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Cover Page Footnote

The Sullivan Street site was excavated under the direction of Bert Salwen in the summer of 1984. This article is based on my master's thesis in Anthropology at New York University; Bert suggested the topic and guided the thesis through to its completion. I was introduced to the social history of medicine by Bert Hansen, and I thank him for carefully reading and commenting on the original thesis. The original analysis of the Sullivan Street glass was done by Joseph Diamond, the ceramics by Deborah Crichton. I thank Diana Wall and Nan Rothschild for their helpful comments on this article. Errors of analysis or interpretation are, of course, my own.

THE ARCHAEOLOGY OF 19TH-CENTURY HEALTH AND HYGIENE AT THE SULLIVAN STREET SITE IN NEW YORK CITY

Jean Howson

The households represented by archaeological remains at the Sullivan Street site in Greenwich Village are used to explore issues related to health care in 19th-century New York City. Backyard features and domestic artifact assemblages are discussed in the context of institutional development and specific changes in medical practice. Consumer choices are seen as responses to differential access to sanitation, medical care, and information. Social class had a significant effect on both the infrastructure and material culture of health and hygiene for these households.

Les ménages représentés par les vestiges archéologiques du site de la rue Sullivan de Greenwich Village servent à examiner des questions relatives aux soins de santé au XIX^e siècle à New York. L'article traite des particularités des cours arrières et des assemblages d'artefacts domestiques dans le contexte du développement des établissements et de certains changements intervenus dans la pratique médicale. Les choix du consommateur sont vus comme des réponses à l'accès différent à la salubrité publique, aux soins médicaux et à l'information. La classe sociale exerçait un effet important sur l'infrastructure et sur la culture matérielle de la santé et de l'hygiène de ces ménages.

Introduction

Diverse factors—urban ecology, local politics, infrastructural development, the status and accessibility of medical professionals and institutions, medical science, rising consumerism, and basic living conditions—affected sickness and health in 19th-century New York City households. This essay emphasizes those variables that would have had a significant effect on the homes represented at the Sullivan Street site. It explores the development of an institutional context in 19th-century New York within which to place household-level processes, focusing on three broad topics: sanitation, medical theory and practice, and access to health care.

The Sullivan Street archaeological site included back yards of four adjoining house lots in Greenwich Village, Manhattan (FIG. 1). Houses were first built on the site in the 1820s, and demolished in 1903 when Sullivan Street was extended through the site area. Three of the houses, numbers 48, 49, and 50 Washington Square South (West Fourth Street) faced north onto Washington Square Park. The fourth was to the rear of these, and faced south at number 93 Amity Street (now West Third Street).

Privies associated with all four houses were excavated, as well as cisterns from 48 and 49 Washington Square South and 93 Amity Street. A well in the rear yard of 48 was sampled. Deposits from these features have

Figure 1. Map of New York with location of Sullivan Street Site.

Table 1. Sullivan Street Deposits.

Address	Feature	Approximate date(s) of deposition
48 WSS	privy	1860; 1900
48 WSS	cistern	1900
48 WSS	well	1900
49 WSS	privy	1850
49 WSS	cistern	1903 demolition debris
50 WSS	privy	1840-50; post-1854
93 Amity	privy	1870-80
93 Amity	cistern	1890

been dated as shown in Table 1 (Salwen and Yamin 1990; Howson 1987). Health and hygiene remains included the cisterns and privies themselves as well as artifacts in the refuse they contained. These remains point to both public and private approaches to health and the interface between them at the household level.

Historical Background

The new Greenwich Village real estate development of the 1820s and 1830s reflected demand for homes away from the densely-populated commercial and residential districts downtown. One of the key factors in creating this demand was the high incidence of disease in the southern tip of Manhattan—residents and businesses able to do so vacated the city's core during the yellow fever epidemics that visited the city from 1791 through 1822; many relocated temporarily to Greenwich Village (Duffy 1968: 101-123). New York experienced its last yellow fever epidemic in 1822; as usual the Village (about a mile north of what was then the city) was thronged with temporary residents, and all manner of business was conducted out of makeshift store fronts and hastily constructed offices (Still 1956: 103-104). Subsequently, accelerated population growth and increasingly crowded conditions downtown, as well as a growing demand for middle-class enclaves, made the time ripe for expansion of the city into the suburb of Greenwich Village.

It took a few years for the character of Washington Square—it had been a potter's field—to change sufficiently to attract middle-class buyers to the new houses around the square. By the middle of the 1830s, Washington Square South had achieved solid respectability, and the houses that would later be designated numbers 48, 49, and 50 were all owner-occupied, upper middle-class residences by the 1840s (for more detailed histories of individual house lots, see Wall 1991; Salwen and Yamin 1990; Wall 1987; Howson 1987). Amity Street never attracted the same class of residents, and the less expensive homes here were occupied mainly by artisans.

By the mid-1830s, the house at number 93 was no longer owner-occupied. It would continue to be occupied by tenants throughout the remainder of the century, and their number would increase as their class status declined. The 1870 census lists five families and five single women in the house, a total of 25 residents (United States, Bureau of the Census, 1870). By 1880, nine families and four single men and women lived there, a total of 33 people (United States, Bureau of the Census, 1880). By the turn of the century, it had been a crowded tenement for many years. Washington Square South went through a much more protracted social decline as the 19th century progressed, and in fact the occupants of numbers 48, 49, and 50 remained in residence even as this change was taking place around them. Two generations of the Tailer/Spencer family owned and resided at number 48 from the 1830s until the house's demolition in 1903. Dr. Benjamin Robson bought the house at 50 Washington Square South in 1841. He and his family and servants lived there until his death in 1879. Robson's daughter and her husband Francis Sage, a merchant, lived next door at number 49 from the 1830s through 1881.

Sanitation

The development of household hygiene in the 19th century was linked to the availability of public utilities, especially water and sewers. Although historians have studied water and waste in broad terms for New York and other cities, it is difficult to focus on the household level, for detailed records often do not exist for the earliest water and sewer connections. Even neighborhood-level information is often difficult to reconstruct from scattered public records. Specific

questions addressed at Sullivan Street include: How, when, and why did public utilities become available in the neighborhood? When did individual households hook up to water and sewers? What economic and social factors influenced when a house was connected to public utilities? What were some of the incentives for and consequences of connecting to these utilities?

Abandoned privies were found in four house lots at the site. Distinctions were immediately observed in the dates of their abandonment (determined by dating the refuse with which they were filled). At 49 and 50 Washington Square South privies appeared to have been in use only through the 1840s; at 48 Washington Square South abandonment seems to have occurred in about 1860; at 93 Amity Street, the privy was retained through the 1860s, perhaps into the 1870s. Cisterns excavated at Sullivan Street were filled with refuse much later than the privies, around the turn of the century. At 49 Washington Square South and 93 Amity Street the bottoms of the cisterns had been broken through to allow drainage, while at 48 Washington Square South the cistern floor was intact. The variability encountered at Sullivan Street in privy and cistern abandonment needs to be examined in light of technical development and policy changes relating to public water and sanitation.

In the first half of the 19th century, New Yorkers faced what can only be described as an ecological crisis. A rapidly expanding population and concurrent land modification necessitated a series of infrastructural innovations to ensure the city's continued viability and growth. A dramatic example of this process was the water supply crisis and its resolution (Duffy 1968; see especially chapters 9 and 17). Leveling and

filling had accompanied the development of the city, disrupting the natural water supply, and waste increasingly polluted wells and springs (Spann 1981: 117–138). The Fifteenth Ward, including the Greenwich Village block on which the Sullivan Street site is located, was no exception to this pattern, and water supply and waste disposal problems probably affected the early residential enclave.

The opening of the Croton aqueduct in 1842 was a milestone in the history of health in New York City. Householders had the option of installing plumbing in their homes once piped water was available in their streets. Pipes were laid throughout the lower part of the city relatively quickly (Moehring 1981: 47). Before 1848, a 12-in water main had been laid in Amity Street from Broadway to Sixth Avenue, and a 6-in main had been laid in Fourth Street or Washington Square South (Valentine 1850–1864: 270; Citizens' Association 1865). It is very likely that the householders on Washington Square at the Sullivan Street site would have installed running water in the 1840s. This would have been possible only for those with the financial means, of course, and the Robsons, Sages, and Tailers were probably wealthy enough to afford the work. The 1840s tax assessments for the three householders range from \$5,000 for Tailer; \$10,000–\$20,000 for Sage; to as much as \$31,000 for Robson (NYC, Record of Assessments, 15th Ward, 1840–1850). The Tailers may have waited longer than the others, because they had access to a well in their rear lot. Across the back yard from Dr. Robson's house, however, the house at 93 Amity Street was not owner-occupied. Here the landlord would have to have been willing to provide for the installation of plumbing for his tenants.

As water closets came into private use, they created severe sewer problems in densely populated areas still using backyard privies and cesspools (see Tarr et al. 1984: 228-233). Sewerage technology had to be developed to deal with these problems in order to alleviate the real and perceived health hazards that they caused. Some sewers intended for run-off and drainage had been constructed haphazardly during the early decades of the century, without much public coordination and often by private citizens. This older "system" was in disrepair by the time the Croton water scheme was approved, and new sewer construction was clearly in order. When Croton water actually started pouring into the city, the need for a system of public sewers became urgent.

In 1847 New York's Board of Aldermen compiled a list of sewers constructed in Manhattan through that year (NYC Board of Aldermen 1848). As Eugene Moehring (1981: 95) has pointed out, sewers were first installed in areas with severe drainage problems—the very early (1820) sewer in Sixth Avenue from Fifth Street to Carmine (NYC Board of Aldermen 1848: 278), near the Sullivan Street site, may reflect drainage problems related to the proximity of Minetta Brook (Burrall 1865). But other factors also determined precedence for receiving the service (Moehring 1981: 95):

Officials knew that chronic flooding would injure the residential development of both Union and Washington Squares, so, in an unusual display of energy, the city sewered most cross streets in the district before 1840.

While the more affluent north side of Washington Square Park had access to sewer lines laid as early as 1837 and

1845 (NYC Aldermen 1848: 284), the south side and Amity Street apparently did not receive sewers until sometime between 1847 and 1857 (Valentine 1857).

Before Croton water, privies had to be periodically cleaned in order to prevent overflow. But the city's control over this service was irregular and inadequate and, especially in poor neighborhoods, the privies simply did not get emptied. After Croton water, backyard waste removal became inadequate even for those wealthier homes that had their privies cleaned frequently. In fact, it was precisely those homeowners who could afford modern plumbing who had the greatest need of sewers to facilitate their private sanitary arrangements.

A water closet would be connected to a cesspool, which soon overflowed from domestic water containing sewage. Gutters and storm drains became contaminated with the overflow, and soils could become saturated (Tarr et al. 1984: 232). The conversion of rainwater cisterns into cesspools was noted by Dr. John Griscom in his famous 1844 address on "The Sanitary Condition of the Laboring Population of New York," in which he pointed out some new health hazards faced even by wealthier citizens:

since the introduction of the Croton, the rain water cisterns being useless, the bottoms of them have in many instances been taken out, and they have been converted into cispools [sic], into which the refuse matter of the houses is thrown. Great trouble is thus saved to families and domestics, but it needs no prophetic vision to perceive, that an immense mass of offensive material, will thus be soon collected, its decomposition polluting the air, in the immediate precincts of our chambers and sitting rooms, and generating an amount of miasmatic effluvia, incalculably great and injurious. Discharge

all the contents of our sinks and cesspools, through sewers into the rivers, and we will avoid two of the most powerful causes of sickness and early death. (Griscom 1845: 52)

The conversion of cisterns to cesspools may be illustrated at the Sullivan Street site, where as noted the bottoms of these features at 49 Washington Square South and 93 Amity Street had been broken through.

Even though the densely crowded poor may have been the most in need of sewerage improvements, the urgency of the problem in the better neighborhoods, where residents had installed water closets as described by Griscom, may have first prompted municipal action. In 1845, the Common Council voted to permit connection of privies and water closets to appropriate newly-built sewers, with payment by the property owner of a \$10 fee, permission of the local alderman, and proof that the householder had sufficient Croton water to carry off the sewage (Duffy 1968: 411).

This change in city policy could profoundly affect household sanitation. It is likely that homeowners on Washington Square South at the Sullivan Street site hooked up to public sewers as soon as possible after installing water closets. The Robsons and Sages seem to have done so very quickly, as indicated by the fill dates of their privies (c. 1850). The Tailers, at 48 Washington Square South, used their privy a decade longer. If their tax assessment can be used as an indicator of wealth, the Tailers were somewhat lower on the middle-class scale than the Sages and Robsons. Their tardiness in acquiring indoor toilets and hooking up to the city sewers may reflect this economic difference. Alternatively, the Tailers

may have been among those who found indoor sanitation disturbing.

May Stone (1979) has pointed out that 19th-century attitudes toward plumbing seem paradoxical, for while plumbing was a much desired amenity, it was at the same time feared as a source of disease. As long as the miasmatic theory prevailed, people thought they could contract diseases through "sewer gases" escaping from drains, the water in indoor water closets, and so forth (Stone 1979; Tomes 1990). If plumbing was not constructed properly (and it was a new technology, largely unstandardized and with relatively few well-trained practitioners), odors and backed-up drains could easily result. Gradually sanitary standards and more efficient plumbing products were developed, though concern continued (Tomes 1990). Despite people's fears, "by the late 1870s, private houses in major United States cities had as many water-supplied fixtures as their owners could afford: minimal facilities in modest dwellings, 'all the modern conveniences' in first-class residences" (Stone 1979: 283). The private homes on Washington Square South appear to have acquired their first sanitary conveniences even earlier.

The situation at 93 Amity Street, however, would have depended on the inclination of the absentee landlord. Judging by the later privy fill date of around 1870, tenants there continued to use the backyard outhouse much later than their neighbors on the park. There is little question that class membership profoundly affected access to basic innovations in sanitation.

The sanitation movement illustrates the complex relationships among science, technology, politics, and urban culture which began to develop in the 19th century. Effective sanitation does not actually require scientific knowl-

edge of disease mechanisms as long as it accepts filth as evil—in fact, the scientific misconceptions of “anticontagonists,” on which much of sanitary science rested, led to many sound public health policies. By the 1850s, most physicians and “sanitarians” believed disease was normally spread by impure air or miasmas, rather than direct contagion. Dr. Stephen Smith gave testimony before the New York State legislature in 1865, in which he summarized the findings of the city-wide sanitary survey (see Citizens’ Association 1865), basing his urgent plea for sanitary legislation on the “miasmatic” theory (Smith 1865):

Intestinal diseases, as cholera infantum, diarrhea, dysentery, typhoid fever, etc., which arise from, or are intensely aggravated by the emanations from putrescible material in the streets, courts and alleys, or from cess-pools, privies, drain pipes, sewers, etc., were prevalent in the tenant-house districts, creating, as usual a vast amount of sickness, and a large infant mortality.

Sanitarians promoted environmental improvement, including adequate waste disposal and drainage and mitigation of crowding (Tarr et al. 1984: 232). But, as Gert Brieger points out, “they had done the right thing, but for the wrong reasons. Not until the advent of the germ theory and the discovery of numerous specific bacteria in the last two decades of the century did the filth theory of disease receive its proper rationale” (1972: 278). The “filth” theory had replaced an earlier 19th-century tendency to view disease as somehow fostered by moral shortcomings of the poor (Rosenberg 1962). The move to improve infrastructure and to stop blaming the victims, largely tenement dwellers, marked a major shift in the attitudes that underlay public health policy.

Ignorance of specific disease organisms notwithstanding, water and waste management technology, along with housing codes, replaced pious preaching in the official approach to urban disease prevention.

Thus while installation of plumbing and access to public water and sewerage was a matter of choice and financial means in the 1840s and 1850s, by the late 1860s and 1870s official pressure could be brought to bear on some landlords. The establishment in New York of the Metropolitan Board of Health in 1866, a response to the threat of another cholera epidemic, facilitated implementation of city ordinances to clean up “nuisances” (Rosenberg 1962: 192-212). Though public health policies could not keep up with problems in the city’s hardcore slums, such as Five Points in the Sixth Ward, a slightly better class of apartments may have benefited. As we have seen, the house at 93 Amity Street appears to have finally acquired indoor plumbing after 1870, as much as 20 years after the Robsons in the house immediately to the north had installed theirs. It should be remembered, however, that even then the subdivided Amity Street house may have had only one water closet. It is doubtful separate sanitary plumbing would have been installed in each set of rooms, and the 33 residents of 1880 may have shared a single facility.

Nancy Tomes (1990) has explored the “private side of public health” and the possible role domestic hygiene played in disease control. She notes that the final quarter of the 19th century, with the advent of the germ theory of disease, saw even greater emphasis on home hygiene. As with the miasmatic theory, germ theory led to chronic fears of contamination by invisible disease agents in the home.

Individual sanitary failings were linked to rising rates of disease in late 19th-century American cities (Tomes 1990: 511), much as individual moral failings had been in the early part of the century. Growing middle-class consumer demand for new sanitary devices indexed "the public's eagerness to purchase exemption from deadly infectious diseases" (Tomes 1990: 535).

The middle-class families on Washington Square South, in constructing their version of domesticity, would doubtless have paid heed to the call to cleanliness in the home based on scientific theories (miasmatic or germ). Tenant households with little or no control over the installation and maintenance of sanitary facilities would have found themselves struggling to maintain minimal standards, or becoming targets of intervention by reformers. Various "solutions" to on-site sanitation for overcrowded dwellings were adopted in New York's poorest neighborhoods, and a material record of these can still be found. At the Foley Square archaeological site, remains of school sinks, cesspools, and drains attest to the often losing battle fought for control over domestic waste in the notorious Five Points slum (Leonard Bianchi, personal communication, 1992).

Medicine and Health Care

The 19th century was characterized by debates over medical therapeutics as well as the nature of disease and disease transmittal (Rosenberg 1979; Warner 1986). The depletive "heroic" regimen of the first part of the century was aptly named. In one historian's words, "armed with cups, lancet, and leech and provided with calomel [mercurous chloride], tartar emetic [antimony], arsenic, and an assortment

of other drugs, doctors proceeded to bleed, blister, puke, purge and salivate patients until they either died from the combined disease and treatment or persevered long enough to recover from both" (Haller 1981b: 98-99). In the second half of the century, heroic therapies were applied much more sparingly, and there was a shift to use of "stimulants," especially alcohol, and opiates as palliatives (Warner 1986: 91-98). In a watershed essay, Charles Rosenberg (1979) adopted an anthropological approach that views 19th-century therapeutics as part of a cognitive system. Physicians and patients shared a framework of explanation based on a "deeply assumed metaphor" of the body in dynamic interaction with the environment (Rosenberg 1979: 5). A major shift from this framework, in which each patient experienced disease uniquely and had to be restored to his or her own "natural" state, to one in which diseases were treated as specific entities disrupting "normal" states, occurred after mid-century (Warner 1986). It is necessary to examine not just science, but the social and institutional contexts (including those affecting everyday life at the household level) within which systems of meaning were undermined, transformed, and replaced.

The medical profession declined rapidly in status in the middle of the 19th century. Skepticism on the part of patients, Jacksonian levelling tendencies, poor education at large numbers of unregulated training institutions, and increasing debate over therapeutics all helped to undermine physicians' authority (Haller 1981b; Starr 1982; Numbers 1985; Warner 1986). Competition from medical sectarians rose in a context where both doctors and patients began to question the efficacy of traditional harsh therapies.

Botanical sects gained early popularity. By mid-century, homeopathy was the largest and most important of the medical sects (Numbers 1977, 1985; Cassedy 1977).

Regardless of therapeutic rationale or the status of individual practitioners, both professional identity and patient expectation demanded that treatment be active (Warner 1986: 11-36). Most often, this involved the administration or prescription of medicine. In *Washington Square*, Henry James ([1889] 1982: 1) portrayed Dr. Sloper as a good orthodox practitioner.

It was an element in Doctor Sloper's reputation that his learning and his skill were very evenly balanced; he was what you might call a scholarly doctor, and yet there was nothing abstract in his remedies—he always ordered you to take something. Though he was felt to be extremely thorough, he was not uncomfortably theoretic; and if he sometimes explained matters more minutely than might seem of use to the patient, he never went so far...as to trust to the explanation alone, but always left behind him an inscrutable prescription.

Instead of therapeutic categories, it may prove useful to classify the medicines themselves according to how they could be obtained. One type included the "regular" medicines prescribed by a physician or obtained directly from a druggist. The second type included patent and proprietary medicines obtained over the counter, though sometimes these were also prescribed (Dykstra 1955: 414-416). Finally there were home remedies, concocted according to common or private recipes and processes, with or without the use of orthodox or commercial ingredients.

Prescribed medicines were either administered directly by a physician

from his own kit, or obtained in glass bottles or paper packets from a physician or druggist. Incidence of direct administration of drugs would have been related to the degree of intimate personal contact the patient had with his or her physician. Through the 1860s diagnosis, drug therapy, and dosage frequently were decided only as the physician gained specific knowledge of both patient and environment (Warner 1986: 58-80, 92).

Patent and proprietary medicines were commercial products that bypassed the physician. Vast numbers of such preparations came on the market in the second half of the 19th century, and archaeologists frequently excavate their containers. It is important to place these artifacts in historical and cultural context. Patent preparations were part of a system of self-help (Young 1977; Cayleff 1990). National-scale industry and advertising (Hiss 1900; Young 1961, 1977) came to be incorporated into the way people thought about sickness and health, at conscious and unconscious levels (see Cayleff 1990: 327).

The taking of *any* medicine is an active response to physical distress, and in the 19th century efficacy was certainly not the key distinction between the patents and the regular medicines. Rather, the important distinctions were in the means of acquisition, the role of the physician versus self-help, and the symbolic appeal of various remedies. The patents often contained the same active ingredients as orthodox medicines, though they had a reputation for being much more palatable.

Young (1961: 36-37) has pointed out that attitudes toward the medical profession helped promote the rise of patent and proprietary medicines. Since many physicians themselves did

not believe in the efficacy of harsh therapeutics, many Americans simply "eschewed the rugged regimen of regular doctors and listened to patent medicine vendors who promised them an easier way" (Young 1961: 37). A circa 1880 advertisement for Radway's patent products was typical in its overt appeal to progress over the harsh old ways: "In these years of intelligence and improvement at which we have arrived, when science and discovery have developed gifts of nature formerly unknown; when the lancet and scalpel have in a measure been buried in the past; it is not surprising that medication should have assumed a gentler and more natural form than of old" (cited in Wilson and Wilson 1971: 74).

Those who did not have access to personal care from private physicians or the middle-class advice literature would obtain much of their medical "information" through advertising, including the almanacs distributed by large patent manufacturers.

This highlights the fact that while perceptions about medicine and its practitioners clearly affected peoples' health care choices, questions of access must be considered alongside choice. The second half of the 19th century saw an acceleration in the growth of health services in New York City. Physicians, "irregulars," hospitals, dispensaries, druggists, and self-treatment entered into the 19th-century healthcare equation, and their relative importance to individuals or households depended upon many variables, including class, gender, and ethnic background. (The historiographic essays collected by Apple [1990] provide a useful review of the vast literature on health and medicine in the last century.)

The growth in numbers of physicians had kept pace with the rapid ex-

pansion of New York's population in the 19th century, before licensing was controlled. In 1866, there were 806 regular practitioners and some 70 homeopaths registered in New York City, and large numbers of "irregulars" with no formal training also practiced (Rosenberg 1967: 225). In an overcrowded field, city doctors were often forced to accept patients from among the poorer classes. All of the residents of the homes that stood on the Sullivan Street site would have had access to physicians in one way or another. Dr. Robson and his family, of course, had the most immediate access. Not only was there a doctor in the house, but they would have had free access to specialists and colleagues of Dr. Robson through professional courtesy. Their neighbors on the park would probably have had family physicians of their own, or may even have been patients of Dr. Robson himself. Live-in servants would have been eligible to receive care from the family physician (Rosenberg 1967: 230). At 93 Amity Street, the lower middle-class residents of the earlier period (1830s–1860s) may have also had visits from private physicians when needed, perhaps practitioners who were not yet well established. Later, as a poorer set of occupants came to live there (1870–1900), access to physicians may have been mainly through visits from dispensary physicians or other charity-related rounds, or visits to dispensaries or hospitals when necessary.

Hospitalization was generally avoided if at all possible in the 19th century, when long-term care and even treatment of traumatic injury was best provided at home (Vogel 1979; Rosner 1982; Rosenberg 1987a). Social and cultural biases against institutionalization were strong, and there was little or

no medical benefit to be gained from hospitalization (Vogel 1979: 105). For middle-class families especially, care could be provided either by servants or women who did not work outside the home. The rise of domesticity in the early industrial period created health care personnel when women remained at home. It also created a need for women to reestablish power within the family and forge a new societal role, in partial response to which they became guardians of their family's health (Morantz 1977: 73; see also Smith-Rosenberg 1973 on women and the medical model, and Verbrugge 1979 on women's expansion of their role in the public sphere).

Nevertheless, the number of hospital patients in New York City grew throughout the 19th century. The rise of hospital care has been attributed partly to other changes in the American family. Families too poor to employ servants and in which all members had to work represented an increasing proportion of New York's population (Rosenberg 1977: 440). The separation of home from workplace made it difficult to attend a sick person during the day, and the number of people living alone increased with industrialization and urbanization (Starr 1977: 599; Lynaugh 1990). At 93 Amity Street, beginning in the 1870s, there were numerous single individuals, mostly women, living alone. These residents would have been vulnerable to hospitalization if they fell ill. Voluntary (privately funded) hospitals received "respectable" or "worthy" working-class patients. In cases of extreme poverty, unemployment, venereal illness, alcoholism, or contagious disease, patients were most likely to be admitted only to the public hospitals, former adjuncts of the almshouses.

Most of New York's poor were treated at the city dispensaries "in the hope of keeping the working man and his family safe from the hospital's pauperizing influence" (Rosenberg 1977: 429). The Northern Dispensary, located at the corner of Waverly Place and Christopher Street in the neighborhood of the Sullivan Street site, opened in 1827. There were five city dispensaries in operation by 1852, 29 by 1874, and no fewer than 63 by 1893 (Rosenberg 1974: 33; Duffy 1974: 186). Numbers of patients treated grew equally rapidly. Treatment at the dispensaries was typically for minor complaints such as bronchitis, colds or dyspepsia, minor surgery, fractures, contusions and lacerations, and casual dentistry, but "dispensary therapeutics were generally synonymous with the writing of prescriptions; dispensaries dispensed" (Rosenberg 1974: 35). Accusations of widespread abuse of free dispensary care were voiced. Here was a palatable explanation for the size of the institutions' clientele: "only abuse by those in fact capable of paying medical bills could possibly explain the vast numbers who utilized dispensary services. To doubt this was to assume that large numbers of worthy and hard-working Americans were indeed too poor to pay for even minimally adequate medical care" (Rosenberg 1974: 52). (To accuse recipients of public assistance of cheating remains a popular way to deny their plight.)

Druggists were often a source of health care information and advice. They dispensed patent and proprietary medicines at their own discretion, and patients frequently refilled old prescriptions on their own at the local druggist (Rosenberg 1967: 225). Increasing social distance between physicians and the bulk of their pa-

tients meant that "druggists were closer to the public ear than the doctor and were increasingly sought for advice in therapeutic matters" (Haller 1981b: 268). The College of Pharmacy of New York City was chartered in 1831, and in 1832 a law was passed requiring druggists in New York City to have attended two or more sessions at the College, have a diploma from another recognized school, or have passed an examination (Duffy 1968: 474). This reflects the distinctive and early professionalization of this city's pharmaceutical practice, in part attributable to the large number of educated German immigrant pharmacists (Kremers and Urdang 1940: 294). So long as patent medicines and other commonly used substances were generally available, however, the role of the pharmacists could easily extend far beyond that dictated by professional standards. When even physicians sometimes prescribed patent preparations (Hiss 1900; Dykstra 1955), patients could readily see that a trip to the drugstore, rather than the doctor's office, would save time and money. In 1864, there were 69 drugstores in the 15th ward, which according to sanitary inspector Dr. Burrall, were "mostly of the better class" (Burrall 1865: 138).

Finally, self-help and lay medicine were as important as ever throughout the 19th century. Availability of patent and proprietary medicines, medical sects that promoted self-diagnosis and dosing, the shift toward "letting nature take its course" in regular therapeutics, a growing advice literature, the preference for a domestic versus an institutional environment, and the availability of outpatient services all contributed to a focus on self-help in the home. The role of women in promoting home hygiene and health maintenance, and in caring

for the sick was bolstered and grew in this context.

Artifacts

Artifacts relating to health care recovered at Sullivan Street can be placed in the broad historical context outlined above. In addition, as always in archaeology, some artifacts raise their own specific contextual questions.

We have seen how patent medicines became important in people's approach to sickness and health when orthodox therapeutics came into question; when access to private, ongoing drug therapy from personal physicians was less available to the masses; and when commercial advertising took its place as a key force in consumerism. Selected identifiable patent medicines from Sullivan Street collections are listed in Table 2 (FIG. 2). Many of these were very well-known national brands, including Ayer's, Jayne's, Radway's, Burnett's, and Mrs. Winslow's, and most had typically broad application. The "Soothing Syrup" bottles reflect the presence of children at 93 Amity Street. In 1870, seven children under ten years of age resided there in four households (United States, Bureau of the Census, 1870).

The fact that there are only 27 patent medicine bottles in the large archaeological collection examined probably reflects the unusually ready access most New Yorkers had to physicians and prescribed medicines. As we have seen, the number of physicians practicing in the city was relatively high, and dispensary services were available. The distribution of the patent bottles in relation to other medicine bottles, which are presumed to be from "regular" or prescribed substances, is notable (TAB. 3), however.

Table 2. Patent products from Sullivan Street (includes products for which use and /or formula can be determined).

Product	Manufacture dates	N	Uses	Formula
93 Amity 1870-1880 Marshall's Catarrh Snuff	1830s+*	1	"never been equaled for the instant relief of Catarrh, Cold in the Head and Headache. Cures deafness, restores lost sense of smell" (cited in Fike 1987: 29).	Chiefly powdered bayberry (Druggist's Circular, cited in Hiss 1900: 194).
Mrs. Winslow's Soothing Syrup/Curtis & Perkins, Prop.	1848+*	3	Teething, "wind colic," sour stomach, constipation, diarrhea. (See Fike 1987: 34, Wilson and Wilson 1971: 98).	Contained 0.10 gr/oz morphia sulfate, 5% alcohol, sugar, and oils of anise, carraway, coriander, jalap, senna.
Lyon's Kathairon	1848s+*	1	scalp problems, dandruff	Castor oil, tincture cantharides, tannic acid, alcohol, oils of rose and bergamot (Hiss 1900: 190).
Dr. Tobias Venetian Linament	1850s+*	1	Externally for rheumatism, pain, mumps, sore throat, colds, sprains, stings, etc.; internally "acts like a charm" for cholera, dysentery, etc. (label cited in Fike 1987:137; see also Devner 1968: 93; Baldwin 1973: 486; Wilson and Wilson 1971: 141; Hiss 1900: 183).	Ammonia water, camphor, tincture capsicum, alcohol (Hiss 1900: 257).
Ayer's Compound Extract of Sarsaparilla	1848+	6	Sarsaparillas were "blood purifiers" or cathartics (Hiss 1898: 52). The <i>Ayer's A er can Al anac</i> for 1883 discusses use for dropsy, female diseases, the "abuse of nature, neuralgia, headache, melancholy, debility, fits, epilepsy, enlargement, ulceration, exfoliation of bones, cancer, goiter, dyspepsia, syphilis, mercurial disease, tumors scrofula, skin diseases, liver complaints, heart disease, sore eyes, etc."	Sarsaparilla, yellow dock, burdock, and anise root, cinchona and buckthorn bark, senna, iodide, potassium, alcohol (label cited in Fike 1987: 214).
Jayne's [Expectorant] Philadelphia	1850s+†	1	"All who have used this invaluable medicine for Asthma, Coughs, Spitting of Blood, Whooping Cough, Croup or Hives, Consumption, Pleurisy, Inflammation of the Lungs or Chest, Hoarseness, Pain and Soreness of the Breast, Difficulty of Breathing...attest its usefulness. Bronchitis is always cured by it." (advertisement cited in Wilson and Wilson 1971: 47).	Approx.: 2 oz syrup of squills, 1.5 oz tinct. tolu, 1 dr camphor, 1 dr digitalis, 2 dr opium, 2 dr wine ipecac, 2 dr anti-mony and pot. tart. (Oleson 1899).

Table 2 continued. Patent products from Sullivan Street (includes products for which use and/or formula can be determined).

<i>Product</i>	<i>Manufacture dates</i>	<i>N</i>	<i>Uses</i>	<i>Formula</i>
Radway's Renovating Resolvent§	1840-80s†	1	Probably similar to "Radways Ready Relief," used for a typically broad range of diseases and symptoms (Wilson and Wilson 1971: 74).	?
93 Amity c. 1890 Stringer's Pulmonic Syrup	c. 1860+	1	presumably coughs, congestion, catarrh	?
J. W. Bull's Cough Syrup/A.C. Meyer & Co.	1883+*	1	cough	In 1899, a bottle was found to contain morphia sulphate (3/4 -1 gr per 3 oz) in a sugar syrup base (Oleson 1899).
Burnett's Cocaine	1847+*	1	Hair restoration. Baldness was thought by some to be a contagious disease (Hiss 1898: 42). Also for dandruff and irritated scalp (Wilson and Wilson 1971: 26).	Coconut oil, alcohol (Wilson and Wilson 1971:109; Fike 1987:157).
48 WSS c. 1900 Anderson's Dermador	1848+*	1	An all-purpose liniment. Advertisement specifically stated that it caused no blistering (cited in Fike 1987: 152).	?
Bromo-Seltzer bicarbonate	c. 1890+	1	A cure-all for headache, nervous and dyspeptic symptoms (Wilson and Wilson 1971: 25).	Acetailid, tartaric acid, sodium potassium bromide, sugar (Hiss 1900: 61).
Bromo bicarb-Caffeine	1890+†	1	headache	Caffeine, potassium bromide, sodium onate, tartaric acid, sugar (Hiss 1900: 60).
Listerine	1879+*	1	Disinfectant and antiseptic, used internally and externally (Hiss 1900: 187).	Thyme, eucalyptus, baptisia, Gaultheria, and mentha arvensis, with 2 gr benzo-boracic acid per dram (Hiss 1900: 187).

* Fike 1987

† New York City directory listings

‡ Wilson and Wilson 1971

§ Item found in trash pit of similar date to privy fill at 93 Amity.

Figure 2. Patent medicine bottles. Left to right: "Venetian Linament," "Anderson's Dermador," and "Stringer's Pulmonic Syrup."

It is perhaps not surprising that, of the Washington Square South households, Dr. Robson's discarded the most medicine bottles. These included 13 vials of the type used by physicians for medicines they dispensed themselves (though these may also have been obtained with prescriptions from druggists). None of the early deposits from these households contained any patent medicine bottles. Dr. Robson would have frowned on the use of patent preparations when he could provide "legitimate" orthodox medicine to his family and his daughter's family next door. The Tailer and Spencer families would likewise have had private family doctors who probably provided orthodox medicine. Yet, by the turn of the century, they too were purchasing

some patent medicines, perhaps reflecting these products' increased popularity and acceptability. The use of patent medicines may also be a sensitive indicator of status within the middle class. Just as the Tailer/Spencer family were the last to obtain plumbing, they may have been the first to use popular patent medicines. This hypothesis cannot be tested because of the absence of other Washington Square South deposits dating to the last quarter of the 19th century.

The working-class tenants at 93 Amity Street discarded by far the most medicine bottles. The assemblage contains relatively fewer vials (such as those obtained directly from physicians) than the Robsons'. The generic,

Table 3. Distribution of medicine bottles at Sullivan Street.

<i>Address/ deposition dates</i>	<i>"Regular" medicine bottles</i>	<i>Patent medicine bottles</i>
48 WSS 1860 (Tailor/Spencer)	1	0
48 WSS 1900 (Spencer)*	15	7
49 WSS 1850 (Sage)	1	0
50 WSS 1840-1850 (Robson)	15	0
50 WSS post-1854 (Robson)	7	0
93 Amity early 1870s †	11	2
93 Amity late 1870s-1880s	27	14
93 Amity c. 1890	23	4

* Includes turn-of-the-century deposits from the well, cistern, and the top layer of the privy.

† The privy at 93 Amity Street appeared to have been filled over a long period of time. The lower deposits may be from the early 1870s, the upper from the late 1870s and early 1880s.

‡ The one patent medicine bottle from the associated trash pit has been omitted from this count.

unembossed "regular" bottles were probably from prescriptions, obtained from dispensaries or druggists, with or without close supervision by physicians. The patent medicines from 93 Amity Street represent self-diagnosis and a form of self-help, whether as an adjunct to professional treatment or in resistance to orthodox therapeutics. The apparent rise in patent medicine use toward the end of the filling of the privy (TAB. 3, upper deposit), perhaps closer to 1880 than 1870, reflects increased availability and intensified marketing. By the 1890s, however, only 4 out of 27 bottles in the cistern fill were from patent products. This may reflect increasing use of dispensaries rather than patent medicines, by an increasingly poor tenantry. Perhaps residents had fallen just below the threshold of ability to buy such non-essentials, when free dispensary treatment was available in Greenwich Village.

In addition to plain vials, several other unembossed bottle shapes were identified from the Sullivan Street deposits, including extracts, ovals, panels, French squares, and rounds. All of these

shapes were commonly used for medicines. Specific contents of non-patent bottles cannot be determined, though certain shapes tended to be used for classes of substances (Fike 1987). Something can be learned about purchasing patterns, if not contents, from an examination of bottles that have druggists' names embossed upon them. Six bottles from Sullivan Street came from pharmacies in the local neighborhood: those from 93 Amity Street included Hegeman & Co. (at several locations in the city, including Greenwich Village; this was the first American drugstore chain), Delluc & Co., Helmbolds, and William T. Lins German Pharmacy; those from 48 Washington Square South represented C. O. Bigelow (still in business) and Paul F. Gebicke, both local pharmacies. Patronage of New York's German pharmacists is also reflected in the bottle assemblage. One bottle from "Chas. E. P. Meumann, 1 & 3 Bridge Street, New York" was found in the same deposit as the one from Lins German Pharmacy, and in the turn-of-the-century deposits associated with the Spencer household, one from

"Engelhard & Huber" and one from "Heidingsfelder, Dispensing Chemist" were found along with the bottle from the Gebicke pharmacy.

Other objects relating to medicine and hygiene found at Sullivan Street include syringes, soap dishes, and dental care items. Pieces of nine syringes, both hypodermic and vaginal types, were recovered from the 93 Amity Street privy deposits, and two hypodermic plungers were found in the circa 1900 deposits at 48 Washington Square South. Douche syringes (FIG. 3) might have been used in traditional therapeutics, but were also recommended in the hydropathic sect. Residents of 93 Amity Street may have subscribed to the "water cure," which was most popular among women (Donegan 1986; Cayleff 1987).

The hypodermic syringe was introduced in America at the end of the 1850s and, though controversial at first, caught on rapidly among physicians in subsequent decades as a means of introducing medication. At first, acetate of morphine was the only substance normally introduced using the hypodermic method, and through the 1880s it was almost exclusively used for morphine sulphate injections (Haller 1981a). Later, other medicines such as strychnine and quinine were increasingly introduced hypodermically. In the early years physicians seemed to give little thought to the risk of morphine addiction (Howard-Jones 1947: 232-234). Apparently believing that morphine was not as addictive when taken hypodermically as when taken

Figure 3. Tube and plunger from douche syringes. Note small holes in the end of the tube.

Figure 4. Bone toothbrush handles.

orally, practitioners often prescribed it excessively. Patients who had become addicted obtained their own syringes and demanded supplies of the drug from their physicians. The presence of hypodermic syringes in the 1870s deposits at 93 Amity Street may reflect drug addiction in one or more residents of the house.

The presence of ewers, basins, and soap dishes in domestic deposits is an indicator of the growing concern with personal cleanliness in the second half of the 19th century. This concern particularly marked the middle-class and those aspiring to middle class status, as cleanliness came to be associated with control, refinement, and breeding, while "dirt" was considered vulgar and low (Bushman and Bushman 1988: 1226). But in addition to the "moral" dimension of cleanliness, there was a growing belief among orthodox physicians, sectarians, and lay people

that a hygienic environment could promote good health. After the 1860s, personal hygiene would be stressed in medical therapeutics (Warner 1986: 240–242). Basins and ewers have not been counted, but no pattern is evident in the distribution of soap dishes from the Sullivan Street site—only two each were recovered from the Robson and 93 Amity Street back yards.

Oral hygiene objects may be a more sensitive marker of access to hygiene-related items by social class. Toothbrushes are the most common hygiene-related object found at the Sullivan Street site (FIG. 4). Toothbrushes were commercially available beginning in the 18th century, but they were not used extensively by the general public even throughout the 19th century (Carter et al. 1984), and may have been high status items. In this case the Sullivan Street distribution is not surprising: 17 from the 1850s to 1860s deposits at the

Washington Square houses, and only 4 from the 93 Amity Street privy. Although various strange and creative toothbrush designs were patented in the 19th century (see Blass n.d.), most of the specimens recovered at Sullivan Street were ordinary types, with the exception of one double-headed example from the c. 1850 refuse deposit in Dr. Robson's backyard. Six toothbrushes found in the c. 1860 refuse from the Tailer/Spencer backyard were whole (minus the bristles) and appear to have been discarded at one time. Three of the Tailers' six toothbrushes were incised, one with "Hegeman & Co. Importers, NY," one with "Extra Fine - London," and one simply with an animal figure, perhaps a lion. One toothbrush from the Robson back yard (c. 1850) was marked "Smyth Silver."

Though toothbrushes cluster in the deposits from wealthier homes, there is additional evidence of oral hygiene practice at 93 Amity Street. A ceramic container for "Odontine" tooth powder and a ceramic toothbrush holder were found in the 1870s deposit from 93 Amity Street. Finally, one 1870s tenant possessed a plate of false teeth made of porcelain in vulcanite, which was discarded in the privy. False teeth had ceased to be a luxury once opaque pink vulcanite plates became available in the 1850s and 1860s (Bremner 1946: 171).

Conclusion

Historians of medicine have grown increasingly interested in material culture. Material things provide a new source of information about perceptions and experience for ordinary people (see, for example, Tomes 1990; Cayleff 1990: 328). Material conditions, moreover, had a more important impact on sickness and health than medical science

throughout the 19th century (see Numbers 1982; Meeker 1972). Archaeologists thus find themselves in a unique position to explore relevant social historical questions.

At the Sullivan Street site, with both historical and archaeological data, we have been able to address questions concerning infrastructure, public and private hygiene, consumption of medicine, and access to health care professions and institutions. Models for study of other urban sites are suggested. Houselot infrastructure reflects access to public works. Domestic sanitation and hygiene opportunities were largely dependent on tenancy status and financial means. The class status of a neighborhood affected installation of utilities in the streets, while the status of a household determined its ability to access them. Consumption of medicines and hygienic goods reflects access to professionals and institutions as well as to information. Perceptions of medical practice, of the nature of disease and possibilities for cure or relief, and of the efficacy of various substances affected people's consumer choices. Advertising and packaging did not simply make dupes of consumers, but spoke to existing perceptions and concerns.

In the "Afterword" to the 1987 edition of *The Cholera Years*, Charles Rosenberg writes of the transformation of social history since 1962 (1987b: 236-267):

The texture of everyday life and the structures of family, school, and workplace have become as much the staple of historical research and teaching as politics and foreign policy. Obviously sickness and health, physicians, nurses, and hospitals have played an important role in everyday life as experienced and understood by ordinary men and women. Medical and biological ideas have also been seen as an important source of legitimation for existing power relation-

ships—and thus a component in particular systems of social control.

By evoking the texture of everyday life, archaeological remains contribute to an understanding of the intimate mechanisms of change in American urban life. Patent medicine bottles, toothbrushes, and evidence of the effects of public works on household sanitation are related phenomena, and together mark a larger shift that was taking place in Americans' approach to sickness and health in the 19th century. The change from moralistic to pragmatic, environmental approaches to public health and disease prevention was followed closely by a move away from the older canons of medical practice toward an uncertain future. Before new therapeutic orthodoxies replaced old ones, a period of questioning, experimentation, alternative systems, and self-reliance intervened over several decades. But the urge to do something, to take something, in response to illness remained strong, and for a time patent medicines filled an important (if exploitative) role. Purveyors of commercial nostrums invoked the symbolic dimensions of disease, providing a cheap substitute for the increasingly questioned cognitive metaphors of traditional medicine and filling a void left by increasing distance between scientific medicine and personal experience. Thus at a time when diseases could not be treated, they could be prevented through public health measures or their painful manifestations mitigated through palliative substances. All the while, the institutions that ringed household processes, including those of professional medicine and pharmacy, hospitals and dispensaries, public works and social reform movements, incorporated medical ideas into systems of social control.

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