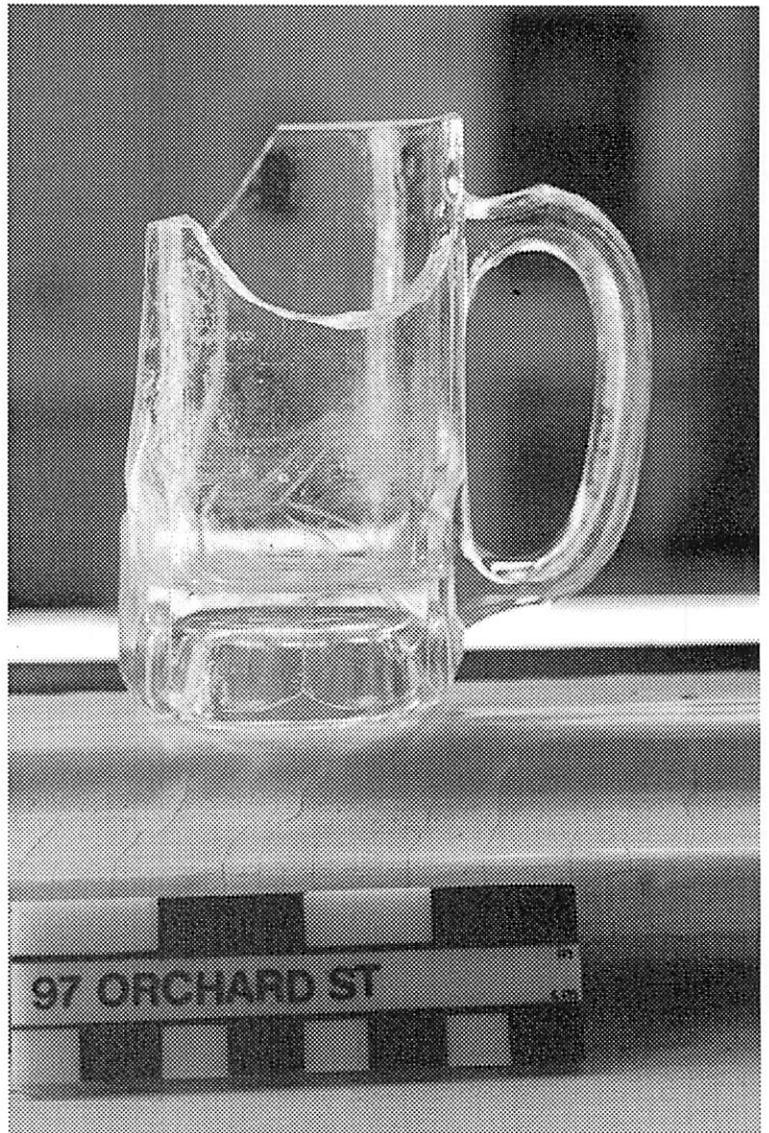
34 Coins found in excavation include the 1962 nickel on left from the upper level of test trench 8 (TT8). The three copper coins on the right, identified as Indian Head pennies, were from fill in the brick vault (F2).



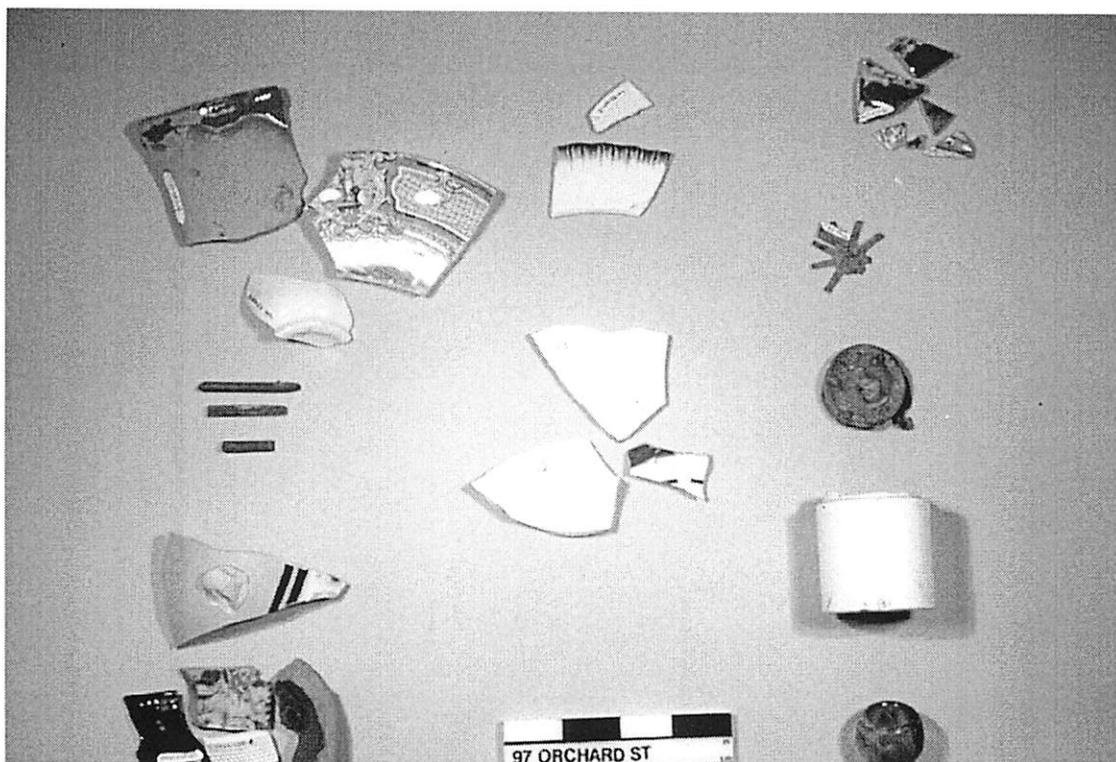
35 Reconstructed chamber pot from feature 2 (F2), one of the vault's few "primary" artifacts.



36 Another "primary" artifact, probably a photographic plate (note soil adhering to emulsion). If so, it may be an element of a Civil-War era ambrotype.



37 Glass mug with handle, the "primary" artifact seen in the balk wall in Figure 20.



38 Miscellaneous fragments from fill excavated from feature 2 (F2). Shown are 19th century ceramic fragments (upper left corner and center), watch parts (right center), a cream or medicine pot, a ceramic marble, and, at left center, three slate pencil fragments.



39 Miscellaneous ceramic fragments from feature 2 (F2) fill.



40 Clay pipe stem, buttons, marbles, a crack vial (below and next to marbles), and a leather fragment (below the vial). The crack vial was from the top of test trench 8 (TT8) and was probably trash thrown over the Allen Street fence.



41 Bird bones (upper left corner), butchered meat bones, and shells found in the feature 2 (F2) fill. This kind of material is typical of redeposited fill.

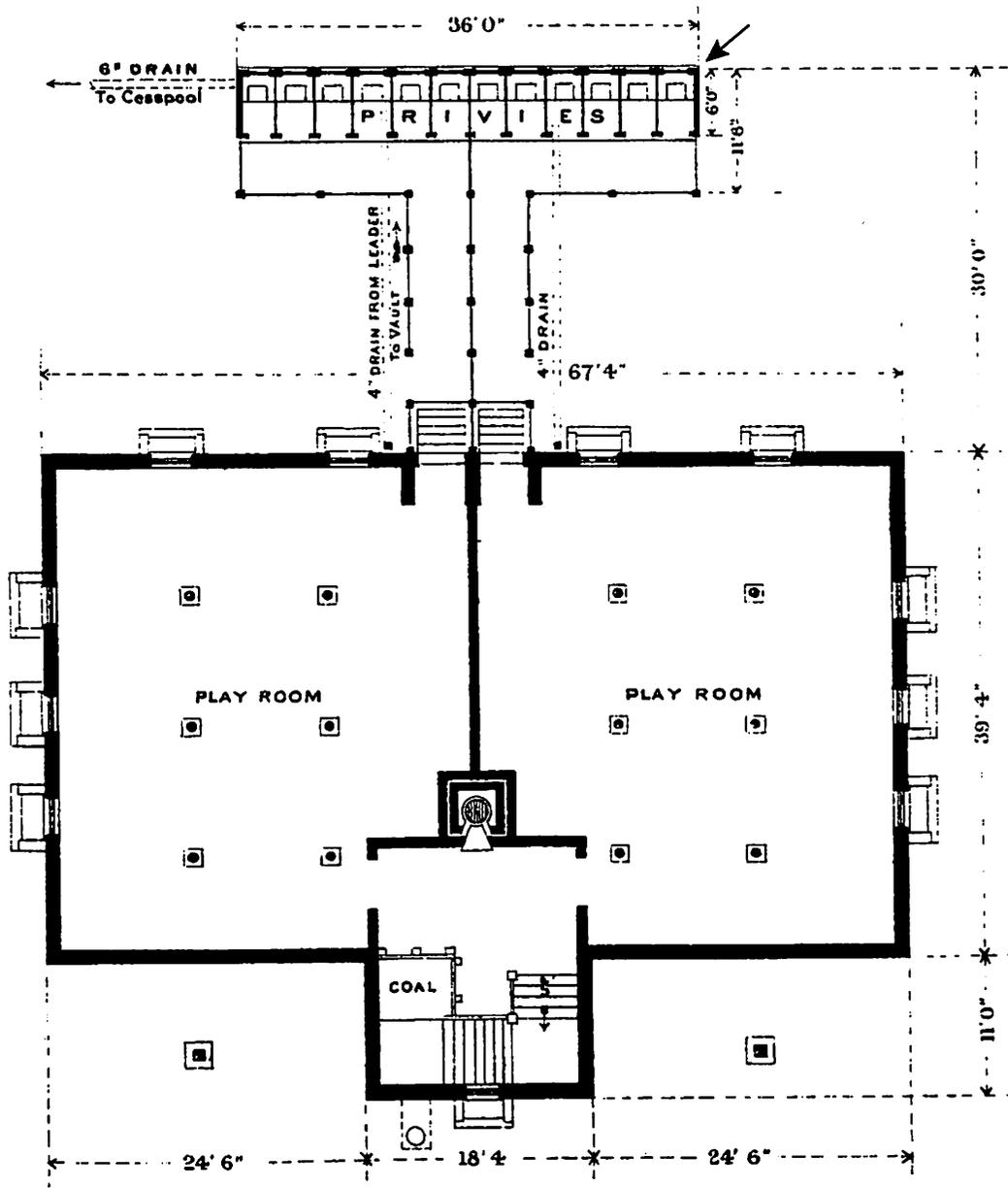
A collection of school-house plans conceived by Samuel Everleth, an architect, and published in 1870,²⁹ illustrates the provisions made for multiple water-cleansed privies or water closets (e.g., Figures 42-43). None are identified as "school-sinks," yet in cross-section the privy vaults resemble the schematic school-sink shown in Figure 1 of this report (Figure 44). Water from roof leaders was used to cleanse water closets and privies in rural areas; in urban areas, this was augmented by water from a hydrant, or perhaps a spigot. In rural schools human waste was carried to a cesspool; in the city, it was usually discharged into a street sewer.

By the 1860s, Croton water had become widely available in New York City and sewer installation was again expanding after hitting an all time low in 1857.³⁰ It appears the rectangular brick vault identified as the tenement's school-sink in 1902 was originally built as a multiple, water-cleansed privy hooked into the newly built Orchard Street sewer.³¹ It seems it was the designation of this backyard feature that ultimately changed rather than its function or its operation.

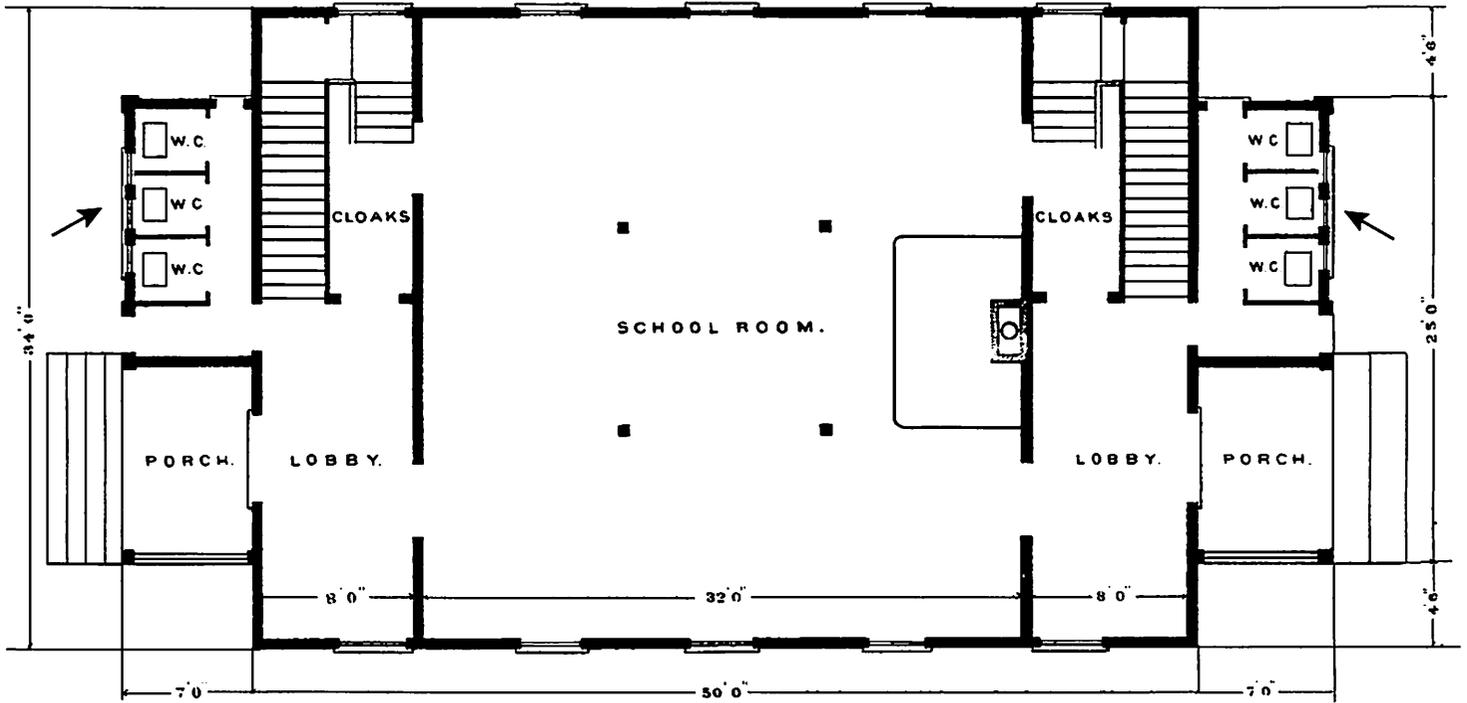
We now know a sewer was available in 1863, just before or as 97 Orchard Street - was under construction.³² In that year, a John Duffy received a contract to lay 380 feet of sewer in Orchard Street between Delancey and Broome Streets.³³ How this relates to Lukas Glockner's February purchase of the 97 Orchard Street lot from the Second Reformed Presbyterian Church of New York, then the owners of the church edifice standing on the three Orchard Street lots, is unknown. Glockner himself was a resident of his new building for at least the three years between 1864 and 1867.³⁴

The absence of a dry-laid stone privy pit in the yard and the presence of a single brick vault substantiate the conclusion that the water-cleansed privy and the school-sink at 97 Orchard Street were one and the same. What is more, it was the tenement's only backyard sanitary feature. Initially, there were probably two available sources for the water needed to cleanse the brick vault. The primary source was undoubtedly a backyard hydrant or spigot and a secondary source was probably the brick-and-paving stone box drain noted during testing in 1991. This drain would have conducted rainwater from the building's roof leader into the far side of the vault. An 1878 building plan for a tenement at 12 Stanton Street documents a similar arrangement (Figure 45).³⁵

This Stanton Street plan is one of many designs entered into a competition for a model tenement house sponsored by Henry C. Meyer, a prominent New York City plumbing manufacturer.³⁶ The competition, sponsored by Meyer's new publication, *The Plumber and Sanitary Engineer*,³⁷ was announced in a December 1878 issue of the maga-

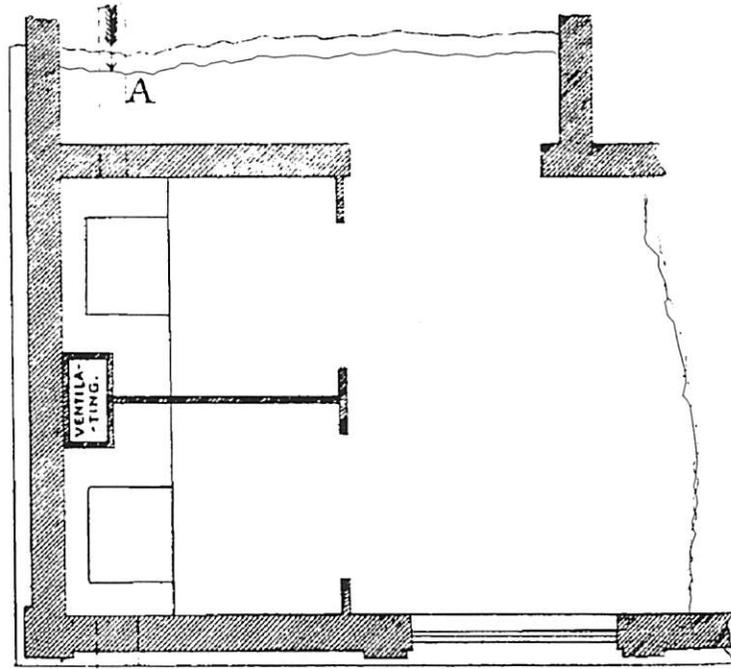


→ privies with drain to cesspool

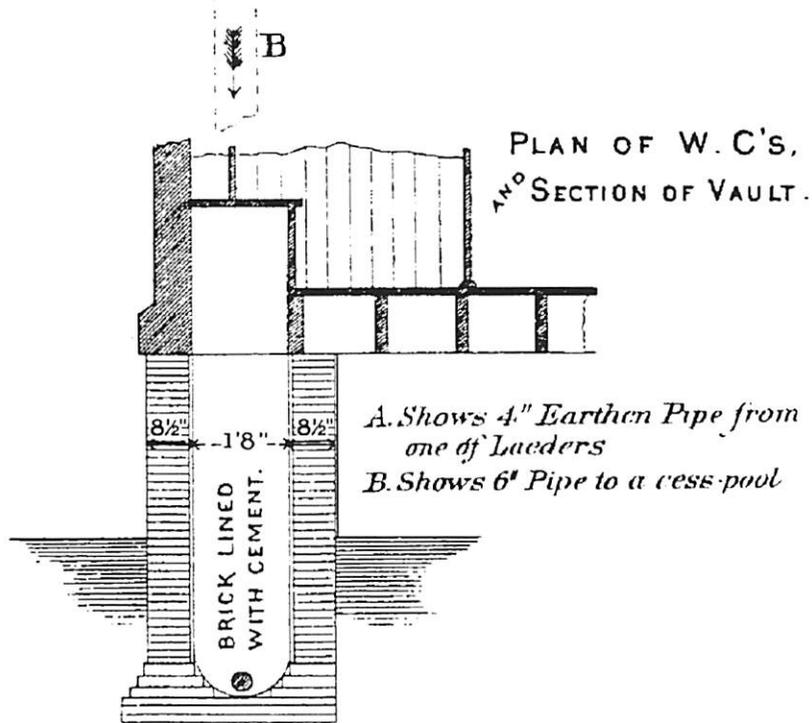


→ water closet (W.C.) arrangement

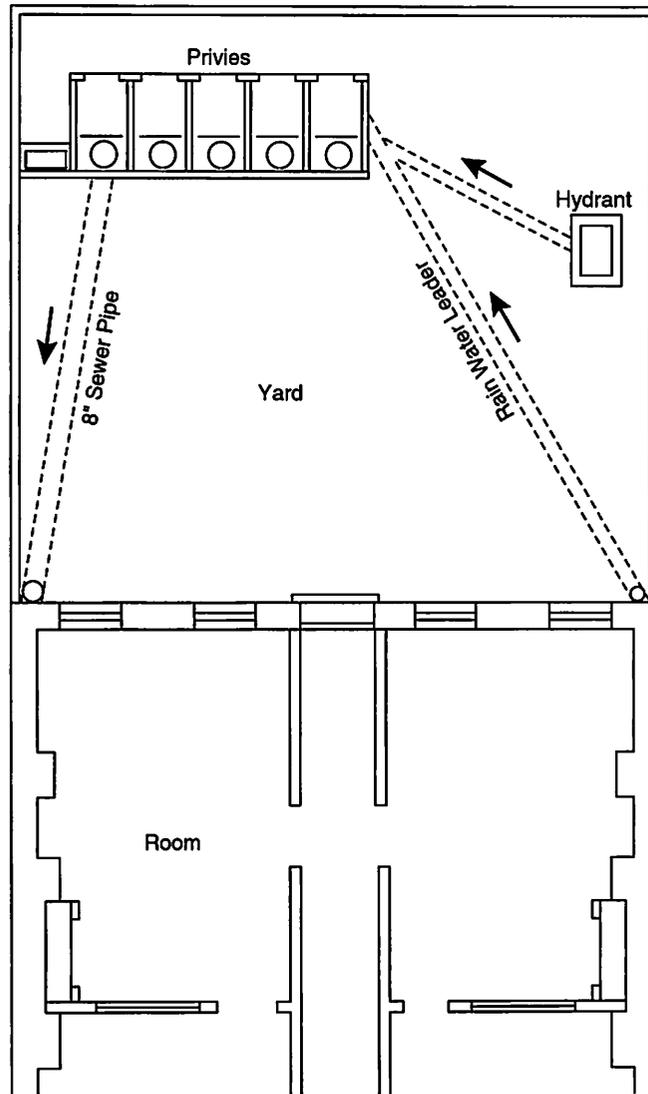
Plan



Section



scale not given



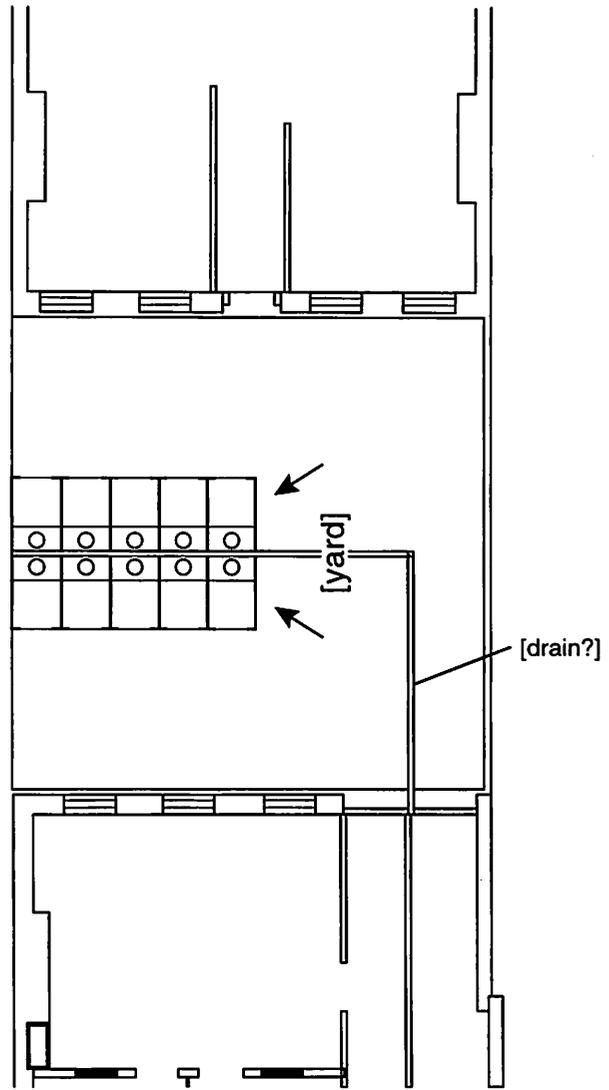
Redrawn plan; direction arrows added

zine. Obviously, Meyer's motive was opportunistic, but there may also have been an element of altruism in his project. An article in the February 10, 1879, edition of the *New York Times* noted that moral issues raised by untenable living conditions as well as the physical aspects of tenement life, such as ventilation and drainage, were to be considered in the designs. Charles F. Chandler, then the president of the Board of Health and a man dedicated to improving the quality of city life, was one of the competition judges.³⁸ The winning plan, by James E. Ware, a New York City architect, called for a four-story building with four apartments per floor situated around a central core that housed a water closet and stairway.³⁹ The enthusiastic response of both press and public to the competition fostered the Tenement Act of 1879.⁴⁰

What is striking is the number of tenement house designs in the competition that continued to employ backyard privies as the sanitary facility of choice, albeit with water and sewer connections (Figures 46-47). This despite the fact the school-sink, mentioned as an alternative to the privy in the 1867 Metropolitan Board of Health Annual Report, was a known and seemingly preferred option.⁴¹ The next year's annual report noted that "old fashioned privy vaults are rapidly giving way to water-closets, and to privies with sewer connections and the modern improvements."⁴²

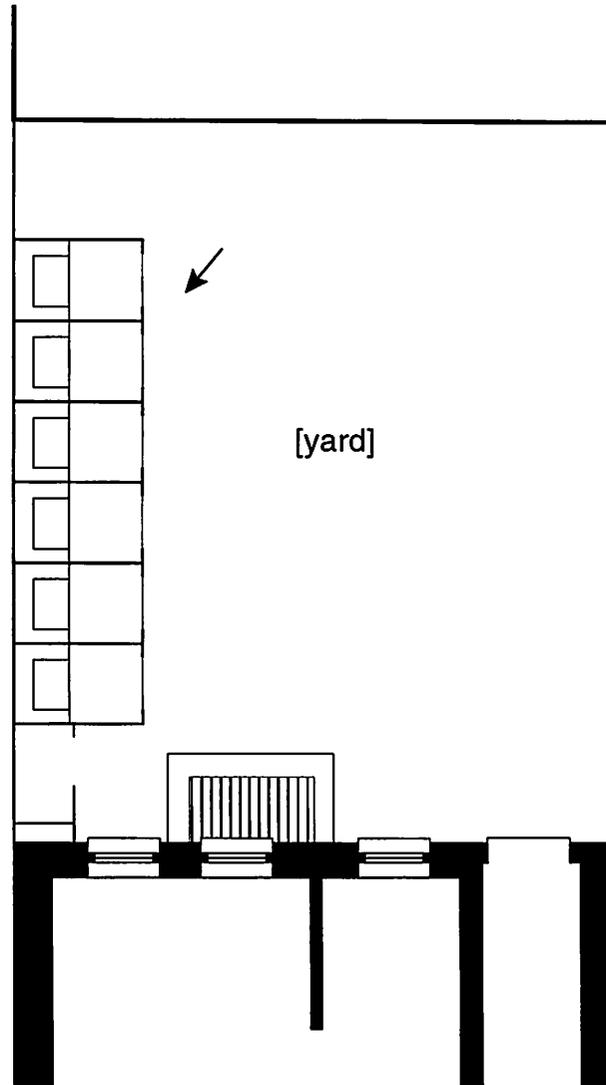
In 1867, the recommended privy vault was likened to a large hopper closet with an intermittent water supply.⁴³ A simple "hopper" was a funnel, or hopper, that rose out of the floor and allowed waste to drop below.⁴⁴ In the basic privy vault, hoppers led to a water-filled trough or vault.⁴⁵ The vault's size was apparently dependent on the "character of the parties using it."⁴⁶ If it was not only a toilet facility but also a receptacle for ashes and garbage, extra space was needed under the hopper trap. If so, the vault had to be larger than if it were solely a sanitary facility used by a "better class of people" who would not fill it with debris. The depth of the 97 Orchard Street vault suggests the Metropolitan Board of Health would not have considered the occupants of the tenement "a better class of people" since its size would have allowed for deposits of ash and debris. However, excavation did not reveal any extensive ash deposits at the bottom of the feature, only the isolated ash pockets typical of introduced fill (see Figure 24).

City and state ordinances, health department regulations, and the contemporary literature on sanitation were researched to determine what laws and regulations governed construction of the backyard toilet facility at 97 Orchard Street in 1863. It seems the city's ordinances of 1859 were those in effect, and the body of literature on sanitary engineering and plumbing was then relatively small. The *Citizens' Association Report of the Council of*



→ privies or water closets

Redrawn plans; arrows added



→ privies or water closets

Redrawn plans; arrows added

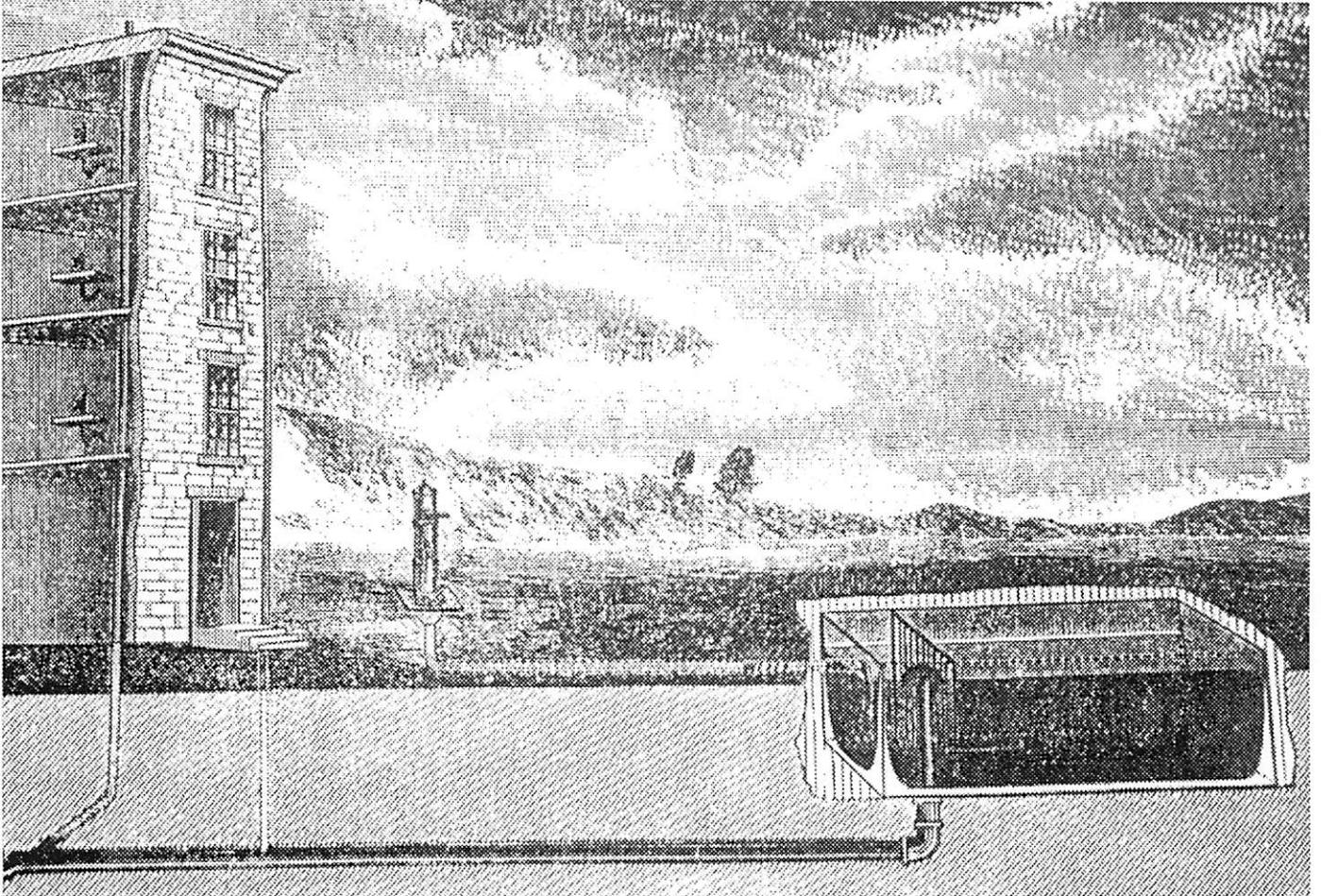
*Hygiene and Public Health*⁴⁷ on sanitary conditions in the city, published in 1865, is the recognized catalyst for sanitary reform in New York City. The Tenement House Acts, first introduced in 1867 and modified thereafter, and the great sanitary movement of the 1870s, spurred by the Citizen's Association report, caused sweeping change.⁴⁸ But for Lukas Glockner, the laws were relatively simple; some he ignored and some he surpassed.

Where sewers existed, connections had been permitted for a price as early as 1845, but none were required until 1867.⁴⁹ Regarding a sewer connection for the backyard toilet facility at 97 Orchard Street, Glockner apparently voluntarily provided this amenity when he built the tenement in 1863. However, he did not observe the 2-foot allowance mandated between the vault and property line since the feature's northern wall is apparently in common with the southern wall of a vault at 99 Orchard Street.

The *Ordinances of the Mayor, Aldermen, and Commonalty of the City of New York revised A.D. 1859*, the laws in effect when Glockner built the tenement, states that a connection to a street sewer could be made at the owner's expense. This connection, which cost \$10, required written permission from the Croton Aqueduct Board and from a majority of owners on the street if the drain or sewer passed in front of their property; without the required permissions, it was subject to a \$50 penalty.⁵⁰

Although the interpretation of the brick foundation found in the 97 Orchard Street yard as a privy vault/school-sink appears valid, it is not the round-bottomed vault described in the literature of the time. Its angled, concave, sloping floor would have been less efficient in terms of flushing than a round-bottomed chamber, but it certainly could have functioned overtime as a water-cleansed privy vault that was later termed a school-sink, possibly with the introduction of more complex plumbing. A similar vault, but made of iron rather than brick, was recommended as a solution to defective drainage in dwelling houses in 1877 (Figure 48). This design was extolled in an article by Charles F. Chandler, then the forward-thinking head of the New York City Board of Health.⁵¹ But even the 1877 design was not yet identified as a school-sink.

The configuration and the set-up of the 97 Orchard Street privy vault, constructed more than a decade before Chandler's article appeared, suggests this feature may once have been considered state-of-the-art, if not downright progressive. It should also be remembered that the 1859 sanitary laws, which did not require sewer connections, were then in effect⁵² and the first Tenement House Act of 1867 was three to four years down the road. Just when this privy vault was considered a school-sink remains unknown since neither the historical nor the archaeological record offers an exact date. At this writing,



48 Iron privy vault, with hydrant and sewer connections, recommended in an 1877 article on household drainage written by Charles F. Chandler, President of the New York City Board of Health. What was originally perceived as a sanitary improvement was later deemed less than desirable due to corrosion.

we only know that it was more than likely considered a privy when it was built, albeit one that was multi-compartmented and water cleansed, and by 1902, it was identified as a school-sink on the building's I-Card record. During that time--more specifically, by the late 1870s--the privy had been denounced and was considered no less than an abomination.⁵³ In January 1885, the Tenement-House Commission reported that "privy-vaults in the city should be condemned and removed."⁵⁴

This seems to have had an immediate effect. According to the February 26, 1885, issue of *The Sanitary Engineer*, the Board of Health had ordered "the removal of all privy-vaults in this city (these are estimated at 100,000) and to replace them with water-closet accommodations for the occupants of tenement-houses." Recognizing the cost and complications inherent in this order, the Board invited plumbers, sanitary engineers, "and others" to a conference.⁵⁵ It seems likely that the classification of the 97 Orchard Street privy as a school-sink took place after this, possibly as late as 1887, when a New York State law finally banned privies where sewers were available.⁵⁶ This suggests that the water-cleansed brick vault at 97 Orchard Street, perhaps with its cleansing mechanism upgraded, was probably considered a school-sink by the mid to late 1880s.

The interpretation of a water-cleansed brick privy vault perhaps reclassified as school-sink explains the absence of a stone privy pit in the yard. It also identifies this vault as the earliest toilet facility available to the residents of 97 Orchard Street. Given the common wall between 97 and 99 Orchard Street, a similar facility was probably also available to those living next door.⁵⁷ These brick vaults could have served the tenants of both houses throughout the 19th century and until--and even after--toilets were introduced into the buildings. As such, the vault behind the Tenement Museum is the major artifact discovered in the 97 Orchard Street backyard, but it was neither configured nor located correctly on the 1902 I-Card. While the drawing on the card shows it in the yard's southwestern corner, it was actually situated along the northern property wall, and its compartments were not back-to-back but side-by-side.⁵⁸

Understanding this feature's function helps explain why John T. Kennedy, M.D., one of the young dispensary physicians who became an inspector for the unprecedented assessment of the city's sanitary conditions in 1864,⁵⁹ was so laudatory about the Tenth Ward where 97 Orchard Street was located. He found it to be "one of the few sections of the city blessed with such a high degree of health."⁶⁰ He went on to note that sewerage in the district "was very complete," and that three-fifths of the forty-eight blocks in the ward were "in good sanitary condition," two-fifths were in a "mixed sanitary condition," and "none were bad."⁶¹ For the early residents of 97 Orchard Street, most of whom were German immigrants,⁶² the backyard toilet facilities at 97 Orchard Street may have been a

vast improvement over what had been available to them in the provinces that had been their home.⁶³

CONCLUSIONS

Archaeological investigations at 97 Orchard Street documented several aspects of the tenement yard. Of primary importance, it located a rectangular brick vault that was probably built as a water-cleansed privy and later reclassified as a school-sink. In other words, rather than two separate features, they were one and the same brick vault possibly altered by plumbing modifications in the mid to late 1880s, or merely reclassified as a school-sink rather than a privy. In a sense, this toilet facility is the "missing link" between the dry-laid stone privy and the multiple-compartmented school-sink. This was a shift from the age-old, private, self-contained leaching pit to a facility hooked into a municipal sewer system, and all this implies.⁶⁴ A secondary discovery was that the original yard surface was approximately 2 feet below the 1991 grade and that it was paved with stone.

The tenement's water-cleansed backyard privy/school-sink vault, the available street sewer, and the description of the district as healthful--plus the fact that Lukas Glockner, the builder and owner, was himself a resident--dispel the notion of dreadful living conditions at 97 Orchard Street when the building was constructed in 1863 or 1864. They suggest that for Glockner, a German immigrant who had spent most of his adult life in New York City, and for the other early residents of this building, it was probably much pleasanter than the stereotype of 19th-century tenement life would have us believe--a stereotype based on conditions that unfortunately did exist elsewhere in the city at that time.

NOTES

1. The first written reference to a school-sink was found in the 1867 *Annual Report of the Metropolitan Board of Health* (1868). No design for this kind of toilet facility was located in a search of 19th-century patents.
2. Valentine, David T., 1859. *Ordinances of the Mayor, Aldermen, and Commonalty of the City of New York Revised A.D. 1859. Adopted by the Common Council and Published by their Authority*. Charles W. Baker, Printer, New York.
3. It has been assumed that the school-sink was abandoned with the installation of indoor toilets, but it appears that tenement residents remember using an outdoor facility as late as the 1920s (Long 1999:personal communication), a testament to its continued use.
4. See Geismar 1991. The 97 Orchard Street Block and Lot--An Archaeological Perspective. In, *Biography of a Tenement*, a project sponsored by a Ford Foundation Grant.
5. This rule, which had been in effect for years, was reiterated in the city ordinances published in 1859 and again in 1866 (Valentine 1859:317; *Metropolitan Board of Health Annual Report 1866* (1867):316-317).
6. Geismar 1996, 1992, 1989.
7. Volunteers working under the direction of the writer on this and other days included Barbara Davis, Laura Grauer, John Killeen, Sophia Perdikaris, and Shelly Spritzer.
8. Geismar 1991:14-16.
9. According to Webster in DeForest and Veiller (1903:307), a standard turn-of-the-century school-sink comprised a below-ground brick masonry vault, between 10 and 14 feet long, 2 feet wide, and 2 to 3 feet deep. This vault was usually lined with a semi-circular cast iron trough that connected with a 4-inch outlet at the lower, discharge end. A cylindrical, 1-foot high, iron plug was used to open and close this outlet that connected with a drain that passed under the tenement's cellar floor to the street sewer. Above the masonry was seating, usually about 18 inches above ground level (see also Dolkart 1995:20).
10. Excavators included the writer, who also directed the excavation, Eliot Hoyt, Shelly Spritzer, and Cas Stachelberg.
11. Sewer vents were meant to be kept away from buildings and to be higher than any adjacent structure (Atkins 1947:66; Chandler 1877:6).
12. Test trenches 6 and 7 were virtually in the same place (see Figure 3), but were opened at different times. TT6 was relatively shallow while TT7 was excavated below the southern wall of feature 2 (F2).
13. A privy pit would not only have been revealed by the stones that structured it, but also by the nature of the soil which is usually dark, somewhat organic, and contains ash.
14. For example, Geismar 1989, 1992
15. See Appendix A, Table 4, to determine which catalogue numbers were screened.
16. Joseph Parrella, a coin expert, identified them all as Indian Head pennies. Indian Head pennies were minted between 1859 and 1909 (Bowers 1979:242-243).
17. Jane Shade Spillman, Curator of American Glass, Corning Museum of Glass, Corning, New York, identified the glass mug.

NOTES (continued)

18. Buildings and yards originally on Allen Street were eliminated when the street was drastically widened in the 1930s.
19. Extensive fungal spore activity in a soil sample taken from one of the drain holes for seed and pollen analysis to determine if there was any trace of human waste caused the information to be inconclusive (Vinton, Sheila Dorsey, 1996, Parasitological and Palynological Investigations of Soil Samples from the Orchard Street Site. Department of Anthropology, University of Nebraska-Lincoln). See Appendix C this report.
20. Some raspberry seeds found in this sample may indicate the presence of human waste. However, fungal spores again interfered with the assessment (see Appendix C).
21. This case, manufactured by the Waltham Watch Co., is described in Catalogue Number 017 (see Appendix A).
22. Andrew Dolkart, the project's architectural historian, had drawn the same conclusion (Dolkart 1995:14). Unfortunately, records of the Croton Aqueduct Department, which could confirm this supposition, appear to be missing.
23. For example, Everleth, Samuel F., 1870. *Victorian School-House Architecture*. Facsimile published by the American Life Foundation (in the Library of Victorian Culture) 1978.
24. U. S. Patents document water closets or their improvements throughout the 19th century (Commissioner of Patents, Misc.), but they become more common in the mid-19th century (e.g., Ogle 1996:76-84). Andrew Jackson Downing, arguably America's leading mid-19th-century domestic architect, was a major proponent of the indoor water closet in his designs for country cottages. Downing discusses the viability of the water closet and its superior qualities in the 1842 edition of *Victorian Cottage Residences*, a discussion that remains unchanged in later editions (e.g., 1873 edition, 1981 Dover reprint:5, 96-97).
25. *The Plumber and Sanitary Engineer* Vol. 2 (16) October 15, 1879:371.
26. For example, Worthen 1867:293; DeForest and Veiller 1903:307-308; *The Sanitary Engineer* 1885:Vol. 11(17):351; *The Tenement House Acts of 1867 as Amended 1879* both mandated avoiding obstructions (1879:2-3).
27. For example, see *The Sanitary Engineer* Vol. 11(16):330; DeForest and Veille 1903:308.
28. The first annual report of the Board of Health (1870) extolls the superiority of the simple, dry-laid stone privy when compared with the poorly managed privy vaults with a sewer connection found in tenement houses (1871: 61).
29. Samuel F. Everleth's *Victorian School-House Architecture* is an 1870 pattern book reprinted in 1978.
30. Duffy 1968:414-415.
31. Because the tenement was 25 feet wide and 5 stories high, Lukas Glockner, the owner, would have paid \$12 per year for this water and a sewer connection would have cost him \$10 (Valentine 1859:144, 249).
32. Earlier documentation had not established this fact (Geismar 1991).
33. *Annual Report of the Croton Aqueduct Department 1863* (1864):59. In addition, the Egbert Viele map, which documents sanitary conditions in 1864, indicates there was then a sewer in Orchard Street between Broome and Delancey Streets (*Report of the Council of Hygiene and Public Health of the Citizens' Association of New York* 1865:frontispiece).

NOTES (continued)

34. A military record from May or June 1864, indicates that Glockner, a 44-year-old German-born tailor, was then a resident of 97 Orchard Street, and the *New York City Directories* reveal he was still there in 1866. By 1867, he was at 25 Allen Street. Fire Department records indicate a Kerosene Oil Lamp Explosion@ at 97 Orchard street on November 17, 1863 (Biebel 1994), but whether this was caused by a workman during construction or by a resident is unclear.
35. Chandler, Charles, 1878-1883. Unpublished Tenement House Plans in the collection of the New York Department of Health, Vol. 1 (1878). while no remnants of a hydrant or water pipes were noted during yard excavations, it seems more than likely that water was available in the tenement's backyard. Without it, the privy vault could not have functioned.
36. Atkins 1947:111.
37. The name of the publication, and undoubtedly its organization, changed over time. At its inception in 1878, it was called *The Plumber and Sanitary Engineer*; in the 1880s, it became *The Sanitary Engineer*, and, 1890, *Engineering Record*. A 1917 merger changed the name to *The Engineering News-Record*, which persists to this day (information from Scott Lewis, *The Engineering News-Record*, McGraw-Hill Publications, New York.; this information gives a beginning date of 1875 for *The Plumber and Sanitary Engineer*, but Gordon Atkins, in *Health, Housing, and Poverty in New York City 1865-1898*, suggests an 1878 beginning date. An 1878 issue is the earliest available in the New York Public Library and elsewhere).
38. Chandler, who was born in 1836, was a practicing industrial chemist, a young Ph.D., and a full professor of chemistry by the time he was 20. He was for years the head of the Department of Chemistry at Columbia University and became the president of the New York City Board of Health in 1873, where his major concerns were the condition of food, milk control, water supply, household plumbing, and the dangers of gas nuisances and common cosmetics. He died August 25, 1925 (*Dictionary of American Biography* 1957-1958:611-613).
39. Plunz 1990:24.
40. Atkins 1947:114.
41. Metropolitan Board of Health 1868:293.
42. Quoted in Duffy 1978:34. Somewhat surprisingly, the 1870 *First Annual Report of Board of Health*, which superseded the Metropolitan Board of Health, notes that the privy vault with a sewer connection is only "theoretically the best plan for tenement houses, but practically is faulty." Instead, he advocates the school-sink, which he says is easily managed (1871: 61).
43. Worthen 1868:293. (Report of the Office of the Engineer, W. E. Worthen, December 1, 1867).
44. This is described in Ogle 1996:76. Also, Bayles 1878:94.
45. This is described in regard to school-house privies in *The Plumber and Sanitary Engineer* Vol. 3. January 1, 1880:51.
46. *New York City Board of Health Annual Report for 1867* (published 1868):293.
47. The exact title is *Report of the Council of Hygiene and Public Health of the Citizens' Association of New York upon the Sanitary Conditions of the City*. Published in 1865, it reported conditions in 1864.
48. Obviously, this reform movement had antecedents, most notably the writings and concerns of Dr. John H. Griscom, briefly the City Inspector in the 1840s.

NOTES (continued)

49. On April 3, 1845, the Common Council of New York amended the sanitary law to allow privies or water closets to be connected with sewers if sufficient Croton Water were available (Duffy 1968:411); in 1867, with the First Tenement House Act, these connections became mandatory for tenement construction where street sewers were present (DeForest and Veiller 1903 Vol. I:321; Tenement House Acts. Chapter 908 Section 5, Laws of 1867).
50. Valentine 1859:247-249.
51. Chandler 1877. This appears to be a pamphlet produced by the New York City Board of Health in 1877 under the direction of Charles F. Chandler, its president. The corrosive properties of the iron vault were later found to be impractical.
52. Morton 1860.
53. An interesting condemnation is found in the 1879 *Treatise of Public Hygiene and Public Health*, which states that "It is necessary to condemn the common 'privy' as dangerous to the health of scholars" (Buck 1879:604).
54. *The Sanitary Engineer* Vol. 11 (6), January 8, 1885:133.
55. *The Sanitary Engineer*, February 26, 1885. Vol. 11 (13):268. The article is entitled "Substitute for Privy-Vaults in New York."
56. New York State Laws 1887:97.
57. One identified school-sink, and possibly another, were found during archaeological investigation of the Court House Block in the Five Points district. The identified school-sink connected to a cistern converted into a cesspool that in turn connected to a larger cesspool within a building complex. The estimated construction date for the identified school-sink is before 1875 (Yamin 1997:Personal communication). Unlike the 97 Orchard Street school-sink, which connected to a municipal street sewer, the one at Five Points was part of an internal network that formed a large, private sewer system.
58. In addition to incorrectly locating the school-sink, the I-Card also was incorrect about the yard's dimensions. Its length, according to the I-Card, was 27 ft. when in reality it was only 19 feet 6 inches long.
59. Dr. Stephen Smith, a member of the executive committee of the Citizens' Association in 1864 and thereafter, put together a volume, *The City That Was* (1911). Here, and in a February 13, 1865, address to the Joint Committees of the Senate and Assembly published in the *New York Times* on March 16, 1865, he describes these inspectors and summarizes the findings of the inspection.
60. J. T. Kennedy, M. D., Inspector of the Eighth Sanitation District (Tenth Ward), 1865 (*Report of the Council of Hygiene and Public Health of the Citizens' Association of New York*, 1865:96). Like the rest of the city, the Tenth Ward had its alarming mortality statistics. For example, an 1865 newspaper account indicates that deaths from phthisis (tuberculosis), typhoid and scarlet fevers, "cholera Infantum," dysentery, small-pox, and diphtheria had occurred in 1864, but only on the lowest ground which was the poorest and most crowded part of the district (*New York Times* March 16, 1865:2:1). Perhaps more to the point, according to Dr. Kennedy, the reported mortality in his district was less than half that found in other tenement districts.
61. Stephen Smith in *The City That Was* (1911:69-100) graphically describes "Bad." It is also described in Smith's aforementioned Address to the Joint Committees of the Senate and Assembly on February 13, 1865, printed in the *New York Times*, March 16, 1865. Based on the descriptions, appalling is more apt than "bad."
62. The country-of-origin of the building's residents is documented beginning in 1864 (see James Shenton and Marsha Dennis in *Biography of A Tenement* 1991).

NOTES (continued)

63. This is suggested by archaeological findings at the Village of New Brooklyn, a mid-19th century enclave of German immigrants in what is now the Bedford-Stuyvesant section of Brooklyn. Here, where small wooden houses, not tenements, were the norm, only one privy pit was found although fifteen lots were tested. The documentary research prompted by this finding indicated that sanitary amenities in the German provinces where the homeowners originated did not necessarily include the classic privy pit (Geismar 1996).

64. For example, see Spann 1981 for a discussion of municipal services and their implications.

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LOWER EAST SIDE TENEMENT MUSEUM APPENDIX A
Tables

Catalogue Numbers (Table 1)
Catalogue Locations (Table 2)
Catalogue Descriptions (Table 3)
Artifact Catalogue (Table 4)

Table 1. LOWER EAST SIDE TENEMENT MUSEUM (97 ORCHARD STREET) All Catalogue Locations

NW Quadrant	SW Quadrant	Center of Yard	NE Quadrant	Adjacent to N Yard Wall
001 Clearing	003 Clearing	012 TT4	013 F3, E of F2	015 F2
002 TT1	005 Clearing	014 TT5	017** TP1, E part of F2	016 F2
004 TT2	009 TT3		022 TP2, E part of F2	018 F2
006 F1				019 F2
007 TT2				020 F2
008 F2*				021 F2
010 F1				023 F2
011 F2*				023A F2
024 TT6, S of F2				025 F2
034 TT7, S of F2				026 F2
035 TT8, W of F2				027 F2
				028 F2
				029 F2
				030 F2
				031 F2
				032 F2
				033 F2
				036 F2 (ss)
				037 F2 (ss)

* Later identified as privy vault/school-sink (F2)

** Originally thought to be outside of vault, but later proved to part of F2

Table 2. LOWER EAST SIDE TENEMENT MUSEUM (97 ORCHARD STREET) Catalogue Descriptions (F2* Only)

Cat. No.	Unit/ Feature	Location	Comments	Opening Depth	Closing Depth	Date
Catalogue Numbers for Brick Vault/ School-Sink Feature (F2)						
008	F2	NW Quadrant	Mortared brick wall; c 2 ft E of W yard wall; proved to be W wall of F2	5.6 ft	7.7	8/5/92
011	F2 (N side)	NW Quadrant	Brick wall proved to be N side of F2 (s)	--	5.9-7.1 ft (NW-NE)	8/5/92 8/6/92
(NOTE: 1/23/93 a backhoe was used to remove trees & test yard from S to N to a depth of c 5 ft; upper part of walls of a rectangular "school sink" were exposed; see Cat Nos 016, 018-021, 023, 025-033)						
015	F2	NW Quadrant	Clearing in and around F2 (M)	--	Paving stone slab in NW cor of F2 6.03 BD	7/28/93
016/ 018	F2 F2	N yard N yard	W part of F2, brick vault W part of F2; 5.3 ft W-E; rectangular brick drain hole in N wall lined w/ wood (chamber pot frags among artifacts)	9.8 ft BD	10.32 ft BD	7/28/93 7/29/93
017	TP1	E end of F2	Adjacent to pipe in E part of F2; (watch case Pat 1892 among collected artifacts (M))	5.41 ft BD	9.2 ft BD	7/28/93
019	F2	N yard	Beyond E end of F2; intrusive brick wall at E end of F2	5.28 ft BD to top of drain pipe in S side	8.62 ft BD in hole	7/29/93
020	F2	N yard	Balk in NW corner of F2	5.23 ft BD	8.62 ft BD	7/29/93
021	F2	N yard	SW corner of feature (s p/o)	c 10.0 ft BD	10.4 ft BD (SW cor)	
023	F2	N yard	NW part of F2 at bottom (s) (chamber pot frags)	9.9 ft BD	c 10.6 ft BD	8/5/93
023A	F2	N yard	Area under chamber pot (1879 penny)	--	--	8/5/93
025	F2	N yard	Extension of F2 to brick wall w/ drain (chamber pot frags; 1883 penny) (M)	6.8 ft Bd	--	8/5/93
026	F2	N yard	Area below large piece of stone (18.5 x 12 in) in center of F2 (s)	9.5 ft BD	10.1 ft BD	8/5/93
027	F2	N yard	E 1/2 of F2 below stone (see 026)	10.1 ft BD	Variable to 11.2 ft BD	8/5/93
028	F2	N yard	Removal of balk (M)	6.5 ft BD	7.82 ft BD	8/6/93
029	F2	N yard	E 1/2 of F2	7.82 ft BD	c bottom c 9.8 ft BD	8/6/93
030	F2	N yard	E 1/2 of F2 (1882? Penny + key)	Bottom	Bottom	8/6/93
031	F2	N yard	E end next to intrusive wall	7.82 ft BD	--	
032	F2	N yard	Intrusive wall at E end of F2 (s p/o)	--	C 10 ft BD	8/10/93
033	F2	N yard	E end of F2 near orig brick wall, removal of intrusive wall p/o)	10.2 ft BD	Bottom Variable 10.7-11.32 ft BD	8/10/93
036	F2	N yard	Wood lined drain in brick wall; soil sample	7.5 ft BD	7.9 ft BD	8/10/93
037	F2	N yard	E end of F2, btwn 2 brick walls, below paving stone; soil sample	Below paving stones	--	8/10/93

*F2 = Feature 2 (privy vault/school-sink feature)
 BD = Below Datum (sidewalk at NW corner of yard)
 BGS Below Ground Surface
 (s) = fully screened
 (s p/o) = partially screened
 (M) Includes modern debris not collected

Table 3. LOWER EAST SIDE TENEMENT MUSEUM (97 ORCHARD STREET) Catalogue Descriptions (Except F2)

Cat. No.	Uni/ Feature	Location	Comments	Opening Depth	Closing Depth	Date
Catalogue Numbers Exclusive of F2						
001	--	NW Quadrant	Yard clearing	Surface	--	11/23/91
002	TT1	NW Quadrant	E/W trench from W wall of yard, running E c 10 ft toward tenement building along brick garden? wall	.2 ft below (just under) tumbled brick & paving stoned stones	--	11/23/91
003	--	SW Quadrant	Clearing	Just under paving stones	--	11/23/91
004	F1 Drain	NW Quadrant	Top of brick creating upper part of drain (s p/o)	1.8 ft	--	11/23/91
005	--	SW Quadrant	Clearing below coal dust (no catalogue sheet)	C 1 ft BGS	--	11/23/91
006	F1 Drain	NW Quadrant	Layer below drain (s p/o)	--	--	11/23/91
007	TT2	E of rear yard wall	NW cor of brick "garden" c 4 ft from N wall (F2 wall encountered)	2.1 ft-3.45 ft BGS	--	8/5/92
009	TT3	SW Quadrant	E/W trench c 5.5 ft from S property line; runs E from rear yard wall	4 ft BD	7.5 BD	8/5/92
010	F1[TT2]	NW Quadrant	Under F1 - Paving stone, W side of TT2 (s p/o)	6.5 ft	7.1 ft	8/5/92
012	TT4	Lines up w/ off center back door of tenement	Runs E toward building; contained metal drain set in concrete (5,7 ft BD); rough brick wall/ construction? associated w/ drain	C 4-4 in BD (top of paving stone to bottom of pit)	--	8/6/92
013	F3	N side of yard parallel to wall (2.3 ft S of N wall)	Rectangular brick feature possibly part of F1 located 11/23/91	5.2 ft BS	6.1 ft BD 3.1 ft BGS	11/23/93
014	TT5	Nr center of yard	Diagonal backhoe trench nr center of yard	2.3 ft BD	5 ft BGS	11/23/93
022	TP2	NE Quadrant	SE segment outside of F2; test of area	GS	7 ft BD	7/29/93
024	TT6	NW Quadrant	Outside of S wall of F2; rectangular trench 1.75 x 5.05 ft; 2.38 ft below brick wall at E end; top of wall 6.6 ft BD	6.1 ft BD	--	8/5/93
034	TT6	NW Quadrant	S of S wall of F2; trench on outside of brick wall of F2	--	Variable 11.05-13.0 ft BD	8/10/93
035	TT8	NW Quadrant	W of W wall of F2 (1962 nickel) (M)	--	6.8 ft BD	8/10/93

BD = Below Datum (sidewalk at NW corner of yard)

BGS = Below Ground Surface

F2 = Feature 2 (privy vault/school sink feature)

GS = Ground Surface

(s) = fully screened

(s p/o) = partially screened

(M) = includes modern debris not collected

Table 4. LOWER EAST SIDE TENEMENT MUSEUM (97 ORCHARD STREET) Artifact Catalogue, July-August 1993

Cat No.	Art. No.	Material	Description	Ware/Color	Count	Location (S)/(S p/o)*	Remarks/Date**
015 (M)	1	Ceramic	(W) Medicine/ ointment pot; undec	Pe/W	1	S of F2, in fill	Little / no wear
	2	Plastic	Beverage cup frags; pink ext, white int		3		"SOLO BATHROOM REFILL CUP/107" (modern)
017 (M)	1	Metal	Watch case		3	Btwn brick wall in E end of F2 and concrete slab along building's rear wall, c 6.2 ft BD (c 3.2 ft BGS)	"AMERICAN WALTHAM WATCH CO./ PATENTED AUG 4 1855/JUNE 30(?) 1892"; Mixed w/ modern debris (1895+)
	1	Ceramic	Chamber pot rim/side frag; sm pot	W	3	W part of F2; 9.8 ft BD (c 6.8 ft BGS)	Crossmends to 023-1, 025-1; blue cast to glaze
	2		Tea cup base and side frag; tr of hand painted orange/red floral design on ext	P	1		Oriental-style foot ring
	3		Pitcher spout frag	W	1		Lg pitcher, poss an ewer; may be same as 021-4, but no apparent mend
	4		Chamber pot?, rim frag; sm	Pe/W	1		
	5		Poss chamber pot rim frag; sm	?	1		
	6		Unid (crock side?) frag; clear glazed int, partly glazed ext	R	1		
	7		Plate? frag; undec	R	1		May be same as above, but no mend
	8	Glass	Medicine bottle shoulder/neck frag; applied rim, badly exfoliated	A	1		(1850?+)
	9		Bottle body frag	DBr	1		Beer bottle?
	10		Window glass frag	C/A	1		
	B1	Faunal	Clam shell frag; sm		1		
	B2		Oyster shell; sm		1		
	SS1	Soil	Sample***		-		From under lg frag of cermaic chamber pot
019	1	Ceramic	Plate/bowl rim frag; blue shell edge	Pe	1	Btwn brick walls, E end of F2	Finely made (c1820-1860)
	2		Unid tableware edge frag; sm, blue TP, Willowware design?	Pe?	1		Cup frag?
	3		Unid rim frag; sm, chamber pot?	Pe/W	1		
	4	Glass	Medicine bottle shoulder frag?	C	1		Thin, exfoliated glass
	B1	Faunal	Mammal (meat) bone frag; sawed		1		Fragmented
	B2		Mammal (meat) rib frag		1		Very fragmentary
020	1	Ceramic	Saucer base/ side/ rim frag; blue TP	W	1	NW corner, F2	Tableware (mid-19th C)
	2		Cup side/base frag; fluted	P	1		Minimal wear on base
	3		Plate? rim, frag; green, shell edge	Pe?	1		Tiny frag
	4		Crock?, rim and side frag; clear int glaze, tr of clear glaze on ext rim, wide mouth				
021	1	Ceramic	Unid rim frag; thick body, undec	W?	1	Near/ at bottom of TT, in SW corner of F2	
	2		Cup? rim frag; sm, undec	W/G	1		
	3		Unid rim frag; sm, blue TP	W	1	(s p/o)	May be poorly made
	4		Unid body frag; pitcher?	W	1		Same as 018-3? no crossmend
	5		Cup handle frag; delicate	P	1		

Table 4. LOWER EAST SIDE TENEMENT MUSEUM (97 ORCHARD STREET) Artifact Catalogue, July-August 1993

Cat. No.	Art. No.	Material	Description	Ware/Color	Count	Location (S)/(S p/o)*	Remarks/Date**	
021	6		Unid handle frag; Br glaze	E	1		Very light, porous clay	
	7		Unid frag; sm, clear int/ ext glaze	R	1			
		8-10	Ceramic/Glass	Buttons; 2 and 4-hole		3		2 whole, 1 fragmentary
		11	Glass	Beer mug w/handle; sm size, deep kck-up	C	1	Bottom of TT in F2	Wear on bottom (late 19th C)
		12		Unid frag; sm, bottle?	A	1		Medicine?
		13		Unid frag, sm		1		Too fragmentary to identify
		14		Window glass?; sm frag	C	1		Unnumbered
		15	Metal	Unid corroded objects		2		
		B1	Faunal	Unid mammal (meat) frag; sawed/ cut		1		
		B2		Unid mammal (meat) rib bone; sawed		1		
		B3		Unid sm mammal bone frag; femur		1		
		B4		Unid sm mammal; phalanges		2		
		B5		Unid sm mammal; phalange		1		
		B6		Unid mammal bone; sm frags		4		
		B7		Unid Avis (chicken?) bone		1		
		B8		Unid Avis; bone frag, sm		1		Unnumbered
		B9		Avis leg rings (chicken?)		7		
	B10		Egg shell; sm frags		2		Unnumbered	
	B11		Fish bones		13		Unnumbered	
	B12		Fish scales		16		Unnumbered	
	B13		Clam shell frags		3		Unnumbered	
023	1	Ceramic	Chamber pot; sm pot, lg frags, 1 w/ handle		5	Near/on bottom, W part of F2 (s)	From screened deposit; molded, saw-tooth design ext top/ bottom; crossmends w/ 018-1, 025-1 (1840+)	
	2		Plate/ saucer rim frag; muted	G?	1		Muted embossing	
	3		Unid rim frag	W/G	1		Crock rim?	
	4		Unid rim frag; sm, thick	W?	1			
	5		Unid rim frag; glaze appears to be eroded by water action	W?	1		Sm frag	
	6		Unid rim frag; sm, broken	?	1			
	7		Unid frag; undec	P	1		Spout?; very fragmentary	
	8		Unid tableware frag; blue TP	W	1		Mid-19th C design? (mid 19th C?)	
	9		Unid tableware frag; Bk TP & stippled design	W?	1		Very sm frag	
	10		Unid frag; sm, tr paint/ blue TP	P?	1			
	11		Unid, mocha printed frag; tiny	Pe?	1		(late 18th/early 19th C)	
	12		Unid (teapot? crock?) vessel; mottled Br glaze int/ ext	E	2			
	13		Unid body frag; int buff colored; ext br/red, some mottling	?	1		Sm frag; thin	
	14		Bottle body frag; buff colored	S	1		Beer/ water bottle frag	
	15		Crock? body frag; sm, buff ext; Br int	S	1		Sm frag	
	16		Unid body frag; Br ext glaze	E?	1		Very sm frag; int glaze missing	
	17,18		Crock/jug? body frags; Bk int & ext glaze	R	2		No mend, but may be same vessel; similar to 033-14, but no mend	
	19		Crock? body frag; clear int/ ext glaze	R	1			
	20		Misc frags	W?	6		Unnumbered	
	21	Glass	Photo plate?; 3 3/4 x 5 in.	C	1		Thick; tr of emulsion? dirt clings to poss emulsion;	
22		Bottle body frag; embossed	Br	1		"...NTS...LUML..."; similar to 031-13, but may or may not be same object		

Table 4. LOWER EAST SIDE TENEMENT MUSEUM (97 ORCHARD STREET) Artifact Catalogue, July-August 1993

Cat No.	Art. No.	Material	Description	Ware/Color	Count	Location (S)/(S p/o)*	Remarks/Date**	
023	23		Bottle? body/ neck frag?	Br	1			
	24		Medicine base; sm, rec	A	1		Badly exfoliated	
	25		Unid frag (bottle?)	C	1			
	26		Unid frag (bottle?)	C	1			
	27		Bottle body frag; side panel?	A	1			
	28		Bottle body frags; related?	A	3			
	29		Unid frags; lighting-related?	C	6		Unnumbered	
	30		Misc bottle? frags	A	4		Unnumbered	
	31		Misc bottle? frags	C	4		Unnumbered	
	32		Misc bottle? frags	A	3		Unnumbered	
	33		Unid thin flat frags	A	2		Unnumbered	
	34		Unid thin frags (bottle?)	G	2		Unnumbered	
	35		Flat frags (window?)	A	13		Unnumbered	
	36		Flat frags (window?)	A	13		Unnumbered	
	37	Metal		Unid frag; corroded		1		Unnumbered
	38			Nails; badly corroded		3		Unnumbered
	39			Unid sm frags; corroded		3		Unnumbered
	40			Unid frag; green,brass/copper?		1		Unnumbered
	41			Unid, rounded, corroded,object		1		Dome-shaped; impression?; unnumbered
	42			Ring; brass?, 7/8 in diam		1		Little weight
	43	Ceramic/ Glass		Buttons; sm, 4-hole, undec		6		Unnumbered
	44			Buttons; 4-hole; med; undec		3		Unnumbered
	45	Bone		Button?; no hole (fragment)		1		
	46	Glass		Unid object; oval, flat	Bk	1		
	47	Shell		Button; 2-hole, Mother-of-Pearl		1		
	48			Button frag; Mother-of-Pearl		1		Same as above
	49	Ceramic/ Glass		Button; sm, 2-hole		1		
	50	Metal		Button; sm, shank-type	Bk	1		
	51	Glass		Bead; round	C	1		Orig clear; now worn
	52	Ceramic		Pipe stem? frag	K	1		Sm diam, relatively large hole
	53			Pipe stem frag	K	1		
	54			Pipe bowl frag; unused	K	1		
	55	Stone		Slate pencil frags		3		Unnumbered
	56	Paper		Newspaper frags, printed		2		Text and advertisements; unnumbered
	57	Stone		Mica frag		1		Natural? from Manhattan schist?; unnumbered
	58	Wood/ Metal		Wood frag w/copper/brass tack?		1		Unnumbered
	59	Metal		Unid frags, sm, corroded		5		Unnumbered
	B1	Faunal		Unid mandible, sm mammal		2		Rodent?
	B2			Mammal bone (meat)		1		Lamb?
	B3			Mammal bone (meat), sawed		1		
	B4			Mammal bone (meat), sawed		1		
	B5			Mammal bone (meat), broken		1		
	B6-14			Mammal rib bones (meat)		11		B11 and B12 each comprise 2 frags
	B15			Unid mammal (meat) bones		8		Unnumbered
	B16			Unid mammal bone frags; misc		15		Unnumbered
	B17			Unid sm flanges		11		Unnumbered
	B18-20			Unid Avis (food bird?), misc		15		Unnumbered
	B21			Unid Avis (food bird?) vertebra		4		Unnumbered
	B22			Avis (chicken) leg ring		1		Unnumbered
	B23			Misc fish bones, whole & frags		45		Unnumbered
	B24			Fish spines, vertebrae, scales		47		11 spines; 18 vertebrae; 18 scales
	B25			Unid bone frags		2		Poss bird (table bird); unnumbered

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Cat No.	Art. No.	Material	Description	Ware/Color	Count	Location (S)/(S p/o)*	Remarks/Date**
023	B26		Unid scrap bone		15		Count approx; unnumbered
	B27		Clam shell frags		12		Unnumbered
	B28		Snail shell (land snail), frag		1		Unnumbered
	B29		Egg shell frags		11		Count approx; nnumbered
	S17		Seed case?		1		Unnumbered
023A	1	Metal	Indian Head penny, badly corroded		1	Under chamber pot frag	Shield design indicates Indian Head, date barely readable (1879)
	2		Lingerie adjuster? brass?		1		Attached unid material; unnumbered
	3		Lingerie adjuster frags?; brass?		2		Fragile; unnumbered'
	4		Button? brass? badly corroded		1		Unnumbered
	5		Unid frags; brass/ copper? corroded		2		Unnumbered
	6	Shell	Button; sm, 4-hole	W	1		Unnumbered
025 (M)	1	Ceramic	Chamber pot base & body frags		2	E end of F2 Btwn 2 brick walls, opened at 6.8 ft. BD (3.8 ft BGS)	Crossmends to 023-1, 018
	2		Plate rim frag; edged/scalloped	W?	1		
	3		Dish rim/body/base frag; sm; Vessel; green sprig; painted	W?	1		(pattern 1830s- to 1840s)
	4		Plate rim frag, fluted	G?	1		Edge missing (1840+)
	5		Unid tableware frag;sm, undec	W/G	1		
	6		Unid tableware? rim frag; undec	W/G	1		Thick bodied
	7		Unid hollowware rim frag; undec	W?	1		Plate/ bowl? (thin body)
	8		Unid hollowware frag; fluted, Curved	P	1		
	9		Unid hollowware frag; sm, annular/ blue painted ext (floral)	W?	1		
	10		Unid frag; sm, dark blue TP ext	Pe?	1		
	11		Unid rim frag; flat, Bk/ blackened	W?	1		
	12		Unid body frag; sm, ext clear glaze		1		Crock frag?
	13		Unid frag; sm, clear int/ext glaze	R	1		
	14	Glass	Beer bottle frags; Mexican (Corona?), color applied Bk & white label	C	4		"CO...EX...MADE IN MEXICO/BEER/C... BREWED AND BO[TTLED]...CERVECERIA MODELO MEXICO, D....REG.S.S.A.NO.." An intrusion??? (modern)
	15-17		Beer bottle frags; Corona,color applied Bk & white label	C	3		No mends, but obviously part of 025-08; "[C]O[R]...SE HEA...CAMB...SAN A... GOVERNMENT WAR[NING]...SHOULD NOT DRINK AL...BIRTH DEFFECT...(2) C...DRIVE A CAR OR OPRTATE...SE HE...WT-D..."
	18		Medicine bottle neck/ rim frag; applied rim	C	1		Late applied rim (1880+)
	19		Bottle base (beer?); heavy wear	Br	1		
	20		Bottle base frag; embossed	C	1		"92,."; unid mark; intrusion? (modern 1992?)

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Cat No.	Art. No.	Material	Description	Ware/Color	Count	Location (S)/(S p/o)*	Remarks/Date**
025 (M)	21		Bottle base frag; embossed	C	2		"4"; intrusion? (modern)
	22		Misc bottle frags?	C	2		Unrelated; 1 fluted; unnumbered
	23		Misc bottle frags (beer?)	Br	4		Unrelated, but prob beer; unnumbered
	24		Misc bottle frags; unid	G	2		
	25		Flat frag (window?)	A	1		
	26		Unid frag; curved, concretion	A	1		
	27		Unid frag; silvered, curved	C	1		
	28		Unid frag; sm, opaque blue	Bl	1		
	29	Metal	Indian Head penny, 1883		1		Unnumbered (1883)
	30	Ceramic	Button; sm, dome-shaped, metal shank	P	1		Unnumbered
	31	Paper	Newspaper frags		5		Sports news indicate intrusion; unnumbered
	32	Ceramic	Pipe stem frag	K	1		
	33	Stone?	Base frags; square, hole in center		2		Use unknown; possible stand/ base for artifact display
		B1	Faunal	Avis (bird) bone frags		2	
	B2		Unid bone frags; sm		2		
026	1,3	Ceramic	Chamber pot base frags	W	2	Center of F2 9.5-10.1 ft BD, below a lg schist slab (s)	No mend/crossmend, but prob same as 018-1, etc
	2		Plate? rim frag; unid	W/G	1		
	4		Unid tableware rim frag; blue TP	W	1		Mid-19th C pattern
	5	Glass	Flat frag w/ patterned finish	C	1		Safety glass of some kind
	6		Unid frag; melted	A	1		Burned frag; trash
	B1	Faunal	Clam shell, lg, almost whole		1		
027	1	Ceramic	Chamber pot frag; near base	W	1	1F2, E 1/2 below stone, 10.1 ft BD (7.1 ft BGS)	No mend but prob same as 018-1 etc
	2		Unid tableware; base frag; tr blue TP	W	1		Wear on base
	3		Mineral water bottle body frag	S	1		May be same as 031-11; no mend
	4		Bottle/Crock body frag	S	1		
	5		Crock/jug base & side frag	S	1		
	6		Crock/jug body frag; sm	S	1		
	7		Unid frag; sm, squarish	W?	1		Tile? flat, glazed on 2 sides
	8	Glass	Bottle body frag; rd	A	1		
	9		Bottle side frag; rec	A	1		Sick glass (exfoliated)
	10	Ceramic/ Glass	Button; sm, 4 hole		1		
028	1	Ceramic	Cup side & rim frag; gold band under rim; TP & painted dec (scene)	Pe/W?	1	Balk in E part of F2 6.2-7.6 ft BD (3.2-4.6 ft BGS)	Poss mustache cup
	2		Bowl rim frag; banded Bk, blue, terracotta	Pe	1		Crossmends to 029-1 (19th C)
	3		Cup? rim frag; sm, dark blue TP int/ ext	Pe?	1		Very tiny frag (1830s?)
	4		Cup? rim frag; sm, blue TP int	W?	1		Sm frag; cup rim? (19th C)
	5		Sewer pipe frag; connection, glazed	E	1		
	6		Unid rim frag; sm, no glaze	S?	1		

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Cat No.	Art. No.	Material	Description	Ware/Color	Count	Location (S)/(S p/o)*	Remarks/Date**
028	7	Glass	Soda/mineral water bottle top; blob top & part of neck	A	1		(1850-c 1900)
	8	Stone	Slate pencil frag		1		
	9	Tinfoil/Paper	Label frag; grape drink?		1		"10 FL OZ" (modern)
029	1	Ceramic	Bowl rim frag; banded		1	F2 near metal drain pipe in E part; 7.82 ft BD (4.8 ft BGS)	Cossmends to 028-2
	2		Cup rim frag; sm, undec	W?	1		
	3		Unid frag; sm, shaped	W/G	1		
	4		Unid frag; sm, incised line	W/G	1		
	5		Unid frag; glaze remaining on 1 side only	W?	1		
	6	Glass	Bottle panel frag; rec	A	1		Exfoliated
	7		Perfume? bottle base, pontiled	A	1		Wear on base (c 1840-1850?)
	8		Unid frag; melted	A	1		
	9		Button; Jet, back missing?	Bk	1		
	10	Ceramic/Glass	Button; 4 hole		1		
	11	?	Bead; white, rd		1		
	12	Ceramic	Marble; undec	S	1		
	13	Asphalt	Roofing material frag; sm		1		
030	1	Ceramic	Unid rim frag; tiny; poss child's tea set cup	P	1	F2 E part bottom (11.32 ft BGS; 8.32 ft BGS) (s p/o)	
	2		Unid frag; sm	W/G?	1		
	3		Unid frag; tiny, undec	W?	1		
	4		Unid rim frag; tiny; hand painted int	P	1		
	5		Unid frag; clear glaze int/ext	R	1		
	6	Glass	Medicine neck & rim frag; applied neck; top missing	A	1		
	7	Metal	Key; brass, corroded		1		Adhered to F2's mortared floor; next to a nail (unremoveable) & Indian Head penny (see 030-8)
	8		Indian Head penny; date not clear		1		Date not fully legible, but J. Parrella, a coin expert, believes it reads 1882 (c 1882)
	9	Unid	Unid slim rod frag; embedded in corrosion w/a stone attached		1		
	10	Metal	Unid frags; 2 may be brass, third has eyelet in metal		3		Unrelated, sm, frags
	11	Ceramic	Pipe stem frag; sm	K	1		
	12	Glass?	Bead; bugle type	C	1		
	13	Ceramic/Glass	Button; 4 hole		1		
	14	Glass	Buttons; sm, 4 hole		3		
031	B1	Faunal	Mammal, lg, rib bone (meat); sawed on both ends		1		
	1	Ceramic	Bowl base & side frag; undec	Pe/W?	1	Just W of intrusive brick wall, E part of F2; same opening depth as 029 (7.82 ft)	Wear noted on base
	2		Bowl rim & side frag; undec; poss a London shape	Pe/W	1		

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Cat No.	Art. No.	Material	Description	Ware/Color	Count	Location (S)/(S p/o)*	Remarks/Date**
031	3		Unid hollowware rim frag; flared shape, undec	W	1		
	4		Cup base frag; fluted	G	1		No obvious wear (1840+)
	5		Cup body frag; tr of handle	W	1		
	6		Cup rim frag; sm, undec	G	1		(1840+)
	7		(M) Plate/sm dish rim frags; dark blue painted rim & design	Pe?	2		Could be remnant of an early vessel
	8		Unid tableware rim frag; dark blue TP border	Pe/W?	1		
	9		Cup? body frag; tiny, blue TP int & ext	Pe/W?	1		
	10		Utility bowl/pan body frag	Y	1		Remnant of kitchen ware (1845+)
	11		Mineral water bottle shoulder frag	S	1		May be same as 027-3 but no mend
	12		Sewer pipe frags; no mend	E	2		
	13	Glass	Unid bottle frag; molded bands	Br	1		Similar to 023-21; no crossmend
	14		Unid pressed glass frag; leaf motif	C	1		Bowl/ dish? frag too sm to identify vessel
	15	Metal	Unid tip frag; sm		1		Brass?
	16	Ceramic	Pipe stem frag	K	1		
	17	Rubber	Button; 2 holes, hard rubber, stamped		1		"GOODYEAR'S PAT. 1851./N.R.CO" (1855-1870; in use to c. 1899) ^{cc}
	18	Ceramic/ Glass	Button; rd, sm, shank, domed Center		1		
	19-21		Buttons; sm, 4-hole		3		
	22		Button frag (c 1/2); 4 hole		1		Unnumbered
	033	1	Ceramic	Unid hollowware frag; p/o handle painted under glaze, molded, pink int	Pe/w?	3	E end of F2 near orig brick wall (After removal of intrusive brick wall)
2			Unid hollowware, body frag; pink int	Pe/W?	1		Prob same as 033-1, but no mend
3			Unid hollowware, rim frag; pink int	Pe/W?	1		Prob same as 033-1, 2, but no mend
4			Plate rim frag; sm vessel, fluted	W/G?	1	10.2-11.32 ft (11.32 is bottom of F2 at deepest point)	
5			Figurine body frag; female	P	1		Sm object, tr paint
6			Unid rim frag; sm	W/G?	1		
7			Unid tableware frag; sm, molded pattern	G?	1		
8			Toy teacup side & rim; fluted	P	1		
9			Unid rim, cup?, frag; sm	W/G	1		
10			Unid tableware frag; tiny, dark blue paint under glaze	Pe/W	1		Tiny frag, poss with age
11			Misc frags	W/G	4		Unrelated; unnumbered
12			Misc frags	P	2		Unrelated; unnumbered
13			Unid body frag; tr glaze	S	1		
14			Unid frag; sm, glaze int & ext	R	1		Similar to 023-17, 18, but no mend
15	Glass	Bottle base, oval	A	1		Some reuse	
16		Medicine/ extract bottle side frag	A	1		Rec bottle; exfoliated	
17		Bottle shoulder, rim frag; rd	A	1			

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Cat No.	Art. No.	Material	Description	Ware/Color	Count	Location (S)/(S p/o)*	Remarks/Date**	
033	18		Bottle rim and body, sm vessel; child's toy? molded rim	C	1		Appears to be a toy, but could be sm bottle	
	19		Medicine bottle rim & neck; applied rim	A	1		Well made applied rim, appears to be late manufacture	
	20		Bottle body frag; unid	A	1		Sm frag	
	22		Bottle? frag; sm, unid	A	1			
	23		Bottle? body frag; sm, unid	A	1		Possible corner of rec bottle	
	24		Misc frags	C	3		Unrelated; unnumbered	
	25		Misc frags	A	2		Unrelated; unnumbered	
	26		Misc thick bottle frags	C	3		Unrelated; unnumbered	
	27		Misc bottle frag	AM/G	1		Unnumbered	
	28		Flat frags	A	2		Unrelated; unnumbered	
	29	Ceramic/ Glass	Buttons; sm, 4 hole			3		Unnumbered
	30	Wood	Treenails (pegs)			4		Unnumbered
	31	Ceramic	Marble?; undec	S		1		Battered; unnumbered
	32	Stone	Slate pencil frags			5		Unnumbered
	33	Metal	Unid frags; brass/copper, badly corroded			8+		Additional sm pieces; unnumbered
	34		Unid metal object w/accretions			2		C .5 ft from bottom of F2; Unnumbered
	35	Ceramic?	Unid object; poss a doll limb			1		
	B1	Faunal	Mammal vertebrae frag			1		No butchering info
	B2		Rib frag; sm mammal butchered?			1		
	B3		Mammal long bone frag; butchered; food animal			1		
	B4		(W) Avis (bird) bone			1		
	B5		(W) Shell, cockle?			1		
			Clam frags			2		
	B6, B7							
	035 (M)	1	Ceramic	Plate/ dish/ saucer rim frag; tr of red paint under glaze	W?	1	Just side W wall of F2	
		2		Crock/ covered dish? rim? frag	W/G	1		Ext pitted
		3		Cup? rim frag; undec	W/G	1		
		4		Plate rim frag; blue shell edge	Pe	1		Well made
		5		Unid hollowware base frag; undec	Pe/W?	1		Some wear on base
		6		Unid frag, undec, tableware?	W	1		
		7		Cup? base frag; molded dots near base, Br glaze above	Pe?	1		Sm frag
		8		Unid tableware?, frags; mochaware dec	CC/Pe?	2		(late 18th/ early 19th C)
		9,10		Cup? rim frags; blue TP int		2		(M) Typical mid-19th C pattern
		11		Dish? rim frag; Willowware TP	Pe?	1		
		12		Meat jar? frag; TP label	G?	1		"...BEEF.../PR.../E[S?]..."; rendering of cow
13			Chamber pot? pitcher? body frag; blue dec slip over br bands; tr of handle	Y	1		Similar to pitchers from the 1870-1910	
14			Base frag; unid; clear int & ext glaze	R	1		Sm vessel	
15			Pie plate edge frag; slipware; green & sream slip	R	1			
16			Unid frag; Bk glaze	R	1		Similar to 023-17,18; 033-14 but no mends	

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Cat No.	Art. No.	Material	Description	Ware/Color	Count	Location (S)/(S p/o)*	Remarks/Date**
035	17		Crock? body frag; sm, Br int glaze	S	1		
	18		Crock? body frag; sm, int glaze missing	S	1		
	19		Unid frag; tr of clear glaze	R	1		
	20		Unid tableware rim frag; copper Lustreware; int lustreware rim, but body (white glaze)	R	1		Poss pitcher?
	21		(W) Liquor bottle; sm vessel, C machine made; embossing on base; printed cap; identified as scotch	C	1		"BALLANTINE'S" on cap 2x "GEORGE BALLANTINE & SON LTD DUMBARTON & ELGIN" symbol "8," no reuse (modern)
	22		Tumbler? base frag; fluted	C	1		Reuse; relatively modern
	23		Bottle body frag; rd, unid	A	1		
	24		Base frag; of lg bottle, unid	DG	1		
	25		(W) Flat glass, thick; unid	A	1		Poss photo-plate w/emulsion; c 3 3/4 x 5 in. (Civil War era)
	26		Flat glass frag; thin (window?)	A	1		
	27	Ceramic	Marble; large	Rock	1		Lg marble
	28		Marble; sm, white glaze	W?	1		Sm marble
	29	Ceramic	Pipe bowl frag; unused	K	1		
	30	Plastic	Vial; sm, green stopper		1		
	31		Strip; unid green, embossed		1		
	32	Metal	diag pattern on 1 side Jefferson nickel, 1962		1		(1962+)
			Unid strip; badly corroded		1		
			Wire nail; galvanized		1		(modern)
036	SS1	Soil	Sample***		-	nr E end of F2	Wood-lined drain in brick wall
037	SS1	Soil	Sample		-	E end of F2	Btwn 2 brick walls below paving stone

Total Artifacts 319

* (S)=Soil 100% Screened; Sp/o=Soil Partially screened

** Possible dates are noted in parentheses

*** Soil samples sent to laboratory for analysis

∞ Cienna, Carol 2003:Personal communication (antique button dealer)

BD Below Datum

BGS Below Ground Surface

A=Aqua; Am=Amber; Art=Artifact; Bk=Black; Br =Brown; c=circa; In Ware/Color Column C =Clear; Cat =Catalogue; CC =Creamware; Dec =Decorated; DG=DarkGreen; Diag=Diagonal; Diam=Diameter; Drk=Dark Brown; E=Earthenware; Ext=Exterior; Frag=Fragment; G=Graniteware; Int=Interior; K=Kaolin; Lg=Large; (M)=Mend; Orig=Original; P=Porcelain; Pe=Pearlware; Poss= Possible; R=Redware; Rd=Round; Rec =Rectangular; Rock=Rockingham; S=Stoneware; Sm=Small; TP=Transfer Print; Tr =Trace; TT=Test Trench; Undec = Undecorated; Unid=Unidentified; W=Whiteware; (W)=Whole; Y=Yellowware

LOWER EAST SIDE TENEMENT MUSEUM APPENDIX B
Wall Street Journal, August 24, 1993 (Gamerman)