BANDING, CABLE, AND CAT'S-EYE: AN ARCHAEOLOGICAL AND HISTORICAL EXAMINATION OF NINETEENTH CENTURY FACTORY-MADE CINCINNATI-AREA YELLOW WARE

Robert A. Genheimer

Abstract

Cincinnati's contribution to the nineteenth century American yellow ware market has received little attention in the literature. Like East Liverpool, Ohio, Cincinnati in the 1840s attracted a significant number of British-born, and Staffordshire-trained potters. Between ca. 1842 and ca. 1870, at least a half-dozen Cincinnati potteries produced large quantities of yellow ware and Rockingham in factory settings. In an effort to better understand this production, an assemblage of 289 discrete yellow ware vessels recovered from six major urban archaeology projects in Cincinnati, Ohio and Covington, Kentucky is carefully examined. The majority of vessels originate from nineteenth century privy shafts, many of which exhibit well-dated depositional horizons beginning in the 1840s. A broad range of vessel types is identified including chamber pots, bowls, pitchers, spittoons, plates, and unspecified hollow ware. While a significant proportion of the vessels are undecorated, numerous slip decorations, including common cable, cat's eye, annular banding, slip trailing, dendrites, and broad slip bands are identified. Only a very small number of sample vessels are marked (with a maker's mark), however at least six-dozen unmarked vessels from Covington Pottery wasters allow for attribution to William Bromley. Although a number of privy shafts producing yellow ware are well dated, a broad range of sample vessels recovered from the lowest levels of those features indicates that much of the full range of decoration was already present by the time of deposition. As a result, no sequence of decorative types can be ascertained through an examination of their depositional origins. A Cincinnati production system is defined based upon economic constraints, decorative types, and vessel color. The suite of slip and dendritic applications identified within the Cincinnati vessel sample is not unique to Cincinnati, and similar vessel treatments are noted for an early yellow ware and Rockingham manufacturer in East Liverpool, Ohio. And, while there are significant differences in color between Cincinnati and East Liverpool samples, the broad range and overlap of color matches between the two samples suggests that attribution based upon color should be avoided.

Introduction

Perhaps one of the most visible and colorful artifacts of archaeological work in nineteenth century deposits are earthenware sherds exhibiting muted to bright yellow colors. Often these sherds are small and undecorated, and may display spalling of the glaze due to low firing temperatures, or long-term exposure within soils subject to erosion, freezing, and thawing. A small number of these buff- to yellow-bodied sherds show decoration, often various applications of slip in brown, black, white, blue, and sometimes green colors. Regardless of decorative motifs, these sherds are almost universally classified as "yellow ware."

In collector's parlance, the term "yellow ware" is used loosely today to refer to any vessel that exhibits an exterior surface approaching a yellow tone. It is therefore applied to both earthenware and stoneware bodies with either a colored or clear glaze. This overarching rubric, based solely on a relatively narrow range of the color palette, can lead to confusion and mask differences in clay sources, firing temperatures, production, and decorative applications. For the purposes of this paper, which concerns production in the

Robert A. Genheimer, George Rieveschl Curator of Archaeology, Cincinnati Museum Center, 1301 Western Ave, Cincinnati, OH 45203

Journal of Ohio Archaeology 1:41-105, 2011
An electronic publication of the Ohio Archaeological Council
http://www.ohioarchaeology.org/joomla/index.php?option=com_content&task=section&id=10&Itemid=54

Table 1. Number of potteries, potters, and population for Cincinnati, 1819 to 1875 (Pottery data from Cincinnati city directories).

Year	Potteries	Potters	Pop.
1819	3	14	10,000[1]
1820*	-	-	9642[2]
1825	2	2	12,000[1]
1829	5	5	-
1830*	-	-	24,831[2]
1831	7	11	-
1834	3	10	-
1840	4	9	46,338[2]
1842	2	7	-
1843	6	11	-
1846	6	10	-
1849/50	7	15	-
1850/51	5	13	145,435[2]
1851/52	8	n/a	-
1853	6	20	-
1855	6	15	-
1856	7	15	-
1857	6	17	-
1858	7	24	-
1859	6	49	-
1860	6	33	161,044[2]
1861	6	56	-
1862	7	22	-
1863	7	47	-
1864	5	48	-
1865	8	47	-
1866	9	74	-
1867	9	84	-
1868	8	82	-
1869	10	87	-
1870	11	141	216,239[2]
1871	11	124	-
1872	11	157	-
1873	11	148	-
1874	9	178	-
1875	9	174	-

*no directory [1]Hall (1825:5) [2]Gibson (1998:Tables 5-10)

Cincinnati region during the 1840s to mid 1870s, "yellow ware" is defined as buff-paste earthenware with a clear alkaline or lead glaze that produces a matte to glossy yellow surface. Slip or dendritic decorations were often applied to the vessels in the biscuit state, but some vessels received no additional treatment other than the glaze firing. Yellow ware is often subsumed under the terms "dipped ware," "dipped," or "dipt" (Sussman 1997:1; Carpentier and Rickard 2001:115), signifying glaze or slip application through a dipping process; or "slip ware," referring to the predominance of slip decorations common throughout the eighteenth and nineteenth centuries, but mostly on white paste bodies. Leibowitz (1985) refers to yellow ware as a "transitional ware," alluding to its temporal position in America between utilitarian redwares and stonewares of the early to mid-nineteenth century and later whitewares and ironstones of the mid-to-late nineteenth century.

It is important to note that yellow ware manufactured in Cincinnati, and other regions of the eastern United States in the nineteenth century, was mass produced in what may be termed an assembly line process. Vessels were produced quickly in a system that attempted to standardize output. Raw materials such as clays and slip colorants were relatively cheap, and as a result, the wares could be sold inexpensively, particularly in or near urban areas. Individual vessels are not intentionally unique pieces, such as art pottery, but elements of a production system that was designed to transform raw materials into nearly identical, salable products. Nevertheless, pottery production is a "hand process," one in which individuals attempt to duplicate output with varying results. And, with some minor exceptions, yellow ware vessels of this period are not marked with manufacturer's information. Exceptions to this general rule include high-value pieces such as tobacco jars, pitchers, jugs, and a small variety of elaborately molded vessels. At least one Cincinnati manufacturer, Uzziah Kendall, backstamped many of his vessels, regardless of price or function, but since the majority of yellow ware production consists of low-cost utilitarian or sanitary wares, little attempt was made by most manufacturers to permanently identify their products.

In this paper, nineteenth century yellow ware production in Cincinnati is examined in an historical and archaeological perspective. Three research objectives are addressed. First, baseline historical background data are examined on the Cincinnati yellow ware industry between approximately 1840 and 1875, the period of peak production. Historical data are outlined detailing Cincinnati pottery history and yellow ware manufacturers, including the location of their manufactories and product distribution, where known. Second, a detailed description of Cincinnati-area yellow ware is presented utilizing an assemblage of archaeologically recovered vessels. The archaeological samples utilized in this paper originate from a small number of urban archaeological excavations, most of which are primary refuse deposits, but also

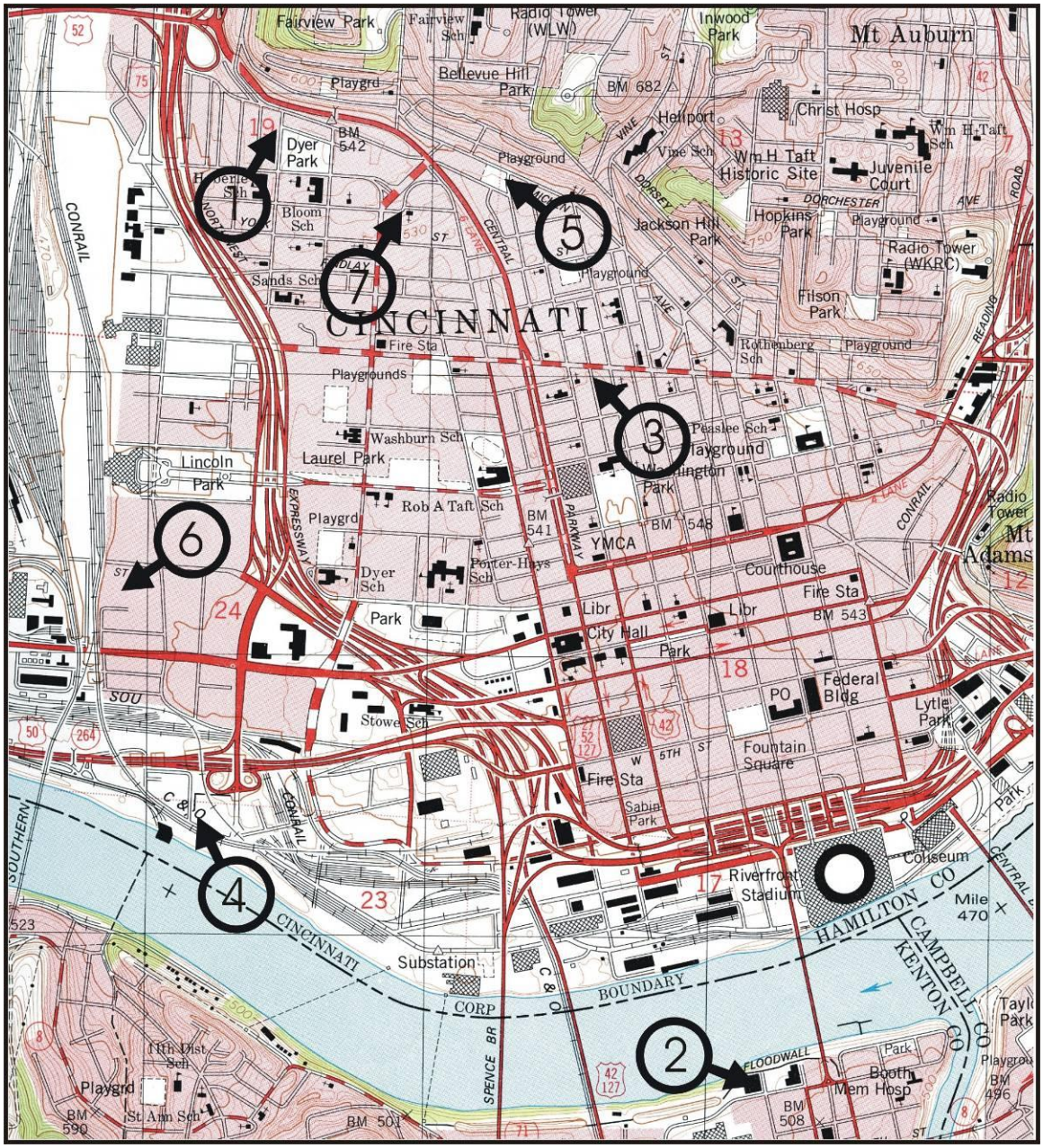

Figure 1. Locations of select nineteenth century Cincinnati and Covington yellow ware manufacturers. 1) Brighton Pottery (William Bromley, 1849-1863); 2) Covington Pottery (William Bromley, 1859-1864); 3) Kendall Pottery (Uzziah Kendall, ca. 1842-ca. 1853); 4) Front Street Pottery (George Scott, 1849- ca. 1889); 5) Hamilton Road Pottery (M. & N. Tempest; Tempest & Co.; Frederick Dallas, 1857- ca. 1868); 6) Richmond Street Pottery (Tempest, Brockmann & Co., 1867 – ca. 1869); and, 7) Dayton Street Pottery (Samuel Pollock; Pollock & Bailey; Joseph Bailey & Co.; Coultry & Maloney, 1861-1875). Dates are for yellow ware manufacture only.

include a manufacturing site in use from the late 1850s through the end of the Civil War. This latter site is critical in addressing elements of production that could not be ascertained from refuse deposits alone. The sample of yellow ware vessels is then analyzed for a variety of data including vessel origin, age of deposition, vessel type, production methods, decorative elements, vessel color, glaze composition, and manufacturer, when known. And, third, where possible, an attempt is made to develop a chronology of

ware and decoration types utilizing associated temporally controlled depositional data.

Historical Background

The manufacture of pottery, an indispensable item on the American frontier, began with the early settlement of Cincinnati. Drake (1815:143) reports, "common pottery of good quality is made in sufficient quantity for home consumption." Potters of English descent apparently dominated production of a variety of domestic earthenwares. William McFarland began producing earthenwares by 1799 and James and Robert Caldwell were throwing as early as 1801 (Cist 1841:166). As the population of Cincinnati and northern Kentucky began to grow, the number of potteries increased (Table 1) and the range of products expanded. Three factories employing 14 workmen are listed in the 1819 (Farnsworth) Cincinnati city directory. The number of potteries is listed as two in the 1825 (Hall) directory and jumps to seven by 1831 (Robinson and Fairbank 1831; Stout 1923:11-12).

Beginning in the mid-1830s, a flood of British immigrants, many highly skilled potters from the Staffordshire district of west-central England, entered the United States. Their numbers can be at least partly attributed to labor unrest in the Staffordshire district during the 1830s and early 1840s (Gates 1984:34). Eager to find employment in potteries, or set up shops of their own, they settled in various segments of the eastern United States, but principally in areas with established ceramic industries and abundant clay sources. In Ohio, English potters settled along the Ohio River, most notably at East Liverpool near the Pennsylvania border. James Bennett, a recent English émigré, is generally credited with the introduction of yellow ware to East Liverpool in 1840 or 1841 (Stout 1923:16; Spargo 1926:323; Gates 1984:47). Others opened potteries in Cincinnati and adjacent areas, and between 1840 and 1850, the number of potteries (i.e., substantial enough to be included in U.S. Census data) in Ohio increased by 30 percent (Stout 1923:14; Ramsay 1939:73; Gates 1984:33-37). The Ohio pottery industry became so substantial that it is estimated that in 1850, half of all American yellow ware was manufactured in East Liverpool (Gates 1984:47).

Although Cincinnati never approached the boom experienced in East Liverpool, the growth was substantial, and Cincinnati is generally considered to have played an important role in the Ohio pottery industry (Ketchum 1987:24). Cincinnati city directory data (Williams 1853-1871) indicate that while only six potteries were operating in 1853, as many as 11 were in business by 1871. This upswing in pottery production is closely tied with the peak period of yellow ware manufacture in Ohio and the eastern United States. Cincinnati played a critical role in the manufacture of yellow ware. Stout (1923:19) reports "…for many years, Cincinnati was widely known as one of the centers in this state for Rockingham and yellow ware." The locations of seven of the largest Cincinnati-area yellow ware manufacturers are illustrated in Figure 1.

Beginning in the late 1860s and early 1870s, the focus of production shifted to the manufacture of whitewares, and the number of manufacturers remained stable well into the late 1880s. Surprisingly, the first commercially viable whiteware in Ohio was manufactured in Cincinnati (Tempest, Brockmann & Co. in 1867), and not at East Liverpool. Poorly glazed whiteware waster sherds from an amateur-excavated privy shaft in the Over-The-Rhine neighborhood of downtown Cincinnati indicate that Uzziah Kendall, well-known for his yellow ware production, was experimenting with white-bodied wares perhaps as early as the 1850s. The 1890s witnessed a decline in pottery manufacture in the United States, and Cincinnati was no exception. Even with the presence of a strong decorative art pottery industry, the number of potteries steadily declined. By 1920 (Williams), only three potteries remained in the Queen City.

Relatively few potteries were based in Covington, Kentucky. The first documented potter in Covington is Cornwall Kirkpatrick, an Englishman, who established the Kirkpatrick Pottery on Banklick Road as early as 1842 (Schmeing 1977). Kirkpatrick, who manufactured earthenwares, moved to Point Pleasant, Ohio sometime prior to 1850. There he assisted in the manufacture of clay smoking pipes. He moved to Cincinnati in 1853, and in 1858 to Illinois, where the Kirkpatrick Family potteries have been the subject of systematic historical and archaeological investigations (Gums et al. 1997). Felts (Sudbury 1979:161) suggests that Cornwall Kirkpatrick produced redware in Covington, however this has not been confirmed archaeologically. There is also some indication that others utilized the Kirkpatrick Pottery after the departure of Kirkpatrick. William Thomas advertised as a potter at the Banklick Road address in 1850 (Schmeing 1977). The only other major pottery in

Table 2. Select Cincinnati yellow ware manufacturers, 1842-1875. Data from Cincinnati city directories. Does not include potters with Germanic surnames.

Potter(s)	Pottery Name	Date Range	Ware Type
Kendall, Uzziah	Kendall Pottery	1831-1843	1831-1841: RW, SW 1842-1843: YW
Kendall, U. & Sons[1]	Kendall Pottery	1846-1853	YW
Bromley, William	Brighton Pottery	1849-1856; 1858-1859; 1861-1863	YW YW YW
Bromley & Bailey[2]	Brighton Pottery	1857	YW
Bromley & Son	Brighton Pottery	1860	YW
Bromley, William	Covington Pottery	1859-1864	YW
Scott, George	Front St. Pottery	1849-1889	1849-1875: YW 1875-1889: YW, WW (transition to WW unknown)
Skinner, Enoch	unknown	1850-1851; 1853; 1857-1859	YW YW YW
Greatbatch, Hamlet	unknown	1853-1855	YW
Skinner E. & H. Greatbatch & Co.	unknown	1856	YW
Kirkpatrick, Corn.	Vance Pottery	1856-1858	YW
Brewer[3] & Tempest[4]	unknown	1855-1856	YW
Brewer, Jonas	unknown	1857-1858	YW
M. & N. Tempest[5]	Hamilton Rd. Pottery	1857-1859	YW
Tempest & Co.[6]	Hamilton Rd. Pottery	1860-1865	YW
Tempest, Michael	Richmond St. Pottery	1866	YW
Tempest, Brockmann & Co.[7]	Richmond St. Pottery	1867-1881	1867-1869: YW?, WW 1870-1881: WW
Dallas, Fred	Hamilton Rd. Pottery	1866-1890	1866-1868: YW 1869-ca. 1870: WW, YW ca. 1870-1890: WW, P
Pollock, Samuel	Dayton St. Pottery	1861-1869	YW
Pollock & Bailey[8]	Dayton St. Pottery	1870-1871	YW
Bailey, Jos. & Co.[9]	Dayton St. Pottery	1872-1873	YW?
Coultry & Maloney[10]	Dayton St. Pottery	1874-1875	YW

YW-yellow ware; WW-whiteware; SW-stoneware; P-parian ware. [1]Alonzo, Joshua, Lorenzo, and Moses [2]Joseph Bailey, [3]Tunis Brewer, [4]Michael Tempest, [5]Michael and Nimrod Tempest, [6]Michael Tempest and Fred Dallas, [7]Michael Tempest, C. E. Brockmann, and J. Pfeistman, [8]Samuel Pollock and Joseph Bailey, [9]Joseph Bailey and Henry Pollock, [10]Patrick Coultry and James Maloney

Covington prior to the 1880s was the Covington Pottery, located at the northwest corner of Second Street and Madison Avenue, just to the south of the Ohio River. Operated by William Bromley, the pottery began operations in Covington in approximately 1859, and was abandoned no later than 1864. Bromley's Covington Pottery was one focus of major urban archaeology excavations undertaken at Covington's Riverfront Redevelopment Site in 1986 (Genheimer 1987), and contributes strongly to the sample vessel assemblage utilized in this study.

Cincinnati also exhibits a significant German-based pottery production system that operated concurrently with the production of British-influenced yellow ware. In fact, potters with Germanic surnames often outnumber those with Anglo Saxon names in city directories from the 1840s through the 1870s. Based upon the small number of workers that can be tied to these German potteries in city directories, most were likely small-scale operations. Archaeologically recovered yellow ware vessels do not exhibit marks from any of these German firms, and it is assumed in

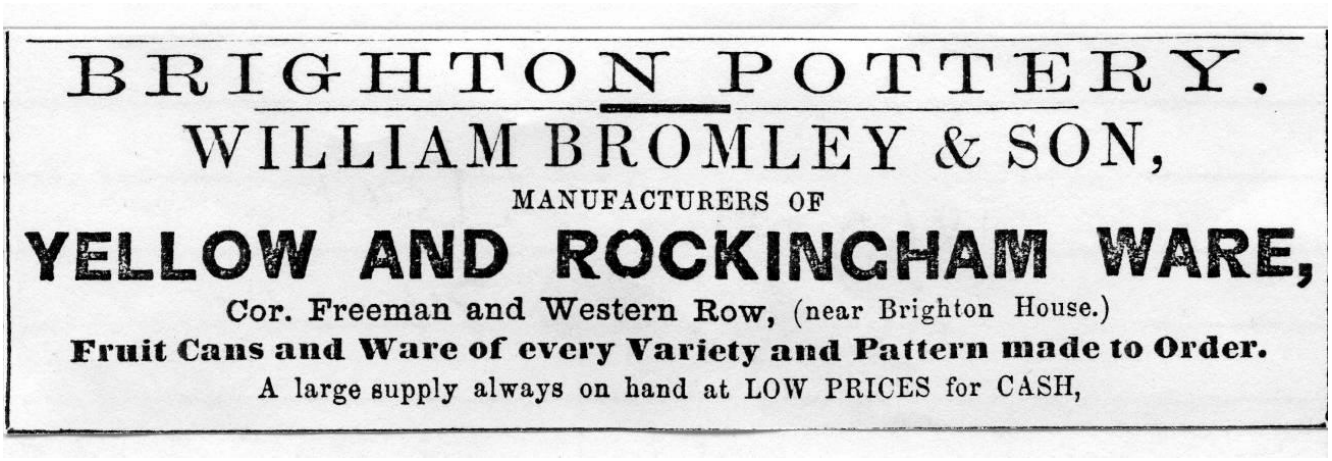

Figure 2. 1860 advertisement for William Bromley & Son's Brighton Pottery (Williams 1860:34).

this study that they were most likely producing other ware types such as redware or stoneware. The limited survivability of these ware types and the probable paucity of manufacturer's marks make this assumption difficult to assess.

Although only marks from William Bromley, Uzziah Kendall, and George Scott are identified, a number of additional yellow ware potters certainly contribute to the sample vessel assemblage. The history of some of these manufacturers is briefly presented below.

William Bromley

Barber (1893:273) indicates that William Bromley came from the Staffordshire District of England to Cincinnati about 1842, although his absence from both the Cist (1843) and Robinson and Jones (1846) Cincinnati directories suggests that he may have worked elsewhere, perhaps at East Liverpool, before arriving in Cincinnati. William and Thomas Bromley first appear in a Cincinnati city directory in 1849 (Williams). Both are listed as potters; William as the operator of the Brighton Pottery at the southwest corner of Hamilton Road and Freeman Avenue in the Brighton neighborhood of Cincinnati (Figure 1 and Table 2). Stout (1923:20) reports that the firms of Hamlet Greatbatch and later Skinner, Greatbatch & Co. ran this pottery as late as 1856; however, it is difficult to determine ownership of the Brighton Pottery through directory research alone, and Bromley's role as operator or worker remains ambiguous. In 1850 (U. S. Census 1850a), 40-year old William Bromley lived with his wife Susannah and his four children at the site of the Brighton Pottery. An entry in the 1850 U.S. Census, Industry Schedule, lists a George Bromley operating a pottery in Cincinnati's 11th Ward. This is almost certainly William Bromley's operation. The schedule indicates a capital investment of $1000, and an annual value of earthenware of $2800. Bromley employed seven male workers with average monthly wages of $140. Clay and coal raw material were valued at $1200 (U.S. Census 1850b). These data suggest that Bromley's pottery was a relatively small operation. In 1857 (Williams), Bromley and Joseph Bailey jointly operated the Brighton Pottery, but this partnership was apparently short lived. Bailey, who emigrated from Tunstall, Staffordshire, England in 1848 (Barber 1893:292-293; Stout 1923:91; U.S. Census 1850) and was the uncle of Taylor Booth of Ward and Booth in England (Barber 1893:292), later became superintendent of the world famous Rookwood Pottery. An 1860 advertisement (Figure 2) lists the Brighton Pottery of William Bromley & Son as manufacturers of "Yellow and Rockingham Ware" (Williams 1860:34).

The prominence of British potters in Cincinnati can be illustrated by viewing U. S. Census data in the Brighton neighborhood in 1850. The population schedule for Ward 11, Hamilton County, Ohio (U. S. Census 1850a) identifies at least eight potters born in England living at seven house numbers near Bromley's operation. These include William Bradbury, Thomas Bramwell, George Garner, Michael Lampert, Samuel Wilson, Hamlet Grape (almost certainly Hamlet Greatbatch), William Bromley, and Enick

Skinner. John Lauck, a potter of German nativity, is also listed. These data suggest that the Brighton neighborhood, and the surrounding area on the northwest edge of the city was the center of the British émigré pottery industry in mid-nineteenth century Cincinnati.

William Bromley also operated the Covington Pottery (Figure 1 and Table 2). Bromley received title to much of his Covington property in November 1859 (Kenton County Courthouse, Covington, Kentucky [KCC] 1859: Deed Book [DB] 23:571). Eventually, he acquired a rectangular parcel of approximately 0.3 acres (1266 square meters). There are no reliable data to indicate that Bromley began operations that first year, but the firm of "William Bromley, Covington Pottery" is listed at the northwest corner of Second and Madison in Covington in 1861 with his residence listed as Cincinnati (Williams 1861:418). Bromley is also listed as the operator of the Brighton Pottery in the same directory (Williams 1861:89). Unfortunately, the next Covington city directory was not published until 1866. Neither Bromley nor the Covington Pottery appears in that volume (Williams 1866). In fact, William Bromley does not appear in any Cincinnati or Covington directory after 1863 (Williams).

Bromley's Covington operation is well described in the 1860 Manufacturing Schedule of the U. S. Census (1860a). Bromley manufactured domestic queensware (a term that incorporates yellow ware), some items in large quantities. Listed are 2,500 dozen pitchers, 3,000 dozen bowls, and 1,000 dozen fruit jars (canning jars). Bromley invested $5,000 capital in the pottery, and had receipts of $7,800 for 1860. Three hundred tons of clay valued at $750, and 10,000 bushels of stove coal worth $1,000 were consumed. All 10 employees were males; $300 average monthly wages were paid. A number of Bromley's workers are enumerated in census data. Five potters, all born in England, are listed in 1860 (U. S. Census 1860b), including Joseph Bailey, his partner of 1857. Abraham Booth, another of Bromley's potters listed in 1860 (U.S. Census 1860b) for Kenton County, may have been a relative of Joseph Bailey.

Although a precise explanation for the demise of Bromley's businesses has not been determined, poor health is a distinct possibility. Bromley last appears in a Cincinnati directory in 1863 (Williams), suggesting that he may have moved his residence to his Covington operation. Kenton County courthouse data indicate that William Bromley, or his wife, began to sell their Covington property to Hemingray Glass Company as early as 1864. In acquiring the remaining parcels of their Covington holdings, Susannah relinquished her dowry rights to "… certain property situated on Freeman Avenue, Cincinnati …," the location of the Brighton Pottery (KCC 1864: DB 8:187). The unified parcels were sold to the glass works in March 1865. That deed describes a small brick house in which Susannah and William lived (KCC 1865: DB 9:231). It is clear that by 1864, the Bromleys were liquidating their assets. The 1868 Cincinnati directory (Williams) once again lists the Bromley family; however, Susannah is denoted as a "widow."

Uzziah Kendall

Uzziah Kendall is said to be the first Cincinnati potter to produce yellow ware and Rockingham (Barber 1893:273). Little is known of the Kendall Family, although Barber (1893:273) reports that they were remarkable for their great stature "…. being over six feet in height." Uzziah (also known as Uriah) first appears in the 1829 (Robinson and Fairbank) Cincinnati city directory. Living on 5th Street, between Race and Elm, Uzziah is listed as a shoemaker, but his boarder, Joseph Mendell is a potter. By 1834 (Deming), the next time Kendall appears in a city directory, he is a potter located at the corner of Race and the city corporation line. Another potter, Israel Thompson, boards at his address.

Uzziah continues to be listed as a potter at that address through 1843 (Cist), although the corporation line is now listed as Northern Row (Figure 1). The 1843 directory lists four of Kendall's sons boarding at Uzziah's address including Alonzo, Lorenzo, Uzziah Jr., and Wilson (Cist 1843:192). By 1846 (Robinson and Jones), the firm is known as Uzziah Kendall & Sons (Table 2) on the south side of 5th Street between Main and Walnut. Two additional sons, Joshua and Moses, also room at that address. Through 1853 (Williams), Uzziah is denoted as a potter with business addresses at 567 Race and 91 Pleasant Street. Uzziah is last listed as a potter in 1859 (Williams), although in directories from 1855 to 1858 (Williams) he either does not appear, or is listed as a blacksmith. Uzziah Kendall last appears in a city directory in 1862 (Williams). Barber (1893:273) reports that the Kendalls gave up business in about the year 1850 and moved farther west, but city directory information indicates that this is not the case. Based on this

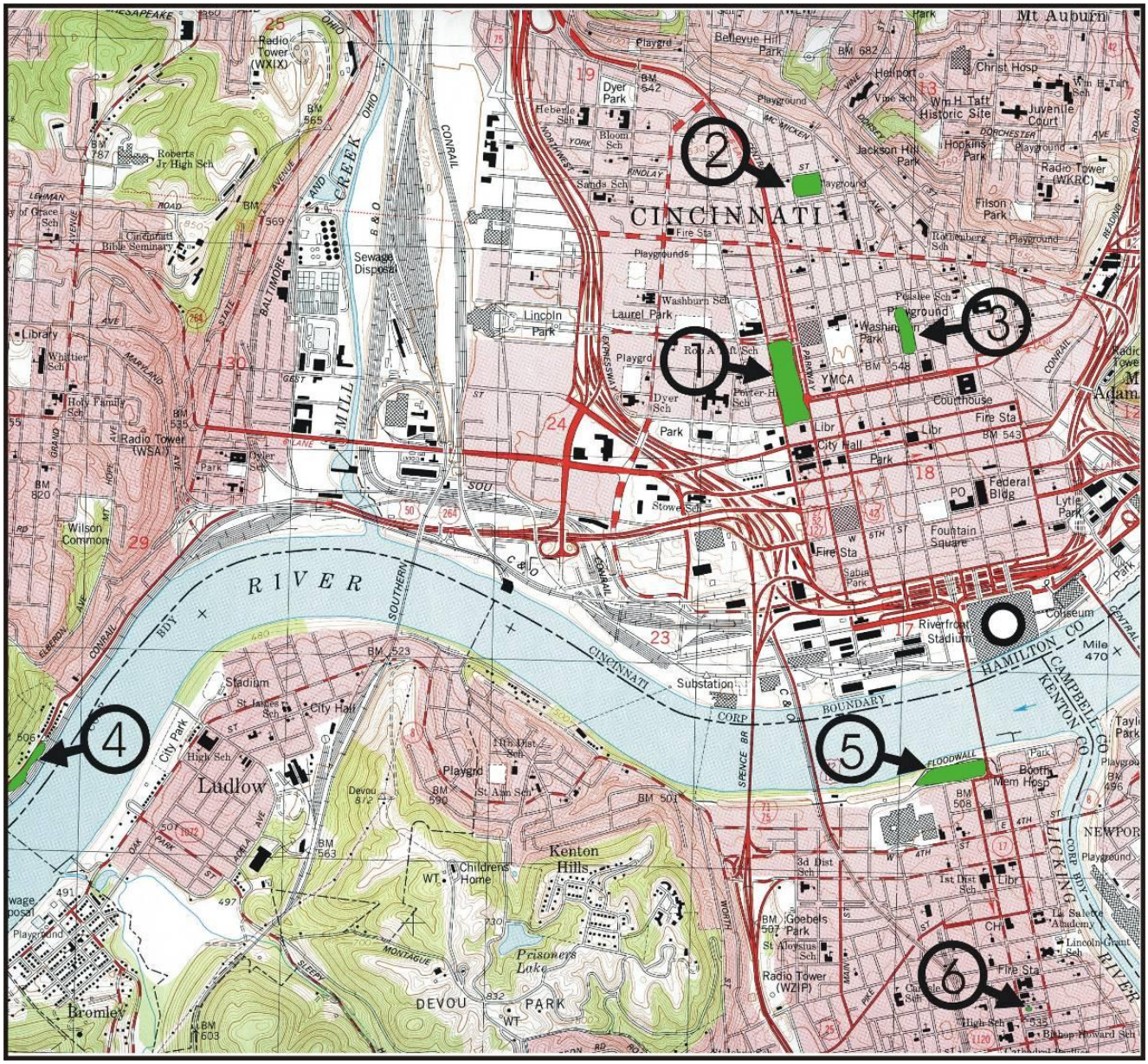

Figure 3. Archaeological site/projects utilized in sample vessel assemblage. 1) CINQII; 2) CINFM; 3) CINWS; 4) CINRR; 5) COVRR; and 6) COV11. From Covington, KY., 7.5' USGS quadrangle.

information it appears that the Kendall Family was in the pottery business in Cincinnati between at least 1834 and 1853, and perhaps slightly later into the late 1850s.

Michael Tempest

Michael Tempest was sole proprietor or a partner in several of the largest yellow ware firms in Cincinnati (Table 2). Probate court records indicate that Michael and his wife Nancy arrived in the United States in approximately 1849, and together they began a small business manufacturing earthenware (Murphy 2010:38-39). He first appears in partnership with Tunis Brewer in 1855 and 1856 (Williams) on York Street near Western Row. With his brother Nimrod, he established the Hamilton Road Pottery (Figure 1) in 1857, and continued in this partnership through 1859 (Williams). In 1860 (Williams), Michael partnered with Fred Dallas at the Hamilton

Road Pottery. Known as Tempest & Co., this emerging firm produced yellow ware through 1865, when Dallas bought out Tempest's interest in the pottery. Michael opened the Richmond Street Pottery (Figure 1) in 1866 (Williams), and in 1867 (Williams) he partnered with C. E. Brockmann and J. Pfeistman to form Tempest, Brockmann & Co. at the Richmond Street address. It is during this first year that Tempest is credited with producing the first commercially viable whiteware in Ohio (Barber 1893:274-275; Murphy 2010:36), although Tempest attributes a date of 1869 for the beginning production of white granite and cream-colored (CC) ware (Crockery Journal [CJ] 1875a). Regardless of the initial date, Tempest, Brockmann & Co. advertised themselves as the "Pioneer White Ware Works" in Cincinnati (Crockery and Glass Journal [CGJ] 1878). At least partially as a result of this change in production, Tempest, Brockmann & Co. became one of the largest pottery firms in Cincinnati in the second half of the nineteenth century. Cincinnati city directories report at least 11 Tempest, Brockmann & Co. workers in 1867, 18 in 1871, 31 in 1873, and 32 in 1875 (Williams), however, an 1875 article (CJ 1875a) on the firm, reporting "80 to 100 hands," indicates that city directory entries clearly under-represent the actual work force. Also in 1875, they advertise the firm as manufacturers of "CC and White Granite Ware" (CJ 1875b). When Michael Tempest died in 1886, the firm was known as Tempest, Brockmann & Sampson Pottery (Murphy 2010:38, 40), having changed its name in 1882 (Williams 1882:1175).

Fred Dallas

Born in Edinburgh, Scotland, Frederick Dallas came to Cincinnati as early as 1849, however he worked in the finance sector until the start of the Civil War (Murphy 2010:42). Dallas was originally employed to keep the books of Michael and Nimrod Tempest's Hamilton Road Pottery, and recognizing a good investment, he bought into the business in 1860 (Landy 1872:206-209). The firm of Tempest & Co. grew quickly and began to dominate yellow ware production in Cincinnati. After the departure of Michael Tempest in 1866, Dallas turned the Hamilton Road Pottery (Table 2) into one of the largest concerns in the city. On the heels of Tempest, Brockmann & Co.'s whiteware production in 1867, Dallas reorganized the Hamilton Road Pottery for whiteware production in either 1868 or 1869. A Dallas advertisement in the 1869 directory is the first to mention white-bodied wares in Cincinnati directories. Dallas lists his firm as a "manufacturer of white granite and C.C. goods…also of Yellow and Rockingham Ware (Williams 1869:398)." Dallas is also credited with being "the first party in Cincinnati to manufacture a kiln of white granite and CC ware" (CJ 1875c), although no date is given. City directories indicate that Dallas employed between 10 and 31 potters from 1866 and 1875 (Williams), although Landy (1872:209) boasts that he employed over 100 persons in 1872. These 100 persons, mostly men, were half German and half English, but also included some women, quite a number of boys, and a few girls. An 1875 advertisement (CJ 1875b) indicates that by 1875, Dallas was making white-bodied wares, and was no longer manufacturing yellow or Rockingham wares. The firm dissolved in ca. 1890 after the death of Dallas (Barber 1893:274).

George Scott

George Scott, originally of Tunstall, in the Staffordshire pottery district in England, came to Cincinnati some time after 1846, where he originally sold pottery goods for William Bromley. With the proceeds he made in selling a shipment of British queensware, he opened his own pottery on Front Street in Cincinnati (Barber 1893:274). George Scott and the Front Street Pottery (Figure 1 and Table 2) appear in Cincinnati city directories from 1849 to 1888 (Williams 1849-1888). In 1850 (U.S. Census 1850b), George Scott & Co. produced "domestic Queensware" with an annual value of only $2500. He employed five males with combined average monthly wages of $125. His raw material consisted of 50 tons of clay valued at $200, and an unspecified quantity of coal valued at $600. The 1863 Cincinnati directory (Williams 1863:310) reports that he manufactured "Rockingham and yellow ware." It is not known when Scott retooled his production to white-bodied wares, although as late as 1877, his main production remained yellow and Rockingham wares. In that year, the Front Street Pottery, billed as the "largest yellow and Rockingham ware pottery in the United States," manufactured $100,000 worth of goods (Johnson 1979:167). Beginning in 1889 (Williams) with the death of George Scott (Murphy 2010:23), the Front Street Pottery is listed as "George Scott, Sons." In 1875, the Front Street Pottery occupied a lot 153 feet by 224 feet, making it one of the largest potteries

Figure 4. CINQII: Backdirt piles from looted privies. Note the quantity of nineteenth century ceramics, including yellow ware. Photo: Robert Genheimer.

in the country, and the oldest active pottery in Cincinnati (CJ 1875d). Scott employed 40 hands specializing in the manufacture of yellow and Rockingham wares, and indicated that he makes more "chambers and spittoons than any other house in the United States" (CJ 1875d). Scott also reports "having a near monopoly in Cincinnati" (CJ 1875d), suggesting that he may have been one of only a few potteries left in the Queen City manufacturing yellow ware. The only other Cincinnati firm known to have manufactured yellow ware and Rockingham that late is Coultry and Maloney, operators of the Dayton Street Pottery (CJ 1875b; Murphy 2010:22).

Archaeological Sites

Archaeological samples are drawn from six urban archaeology projects undertaken in Cincinnati and directly across the Ohio River in Covington, Kentucky (Figure 3). These projects span the period 1981 to 2005 and vary considerably in areal coverage and scope of work. As a group, they represent most of the major urban archaeological investigations ever undertaken in the Cincinnati region. All but one of the projects are Section 106 related. The collections resulting from these projects are currently curated at either the Cincinnati Museum Center (CMC) or the Behringer-Crawford Museum (BCM) in Covington, Kentucky. Each of the projects is briefly summarized below, in chronological order of their undertaking.

Queensgate II (CINQII)

The Queensgate II project was perhaps the first major urban archaeology undertaking in the State of Ohio. Now designated the Betts-Longworth Historic District, the Queensgate II area in 1981 consisted of an irregular 5-block area in downtown Cincinnati just to the north of City Hall. The neighborhood was originally developed for housing and some commercial enterprises in the 1840s and 1850s, although some lots were developed either earlier or later than those dates. Scheduled for redevelopment, Queensgate II was essentially fenced-in and abandoned when

Figure 5. CINQII: Near the base of Feature 85 at 20 feet (6.1 meters) below surface. Photo: Robert Genheimer.

archaeological resources came to the attention of archaeologists at the Miami Purchase Association for Historic Preservation (MPAHP) in late summer of 1981. Privy diggers had looted more than two-dozen deep shaft privy features leaving behind a vast storehouse of archaeological data in voluminous backdirt piles scattered about the District (Figure 4). Since the City of Cincinnati had received a Federal Community Development Block Grant in 1979 to aid in revitalization of the District, a proposal to investigate and mitigate the effects of the undertaking was submitted to the City by MPAHP. This proposal was accepted and work was commenced in October of 1981 and completed in January of 1982.

An initial research design was directed towards an examination of residences related to both the blue-collar working class and white-collar mercantile class within the five-block District. During a reconnaissance phase, over 90 archaeological features were located including 42 privies, 15 cisterns, and numerous foundations, and brick pavements. Two privies, Features 34 and 85 (Figure 5), were excavated on two blue collar properties, and a privy and builder's trench were dug on a single white-collar lot. Approximately 50,000 artifacts were recovered, the vast majority originating from the two blue-collar privy shafts. Artifacts include large quantities of nineteenth century ceramics, glass, bone, and metal (Cinadr and Genheimer 1983a). The privy excavations have also been summarized (Cinadr and Genheimer 1983b) and are included in a broader study of Ohio Valley urban privy patterns (Genheimer 1995). Materials from CINQII are housed at CMC.

Covington's Riverfront Redevelopment Site (COVRR)

COVRR was a three-block area situated on the left bank of the Ohio River immediately downstream from the Roebling Suspension Bridge and north of Second Street in Covington, Kentucky. The City had received an Urban Development Action Grant (UDAG) for redevelopment of the project area in 1985, and hence all historical and archaeological investigations at the site were conducted as a Federal Section 106 project. An MOA, signed in 1985, stipulated that the City "should ensure that the area of impact be subjected to archaeological survey and testing" (Genheimer 1987:1). Both testing and final

Figure 6. COVRR: One of William Bromley's kiln bases at the Covington Pottery. Photo: Robert Genheimer.

mitigation excavations were conducted between April and October 1986.

Historically, the three-block area developed during the second quarter of the nineteenth century as an industrial corridor, but by the end of the Civil War, commercial/residential properties had been added. Industry included a cotton factory (1828-ca. 1860), rolling mill (1831-ca. 1880), yellow ware pottery (1859-ca. 1864), glass factory (1853-ca. 1893), ice factory (1884-ca. 1960), and a distillery (ca. 1868-ca. 1893). Commercial enterprises were clustered in the block closest to the Suspension Bridge.

During the Testing Phase, a series of 51 backhoe trenches and 13 hand-excavated test units were employed. These tests indicated that as much as four meters of fill had been placed upon the sloping landform to bring it up to grade. Numerous remnants of the former industries were buried within this fill including foundations, kilns, ovens, cisterns, and privies. A 1986 Data Recovery Plan (DRP) recommended that 10 of the 79 features identified during the Testing Phase be subjected to systematic excavation, and that four sensitive areas be exposed with the aid of heavy equipment. In total, 26 archaeological features, including eight privies and four cisterns were excavated during the Final Mitigation Phase. Industrial excavations were focused at the Hemingray Glass Factory, where much of the structure foundations and associated features were exposed. During these heavy equipment exposures, a pair of updraft bottle kilns (Figure 6), a cistern, a privy (Figure 7), and large waster deposits were located from William Bromley's Covington Pottery, a yellow ware manufactory that produced kitchen and sanitary wares between 1859 and ca. 1864 (Genheimer 1987:394-408, 1988). Materials recovered during both phases are curated at BCM in Covington.

Cincinnati's Western-Southern Housing Development (CINWS)

The Western-Southern Housing Project in the Over-the-Rhine neighborhood of Cincinnati consisted of five proposed construction areas (A-F). Project

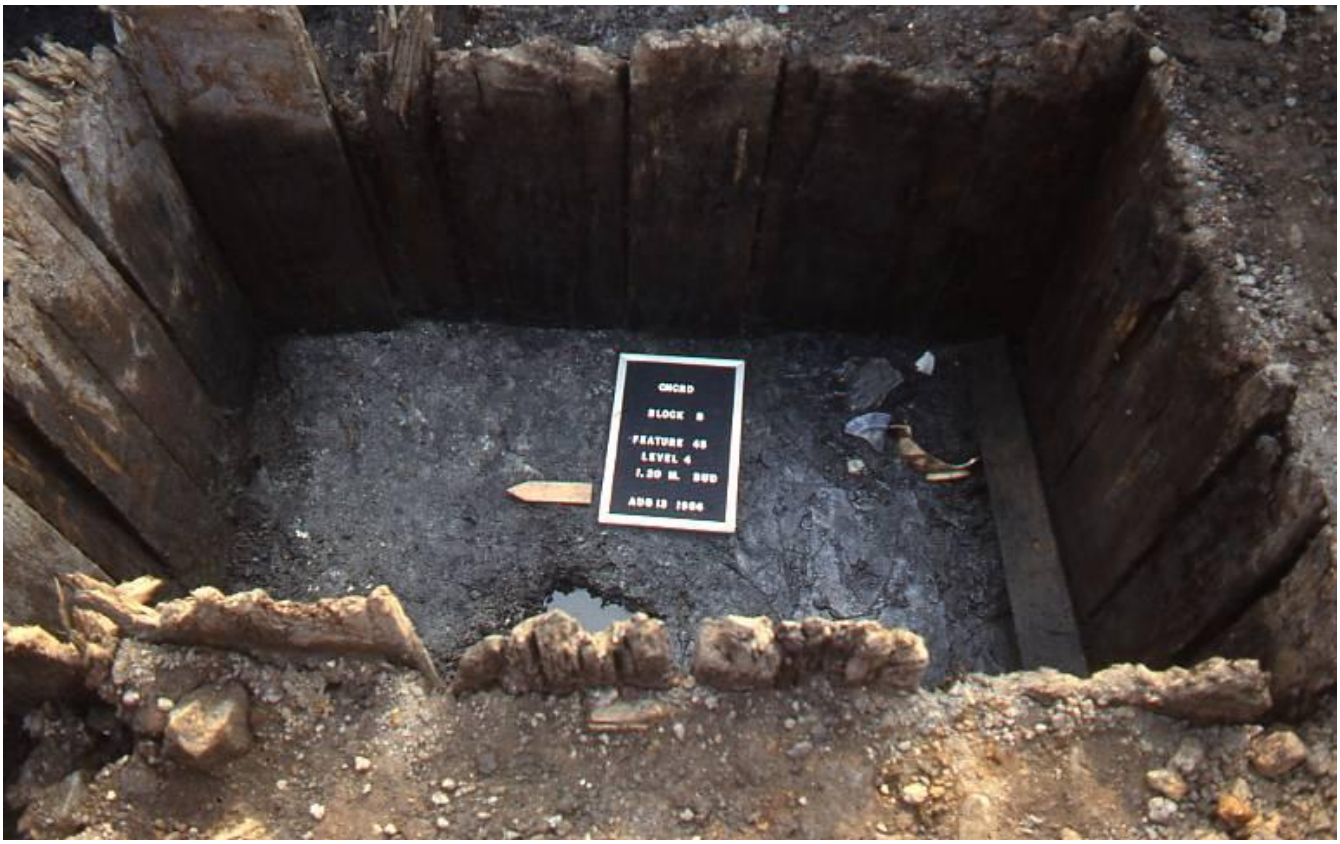

Figure 7. COVRR: William Bromley's privy, Feature 45. Note yellow ware waster vessel in upper right hand corner of privy. Photo: Robert Genheimer.

scope included the rehabilitation of 10 existing structures, the construction of 14 new buildings for low-income housing, and the preparation of three parking lots. The construction areas were located within a dense urban area south of 14th Street, west of Clay Street, north of 12th Street, and east of Walnut Street. The lead Federal agency for the project was the Department of Housing and Urban Development, via a program of Community Development Block Grants. Phase I investigations were conducted in August 1991, partial Phase II investigations in October 1991 and October 1992, and Phase IV data recovery in late 1992.

Forty-four archaeological features were recorded during the Phase II investigations. Of these features, 25 were identified as nineteenth century privies, including 11 limestone-lined, 13 wood-lined, and one brick-lined shaft. Cisterns, wells, catch basins, refuse pits, and foundation walls were also encountered. At construction areas A, B, and C, a strategy of avoidance was adopted by the City of Cincinnati. As a result, only the tops of privy shafts were investigated. At construction areas D, E, and F, a program of limited Phase IV data recovery was initiated to mitigate those features that could not be avoided by proposed construction activities. This involved hand-excavation of two-foot levels for selected features. Only Feature F5, an unlined 5-foot (1.52 m) deep privy shaft, was completely excavated (Bennett et al. 1994).

Covington's 11th Street (COV11)

In May of 1993, the author conducted an historical archaeological assessment of 118 East 11th Street in an urban area of Covington, Kentucky. The City of Covington, which demolished the buildings on the lot in 1990, wished to market the site for infill housing. Performance of the archaeological examination was triggered by a Federal MOA stating that any proposed reuse of the lot must take into consideration impacts to archaeological deposits. Although this area had been developed for housing as early as the mid 1840s,

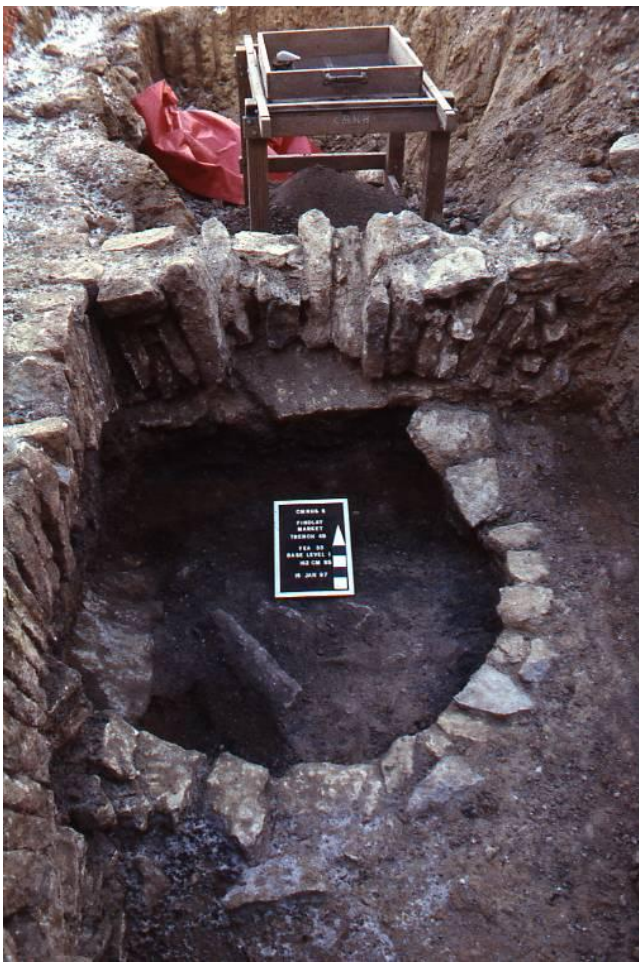

Figure 8. CINFM: House addition foundation overlying nineteenth century rear yard privy shaft. Photo: Robert Genheimer.

the house that had been demolished was constructed as late as the early 1890s. Combined Phase I (Literature Search and Locational Phase) and Phase II (Eligibility Assessment) investigations were conducted.

Shovel probes indicated that the elevated landform was comprised of natural soils. Two privy shafts were located during the excavation of four backhoe trenches along the rear of the property. The first, Feature 2, a limestone-lined shaft, was determined to be intact, and was completely excavated to a depth of 3.1 m (10.2 ft) below lot surface. Those excavations resulted in the recovery of over 8000 items, the majority of which date between 1850 and ca. 1865, or prior to the construction of the demolished building. Large quantities of ceramics, glass containers, window glass, and food remains were recovered. The second privy, Feature 3, a brick-lined shaft, had been looted sometime during the late 1980s (Genheimer 1993).

Cincinnati's Findlay Market (CINFM)

Although not a Section 106 venture, the Findlay Market project was funded by the City of Cincinnati in an effort to mitigate any adverse affects of a one-block parking lot development site just to the north of Findlay Market. Nearly the entire center of a block south of Findlay Street, west of Fenwick Alley, north of Sellew Alley, and east of Clymer Alley was completely removed for the placement of a water retention facility beneath the parking lot. The borders of the block, the location of rear-yard privies, were only marginally disturbed. Findlay Market, one of the oldest continuously operating fresh food markets in Cincinnati, is located approximately three blocks east of Central Parkway in Cincinnati's Over-The-Rhine neighborhood. Initial development, both commercial and residential, occurred in the 1850s and 1860s.

Archaeological testing began in December 1996 and was completed in January 1997. Excavations began with the placement of a series of four backhoe trenches designed to intercept privy shafts (Figure 8) associated with the mid-nineteenth century development of the block. Fourteen limestone-lined and one brick-lined privy shaft were located, recorded, and photographed. None of the privy shafts was completely excavated. At the majority, only the upper 20 to 30 cm were excavated and screened. This limited testing resulted in the recovery of only a small amount of artifactual debris, but it did demonstrate that the majority of the privy shafts had been sealed with mid to late nineteenth century debris near their orifices. Only a summary report (Genheimer 1998) was prepared for the City.

Cincinnati's River Road Improvement Project (CINRR)

This Federal 106 project was located in the Sedamsville neighborhood on the western edge of the downtown Cincinnati basin and near the Ohio River. A series of properties on the eastern side of U.S. 50 (River Road) was investigated in 2006 pursuant to an Ohio Department of Transportation road-widening project. Phase III (Data Recovery) excavations were

Table 3. Coding fields for yellow ware sample vessels.

Field	Description
Sample Vessel #	Sample Vessel number (SV1-SVn)
Site	Site abbreviation (e.g., CINQII)
Feature	Feature # (e.g., Feature 85)
Level/Horizon	Level/Horizon or Strata designation (e.g., 20/Q)
Date	Date or date range of archaeological deposit
Previous Vessel #	Vessel # issued for specific feature/site
Vessel Type	Type of vessel (e.g., bowl, pitcher, etc.)
Production Method	Method of production (e.g., slip cast)
Annular Banding	Presence of annular banding
Common Cable	Presence of common cable
Common Cable Style	Style of common cable (e.g., ribbon)
Cat's Eye	Presence of cat's eye
Other Decoration	Additional decorative motif(s) (e.g., dendrites)
Annular Banding Color	Annular banding color(s) (e.g., brown, cream, etc.)
Common Cable/Cat's Eye Color	Common cable/cat's eye color(s) (e.g., brown)
Dendrite Color	Dendrite color(s) (e.g., blue)
Glaze Color	Munsell chromatic notation
Glaze Composition	Presence/Absence of leachable lead
# of Decorative Treatments	Total number of decorative treatments
% Complete	Estimated percentage of sample vessel completeness
# of Sherds	Total number of sherds in sample vessel
Catalogue #	Curation catalogue #(s),
Manufacturer	Manufacturer of sample vessel (e.g., Bromley)
Comments	All additional relevant information on sample vessel

conducted by Gray and Pape, Inc. in 2006 at four properties, designated as 33HA733, 735, 736, and 737. Investigated features included a cistern and a series of stone and wood-lined privy shafts. Yellow ware vessels in this study were recovered from the cistern (Feature 1), and four of the privies (Features 2, 5, 8, and 12). While the neighborhood developed during the 1860s, and features were in use between 1860 and 1920, most artifacts clustered during the end of the period (Striker et al. 2007).

Methodology

This paper describes and summarizes discrete yellow ware vessels from archaeological context in the Cincinnati area. At two of the sites, CINQII and COV11, minimum vessel lists constructed during original project analyses are utilized. These lists are the result of systematic efforts at defining individual vessels, either through crossmends or unique vessel attributes. At the remaining sites, all recovered materials were examined for yellow ware specimens, and discrete vessels were identified through an examination of crossmends, sherd thickness, color, and decorative motifs. Sherds that could not be definitively identified as belonging to an identified sample vessel, or to another unique vessel, were eliminated from the study.

Each sample vessel was catalogued in Microsoft Access to allow for data manipulation. Twenty-four fields were coded, when applicable, for each sample vessel (Table 3). Fields include site and spatial information, archaeological information on dated context, production method, decorative motifs, an estimate of vessel completeness and number of sherds, manufacturer, glaze color, glaze composition, and comments on style, glazes, and manufacturing defects.

Production Method

Due to the incomplete nature, and often-shattered state of recovered vessels, it is often extremely difficult to assign a production method to archaeologically recovered vessels. For these reasons, only a limited number of production methods are identified. These

are extruded (almost exclusively utilized for handles), jiggered, molded, slip cast, and unknown. No specifically wheel thrown vessels are identified, although it is probable that some vessels, or portions of vessels were thrown. And, although many sample vessels may have been turned, a process where vessels were thinned and shaped on a lathe (see Cox 1935:73-76; Gates 1984:43), none were positively identified.

Extruded. Extrusion is the process of forcing clay through a small mold to form ribbon-like elements such as mug or chamber pot handles.

Jiggered. Jiggering is the process of molding clays of medium plasticity onto a rotating wheel to form the desired shape and thickness. A steel or wooden plate with the desired outline, known as a "jolly" (Cox 1935:51), was lowered into the rotating clay-filled mold (Department of Commerce 1915:150). Vessels may be left on the mold after jiggering to accommodate for drying of the clay body (Rhodes 1973:43), or they may be set immediately to dry on racks or shelves. Jiggering is typically used for molding plate (Barber 1893:7) or bowl-like vessels with minimum molded applications (Cox 1935:51). This mechanized form of production began being utilized at industrialized eastern markets by the 1850s (Mansberger 1997:94)

Molded. Complex motifs such as figures, animals, vegetation, or words were often produced through the application of individual plaster molds or a multiple part vessel mold. Small "sprig" molds were also utilized to produce delicate motifs (Stradling 2005:16). Elaborate jars, pitchers, and figurals were usually produced through a molding process. Where clay was pressed into a mold, the term "press molded" (Claney 1996:107) is often used. The use of molds implies the expertise of a modeller, however such craftsmen may have provided their services to more than one manufacturer.

Slip Cast. Slip casting is a version of molding where a carefully prepared batch of slip is poured into a plaster mold (Barber 1893:10). Filtered and dried clay is mixed with water to produce a viscous liquid that will properly fill the mold body (Rhodes 1973:69). The clay body was then allowed to dry before firing. Slip casting "lends itself to shapes that are refined and delicate, and to those that have flutings or raised ornament" (Cox 1935:46).

Unknown. Many finished vessels, and the majority of individual sherds, do not provide sufficient clues to identify a specific production method.

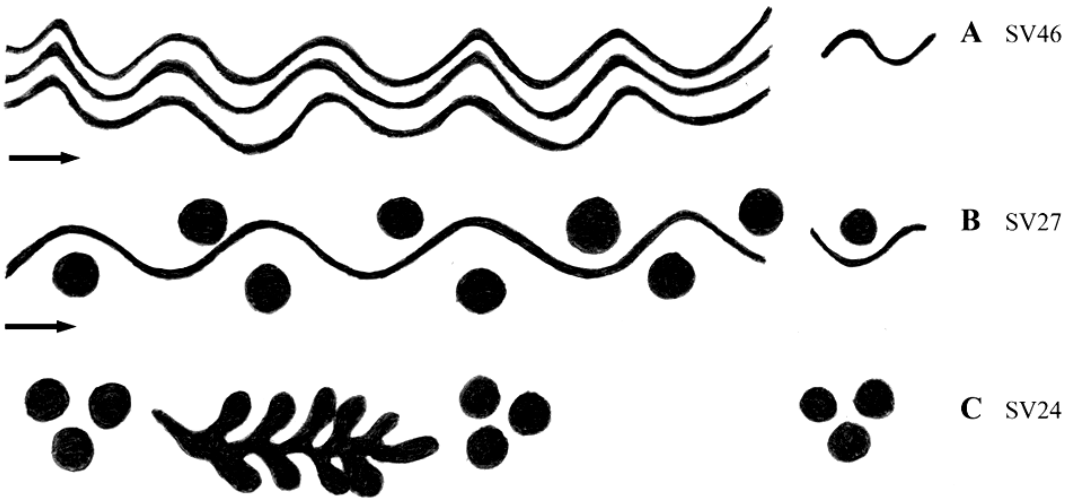

Figure 9. Identified slip trailed decorations. A: "ribbon" pattern (three-line); B: "ribbon" (single line) and "dots" pattern; C: "dots" and "twig" pattern. SV=sample vessel numbers. Drawing by Leeanne Suggs.

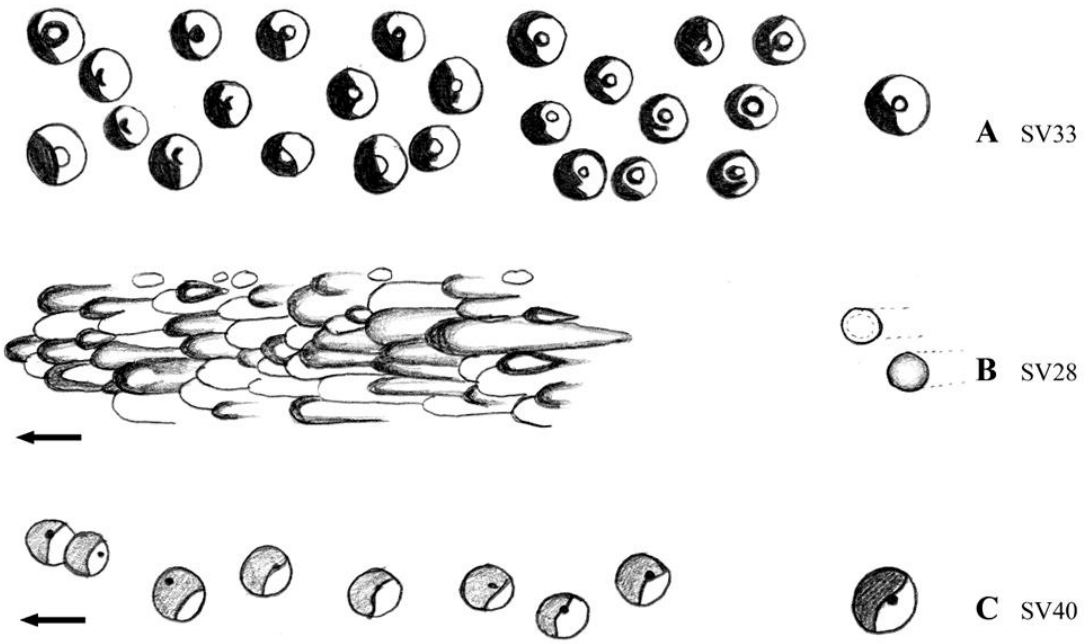

Figure 10. Cat's eye decorations. A and C: individual cat's eye drops; B: flowing cat's eye application. Arrows indicate direction of vessel rotation during application. SV=sample vessel numbers. Drawing by Leeanne Suggs.

Decorative Motifs

During the course of sample vessel examination a series of decorative motifs was identified. Each of these decorations is briefly described. Most of these decorations are not unique to yellow ware, but a number, such as cat's eye, common cable, dendrites, and Rockingham achieved their highest levels of American production on yellow ware bodies.

Slip decoration became part of the mechanized techniques of British potters beginning in the second half of the eighteenth century, and was employed on a wide variety of earthenwares. Not restricted to costly wares, slip decoration was also used on a broad class of utilitarian earthenwares. British slipwares became so prevalent that they are found on most domestic archaeological sites of the early nineteenth century (Carpentier and Rickard 2001:115). Many of the decorations that American potters of British nativity used in the mid-nineteenth century were made possible by the development in the late eighteenth century of technologies such as the simple turning lathe, engine turning lathe, and single and multi-chambered slip cups (Carpentier and Rickard 2001:116-128; Erickson and Hunter 2001:97-113)

Annular Banded. Annular-banding is perhaps the most frequently encountered design motif on nineteenth century yellow ware, and on factory-made slipwares in general. The band (or bands) is sometimes the only decoration, but often bands serve to bracket or frame additional decorations. Annular bands consist of lines of colored slip that were applied with a slip bottle, or slip cup. As the vessel was rotating on a wheel, the slip was applied by blowing into the slip cup (Sussman 1997:6; Carpentier and Rickard 2001:116). Slip cups utilized single or multiple chambers, depending upon the number of parallel slip lines or colors that were desired (Rickard 2006:88). In this article, annular banding is defined as the application of slip bands parallel to the rim of the vessel.

Trailed. Trailing is essentially identical to banding, but the bands are not applied parallel to the vessel rim. Sussman (1997:7) equates the use of the slip cup in this technique to that of "cake decorating." Typically, two or more parallel slip trails were produced at once surrounding the vessel (Figure 9). The term "trailing" is also utilized to indicate slip designs that were applied on stationary vessels or with the use of

templates. These slip designs can include tree-like patterns (often referred to as "twig"), dots, or geometric shapes (Figure 9) (see Rickard 2006:63-75). Slip trailing began as early as the mid-seventeenth century in England (Carpentier and Rickard 2001:131-132), and was used extensively by Staffordshire potters by the late eighteenth century (Erickson and Hunter 2001:113).

Cat's Eye. This technique employed two or more slip colors to produce circular drops of slip on the vessel surface. Again, a multi-chambered slip cup was utilized. By tilting the slip cup, a single drop of multi-colored slip was allowed to drop through the conjoined end of the cup onto a stationary vessel (Sussman 1997:15-17; Carpentier and Rickard 2001:126). When done properly, individual slip colors will remain separated into segments within the circle. The term "cat's eye" is used by modern collectors (Rickard 2006:63-65), most likely to reflect the similarity with glass marbles of the same name, and was not used by nineteenth-century potters. Of particular note to this study are at least two vessels that have *avant-garde* slip applications that can best be identified as "flowing cat's eye" (Figure 10). These were almost certainly applied while the vessel was rotating on a lathe.

Common Cable. Common cable is simply cat's eye in motion (Sussman 1997:17). Two or more slip colors are blown through the slip cup onto a rotating vessel forming a single stream of overlapping cat's eye decoration (Carpentier and Rickard 2001:127; Rickard 2006:63). When the vessel rotation and slip application are in synch, the appearance is seamless. When out of synch, the individual cat's eye drops are clearly visible. The term common cable is utilized in this article, although various collectors and archaeologists also refer to the decoration as "cable," "earthworm," or "worm." British-made wares with cat's eye and common cable are well represented in tavern and household archaeological assemblages in the first half of the nineteenth century along America's eastern seaboard (Carpentier and Rickard 2001:128).

Based upon morphological attributes, five forms of common cable decoration are identified on sample vessels. They are "ribbon," "looping," "double looping," "folded looping," and "staggered" (Figure 11). The "ribbon" pattern varies from a gently to steeply sloping design that undulates up and down around the vessel. "Looping" patterns incorporate a series of open loops within the cable. "Double looping" patterns incorporate loops both above and below the central cable. "Folded looping" patterns exhibit a sharp and closed loop along the cable. "Staggered" common cable patterns exhibit short stops and starts of the cable.

Dendritic. Dendritic decorations involve the application of a pigmented, acidic solution, or "tea" to a broad slip field. Technically, it is the only true "mocha" decoration, although some contemporary collectors utilize the term "mocha" to define a range of decorations that may include banding, common cable, cat's eye, and dendrites. Mocha derives its name from the mocho stone, an agate stone that displays moss or tree-like markings that was imported into England during the late eighteenth century (Sussman 1997:26; Rickard 2006:46). When the "tea," which often consisted of acidic substances such as tobacco, urine, coffee, or vinegar, came into contact with the wet slip field, it would bleed instantaneously in dendritic patterns (Carpentier and Rickard 2001:122). If the vessel was held upside down, the dendritic pattern would flow toward the rim and form a "tree" pattern. If the vessel was rotated on a lathe, it would form a more-horizontal pattern commonly referred to today as "seaweed" (Figure 12) (Rickard 2006:46-49). Occasionally, the tea is directed in a "ribbon" pattern around the vessel.

Broad Slip Field. This category is utilized to describe the application of broad annular bands that often form a central field on circular vessels. Don Carpentier has found that the easiest way to impart such broad bands is to blow a continuous thinner band around the vessel on a rotating lathe (Carpentier and Rickard 2001:123, Figures 13 and 14). Broad slip bands are typically framed by annular bands, and often form the central field for the application of dendrites.

Rockingham. Rockingham refers to "a brown glaze colored by the addition of manganese" (Stradling 2005:9) that was produced in America from the 1830s into the twentieth century (Claney 1996:107), although its use became most common in America after 1845 (Stradling 2005:10). Its name derives from a pottery on the property of the Marquis of Rockingham in Yorkshire, England where brown pots were produced (Goldberg 2003:27). By the mid 1840s, the

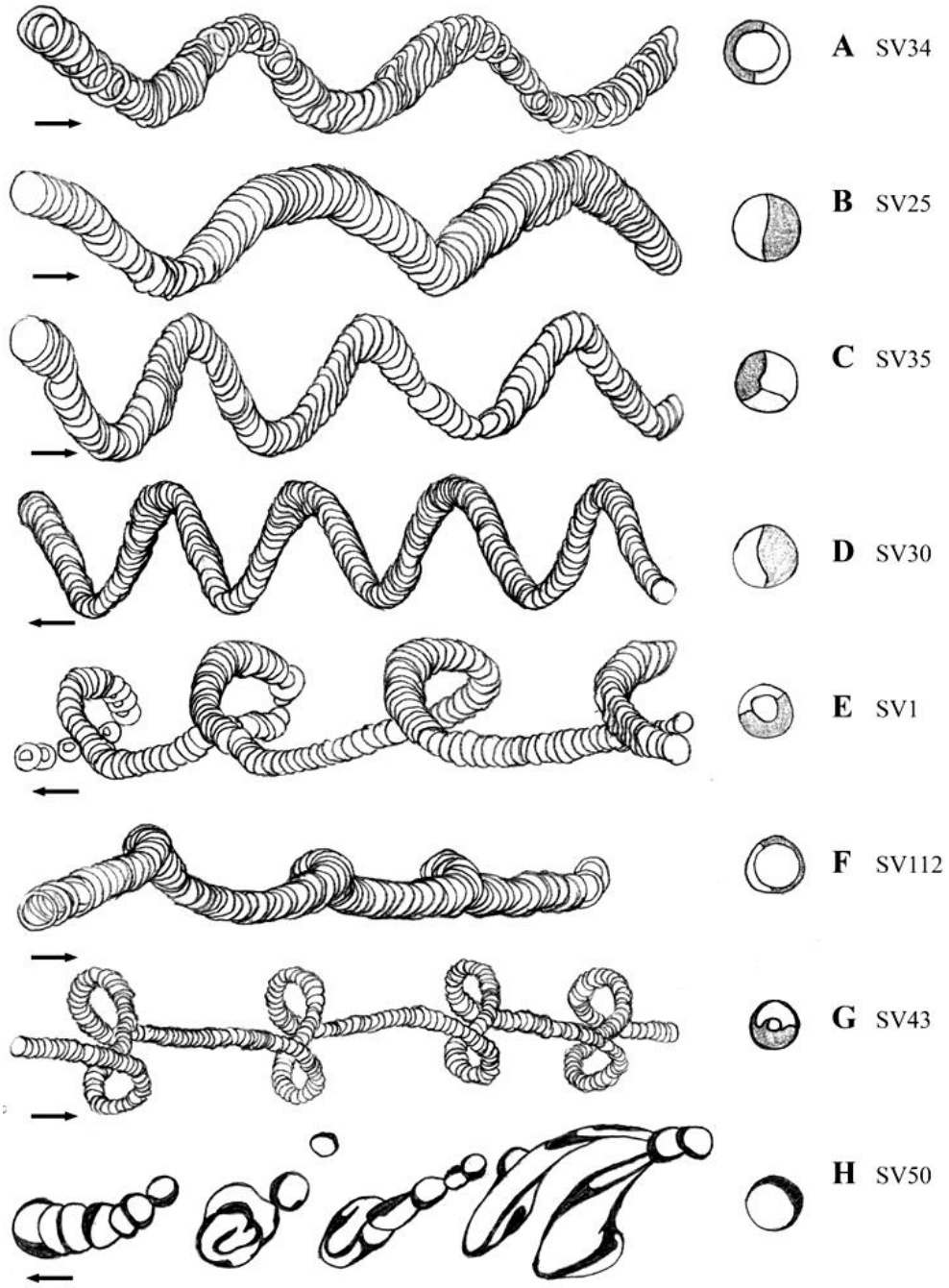

Figure 11. Identified common cable types. A-D: "ribbon" pattern; E: "looping" pattern; F: "folded loop" pattern; G: "double looping" pattern; H: "staggered" pattern. Arrows indicate direction of rotation of vessel during cable application. SV=sample vessel number. Drawing by Leeanne Suggs.

term "rock" begins to appear in pottery recipes of American manufacturers. The manganese glaze was "dabbed, spattered, or dripped" down the vessel's sides (Goldberg 2003:28). The glaze can completely cover the vessel, or, often, it is applied in a thin manner allowing some of the yellow body to show through. When metal oxides were applied to the glaze, such as cobalt or copper (Leibowitz 1985:14),

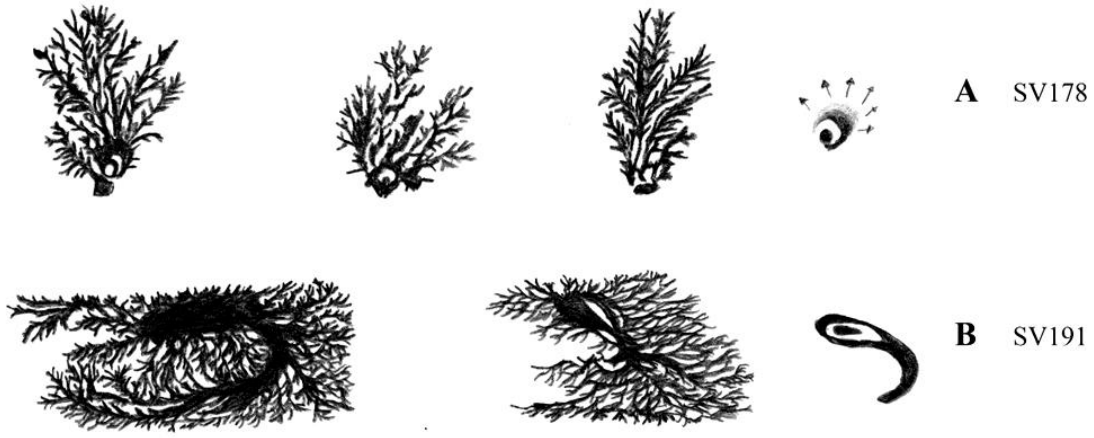

Figure 12. Identified dendritic decorations. A: vertical dendrites or "tree"; B: horizontal dendrites or "seaweed." SV=sample vessel number. Drawing by Leeanne Suggs.

the pottery is often referred to as "flint enamel ware" (Goldberg 2003:28). Sometimes, vessels were fired twice—first with a clear glaze, and second with the manganese glaze (Stradling 2005:10-11; Goldberg 2003:28). Rockingham glazes are not unique to yellow ware. They were also produced on white-bodied earthenwares and stonewares. Until they were replaced by whitewares, Rockingham wares, including those on earthenware and stoneware, "became the most popular American wares during the mid-nineteenth century" (Goldberg 2003:28).

Spatter. Spatter decoration is simply the application of manganese glaze through a spatter or dripping technique. On some nineteenth century yellow ware, a vessel previously coated with a clear glaze was then subjected to a process of spattering or dripping the manganese onto the vessel (Stradling 2005:11). In this study, spatter is defined as a thin or directed application of manganese glaze that allows the vast majority of the yellow body to show.

Molded. As described above, molding is a technique where a vessel is produced in a multiple part mold. Molded vessels are rarely further decorated, with the exception of an application of Rockingham or spatter glaze.

Rouletted. Rouletting is the application of an impressed band, typically just below the vessel rim (Sussman 1997:42-43). It may, or may not, include the addition of a colored glaze or oxide. Rouletting is accomplished with a rotating tool that incorporates a small cylinder-like mold. When placed below the rim of a rotating vessel, the rouletting tool is pressed across the soft, still green clay, leaving a standardized, often geometric impression (Rickard 2006:24).

Rilled. Rilling is perhaps the simplest of all the decorative techniques. A sharp tool is softly impressed into the rotating vessel leaving a shallow depression or groove parallel to the vessel rim (Sussman 1997:43).

Miscellaneous Fields

The "date" field represents associated archaeological data only, and is not an attempt to provide temporal ranges for the type of vessel, production attributes, or decorative motifs. Dates are presented as either date ranges or post dates (*terminus post quem*). At privy shafts with large numbers of datable objects, such as embossed bottles, ceramics with hallmarks, and legible coinage, dates are often presented as an estimated deposition range for the level or horizon. Where fewer datable objects are present, dates are sometimes presented as post dates (i.e., the sample vessel deposition must post date the youngest object in the feature, level, horizon, or strata).

A wide range of vessel types is identified for

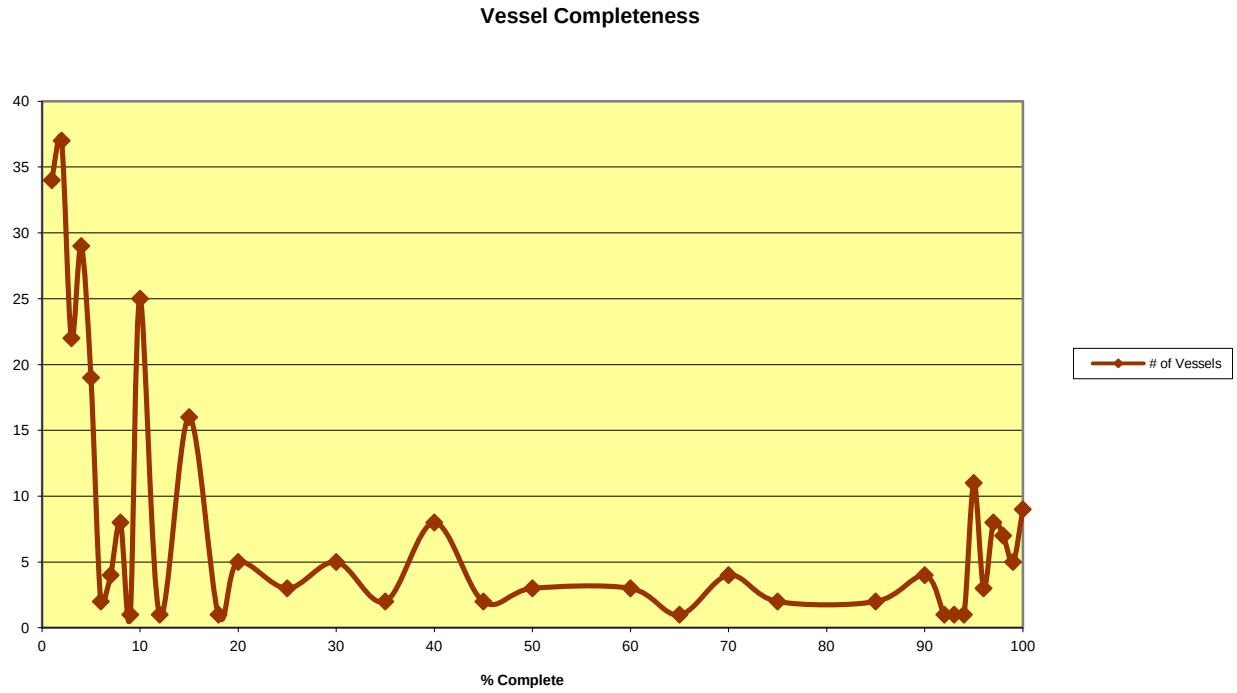

Figure 13. Association between vessel completeness and number of vessels.

sample vessels. Vessel types are presented in specific terms, general terms, and morphological terms. Specific terms include vessel types such as alphabet plate, chamber pot, coffee pitcher, or oval soap dish. General terms include vessel types such as bowl, pitcher, or plate and reflect identification only to a general level usually due to incompleteness of the sample vessel. Morphological terms are utilized for sample vessels that can only be ascribed to general forms (i.e., hollow ware or flatware).

Glaze color is determined by comparing sample vessels with published Munsell color standards. A Munsell Book of Color, Glossy Finish Collection with over 1500 Munsell notations is utilized. Vessel glaze colors are matched as closely as possible with the reference standards.

Glaze composition is determined with the aid of lead check swabs capable of detecting leachable lead on glazed surfaces. These spot tests exhibit a pink or red stain in the presence of leachable lead. Only a select number of glazed vessels are tested. Rockingham-glazed vessels prove unsuitable for the detection of the color reaction.

A known manufacturer of a sample vessel is coded only if (1) an identifiable mark for that manufacturer is present on the vessel; or, (2) the sample vessel clearly originates from Bromley's Covington Pottery (i.e., is recovered from waster deposits or Bromley's privy [Feature 45], or exhibits manufacturing defects that render the vessel unmarketable); or, (3) the manufacturer could be reasonably attributed through vessel attributes. In the latter circumstance, the manufacturer's name is preceded by the designation "probable."

Vessel Sample

A total of 289 discrete yellow ware vessels is coded for the six archaeological sites/projects undertaken in the Cincinnati area. Nearly all yellow ware vessels from CINQII, CINFM, CINRR, and CINWS in Cincinnati, and COV11 in Covington are included in the assemblage. Some yellow ware vessels, particularly those represented by a single undecorated sherd, are excluded. Only a select sample of 86 vessels from COVRR is included in the final database. Nearly three-quarters (72.7 percent) of the vessels were recovered from CINQII or COVRR, the projects that provide the greatest number of completely excavated nineteenth century deep shaft features.

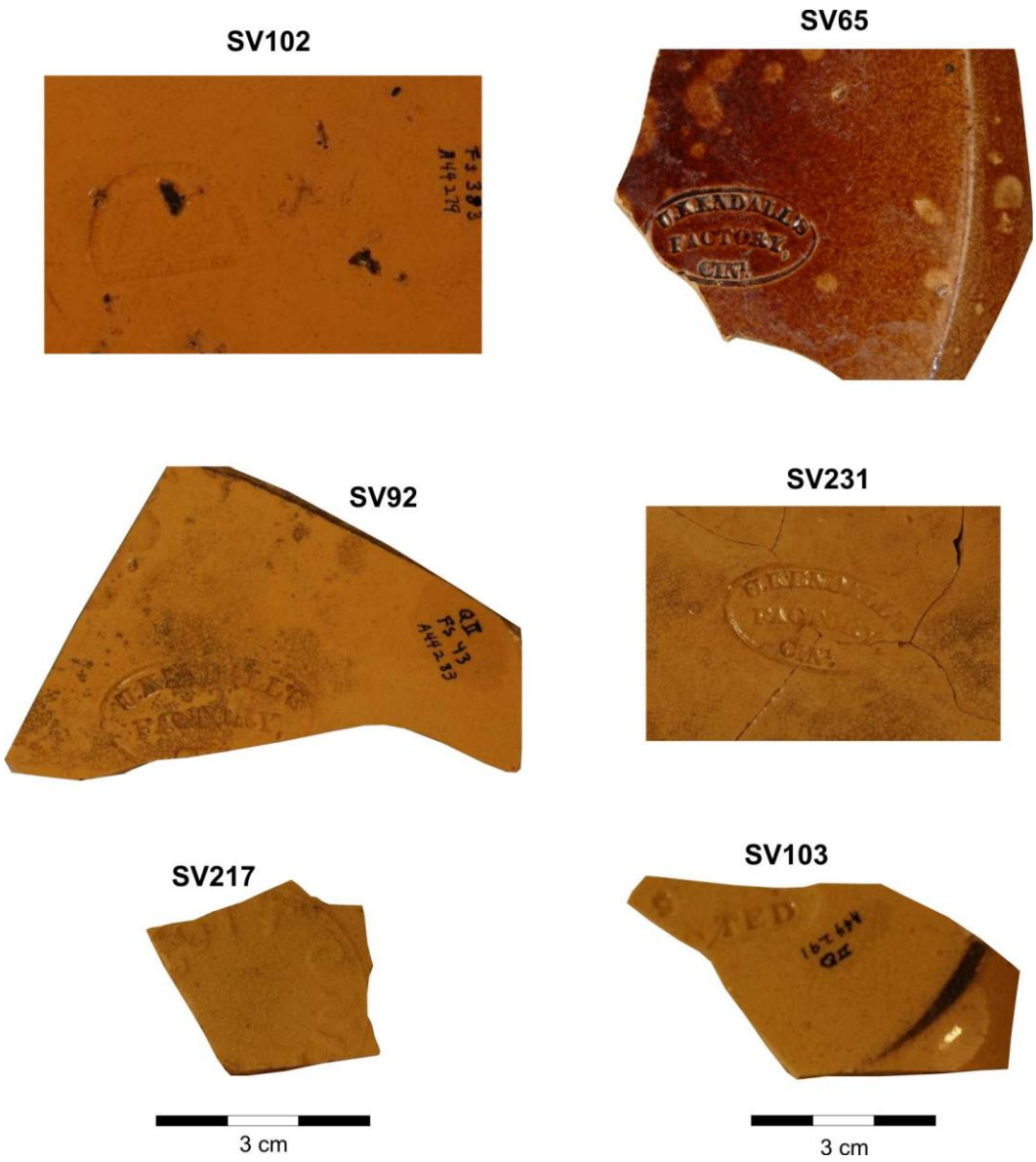

Figure 14. Select marked sample vessels. SV102: CINQII, unknown provenience, plate, stamped "**W. Bromley, Cincinnati, Ohio, North America**"; SV65: CINQII, Feature 38, oval platter, Rockingham, stamped "**U. Kendall's Factory, Cin**"; SV92: CINQII, unknown provenience, plate, stamped (see SV65); SV231: CINWS, Feature F05, plate, stamped (see SV65); SV217: CINRR, Feature 5, unknown provenience, raised mark "..**cott…Cin.O**"; SV103: CINQII, unknown provenience, bowl, stamped "..**9…nted**."

The vast majority of sample vessels (61.9 percent) originate from rear yard privy shafts dating to both the nineteenth and early twentieth centuries. Sample vessels are coded from privy shafts at all six site/project areas (Table 4). Additional feature types with corresponding vessels include units within Bromley pottery wasters at COVRR (n=57), backhoe trenches at CINFM (n=7), possible refuse pits at CINWS (n=5), cisterns at CINQII (n=2) and CINRR (n=3), and unit and shovel testing at CINRR (n=3). Thirty-three vessels originate from unknown feature types at CINQII (n=27), CINRR (n=1), COVRR (n=1), and CINWS (n=4).

The 289 vessels are represented by 1314 individual sherds. While some vessels are complete or nearly complete, a large number have only one or a small number of sherds. Nearly two-thirds (64.0 percent) are identified on the basis of one sherd only, and

80 percent have five or less sherds. The number of sherds is not a reliable indicator of vessel completeness, so completeness of vessel is estimated where possible, and is graphically displayed below (Figure 13). In general, a large number of vessels are very incomplete, and a small number of vessels are complete or nearly complete. Approximately two-thirds of all vessels are 15 percent complete or less, and about 14 percent are 90 percent complete or more. The incompleteness of large numbers of vessels suggests that the origins of at least some of the sample vessels are not primary deposits.

Vessel Types

Hollow ware, vessels with hollow interiors that are designed to contain food, liquids, or bodily waste, dominate the sample vessel assemblage. Nearly 90 percent consist of food-related vessels such as bowls, jars, crocks, pitchers, jugs, mugs, and canning jars; or sanitary vessels such as chamber pots, spittoons, urinal/bedpans, and a washbasin. The remainder, generally classified as flatwares, consists of plates, platters, and a saucer. Some items, such as smoking pipes and an animal figural are not true vessels, but have been included to illustrate the range of yellow ware production.

It is not surprising, considering the large number of vessels originating from privy shafts, that chamber pots are the most frequently identified specific vessel type. Their presence in great numbers clearly indicates that frequent transport between the residence and the outhouse resulted in accelerated breakage. At COVRR, even unglazed chamber pots made their way into the toilet. Bowls also occur in large numbers, and it is suspected that a significant proportion of hollow ware vessels are also likely bowls. The broad range of identified vessels (Table 5) hints at both the diverse production range and marketability of Cincinnati-area yellow ware output.

Production Method

Specific or probable production methods are identified for approximately 45 percent of the sample vessel assemblage. The veracity of these identifications is difficult to assess, particularly in light of the fragmented nature of many of the vessels, and an admittedly incomplete understanding of mid-nineteenth century Cincinnati-area yellow ware production. Nevertheless, the morphology of sample vessels and the presence of certain manufacturing indices suggest that many of the vessels are slip cast. Eighty-six vessels are identified as slip cast, including chamber pots, spittoons, pitchers, bowls, jugs, canning jars, and a small number of miscellaneous vessel types. Chamber pots account for more than half of the slip cast vessels. The attribution of slip casting on chamber pots is based upon their broad flat lips, and a near absence of wheel-thrown markings typically found on the base of thrown vessels.

Considerable difficulty is encountered in distinguishing between slip casting and molding, particularly on Rockingham-glazed vessels. As a result, only 28 sample vessels are specifically designated as molded. These include pitchers, un-

Table 4. Distribution of sample vessels by site/project and feature type.

Feature Type	CINQII	CINFM	CINRR	CINWS	COVRR	COV11	Total	%
Privy	95	4	9	37	28	6	179	61.9
Cistern	2	-	3	-	-	-	5	1.7
Pottery Wasters	-	-	-	-	57	-	57	19.7
Trench	-	7	-	-	-	-	7	2.4
Refuse Pit	-	-	-	5	-	-	5	1.7
Shovel Test	-	-	2	-	-	-	2	0.7
Unit	-	-	1	-	-	-	1	0.3
Unknown	27	-	1	4	1	-	33	11.4
Total	124	11	16	46	86	6	289	
%	42.9	3.8	5.5	15.9	29.8	2.1		

specified hollow wares, spittoons, smoking pipes, lug handles, a lid handle, an animal figural, and an elaborate sugar bowl.

Nine vessels were produced through jiggering, and another five were probably jiggered. As expected, most are flatware, including plates and a saucer. Mixing bowls, a washbasin, and a nappie were also probably produced through the jigger and jolly method.

Glaze Color

Sufficient areas of glazed, but otherwise undecorated surface are noted on 169 sample vessels (Table 6). These surface areas are compared with Munsell reference color chips. The standardized notation for each match is recorded in the hue-value-chroma format; where hue indicates its relation to an equally spaced scale of hues, value indicates the lightness or darkness of color, and chroma indicates the degree of departure from a given hue of the same value. The reported Munsell notations represent the closest match to the Munsell chips, and should not be interpreted as precise color matches.

With the exception of five vessels, all color matches are from the 2.5Y hue page. And, the vast majority of color matches occur within a cluster of six adjacent color chips of 2.5Y hue (2.5Y8/6; 2.5Y8.5/6; 2.5Y7/6; 2.5Y8/8; 2.5Y7/8; and, 2.5Y8.5/8). More than half of all vessel matches occur with one notation – 2.5Y8/6, and an additional 15 percent with 2.5Y8.5/6, both light yellow in color. Nearby colors of 2.5Y7/6 and 2.5Y8/8 are also well represented. These six adjacent colors, which range from light yellow, yellow, and yellows with green, brown, or orange tints, account for 91.1 percent of all Munsell color matches. The strongest component of this cluster is a triad of 2.5Y8/6-2.5Y8.5/6-2.5Y8/8, all light yellow to yellow in color. More than three-quarters of all color matched vessels exhibit one of these three notations.

Fourteen color-matched vessels are considered outliers, occurring well outside of the light yellow to yellow cluster. Nine of these vessels are matched to the 2.5Y hue, but in brownish-yellow, greenish-yellow, or grayish-yellow colors that are easily distinguishable from the light yellow to yellow cluster. Five outlier vessels are matched to the 10YR hue page. As the YR (yellow red) hue designation implies, these vessels are dark orangish-yellow or dark brownish-yellow in color. Only one outlier vessel, SV137, has been attributed to a known manufacturer, but this Covington Pottery-fired Bromley chamber pot fragment is possibly over fired, and hence is not a reliable indicator of production color.

Four Kendall-produced sample vessels are color matched to just two Munsell notations – 2.5Y8/6 (three vessels), and 2.5Y8.5/6 (one vessel). All fall within the light yellow portion of the light yellow to yellow cluster, and are consistent with the vast majority of Cincinnati-recovered vessels. A broader spread of color matches is noted for 13 Bromley-produced vessels. Eight Bromley vessels match with the light yellow to yellow cluster (2.5Y8/6-2.5Y8.5/6-2.5Y8/8), while four others match with adjacent color chips.

As a comparison, 146 glazed yellow ware vessels recovered from excavations at the Mansion Pottery in East Liverpool, Ohio, and curated at the Ohio Historical Society, are assessed for Munsell colors (Table 7). The Mansion Pottery operated under various names between 1842 and 1912 with its principal production consisting of yellow and Rockingham wares (Gundy and Casselberry 2005:141-146). Although not necessarily representative of East Liverpool output, as one of the earliest and continuous producers of these wares, it offers an excellent data set for production and color comparisons with Cincinnati.

As noted for the Cincinnati sample vessels, the majority of color matches for the Mansion Pottery assemblage are from the 2.5Y hue page, however that percentage is considerably reduced at Mansion. There is also an increase in matched Munsell chips from 12 in the Cincinnati sample vessels to 15 at Mansion, a somewhat surprising number given that the Cincinnati vessel sample represents the output of numerous potteries. And, while light yellow to yellow colors dominate the Cincinnati vessel sample, they make up only slightly more than one-quarter of the Mansion Pottery vessels.

At Mansion, the single most matched (41.8 percent) Munsell notation is 2.5Y7/6, a slightly greenish-yellow that is easily distinguished from the dominant triad of 2.5Y8/6-2.5Y8.5/6-2.5Y8/8 identified for Cincinnati sample vessels. Of note, only 28.8 percent of Mansion Pottery vessels match color chips from this triad. The remainder of Mansion color matches on the 2.5Y hue page can be characterized as brownish or tannish yellows.

Twenty-eight vessels, or 18.2 percent of the Mansion Pottery assemblage, are matched to the 10YR hue page. The admixture of red, most likely in the

Figure 15. Annular-banded sample vessels. SV13: CINQII, Feature 34, bowl; SV14: CINQII, unknown provenience, chamber pot; SV22: CINQII, Feature 85, mug; SV29: CINQII, Feature 85, chamber pot; SV32: CINQII, Feature 19, chamber pot; SV38: CINQII, Feature 19, chamber pot; SV44: CINQII, Feature 34, washbasin; SV45: CINQII, unknown provenience, chamber pot.

form of iron, results in colors that are orangish or brownish yellow, all considerably darker than the majority of coded yellow ware sherds.

In simple terms, where the Cincinnati vessel sample is characterized by a large majority of light yellow to yellow vessels with a significant minority of greenish, brownish, or orangish-yellow vessels, the East Liverpool Mansion Pottery assemblage exhibits nearly the reverse – a large majority of greenish, brownish, or orangish-yellow vessels with a signifi-

cant minority of light yellow to yellow vessels. The starkness of this reversal suggests that significant differences in clay origin or glaze elements may be present between the two samples.

Glaze Composition

There is some disagreement in the literature concerning the composition of the clear glaze applied to nineteenth century American yellow ware vessels. Leibowitz (1985:9) argues that a clear alkaline glaze was applied to American yellow wares; Ketchum (1987:7) reports that either a lead-based or alkaline-based glaze was utilized; and, Gates and Ormerod (1982:7) indicate that yellow ware at East Liverpool was "covered with a clear lead-based glaze." Ketchum (1987:7) further suggests that lead glazes were abandoned due to their toxic quality and replaced by alkaline glazes. If the substitution of alkaline glazes for lead glazes did occur during the nineteenth century, then well-dated archaeological samples should reflect this glaze shift.

There is some archaeological evidence for the early use of lead glazes on Ohio yellow wares. Both yellow ware and Rockingham sherds excavated from the Sprucevale Pottery near East Liverpool, Ohio were subjected to glaze composition tests at Hall China Company. Sprucevale Pottery was operated from 1852 to 1857 (Fryman 1983:12-42), and represents an early attempt at producing earthenware on an industrial scale. Glaze composition analysis indicates that yellow ware sherds "consist primarily of 70% lead and 30% silicates while the Rockingham glaze consists of approximately 66% lead, 13% manganese, and 21% silicates" (Fryman 1983:243).

In an attempt to discern the presence or absence of lead glazes in the sample vessel assemblage, lead glaze spot tests were conducted on a sub sample of 63 vessels. In general, these tests reveal that Cincinnati-recovered yellow ware vessels may be either lead-glazed or non lead-glazed. Of 63 tested vessels, only 17 test positive for the presence of leachable lead. While there may be a significant percentage of false negative tests, the sheer number of negative tests indicates that alkaline glazes are present, and that both lead and alkaline glaze systems were operational in Cincinnati during the nineteenth century.

Of particular interest is the presence or absence of lead glazes on Kendall and Bromley vessels. Two Kendall vessels, both undecorated plates, test positive for lead, while two additional Kendall vessels, a plate and a spittoon, test negative. Ten Bromley vessels are equally ambiguous. Six Bromley vessels, all from COVRR, test positive for leachable lead, while four others, including his marked vessel (SV102) from the Brighton Pottery, test negative. These data indicate that lead glazes were utilized at the Covington Pottery as late as the Civil War.

At least by the mid to late 1870s, George Scott was finishing his yellow ware vessels with an alkaline glaze. Lafcadio Hearn reports that borax, flint, feldspar, and China clay were ground, mixed with water, and then filtered to produce a milky glaze (Johnson 1979:169).

Manufacturers

Despite Leibowitz's (1985:57) assertion that no potters' marks have been found on Cincinnati yellow ware vessels, a small number (n=8) of sample vessels exhibit marks on their bases that clearly indicate the manufacturer. The most frequently encountered mark (Figure 14, SV65, SV92, and SV231) is an impressed oval that is stamped "U. KENDALL'S FACTORY, CIN.." This mark is present on six vessels, including three plates, two oval platters, and a spittoon. Vessels are undecorated, Rockingham-glazed, or molded. Apparently, Kendall modified this mark as early as 1846 to include his sons (Ketchum 1987:24). Therefore, the mark on sample vessels should date between approximately 1842 and 1846, the time frame in which Kendall operated as a yellow ware potter and sole proprietor. A single Bromley mark (Figure 14, SV102) is present on an undecorated yellow ware plate from unknown backdirt at CINQII. The impressed mark has a drop wing eagle surrounded by "W. BROMLEY, CINCINNATI, OHIO, NORTH AMERICA." The American symbolism could not be more obvious. Bromley shows pride in his new country, not only adopting the American eagle as his symbol, but also going a step further by proclaiming Cincinnati was in North America. It is interesting to note that Bromley's eagle is actually a detailed duplicate of the Great Seal of the United States. The mark exhibits the breast shield representing the 13 states, and an olive branch and arrow tips clutched in the eagle's talons. Bromley's model for the Great Seal was almost certainly American silver or gold coins of the 1840s, 1850s, or 1860s. Seated Liberty coins of the period exhibit a nearly identical Great Seal to that chosen by Bromley. A single mark (Figure 14, SV217) is also present for George Scott on the back

of an undecorated, unknown vessel type from Feature 5 at CINRR. The partial circular impressed mark reads "..COTT…CIN. O."

Seventy-two additional vessels are attributed to William Bromley due to their origin within Bromley's pottery wasters, or their unglazed state within features at COVRR. Nine other glazed vessels are listed as "probable Bromley" due to their recovery from features associated with Bromley's Covington Pottery. The Bromley pieces include a wide range of vessels. Bowls, chamber pots, pitchers, spittoons, and unspecified hollow ware vessels account for nearly 80 percent of the output. Not a single mark is identified on any vessel or waster fragment from the Covington Pottery.

And, although no non-Cincinnati-area marks are noted on sample vessels, it is not assumed that all are Cincinnati-made. In fact, it is very likely, given Cincinnati's position along the major trade route connecting it with Pittsburgh and East Liverpool to the east and Louisville and St. Louis to the west that some percentage of sample vessels originated elsewhere.

Decorative Motifs

Sample vessels are either undecorated, or are decorated with annular banding, common cable, cat's eye, dendrites, slip trailing, broad slip fields, Rockingham glaze, spatter, rouletting, rilling, or molding (Table 8).

Annular Banded

One hundred and thirty-seven vessels, or 47.4 percent, exhibit annular bands of slip surrounding the exterior of the vessel (Figures 15-17). Six slip band colors in order of decreasing frequency are brown, cream, white, black, blue, and yellow. Brown slip was either the most popular, or the most economical to produce, occurring on more than 75 percent of all annular-banded vessels. Cream slip is present on more than a third, white slip on less than one-fifth, black slip on approximately one-tenth, and blue slip on less than one-sixteenth of annular-banded vessels. One vessel exhibits a yellow slip band on a pumpkin-colored field.

Sample vessels exhibit either single color (n=74 vessels) or two color (n=63 vessels) slip bands per vessel. Again, brown is the most encountered single color, occurring on 46.7 percent of sample vessels. Both white (3.6 percent) and cream (2.9 percent) occur on single color vessels, but in small numbers only. The most common color combination for vessels with two slip band colors is brown and cream. Thirty-four, or nearly one-quarter, of annular-banded vessels exhibit these paired colors. Additional color combinations include blue and white (6.6 percent of annular-banded vessels), black and cream (6.6 percent of annular banded vessels), brown and white (4.4 percent of annular-banded vessels), and black and white (3.6 percent of annular-banded vessels).

A significant number (n=62 or 45.3 percent) of annular-banded vessels exhibit no additional decoration. These include complete or relatively complete vessels with only annular banding, and incomplete or single-sherd vessels where potential additional decorative motifs are not represented. Clearly, vessels with only annular banding were produced, as at least a dozen nearly complete specimens are represented in the vessel sample.

Common Cable

Thirty-one vessels, or only 10.7 percent, exhibit common cable (Figures 18-20). Of this total, more than three-fourths are from CINQII, with at least ten occurring in the lowest levels of Features 34 and 85 where additional datable items suggest a deposition date range of 1840 to 1860. Three common cable vessels from Feature 81 at COVRR also originate from the lowest levels of that privy shaft dating from 1860 to approximately 1870. The near absence of common cable vessels from later contexts suggests that the decorative motif was in production prior to or during the Civil War. Since common cable is applied while the vessel is rotating on a lathe, relatively broad hollow ware vessels are typically selected for its application. Common cable vessels identified in the vessel sample include chamber pots (n=10), bowls (n=8), hollow ware (n=6), pitchers (n=3), jugs (n=2), a mug, and a serving bowl lid.

Common cable sample vessels exhibit either two-color or three-color slip applications. As noted for annular banding, the most frequently encountered combination is brown and cream, occurring on 27, or 87.1 percent, of vessels with the decorative motif. One vessel exhibits a brown and blue combination, one a white-brown-green combination, and two vessels a brown-cream-green combination. Three-color common cable application is noted on only three vessels with green as the additional color.

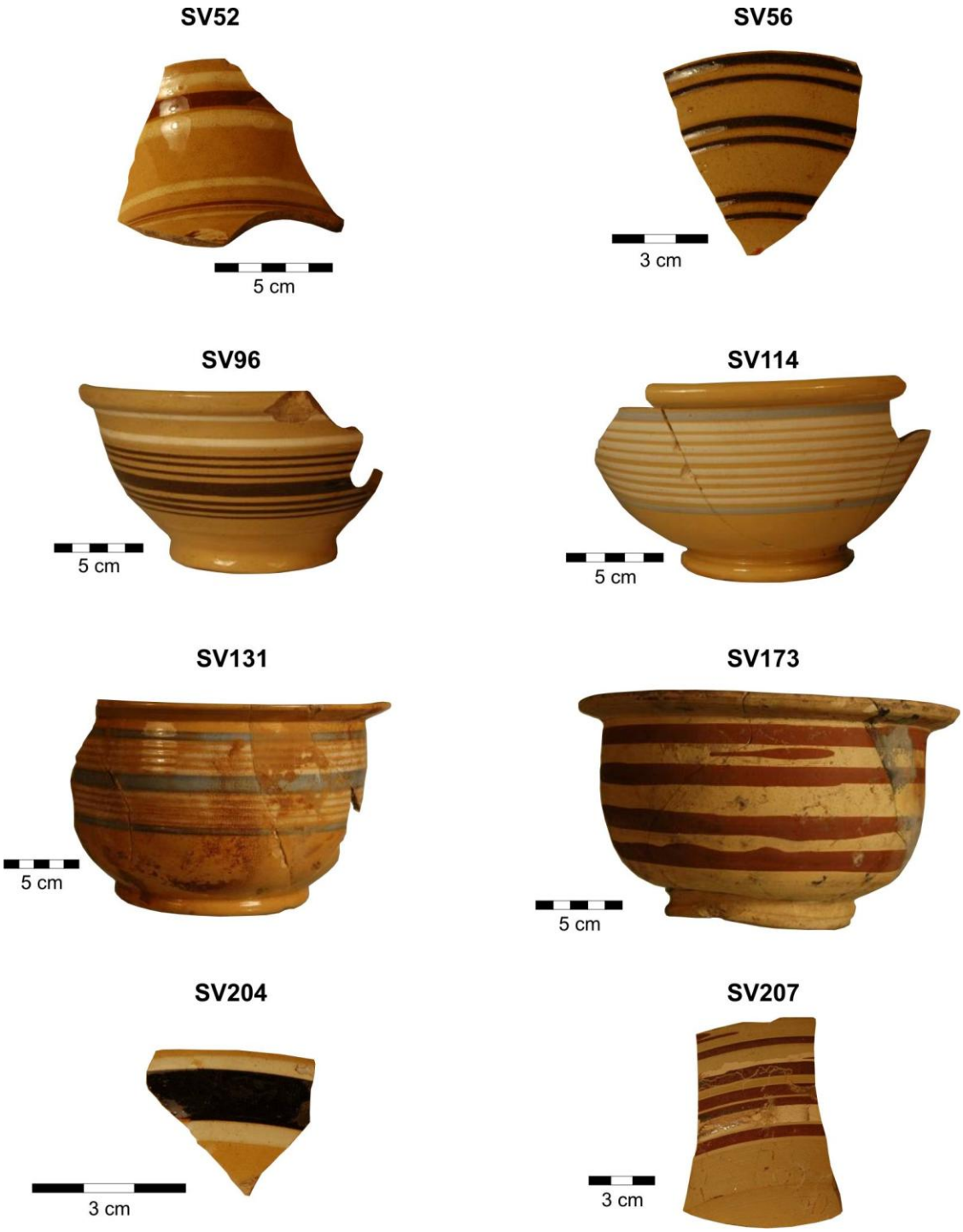

Figure 16. Annular-banded sample vessels. SV52: CINQII, Feature 29, pitcher, includes small fragment of common cable; SV56: CINQII, Feature 38, bowl; SV96: CINQII, unknown, bowl; SV114: CINQII, unknown provenience, mixing bowl; SV131: COVRR, Feature 52, chamber pot; SV173: COVRR, Feature 45, chamber pot, waster (note irregular bands and warped base); SV204: CINFM, Trench 4a, bowl; SV207: CINFM, Feature 31, bowl, waster (note irregular bands and poor adhesion of slip).

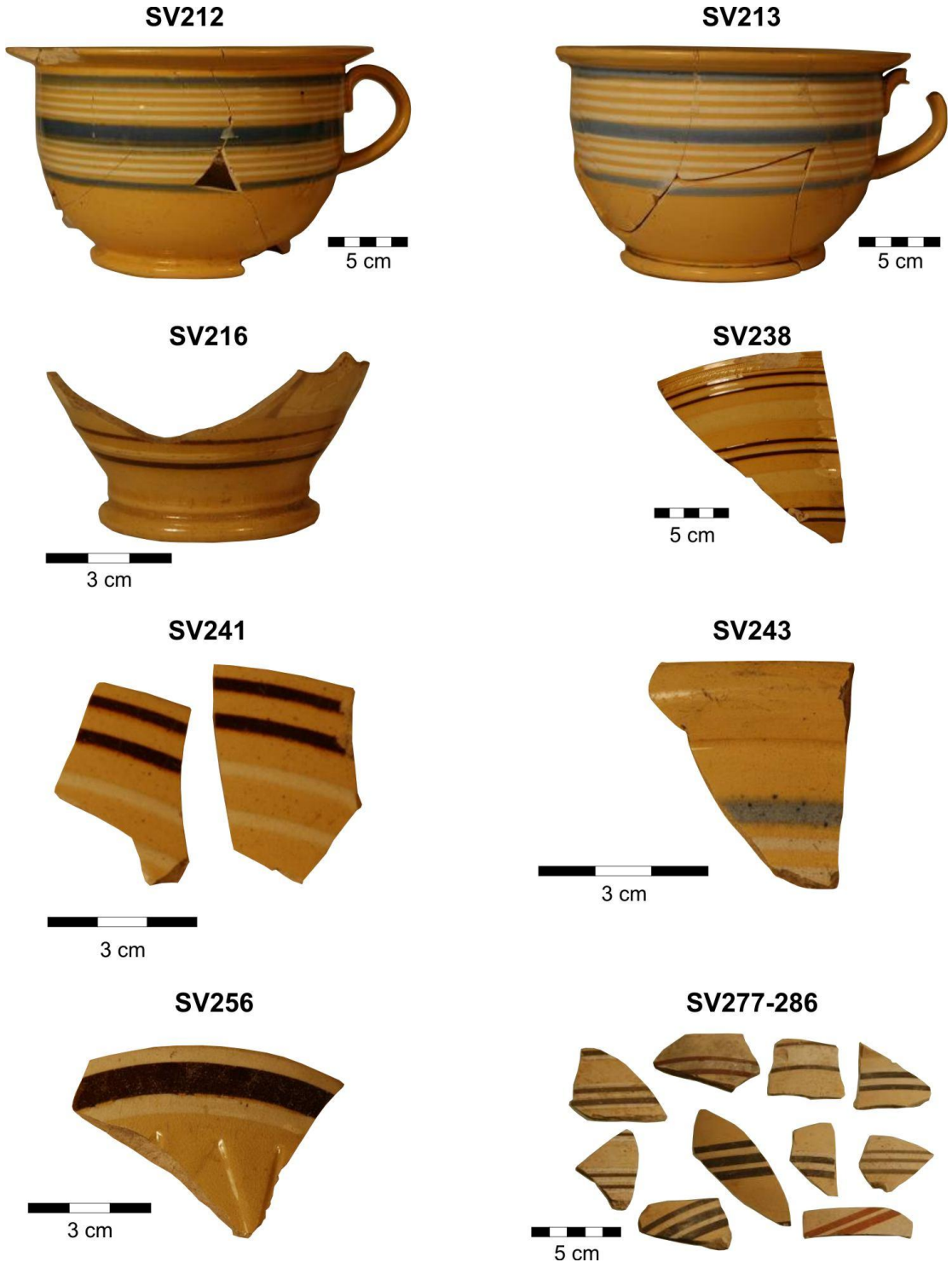

Figure 17. Annular-banded sample vessels. SV212: CINRR, Feature 2, chamber pot; SV213: CINRR, Feature 2, chamber pot; SV216: CINRR, Feature 12, hollow ware; SV238: CINWS, Feature D16, bowl; SV241: CINWS, Feature D17, bowl; SV243: CINWS, Feature D17, bowl; SV256: CINWS, Feature D18, bowl; SV277-SV286 (left to right, top to bottom): COVRR, Test Unit A (wasters), hollow ware, all unglazed.

Figure 18. Common cable sample vessels. SV1: CINQII, Feature 85, jug, "looping;" SV25: CINQII, Feature 85, mixing bowl, "ribbon," note orange outlier color and interruption in common cable flow; SV30: CINQII, Feature 34, chamber pot, "ribbon;" SV34: CINQII, Feature 85, London-shaped bowl, "ribbon."

Table 5. Vessel types by site/project.

Vessel Type	CINQII	COVRR	CINWS	CINRR	CINFM	COV11	Total
hollow ware	27	15	23	6	5	1	77
chamber pot	29	13	3	3		2	50
bowl	15	13	13	2	6		49
pitcher	9	13	1			1	24
spittoon or cuspidor	5	11	1			1	18
mixing bowl	2	6		1			9
plate	6	1	1				8
jar/crock	4	2					6
canning jar	2	2					4
lid	1	2	1				4
mug	4						4
jug	3						3
smoking pipe			1	1			2
oval platter	2						2
flowerpot	2						2
lug handle		2					2
misc.*	13	6	1	2		1	23
unknown			1	1			2
TOTAL	124	86	46	16	11	6	289

*miscellaneous vessels with only one specimen include soup plate, alphabet plate, urinal/bedpan, bottle, jar, jar lid, teapot, nappie, cup/mug, mug handle, sugar bowl, washbasin, deep serving dish, saucer, small oval dish, coffee pitcher, soap dish, animal figural, oval bowl, serving bowl lid, chamber pot lid, lid handle, and chamber pot handle.

There is almost a one-to-one association between common cable and annular banding. Twenty-seven common cable vessels are also annular banded, and three vessels are represented by small, single sherds that do not exhibit potential additional motifs. Only one relatively complete common cable vessel, a mug (Figure 19, SV47), does not incorporate annular banding. Vessels with additional decorative motifs in association with common cable include a chamber pot with slip trailing and annular banding (SV94), and a pitcher with annular banding and rilling below the rim (SV57).

Five styles of common cable are identified (Figures 18-20). The most prevalent is the "ribbon" pattern, occurring on ten vessels (Figure 18, SV25, SV30, and SV34; Figure 19, SV35, SV47, and SV49; Figure 20, SV174, SV179, SV181, and SV124), including three mixing bowls, two bowls, two chamber pots, a mug, a jug, and a pitcher. Associated temporal data from both COVRR and CINQII strongly indicate that this motif was in vogue between 1840 and 1870 with a strong cluster just prior to or during the Civil War. "Looping" common cable (Figure 18, SV1; Figure 20, SV95, SV97, SV112, and SV251) is found on six vessels. Three chamber pots, a bowl, a serving bowl lid, and a jug exhibit this unusual technique of looping the cable. The motif varies from broad loops on most, to one vessel with "folded loops." Three vessels from CINQII (Features 34 and 85) indicate deposition during the period of 1840 to 1860. Only one vessel (Figure 19, SV43) exhibits the "double looping" pattern where looping is repeated on either side of a central point on the field between annular bands. This chamber pot originates from the base of Feature 85 at CINQII and dates to an 1840-1860 time frame. "Staggered" common cable (Figure 19, SV50) is found on two vessels, both from CINQII. Both staggered common cable vessels are ring-pedestaled, or London-shaped bowls. One is from the lowest level of Feature 85. Eleven common cable vessel remnants are too small to identify the cable style.

Table 6. Distribution of Cincinnati sample vessels by Munsell notation—select vessels only.

Munsell Notation	Color**	Number of Vessels	% of Color Matched Vessels
2.5Y8/6	light yellow	93	55.0
2.5Y8.5/6	light yellow	25	14.8
2.5Y7/6	slightly greenish-yellow	15	8.9
2.5Y8/8	yellow	15	8.9
2.5Y7/8	slightly brownish-yellow	6	3.6
2.5Y6/8*	brownish-yellow	3	1.8
2.5Y7/4*	greenish-yellow	3	1.8
2.5Y6/6*	brownish-yellow	2	1.2
2.5Y8.5/8	slightly orangish-yellow	1	0.6
2.5Y8.5/4*	grayish-yellow	1	0.6
10YR7/8*	orangish-yellow	4	2.4
10YR6/10*	brownish-yellow	1	0.6

* indicates outliers, **color names are subjective qualifiers assigned by the author.

Cat's Eye

Only eight vessels, or 2.8 percent, exhibit cat's eye decoration indicating that this was either not a popular or long-lived motif in the Cincinnati area. Cat's eye vessels include four chamber pots (Figure 21, SV28, SV33, SV60, and SV129), two unspecified hollow ware (Figure 21, SV106 and SV110), one mixing bowl (Figure 21, SV176), and one jug (Figure 21, SV40). All eight vessels exhibit a brown and cream, or brown and white, color combination for individual cat's eye application. Seven of eight cat's eye vessels are also annular banded with the cat's eye framed by the slip bands. The remaining vessel consists of a single sherd that is not large enough to incorporate other potential decorative motifs. A jug (SV40) exhibits cat's eye, annular banding, and rilling below the rim. Sample Vessel 176, a mixing bowl, was recovered from near the lowest level (15/V) of Feature 81 at COVRR with a *terminus post quem* of 1860, and an effective date range of 1860 to approximately 1870. Sample Vessel 28, a reconstructed chamber pot, originates from the lowest level (20/R) of Feature 85, with an associated date of ca. 1840-1860. This vessel displays an *avant garde* use of slip decoration that can be described as "flowing cat's eye." Inspection of the decoration suggests that cat's eye was applied to a central field and allowed to slowly run or flow parallel to the annular bands. A similar "flowing cat's eye" vessel was recovered from near the base of Feature 34 at CINQII. This chamber pot (SV129) was recovered amongst additional artifacts dating no later than the early 1870s. The remaining cat's eye vessels are from a CINQII backdirt context, and hence not datable.

Trailed

Eight vessels exhibit slip trailing, accounting for only 2.8 percent of the vessel sample assemblage. Slip trailed vessels include three chamber pots (Figure 22, SV27, SV42, and SV94), two bowls (Figure 22, SV55 and SV115), a pitcher (Figure 22, SV24), a mug (Figure 22, SV46), and a lid (Figure 22, SV247). With the exception of the lid, which was recovered from privy shaft D17 at CINWS, all originate from features at CINQII. There is a one-to-one association between slip trailing and annular banding. Three vessels have an additional decorative motif: one with common cable (SV94); one with rouletting (SV24); and one with rilling (SV46).

Seven vessels incorporate the "ribbon" pattern. Five have a triple "ribbon," one a double "ribbon," one a single "ribbon," and one has an unknown number of slip trailed bands. Two vessels have slip-trailed "dots," and one, Sample Vessel 24, combines a single "ribbon," "dots," and the "twig" pattern on one fragmented pitcher. Trailing colors are very similar

to those encountered on annular-banded, common cable, and cat's eye vessels. Brown slip is utilized on four vessels, white on three, and cream on another.

Only three slip trailed vessels were recovered from a reliably dated context. A chamber pot (Figure 22, SV27) and a mug (Figure 22, SV46) originate from the lowest level (14/I) of Feature 34 at CINQII. Additional artifacts recovered from this level/horizon suggest a date range of 1855-1874. The fragmented pitcher (Figure 22, SV24) originates from the lowest level (20/R) of Feature 85 at CINQII. An approximate date range of 1840-1860 has been calculated for this level/horizon.

Broad Slip Field

Thirty-three vessels, or 11.4 percent of the sample assemblage, are decorated with a broad slip field (Figure 23). Fourteen of the vessels originate from COVRR within privy shafts or the Bromley pottery wasters. Of those 14, 10 have central slip fields that occur in association with dendrites, and are almost certainly the products of Bromley's Covington Pottery. Broad slip fields are noted on nine vessels at CINQII, eight from CINWS, and at two from CINRR. A dozen of the vessels are unspecified hollow ware, 10 are chamber pots, six are bowls, three are mixing bowls, and one is a lid.

Of 33 vessels with broad slip fields, 11 exhibit no further decorations within the field, while the remainder has dendrites applied to the field. Cream is the dominant slip field color, occurring on 23 vessels. Three vessels have white slip fields. two have pumpkin, and one each have tannish brown or brown slip fields. Annular bands offset all of the broad slip fields. Two vessels are also rouletted, and a single vessel is also rilled.

Approximately 15 vessels with broad slip fields occur in levels/horizons with reliable temporal data. Six of those vessels originate from 13/T to 15/V at COVRR's Feature 81. These levels/horizons all post date 1860, but they are likely no later than 1870. Five vessels were recovered from either Feature 45 or Bromley's pottery wasters at COVRR, each of which date between 1859 and 1864, or 1860 and 1865, respectively. A date range of 1853 to 1870 has been estimated for Feature F05 at CINWS, where two vessels with broad slip fields are recorded. And, finally two vessels from Feature 52 at COVRR occur within levels/horizons that post date 1876.

Dendritic

Twenty-one dendritic yellow ware vessels are included within the sample vessel assemblage (Figures 24-25). Eleven were recovered from COVRR within privy shafts and Bromley waster deposits. Apparently, Bromley focused on dendritic applications at his Covington Pottery; hence, the frequency of dendritic yellow ware has been skewed by inclusion of his products. Six vessels were recovered from privies at CINWS, three from privies at CINQII, and one from a shovel test at CINRR. Unspecified hollow ware (n=8) and chamber pots (n=6) are the most frequently encountered vessel types. Three bowls, and a single jar/crock and lid also exhibit dendrites. On nearly all vessels, the dendrites are framed within annular bands.

Three dendritic styles are recognized within the sample vessel assemblage. Seven vessels exhibit vertical, or "tree" dendrites (Figure 24, SV93, SV113, SV172, and SV178; Figure 25, SV225) that were allowed to flow perpendicular to the rim of the vessel. Five vessels have horizontal, or "seaweed," dendrites (Figure 24, SV171; Figure 25, SV183, SV191, SV193, and SV248) that were allowed to flow parallel to the rim by slowly rotating the vessel on a lathe. Two vessels actually incorporate a "ribbon" pattern (Figure 22, SV139) of dendrites, and seven other fragmented vessels could not be identified. Four dendrite colors are identified, with each vessel incorporating only a single color. In order of frequency, they are blue (n=9), black (n=8), green (n=3), and brown (n=1). These colors are in stark contrast to those utilized on other decoration types.

Ten dendritic vessels come from reliably dated contexts, and most suggest deposition during or slightly after the Civil War. Four vessels from Feature 81 at COVRR originate from levels/horizons that can be dated to after 1860, but most likely not any later than 1870. Four additional vessels originate from Feature 45, Bromley's privy, at COVRR. Associated levels/horizons suggest an approximate date range of 1860-1865. A single, unglazed dendritic sherd from Bromley wasters at COVRR must date between 1859 and 1864, the range of operation for the Covington Pottery. A final vessel from Feature 52 at COVRR originates from level/horizon 17/F, which has a *terminus post quem* of 1876. The mean date from this lowest level of the privy shaft is 1865 (Genheimer 1987:294).

Figure 19. Common cable sample vessels. SV35: CINQII, Feature 34, jug, "ribbon" pattern in three colors (brown-cream-green); SV41: CINQII, unknown provenience, bowl, "staggered;" SV43: CINQII, Feature 85, chamber pot, "double looping;" SV47: CINQII, Feature 85, mug, "ribbon" pattern without annular banding; SV49: CINQII, Feature 38, pitcher, "ribbon;" SV50: CINQII, Feature 85, bowl, "staggered" pattern.

Figure 20. Common cable sample vessels. SV95: CINQII, Feature 34, chamber pot, "looping;" SV97: CINQII, Feature 85, serving bowl lid, "looping;" SV112: CINQII, Feature 29, chamber pot, "looping;" SV174: COVRR, Feature 81, mixing bowl, "ribbon;" SV179: COVRR, Feature 81, mixing bowl, "ribbon;" SV181: COVRR, Feature 81, London-shaped bowl, "ribbon;" SV124: CINQII, Feature 34, chamber pot, "ribbon" pattern with three colors (brown-cream-green); SV251: CINWS, Feature D17, bowl, "looping."

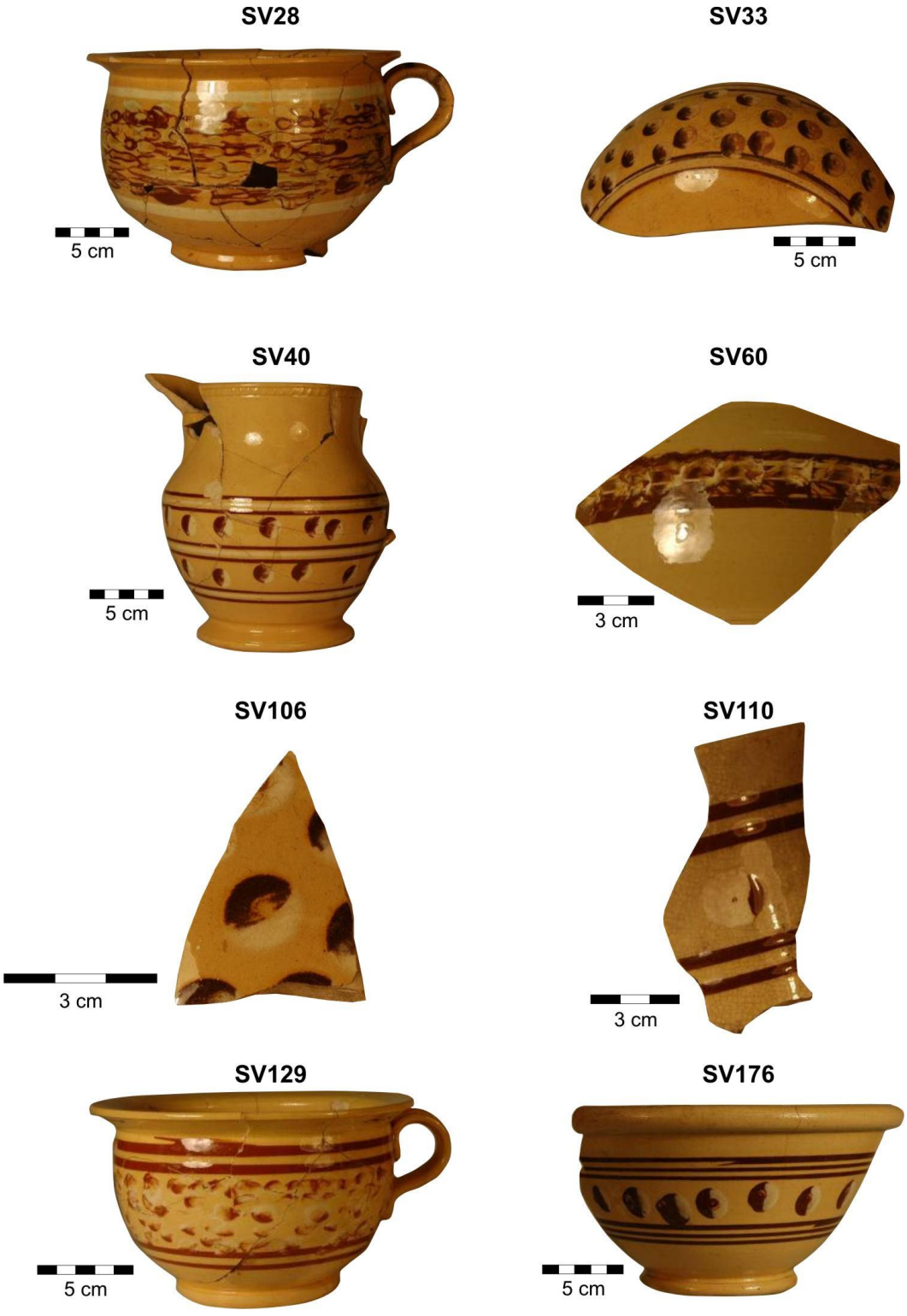

Figure 21. Cat's eye sample vessels. SV28: CINQII, Feature 85, chamber pot, "flowing cat's eye"; SV33: CINQII, Feature 19, chamber pot; SV40: CINQII, unknown provenience, jug, with rouletting below rim; SV60: CINQII, Feature 13, chamber pot, cat's eye over annular banding; SV106: CINQII, Feature 19, hollow ware; SV110: CINQII, Feature 13, hollow ware; SV129: CINQII, Feature 34, chamber pot, note irregularity in annular banding; SV176: COVRR, Feature 81, mixing bowl.

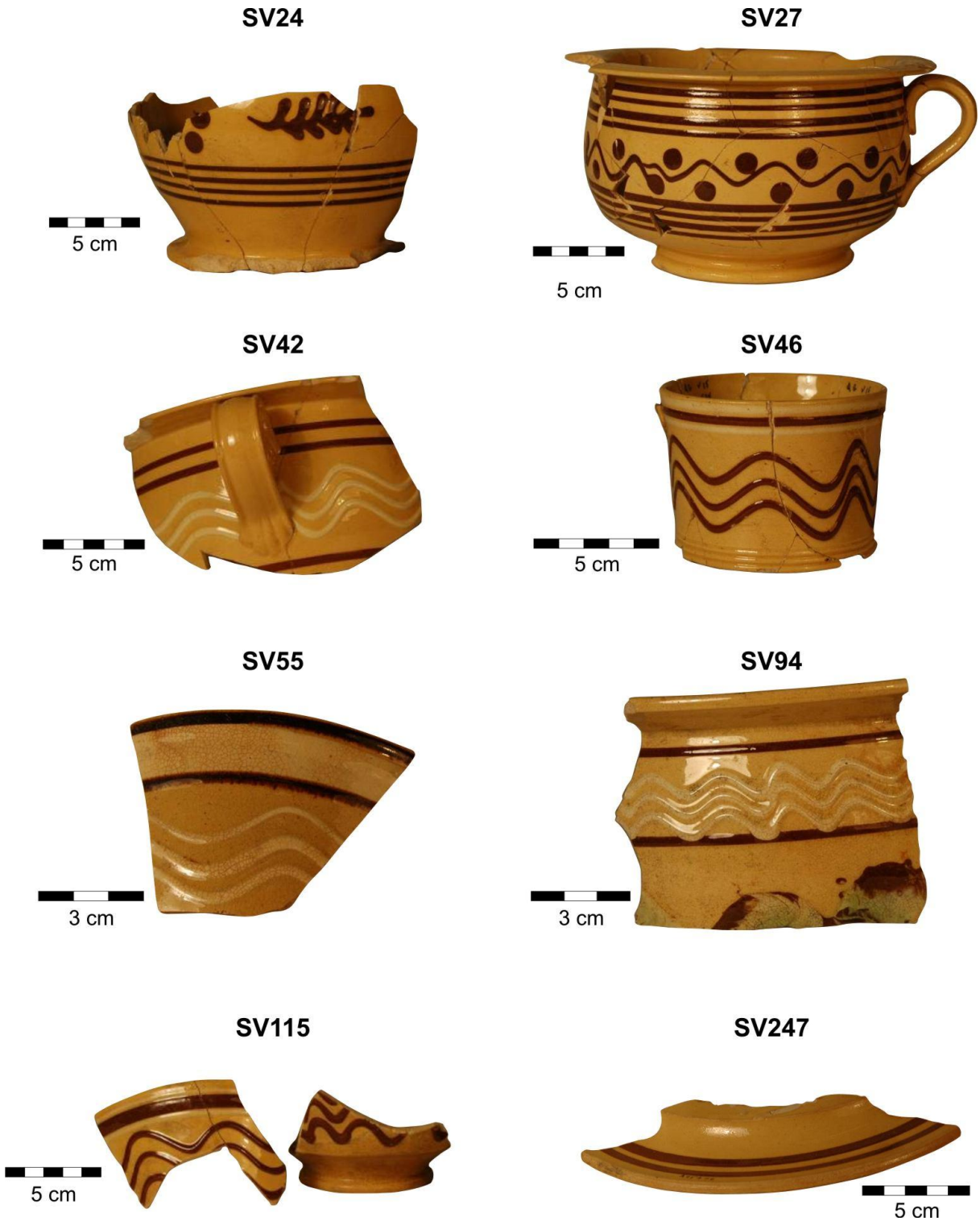

Figure 22. Slip trailed vessels. SV24: CINQII, Feature 85, pitcher, "dots" and "twig"; SV27: CINQII, Feature 34, chamber pot, "dots" and single slip "ribbon"; SV42: CINQII, unknown provenience, chamber pot, "ribbon"; SV46: CINQII, Feature 34, mug, "ribbon"; SV55: CINQII, Feature 38, bowl, "ribbon"; SV94: CINQII, Feature 38, chamber pot, "ribbon"; SV115: CINQII, unknown provenience, bowl, "ribbon"; SV247: CINWS, Feature D17, lid, partial unknown slip trailing.

Figure 23. Broad slip field sample vessels. SV98: CINQII, Feature 13, chamber pot, undecorated brown slip central field; SV141: COVRR, Feature 81, chamber pot, undecorated cream slip central field; SV139: COVRR, Feature 81, chamber pot, cream central slip field with blue "ribbon" dendrite pattern; SV184: COVRR, Feature 52, mixing bowl, undecorated cream central slip field; SV257: CINWS, Feature D22, bowl, undecorated cream central slip field.

Rockingham

Rockingham is the second most frequently encountered decoration in the sample vessel assemblage (Figures 26-28). Sixty-eight vessels, or 23.5 percent of the yellow ware assemblage, are finished with a Rockingham glaze. Rockingham vessels are represented at each of the six sites/projects. Exactly half of the Rockingham vessels were recovered from feature excavations and backdirt collections at CINQII in downtown Cincinnati.

A wide range of vessels is represented suggesting that Rockingham was a popular motif. The vast majority are hollow ware vessels, including unspecified hollow ware, bowls (Figure 27, SV77 and SV80), chamber pots (Figure 26, SV67), spittoons (Figure 26, SV64; Figure 28, SV119 and SV130), pitchers (Figure 26, SV70), jars/crocks (Figure 27, SV78), and flowerpots (Figure 27, SV73), as well as an individual bottle (Figure 28, SV138), teapot (Figure 28, SV194), canning jar, and mug. Shallow dishes such as a nappie (Figure 28, SV214), oval platters (Figure 26, SV65 and SV66), a small oval dish, and a soap dish (Figure 26, SV71) are also represented. And, finally, lids (Figure 27, SV75; Figure 28, SV82), a lug handle, and an animal figural (Figure 27, SV76) exhibit Rockingham glaze.

Thirty-nine, or approximately 57 percent of the Rockingham vessels, exhibit no additional decorative motif. This may suggest that the application of a dark glaze (i.e., dipping the vessel or liberally applying manganese) was substituting for other decorations commonly applied to yellow ware vessels, thus providing a relatively inexpensive means of producing a highly salable product. Twenty-three vessels are apparently also molded, although it is difficult to properly distinguish between molding and slip casting on a dark glaze background. Three vessels each were

Table 7. Distribution of Mansion Pottery vessels by Munsell notation.

Munsell Notation	Color*	Number of Vessels	% of Color Matched Vessels
2.5Y7/6	slightly greenish-yellow	61	41.8
2.5Y8/6	light yellow	37	25.3
2.5Y6/6	brownish-yellow	5	3.4
2.5Y8/8	yellow	4	2.7
2.5Y6/8	brownish-yellow	3	2.1
2.5Y7/8	slightly brownish-yellow	3	2.1
2.5Y6/4	brownish-yellow	2	1.4
2.5Y8/4	tannish-yellow	2	1.4
2.5Y8.5/6	light yellow	1	0.7
10YR7/8	orangish-yellow	13	8.9
10YR6/10	brownish-yellow	4	2.7
10YR6/8	medium brownish-yellow	4	2.7
10YR6/6	dark brownish-yellow	3	2.1
10YR6/12	light brownish-yellow	2	1.4
10YR7/6	dark orangish-yellow	2	1.4

*color names are subjective qualifiers assigned by the author.

either rouletted or rilled in addition to the Rockingham glaze.

Thirty-four Rockingham vessels have associated temporal information gathered from depositional context. Each of the six sites/projects is represented. The quality of the temporal data varies, but in general indicates that Rockingham-glazed vessels were deposited within Cincinnati-area features from the middle of the nineteenth century through the second decade of the twentieth century. They occur in features at depositional levels dating to as early as the 1840s at COV11 (Feature 2) and CINQII (Feature 85), and as early as the 1850s at CINWS (Features D17 and F05), COV11 (Feature 2), and CINQII (Features 34 and 85). Rockingham vessels are strongly represented at depositional levels dating to the 1860s, with numerous vessels from COV11 (Feature 2) and COVRR (Features 16 and 45, and pottery wasters). The continued use and deposition of Rockingham is also well documented. At CINRR, a pair of bowls was recovered from the deepest portions of Features 5 and 8 that most likely date to the late nineteenth century (Striker et. al. 2007:173). At CINWS, a single hollow ware vessel was recovered from Feature E10 in an upper level that postdates 1892 (Bennett et al. 1994:96). And, finally, early twentieth century dates are available for a chamber pot recovered from Feature 52 at COVRR (Genheimer 1987:294) and a hollow ware vessel from Feature 34 at CINQII (Cinadr and Genheimer 1983a:194).

Spatter

Only three sample vessels exhibit spatter decoration. These include two unspecified hollow ware vessel fragments, one each from CINRR and CINWS. The best example of spatter decoration is Sample Vessel 127 (Figure 29), a complete, reconstructed pitcher from CINQII. It originates from near the deepest level (14/H) of Feature 34, dating between 1855 and 1874.

Molded

Molded wares are third in frequency only to annular banded and Rockingham vessels (Figures 30-32). Sixty-one molded yellow ware vessels are identified within the yellow ware sample assemblage. Each of the six sites/projects contributes at least one molded vessel, although more than 57 percent originate from COVRR where numbers of molded vessels are bolstered by the inclusion of Bromley pottery waster materials. Another 20 percent are from CINQII, from both excavated and backdirt-collected privy shafts.

Again, a wide range of vessel types is represent-

Table 8. Association of vessel type with decorative motifs for vessel types with three or more representatives.

Vessel Type	AB	TR	CE	CC	DD	RC	BS	SP	MD	RL	RD	UD	Total*
Hollow ware (77)	40	-	2	6	8	21	12	2	10	3	-	4	104
Chamber pot (50)	45	3	4	10	6	3	9	-	-	-	1	2	81
Bowl (49)	29	2	-	5	3	8	6	-	6	2	-	9	61
Pitcher (24)	4	1	-	3	-	7	-	1	19	2	-	-	37
Spittoon-Cuspidor (18)	-	-	-	-	-	8	-	-	13	-	-	1	21
Mixing bowl (9)	8	-	1	3	2	-	3	-	-	-	-	1	17
Plate (8)	-	-	-	-	-	-	-	-	-	-	-	8	0
Jar/crock (6)	1	-	-	-	1	3	1	-	1	1	2	1	10
Canning jar (4)	-	-	-	-	-	1	-	-	3	-	-	1	4
Lid (4)	2	1	-	-	1	1	1	-	-	-	-	1	6
Mug (4)	1	1	-	1	-	1	-	-	-	-	3	-	7
Jug (3)	3	-	1	2	-	-	-	-	-	1	-	-	7
Other vessels (33)	4	-	-	1	-	15	-	-	9	-	1	8	30
TOTAL (289)	137	8	8	31	21	68	32	3	61	9	7	36	385*

Numbers in parentheses at left are actual number of vessels per vessel type. Numbers in cells are the number of vessel type with associated decoration. Right column indicates total number of decorative motifs per vessel type* (undecorated vessels not counted). AB-annular banded; TR-trailed; CE-cat's eye; CC-common cable; DD-dendritic; RC-Rockingham; BS-broad slip field; SP-spatter; MD-molded; RL-rouletted; RD-rilled; UD-undecorated.

ed. Pitchers (n=19) (Figure 30, SV87 and SV132; Figure 31, SV175, SV185, SV186, and SV187; Figure 32, SV239, SV275, and SV158) and spittoons (n=13) (Figure 30, SV26, SV155, SV156, and SV157; Figure 31, SV177; Figure 32, SV200, SV261, SV287, SV288, and SV289) are the most frequently encountered, accounting for more than one half of all molded vessels. Pitchers often have elaborate molded relief, such as the "hanging game" motif noted at COVRR in bisque (Figure 31, SV185-187) and in Rockingham glaze (SV3) at CINQII. These similar pitcher fragments made by William Bromley at his Covington Pottery depict a deer hanging from his feet. Goldberg (2003:40, Figure 25) illustrates a similar vessel from an unknown American firm. A "hanging game" Rockingham pitcher is also present within the East Liverpool Mansion Pottery wasters. The surviving segment depicts both a hanging deer and rabbit.

Additional molded vessel types include unspecified hollow ware (n=10) (Figure 30, SV16; Figure 32, SV269 and SV274), bowls (n=6) (Figure 31, SV196), canning jars (n=3) (Figure 30, SV128), lug handles (n=2) (Figure 31, SV189 and SV190), smoking pipes (n=2), a crock, sugar bowl (Figure 32, SV223), lid handle, teapot, animal figural, and an alphabet plate. The animal figural (Figure 27, SV76), from near the base of Feature 85 at CINQII, depicts a greyhound in a prone position. Sample Vessel 145, a rim segment of a ribbed canning jar from Bromley waster deposits, exhibits glaze on the interior of broken surfaces, clearly indicating it was a manufacturing reject. Murphy (2010:12) depicts what may be an identical canning jar that he suspects was manufactured at Bromley's Covington Pottery. Sample Vessel 128 (Figure 30), a complete canning jar, recovered from Feature 85 at CINQII, in a level dating from 1868-1870, appears to be identical to a 12-sided (below shoulder) figured example that Murphy (2010:35) has possibly attributed to a Tempest pottery.

Figure 24. Dendritic sample vessels. SV93: CINQII, Feature 29, chamber pot, blue dendrite, "tree" pattern; SV113: CINQII, unknown provenience, jar/crock, black dendrite, "tree" pattern; SV142: COVRR, unknown provenience, hollow ware, green dendrite; SV171: COVRR, Feature 45, chamber pot, waster, black dendrites, "seaweed" pattern; SV172: COVRR, Feature 45, mixing bowl, waster, black dendrites, "tree" pattern; SV178: COVRR, Feature 45, chamber pot, blue dendrites, "tree" pattern; SV180: COVRR, Feature 52, London-shaped bowl, blue dendrites, "tree" pattern.

Figure 25. Dendritic sample vessels. SV183: COVRR, Feature 81, lid, waster, green dendrites, "seaweed" pattern; SV191: COVRR, Feature 45, mixing bowl, waster, black dendrites, "seaweed" pattern; SV193: COVRR, Feature 81, chamber pot, blue dendrites, "seaweed" pattern; SV225: CINRR, ST02, hollow ware, blue dendrite, "tree" pattern; SV244: CINWS, Feature D17, bowl, blue dendrites, pattern unknown; SV248: CINWS, Feature D17, bowl, waster, red dendrites, "seaweed" pattern; SV249: CINWS, Feature D17, hollow ware, black dendrites, pattern unknown.

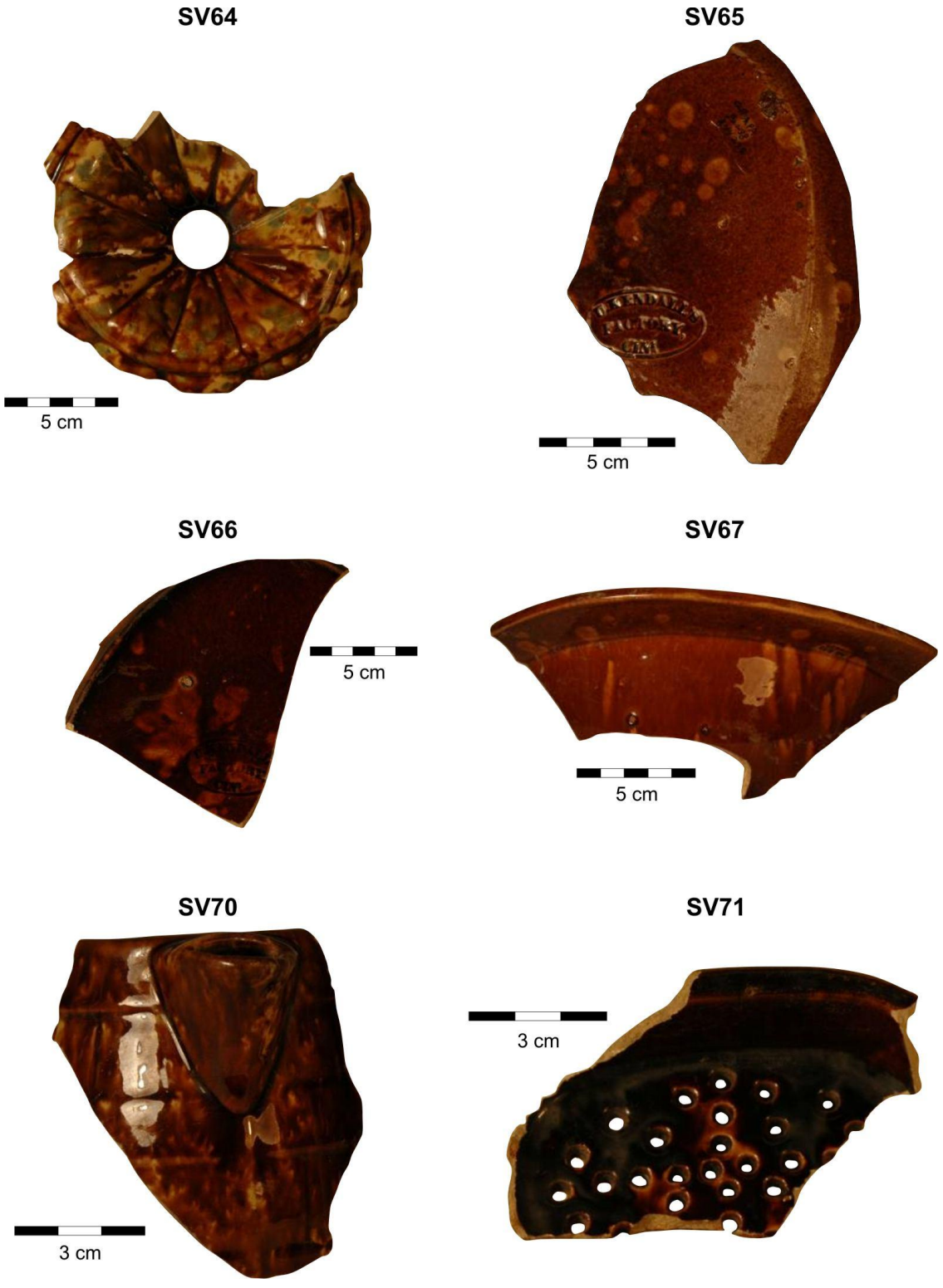

Figure 26. Rockingham-glazed vessels. SV64: CINQII, unknown provenience, spittoon, flint enamel; SV65: CINQII, Feature 38, oval platter, stamped "**U. Kendall's Factory, Cin. O**"; SV66: CINQII, Feature 38, oval platter, stamped "**U. Kendall's Factory, Cin. O**"; SV67: CINQII, Feature 38, chamber pot; SV70: CINQII, Feature 29, coffee pitcher; SV71: CINQII, Feature 38, oval soap dish.

Figure 27. Rockingham-glazed vessels. SV73: CINQII, Feature 34, flowerpot; SV75: CINQII, Feature 85, chamber pot lid, note spattering of glaze; SV76: CINQII, Feature 85, animal figural (greyhound); SV77: CINQII, Feature 85, bowl, note concentration of manganese near top of vessel; SV78: CINQII, Feature 29, jar; SV80: CINQII, Feature 38, oval bowl.

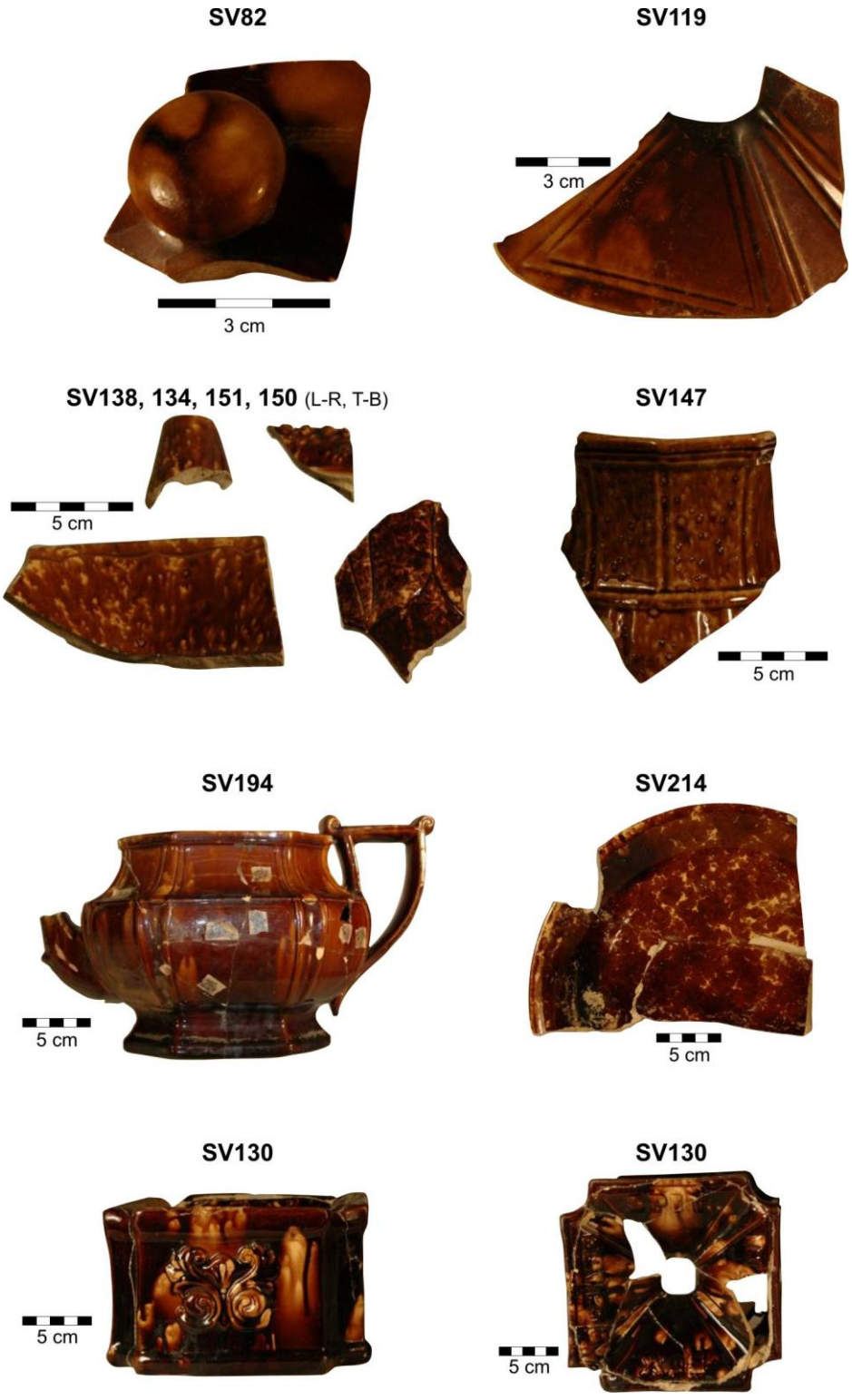

Figure 28. Rockingham-glazed vessels. SV82: CINQII, Feature 38, lid with finial; SV119: COV11, Feature 2, spittoon; SV138, 134, 151, 150: COVRR, wasters; SV147: COVRR, Feature 16, pitcher, exhibits bubbling of glaze from over firing; SV194: COVRR, Feature 16, large teapot, possible English manufacture; SV214: COVRR, Feature 5, nappie; SV130: CINQII, Feature 85, molded spittoon, reads "**Please Spit in The Box**" across top.

Table 9. Cross tabulation of decorative types. Numbers in cells indicate number of vessels with that association.

	AB	TR	CE	CC	DD	RC	BS	SP	MD	RL	RD
AB		8	6	27	20	-	32	-	1	6	3
TR	8		-	1	-	-	-	-	-	1	1
CE	6	-		-	-	-	1	-	-	1	-
CC	27	1	-		-	-	-	-	-	1	-
DD	20	-	-	-		-	20	-	-	-	1
RC	-	-	-	-	-		-	-	23	3	3
BS	32	-	1	-	20	-		-	-	2	1
SP	-	-	-	-	-	-	-		-	-	-
MD	1	-	-	-	-	23	-	-		-	-
RL	6	1	1	1	-	3	2	-	-		-
RD	3	1	-	-	1	3	1	-	-	-	

AB-annular banding; TR-slip trailing; CE-cat's eye; CC-common cable; DD-dendritic; RC-Rockingham; BS-broad slip field; SP-spatter; MD-molded; RL-rouletted; RD-rilled.

Thirty-eight, or 62.3 percent of molded vessels, exhibit no additional decorations. This frequency is misleading, however, since approximately twenty molded and unglazed specimens originate from COVRR pottery waster deposits where most vessels were discarded prior to the glaze firing. Twenty-three, or more than a third of the molded vessels, exhibit Rockingham glaze in association with the molding. It is probable that many, if not most, of the unglazed specimens were also intended to be covered in a manganese glaze.

Molded vessels occur in contexts that span much of the second half of the nineteenth century. Of 46 vessels with reliable temporal information, nearly two-thirds are from the Bromley pottery wasters at COVRR dating to 1859-1864. Additional early date ranges are noted for Feature 2 at COV11 (1856-1860), Feature 45 at COVRR (1860-1865), Feature 34 at CINQII (1855-1874), Feature F05 at CINWS (1853-1870), Feature 85 at CINQII (1840-1870), and at Features 16 and 81 at COVRR (post 1860). Additional vessels exhibit later, albeit less reliable dates. These include one from Feature D18 at CINWS with an associated broad 1870-1900 range, and one from Feature D17 with an even broader 1850-1900 range.

Rouletted

Only nine vessels exhibit rouletting (Figure 33). Seven are from CINQII and one each are from COVRR and CINWS. Despite the low numbers it is found on a variety of vessel types including unspecified hollow ware (n=3) (Figure 33, SV83 and SV116), bowls (n=2), pitchers (n=2) (Figure 33, SV57), a jar/crock (Figure 33, SV81), and a jug. It always occurs in association with additional decorations. Six vessels also exhibit annular banding, three have Rockingham glaze, two have broad slip fields, and one each exhibit cat's eye, common cable, or slip trailing. Five vessels incorporate three distinct decorations, all offset by annular banding. An average number of decorations per vessel of 2.56 ranks rouletted vessels among the most highly decorated in the sample vessel assemblage. The low frequency of rouletting suggests that it was not a common or expected decoration, but one that added extra significance to already decorated vessels.

Few of the rouletted vessels have reliable temporal data. A pitcher (Figure 21, SV24) from Feature 85 at CINQII was recovered from the base of the feature with associated dates of 1840-1860; and, a bowl from Feature 81 at COVRR originated from a level/horizon with a *terminus post quem* of 1860. While these vessels suggest an early origin for the motif, an unspecified hollow ware vessel (SV91) from near the top of Feature 34 at CINQII was deposited no earlier than 1911 (Cinadr and Genheimer 1983a:194).

Rilled

Seven vessels exhibit rilling. Six are from excavated privy and privy backdirt collections from CINQII, and one is from Feature 52 at COVRR. Identified vessels include three mugs, two jars/crocks,

a chamber pot (Figure 34), and a washbasin. Annular banding and Rockingham glaze occur in association with the rilling on three vessels each. Rilled vessels exhibit an average number of decorations per vessel of 2.14, and one vessel, Sample Vessel 113 (Figure 24) exhibits four distinct decorations, the highest number recorded for any vessel in the yellow ware assemblage. Recovered from backdirt at CINQII, Sample Vessel 113 is a jar/crock with annular banding, dendrites, a broad slip field, and rilling.

Like rouletted vessels, rilled vessels exhibit both early and late associations. Three originate from near the lowest levels of privy features at CINQII with date ranges between 1840 and 1860. One vessel, however, comes from the upper horizon of Feature 52 at COVRR, where additional artifacts with temporal data suggest a post 1903 date (Genheimer 1987:294).

Undecorated

Thirty-six vessels are either undecorated or are so incomplete that any potential decorations are not present (Figure 35). Twenty of these vessels are represented by one sherd per vessel, and an additional five by only two sherds per vessel; hence, more than two-thirds of all undecorated vessels are too poorly represented to make adequate decorative assessments. But, the presence of at least seven relatively complete vessels from dated contexts between 1840 and 1870, the peak period of production, suggests that some vessel types were routinely undecorated, and that the frequency of non-decoration is not necessarily a function of vessel completeness.

A wide range of undecorated vessel types is represented. The most frequently encountered include bowls (n=9) (Figure 35, SV266), plates (n=8) (Figure 35, SV102, SV121 and SV231), and unspecified hollow ware (n=4). At least nine vessels, all flatware (i.e., plates and saucers) are jiggered, and hence not appropriate for lathe decoration. Decoration is also correlated with vessel cost, and the decision not to decorate certain vessel types may simply reflect market forces.

Association between Decorative Types

A simple examination of the sample vessel assemblage indicates that there are clear associations between and among decorative types (Table 9). By far, the strongest association is between annular banding and many of the identified decorations. This association is so strong, that with few exceptions a number of additional decorative types do not occur without the presence of annular bands. While annular bands can form the only decoration on a yellow ware vessel, and a significant number of these simple vessels are present within the sample vessel assemblage, in many instances annular bands partitioned the vessel body so that a broad area was available for additional decorative treatments. These additional decorations, particularly broad slip fields, common cable, cat's eye, dendrites, and slip trailing rarely occur without annular bands being present. And, in most instances where the association is not noted, sample vessels are typically too incomplete to incorporate the bands.

There is a necessary correlation between dendrites and broad slip. A cream or white band of slip was required to activate the mocha tea. This correlation is much weaker in reverse, since a number of vessels exhibit the broad central slip field, but with no additional decoration.

A rather weak association of decorative types occurs between molded wares and Rockingham-glazed wares. Approximately a third (33.8 percent) of Rockingham vessels are also molded, while slightly more than a third (37.7 percent) of molded vessels also exhibit a Rockingham glaze.

Frequency of Decoration

A select range of vessel types can be assessed for average frequency of decoration. These vessel types are unspecified hollow ware, chamber pots, bowls, pitchers, spittoons, unspecified flatware, mixing bowls, jars/crocks, lids, cups/mugs, and canning jars (Table 10). An average number of decorations per vessel type is calculated with and without the inclusion of undecorated vessels, since they artificially deflate decoration frequencies. Mixing bowls exhibit the highest frequency of decoration, followed closely by lids and jars/crocks. Each of these vessel types exhibits two or more decorations per vessel. Surprisingly, chamber pots, perhaps the most utilitarian of vessel types, and the one with the most negative connotation, exhibit an average number of decorations greater than pitchers, bowls, and unspecified hollow ware. It is not surprising that flatware exhibits the lowest average number of decorations. Slip and other decorations are not appropriate for their usable surfaces.

Table 10. Average number of identified decorations per vessel type.

Vessel Type	Number of Vessels	Total Decorations	Number of Undecorated	Average	Average*
Mixing bowl	9	17	1	1.89	2.13
Lid	6	8	2	1.33	2.00
Jar/Crock	6	10	1	1.67	2.00
Chamber pot	50	83	2	1.66	1.73
Mug	5	8	0	1.60	1.60
Pitcher	24	37	0	1.54	1.54
Bowl	49	61	9	1.24	1.53
Hollow ware	77	104	4	1.35	1.39
Canning jar	4	4	1	1.00	1.33
Spittoon	17	21	0	1.24	1.24
Flatware**	12	2	10	0.17	1.00

*undecorated vessels excluded **plates, saucers, platters, and soup plate

Discussion

For the most part, the manufacture of Cincinnati-area yellow ware, and American-made yellow ware in general in the middle portion of the nineteenth century, was driven by British-born potters who had trained in an industry with established divisions of labor, but often on dissimilar ware types. While work was scarce and wages were low in England, these new emigrants found much demand for their goods in America, where the population was booming and moving westward every year. Potters, who were perhaps only journeymen in England, could start their own business in the United States. As a result, the hundreds of British potters who emigrated to America in the first half of the nineteenth century (Goodby 2003:1) essentially transformed much of the American ceramic industry into a British factory system. Prior to 1870, this new American production focused on less refined ware types than those in England, but the emigrants incorporated their extensive knowledge of slip decoration and glazes (Stradling 2005:10) in experiments with different raw materials (Gates 1984:33) to produce a truly hybrid British-American ware type.

The first major wave of emigration from England to America began steadfastly in the 1840s, and particularly after 1844, when a serious downturn in the British pottery industry and union actions (Gates 1984:34-35) created a surplus of skilled potters. Technology was also threatening the jobs of British workers. The introduction of a "jigger," or plate-making machine in 1844 meant that vast quantities of vessels could be turned out each day without skilled labor (Goodby 2003:8-9). Emigration to America was actually advocated by the potters' labor unions as a means of removing surplus labor from the British system. The result was a flood of skilled British potters to areas along the American east coast, the Mississippi River, and various locations in Ohio, including East Liverpool, Zanesville (Goodby 2003:8-10), and Cincinnati.

A reliance on family and friends was almost certainly a necessity in moving to a new continent and starting a new industry from scratch (Gates 1984:38; Goodby 2003:21). This network is clearly visible in Cincinnati by 1850. William Bromley, perhaps the most successful of the new arrivals, lived and worked in the Brighton neighborhood of Cincinnati where many fellow British-born potters also resided and operated their own fledgling potteries. The number of pottery concerns most likely sparked competition, and hence the eventual lowering of prices, but the ties of nativity would have provided workers with new employment or assistance if their enterprise failed. And, it appears that many operations failed, or were reconstituted with different partners and new capital.

Cincinnati Production System

It is important to recognize that much of the yellow ware produced in the Cincinnati-area between ca. 1840 and ca. 1870 was the product of British-learned pottery skills transplanted onto a natural resource base dissimilar in many ways to that encountered in England. While pottery clay was abundant in this portion of the Ohio Valley, in many instances, it was not the same clays previously utilized by the British émigrés. Many of the British-skilled potters who came to America to find work had produced white-bodied wares, principally creamware, pearlware, and later whiteware at the Staffordshire potteries (Rickard 2006:1). These wares were made with earthenware clay of a light color that would fire to a near white color, particularly when ground flint or cobalt was added to the body and a lead glaze was applied. While these clays could possibly have been acquired and processed in the American Midwest, they were not with any regularity until after the Civil War when many pottery concerns retooled their operations for white-bodied wares.

What was abundant in the Ohio Valley, and other portions of the eastern United States, was buff-colored earthenware clay that could be taken from riverbanks and exposures (Leibowitz 1985:10). Not all of this clay was local to Cincinnati. In 1877, George Scott was importing clay for his yellow ware and Rockingham from Amanda Furnace, Kentucky, opposite Ironton, Ohio (Johnson 1979:167; Murphy 2010:21). Earthenware clays, with minimal processing, fire to a soft yellow color in the biscuit state, and to a muted to glossy yellow after an alkaline or lead glaze firing. Its color rendered it inappropriate for tablewares, but its brightness and added decorations made it ideal for common kitchen and sanitary wares. Fortunately for the new potters, there was much demand for their yellow-bodied common wares, since for decades Americans had depended on low-fired redwares or bulky stonewares to satisfy their needs. Yellow ware was fired to as much as 2200 degrees F, while redware was fired to only approximately 1700 degrees F (Leibowitz 1985:9). The difference in durability was not negligible. The new, bright, and durable American yellow ware quickly began to replace the darker redwares and stonewares, providing a vast market for the American pottery industry.

A cursory examination of Staffordshire pottery output during the first several decades of the nineteenth century reveals that a wide array of decorations was imparted to mostly white-bodied wares, including annular banding, common cable, cat's eye, dendrites, and slip trailing, as well as more complex designs involving engine turning and variegated surfaces (Carpentier and Rickard 2001; Rickard 2006). The Staffordshire decorative palette was vast with numerous concerns competing for a British and international market. The use of white-bodied wares also made appropriate a variety of slip colors, including not only brown and cream, but also blue, green, black, purple, and yellow. The contrast of this broad color palette against a white body was often stunning.

Contrast the Staffordshire design output with that of mid-nineteenth century Cincinnati-area yellow ware makers. The British-born Cincinnati-area potters produced a much-reduced array of decorative motifs on a narrower range of vessel types in a design system that is suggestive of "simplicity" and "conservatism." Like their counterparts in England, Cincinnati potters incorporated annular banding, common cable, cat's eye, dendrites, and slip trailing, but typically only in simple ways with limited color palettes and vessel types. This is not surprising, since the output was not fine table wares, where value-added decorations would make the vessels more desirable and costly, but common kitchen and sanitary wares, which of necessity had to be cheaply produced and sold.

The sample vessel assemblage clearly illustrates that a significant number of vessels are either undecorated, or incorporate only minor decoration, signifying that such inexpensive wares were popular with the manufacturer's customers. More than 12 percent of sample vessels are undecorated; approximately 21 percent exhibit annular banding only; and, greater than 6 percent are molded only. This simplistic or conservative approach may reflect an attempt to reduce vessel cost, the utilitarian nature of the vessels, or a design system that incorporated only a small number of decorations.

Where more elaborate decorations do occur, they occur in relatively small numbers only. Identified slip decorations other than annular banding (i.e., common cable, cat's eye, slip trailing, and broad slip fields) occur on only slightly more than one-quarter of all sample vessels. Only common cable and broad slip fields exceed 10 percent of the sample vessel assemblage, suggesting that multiple slip decorations (i.e., value added decorations) were only a minor portion of the Cincinnati-area's yellow ware output.

Figure 29. SV127: CINQII, Feature 34, pitcher, note judicious use of manganese spatter.

As much as the decorative motifs tend to be simple, the color palette is more often than not, conservative. Brown is the most encountered color on all of the slip decorations with the exception of broad slip fields, where broad bands of brown were most likely considered inappropriate for yellow-bodied vessels. Cream color is second in frequency; and, brown and cream or brown and white combinations make up the vast majority of common cable, cat's eye, and slip trailed vessels. Additional colors, such as blue or black, occur very infrequently. Broad slip fields exhibit a slightly broader range of colors, including pumpkin and tannish brown, but again, nearly 82 percent of broad slip field colors are cream, brown, or white.

The simplicity of decorations can also be seen in the production of cat's eye and common cable motifs. Of 38 vessels incorporating the static or dynamic forms of cat's eye, 35 utilize only a two-chambered slip cup, and nearly exclusively the chambers contained brown and cream or brown and white slips. Only three vessels, all common cable decorated, exhibit the use of a three-chambered slip cup. In all three cases, the additional color is green. In contrast, British-made slipware vessels made between ca. 1810 and at least the end of the 1850s, utilized three-chambered slip cups producing three distinct colors (Carpentier and Rickard 2001:126-128; Rickard 2006:63-66). Rickard (2006:65-66) suggests that, on some white-bodied examples, it may appear that there are only two colors, whereas there are actually three. A thorough examination of the yellow ware sample vessel assemblage, however, reveals that the vast majority are in fact only two colors.

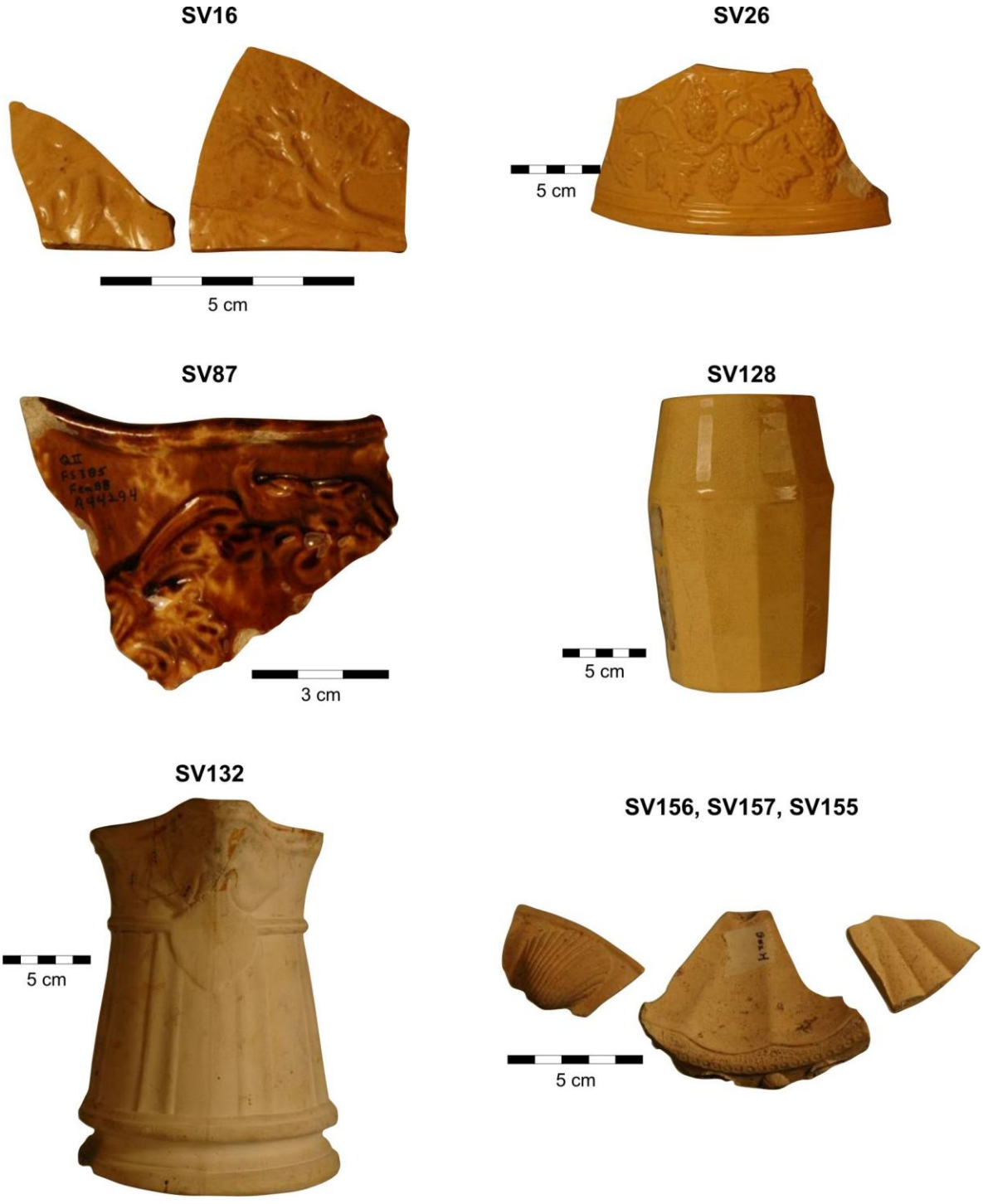

Figure 30. Molded sample vessels. SV16: CINQII, Feature 34, hollow ware, floral pattern; SV26: CINQII, Feature 13, spittoon, grape pattern, Kendall; SV87: CINQII, Feature 88, pitcher, floral pattern; SV128: CINQII, Feature 85, canning jar; SV132: COVRR, Feature 16, pitcher, waster, leaf pattern below spout, Bromley; SV155-SV157: COVRR, Test Unit A (wasters), spittoons, shell and fluting patterns, Bromley.

Figure 31. Molded sample vessels. SV175: COVRR, Feature 45, pitcher, waster, leaf pattern below spout (smaller version of SV132), Bromley; SV177: COVRR, Feature 45, spittoon, fluted body, probable Bromley; SV182: COVRR, Feature 45, lid, waster, fluted pattern, Bromley; SV185-SV187: COVRR, wasters, pitchers, "hanging game" pattern, Bromley; SV189-SV190: COVRR, wasters, lug handles, without and with Rockingham glaze, Bromley; SV196: COVRR, wasters, bowl, fluted pattern, Bromley; SV197: COVRR, wasters, jars, fluted pattern, Bromley.

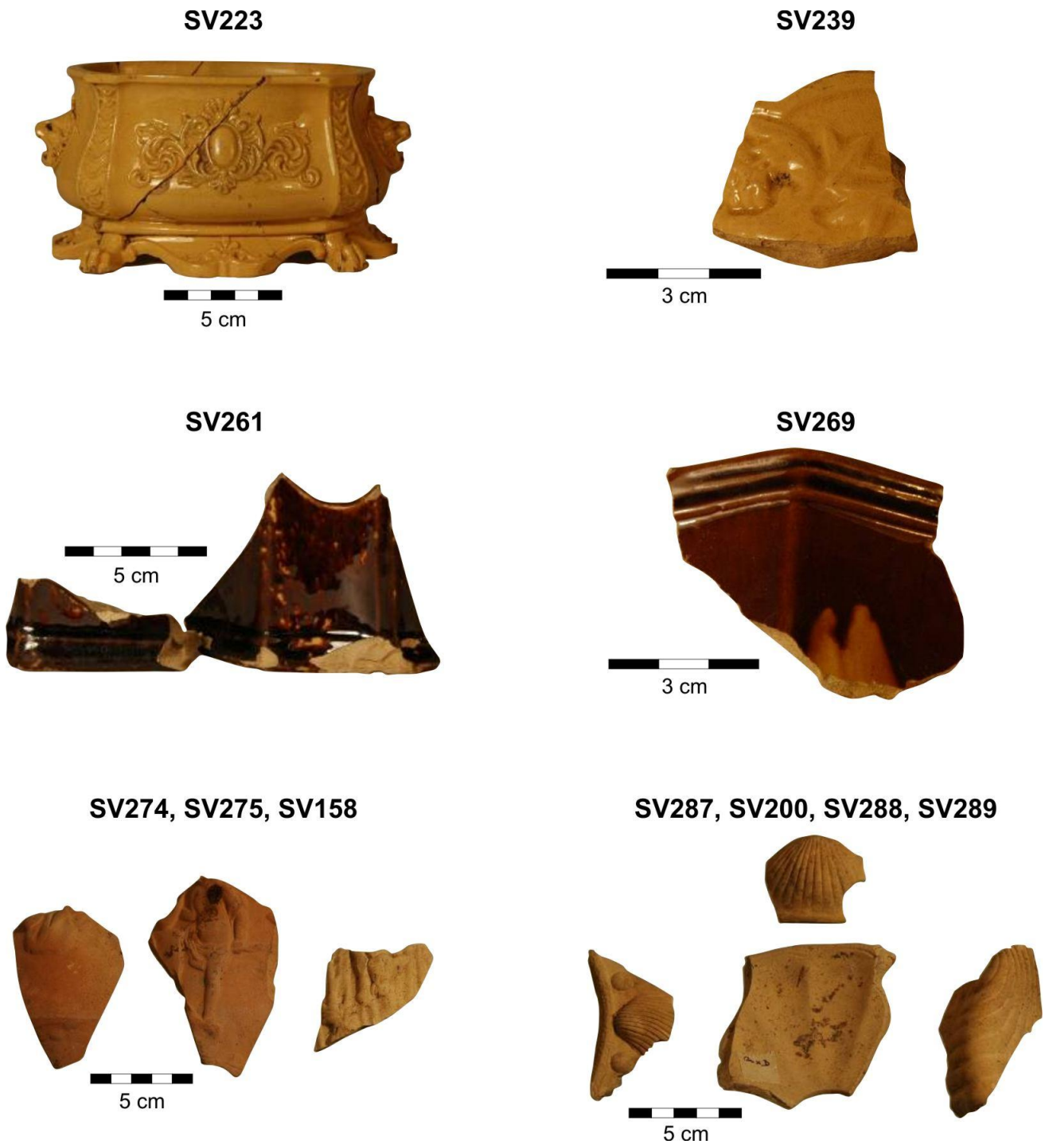

Figure 32. Molded sample vessels. SV223: CINRR, Feature 8, sugar bowl, lion figures, possibly English in origin; SV239: CINWS, Feature D16, pitcher, floral pattern; SV261: CINWS, unknown provenience, spittoon, paneled body, Rockingham glaze; SV269: CINWS, Feature F05, hollow ware, paneled body, Rockingham glaze; SV274: COVRR, Test Unit A (wasters), hollow ware, floral pattern, over fired, Bromley; SV275: COVRR, wasters, pitcher, "cupid" pattern, over fired, Bromley; SV158: COVRR, wasters, pitcher, "hanging game" pattern, Bromley; SV200 and SV287-SV289: COVRR, wasters, spittoons, shell and fluted patterns, Bromley.

Figure 33. Rouletted vessels. SV57: CINQII, unknown provenience, pitcher, with annular banding and common cable; SV81: CINQII, Feature 38, jar/crock, Rockingham glaze; SV83: CINQII, Feature 38, hollow ware, Rockingham glaze; SV116: CINQII, Feature 38, hollow ware, with annular banding.

Based upon the historical and archaeological data assembled in this study, a Cincinnati production system for the manufacture and decoration of yellow ware pottery between ca. 1840 and ca. 1870 can be defined as incorporating a number of elements. First, wares were cheaply produced and cheaply sold. For the most part, the market niche that the British-born potters were attempting to fill was that of either utilitarian items such as food preparation and food storage vessels, or sanitary items, particularly chamber pots and spittoons. And, although yellow ware was a brighter alternative to redware and stoneware, and more durable than redware, utilitarian and sanitary vessels most likely could only achieve a sale point well below more refined tablewares. Bromley's 1860 manufacturing schedule for his Covington Pottery (U. S. Census 1860a) illustrates how cheaply goods were

sold, and how small his margins were. He produced approximately 78,000 fruit jars, bowls, and pitchers selling between 5 and 8 cents per piece. Assuming his figures are accurate, he grossed less than $2400 in 1860 after paying 10 employees, and purchasing coal, clay, and other articles. Lafcadio Hearn well illustrates the low cost of the wares in his 1877 newspaper article on Scott's Front Street Pottery, reporting "The pretty yellow and Rockingham ware is hardly appreciated as it ought to be, because it is so cheap" (Johnson 1979:167).

Second, the necessity of maintaining low production and sale costs may have resulted in a restriction of the frequency of decorated vessels and the frequency of multiple decorations for many vessel types. This is precisely the type of output present within the sample vessel assemblage. A significant number of vessels are undecorated, while slip and dendritic decorations, the most complex, and perhaps most costly to produce, make up less than 27 percent of the assemblage. More than a third of the assemblage consists of Rockingham, molded, or Rockingham-molded combinations. But, these too are simpler to produce than slip decorated wares.

Third, the color palette reflects the simplicity of decoration and, perhaps more importantly is sympathetic to a buff to yellow-colored body. The short range of dominant slip colors – particularly brown and cream, both earth tones – serve to make the yellow background brighter. Brown, more than any other color, acts as a standardized neutral shade that defines Cincinnati-area yellow ware. Brown slip occurs on the vast majority of annular bands, cat's eye, common cable, and slip trailing. The color palette for dendrites is much broader, incorporating black, blue, green, and even red. But these colors are almost exclusively placed against a broad cream or white slip field, and not directly against the yellow body.

Fourth, production almost certainly focused on market popularity, and was responsive to changes in consumer choice. It is possible that the relatively restricted range of decorative types may represent changing popularity of these elements through a period of only a few or several decades. Unfortunately, chronological data based upon archaeological recovery is not refined enough to make this determination. The significant percentage of Rockingham vessels noted from contexts ranging from the 1840s to at least the end of the nineteenth century, however, does suggest an attempt to meet market demand for this popular product. Claney (1996:148) has argued that Rockingham was "deemed particularly appropriate for certain cultural expressions," suggesting that the popularity of this brown-colored ware went beyond its ability to be produced cheaply.

Chronological Control

One goal of this study was to provide, where possible, a chronology of decorative types on Cincinnati-area yellow ware. Critical to this assessment are both good historical data that define potter's production ranges, and archaeological data that allow for close temporal control of depositional horizons. The first, historical data, consist almost solely of city directory and census information. And, while these resources do not always adequately document the establishment and termination of manufacturers, for the most part, they do provide baseline data on yellow ware production in Cincinnati and Covington. However, except where directory data actually identify yellow ware or Rockingham production, manufacture of slip-decorated yellow ware must be assumed. Despite these assumptions, historical data indicate that potters who are known to have produced yellow ware may have done so by the early 1840s, but almost certainly by the mid-1840s. Kendall started pottery production in the 1830s, but based upon the initial production date of yellow ware at East Liverpool early in the decade of the 1840s, it is likely that his early wares were either redware or stoneware (see Lehner 1988:234). By the late 1840s, Kendall is joined by Bromley, and based upon the 1850 census data, a host of other British-born potters.

The decades of 1840-1860 were almost certainly the "golden period" of yellow ware production in the Cincinnati area, although its manufacture persisted through the 1860s and into the 1870s. Experimentation with and finally the introduction of white-bodied wares by Cincinnati, and American potters in general, in the late 1860s and the decade of the 1870s hastened the end of the mass production of yellow ware. Its manufacture did not die, but continued to be a sideline through the end of the nineteenth and into the early part of the twentieth century. P. L. Coultry (Dayton Street Pottery) continued to fire yellow and Rockingham ware into the early 1880s, but his specialty was underglaze decorated Limoge and faience (Marquis 1883:149). By the end of the nineteenth century, yellow ware production was focused chiefly on baking vessels such as nappies and bowls (Barber 1893:18).

Figure 34. SV192: COVRR, Feature 52, chamber pot, Rockingham glaze. Note rilling substituting for annular bands on this probable early twentieth century vessel.

The use of archaeologically-derived temporal data has proven to be much more problematic. It is not that good temporal data does not exist. It is the selective nature and quality of the data that makes precise chronological control difficult. The large number of temporally sensitive artifacts (i.e., artifacts other than yellow ware with temporal indices) from stratigraphically-controlled excavations at CINQII, COVRR, and COV11 result in well-established temporal control of depositional horizons. Unfortunately, in many instances, effective date ranges are too gross to address changes in an industry that began quickly, changed rapidly, and ended within a span of three to four decades. This issue is quite apparent when viewing sample vessels from Feature 85 at CINQII, the deepest, and most prolific privy shaft within the site/project assemblage. The lowest, and hence oldest, depositional horizon occurs at 6.1 m (20 feet) below feature origin. And, although there are numerous datable items within this level, the effective date range spans two decades from 1840 to 1860, much of the total span of major yellow ware production. In addition, there is the well-established problem in historical archaeology of correlating deposition dates with manufacturing dates. The lag time between the two can be difficult to assess. The frequent use and likely corresponding frequent breakage patterns of kitchen and sanitary wares argue for a relatively short lifespan of the yellow ware products, but making this assumption is certainly not wise. The CINFM, CINRR, and CINWS project areas exhibit much less reliable temporal information, and hence are of much less assistance in determining production chronology. They do, however, indicate the persistence of yellow ware manufacture, or at least deposition into the twentieth century.

Nevertheless, it is informative to examine what was being deposited into the lower levels of well-dated, deep shaft and wood-lined features (Table 11). Vessels with annular banding are the most frequently encountered, but common cable, cat's eye, slip trailing, broad slip fields, and dendrites are all present. Rockingham, Rockingham/molded, and molded vessels also occur. These vessels clearly indicate that by the time artifacts were deposited in the lowest levels of area privies, all decorative types were either in use, or their production may have already ceased. As a result, if there is a production sequence of decorative

types, site/project features are clearly not early enough, or precisely dated enough to discern such a chronology. It is interesting to note, however, that dendritic vessels were not recovered from the deepest levels of Cincinnati privies, and only occur at Covington features in close proximity to Bromley's Covington Pottery. This may indicate that Bromley's focus on dendritic decoration at Covington was in response to its earliest marketability in the late 1850s.

Vessel Origin

Determining the origin of a yellow ware vessel that has not been decisively attributed to a manufacturer through marks, specific decorations, or recovery within identified wasters, is extremely difficult, and not advisable. One simple reason why this should be discouraged is that nineteenth century yellow ware was produced by countless American manufacturers, not only in Cincinnati and northern Kentucky, but also in numerous areas of eastern Ohio, New Jersey, Vermont, Massachusetts, Maine, Connecticut, New York, Pennsylvania, Maryland, Indiana, Kentucky, Illinois, Missouri, Delaware, and South Carolina (Leibowitz 1985:27-74; Ketchum 1987:14-28; Stradling and Stradling 2001). Add to this output, Canadian (Ketchum 1987:29; Sussman 1997:79) and British (Ketchum 1987:29-30) manufacturers, some employing similar decorative motifs, and it becomes clear that the task of identifying individual manufacturers is fraught with numerous problems.

This should not imply, however, that area specific, or regional manufacturing centers do not exhibit traits that can allow for attribution. It can be reasonably assumed that specific potteries, and perhaps specific pottery centers like those in Cincinnati or East Liverpool would exhibit internal similarities in production elements that may allow for some degree of precise or regional attribution. But since so few yellow ware products are marked, research into these production elements cannot rely on the examination of primary refuse deposits, such as utilized in this study, but would require well-documented, and preferably well-dated waster deposits from the production sites themselves. Only then could any potential index signatures be identified that may permit attribution to a pottery center.

The problem of attribution is made clear when examining the suite of decorative motifs identified in the Cincinnati vessel sample. A Cincinnati production system has been defined that resulted in a wide variety of vessel finishes with significant numbers of decorated vessels, including slip-decorated, dendrite-applied, molded, and Rockingham wares. But, these general decorative motifs are not unique to the Cincinnati area, and most, if not all, can be seen on waster specimens from East Liverpool. In their examination of East Liverpool's Mansion Pottery excavations, Gundy and Casselberry (2005:148) report, "decorative techniques include slip-applied annular bands, slip-trailed designs, cat's eye, dendritic mocha, and relief-molded motifs." And, although they do not identify a figured pair of unglazed waster vessels (Gundy and Casselberry 2005:153, Figure 19) as common cable, each clearly exhibits common cable offset by annular bands.

During an examination by the author of the Manison Pottery collections at the Ohio Historical Society, a total of 202 discrete yellow ware vessels was coded for decorative motifs. The University of Pittsburgh Cultural Resource Management program as part of the 1990-1991 East Liverpool Data Recovery Program recovered these vessel fragments, and associated artifacts for the COL-30-35.29 Road Corridor, although the results of the excavations remain unpublished. Although 109, or 54.0 percent of the vessels are undecorated, the vast majority of vessels are represented by a single sherd, and hence may be missing various decorative elements. Slip decorations are present on 71 vessels, or slightly more than one-third. These include annular banding, broad slip fields, slip trailing, cat's eye, and common cable. On decorated vessels, annular banding is the most prevalent decorative motif occurring on more than 30 percent of all vessels, and more than 40 percent of all decorated specimens. Broad slip fields are second in frequency with 14.4 percent, while common cable and slip trailing each account for 4.5 percent. Only one cat's eye vessel is noted. Dendrites, always in blue on a white field, account for 7.4 percent, Rockingham at 7.9 percent, and relief molding at 5.4 percent of the total vessel assemblage. The most common decorative combination is annular banding/broad slip field (n=14), followed by annular banding/broad slip field/dendritic (n=9), annular banding/common cable (n=7), annular banding/slip trailing (n=6), and broad slip field/dendritic (n=5).

In general, there are remarkable similarities between the Cincinnati vessel sample and the Mansion Pottery vessel sample. Each exhibits a similar suite of slip decorations dominated by annular banding, with significant percentages of broad slip fields,

Table 11. Association of select decorative types with earliest level/horizons of select privy features in Cincinnati and Covington.

Site/Feature/Date Range	AB	TR	CE	CC	DD	RC	BS	SP	MD
CINQII, F85, 1840-1860[1]	10	1	1	7	-	-	2	-	3
CINQII, F85, 1855-1874[2]	-	-	-	-	-	2	-	-	-
CINQII, F34, 1855-1874[3]	4	2	-	-	-	3	1	1	1
CINQII, F34, till early 1870s[4]	6	-	1	4	-	-	-	-	-
COVRR, F81, ca.1860-ca. 1870[5]	10	-	1	3	4	-	4	-	1
COVRR, F45, 1860-1865[6]	5	-	-	-	4	1	3	-	2
COVRR, F16, ca. 1860-ca. 1870[7]	-	-	-	-	-	1	-	-	3
COV11, F2, 1846-1856[8]	-	-	-	-	-	1	-	-	-
COV11, F2, 1856-1860[9]	1	-	-	-	-	2	-	-	1
COV11, F2, 1860-1865[10]	-	-	-	-	-	1	-	-	-
TOTAL	36	3	3	14	8	11	10	1	11

Numbers in cells indicate frequency of decorations. AB-annular banding; TR-slip trailing; CE-cat's eye; CC-common cable; DD-dendritic; RC-Rockingham; BS-broad slip field; SP-spatter; MD-molded. [1]levels 19 and 20 [2]level 18 [3]14/H and 14/I [4]13/G and 14/G [5]13/I to 16/V [6]2/A to 7/D [7]5/D to 11/H [8]11/D and 12/D [9]10/C and 11/C [10]1/A

common cable, and slip trailing. And, for the most part, brown and white, or brown and cream, are the dominant slip colors in both assemblages. One difference, albeit minor, is a consistent use of approximately one-inch wide brown slip bands away from the central field in the Mansion assemblage that is not noted in the Cincinnati vessels. In most respects, however, the two assemblages are nearly indistinguishable at the sherd or partial vessel level. This close relationship is most likely reflective of similar British-derived factory systems utilizing a shared suite of slip technologies.

Determining the origin of yellow ware vessels based upon body color is also problematic. Munsell color identifications clearly illustrate that there are significant differences between the Cincinnati and Mansion assemblages, with the former dominated by light yellow to yellow colors, and the latter by greenish, brownish, or orangish-yellow colors. But, perhaps, more importantly, the Munsell identifications illustrate the broad range of vessel colors within or near a manufacturing center such as Cincinnati, and within a single manufacturing locale in the case of the Mansion Pottery. Of note, only five vessels in the Cincinnati sample exhibit Munsell notations not represented at Mansion. So, while on a regional basis, broad differences in color can be demonstrated, the diversity and overlap in colors between assemblages argues against attribution on an individual vessel basis. Where large assemblages exist, it may be possible to base attribution on color suites, but this would require comparative color analyses of most, if not all of the major American, Canadian, and British yellow ware production centers.

Distribution

Unfortunately, there is little information on the marketing and distribution of Cincinnati-manufactured yellow ware. While it is assumed that much of the production was intended to fill a strong local, or perhaps regional market, Cincinnati's position along the Ohio River trade network could have allowed significant portions to be transported for sale elsewhere, particularly downstream away from the Eastern pottery centers. But, there are simply no available records in the first several decades of Cincinnati yellow ware production to gauge the internal/external market shares.

A broad regional, and even national market was much more of a necessity for East Liverpool potters, where a relatively small local market demanded more aggressive external distribution of wares. As early as 1841, James Bennett's yellow and Rockingham wares were shipped to "merchants in Cleveland, Cincinnati, Louisville, and St. Louis" (Gates and Ormerod 1982:4). And, through the Civil War, East Liverpool yellow and Rockingham wares "were in great demand

throughout the south, midwest, and western areas of the country" (Gates and Ormerod 1982:5). East Liverpool depended on the Ohio River for transporting its goods through the 1840s, but the establishment of railroad lines, beginning in the 1850s, opened up additional national markets including those to the east and northwest of the city (Gates and Ormerod 1982:4; Gates 1984:47).

Like East Liverpool, Cincinnati also shared access to the Ohio River trade, and a burgeoning network of rail lines after mid-century. But, Cincinnati's population between 1840 and 1870 was, on average, more than 100 times greater than East Liverpool's.

The "Queen City of the West," as Cincinnati was called, became one of the fastest-growing communities in the nation, and between 1830 and 1850 its population rose more rapidly than that of any other American city. In 1850, less than 75 years after its founding, Cincinnati had become the sixth-largest city in the United States and ranked second in manufacturing (Gordon and Tuttle 1981:4). The latter distinction is truly impressive when one considers that Cincinnati is an inland city.

An examination of market contributions for Cincinnati and Covington urban archaeological assemblages reveals that as much as 43 percent of goods with identifying information were manufactured in the Cincinnati area (Genheimer 2000:87-89). This strong local market suggests that local manufacturers and distributors were able to provide many of the needed goods for the Cincinnati and Covington markets. The growth of the local market was likely fueled by the relatively large population base in this portion of the central Ohio Valley and Cincinnati's manufacturing might. The Cincinnati-Covington market was not geared toward long-distance movement of goods, but likely functioned as a "highly restricted market area" (Pred 1970:273). Because of its size and isolation, Cincinnati did not need to participate fully in an expanded national and regional market, at least not until after mid-century. Cincinnati was in fierce competition with other major river cities in the early to mid-nineteenth century, particularly Louisville, Pittsburgh, and St. Louis (Wade 1959). The development of a large local market ensured that Cincinnati would maintain a sizable stake in the profitable Ohio River trade.

Given Cincinnati's insular market paradigm during at least the first few decades of yellow ware production, and a rapidly growing population base, it is not unreasonable to suggest that much of the early yellow ware production was intended for local or quasi-regional distribution. But, by the 1870s, there is evidence that wares were being shipped outside Cincinnati. In 1875, George Scott reports "shipping his wares everywhere throughout the West and South" (CJ 1875d), and in 1877 Lafcadio Hearn indicates that Cincinnati controlled the yellow and Rockingham markets in the West and South, and that "goods are shipped from here as far as the Dakota Territories and Texas" (Johnson 1979:167).

Summary

Prior to the early 1840s, Cincinnatians mostly relied on redware and stoneware for a variety of kitchen and sanitary vessels. Beginning in the mid-1840s, British-born and trained potters transformed the pottery landscape by producing relatively cheap wares that were brightly colored and durable. This new yellow ware, often referred to as "domestic Queensware," due to its similarity in decoration to Staffordshire wares, was fired with local or regional buff-colored clays and finished with a clear glaze. For nearly three decades from the 1840s through the 1860s, yellow ware dominated Cincinnati-area pottery production. Six major potteries produced yellow ware and Rockingham, including those operated by Uzziah Kendall, William Bromley, Samuel Pollock, Michael Tempest, Frederick Dallas, and George Scott. A number of additional manufacturers also produced yellow ware products, although most were short lived. The meteoric rise in yellow ware production came to an end by the late 1860s and early 1870s, when many of the major potteries retooled their manufactories to produce white-bodied wares. Yellow ware and Rockingham production did not abruptly end, as Hearn's 1877 depiction of Scott's Front Street Pottery (Johnson 1979:165-170) attests; however, for most manufacturers, these wares were only a sideline through the end of the nineteenth century and into the first few decades of the twentieth century.

In an effort to better understand yellow ware production in the Cincinnati area, yellow ware vessels from six major urban archaeology projects are examined. A total of 289 discrete vessels is identified and coded for origin data, vessel type, production method, decorations, color, glaze composition, vessel completeness, and manufacturing data. A broad range of vessels is present, particularly hollow wares including

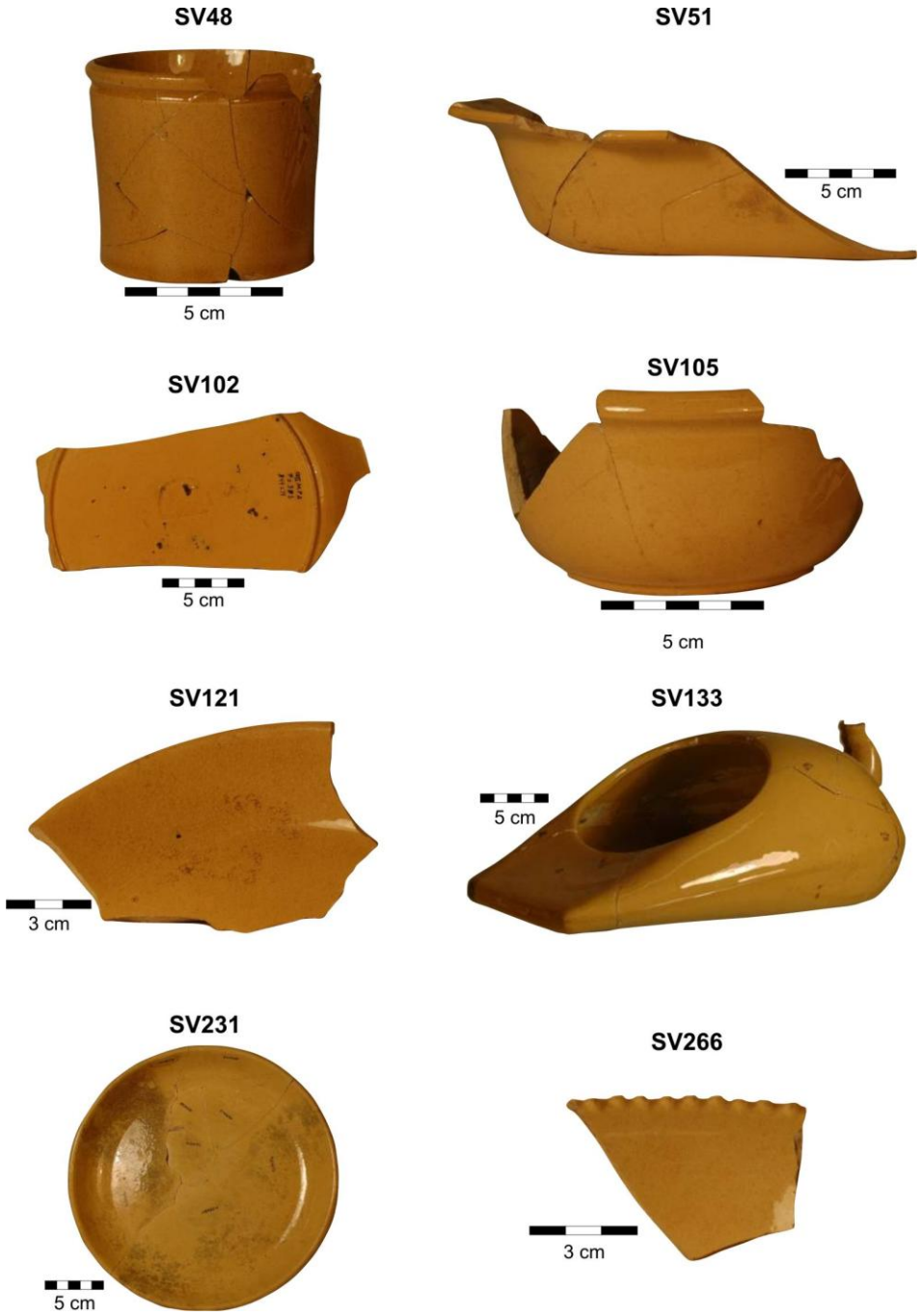

Figure 35. Undecorated vessels. SV48: CINQII, Feature 85, mug, note greenish-yellow outlier color; SV51: CINQII, unknown provenience, deep serving dish; SV102: CINQII, unknown provenience, plate, stamped **W. Bromley, Cincinnati, Ohio, North America**; SV105: CINQII, unknown provenience, cuspidor; SV121: COV11, Feature 2, soup plate; SV133: COVRR, Feature 45, urinal/bedpan; SV231: CINWS, Feature F05, plate, stamped **U. Kendall's Factory, Cincinnati**; SV266: CINWS, Feature F05, bowl.

chamber pots, bowls, pitchers, jugs, mugs, and spittoons. Although a range of glaze colors is evident, the vast majority of vessels are restricted to several Munsell notations that reflect a light yellow to yellow surface finish. Leachable lead spot tests reveal that some vessels are lead glazed, but many more are not.

Ten discrete decorative motifs are identified on sample vessels. These include slip decorations of

annular banding, cat's eye, common cable, slip trailing, and broad slip fields; as well as non-slip decorations incorporating dendrites, Rockingham glaze, molding, rouletting, and rilling. Among slip decorations, annular banding is the most common decoration, occurring on 47.4 percent of all vessels in the assemblage. Broad slip fields are second in frequency with 11.4 percent of vessels. Common cable, mostly in a two-color format, is found on 10.7 percent of vessels. And, despite their distinctiveness, cat's eye and slip trailing decorations each account for only 2.8 percent of the assemblage. Rockingham glaze is the most prevalent non-slip decoration, occurring on 23.5 percent of sample vessels. The use of manganese glaze is followed closely by molding, identified on 21.1 percent of vessels. Dendrites, or true mocha, are found on 7.3 percent of vessels, and rouletting and rilling, are found on only 3.1 and 2.4 percent of vessels, respectively. And, finally, 12.5 percent of sample vessels are undecorated, or are too incomplete to make decoration assessments.

There are clear associations between decorative types. Annular banding is strongly associated with broad slip fields, common cable, cat's eye, dendrites, and slip trailing. The bands act as a framework for the application of these additional decorative types. A nearly one-to-one association exists between a central slip field and dendrites, simply because the slip field is necessary for the activation of the mocha tea. Only a weak association is noted between Rockingham and molded vessels. Mixing bowls, lids, and jars/crocks exhibit the greatest frequency of decoration, averaging more than two discrete decorations per vessel. Chamber pots, mugs, pitchers, and bowls average more than 1.5 decorations per vessel. Canning jars, spittoons, and flatwares are the least decorated vessel types.

British-born and trained potters were certainly the driving force behind nineteenth century Cincinnati-area yellow ware production. These Staffordshire-trained potters emigrated to the United States to escape both labor unrest and a dwindling number of jobs in the British pottery industry. For the most part, they settled in American cities with established pottery industries and access to sources of usable clay such as Trenton, New Jersey, and East Liverpool, and Cincinnati, Ohio. Without ready access to white-firing clays, they adapted their skills in slip decoration to locally or regionally available buff-firing clays to produce a British-American hybrid – slip-decorated yellow ware.

But, the differences in product go beyond the differences in raw material. Cincinnati-area potters exemplified simplicity and conservatism in their production. Undecorated, annular-banded only, and molded vessels, perhaps the simplest types to produce, account for nearly 40 percent of sample vessels. Though highly decorated Cincinnati-area vessels are present, they occur in relatively small numbers only. The Cincinnati-area color palette is also conservative, with predominantly brown, cream, or white slips. And, while Staffordshire vessels of the first half of the nineteenth century exhibit three-color slip combinations in cat's eye and common cable, Cincinnati-area vessels incorporate only two colors.

Four elements are identified that comprise a Cincinnati production system for nineteenth century yellow ware production. First, due to the predominant utilitarian and sanitary nature of the yellow ware market, wares were cheaply produced and cheaply sold. Second, there is noticeable restriction in frequency of decorated vessels, and the frequency of multiple decorations. The fact that slip and dendrite decorations make up less than 27 percent of the vessel assemblage clearly suggests that undecorated or meagerly decorated vessels were the most frequently produced. Third, the color palette is not only conservative; it is sympathetic to a light yellow to yellow surface finish. Brown and cream colors tend to accentuate the brightness of the yellow body. And, fourth, production was almost certainly focused on market popularity and responsive to changes in consumer choice.

While one goal of this project was to provide a chronology of decorative types in the Cincinnati area, the quality of reliable temporal data associated with archaeological context was not sufficient enough to discern such small-scale temporal change. Initial feature depositions were apparently not early enough to detail any potential sequence of decoration. In addition, an unknown lag time between manufacturing date and feature deposition makes precise dating unrealistic. An examination of the lowest levels of the earliest-dated features (ranging between the 1840s and early 1870s) reveals that most recognized decorative types were present by the time of earliest deposition. These include annular banding, common cable, cat's eye, broad slip fields, slip trailing, dendrites, Rockingham, and molded wares.

With the exception of marked vessels, or those attributable to William Bromley through their unglazed state or origin within waster deposits, it is extremely

difficult to attribute the majority of sample vessels to specific manufacturers. And, it is also likely, given the number of American and Canadian yellow ware producers, that an unknown percentage of sample vessels was manufactured somewhere other than the Cincinnati area. An examination of yellow ware waster materials from the Mansion Pottery in East Liverpool indicates that a nearly identical suite of slip and dendritic decorated products was manufactured at this upper Ohio River pottery district. This is not surprising, given that both East Liverpool and Cincinnati yellow ware potters originated from a British factory system that specialized in slip applications. There are demonstrable differences in vessel color between the Cincinnati sample vessels and those from the Mansion Pottery that may reflect real differences in clay sourcing or glaze composition. But, each of the assemblages exhibits a wide range of colors, and considerable overlap between the Cincinnati and East Liverpool vessels would argue against utilizing color alone in individual vessel attribution.

Because so few yellow ware vessels are marked, and there is little available data on the marketing and sales of Cincinnati-made yellow ware during the first several decades of manufacture, its distribution is poorly understood. Unlike East Liverpool, the Cincinnati of the 1840s, 1850s, and 1860s was a large commercial and industrial city with a constantly growing population. This large consumer base would have provided a sizable market for local or quasi-regional consumption of yellow ware products, and while some production was certainly shipped by steamboat to various downstream markets, it is possible that a significant portion of output, at least until the Civil War, was sold at or near Cincinnati. By the mid-1870s, when only a few Cincinnati manufacturers were still producing yellow ware, there is considerable evidence that more national marketing paradigms were in place.

Acknowledgements

I would like to thank numerous people and institutions that made this paper possible. At Cincinnati Museum Center, Carmen Lawrence provided imaging assistance and city directory research, and Leeanne Suggs produced the excellent line drawings of decorative motifs. I also thank Sarah Vodrey, of the Museum of Ceramics in East Liverpool, Ohio, and Bill and Donna Gray of East Liverpool for their invaluable insights into nineteenth century East Liverpool yellow ware and Rockingham production. The recovery and interpretation of Cincinnati yellow wares would not have been possible without the assistance of Ted Sunderhaus, and I thank him both for his field expertise and for sharing his knowledge of historic ceramics. James Murphy reviewed an earlier version of this manuscript, and his suggestions for additional resources added greatly to the author's understanding of nineteenth century yellow ware production. I am also indebted to Gary and Diana Stradling, who continuously advocated publication of research into Cincinnati yellow wares, and whose unwavering support of American ceramic research has paved the way for future generations of American scholars. And, finally, historic research would not be possible without those institutions that house and manage vital historic resources. The Cincinnati Historical Society Library at Cincinnati Museum Center, the Cleveland Museum of Natural History Library, the Ohio Historical Society, the Behringer-Crawford Museum, and the Public Library of Cincinnati and Hamilton County are to be commended for their dedication to preserving and providing access to these important records and collections.

References Cited

Barber, Edwin A.
1893 *The Pottery and Porcelain of the United States: An Historical Review of American Ceramic Art from the Earliest Times to the Present Day*. G. P. Putnam's Sons, New York and London.

Bennett, Patrick M., Rita G. Walsh, and E. Jeanne Harris
1994 *Archaeological Investigations of the Western Southern Housing Development in the Over-The-Rhine Historic District of Cincinnati, Ohio*. Submitted to The Department of Neighborhood Housing and Conservation, Cincinnati, Ohio. Prepared by Gray and Pape, Inc., Cincinnati, Ohio.

Carpentier, Don, and Jonathon Rickard
2001 Slip Decoration in the Age of Industrialization. In *Ceramics in America, 2001*, edited by R. Hunter, pp. 115-134. Chipstone Foundation, University Press of New England, Hanover and London.

Cinadr, Thomas J., and Robert A. Genheimer
1983a *Queensgate II: An Archaeological View of Nineteenth Century Cincinnati*. Unpublished manuscript on file at Cincinnati Museum Center.

1983b Queensgate II: An Archaeological View of Nineteenth Century Privies. *Proceedings of the Symposium on Ohio Valley Urban and Historic Archaeology* 1:72-83, Louisville, Kentucky.

Cist, Charles
1841 *Cincinnati in 1841: Its Early Annals and Future Prospects*. Published by the author, Cincinnati.
1843 *The Cincinnati Directory for the Year 1843*. R. P. Brooks (printer), Cincinnati.

Claney, Jane P.
1996 Form, Fabric, and Social Factors in Nineteenth-Century Ceramic Usage: A Case Study in Rockingham Ware. In *Historical Archaeology and the Study of American Culture*, edited by L. De Cunzo and B. L. Herman, pp. 103-149. The Henry Francis du Pont Winterthur Museum, Inc., Winterthur, Delaware.

Cox, George J.
1935 *Pottery for Artists, Craftsmen & Teachers*. The MacMillan Company, London.

Crockery Journal (CJ) [New York, New York]
1875a Article on Tempest, Brockmann & Co.'s Cincinnati pottery. Vol. 1, No. 10, 13 March:7. New York, New York.
1875b Advertisement for Tempest, Brockmann & Co. Vol. 1, No. 9, 6 March:8. New York, New York.
1875c Article on the history and current output of Frederick Dallas' Cincinnati pottery. Vol. 1, No. 8, 27 February:7. New York, New York.
1875d Article on the history and current output of George Scott's Cincinnati pottery. Vol. 1, No. 4, 9 January:2. New York, New York.

Crockery and Glass Journal (CGJ) [New York, New York]
1878 Advertisement for Tempest, Brockmann & Co. Vol. 7, No. 1, 3 January:24. New York, New York.

Department of Commerce
1915 The Pottery Industry; Report on the Cost of Production in the Earthenware and China Industries of the United States, England, Germany, and Austria. *Miscellaneous Series* No. 21, Bureau of Foreign and Domestic Commerce, Government Printing Office, Washington, D.C.

Deming, E.
1834 *The Cincinnati Directory for the Year 1834*. Published by E. Deming, Cincinnati, Ohio.

Drake, Daniel
1815 *Natural and Statistical View, or Picture of Cincinnati and the Miami Country*. Looker and Wallace, Cincinnati.

Erickson, Michelle, and Robert Hunter
2001 Dots, Dashes, and Squiggles: Early English Slipware Technology. In *Ceramics in America, 2001*, edited by R. Hunter, pp. 95-114, Chipstone Foundation, University Press of New England, Hanover and London.

Farnsworth, Oliver
1819 *The Cincinnati Directory*. Morgan, Lodge and Company, Printers, Cincinnati.

Fryman, Robert J.
1983 *The Excavation of the Sprucevale Pottery: A Study in Nineteenth Century Industrial Archaeology*. Ph.D. dissertation, Department of Anthropology, University of Pittsburgh.

Gates, William C. Jr.
1984 *The City of Hills and Kilns: Life and Work in East Liverpool, Ohio*. The East Liverpool Historical Society, East Liverpool.

Gates, William C. Jr., and Dana E. Ormerod
1982 The East Liverpool, Ohio Pottery District: Identification of Manufacturers and Marks. *Historical Archaeology* 16(1-2). California, Pennsylvania.

Genheimer, Robert A.
1987 *Archaeological Testing, Evaluation, and Final Mitigation Excavations at Covington's Riverfront Redevelopment Phase 2 Site, Kenton County, Kentucky*. R. G. Archaeological Services, Covington, Kentucky, and Cultural Resource Analysts, Inc., Lexington, Kentucky. Submitted to City of Covington, Kentucky.
1988 Bromley's Covington Pottery: A Study in Mid-19th Century Utilitarian Ware Production. *Ohio Valley Historical Archaeology* 6:55-64.
1993 *An Historical Archaeological Assessment of 118 East 11th Street in the City of Covington, Kenton County, Kentucky*. R. G. Archaeological Services, Covington, Kentucky. Submitted to the City of Covington, Kentucky.
1995 "Not All Are the Same": Pattern Recognition at Ohio Valley Urban Privies. In *Historical Archaeology in Kentucky*, edited by K. A. McBride, W. S. McBride, and D. Pollack, pp. 296-314. Kentucky Heritage Council, Frankfort, Kentucky.
1998 Report on Preliminary Archaeological Testing Conducted at Findlay Market in the City of Cincinnati, Ohio. Draft manuscript on file at Cincinnati Museum Center. Submitted to City of Cincinnati.
2000 Archaeology at Covington, Kentucky: A Particularly "Northern-looking" Southern City. In *Archaeology of Southern Urban Landscapes*, edited by Amy L. Young, pp. 69-91. The University of Alabama Press, Tuscaloosa and London.

Gibson, Campbell
1998 Population of the 100 Largest Cities and Other Urban Places in the United States: 1790 to 1990. *Population Division Working Paper* No 27, Population Division, U. S. Bureau of the Census, Washington, D.C.

Goldberg, Arthur
2003 Highlights in the Development of the Rockingham and Yellow Ware Industry in the United States – A Brief Review with Representative Examples. In *Ceramics in America, 2003*, edited by R. Hunter, pp. 26-46. Chipstone Foundation, University Press of New England, Hanover and London.

Goodby, Miranda
2003 "Our Home in the West": Staffordshire Potters and Their Emigration to America in the 1840s. In *Ceramics in America, 2003*, edited by R. Hunter, pp. 1-25. Chipstone Foundation, University Press of New England, Hanover and London.

Gordon, Stephen C., and Elizabeth H. Tuttle
1981 *Queensgate II: A Preliminary Historical Site Report*. Submitted to Ohio Historic Preservation Office, Columbus.

Gums, Bonnie L., Eva Dodge Mounce, and Floyd R. Mansberger
1997 The Kirkpatricks' Potteries in Illinois: A Family Tradition. Illinois Transportation Archaeological Research Program, *Transportation Archaeological Research Reports* No. 3, Illinois Department of Transportation and Department of Anthropology, University of Illinois at Urbana-Champaign.

Gundy, Barbara J., and Deborah Casselberry
2005 The Mansion Pottery. In *Ceramics in America, 2005*, edited by R. Hunter, pp. 141-159. Chipstone Foundation, University Press of New England, Hanover and London.

Hall, Harvey
1825 *The Cincinnati Directory for 1825*. Printed by Samuel J. Browne, Cincinnati, Ohio.

Johnson, William S. (editor and compiler)
1979 *Lafcadio Hearn: Selected Writings, 1872-1877*. Woodruff Publications, Indianapolis, Indiana.

Ketchum, Jr., William C.
1987 *American Country Pottery: Yellowware & Spongeware*. Alfred A. Knopf, New York.

Landy, James
1872 *Cincinnati Past and Present*. M. Joblin & Co., Cincinnati, Ohio.

Lehner, Lois
1988 *Lehner's Encyclopedia of U. S. Marks on Pottery, Porcelain & Clay*. Collector Books, Paducah, Kentucky.

Leibowitz, Joan
1985 *Yellow Ware: The Transitional Ceramic*. Schiffer Publishing, Ltd., Exton, Pennsylvania.

Mansberger, Floyd
1997 Early Industrialized Pottery Production in Illinois: Archaeological Investigations at White and Company's Gooselake Stoneware Manufactury and Tile Works, Rural Grundy County, Illinois. Illinois State Museum *Reports of Investigation*, No. 53. Illinois State Museum Society, Springfield.

Marquis, Albert N. (editor)
1883 *The Industries of Cincinnati: The Advantages, Resources, Facilities and Commercial Relations of Cincinnati as a Center of Trade and Manufacture*. A. N. Marquis & Co., Cincinnati, Ohio.

Murphy, James L.
2010 Cincinnati Canners: A Nineteenth Century Cincinnati Industry and Some of Its Competitors. *Contributions to Ohio Ceramic History*, No. 5. Grove Tucky Press, Grove City, Ohio.

Pred, A.
1970 Toward a Typology of Manufacturing Flows. In *Economic Geography: Selected Readings*, edited by Fred E. Dohrs and Lawrence M. Sommers, pp. 267-286. Thomas Y. Crowell, New York.

Ramsay, John
1939 *American Potters and Pottery*. Hale, Cushman, and Flint, Boston.

Rhodes, Daniel
1973 *Clays and Glazes for the Potter* (Revised Edition). Chilton Book Company, Radnor, Pennsylvania.

Rickard, Jonathon
2006 *Mocha and Related Dipped Wares, 1770-1939*. University Press of New England, Lebanon, New Hampshire. In association with Historic Eastfield Village, East Nassau, New York.

Robinson and Fairbank (compilers)
1831 *Cincinnati Directory for 1831*. Robinson and Fairbank, Cincinnati.

Robinson and Jones (compilers)
1846 *Cincinnati Directory for 1846*. Robinson and Jones, Cincinnati.

Schmeing, Mary L.
1977 *Covington Business Directory*. Directories compiled by the author for the years 1835-1838, 1841-1849, 1850-1859, and 1862-1865. Manuscript on file at Kenton County Public Library, Covington, Kentucky.

Spargo, John
1926 *Early American Pottery and China*. Century Company, New York.

Stout, Wilber
1923 History of the Clay Industry in Ohio. In *Coal Formation Clays of Ohio*, edited by W. Stout, R. T. Stull, W. J. McCaughey, and D. J. Demorest, pp. 28-43. Ohio Geological Survey, 4th Series, Bulletin 26, Columbus.

Stradling, Diana
2005 *"Fancy Rockingham" Pottery: The Modeller and Ceramics in Nineteenth-Century America*. University of Richmond Museums, Richmond, Virginia.

Stradling, Diana, and J. Garrison Stradling
2001 American Queensware—The Louisville Experience, 1829-1837. In *Ceramics in America, 2001*, edited by R. Hunter, pp. 162-185. Chipstone Foundation, University Press of New England, Hanover and London.

Striker, Michael, Donna Bryant, James C. Pritchard, Rita M. Walsh, Lena Sweeten, W. Kevin Pape, Donald A. Miller, and Bradley MacDonald
2007 Phase III Archaeological Investigations at Four Sites (33Ha733, 33Ha735, 33Ha736, and 33Ha737) in the Sedamsville Neighborhood Conducted for the River Road Improvement Project (HAM-US50-17.69; PID 20176), Cincinnati, Hamilton County, Ohio. Gray & Pape, Inc., Cincinnati, Ohio. Submitted to Fuller Mossbarger Scott and May, Inc., Cincinnati, Ohio.

Sudbury, Byron
1979 Historic Clay Tobacco Pipemakers in the United States of America. Reprinted from the Archaeology of the Clay Tobacco Pipe, II, The United States of America, edited by P. Davey, pp. 151-341. *British Archaeological Reports, International*, Series 60.

Sussman, Lynne
1997 *Mocha, Banded, Cat's Eye and Other Factory-Made Slipware*. Studies in Northeast Historical Archaeology, Number 1. Monograph Series of the Council for Northeast Historical Archaeology, Lorinda B. R. Goodwin, series editor.

U. S. Census
1850a *Population Schedule, Hamilton County, Ohio*. Cincinnati Historical Society.
1850b *Industry Schedule, Hamilton County, Ohio*. Public Library of Cincinnati and Hamilton County.
1860a *Manufacturing Schedule, Kenton County, Kentucky*. Kenton County Public Library.
1860b *Population Schedule, Kenton County, Kentucky*. Kenton County Public Library.

Wade, Richard C.
1959 *The Urban Frontier: Pioneer Life in Early Pittsburgh, Cincinnati, Lexington, Louisville, and St. Louis*. University of Chicago Press, Chicago.

Williams, C. S.
1849-1851, 1853, 1855-1858, 1860-1887, and 1889-1920 *The Williams Cincinnati Directory*. C. S. Williams Publishing (1849-1879), Williams and Co. Publishing (1880-1905), and Williams Directory Company (1906-1920), Cincinnati, Ohio.