

***LOCATING ENSLAVED CRAFT PRODUCTION:  
CHEMICAL ANALYSIS OF EIGHTEENTH CENTURY JAMAICAN POTTERY***

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*Archaeological sites from eighteenth century Jamaica contain significant quantities of locally-produced coarse earthenware. Historical accounts are replete with references to street markets through which enslaved and freed African Jamaicans bought and sold goods, including such earthenwares and the products contained within them. This study attempts to understand the significance of these markets and determine the scale of the informal economic sector in which enslaved and free African Jamaicans operated through ceramic compositional analysis.*

Archaeologists working with ceramics of the African Diaspora have generally assumed that the production of these materials occurred at the level of a household craft industry within enslaved residences for use in a given plantation (Bueze 1990:40; England 1994; Handler 1963, 1964; Wheaton and Garrow 1985: 183) and that the pottery that made its way into urban settings was a result of links created by the planter (Crane 1993) or through systems of internal trade including

Sunday markets and itinerant country peddlers (Hauser 2006, 2007, 2008; Hauser and Armstrong 1999; Joseph 2004, 2007). Whether relying on potential waster sherds (Wheaton and Garrow 1985) or ethnographic evidence and analogical reasoning (Bueze 1990:42; Handler 1964), there has been little evidence to date to challenge the model that local, low-fired, coarse earthenware were the product of part-time labor on the potters' part resulting in intermittent and indirect

distribution. Kiln-fired, wheel-thrown ceramics, like those discussed by Handler (1963) and England (1994), were the result of more intensive production and distribution systems. In initiating our analysis of ceramics from Jamaica, we framed, uncritically, our models around these rather dichotomous production strategies, mirroring the two predominant types of local pottery in Jamaica: Slipped and Glazed Yabba.

The focus of this article is the Yabba, a coarse, low-fired earthenware. Yabbas are generally associated with the independent production of African Jamaicans and are recovered from archaeological contexts associated with laboring and enslaved peoples of African descent. As such, they are one of the few forms of archaeologically recovered material culture that are directly related to enslaved independent production, trade, and use. Based on insight gained from the ethnographic record, we can go further and say that they represent the independent production of enslaved women. This production was rooted in a larger web of social networks and commodity production.

As many archaeologists and ethnoarchaeologists have argued, the process through which systems of technical knowledge are passed from one generation to the next, from one community to another is inherently complex and social. The knowledge is simultaneously explicit and implicit, where the routine of craft production is punctuated by specific active decisions made by the potter (Dietler and Herbich 2000; David and Kramer 2001; Dobres 2000; Gosselain 1992; 1998, 1999, 2000; Stark 1998). The women who made these pots used systems of knowledge and ways of doing things that they learned from their mothers, in some cases, brought with them from Africa,

and employed in new economic tasks. The pottery they made had to respond to the demands of the informal markets in which they were sold. This pottery can be seen, therefore, as a material embodiment of the social networks that linked generations of women and communities of enslaved laborers within informal and formal political economy.

### *Yabbas—An Archaeological Type and a Function Form*

To introduce and explain some ambiguity, in Jamaica the term “yabba ” refers to several types of ceramic and a specific form. The type, Yabbas are a local coarse earthenware produced in Jamaica as early as 1692 and up to the present day. They can be either glazed or slipped and the common attribute is that they are hand-made (as opposed to wheel thrown) and are perceived to be of local manufacture. Indeed Yabba-type pottery can be made into a pot, a Spanish jar, a monkey, or even a yabba. The form yabba refers to a large restricted-orifice, direct-rim bowl used to cook stews, rice, and fried foods. In this study, Yabba-type pottery proved to be a mechanism through which to understand the extent of this internal economy. These ceramics were used by people of African Descent, made by people of African Descent, and most importantly sold in the internal markets of Jamaica (Figure 1).

Phillip Mayes (1972) and Duncan Mathewson (1972a, 1972b, 1973) were the first archaeologists to identify the local seventeenth through nineteenth century production of low-fired ceramics in Jamaica. Both researchers classified these ceramics as “Yabbas”, employing a traditional Jamaican term. Its use implies a link between a twentieth century African Jamaican Yabba pottery tradition practiced in Spanish Town



Figure 1. Pottery sellers in Kingston, Jamaica. Unknown photographer, late-nineteenth or early twentieth century. Courtesy of the Smithsonian Institution National Anthropological Archives. Neg. 92-246.

by potter Ma Lou and her daughter, Munchie, and archaeologically-recovered low fired earthenwares. Jamaican local pottery has been described by several researchers, including Armstrong (1990), Ebanks (1984), Hauser (2000), Higman (1998), Mathewson (1972a, 1972b, 1973), Mayes (1972), Meyers (1999), Pasquariello (1995), and Reeves (1997).

In its derivation, Yabba actually refers to the form rather than the specific method of manufacture or decoration. The term itself is believed to be either derived from the Twi word “ayawa” meaning “earthenware dish” or a local ‘Arawak (sic)’ word for ‘Big Mouth’ (Mathewson 1972b:55). The strongest evidence of production comes from ethnographic accounts. In his analysis of a

present-day Spanish Town potter, Roderick Ebanks (1984) described the method of manufacture for slipped Yabbas. Ma Lou made coiled pots that were smoothed with a piece of wood and evened with a scraper (Ebanks 1984:33). The pots were dried slipped with hematite and then burnished. Finally, the pots were fired with green wood (Ebanks 1984:35). Similar coiled pots were recovered from seventeenth century contexts in Port Royal (see below). Also represented in the archaeological record are glazed pots of a similar shape, which Ebanks termed “Syncretic.” The glazing presupposes a kiln firing for this particular type of pottery. There is absolutely no ethnographic evidence of production of this type of ceramic with the exception of oral history citing a large

number of kilns along the Rio Cobre. The final type represented are untreated Yabbas.

1. Glazed Yabbas (Figure 2)—Glazed Yabbas appear to be made in a tradition similar to that described by Roderick Ebanks as syncretic wares. Breakage patterns in the sherds indicate that the pots are coil-made. Finger marks indicate that the pots are pulled even into a final form, and smoothed externally. These pots are relatively well-fired earthenware and oral history seems to indicate the use of a kiln. However, the presence of coring and variability in coring suggest that firing temperatures and lengths were inconsistent.
2. Slipped and/or Burnished Pottery (Figure 3)—Slipped and/or burnished Yabbas are indistinguishable from pots made by Ma Lou and Munchie. Breakage patterns in the sherds indicate that the pots are coil-

made. Finger marks indicated that the pots are pulled even into a final form, and smoothed externally. These pots were fired at a lower temperature than the glazed Yabbas. The firing environments were highly variable, as evident from the clouding and coring

3. Untreated Yabbas (Figure 4)—Untreated Yabbas are friable. The clay is coarse and sandy. In the catalogue for his dissertation Hauser (2001) as irregular in texture. The clay is also well sorted. The clay is light brown. Coring is not common, and when it is present, it commonly indicates a reducing environment. The clay contains fine quartz and mica inclusions. These inclusions were recorded as fine in size and subangular in texture. These pots were made into a relatively few number of forms including small everted and vertical pots or open and restricted bowls



Figure 2. Glazed Yabba with handle. Yabba from the Marx Collection, Port Royal, Jamaica. Photograph by author.



Figure 3. Slipped and burnished vertical pot. Yabba from the Marx Collection, Port Royal, Jamaica. Photograph by author.



Figure 4. Untreated Yabba with punctuated decoration. Yabba from the Marx Collection, Port Royal, Jamaica. Photograph by author.

The documentary record is limited in terms of the background of the people who made this pottery. There is only one source that attributes the manufacture of the pottery to people of African descent. Examination of archaeological ceramics, along with ethnographic analogues, is able to shed some light on who made the pottery and the manner in which it was traded. As Hauser has discussed elsewhere (Hauser 2006, 2007; Hauser and DeCorse 2003), the pottery would have been only one item of many traded in this system of markets. However, that being said, because Yabbas are one of the few items of material culture that survive in the archaeological record and speak directly to the independent production of enslaved laborers, they can speak to the silences of the documentary record on the scale and scope of the internal economy. In so doing, they give us an idea of the extent to which social networks were refashioned beyond the plantation community.

Low-fired ceramics have been found throughout the central region of Jamaica in contexts associated with the seventeenth, eighteenth, and nineteenth centuries. On rural sites, locally manufactured forms are usually excavated from domestic contexts related to the houses of enslaved Africans. In urban settings, however, low-fired ceramics have been recovered from contexts associated both with palatial structures, as in the case of King's House, (Mathewson 1972a, 1972b, 1973) and much smaller tenements in Port Royal (Mayes 1972). There are two potential reasons for this distribution: community based manufacture and distribution and regional based manufacture and distribution.

According to the first scenario, free and enslaved persons in urban and rural contexts would obtain their ceramics from a potter in

the area of their residence. The simplicity of the forms and the crudeness of the manufacture would support a mechanism of localized manufacture and distribution. It would follow that ceramics in the study collection reflect local articulations, structurally and compositionally. Therefore, the ceramics would be compositionally heterogeneous.

The second scenario involves a centralized manufacture of pottery and an island-wide distribution. In this scenario, systems of trade and distribution, including transportation by itinerant sellers, would be responsible for selling pottery across a broad region to a number of communities. Indeed, the similarity of the ceramics' matrix, form, and decorative inventory suggest that a similar group of potters produced them. There is evidence suggesting that one such group of potters was located along the Rio Cobre River near Spanishtown, Jamaica. Currently, one of the few surviving pottery traditions with ceramics similar to those found in the archaeological record is produced in Spanishtown. In this scenario, we would expect a relative homogeneity of ceramic between sites from which the study sample was collected.

Both scenarios remain plausible given our current state of knowledge on ceramic manufacture and distribution in the eighteenth century. While ideally distinct, archaeological evidence could suggest that these two strategies are not mutually exclusive mechanisms of ceramic distribution. It is possible, for instance, to find evidence of both scenarios at a specific site; where one group of ceramics is produced and distributed locally and another group of ceramics is produced centrally and distributed island-wide. Determination of a ceramic

recipe is required to identify the strategies of ceramic distribution.

***Ethnographic and Documentary evidence of Ceramic Manufacture and Location***

The documentary record provides some clues as to the potential location of historic potters and the sources from which they extracted the clays. Historical accounts of local pottery manufacture occur as early as the seventeenth century. While referring to the production of drip jars and sugar cones, Hans Sloane discusses local ceramic industries in 1687:

Pots for refining sugar were made at the Liguanea, and though more brittle and dearer than when bought from England, they were made here to supply the present needs of the planters, the clay of which they are made is dug up near the place (Sloane 1707-1725:xlvi).

The importance of this excerpt is two-fold. First, it locates a viable clay source in the Liguanea plain where present-day Kingston is located. Second, as Handler (1963b) has pointed out in Barbados, the craftspeople most likely employed in these workshops were enslaved peoples of African descent. Sloane, however, is alluding to sugar-wares not, Yabbas. There are excerpts in which Sloane does mention local utilitarian ceramics. To link these to Yabbas, requires some degree of inference. Following such reasoning, Sloane indicates that the enslaved were using such pottery,

The Negroes Houses are likewise at a distance from their Masters, and are small, oblong, thatch'd Huts, in which they have all their Moveables or Goods, which are generally a Mat to lie on, a Pot of

Earth to boil their Victuals in, either Yams, Plantains, or Potatoes, with a little salt Mackarel, and a Calabas or two for Cups and Spoons (xlvi).

Sloane goes on to say about Jamaica clays in general, "There are very good Bricks and Pots made here of the Clay of the Country, to the easie making of which the few Rains, as well as plenty of Firewood conduces much" (xlvi).

In the eighteenth century, written evidence describes in vague ways pottery manufacture. An anonymous writer in 1797 describes the domestic utensils of enslaved African Jamaicans in the *Columbia Magazine*:

Some negroes are expert in manufacturing pots and other common vessels on which they bestow a coarse glazing. Their pans (called Yabbas) are convex at the bottom without a ring as ours (Anonymous 1797:252; also in Armstrong 1990:293).

In 1774, Edward Long described these pots as "a better sort of earthenware, manufactured by the Negroes" (Long 1774 3:851). These pots were used primarily for cooking in the following manner: "The trivet for supporting the vessel in which he prepares his food, consists of three large stones" (Anonymous 1797:252; also in Armstrong 1990:292). Again, the document is ambiguous as to which kind of ceramic Long and the Anonymous author are referring to. The fact that Long is referencing the earthenware as a "better sort" could mean he is describing the coarse, internally glazed, restricted, direct rimmed vessels. They are ubiquitous in the archaeological record of Jamaica and can be found as early as the seventeenth century.

Through a discussion of the clay sources used that appears in the same archival record, we know that the pots were manufactured locally. Speaking of the local clay sources on the island, Edward Long states:

The first is used in claying muscavado Sugars as, well as for a better sort of earthenware, manufactured by the Negroes. The second is more frequent, and supplies the inhabitants with water jars, and other convenient vessels for domestic use. It is likewise most proper for tiles, and drips (Long 1774 3:851).

Edward Long is describing the alluvial soils found in the Liguanea plain around Kingston. In 1843, James Phillippo describes another source of clay used to manufacture these ceramics: "Particles of golden mica have been found in districts near the source of the Rio Cobre, and sometimes, near Spanish Town, it has been incorporated with the potter's clay" (Phillippo 1843:72). This source of clay, and the potters Phillippo is referring to, matches up with the ethnographically described present-day potters.

The problem with the documentary record is that it is sparse, ambiguous, and vague. It concentrates on the cataloguing of local manufacture, rather than on those who manufactured it. As such, from the documents alone it is impossible to ascertain who was actually making the pots, other than people of African descent. Questions left unanswered include: Who among the enslaved made these pots? How were they made? How did people learn how to make these pots? And, most importantly, in what context were they made?

The strongest evidence of local production is ethnographic. Two present-day descriptions exist for Yabbas. In research conducted for his master's thesis, Roderick Ebanks interviewed, and documented pottery manufactured by Ma Lou, Ms. Louisa Jones. The potteries responsible for the production of at least one type of Jamaican pottery in the early to mid-twentieth century was concentrated in family compounds and organized around female members of the family (Ebanks 1984). Roderick Ebanks recorded in 1984:

Fanny Johnson [Ma Lou's mother] was a potter, as was her mother before her. The yard in which Mother Lou was born contained a large extended family of maternal aunts and their children. All of these aunts made pots, and almost every yard in the district was occupied by a family of potters. By the time Ma Lou was nine she and her female cousins had begun to learn pottery from her mother, three aunts, and uncle's wife (Ebanks 1984:33).

In the early twentieth century, Ma Lou had learned her skill from her mother, and pottery formed a family enterprise. Ma Lou had to become a domestic servant in the 1950s when the economy crashed:

Ma Lou continued to perfect her skills until the end of the 1940s, when the introduction of the aluminum pot all but destroyed the potting industry, which appears to have relied heavily on cooking pot sales to sustain it (Ebanks 1984:31). During this time, Ma Lou claimed, she lost much of the skill she had developed as a young child.

Beginning in the 1970s, a growing involvement by the middle class in Jamaican



arts and heritage revived interest in Yabbas, especially those that evoked linkages to African traditions. Ma Lou began making Yabbas again for sale at craft markets and cultural expositions in Kingston. Her work became a celebrated embodiment of Jamaica's art and heritage (Francis-Brown 1983; Morgan 1989), and Ma Lou was sometimes mentioned in the same sentence as master Jamaican ceramicist Cecil Baugh. It is during this time that Roderick Ebanks conducted most of his interviews with Ma Lou.

Ma Lou passed away in 1992, and her daughter, Munchie, took up her trade. Moira Vincentelli has recently interviewed and recorded the production of pottery by Munchie, Marlene Roden (2004). Munchie learned the trade from her mother, a transmission of knowledge that seems to be rooted in kinship ties focused on matrifocal house yards (Ebanks 1984:3; Vincentelli 2004:125). This transmission, at least from conversations Hauser had in 1999 and 2007, does have some material evidence (Hauser 2008).

In 1999, when Hauser asked Munchie how he would be able to tell the differences between her mother's pottery and her own, she laughed. She then went on to tell me that her mother's mark was made pressing her pinky fingernail into the rim three times. Munchie made four marks. Hauser then asked if her daughter would make five. She laughed and said, "No—maybe my son," and pointed to her son, who was arranging pottery to sell to me. In her house yard, all the children helped her collect the clay and fuel, prepare the clay, and sometimes shape the pottery. In 2007, Munchie was still selling pottery, though not making as much. Her son still had interest, but as Munchie said, no one comes by to buy

Yabbas anymore. While the focus of pottery manufacture was certainly around these two women, a host of individuals is involved in the production and sale of the pottery. It can be inferred from the above quote that the other individuals might have been members of the potters' family.

There is little ethnographic evidence of the production of glazed Yabbas in the twentieth century. On January 13th, 1970, Henia and Jerome Handler conducted several interviews with Cecil Baugh, a master Jamaican potter. In this interview, Baugh described how he first became interested in making pottery and how he learned the craft. During this discussion he alluded to both the glazed and slipped Jamaican ceramics. He said that Yabba, "should only be applied to bowls, large or small, of earthenware" (Henia Handler Notes January 13th, 1970, courtesy of Jerome Handler). Several days later Baugh went on to describe potters living along Mountain View Road in Kingston...

If a woman was good at making yabbah she might produce several dozen a day. They were given to people to sell in town, 'mostly Syrian', who would carry them down and make '100 percent profit'. A small yabbah about five inches high, 8 inches across were sold to the seller at a shilling a dozen. The seller would sell them for 2 pence or threpence a piece (Henia Handler Notes January 15th, 1970, courtesy of Jerome Handler).

Earlier in the twentieth century, Martha Beckwith mentioned,

In old days the calabash and the great clay jar called "panya" (Spanish) were the common receptacles, with a gourd for a carrier poised upon the head. . . . Today the kerosene can is the common carrier. I have seen children of eight or

ten carrying such cans of water on their heads from the brook. . . . Earthen bowls, hand-turned and covered with a rude glaze, are always to be had in the Kingston market, but they are more rare in the hills where the old-time "yabba" is being supplanted by tinware (Beckwith 1929:47).

We must also use, however, the above quote with a degree of caution. Certainly, the excerpt demonstrates that the pottery was involved in a circuit of commodity distribution. However, it also demonstrates how technological innovations, global shifts in production, and trade had a real impact on the market for the "old-time 'Yabba.'"

### *Markets and Pots*

In the eighteenth century, the pottery described above was one of many items in circulation among enslaved and freed peoples of African descent. The locus of this internal trade was a series of Sunday markets established by law to assist in the provisioning of enslaved laborers on the plantation and to facilitate the distribution of provision ground produce to urban populations. The markets were a meeting place of people and commodities. They were the point where imported and local goods were bought and were sold. The documentary record enables a great deal of inference in pottery manufacture and consumption. The same evidence more directly addresses the sale of local pottery on the Sunday street markets and through higgler [derivation of haggler]—itinerant, free, and enslaved traders. A 1711 legal code states, in reference to a prohibition against slaves selling goods, "This restraint is construed to extend only to beef, veal, mutton and saltfish; and to manufactures, except baskets, ropes of bark,

earthen pots and such like" (Long 1774, II:487).

In 1793, Bryan Edwards recorded that, "Upwards of ten thousand assemble every Sunday morning in the market of Kingston where they barter their provisions, etc. for salted beef and pork, or fine linen and ornaments" (1793:125).

He goes on to say.

Some of them find time on these days to make a few coarse manufactures, besides raising provisions, such as mats for beds, bark ropes of strong and durable texture, wicker chairs and baskets, earthen jars and pans ready for sale (1793:125).

The markets continued into the nineteenth century. In 1843, James Phillippo notes that Yabbas and earthen jars were sold on the Sunday markets along with mats, baskets, and other products of African Jamaican manufacture (Phillippo 1843:72).

The pottery, though a small aspect of this trade, remains a durable and archaeologically visible component. We therefore cannot assume that the pottery found in archaeological excavations are the result of village-based systems of production and distribution.

### *Archaeological Analysis*

Focusing on eighteenth century pottery, this study attempts to determine the extent to which local ceramics were distributed through the market systems of Jamaica. Adopting an approach in which ceramics are items of exchange in a network of market systems requires a focus on distribution and provenance.

To talk about a single type of Yabba or colonial Jamaican ceramic misrepresents the

archaeological assemblage and the variation in production strategies of eighteenth-century potters. Even if the ceramics were uniform, they would not represent the diversity of peoples arriving in Jamaica between 1655 and 1807. Low-fired ceramics have been found throughout the central region of Jamaica in contexts associated with the seventeenth, eighteenth, and nineteenth centuries. These contexts include domestic assemblages from house yards of slave villages, middens from Planter's houses, urban tenements, and town houses. In the eighteenth century, the ceramics seem to be an in-demand item of local manufacture that is relatively standardized and found in archaeological contexts across the island. This raises a question, however, about whether the lack of decoration and reduction of variation in forms mirrors a trend followed by artisans in different communities across the island of Jamaica, or whether it represents the consolidation of a single locus of ceramic manufacture.

### *Archaeological Context*

Hauser examined ceramic collections from eight previously excavated sites dating to the eighteenth century and collected samples for further analysis. The sites chosen for this study offered excellent chronological and spatial control. These sites include Seville and Drax Hall excavated by Douglas Armstrong; Juan De Bolas and Thetford excavated by Mathew Reeves; Old King's House in Spanish Town excavated by Duncan Mathewson; Old Naval Dockyard, Port Royal excavated by Philip Mayes; and Saint Peter's Church, Port Royal excavated by Anthony Priddy.

Overall, these sites represent an occupational history that extends from the seventeenth century to the twentieth century.

Ceramics were recovered from contexts associated with house-yards of enslaved laborers at Seville (Armstrong 1999), Drax Hall (Armstrong 1990: 74), and Juan De Bolas (Reeves 1997:50); provision grounds the laborers worked at Thetford (Reeves 1997:43); domestic assemblages that the enslaved used to cook for themselves and for their masters at Drax Hall (Armstrong 1990: 74) and Old Kings House (Mathewson 1972:3); and urban residences of enslaved and freed laborers at St. Peter's Church (Brown 1996:23) and Old Naval Dockyard (Mayes 1972:6).

Each site contained discrete eighteenth-century cultural deposits that enable an analysis of associated 'local' ceramics (Figure 5). These contexts were distinguished through a combination of associated material culture (Armstrong 1990, 1999; Mayes 1972; Reeves 1997); sealed archaeological contexts associated with known construction events (Armstrong 1998; Mathewson 1972) and geological events such as earthquakes (Brown 1996; Mayes 1972;). To ensure that ceramics examined did indeed originate from the eighteenth century, TPQ90 of associated imported material were a primary determinant in establishing chronological control.

### *Geological Context*

Jamaica is a geologically diverse island (see Figure 6) with considerable mineralogical variation in clay deposits located across the island (Bailey 1972). The island is divided into two blocks: the Cornwall-Middlesex Block and the Blue Mountain block, separated by the Wagwater trough in the area of Mona Heights (Robinson et al. 1970:2). Distinct to the northern and western coasts of Jamaica is the coastal formation, which is dominated by sandy calcarenite, silts, and

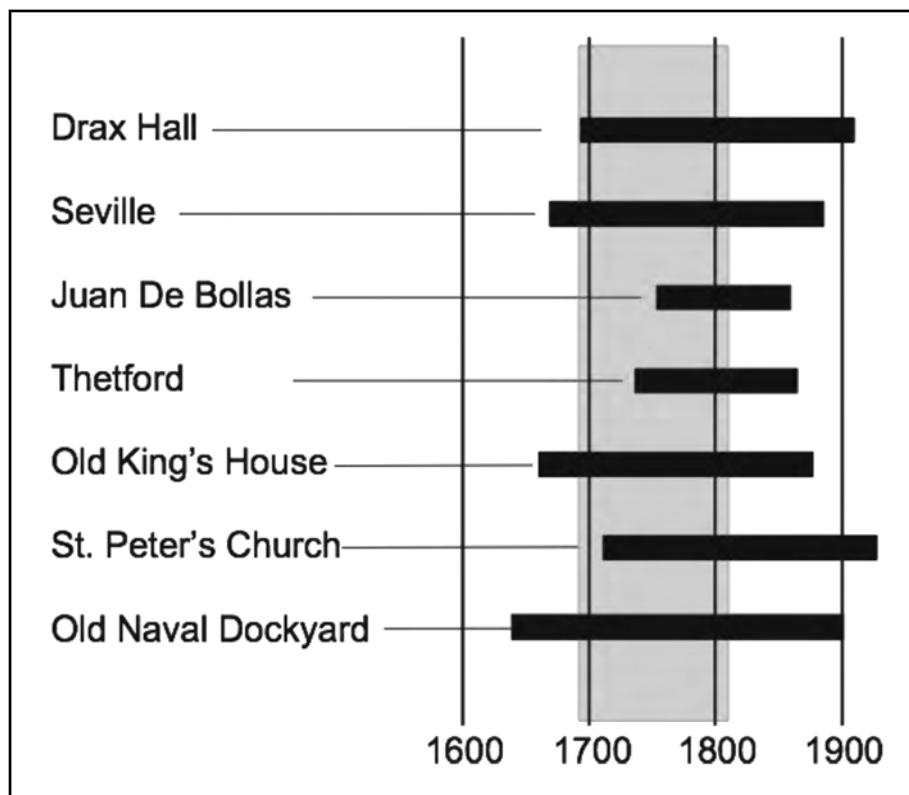


Figure 5. Chronology of sampled archaeological sites in seventeenth, eighteenth, and nineteenth century Jamaica. Chronology is based on documented occupation as well as associated material culture. Illustration by author.

bedded limestones. Texturally, sediment tends to be produced by high-energy processes, which has implications for the texture and shape of detrital mineral inclusions. Jamaica has two major limestone groups, which form a large component of Jamaica's bedrock. The Newport, Browns Town and Claremont group characterize the White Limestone formation, formed in the late Tertiary. The Yellow Limestone formation is characterized by the Chapleton and Font Hill formation. Whereas the Chapleton and Font Hill formations are found throughout the island, rocks of the Claremont are volumetrically most abundant, followed by the Browns Town formation (Robinson et al. 1970:2–6).

There are nine major inliers, three of which are important to this study: the Above Rocks granodiorite (Early Albian), the Blue Mountain and eastern Wagwater belt (Mastrichtian), and the Saint Ann's Inlier (Santonian) (Robinson et al. 1970:5). These inliers, which are of Cretaceous volcanic, metamorphic, and plutonic rocks, extend from Negril to Saint Thomas in an east-west direction.

Clays from Jamaica have been examined mineralogically by Bailey (1972). Potential sources for clay include Saint Catherine's Rio Cobre alluvium (Phillipo 1843; Reeves 1997:184), Hope River sediment in Saint Andrews, and riverine deposits in Saint Ann's. Saint Catherine's contains red burning clay deposits (Bailey 1972:1) near Bog Walk

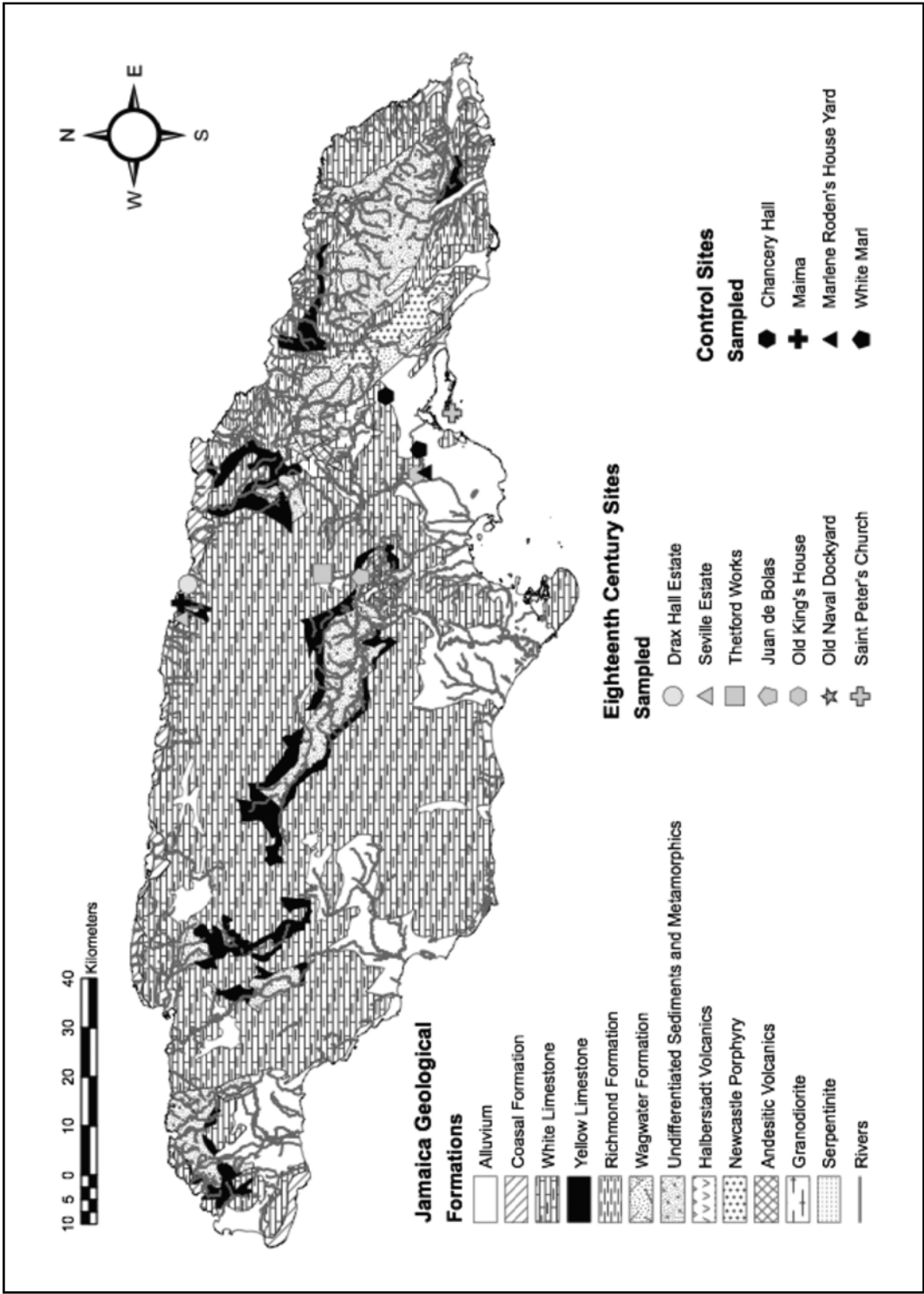


Figure 6. Geological map of Jamaica with the location of sites included in petrographic analysis. Adapted from the Jamaican Geological Survey (1969). Illustration by author.

and “silty, slightly contaminated, cream colored clays” near Spanish Town (Bailey 1972:3). At Bog Walk, clays are located in the region of Tulloch. They are reported to be of high quality and contain only limestone and organics as impurities (Bailey 1972:1).

In Spanish Town, the clay was most likely extracted from an alluvial deposit known as the older Liguanea gravels. This deposit formed when the Rio Cobre, which now flows directly into Kingston Harbor, flowed into Galleon Harbor (Green and Black 1970:8). Texturally, this alluvium is comprised of coarse gravels, sands, and clay. Mineral inclusions in these alluvial clays include residual clasts from the Above Rocks granodiorite inlier (Bailey 1972:3). Sediment derived from erosion of this granodiorite should contain large simple quartz grains.

### ***Petrography***

A sample of one hundred sixty-four sherds from the collection of excavated archaeological ceramics discussed above were examined petrographically by Mark Hauser. The sampling strategy concentrated on glazed, slipped, and untreated ceramics from each of the historic context sites (n=138). We also included ceramics of probable English and Cuban, yet unknown, origin (n=12). In addition, we included a control sample of prehistoric ceramics recovered from Chancery Hall (n=4) White Marl (n=5) and Maima (n=5) along with ethnographic ceramics recovered from Munchie’s House Yard (n=2). Initial cuts were made along the vertical axis of the pot beginning at the lip of the rim sherd at the Heroy Geological Laboratory at Syracuse University. Mark Hauser (2001, 2008) analyzed the ceramics qualitatively, noting mineral identity, size, angularity, alteration in

the minerals, and relationship to each other, as well as point counting.

Previous research using petrographic analysis showed that there was limited variation in the clay sources used to produce glazed and slipped Yabbas (Hauser 2001, 2006, 2007, 2008). Detrital inclusions identified in thin section seem to resemble most closely clays recovered from the Rio Cobre around Spanish Town.

Following techniques described by Stoltman (1989, 1991, 1999), sherds were examined through a technique called point counting. Specifically, a multiple intercept approach was used (Middleton et al. 1985:66); this is essentially a systematic sampling technique in which the microscope stage is advanced at a set interval. The petrographer records the mineral at the center of the field of view. Each grain is measured regardless of whether or not it has already been recorded. Stoltman suggests that 100 observations be made at 1 mm intervals exclusive of voids in the clay. Whereas 100 observations is expedient in analysis and far more than the conventional wisdom of 50 counts (Peacock 1971), it is far less than the 150 suggested by Leese (1983:49) and 200 suggested by Fieller and Nicholson (1991:88). In this study, 385 observations were used, exclusive of voids, to describe the mineralogical variation.

The mineralogical identity of the inclusion, its size, shape, and angularity were recorded. The relative abundance of specific minerals and their shape give some indication of the relative maturity of the source materials. Several minerals were significant in the overall analysis of the composition of the ceramics: quartz, potassium feldspar, and plagioclase feldspar.

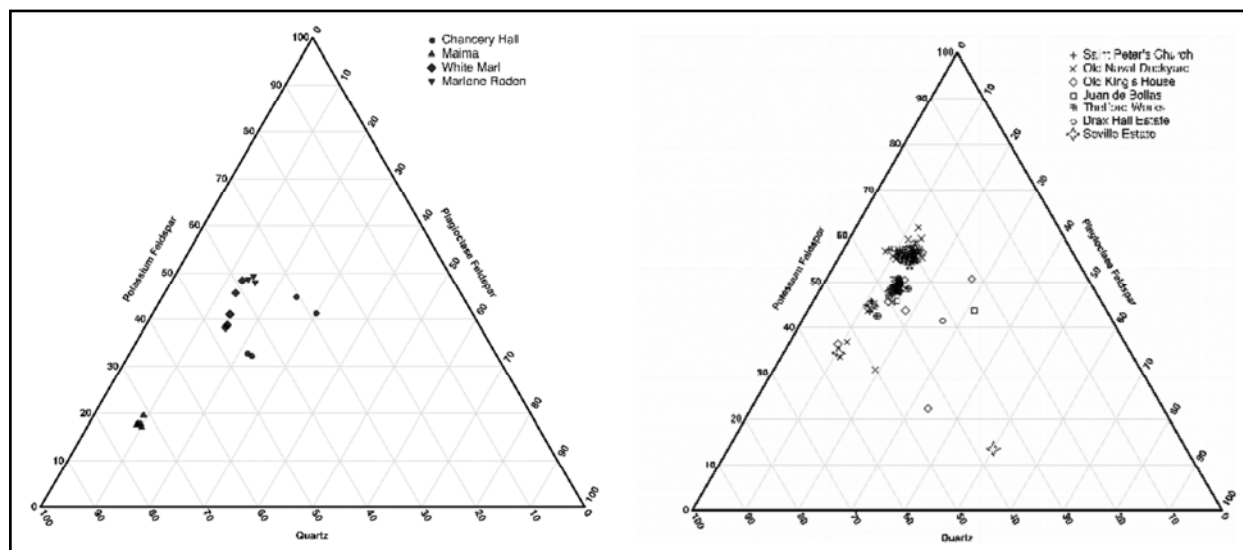


Figure 7. Ternary diagram showing the diversity of ceramic recipes used to make Yabba (right) and Control (left) samples. Quartz includes mechanically deformed, mechanically altered, and simple quartz. Potassium feldspar percentages are based on the combination of all alkali feldspars including potassium feldspar, perthite, microcline feldspar, and sanadine. Plagioclase feldspar includes non-altered and chemically altered plagioclase. Crystals included in foliated lithic fragments were not included in the count. Ellipses are not statistically derived.

The primary mineral components of the ceramic samples are a fine clay matrix, potassium feldspar, plagioclase feldspar, and quartz. To assess the compositional variability in the parent rocks of the source material, the relative abundances of the three minerals were normalized to percentages on ternary diagrams. The prehistoric pottery was examined to see if there would be significant variation in the composition based on location. One can distinguish the Maima ceramics, which have about 55 percent quartz and about 45 percent total feldspar and the Chancery Hall and White Marl ceramics, which have from 10 to 30 percent quartz and 40 to 60 percent total feldspar (Figure 7). What is interesting is that samples from both White Marl and Chancery Hall are heterogenous and the source material used to make all nine ceramic sherds is incredibly varied. The five ceramic sherds recovered from Maima seem to be relatively homogenous and distinct from the White

Marl and Chancery Hall ceramics. This underscores the utility of petrography, which is highly sensitive to variation in the sediments used to produce pottery.

In Figure 7, we plot the relative abundances of quartz, plagioclase feldspar, and orthoclase feldspar normalized to percentages on a ternary diagram. It is apparent that there are several distinct clusters. What is important in this analysis is that several of the groups contain samples from each of the archaeological sites (Table 1).

Four of the compositional groups interpreted from petrographic analyses contain inclusions consistent with the alluvial sediments from the Rio Cobre in the region of Spanish Town. This includes abundant potassium feldspar, quartz, plagioclase feldspar, laterite fragments, and minor amounts of biotite. Of note was the recrystallization of quartz indicating a metamorphic source material for the clays

Table 1. A cross tabulation of groups represented from samples plotted on the ternary diagram and their provenance

		<b>Petrographic Group</b>					
	<b>Site Name</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>NA</b>	<b>Out</b>
<b>Plantation Sites</b>	<i>Seville</i>	5	3	1		2	1
	<i>Drax Hall</i>	6	1	1	1	1	
	<i>Juan de Bolas</i>	1	6	1	1	2	
	<i>Thetford</i>	2	9	1	1		
<b>Urban Sites</b>	<i>Old Kings House</i>	13	13	4	2	3	1
	<i>Old Naval Dockyard</i>	16	13	2	2	3	2
	<i>St. Peters Church</i>	13	8	2	6	1	
<b>Ethnographic</b>	<i>Munchie</i>		2			1	
<b>Grand Total</b>		<b>56</b>	<b>55</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>4</b>

used to construct the pottery. One of the compositional groups contained inclusions that were consistent with sediments from the Liguanea Plain around Kingston. These soils had considerable amounts of feldspar and quartz, but also contained high quantities of arkose fragments. Finally, one group contained smaller inclusions of quartz, potassium feldspar and plagioclase feldspar. This compositional group is significantly different from sediment in both the Liguanea and the Rio Cobre.

To see how similar the four compositional groups were to Rio Cobre clay sources, archaeological and ethnographic samples were analyzed by instrumental neutron activation analysis (INAA). The ethnographic samples came from the waster pile of Munchie, one of the last remaining traditional potters working in Jamaica. Clay sources used in her analysis have a known provenance.

### *Instrumental Neutron Activation Analysis*

Fifty-one ceramic specimens from eighteenth century archaeological contexts in Jamaica were submitted for INAA at the University of Missouri Research Reactor Center (MURR). These ceramic specimens comprise sherds representing three types from eight archaeological sites (Drax Hall, Juan de Bolas, Munchie, Old Kings House, Old Naval Dockyard, Saint Peter's Church, Seville, Thetford) in Jamaica's central corridor. These types include glazed (n=18), slipped (n=27) and untreated Yabbas (n=4).

The samples underwent neutron activation analysis at MURR where they were subjected to methods of sample preparation, analysis, and data reduced in manners consistent with procedures described in the introductory chapter. A two-group structure was identified in the ceramic specimens: Group 1 (n=19) and Group 2 (n=27). Chemical characteristics for the two compositional groups are



represented in Figure 8. Group 1, a distinct compositional group, tends to be enriched in sodium relative to compositional Group 2. A cut-off of 1% was generally used to refine the membership of the groups, however, exceptions were made based on the graphical representation of the data. Three specimens (6%) could not be assigned to any of the identified compositional groups

There is some variation within Group 1 and it may be comprised of sub-groups (see Figure 9). Group 1a is characterized by enriched sodium concentrations and depleted arsenic concentrations when compared to Group 1b. We decided to “lump” rather than “split” Compositional Group 1 because there does not appear to be any archaeological

meaning to splitting this group at the moment. Although highly mobile elements such as sodium and other alkali metals might belie patterns derived from post depositional environments exposed to sea water such as Port Royal and Seville, this does not seem to be born out in the group membership table (Table 2).

Compositional Group 2 subsumes much chemical variability and is enriched in hafnium and thorium when compared to compositional Group 1. It is highly probable that analyzing more samples will allow us to identify subgroups within Group 2 (Figure 9).

Despite the large membership of the compositional groups, tentative patterns can be identified when investigating the

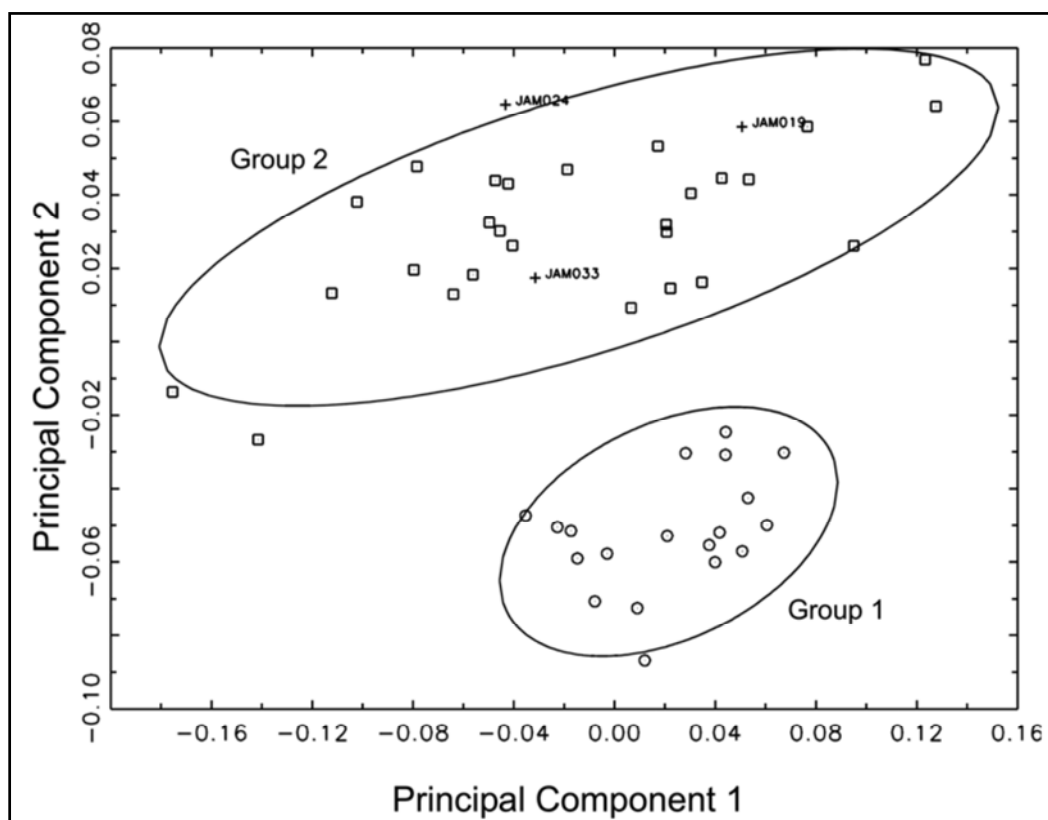


Figure 8. Biplot of principal components 1 and 2 displaying two compositional groups and labeled unassigned specimens (+). Ellipses represent 90 percent confidence level for membership in groups.

Table 2. Summary of compositional groups attributed to ceramic samples through INAA.

	Site Name	Chemical Group					Total
		1a	1b	2	Out	U	
<b>Plantation Sites</b>	<i>Seville</i>	2	1	3			6
	<i>Drax Hall</i>	1	3	2			6
	<i>Juan de Bolas</i>	1		4	1		6
	<i>Thetford</i>			4		2	6
<b>Urban Sites</b>	<i>Old Kings House</i>	1	5	5		1	12
	<i>Old Naval Dockyard</i>	2		4			6
	<i>St. Peters Church</i>	1	2	3			6
<b>Ethnographic</b>	<i>Munchie</i>			2	1		3
<b>Grand Total</b>		<b>8</b>	<b>11</b>	<b>27</b>	<b>2</b>	<b>3</b>	<b>51</b>

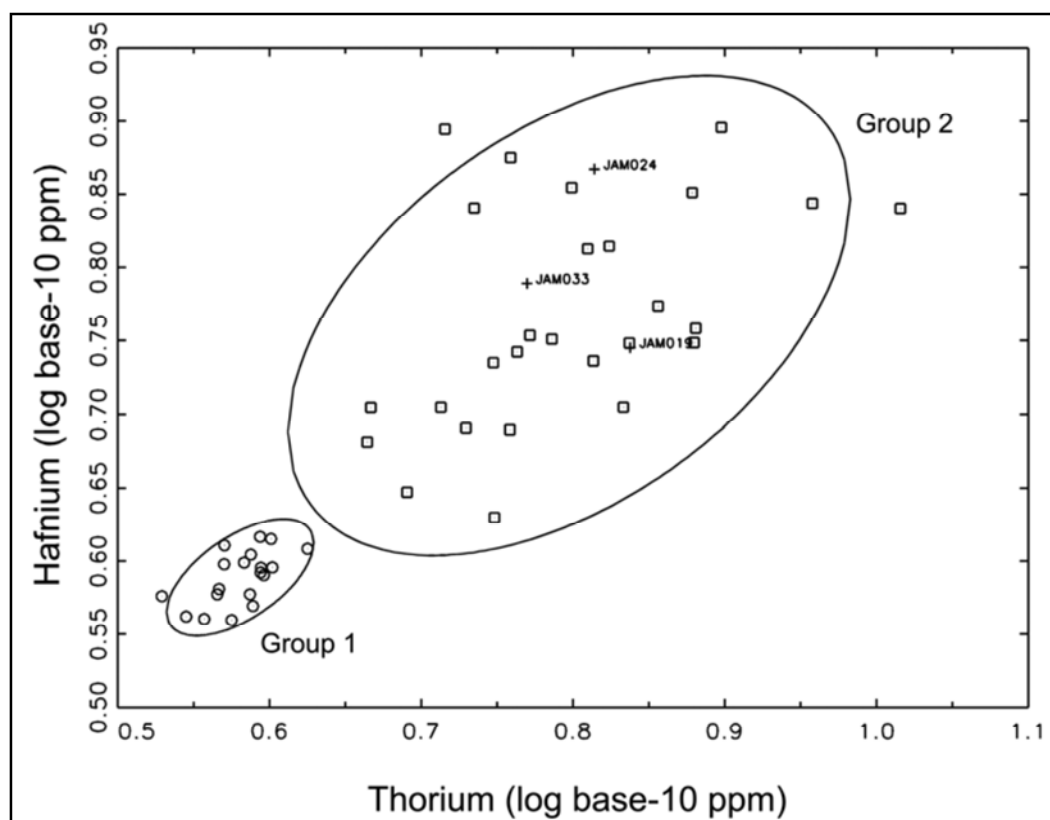


Figure 9. Bivariate plot of base-10 logged thorium and hafnium concentrations showing the chemical distinctiveness of the two compositional groups. Ellipses represent 90 percent confidence level for membership in the groups. Unclassified samples (+) are labeled.

decoration of the sherd members in each group. Compositional Group 1 members are predominantly Yabba with internal glazing, whereas compositional Group 2 members tend to be pots with vertical rims, and slipping and burnishing for decoration. We analyzed the glazed surface of specimen JAM002, a member of Compositional Group 1, with a non-destructive energy dispersive X-ray fluorescence (EDXRF) spectrometer and determined that the glaze has high concentrations of lead as would be expected for glazed pottery of this period.

Ceramic specimens from six of the eight sites have membership in both compositional groups (Figure 10). Two sites have ceramics that belong only to Compositional Group 2.

But for two unassigned specimens, all of the sherds collected from the slave village contexts of the site of Thetford have membership in Compositional Group 2. Except for a single specimen that was considered an outlier and not included in the study, ceramic sherd specimens from the ethnographic contexts of the site of Munchie (Marlene Roden) only belong to Compositional Group 2.

The INAA study identified two distinct ceramic compositional groups. Possible tendencies or associations between the chemical compositions of the sherds, their provenience, and their ceramic decorative styles were identified. The study is incomplete, given the importance of sample

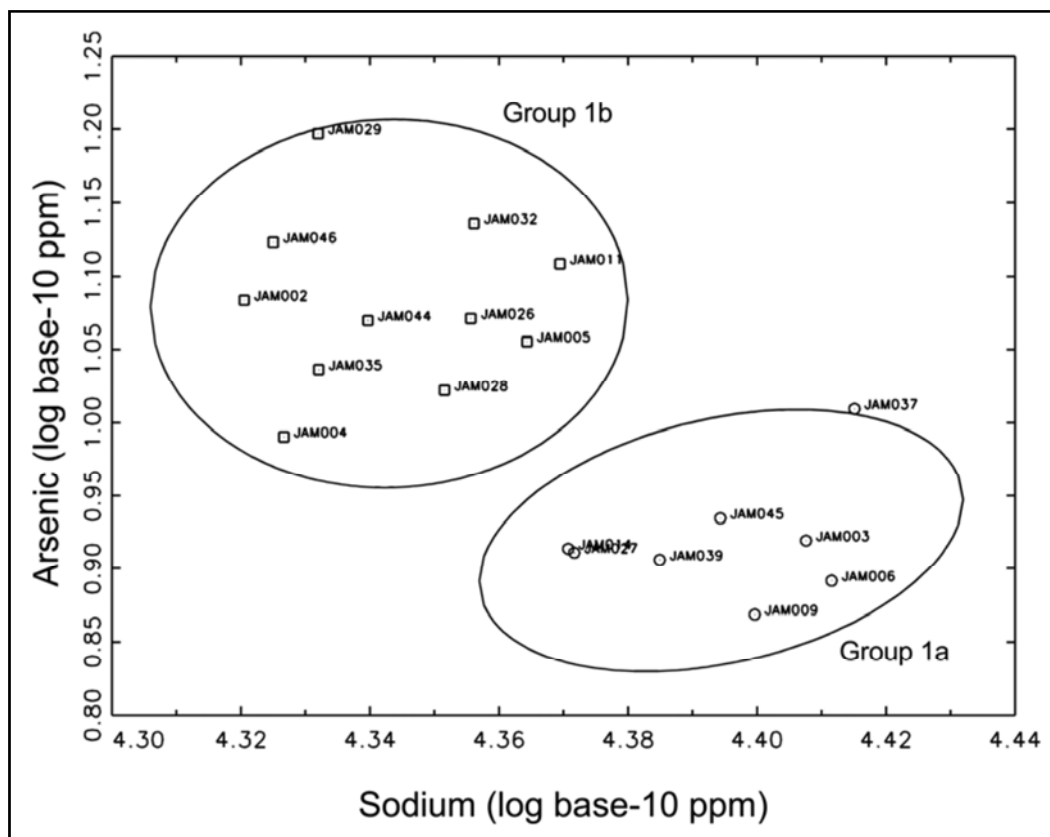


Figure 10. Bivariate plot of base-10 logged sodium and arsenic concentrations showing two possible subgroups within compositional group 1. Ellipses represent 90 percent confidence level for membership in the groups. Unclassified samples (+) are labeled.

size in establishing patterns where no geological source samples are used. The submission of more samples from these contexts could further test these identified patterns as well as delineate more groups and subgroups. Overall, the patterns of ceramics and the delineated groups seem to conform with groups established through petrographic description. Most importantly, the study indicates that samples recovered from across the island were employing similar ceramic recipes.

At this early stage, it is difficult to ascertain what the chemical compositional groups represent. Determining whether the identified compositional groups refer to local or exotic sources will require the submission of raw clay samples for chemical analysis or the mineralogical analysis of raw clay samples. However, using the criterion of abundance, it is safe to assume that both compositional groups are of local origin and that chemical differences are attributable to different local sources of raw clay, different ceramic recipes, diverse uses, or a combination of all these potential factors.

### Correspondence

In general, the two methods employed in this analysis, petrographic analysis conducted by Hauser in 2000, and INAA performed by Descantes, Speakman, and Glascock in 2005, have some amount of agreement in the degree of variation and the amount of recipes (See Table 3). In general, the majority of ceramics identified as Chemical Group 1 were identified as Petrographic Group 2 (n=15). Similarly the majority of ceramics identified as Chemical Group 2 were identified as Petrographic Group 3 (n=15). The correspondence is not perfect, however. Several samples identified as Chemical Group 1 were identified as Petrographic

Table 3. Correspondence of Archaeological Types (Gl.:Glazed, Sl.:Slipped, N.:None), Chemical Types (Chem. Grp.), and Petrographic Types (Petr. Grp.).

Chem. Grp.	Petr. Grp.	Treatment			Grand Total
		Gl.	Sl.	N.	
1	2	13	2		15
	3		1		1
	4	1			1
	NA	1			1
	OUT	1			1
2	2		2		2
	3	1	12	2	15
	4	2	2		4
	5		5		5
	NA			1	1
Out	NA		2		2
U	2		1		1
	3		2		2
Grand Total		19	29	3	51

Groups 3 (n=1), Group 4 (n=1), an Outlier (n=1), and NA (n=1). Several samples identified as Chemical Group 2 were also identified as Petrographic Groups 2 (n=2), 4 (n=4), 5 (n=5), and NA (n=1). With these two analytical techniques combined, there seems to be a high correlation between compositional groups and the archaeological types of ceramics recovered. In general, Chemical Group 1 ceramics and Petrographic Group 2 ceramics are glazed Yabbas. Chemical Group 2 and Petrographic Group 3 ceramics tend to be slipped Yabbas. As was indicated above, Chemical Group 2 was considerably varied and might contain potential subgroups. Similarly, slipped Yabbas are the most varied type of ceramic material. This could be a function of sampling error, but it could also suggest

Table 4. Cross tabulation of sample membership in chemical and petrographic groups.

<b>Chemical Group</b>	<b>Petro Group</b>	<i>Drax Hall</i>	<i>Seville</i>	<i>Thetford</i>	<i>Juan de Bolas</i>	<i>Kings House</i>	<i>Naval Dockyard</i>	<i>St. Peters Church</i>	<i>Munchie</i>	<b>Grand Total</b>
<i>1</i>	2	3	2		1	4	2		3	15
	3					1				1
	4	1								1
	NA					1				1
	OUT		1							1
<i>2</i>	2		1					1		2
	3	1	1	3	1	3	3	1	2	15
	4			1	1	1				4
	5	1	1		1	1		1		5
	NA				1					1
<i>Out</i>	NA				1					1
<i>U</i>	2			1						
	3			1		1				2
<b>Grand Total</b>		<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>12</b>	<b>6</b>	<b>6</b>	<b>3</b>	<b>51</b>

potential multiple locations of manufacture. However, the fact that five of the slipped Yabba samples are grouped as Chemical Group 2 and Petrographic Group 5 supports the possibility that there are potential sub groups that are captured using qualitative and semi-quantitative techniques like ceramic petrography and point-counting that are not statistically significant from the larger group. This might indicate variation in the recipes employed by the potters or the sources the potters used.

Turning back to the question of relative provenance, whether or not archaeological ceramics recovered from the south coast were made using the same recipe as archaeological ceramics recovered from the north coast, an analysis of compositional groups and their distribution across the island is telling (Table 4). Samples identified as Petrographic Groups 2 and 3 were recovered from each of the archaeological sites in the study area.

Samples identified as Chemical Groups 1 and 2 were also recovered from each of the historic period sites. Each of these groups does have some degree of variation.

To combine the different analyses as a measure of further precaution, we still find similar distributions. Samples identified as Chemical Group 1 and Petrographic Group 2 were recovered from the north coast (Drax Hall, Seville); central (Juan de Bolas and King's House) and the south coast (Naval Dockyard and St. Peter's Church). These samples were glazed Yabbas and similar to those that Cecil Baugh described as being made on Mountain View Road. The fact that there were none found in Thetford is a function of their low abundance in the overall assemblage of that excavation's collection. Samples identified as Chemical Group 2 and Petrographic Group 3 were recovered from all seven historic period sites sampled and the control sample from Munchie's houseyard.

These samples were slipped and burnished Yabbas and are similar to those described by Edward Long, Hans Sloane and Roderick Ebanks.

We actually anticipated finding a considerable amount of variation in the pottery. This came from my visual inspection of the pieces and from what the previously published studies on analogous pottery on other islands were. Essentially the results of both the petrographic description and INAA confirm that pots recovered archaeologically from the sites located on the north coast appear to be made using the same ceramic recipe as pottery recovered from the south coast and the central part of the island. In addition, it appears that the recipe employed by Munchie, at least in the case of two samples, is similar to the recipe used in the eighteenth century for slipped and burnished ceramics.

### ***Conclusion***

While these results do not necessarily indicate an island-wide system of distribution, the scale of production is certainly larger than we had anticipated. Many archaeologists studying colonowares in the South East have argued that these ceramics made by enslaved women during their free time were for their own use or the use by others in the slave village. We would like to highlight the point that most believed, because of the fragility of ceramics and because of the assumption of the kinds of industry the enslaved could undertake, that the manufacture and the distribution of colonoware would be local. This is derived from a sound logic based on the facts that Yabbas could not easily be transported between parishes and that potters could not produce enough to meet a regional demand. Rather, what we see are ceramics made by

different potteries but recovered from sites on the north and the south coast. Coupled with the documentary record, we can use this information to infer a trade in ceramic materials between both coasts with little to no facilitation by the planting class. Not only does this give us a venue into understanding enslaved craft production, it also gives us an ability to evaluate and track the flow of commodities with the enslaved's own economic system. The pots that were in Seville and St Peter's Church were not in-and-of themselves mobile, nor was there a natural conservancy in their use. They were moved by people who were, in many cases, enslaved, and their mobility, at least in legislative terms, circumscribed.

In Jamaica, the partial nature of the documentary record leaves much room for the interpretation of internal market exchange and pottery production. More so, the ethnographic evidence of contemporary potters in the Caribbean producing analogous ceramics point to small-scale production but an unstable market and an early twentieth century crash in the demand for pottery. While suggestive, hints about the scale of pottery production and distribution can be gleaned from oral histories of Munchie and others. Archaeological evidence indicates that ceramic production of Yabbas, though highly variable was focused in a limited number of locations for three centuries. Note that we do not indicate an exact provenance for the production of the ceramics. We do not know necessarily where they were made, we only have a good idea that ethnographic examples retrieved from Munchie's house yard have the same chemical constituency as Petrographic Group 3 and Chemical Group 2. The analysis described above gives us an answer, though partial, about the extent of commodity flow. To speculate from this set

of archaeological data, our understanding of commodity flow has an enormous impact on our understanding of Jamaica's economy as a whole.

We are also left with some unresolved and some archaeologically unanswerable questions. Was the clay traded across the island or the pottery? Were the potters afforded the same kind of mobility to hawk their wares or was this an activity monopolized by the higgler of Jamaica? How do we explain the innovations responsible for the production of glazed Yabbas? How also do we account for the demise of the industry that made "old-time 'yabba'" with the introduction of tin and aluminum crockery?

### Acknowledgments

The authors would like to thank The Jamaican National Heritage Trust, especially, Dorrick Gray and Roderick Ebanks in their assistance in providing archaeological ceramics for this study. Financial support was provided by Syracuse University Summer Research Grant for the preparation of sample for Petrographic Analysis. Additional field samples were collected by the primary author with the aid of funding by DePaul University. Operating support for the MURR Archaeometry Laboratory was provided by a grant from the National Science Foundation (BCS-0504015). This research was also supported in part by a grant from the US Department of Energy Office of Nuclear Energy, Science and Technology Award No. DE-FG07-03ID14531 to the Midwest Nuclear Science and Engineering Consortium under the Innovations in Nuclear Infrastructure and Education program.

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