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Cover Page Footnote

A substantial debt is owed to Philip Perazio, original principal investigator on the project, and his field crew. Their meticulous work and careful notes made this reanalysis possible. We would also like to thank Peter Primavera, president of the Cultural Resource Consulting Group, who provided generous access to the archaeological collections. Dawn Turner drew Figure 10 and Craig Schaffer, CRCG draftsman, provided illustrations 1 and 7. Jed Levin drew our attention to the similarities between the large quantity of glass recovered at the Lakehurst Shops and in Kristin Stevens' excavations at the Thurmond Depot (46FA214) in West Virginia. Kristin Stevens kindly provided a copy of her report on that study. Brian Greenberg of the Department of History and Anthropology at Monmouth University suggested useful sources on temperance and industrial history. George Miller shared his considerable insights into historical glass manufacture. Mallory Gordon of Louis Berger and Associates assisted with the identification of the flasks. Obviously any errors of omission or fact remain our own.

Who's Been Drinking on the Railroad? Archaeological Excavations at the Central Railroad of New Jersey's Lakehurst Shops

Richard Veit and Paul W. Schopp

Archaeological excavations at the former shops of the Central Railroad of New Jersey, in Lakehurst (28-0c-138), uncovered several large bottle caches within a 19th-century railroad maintenance facility. These caches, situated in clandestine locations within the plant, apparently reflect a considerable amount of on-the-job alcohol consumption by railroad workers. This surprising discovery and its implications for understanding turn-of-the-century workplace culture are explored.

Les excavations archéologiques intervenues aux anciennes usines du Central Railroad du New Jersey, à Lakehurst (28-0c-138), ont mis au jour plusieurs grosses caches de bouteilles dans une installation d'entretien du chemin de fer du XIXe siècle. Ces caches, situées dans des endroits clandestins de l'installation, semblent indiquer que les ouvriers du chemin de fer consommaient beaucoup d'alcool sur place. L'article commente cette surprenante découverte et ses implications pour ce qui est de comprendre la culture du lieu de travail au tournant du siècle.

Introduction

In 1987 and 1988, Research and Archaeological Management, the predecessor firm of the Cultural Resource Consulting Group, investigated the site of a major locomotive repair facility and roundhouse constructed by the Raritan and Delaware Bay Railroad, and later operated by the Central Railroad of New Jersey (CRCG 1995: 1) (FIG. 1). Excavations at the site, located in Lakehurst, formerly Manchester, New Jersey, revealed not only the well-preserved remains of a 19th-century roundhouse and shops, but also uncovered several large caches of early 20th-century liquor bottles. These carefully hidden caches provide a glimpse of one poorly documented aspect of industrial worker's lives—workplace liquor consumption. Despite regulations prohibiting any consumption of alcohol within the workplace, the men who worked in the Lakehurst Shops drank significant quantities of hard liquor, particularly whisky, on the job. This practice, which could be construed as a form of workplace resistance, continued during prohibition and only ended when the roundhouse was torn down in 1931.

Although archaeologists have found alcohol bottles in other industrial contexts—a cache of bottles in a rural blacksmith shop (Praetzelis, Ziesing, and Praetzelis 1997) and bottles discarded in the backyards of workers' houses in Lowell, Massachusetts (Bond 1988; Mrozowski, Ziesing, and Beaudry 1996: 71–74)—the presence of liquor bottles discarded in the workplace itself is uncommon.

We were particularly surprised to find bottles in a railroad roundhouse, as nearly all railroads banned drinking for the sake of safe and efficient operation (Pennsylvania Railroad System 1925: 6–7; Lehigh Valley Railroad Company 1966: 5; White 1981: 135). Even so, the workers at the Lakehurst shops consumed alcoholic beverages at work and discarded dozens of bottles in the complex. In fact, bottle glass is the single largest category of artifacts recovered from the site. By drinking in the workplace, the railroaders were not only consciously breaking company rules (Licht 1983: 86–87; Rumbarger 1989: 125), but they may also have been breaking a federal law, the Volstead Act (passed in 1919), as at least one of the deposits appears to date from the early 1930s.



Figure 1. Map of New Jersey; the arrow indicates the location of the Lakehurst Shops.

Their drinking, however, should be understood in its historical and cultural contexts. The bottles date from the late 19th and early 20th centuries, with many deposited near the beginning of the Great Depression. Workers about to lose their jobs in a railroad town may have been less concerned with the rules and regulations of a company that would soon fire them than those working for a thriving concern. Discarding the incriminating bottles in little-used and inaccessible portions of the shop, the shop workers undoubtedly assumed that their transgressions would never be discovered. For seventy-plus years, they were correct.

Railroads and Temperance

The Lakehurst Shops were established in the mid-19th century, just as the temperance movement was gaining steam. Although no primary documents are available that might cast light on the drinking practices of Lakehurst's railroaders, secondary sources can be used to place their behavior in context. As early as the 1850s, most railroads had estab-

lished elaborate regulations that they expected their employees to follow. Topics covered included safety, appearance, manners, smoking, and, of course, drinking. Walter Licht's book, *Working on the Railroad*, provides an early example. In April, 1834, at the first board meeting of the Boston and Worcester Railroad, the directors decreed that "no person be employed to take charge of the engines, or the cars or to act in any other situation in the service of this corporation, who shall not wholly abstain from the use of ardent spirits" (Licht 1983: 86). Although the directors seem to be referring to operating personnel, similar rules probably applied to shop workers.

Likewise, in 1850, the Baltimore and Ohio Railroad issued a circular stating the following:

No man who uses intoxicating drinks at all can thus rely upon himself, or be relied upon, and it is intended as far as possible to deny employment to all who use them. It is hoped, therefore that those who desire to remain in the service will avail themselves of this notice and abstain entirely from a habit which is full of evil to themselves as well as their employers, and is now acknowledged to do no one any good. (Hungerford 1928: 273)

In a more local New Jersey setting, the Camden & Amboy Railroad instituted the following rule in 1855.

Article XVIII.—No person in the service of the Company, while on duty, connected with any of the Trains, will be permitted either to smoke or use ardent spirits, and if any such person shall be at all under its influence while on duty, he shall be dismissed. (White 1981: 135)

Historian John Rumbarger also notes that after 1887, universal policies were enacted calling for the dismissal of intoxicated employees and banning the use of intoxicants on or around railroad property (1989: 126).

Railroaders, nonetheless, circumvented these rules and gained a reputation as hard drinkers. William Bender Wilson, writing in his 1911 history of the Pennsylvania Railroad YMCA, noted:

Intoxication of employees was frequent.... In the line's earliest years, the trains stopped at the taverns which were the only stations along the line of the road, and the engineers, firemen, conductors, brakemen and passengers hastened to the barrooms to procure liquor, the train being held awaiting the appeasement of the thirst of all. (Wilson 1911: 8)

Management and workers continually butted heads over alcohol use, absenteeism, and work conditions. Most historians agree that management gradually gained the upper hand over the workers, who became increasingly acclimated to industrial work discipline (Licht 1983; Rumbarger 1989). One managerial technique instituted was a system of promotions based on merit (Rumbarger 1989: 126).

Welfare programs that incorporated temperance measures were also common. And, in some cases, companies directly intervened in local politics, in an attempt to gain sober workers. For instance, in 1903, the Lake Shore and Michigan Southern Railroad announced that it would expand its repair shop in Collingwood, Ohio, provided the town voted to go "dry" (Rumbarger 1989: 147).

Archaeological evidence from the Lakehurst Shops excavations contradicts the generally understood picture of railroaders and alcohol use. The Lakehurst deposits show an apparent increase in alcohol use through time, not a decrease. Almost all of the bottles were found in deposits dating from the early 20th century. In part, this may relate to the automation of bottle manufacture. By the second decade of the 20th century bottle production had outstripped demand (Busch 1987: 74). This meant fewer bottles were recycled and more were discarded. Nevertheless, the paucity of 19th-century bottles in comparison to 20th-century bottles is striking.

Lakehurst, New Jersey, a Railroad Town

Although Lakehurst, formerly Manchester, traces its history to the late 18th century, the town's 19th-century development was due primarily to the efforts of William Torrey, a New York City businessman and real estate devel-

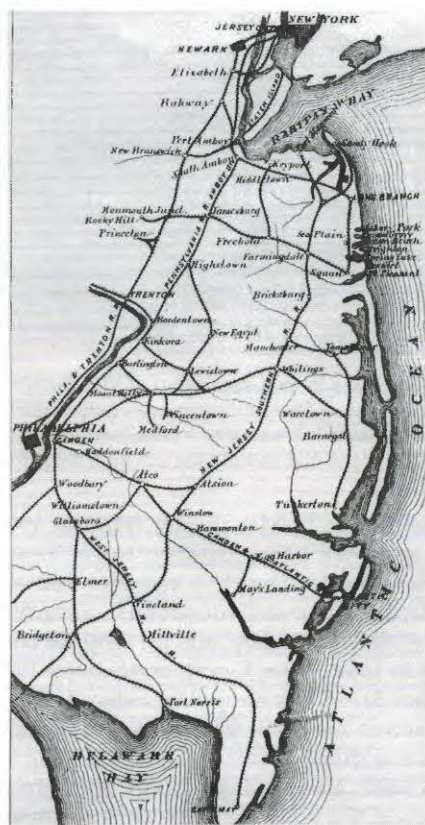


Figure 2. The Raritan and Delaware Bay Railroad originally constructed the route of the New Jersey Southern Railway depicted on this 1878 map. Also note the Pennsylvania Railroad's Amboy Division, formerly the line of the Camden and Amboy, the major competitor and bitter enemy of the R & DB. (Untitled map dated 1878 from the collection of Paul W. Schopp.)

oper. After a series of financial misadventures, Torrey hatched his greatest scheme: a Jersey shore railroad. Although the Camden and Amboy Railroad had an official monopoly on rail transportation across the central portion of New Jersey, Torrey secured a charter for his competing Raritan and Delaware Bay Railroad in 1854 (Flagg and Schopp 1989: 15). As constructed, Torrey's line connected with the Camden and Atlantic Railroad thus linking, in a very roundabout way, Philadelphia and New York (FIG. 2) (Lane 1939: 403).

Torrey further attempted to promote his land holdings by establishing the line's main-



Figure 3. "View in the Central Part of Manchester" from Barber and Howe's *Historical Collections of the State of New Jersey* (revised edition, 1868). This is the earliest known depiction of the Raritan and Delaware Bay's Lakehurst Shops. They are partially visible to the left and rear of the depot and include the machine shop, forge, and the original two stalls of the roundhouse.

tenance shops in Manchester (Heston 1924: 293; Lane 1939: 405). According to *The Trail of the Blue Comet*, "The shop complex initially consisted of a two-stall roundhouse, a machine shop, a blacksmith shop, and tin shop, all completed in 1863" (Baer, Coxey, and Schopp 1994: 43) (FIG. 3). A car shop was constructed in 1864 across the main tracks from the roundhouse and shops.

In 1867, after losing a court battle to its chief rival, the powerful Camden and Amboy, portions of the Raritan and Delaware Bay were shut down (Baer, Coxey, and Schopp 1994: 60). Shortly thereafter, the truncated Raritan and Delaware Bay failed to meet its creditors' demands and declared bankruptcy. It was reorganized in 1869, as the Raritan and Delaware Bay Railroad Company (Flagg and Schopp 1989: 15). A further reorganization occurred in 1870, when the Raritan and Delaware Bay Railroad became the New Jersey Southern Railway under the leadership of the notorious Jay Gould (Flagg and Schopp 1989: 15).

The New Jersey Southern considerably improved the Manchester facilities. Six additional stalls were added to the roundhouse, as was a wheel lathe with a 20-foot bed and a seven-foot swing, which cost some \$4000.00 (*New Jersey Courier* [NJC] 5 October 1870, 14 June 1871). Nevertheless, the New Jersey Southern did not meet with any greater success than did its predecessors. The Panic of 1873 put a severe strain upon the company. In

1879, the New Jersey Southern declared bankruptcy and the tracks were leased to the Central Railroad of New Jersey (Lane 1939: 405).

The Jersey Central Company undertook improvements in Manchester, even though the Southern was only a minor branch. New tracks were added, and a water tank and well were constructed (Flagg and Schopp 1989). The Jersey Central used the shops to reconstruct locomotives and fabricate new cars (Baer, Coxey, and Schopp 1994: 116, 127). Further economic contractions in 1893 and 1894, however, led to a reduction in hours for workers at the Manchester shops.

During the early 20th century the Jersey Central prospered. Nonetheless, the workers repeatedly struck for higher wages. From 1900 to 1912 employment at the shops remained steady, with between 100 and 105 men active (Stainsby 1901: 856; Garrison 1906: 189; 1909: 224; 1912: 241) (FIG. 4, 5). Lakehurst, however, remained a struggling community of 800 residents. There was some summer trade and a number of hotels, but they attracted primarily a middle-class clientele. On October 20, 1910, William Torrey, the motivating force behind the community, passed away (Baer, Coxey, and Schopp 1994: 199).

Shortly thereafter, the Jersey Central expanded its main shop complex at Elizabethport. By 1915, the effects could be seen in Lakehurst, where employment had dropped by 25% to 75 men (Low 1915: 240). This number held into the 1920s when use of the



Figure 4. Central Railroad of New Jersey workers at the Lakehurst Shops, circa 1905. (Collection of Paul W. Schopp.)

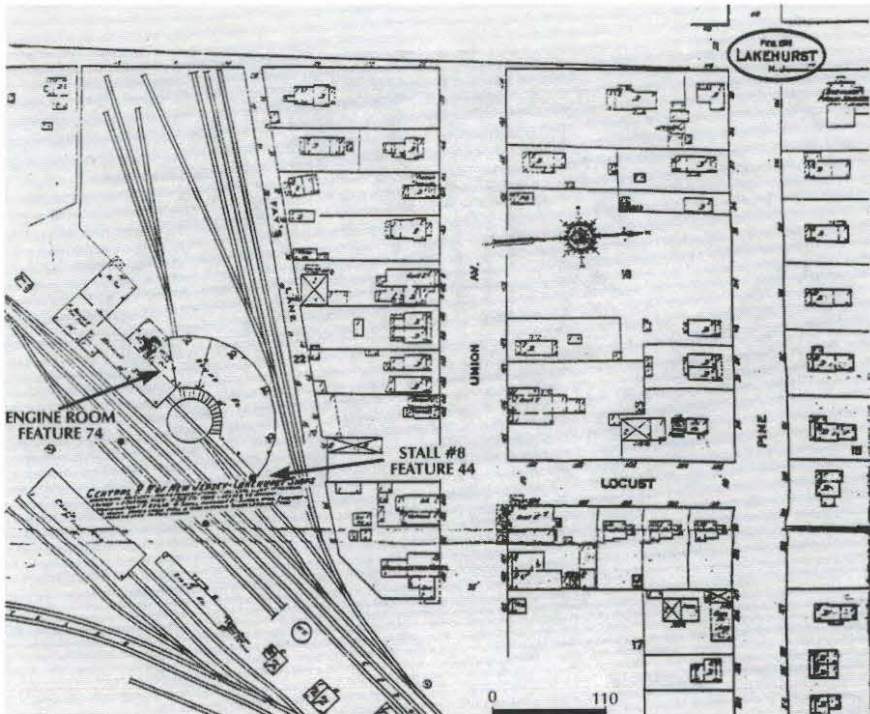


Figure 5. Sanborn Fire Insurance Company map of Lakehurst, New Jersey, 1911. Note the roundhouse and machine shops.

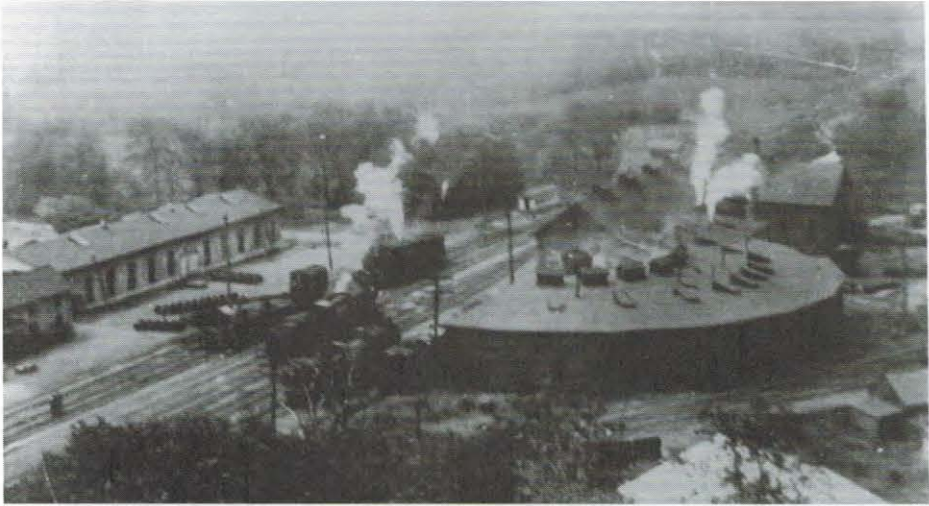


Figure 6. Early 20th-century photograph of the Lakehurst Shops. (Collection of Paul W. Schopp.)

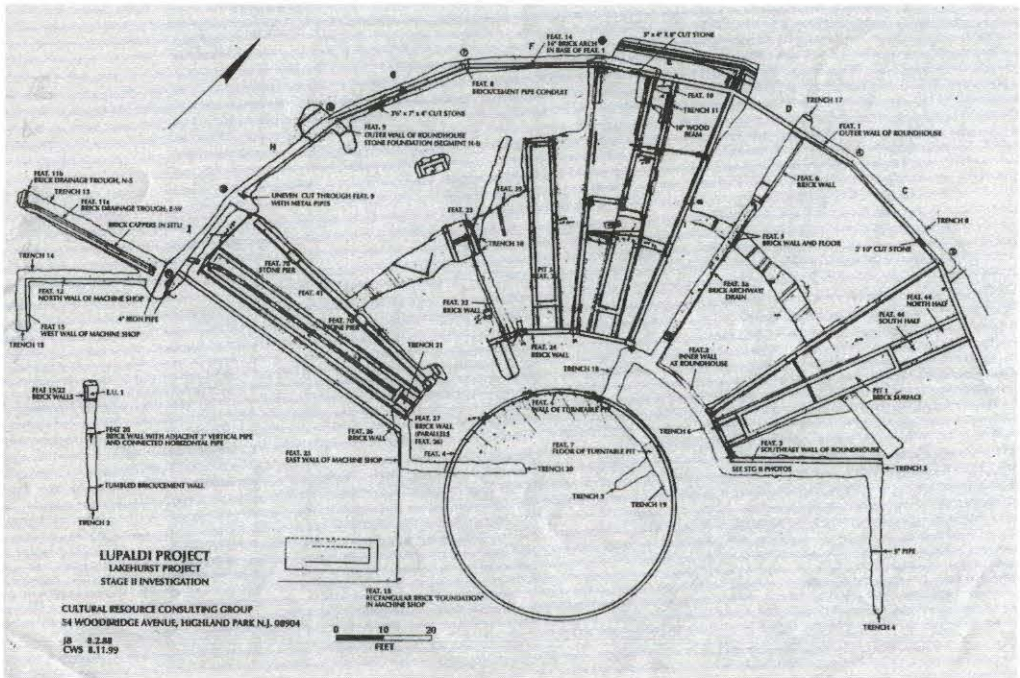


Figure 7. Field map showing Phase III excavations at the Lakehurst Shops, August 2, 1988. (Drawn by Joann Boscarino, redrawn by Craig Schaffer.)

facility declined still further (FIG. 6). In 1929, work began to remove the moribund Lakehurst roundhouse and, eventually, the turntable. The fifty-foot turntable, which had been adequate for early 4-4-0 locomotives, was a liability when new and longer locomotives were introduced after 1900 (Flagg and Schopp 1989: 10). The longer locomotives could not fit on the turntable, and the layout of the complex precluded its enlargement. At first the turntable was pinned, allowing access to the machine shop, and by 1931, the roundhouse had been demolished (Central Railroad of New Jersey 1931). Shortly thereafter, the *New Jersey Courier* printed an announcement that the shops were closed indefinitely (*New Jersey Courier* 3 April 1931). The railroad tore down the buildings in 1937. Although the passenger trains of the Jersey Central would continue to ride the rails until 1962, the Lakehurst/Manchester shops were no more.

Archaeological Investigations

The archaeological investigations focused on three components of the complex: the roundhouse; turntable; and shops. Testing revealed that in all three locations substantial remains of the facility survived in an excellent state of preservation. Therefore, the New Jersey Pinelands Commission requested a data-recovery excavation to record the site before its destruction.

A top priority during the archaeological studies was investigation of the roundhouse. The structure was composed of eight stalls (FIG. 7). Each was served by a track running from the turntable almost to the rear wall of the building. Excavation revealed linear brick foundation walls flanked by wooden beams indicating internal divisions between stalls. Most of the stalls contained inspection or service pits. These pits allowed workmen access to the undersides of the locomotives, particularly the running gear.

Intensive testing of the shops revealed a number of historical features, including the remains of the machine shop, blacksmith shop, and engine room. Artifact deposits relating to the former functions of these rooms were also noted. One of the goals of the data recovery was to document these activities.

The data recovery began in September of 1988 and ended in October of the same year. Most of the excavation was performed using a backhoe; the field crew excavated exposed features and some structures by hand, however. They unearthed a total of 130 historical features relating to the operation and construction of the shops. Features included a variety of structural elements: walls; footings; and fragmentary floors as well as pits, wells, and pipes; there were also concentrations of artifacts. During the four weeks of excavation, the field crew sampled the roundhouse, turntable, blacksmith shop, machine shop, boiler room, and engine room.

Artifact Analysis

Although the remainder of this discussion focuses on two particularly rich features—Feature 40, a subfloor pit in Stall #8, and Feature 74, the flywheel pit—some general comments about the artifact assemblage are in order.

The three phases of excavation at the Lakehurst Shops recovered a total of 1,107 artifacts. This in itself was not surprising; if anything, the number of artifacts from the site was relatively small given its size. Some 556 artifacts, just better than half of those recovered, were bottles or fragments of bottles. The second largest quantity of artifacts consisted of fasteners: spikes; nuts; bolts; washers; nails; and tacks. These are not unexpected in a site where railroad equipment was repaired and serviced. Window glass was also common, making up about 12% of the collection. A large quantity (115) of unidentified metal fragments, both iron and brass, was also found. Much of the iron was in the form of bars, which probably served as the raw material for a wide range of necessary parts. Small quantities of ceramics, tools, animal bone, and shell were also present. Rather surprisingly, we found no tobacco pipes. Interestingly, tools—files, drills, and wrenches—made up only 2% of the collection (TAB. 1). Bearing in mind the activities known to have occurred at the site, the number seems small. This may indicate that shop personnel were directed to perform a “clean-sweep” tool and scrap recovery prior to the shop’s closure or demolition.

Table 1. Overall breakdown of the types and quantities of the artifacts recovered from the Lakehurst Shops.

<i>Artifact Category</i>	<i>Quantity</i>	<i>%</i>
Bottle Fragments	556	51
Fasteners	282	25
Window Glass	132	12
Unidentified Metal	115	10
Other	22	2
Total	1107	100

The artifact class most common at the site was bottle glass. Given the fact that glass shatters into very small fragments, it is not entirely surprising that such a large number of bottle fragments was recovered. Many of the bottles were intact, however, and in several instances, large numbers of bottles seem to have been purposely discarded in inaccessible places. A minimum of 105 bottles was recovered during the excavations at the Lakehurst Shops. Minimum vessel numbers were calculated using bases, necks, and embossments. They include 71 flasks, 17 soda water and beer bottles, seven milk bottles, four condiment bottles, and four prescription or medicine bottles (TAB. 2).

The bottles date from the late 19th and early 20th centuries. Most of the flasks were manufactured in automated molds or semi-automated molds using a process invented by Michael Owens.

In 1903, Owens, with the assistance of a skilled engineer Emil Bock, invented a machine that allowed for the mass production of bottles. Owens' machines allowed enormous quantities of glass bottles to be manufactured to the same exacting specifications. This, in turn, led to the development of high-speed bottling and filling lines in other industries that depended upon glass containers. (Horner 1985: 66)

Most of the bottles recovered from the Lakehurst Shops were made from colorless or clear glass and are quite regular in form (see Miller and Pacey 1985 on mechanized production of glass bottles).

Small quantities of bottle glass were recovered from nearly every context at the site. Two contexts were particularly noteworthy: Feature 44, a small rectangular area located at

Table 2. Bottle forms recovered from the Lakehurst Shops.

<i>Bottle Forms</i>	<i>N</i>
Condiment/Pickle	4
Flasks	71
Milk Jars	7
Soda Water/Beer Bottles	17
Prescription Bottles	4
Other	2
Total	105

the north end of the last roundhouse stall; and Feature 74, the flywheel pit of the stationary engine room. From each location roughly 40 bottles were recovered. Whisky flasks were the most common form in both contexts.

Stall #8

For most of its active life, the Lakehurst roundhouse contained eight stalls, numbered clockwise. Mechanics serviced and stored the locomotives in these stalls. They worked on cars in a separate structure on the east side of the main line. The car shops are not discussed here, but were investigated as part of separate studies carried out by James Boylan (1986a, 1986b) and Susan Kardas and Edward Larrabee (1987). The first two stalls constructed—subsequently designated stalls #1 and #2—were located in the southwest corner of the roundhouse.

The central section of the stall functioned as an inspection and service pit. Here, mechanics serviced locomotives and performed other maintenance tasks. At the Lakehurst Shops the work bays had brick floors. To the north and south of the bays were linear continuations of the work areas set off by brick walls (FIG. 8). When the roundhouse was in use wooden floors probably covered these features. The northern area measured roughly 4 ft (1.22 m) wide and 16 ft (4.87 m) long. These walls served to buttress the work areas between the rails and provided a measure of structural stability.

The shallow inspection pits at Lakehurst measured roughly 2 ft (61 cm) deep, from the top of the rail to the floor (Flagg and Schopp 1989: 10). As the uppermost layers of masonry in Stall #8 had been truncated, its exact depth is unknown. It is believed, however, to have

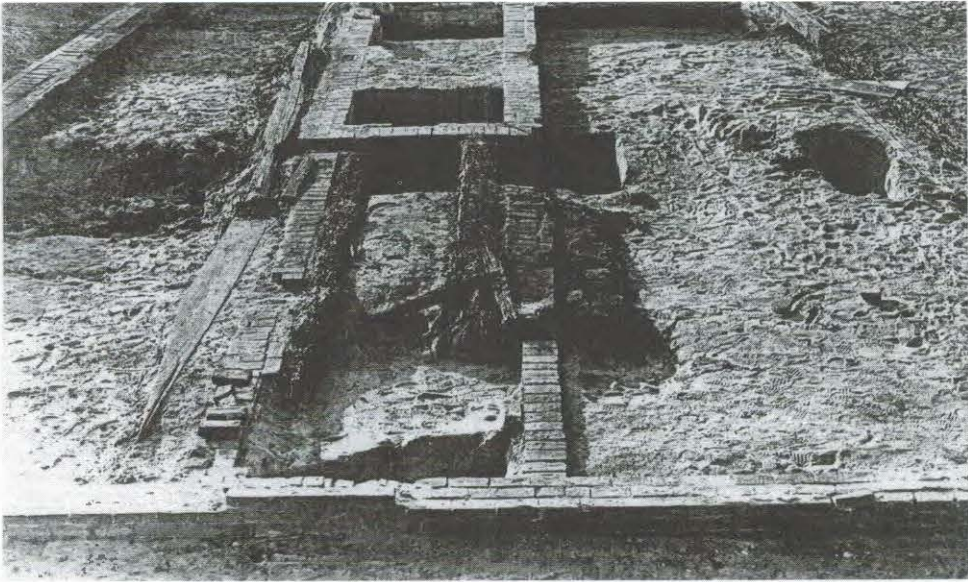


Figure 8. Feature 44, Stall #8, partially excavated. The bottles were found at the end of the stall closest to the viewer.

been the shallowest and was likely used for light maintenance tasks like lubrication. Stall #4 contained a wheel drop pit for removing driving wheel axle sets from the locomotives.

The area between Stall #8's work area and the wall of the roundhouse seems to have been an unused area. In many of the stalls, artifacts were found in these largely inaccessible spots. Apparently, mechanics would discard broken bolts, metal scraps, and other items in these areas. It is not clear whether these spaces were open or floored over when the structure was in use. Based on comparison with other roundhouses, however, we believe the latter was the case (see Rutsch and Githens 1980; Rutsch and Morrell 1979).

Excavation of a backhoe trench (Trench 6) revealed both the structure and contents of Stall #8. Subsequently a second backhoe trench (Trench 22) was also excavated across the stall, and then the remainder of the stall was excavated by hand. The sidewalls of the pit are 3 to 4 bricks wide and 4 vertical courses high—roughly 1 ft (30 cm)—at their maximum extant point. The walls are truncated, though how many courses of brickwork are missing is unclear. Unless the walls were substantially

higher than they currently are, mechanics would have had to crawl underneath the engines in order to work on them.

Both the brick-laid floor and the sidewalls are mortared and set in an irregular bond. From the bottom up, the first, third, and fourth courses are stretchers while the second course is mostly stretchers but occasionally headers as tiebacks. The pit's sidewall near the rear wall end is pierced by an arched opening, which served as a common drain through all the pits. The brick floor pitches downward towards this opening, apparently to facilitate runoff.

While the work bay of Stall #8 was nearly devoid of artifacts, the area between the bay and the exterior wall of the roundhouse (Feature 44) contained a substantial deposit. The deposit was fairly shallow, extending only 4 in (10.16 cm) from the top of the brick sidewalls. It consisted of sand, ranging in color from black to very dark brown, mixed with ash, pebbles, slag, brick, and wood fragments. It is possible that the wood fragments are the remains of a floor. Underlying the feature was sterile yellow brown sand, the subsoil. Feature 44 contained 326 artifacts. Of these, 311 were



Figure 9. A selection of late 19th- and early 20th-century bottles recovered from Feature 44.

glass bottle fragments (FIG. 9). The remaining artifacts were railroad spikes, iron washers and nuts, and machine-cut nails. There was no internal stratigraphy to the feature. It is probably a primary, though unsealed, deposit that accumulated gradually over time, as bottles were pitched into this hidden nook.

The glass fragments from Feature 44 represent a minimum of 48 bottles. With only two exceptions, they are from flasks. The bottles are enumerated in Table 3. Names for the bottle forms are taken from the 1904 *Whitney Glass Works Illustrated Catalog* (Lohmann 1972).

All of the flasks had a volume of one half-pint. They were made in two-part cup-bottom molds. The flasks marked "WARRANTED FLASK" have strapped sides and Perry Davis type finishes. Those marked simply "HALF PINT FULL MEASURE" have two-part finishes with down-tooled lips (Jones et al. 1989: 87, 88) (FIG. 10). All have flat bases. Although bottle collectors have devoted considerable time to the analysis of historical and pictorial flasks, more recent flasks are fairly commonplace and have not attracted a great deal of collector attention (see McKearin and McKearin 1950; Munsey 1970: 87–94; McKearin and Wilson 1978). One source, Michael

Polak's *Bottles*, assigns "WARRANTED FLASKS" a date range of 1870 to 1890 (1997: 133). Based on the manufacturing characteristics of these bottles this seems accurate, though they may have been made as late as the early 20th century. While the Warranted Flasks are pale aqua in color, the Union Flasks are colorless, a characteristic often associated with 20th-century bottles. The Union Flasks also have seams that extend to but not across the finish of the bottle. This may indicate that fire polishing was used to smooth the bottle's finish. This was common with beverage bottles. According to Cecil Munsey this "would eliminate one or both of the seam markings resulting from automatic blowing" (Munsey 1970: 41). Two of the Union Flasks from Feature 44 have Owens scars on their bases. Owens automatic machines for narrow-mouth ware came into use after 1917 (Diamond 1997: 187). It is also worth noting that the bottles strongly resemble those depicted in an early 20th-century bottle catalogue that has been reproduced for collectors (Lohmann 1972).

Bottlers' and manufacturers' marks provide another means of dating the bottles. Only one of the bottles recovered from Feature 44 bears the mark of a bottler, Peter Hauck and

Table 3. Bottle types recovered from Feature 44.

<i>Form</i>	<i>Main Inscription</i>	<i>N</i>	<i>Base Inscription</i>	<i>Color</i>
Beer/Soda	Peter Hauck & Co.	1		Aqua
Square Blake	"8 Oz."	1		Colorless
Strapped Flask	"Warranted Flask"	6		Colorless
Union Flask	"Half Pint Full Measure"	29	"M"	Colorless
Union Flask	"8 Fl. Oz."	1		Colorless
Union Flask		1	"235 C"	Colorless
Union Flask		1	"350"	Colorless
Union Flask		2	"492"	Colorless
Union Flask		4		Colorless
Union Flask		1	"1572"	Colorless
Union Flask		1		Aqua
Total		48		

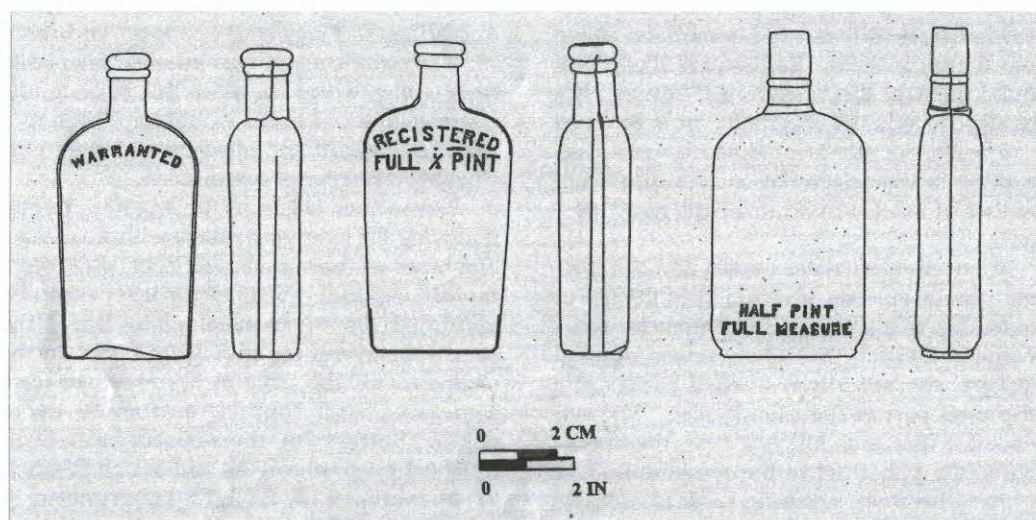


Figure 10. Common forms of flasks recovered from the Lakehurst Shops. The bottles depicted here measured 6.5 in (16.51 cm) tall. (Drawing by Dawn Turner.)

Company of Harrison, New Jersey. The bottle is machine-made with a crown-finish. The glass has a slight aqua tint. Originally, the bottle would have held beer, as Hauck was a brewer. He made and bottled beer using this mark from 1889 until the beginning of Prohibition. In his last year of production, he made

100,000 barrels, or 3,100,000 gallons (Friedrich and Bull 1976: 409a). This specific bottle post-dates 1903, as it has a crown seal (Paul and Parmalee 1973: 14).

Twenty-nine of the Union Flasks are marked with the letter "M" in the center of the base. An examination of Julian Toulouse's-

Bottle Makers and Their Marks revealed only one known maker who used this trademark, the Maryland Glass Corporation of Baltimore (1971: 339). The company employed the mark from 1907 to 1916. This range of dates falls within the later period of the Lakehurst Shops. Another possible bottle producer using the letter "M" as its mark was the Minotola Glass Works, which operated under various owners from the 1890s through 1921 (Pepper 1971: 270–272). This plant was located along the Jersey Central's New Jersey Southern Division in Minotola, a town situated between Hamonton and Vineland.

One other characteristic serves to provide an end date for the bottles. None are marked with the phrase "Federal Law Forbids Sale or Re-Use of this Bottle." This provides a *terminus ante quem* of 1935. On January 1, 1935, the Federal Government "enacted legislation prohibiting the resale, purchase, or use of used liquor bottles, even by the original filler used bottles were supposed to be destroyed" (Busch 1987: 76). Based on the above-discussed characteristics, the bottles were probably made and used between 1870 and the demolition of the roundhouse in 1929. Railroaders likely discarded many of them between 1907 and 1916. The deposit was not stratified, but is believed to represent a series of discard episodes, resulting in the accumulation of a significant number of bottles in an inconspicuous location.

In our opinion, these bottles do not represent a single episode of drinking or the use of the facility as a garbage dump after its abandonment. Instead, they likely reflect railroad workers' sporadically discarded bottles in a little-used part of the roundhouse. The evidence for this is as follows: first, the bottles date to the period when the roundhouse was in use. Therefore, imbibing railroad workers probably produced the deposit. It is highly unlikely that anyone other than railroad employees would have been able to throw out liquor bottles in the roundhouse during its active life. Second, this activity appears to have been ongoing, as the bottles span a thirty-year range. After the turntable was pinned, Stall #8 lost its usefulness, and may have been an easy and relatively unobtrusive place to discard empty liquor bottles. Even so,

the shop employees did not simply toss the bottles into the stall, but put them in the rear of the stall, and likely hid them in an open crawlspace that we believe was floored over.

Engine Room

The second context that contained a substantial quantity of bottles was the engine room. This was a triangular-shaped building wedged between the roundhouse and the machine shop (Sanborn 1911). It was located at the opposite end of the roundhouse from Stall #8. In the Lakehurst Shops, as in most late 19th-century factories, individual motors did not power the various machines. Instead, all power came from a single central stationary steam engine. Boilers, sometimes salvaged from wrecked locomotives, supplied steam to the engine, which in turn powered a system of overhead shafts. Leather belts and clutched drum pulleys allowed individual machines to take their power from the shafts (Flagg and Schopp 1989: 3). The flywheel turned in a deep trench or flywheel pit next to the engine. According to Flagg and Schopp, "in March 1930, an electric motor was installed to operate the shafting" (1989: 3). With this in place, the steam engine and boiler would have been rendered redundant and obsolete and were presumably taken out of commission.

Excavations began in the engine room by removing the overlying rubble with a backhoe. The bases of three truncated brick walls were rapidly exposed, but no floor level could be identified. As the archaeologists cleared the sand fill, several features were noted in the engine room. The three most prominent were a massive brick foundation for the steam engine (Feature 76), the adjacent brick-lined flywheel pit (Feature 74), and a well (Feature 77) measuring 5 1/2 ft (1.91 m) in diameter. A large tree was growing out of the well, precluding its excavation.

The east side of the stationary engine base and three brick walls formed feature 74, the flywheel pit (FIG. 11). It measured approximately 12 ft long (3.66 m), 3 ft (91 cm) wide, and 5 ft (1.52 m) deep. It also had a brick floor. The pit had no drain, and the soil matrix within it was a black sandy loam. From this context, 66 artifacts were recovered. Exca-

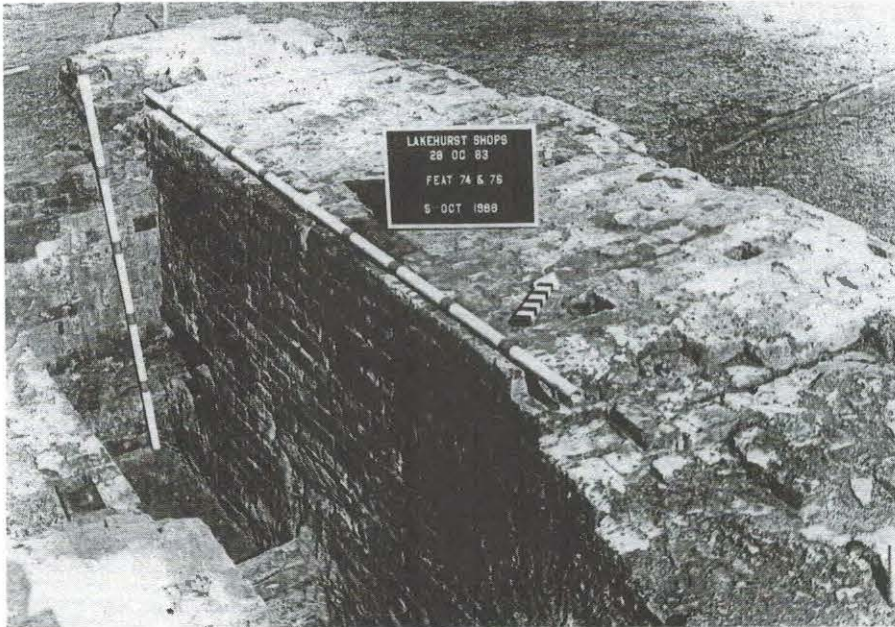


Figure 11. Feature 74, the flywheel pit, after excavation.

Table 4. Bottle types recovered from Feature 74.

<i>Form</i>	<i>Main Inscription</i>	<i>N</i>	<i>Base Inscription</i>	<i>Color</i>
Beer/Soda	J.B. Tilton, Forked River	2	FBS 2	Colorless
Beer/Soda	Whistle Bottling Co.	1		Colorless
Beer/Soda	Lakewood Bottling Co.	1		Aqua
Beer/Soda	Rubsam and Horrman	1	573	Aqua
Strapped Flask	Warranted Flask	8	Various	Colorless
Union Flask	Half Pint Full Measure	15	Various	Colorless
Strapped Flask		3		Amber
Union Flask		5		Amber
Condiment/Pickle Jar		2		Colorless
Olive/Italian Oil		1		Colorless
Insulator		1	WT	Aqua
Panel Bottle		1	8	Colorless
Panel Bottle		1	T & W Co.	Colorless
Total		42		

vating in the tarry matrix was quite challenging, and some small items may have escaped detection.

As was the case with Feature 44, many of the artifacts from Feature 74 were intact bottles. Flasks again predominated. A minimum number of 42 bottles was calculated, based on the necks, bases, and embossed fragments in

the collection (FIG. 12). They are listed above (TAB. 4).

Again, several of the bottles can be dated based on manufacture techniques and maker's marks. The beer/soda bottles are particularly useful for this task. Beer and soda/mineral water bottles were lumped together, as their forms are identical. Two bottles from J. B.



Figure 12. A selection of bottles recovered from Feature 74.

Tilton's Forked River bottling plant were recovered. Tilton was a local Anheuser-Busch bottler (Scott Wieczorek, personal communication, 1999). These bottles are embossed: "PATENTED FEB. 20, 1883, JUNE 28, 1886 AUG. 4, 88." This would seem to be all that one could ask for in terms of dates. A note in the Ocean County Historical Society's newsletter, however, states that Tilton did not begin bottling until 1902, when he purchased the defunct Washington Worden bottling plant in Forked River (Wieczorek 1999: 4). He continued bottling in Forked River until his death in September 1915. If the historical documentation is correct, the Tilton bottles were produced between 1902 and 1915.

A single bottle from the Lakewood Bottling Company was also recovered. Unfortunately, the Lakewood Bottling Company is not listed in any local bottle guides (Jersey Shore Bottle Club 1992: 44–46). The company also fails to appear in local business directories. The bottle did, however, have a crown cap closure that provides a clue to its age. William Painter patented the crown cap in 1892. It remains in use today with only minor alterations (Paul and Parmalee 1974: 14; Hull-Walski and Walski 1994: 17.8).

A single Rubsam and Horrman Brewing Company bottle was also found in Feature 74. The bottle is embossed "RUBSAM AND HORRMAN

BREWING CO. STATEN ISLAND, NY, REGISTERED, THIS BOTTLE NOT TO BE SOLD." It too has a crown cap, indicating a date after 1892, and was machine made. The firm of Rubsam and Horrman was one of Staten Island, New York's, largest and most successful breweries. It was active from 1870 until 1953, when Piel Brothers, Inc. purchased it (Sachs 1988: 46, 103). Rubsam and Horrman weathered Prohibition by producing a variety of near-beer products.

The final beer/soda bottle recovered is from the Whistle Bottling Company. Located in Scranton, Pennsylvania, this soda bottling company was active in the 1920s (Louis Berger and Associates 1996: 97).

In addition to the five beer or soda water bottles from Feature 44, there were 31 flasks of the Warranted and strapped varieties. These flasks, like those discussed from Stall #8, were all machine-made with fire-polished lips. Two displayed distinctive Owens scars, indicating a date of manufacture after 1917. Condiment, olive oil, and panel bottles were also recovered from this context, though in fairly small numbers.

One of the panel bottles, a small, 4-in (10.16 cm) tall pale aqua bottle, bears the maker's mark, "T. C. W. Co." Theodore Corson Wheaton's glass company of Millville, New Jersey, employed this mark. Wheaton founded the company in 1888 (Toulouse 1971: 527). It

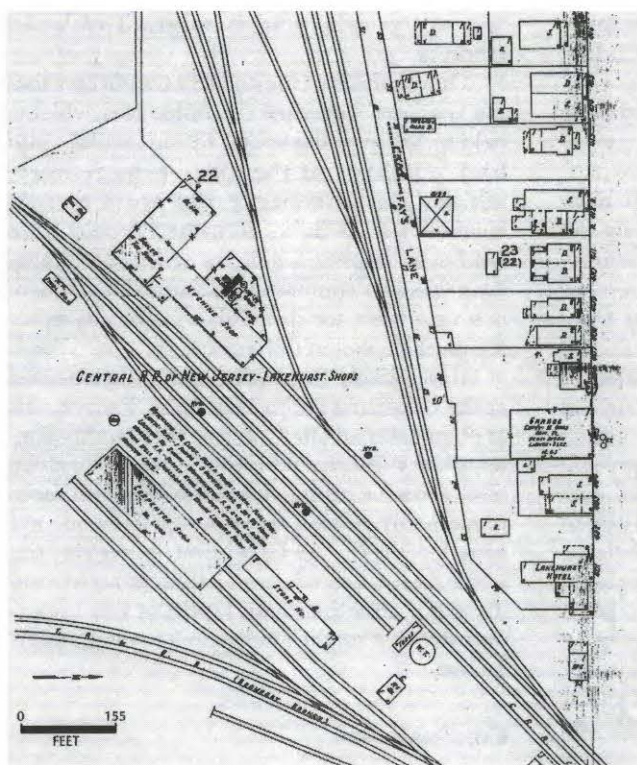


Figure 13. A 1933 Sanborn map of the shops. Note the absence of the roundhouse.

continued to hand-manufacture bottles until 1938. This bottle appears to have been made in a two-piece mold. It has a lip that was finished with a lipping tool. A single squat jar, marked with the embossment of the Hazel-Atlas Glass Company, in Wheeling, West Virginia, was also found in the flywheel pit. This particular bottle can be dated to the period from 1920 to 1964, and was probably used to hold fruit (Toulouse 1971: 239).

Based on the manufacturing techniques and embossments on the bottles, as well as historical information available about this feature, it is possible to date the context fairly closely. A locomotive boiler was used as the main power source at the Lakehurst Shops until 1930. Then it was removed and replaced with an electric motor. Although some bottles may have been tossed into the deep flywheel pit, Feature 74, prior to 1930, it seems likely that many of the bottles were discarded in 1930 or early 1931, immediately before the

structure was torn down (FIG. 13). At this point, the flywheel pit apparently became a convenient trash receptacle for the last railroad workers and possibly the demolition crew at the shops. Interestingly, the period when the bottles were discarded was during Prohibition. The presence of bottles that once held alcoholic beverages, surprising enough before Prohibition, is even more curious given the age of the deposit. One wonders if the last few workers employed in the shops, aware that the operation would soon shut down entirely, did not care if they were known to be drinking on the job.

Discussion

Most historians agree that drinking in the workplace was common if not endemic in the years before the Civil War. They also concur that this behavior declined in the postbellum period, thanks in large part to the growing

prohibition movement and an increasingly disciplined workforce (Stott 1990: 143–144; Pollard 1999: 138; Rumbarger 1989: xxi). Although many historians have focused their efforts on the rise of the temperance movement and various legal and social proscriptions against drinking, anthropologists have taken a different approach exemplified by the title of Mary Douglas' edited book, *Constructive Drinking: Perspectives on Drink from Anthropology* (1987; see also Marshall 1979). As Douglas notes, "Drinking is essentially a social act, performed in a recognized social context" (Douglas 1987: 4). Furthermore, drinking can be a sort of boundary marker, used to define personal identity and participation in a group.

In modern American society alcohol also serves a symbolic function. According to Joseph Gusfield, its use is generally associated with leisure time while sobriety is associated with work (Gusfield 1987: 84–85). This, however, was not always the case. In the early 19th century drinking was seen as a largely male prerogative closely linked to physical labor (Larkin 1988: 286; Stott 1990: 143). As previously noted, this changed with the rise of industrialized labor.

So why were the employees of the CRRNJ drinking on the job? Who were these men and why did they bring their whisky flasks to the shop rather than drink at a saloon after work? We can, unfortunately, say little specific about the railroad workers who did the drinking. Industrial directories tell us that roughly 100 men worked at the shops in the early 20th century (Stainsby 1901: 856; Garrison 1906: 189; 1909: 224; 1912: 241). A handful of photographs showing them survive. The managers look rather dapper in their overcoats and bowlers and the mechanics grimy in their coveralls. Nevertheless, the workers are, for the most part, historically invisible. According to William Dewey, a local historian, many of the employees working at the shops were recent immigrants from England and Ireland (Dewey 1981: 28). Perhaps they had not yet absorbed the temperance doctrine that the railroads tried so earnestly to enforce. There may also be evidence for class conflict here. After all, the Protestant middle class drove the temperance movement (Reckner and Brighton 1999:

67), not poorly paid immigrant railroad workers.

Our analysis of the collection indicates that the workers' beverage of choice was whisky, held in half-pint flasks and fitting securely into back pockets. At the turn of the century, whisky was commonly 100-proof or 50% alcohol. The 77 flasks recovered would have held a whopping 5 gallons of this beverage. Beer was less commonly consumed, and there is no evidence for drinking wine or any other forms of alcohol in the workplace.

It is unlikely that the behavior documented at the Lakehurst Shops is unique. Excavations at other railroad sites, such as the roughly contemporary Thurmond Depot in West Virginia, have shown a preponderance of glass artifacts, presumably related to drinking (Stevens and Mueller 1997). At Lakehurst, however, the large quantities of glass artifacts recovered drew our attention to an aspect of this important site that might otherwise have been overlooked.

Conclusions

Excavating in a railroad roundhouse, one would expect to find all the detritus associated with working on locomotives. This information is undoubtedly valuable for what it can tell us about technological change and industrial processes. Other finds such as bottle caches hidden within an industrial site, however, also have much to tell us about workplace life and behavior. As Kathleen Deagan (1991: 109–110) has correctly noted, one of the areas where historical archaeologists can make their greatest contributions is in documenting illicit or illegal behavior. Although dozens of authors have written about America's battle over temperance, excavations such as those at the Lakehurst Shops can provide us with a unique type of primary record, a material record of past behavior. It is an excellent illustration of what forgotten individuals were doing in their day-to-day lives, as the debate over drink raged about them.

It is our belief that the bottles recovered at the Lakehurst Shops highlight the persistence of workplace drinking well into the 20th century. This is in spite of the fact that railroads

took explicit steps to limit, and when possible to eliminate, alcohol consumption among their employees. This was done using a carrot-and-stick approach. Workers found drinking were often summarily dismissed, while at the same time railroads founded YMCAs and other temperance organizations in an attempt to provide a healthy alternative to the bottle (Wilson 1911).

In Lakehurst, no YMCA was built and the railroads' overt efforts to curb drinking seem to have had little influence. This was particularly true in the 20th century. It is likely that this on-the-job drinking was a form of workplace resistance to the impersonal forces of the capitalist economy. At the same time, other explanations for the bottles' presence are possible. Without an alcoholic booster, the workers may have found it difficult to endure a hard day's work servicing locomotives in an antiquated building that provided them with little protection from the vicissitudes of the weather. One might even argue that the mechanics and laborers of the Central Railroad of New Jersey working in Lakehurst, aware that the facility was being phased out and seeing limited prospects for the future, turned to the bottle as a form of illicit solace.

That liquor was consumed at the Lakehurst Shops is reality. The bottles were found in at least two separate locations in the complex and can be accurately dated to the final years of the shops. Theories can be derived from the data presented, but ultimately it is not known whether this was consumption by two or three workers or the majority of the shop's employees.

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ties between the large quantity of glass recovered at the Lakehurst Shops and in Kristin Stevens' excavations at the Thurmond Depot (46FA214) in West Virginia. Kristin Stevens kindly provided a copy of her report on that study. Brian Greenberg of the Department of History and Anthropology at Monmouth University suggested useful sources on temperance and industrial history. George Miller shared his considerable insights into historical glass manufacture. Mallory Gordon of Louis Berger and Associates assisted with the identification of the flasks. Obviously any errors of omission or fact remain our own.

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