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"A Ray of Sunshine in the Sickroom": Archaeological Insights into Late 19th- and Early 20th-Century Medicine and Anesthesia

Cover Page Footnote

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“A Ray of Sunshine in the Sickroom”: Archaeological Insights into Late 19th- and Early 20th-Century Medicine and Anesthesia

Richard Veit

Archaeological excavation of a stone-lined feature dating to the late 19th- or early 20th-century in New Brunswick, New Jersey, retrieved a substantial quantity of discarded medical equipment. Artifacts recovered from the feature included syringes, thermometers, test tubes, and scalpels. These remains, associated with the tenure of two prominent physicians, provide an avenue for inquiry into late 19th-century medical practices.

La fouille archéologique d'un vestige bordé de pierres et remontant à la fin du XIXe ou au début du XXe siècle à New Brunswick (New Jersey) a permis de récupérer une forte quantité de matériel médical mis au rebut. Les artefacts recueillis comprenaient des seringues, des thermomètres, des éprouvettes et des scalpels. Ces restes, liés à l'exercice de deux médecins en vue, fournissent une avenue de recherche sur la pratique médicale à la fin du XIXe.

Introduction

From December 1986 through January 1987, the Cultural Resource Consulting Group, formerly Research and Archaeological Management, Inc., conducted archaeological excavations of Block 44 in the City of New Brunswick, New Jersey (FIG. 1). The excavations were carried out for the city's Housing and Urban Development Authority during the Golden Triangle Development Project (Research and Archaeological Management 1986). They revealed substantial 19th-century archaeological deposits including an assemblage of medical equipment. The deposits were assigned the Smithsonian site registration number 28MI138.

Block 44 was laid out in the early 19th century. It is bounded by present-day George, Washington, and Albany streets (FIG. 2). Located in the central commercial district of the city, the first lots established were owned by prominent local families including attorneys, merchants, and physicians. During the archaeological excavation of a trench in Block 44, Lot 5 (Historic Lot 18), a stone-lined feature (Feature 1) was revealed. It contained a large amount of medical equipment dating from the late 19th or early 20th century. During that time the lot contained the residence of Dr. Clifford Morrogh and his successor, Dr. Frank Donahue. Both of these individuals were

prominent local physicians. Dr. Morrogh (1821–1882) was an innovative surgeon and possibly the first physician to use anesthesia in New Jersey (Rogers and Sayre 1966: 69). His student and successor Dr. Frank Donahue (1859–1919) was considered the finest surgeon in New Brunswick (*Home News* 1919: 1).

Unfortunately, prior to excavation, Feature 1 (FIG. 3) had been badly disturbed by looters; well over 200 artifacts were salvaged from it, however. Because of the aforementioned disturbance, the soil within the feature was not screened. The artifacts discussed here were recovered during hand excavation of the feature's fill. The assemblage consists primarily of medical glassware, pharmaceutical bottles, and surgical implements. Small quantities of household ceramics, both table settings and teawares, were also recovered (TAB. 1, FIG. 4). The 195 medicine and hygiene-related artifacts recovered provide an unprecedented opportunity for studying the development of medical techniques and technology on a local level. It is those artifacts that are examined here.

The State of Medical Science

The late 19th century was a watershed in medical innovation. It witnessed the introduction of anesthesia, antiseptics, and a wide range of diagnostic instruments including the stethoscope and thermometer (McIntyre and

Figure 1. The arrow indicates the location of the Golden Triangle Development Project in New Brunswick, New Jersey.

Figure 2. Map of New Brunswick, New Jersey from Everts and Stewart's Combination Atlas of Middlesex County New Jersey, 1876.

Figure 3. The interior of Feature 1 following excavation.

Table 1. Artifacts recovered from Feature 1, divided into functional categories. Some items could have served multiple functions: for example, the pitchers and basins listed here as medicine/hygiene could also have served in the kitchen.

<i>Artifact type</i>	<i>Medicine/ hygiene</i>	<i>Foodways</i>	<i>Architectural</i>	<i>Clothing/ personal</i>	<i>Total Number (%)</i>
Bottles	97	1			98 (40)
Funnels	4				4 (2)
Graduated cylinders	12				12 (5)
Ointment pots	15				15 (6)
Scalpels	3				3 (1)
Syringes	24				24 (10)
Test tubes	11				11 (4)
Thermometers	2				2 (1)
Basins/Pitchers/Soap dishes	8				8 (3)
Other medical	19				19 (8)
Teaware		9			9 (4)
Tableware		25			25 (10)
Miscellaneous		5	3	8	16 (6)
Total	195 (80%)	40 (16%)	3 (1%)	8 (3%)	246 (100%)

Figure 4. Some of the artifacts recovered from Feature 1, including in clockwise order: pharmaceutical bottles; ointment pots; graduated cylinders; funnels; a soil sample; and syringes. Located in the center right portion of the photograph are pessaries and thermometers.

Figure 5. A lithograph of Dr. Clifford Morrogh, published in 1882.

Sammis n.d.; Lyons and Petrucelli 1978). Many of the artifacts recovered from Feature 1 are specifically related to anesthesia, surgery, gynecology, and pharmacy. They date to the formative period of modern medicine and provide a glimpse into the state of medicine in the late 19th century.

Two Irish Physicians

In 1847, Dr. Clifford Morrogh arrived in New Brunswick (FIG. 5). He had recently received his MD from the City University of New York (Thomas 1930: 1). At first, Morrogh, an emigrant from County Cork in Ireland, was discriminated against because of his ethnicity and religion (Anonymous 1882: 1; Clayton 1882: 525). Despite such prejudice, he rapidly established himself as the leading surgeon and diagnostician in the growing city. He accom-

plished this through three operations: two amputations, and the removal of a diseased ankle bone. Not only were all three successful, they were also all carried out using anesthesia (Thomas 1930: 23). Before Dr. Morrogh's use of chloroform, anesthesia had not been tried in New Jersey (Anonymous 1882). In fact, he was one of the first physicians in the United States to make use of anesthetics. He subsequently added to his reputation by developing a procedure that allowed him to remove gall stones, a particularly dangerous operation at the time (Anonymous 1882). Morrogh also excelled at the treatment of strangulated hernias and other hard-to-cure maladies (Thomas 1930: 23). Some of his other surgical accomplishments included tying the carotid artery (Anonymous Compiler 1882: 190), removing a necrotic *Os calcis* (Morrogh 1857), and performing, in 1860, the first colostomy in New Jersey (Cowen 1964: 62).

Dr. Morrogh's illustrious career spanned three decades, during which he invented several medical techniques and instruments (Wall and Pickersgill 1921: 264). During the Civil War he worked at the battlefields on the Peninsula, and at Fredericksburg, Chancellorsville, and Gettysburg. He was also instrumental in the founding of New Brunswick's first hospital, St. Peters, in 1872 (Clayton 1882: 526). His skill as a surgeon ranked him as one of the finest in North America. According to contemporary accounts, "In the sickroom he was like a ray of sunshine. There seemed to be healing in his very presence. There was something about him that inspired implicit confidence" (Anonymous 1882). Clearly Clifford Morrogh was a physician of the highest caliber.

He married twice during his long career: first in 1851 to the former Mrs. George Richard and, after her death, to Miss Cornelia Perry (1872) (Anonymous 1882). In 1851 he built a house on Albany Street. His was the second physician's home on the street, as he had been preceded by his neighbor Dr. William Van Dursen. Dr. Morrogh's Albany Street residence would remain the seat of his practice until his death 31 years later. According to contemporary accounts, "he was singularly particular [to] his houses, his offices, his vehicles and all ministering to his recreation, his yachts and boats were models in their way and witness to his taste, his ingenuity and to his skill" (Anonymous 1882).

An active citizen, he was instrumental in founding an orphanage in New Brunswick (Anonymous 1882) and was director of the New Brunswick Savings Institution for 29 years (Wall and Pickersgill 1921: 264). He also designed St. Peter's Roman Catholic Church. In 1876 he and his second wife Cornelia adopted a son (Middlesex County Archives 1871: 1). Professionally, he was known as a modest man who seldom touted his accomplishments. Despite this modesty he was able to amass considerable wealth as a physician.

On March 13, 1882, he died suddenly from a heart attack. His passing elicited a tremendous outpouring of sorrow in New Brunswick, and over 2000 people attended his funeral Mass (Anonymous 1882). The "Irish Physician" who once was the object of prejudice and

scorn had succeeded in the unlikely task of rising from rags to riches.

Upon Dr. Morrogh's death in 1882, Dr. Frank Donahue, his assistant, continued his practice. Dr. Donahue was the child of immigrants from County Meath, Ireland, and had studied medicine under Dr. Morrogh. He received his degree from the University of New York in 1881 (Wiley 1896: 159). Like Dr. Morrogh, he was actively involved both in the medical community and in various philanthropic causes. He was president of the New Jersey Medical Association and attending surgeon at St. Marie's Orphan Hospital and at the New Brunswick Hospital. He was also the Vice President of the People's National Bank and the Fourth Excelsior Building and Loan Association (Wiley 1896: 159).

The similarities between the two physicians' lives are striking. Both took an active interest in St. Peter's Roman Catholic Church. During the First World War, Dr. Donahue was an advisor to the State Medical Examining Board and, like his predecessor, Dr. Donahue became extremely wealthy from his practice. On April 28, 1919, however, his career was cut short when he too was struck down by a heart attack (*Home News* 1919: 1). After his death, his wife sold the New Brunswick property and moved a short distance away to their summer home in Bound Brook.

The Morrogh Residence

Dr. Morrogh's residence, which also served as his office, was constructed in 1851 in a lot fronting on Albany Street. In 1866 he expanded his property by acquiring a portion of his neighbor's property and a small strip from an adjacent lot (MCA 1866). In addition to his house the property held a large brick carriage house. In 1890 Dr. Frank Donahue purchased the five lots that comprised the former Morrogh property from Cornelia Morrogh (FIG. 2). By 1886 there were seven outbuildings on the property including a two-story brick stable, a two-story brick carriage house, a greenhouse, and four unidentified outbuildings, including an octagonal frame structure (Sanborn 1886). All of these structures were situated along the periphery of the back yard. Dr. Donahue removed the green-

house and the octagonal building and may have converted the building constructed as a carriage house into a laboratory or an operating theater.

Each physician, during his tenure, undertook numerous alterations to the back yard, evidence both of the property owners' wealth and their conscious manipulation of the landscape. The constant rearranging of outbuildings on the lot reflects attempts on the part of the physicians to maximize their use of the property. In 1919, when Dr. Donahue died, his wife left the house. City directories record that their home had been demolished by 1922 (Heidingsfeld 1919–1920, 1921–1922).

The Physical Evidence

The archaeological excavations carried out in what was originally the Morrogh and later the Donahue property revealed several features dating to the late 19th century. The most interesting of these was a rectangular stone-lined foundation (FIG. 3). Examination of Sanborn Insurance maps indicates that this was probably the site of an unidentified one-story structure that stood in the rear yard between the 1880s and the 1920s (Sanborn 1886; Sanborn-Perris 1892, 1897, 1904, 1912). Deposited within the foundation was a substantial assemblage of late 19th-century medical equipment.

The large fieldstone foundation was faced on the interior and rough on the exterior. The mortared walls were approximately 15 in. (38.1 cm) thick. The foundation's dimensions are 7 ft 3 in. (2.35 m) long, 4 ft 9 in. (6.84 m) wide and 9 ft (2.74 m) deep.

Prior to archaeological excavation, the feature had been disturbed by the construction of a modern retaining wall and at least one damaging episode of pot hunting. Small quantities of modern refuse were found throughout the feature; these were discarded in the field. Crossmends were made between a looters' spoil pile and the artifacts removed from the feature. The artifacts recovered from the feature included test tubes, syringes, eye droppers, beakers, a crucible, a toothbrush, a nail brush, scalpels, graduated cylinders, and 97 pharmaceutical bottles (TAB. 1, FIG. 4). Unfortunately, because of the disturbance, it is unclear

whether the feature fill was deposited through a single or multiple incidents of disposal. One might speculate that the deposit represents an episode of house, or perhaps office, cleaning at the end of either Dr. Morrogh's, Cornelia Morrogh's, or Frank Donahue's tenure. The lack of intact stratigraphy within the feature and the presence of small quantities of modern material within the feature's fill do not allow this hypothesis to be clearly substantiated.

The original function of the feature is not known. It extends below the present water line but does not resemble other New Brunswick wells and cisterns dating from the same time period. Three openings were noted in the front of the structure. They may indicate that the building had a door and two windows or perhaps multiple doors. The structure may have been part of an operating theater, storage shed, ice house, or even a very large privy. Residents of the block began to have access to city sewer facilities in the 1870s, but privies may have remained in use for some time after that date. Joan Geismar (1993: 62) has noted that a considerable time lag often occurred between the installation of sewers and the abandonment of privies. The feature's association with the two doctors is clear from the quantity of medical debris.

General Practitioners or Specialists

Both Dr. Morrogh and Dr. Donahue were highly regarded surgeons. Dr. Morrogh established his reputation with feats of skillful surgery and later became a member of the Middlesex County and New Jersey State Medical Societies. In 1882, just prior to his death, he was elected as a delegate to the United States Medical Association's annual meeting (Anonymous 1882). Dr. Donahue was also recognized as one of the leading surgeons in New Jersey (Wiley 1896; Wall and Pickersgill 1921: 266). While the historical record emphasizes the physicians' skills in surgery, the archaeological assemblage reveals a more diverse practice. Instruments used for the preparation of medicines, as well those used in diagnosis, surgery, anesthesia, and gynecology were found. Associated with these implements was a handful of mid-and late 19th-century personal items and contemporary ceramics.

Figure 6. Portions of several hard-rubber pessaries and a vaginal syringe excavated from the fill of Feature 1.

Gynecology

Several of the implements in the archaeological collection relate to women's health. This is noteworthy in light of the fact that gynecology was in its infancy during the late 19th century. In 1845, James Marion Sims of Montgomery, Alabama, was the first doctor in the United States to perform gynecological surgery (Bender and Thom 1961: 257). His work with enslaved African-American women was the start of modern gynecology. Prior to Sims, "women's complaints" had been the domain of midwives. Many afflicted women lived lives of pain and seclusion because of the ignorance and prudery of the male medical profession (Bender and Thom 1961: 259).

The gynecological implements and devices recovered from Feature 1 at the site indicate that one or both of the doctors were actively treating women. Gynecological artifacts collected from Feature 1 included portions of several hard-rubber pessaries and at least one vaginal syringe (FIG. 6).

Pessaries were used to reposition a prolapsed uterus and relieve discomfort. They could also be used to prevent miscarriages (Hodge 1866: 416–417). While devices like these have been used for thousands of years, it was Hugh Lenox Hodge's invention of the vulcanized rubber pessary, in the 1860s, that revolutionized the field (Speert 1958: 543). For a short period of time following Hodge's invention they were very popular. According to Hodge (1868: 384):

by pessaries . . . the leucorrhoea, the menorrhagia, the dysmenorrhoea, and all the innumerable direct and indirect symptoms of spinal and cerebral irritation, including neuralgia, nervous headache, nervous affections of the larynx, lungs, heart, stomach, bowels, etc., may often be thus dissipated; that the intellectual and spiritual being may be elevated from the lowest states of depression, bordering on melancholy, or be delivered from the highest degree of maniacal excitement; and that the whole economy may thus be revolutionized.

While his statement may seem ridiculous today, at the time Hodge was describing a state-of-the-art medical treatment. These devices were very popular in the mid-19th century (Speert 1958: 541). It is noteworthy that Dr. Morrogh received his education at the City of New York's College of Medicine at roughly the same time that this fad was beginning. The two pessaries recovered from Feature 1 strongly resemble those displayed in late 19th-century surgical implement catalogs (Feick Brothers 1881). Little, Lanphear, and Owsley recovered a similar pessary from a woman's grave in Virginia dating to the late 19th century (1992: 404). As they note, displacement of the uterus was common in this period of "frequent birth and whalebone corsets" (Little, Lanphear, and Owsley 1992: 401).

Also recovered were fragments of one vaginal syringe and fragments of 15 other large syringes. They may have been vaginal syringes as well. The crude construction of these items, which have roughly formed cork and non-ferrous metal fittings, is probably indicative of a date of manufacture during the mid-19th century.

The late 18th and early 19th centuries saw the rise and fall of numerous medical fads, among them hydropathic medicine. The hydropathic school stressed the healthful effects of water. It is best remembered for its popularization of therapeutic mineral springs. While the positive effect of indulging in mineral baths has a very long history, these baths saw a renewed popularity during the early 18th century. This popularity continued through the 19th century, and the therapeutic value of certain springs was widely recognized by medical practitioners (Weiss and Kemble 1962: 12). In addition to health benefits, such springs provided a social meeting place and were in some ways the precursors of today's vacations.

The water cure was advocated by many physicians especially for women during pregnancy. These physicians stressed the healthful effects of bathing. Many advocated sitz-baths while others stressed the more controversial use of vaginal douches (Donegan 1986: 126). This widely-debated procedure called for the use of water injections both during pregnancy and following delivery, as a means of relieving

pain and preventing hemorrhaging and uterine collapse (Donegan 1986: 126). The design of the vaginal syringe found in Feature 1 resembles those known from the 1850s (Haller 1981: 1675). Similar syringes were noted by Jean Howson at excavations in New York City at 48 Washington Square South (Howson 1992-1993: 153).

It is possible that these items were used by either members of the Morrogh or Donahue families or their female domestic servants. The number of syringes, in conjunction with the other medical implements, however, seems to indicate that they were part of the physicians' practice. If so they indicate an unrecorded gynecological portion of these doctors' practice. In either case the vaginal syringes represent the use of a non-traditional procedure on the part of the physicians and their patients.

Anesthesia

It was Dr. Morrogh's early use of anesthesia that established his reputation. In 1847 he and Dr. Augustus F. Taylor, another local physician, working together performed leg amputations on two injured African-American men from the local poor house. They employed chloroform anesthesia during these operations. The operations were a complete success. This early use of chloroform places them among the first physicians in the United States to use anesthesia.

Exactly when and where modern anesthesia was invented is the subject of much debate. Like many other innovations it appears to have been stumbled on independently by several individuals at roughly the same time. Some of those with claims to the invention are Dr. Crawford Williamson Long of Danielsville, Georgia (1842) (Marks and Beatty 1973: 168); Dr. Horace Wells, a dentist from Hartford, Connecticut (1844); and Charles T. Jackson and T. G. Morton, who introduced ether as an anesthetic in Massachusetts General Hospital in 1846 (Shyrock 1960: 133; Bender and Thom 1961: 202-209). These conflicting claims stem from the belated declarations of several independent experimenters. By 1853, with the adoption of ether at the Pennsylvania Hospital, the discovery gained nearly universal approval (Pernick 1985: 4).

All of these early experimenters with anesthesia used inhaled ether as anesthesia. In 1847 Dr. James Simpson, working in Edinburgh, Scotland, discovered chloroform, which, for a while, supplanted ether (Bender and Thom 1961: 213).

Although some medicines were administered subcutaneously as early as the 1830s (Haller 1981: 1672), the use of true intravenous anesthetics was hampered by a lack of suitable syringes. The syringes that were available did not have points that could penetrate the skin. If a physician wished to inject a pain killer he had to use a lancet to create an entry for the syringe (Haller 1981: 1672). This problem was solved in 1853 when Dr. Alexander Wood of Edinburgh, Scotland, devised a hollow metallic needle, and Charles Gabriel Pravaz of Lyon, France, working independently, attached a hollow needle to a specially constructed syringe (Bender and Thom 1961: 214). These were the first hypodermic syringes. Throughout the Civil War, morphine injections became an increasingly important part of battlefield surgery (Adams 1952: 119). The invention of barbiturates in 1903 further revolutionized the use of intravenous anesthetics.

As with chloroform, several claims to primacy were voiced for the subcutaneous injection of anesthetics. The most interesting of these were made by Dr. F. Rynd of Dublin and physicians Isaac E. Taylor and James Augustus Washington of New York. Rynd claimed to have injected morphine into a lancet-entry as early as 1844 in the Meath Hospital, Ireland (Haller 1981: 1672). Taylor and Washington, using their knowledge of inoculation, claimed to have done the same using a syringe at the New York Dispensary in 1839 (Haller 1981: 1672).

According to David L. Cowen's *Medicine and Health in New Jersey*, the use of the hypodermic needle in the state was introduced by an Irish physician (presumably Dr. Morrogh) in 1847 (Cowen 1964: 49). By the 1860s it was in general use and in 1874 "the Standing Committee of the State Medical Society noted that the hypodermic was extensively employed, (with) morphia the drug most frequently used" (Cowen 1964: 50). It is possible that Dr. Morrogh was influenced by the work of Rynd, Taylor, or Washington.

While Dr. Morrogh may have employed morphine as an anesthetic, the application of anesthesia was by no means universal. Its utilization was hampered as much by current medical beliefs as by technological and pharmacological constraints. According to the "Conservative Medicine" of the 19th century, every drug had both positive and negative effects on the patient. Doctors were urged to consider the patients' "race, sex, age, ethnicity, economic class, personal habits, and temperament as well as a range of technical factors before using anesthesia" (Pernick 1985: 6). This contrasted sharply with the "Heroic Medicine" popular in the early 19th century, which advocated "aggressive risk taking," bleeding, etc., to combat disease (Pernick 1985: 101). Even many moderate physicians of this time felt that pain indicated healing and could not be totally eliminated from a normal, healthy recovery. Anesthetization of women was also frowned upon because of the potential "moral dangers" to the "helpless" women (Pernick 1985: 61).

The Civil War helped change both the medical profession's and the public's attitudes towards anesthesia. Improvements in military technology had been adopted more quickly than advances in medical technology. A result of this was unprecedented carnage on the battlefield. At Gettysburg, surgeons were occupied for an entire week amputating limbs (Brooks 1966: 97). More than 13,000 doctors served during the war, including Dr. Clifford Morrogh. The conflict provided them with an unparalleled opportunity for surgical experience. At the outbreak of hostilities only a few American physicians had stethoscopes, thermometers, syringes, ophthalmoscopes, and laryngoscopes. By the end of the war they were well equipped (Brooks 1966: 22). Despite the improved medical implements, many wartime operations proved fatal, particularly those for internal injuries, nearly all of which were accompanied by infection and fever (Adams 1952: 112).

Dr. Morrogh's status as a pioneer anesthesiologist was apparently widely known, and he was asked to come from New Brunswick to Gettysburg to tend the wounded (Thomas 1930: 23). Several of the artifacts recovered from Feature 1 corroborate Dr. Morrogh's use

Figure 7. A variety of syringes excavated from the fill of Feature 1.

of injected anesthetics (FIG. 7). One small graduated hypodermic syringe and fragments of eight small glass syringes were found. These eight fragments may also be from simple, ungraduated, hypodermic syringes. Hypodermic syringes were commonly used to administer morphine sulphate (see Howson 1992–1993: 21). Many of the excavated syringes still have their cork and lead gaskets in place. The double knopped ends of the plungers would have been wrapped in cotton wool (Howard-Jones 1947: 211). With the exception of the graduated syringe, all appear to be hand-made from glass bars and tubing. They show a good deal of variability. Only one is graduated. While clearly associated with the physicians, with the exception of the graduated syringe they cannot be accurately dated. Elisabeth Bennion, a dental historian, has dated similar syringes to the 1880s (Bennion 1986: 107). It is believed that graduated cylinders for hypodermic needles were first used in

1858 (Howard-Jones 1947: 211). This may indicate that the ungraduated syringes date from the first decade or so of intravenous anesthesia use or, conversely, that they were not used to administer anesthetics.

Syringes were not used solely to administer anesthetics. They were also used to deliver liquid to parts of the body and even to mix pharmaceutical preparations (personal communication, M. Donald Blaufox, M.D., 1993). Additionally they could be used to drain wounds and to provide enemas (Adams 1952: 125; Smith 1879: 407). These latter tasks may have been the function of the several large syringes recovered from the feature.

Surgery

Several artifacts related to surgery were also found in the deposit. Particularly noteworthy are three lancets, the predecessors of today's scalpels, and the wooden handle of a

Figure 8. Bladed implements recovered from Feature 1, including in clockwise order: a folding scalpel or pocket knife; two folding scalpels with tortoiseshell handles; and a wooden knife handle.

knife. The lancets are small folding pocket models made of steel with tortoiseshell handles (FIG. 8). It is not clear whether the wood-handled knife was part of a surgeon's kit. Lancets such as those recovered date from 1850 to 1880. After 1880 they were supplanted by metal scalpels, which could be sterilized easily (Wilbur 1987: 115). These few implements may be material reminders of the surgical skills that made these physicians famous. The fact that the lancets could not be sterilized is surprising, especially considering these two surgeons' apparent awareness of the latest techniques. Perhaps they were discarded because they were recognized as outmoded and dangerous.

The value of sanitary medical practices first advocated by Joseph Lister in 1865 was recognized quite early in New Jersey. By 1874, local physicians had noted the value of washing needles and syringes in hot water after each injection (Cowen 1964: 61). True steam sterilization would appear in 1882 thanks to the work of Ernest Von Bergmann (Brooks 1966: 94). Although there is no archaeological evidence that either Doctor Morrogh or Doctor Donahue practiced sterile medicine,

a single porcelain soap dish and fragments of several ironstone pitchers and wash basins were recovered from the fill of the feature. While their use in the operating room cannot be confirmed they do indicate a concern with hygiene and basic cleanliness.

Pharmaceutical Glassware

The large amount of pharmaceutical glassware excavated probably indicates the in-house preparation of medicines and anesthetics by the physicians. As previously noted, some of the syringes may have been used in the preparation of medicines. Other artifacts related to the production and distribution of medicine include test tubes (11), a stoneware crucible, graduated cylinders (12), clear glass pipettes (3), corks (5), a smelling salt ampule (1), and fragments of funnels (4) (TAB. 1). The graduated cylinders were engraved with gradations using a copper wheel. Similar cylinders, graduated in ounces and drams, have been dated to circa 1875 (DiNardo 1978: 154). Two of the funnel fragments have incomplete maker's marks and are embossed with patent dates of June 1880. Portions of a single clear

Table 2. Bottles recovered from Feature 1, divided by size, color, and manufacturing technique.

Bottle Type	Size	Empontilled	Unempontilled	Aqua	Amber	Clear	Number	(%)
Ball neck panel	2 oz		2		2		2	(2)
French square	3 oz		2			2	2	(1)
Homeopathic vial	1 oz		1			1	1	(1)
Morphine	1-2 oz		6			6	6	(6)
Vial	0.5	8		8			8	(8)
Patent medicine	2 oz		2			2	2	(2)
Philadelphia oval	3 oz. +		2			2	2	(2)
Quinine	1-2 oz		2			2	2	(2)
Strychnine	2 oz		1	1			1	(1)
Tincture	1 oz		1			1	1	(1)
Union oval	0.5-6 oz		7			7	7	(7)
Prescription								
Wide mouth	1-4 oz		3			3	3	(3)
Round	0.5-9 oz		49	42	1	6	49	(48)
Fluted	1-6 oz	5		5			5	(5)
Other	2 oz.-sev. gal.		7	4		3	7	(7)
Total		13 (13%)	85 (87%)	60 (61%)	1 (1%)	37 (38%)	98	(100%)

glass stirring rod and several pipettes were also recovered.

Bottles

A total of 98 bottles was recovered from the excavation. Of these, 97 were pharmaceutical and/or chemical bottles. They have mold seams characteristic of a late-19th or early 20th-century date of manufacture. Only one bottle, a mustard jar, was machine made. It may be intrusive. The pharmaceutical bottles represent a variety of common sizes ranging from one ounce to over a gallon. An examination of the 1880 Whitall Tatum & Co. catalog (Pyne Press 1971) and the 1904 catalog of the Whitney Glassworks in Glassboro, New Jersey (Lohmann 1972) provided correlates to nearly all of the bottles from the feature (TAB. 2). Roughly half the pharmaceutical bottles are "Round Prescription" bottles in a wide variety of sizes. Nearly all of them were made from aqua or colorless glass. Though only 13% of the total, eight vials and five fluted prescription bottles with glass pontil marks on their bases were found. This attribute is indicative of manufacture without the use of a snap case and may connote a mid-19th century date (Jones et al. 1989: 45). Roughly 60% of the pharmacy bottles are aqua in color (TAB. 2); this may indicate a 19th-century date of manufac-

ture (personal communication, George L. Miller, 1996).

The presence of these bottles could show that the physicians were actively prescribing medicines or, alternatively, they may have been used to store the doctors' supply of pharmaceuticals. It is noteworthy that only two patent medicine bottles were found in this assemblage. One was a bottle that once contained Dr. Lauback's Eclectic Liniment (circa 1870-1910), while the other had held Calder's Dentine (1865-1948) (Fike 1987: 101, 157). Both of these preparations were probably used within the household, the first to treat the sore muscles of family members or perhaps their horses, and the second as toothpaste. Other researchers have correlated a high percentage of patent medicine bottles with self-help medicine (Howson 1992-1993: 152). The scarcity of these nostrums and cure-alls may reflect a conscious aversion to the patent medicines so common in the late 19th century. On the other hand, the bottle collectors who looted the feature may have removed the bottles with embossed labels from the deposit (personal communication, William B. Liebeknecht, 1994).

Both the Whitall Tatum and Whitney catalogs assign specific functions to several bottle forms. Among the bottles recovered that could be correlated with those in the catalogs was a "Homeopathic Vial," a "Fluted Strychnia"

Figure 9. Assorted artifacts, including, in the left column: a smelling salt ampule; stirring rod; two thermometers with a Bakelite case; and a pipette. The right column includes an eyeglass lens, a fragment of a graduated cylinder, and a funnel fragment embossed with the date 1880.

bottle, two "Quinine Bottles" and six "Morphine Bottles" (Pyne Press 1971; Lohman 1972). Strychnine is a poisonous alkaloid derived from *nux vomica* and related plants. It was widely used as a stimulant for the nervous system. Quinine is an alkaloid derived from the bark of the cinchona tree. The usefulness of this bitter powder to fight the chills, shaking, and fever associated with malaria had been recognized by the mid-17th century. It also was used in the treatment of influenza and colds as well as in obstetrics, cardiology, and surgery. Morphine is the strongest known natural pain reliever. Its calming effect also protects against shock, internal hemorrhaging, and congestive heart failure. The 1885 Elbert Prescription Survey, a statistical study of prescriptions dispensed by nine Illinois pharmacies, indicated that quinine and morphine were the two most commonly prescribed drugs (Cowen and Helfand 1990: 191). Perhaps not surprisingly, bottles associated with both drugs were recovered from Feature 1.

Diagnosis

The only diagnostic implements recovered were portions of two thermometers and a single Bakelite thermometer case (FIG. 9). One of the thermometers is engraved "W. P. Schieffel & Co. New York." An examination of several late 19th-century New York City directories failed to reveal this company (Martin 1873; Trow City Directory Co. 1879; Rand City Directory Co. 1880). Thermometers such as these with a single bulb were common by 1870 (Smith 1879: 325; Wilbur 1987: 82). The Bakelite case may be indicative of an early 20th-century date. (Bakelite was invented in 1907.) It seems likely that many of the more sophisticated diagnostic implements owned by the physicians escaped deposition in the feature.

Hygiene

Several hygiene-related items were found that may lend credence to the privy theory. These include fragments of both a bone-han-

dled toothbrush and a shaving brush. Similar brushes have been excavated on Canadian sites dating from the first half of the 19th century, but they were probably in use during much of the century (Sullivan 1986: 6). A bone-handled nail brush (Sullivan 1986: 6) was also recovered. The nail brush may indicate some awareness of personal hygiene on the part of the owner. Dr. Ignaz Semmelweis, one of the 19th century's leading obstetricians, advocated physicians vigorously brushing their hands and nails both before and after examinations (Bender and Thom 1961: 222). This simple procedure greatly reduced the mortality rate of pregnant women from childbed fever. A soap dish and fragments of three pitchers and five washbasins were also recovered.

Non-medical Items

Other non-medical items included two slate pencils, a large brass skeleton key, several small porcelain buttons (circa 1850+), and a single lens from a pair of eyeglasses (FIG. 9). The lens is of an oval shape common from 1850 to 1900 (Spillman 1983: 217). It is an interesting coincidence that the only known picture of Dr. Morrogh shows him wearing similar eyeglasses to those found (FIG. 5) (Wall and Pickersgill 1882: 527).

A variety of ceramic serving vessels and tableware was also recovered from Feature 1. They comprised less than 20% of the assemblage. Most of these items are ironstone, whiteware, or porcelain. Only one vessel, an ironstone plate with a patent date of 1879, had a legible mark. Unfortunately the name of the manufacturer was obscured by pooled glaze. While some of the ceramic items, such as large ironstone trays, may be associated with the physicians' practice, only a few could be clearly linked to health care. These include several ointment pots recovered from the feature. All of them are white earthenware. A variety of sizes is represented. Ointment pots were commonly used for tooth powders and medicinal salves. Common preparations included eye ointments, radium salves, and dandruff eradication preparations (Swanson 1976: 137). None were marked with the names of patent cures; they may have had paper labels that have been lost through time, or per-

haps the pots were being used to hold salves produced by the physicians themselves.

Conclusions

The artifacts recovered from Feature 1 during the Golden Triangle Development Project represent only a small portion of the tools used by physicians during this time period, but they illuminate many aspects of the practice of the two doctors who lived at the site from 1851 to 1919. While the condition of the feature makes any conclusions tentative, it is hypothesized that the recovered artifacts date from both Dr. Morrogh and Dr. Donahue's practice. Whether they were discarded en masse or over time is not clear. Perhaps Dr. Donahue threw the majority of them away after he took possession of the property in 1882. The manufacturing techniques represented in many of the artifacts, particularly the scalpels and large syringes, are more characteristic of the mid-to-late 19th century than of the 20th century. The thermometer and case, however, post-date 1907. Unfortunately the extensive disturbance encountered within the feature did not allow temporally distinct deposition episodes to be identified.

Of particular interest is the diversity of the assemblage. It seems to reflect a truly "general" practice. While scalpels and hypodermic syringes were recovered, many of the artifacts relate to gynecology and the preparation of medicines. These two important aspects of the doctors' work were completely overlooked by contemporary histories. This may be attributed, at least in the case of gynecology, to the sexism and prudery of Victorian authors.

The presence of lancets that could not be sterilized is both disconcerting and noteworthy. One of the complaints of traditional doctors against anesthesia was that it allowed for all sorts of surgeries that would never have been performed without it. While anesthesia could make these operations painless, the risk of infection was greater than ever (Pernick 1985: 7).

This selection of artifacts recovered from a disturbed context but clearly associated with two distinguished physicians provides an avenue for inquiry into the history of medical care. The lancets, syringes, and graduated

cylinders are a small but informative portion of two historical doctors' kits. Using tools like these, innovative physicians like Clifford Morrogh and Frank Donahue revolutionized the medical field and laid the foundations for modern-day anesthesia, aseptic medicine, antiseptic medicine, and gynecology.

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