LEARNING ABOUT THE PAST THROUGH ARCHAEOLOGICAL CERAMICS: AN EXAMPLE FROM VIJAYANAGARA, INDIA

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In 1983 I came to the archaeological site of Vijayanagara in southern India to work as a ceramic analyst. Intensive archaeological research at this imperial capital (fourteenth–sixteenth century A.D.) had been underway since 1979, and previous work at the site spans more than a century. The ceramic vessels used by Vijayanagara’s inhabitants, however, remained completely undocumented. The site of Vijayanagara, like many historic sites in India, contains massive and impressive architectural remains that extend over an area of more than twenty square kilometers (Figure 1). Architecture includes fortification walls and gates of elegant stone masonry, monumental temples, royal palaces and administrative buildings, wells, watch towers, and hundreds of sculptures of Hindu gods and royal scenes. It is little wonder that the many thousands of undecorated earthenware ceramic fragments, or sherds, visible on the ground surface and found in excavations, received little attention from earlier archaeologists working at the site.

Ceramics are among the most common category of artifacts recovered by archaeologists. Ceramic vessels are most often used for the preparation, storage, or serving of food; they may also serve a variety of other functions, including industrial uses, use in mortuary contexts, or use in the trade and transport of commodities. Because of their widespread use, frequent breakage, and durability in the archaeological record, ceramics are extremely important in archaeological analysis and interpretation. Chronological sequences can be constructed through the study of stylistic or technological changes in their form or decoration. Ceramics can also provide evidence of patterns of trade and local and supralocal interaction by identifying sources of raw material and the places where the finished products were distributed. The organization of craft production can be studied through analysis of production sites such as kilns or workshops, as well as from the documentation of technological traces on the vessel fragments themselves. Further, the spatial distribution of ceramics within sites and across regions provides important evidence concerning the nature of ancient social structures, status relations, and activity distributions.

The study of ceramics is relevant not only in prehistoric contexts but also in the study of historic periods. In cities such as Vijayanagara only a very small portion of the population was literate or lived in the impressive monumental structures that dominate the landscape. The vast majority of the city’s residents lived in small huts of impermanent materials and left no written accounts of their lives. They are thus completely unknown to us, except for the scattered remains that they left behind. The most common of these remains are earthenware ceramics.
THE FIRST STEP:
CERAMIC CLASSIFICATION

In many regions of the world an archaeologist commencing a study of ceramics builds on the work of earlier generations of scholars, developing research strategies and research questions in the context of an established body of knowledge. The questions asked by a later generation of archaeologists may vary significantly from those of their predecessors as a result of changing theoretical
perspectives or research goals, as well as the increased sophistication and availability of new analytical tools and techniques, such as computer-assisted analysis or chemical sourcing techniques. Nonetheless, scholars working in an area with an established tradition of ceramic analysis have an established language for talking about the materials they study—in the form of a ceramic classification.²

The classification of archaeological remains is the first step in any analysis. In order to be able to describe ceramics and examine how they vary over time and space, archaeologists must first document basic characteristics, including raw materials and production technology as well as vessel shape, size, color, and decoration. Classification is a tool that allows us to group individual ceramic fragments—whether sherds or whole vessels—into coherent and meaningful groups whose members share some essential characteristics. The characteristics that are chosen in constructing classifications will vary depending on the nature of the ceramics and the questions that the researcher is seeking to answer. For example, a scholar interested in ceramic use and the distribution of activities at a site might attempt to classify vessels into functional categories such as cooking, serving, or storage vessels. A scholar interested in documenting long distance trade might develop a classification based on the specific raw materials used in ceramic production, as well as regional stylistic variations in decoration or vessel shape. And a scholar interested in constructing or documenting chronological sequences would base a classification on those traits or attributes that appear to have changed over time. The classifications that archaeologists produce and use in analyses are contemporary creations; we cannot know how the ancient people we study grouped their ceramic vessels. However, by basing our classifications on patterned and verifiable variations in archaeological materials, we can encode categories that we believe were in some way significant to the past makers and users of ceramic vessels.

There is a potentially infinite number of variables, or measurable traits, that can be used in the development of a ceramic classification, and there are many different ways that classifications can be derived—from sorting ceramics into piles of similar sherds to detailed metric, chemical, and statistical analyses. Most classifications used by archaeologists have been developed inductively, through trial and error and direct observations and measurement of physical similarities in vessels from a particular site or region. Variables commonly used in the creation of ceramic classifications
include color, decoration, and evidence for ceramic manufacturing techniques, as well as characteristics of vessel size and shape.

As the first scholar to study South Asian ceramics of the late historic period, my initial priority was to develop a ceramic classification. My ultimate research aim was to use ceramic data to examine patterns of ceramic use and their relation to social identity across this large, complex, and culturally diverse historic Indian city. That is, I was interested in seeing if different segments of Vijayanagara’s population could be identified on the basis of differences in the kinds of ceramic vessels they used. Such differences, I reasoned, could be expected in a hierarchical, caste-based society such as Vijayanagara, where distinct social groups were characterized by status differences as well as by their dietary practices. Because most ceramics at Vijayanagara were used in food preparation or consumption, I hypothesized that the dietary differences known to distinguish caste groups should be evident in the ceramics used in those activities. Studying the distribution of ceramic forms across the city should make it possible to learn about the distribution of the diverse social groups that comprised the city. The analysis of ceramic distributions could also reveal something about the organization of ceramic production and distribution at the capital. As a caste-based society, Vijayanagara was characterized by a well-developed system of craft specialization. Ceramics were produced by members of the potter’s caste (Kumbhar) in workshops. But how were these workshops organized? Were they large, centralized workshops controlled by the imperial government, or were they small neighborhood workshops of local producers serving local communities within Vijayanagara? In the absence of the workshops themselves, the ceramic forms and technology might provide some answers to these questions.

In order to examine these kinds of questions, I needed to develop a ceramic classification that would be sensitive to relatively fine degrees of variation in the Vijayanagara ceramics. It would not, for example, be sufficient to merely distinguish between cooking and serving vessels or between bowls and jars. Instead, a classification was needed that would be sensitive to small-scale variations among vessels used for similar activities by different social groups. Because most of the Vijayanagara vessels were black or dark brown in color and undecorated, those variables could not provide a basis for sorting the vessels into meaningful categories. Instead, I chose to divide the vessels based on details of vessel shape, size, and rim form. To develop this kind of
detailed classification I took a quantitative approach, recording information on more than seventeen thousand individual rim fragments.\(^3\)

The ceramics that I studied came from two sources: (1) excavated materials from ten elite residential compounds excavated by the Government of Karnataka (the Indian state where Vijayanagara is located) Department of Archaeology and Museums, and (2) surface artifacts from two areas—the city’s main Islamic Quarter and the East Valley, an area including both elite and nonelite residential areas and a market. By using ceramics from several locations I hoped to develop a classification that would encompass the full range of variation in the Vijayanagara ceramics.

Because there were relatively few complete vessels preserved at Vijayanagara, most of my analyses focused on identifiable vessel fragments, or *diagnostic* sherds—rims, bases, handles, or decorated body sherds. The vast majority of these were rims, and I recorded a broad range of *quantitative* and *qualitative* information on each rim sherd (see Figure 2). The quantitative, or metric, information I recorded included measurements of vessel diameters at rim, neck, and the widest point of the vessel; thicknesses and heights at several defined points; and measurement of angles or vessel orientation. I also estimated the percentage of inclusions visible in the vessel’s cross section—inclusions are any materials larger in size than clay particles that may occur naturally in clays or may be added to clay by potters to make them easier to work and to give the fired vessel desired characteristics (deliberately added inclusions are known as *temper*). Common inclusions in ceramic pastes include sand, ash, ground-up potsherds (grog), shell, and organic materials such as straw or chaff. The qualitative, or categorical, information that I recorded included information on the color of the surface and interior body of the vessel; surface treatment (i.e., whether the vessel surface was painted, smoothed, highly polished, etc.); decoration and design motifs; and some general information on vessel and rim shape (i.e., whether the vessel was a bowl or jar, whether the outer edge of a jar rim was straight or rounded or had a bulge or flange). For each sherd I also recorded information on where in the site it came from—its archaeological context.

This approach to ceramic recording, though labor intensive, is comparatively low-tech. All information was recorded in the field using relatively simple equipment: a chart of concentric circles ranging from two to forty centimeters in diameter to measure diameters, a vernier calipers to record thicknesses and heights, a
Figure 2
Quantitative Variables Recorded on Vijayanagara Vessels
modified protractor to record angles, and a geological chart and
ten-power magnifying hand lens for estimating types and densities
of inclusions. Values were recorded on large data recording sheets
and were later transferred to a computer data base. (This work was
done before the common availability of small, portable, battery-
powered computers—today one could simply record all of the
information directly onto a computer.) Because this was the first
project to document historic South Indian ceramics, I also devoted
quite a lot of time to drawing rim profiles, or sections, so that they
would be available for use by future scholars working in the
region. For the purposes of this study I did not conduct any chemi-
cal or mineralogical analyses, which would have required more
sophisticated technology than was available in rural India.
(Archaeological materials from India legally belong to the Indian
national or state governments. Foreign archaeologists are obliged
to study materials in the confines of the country and cannot take
them back to their home country for analysis.)

The next step in the construction of the classification was to
use the recorded information to group the vessels into classes or
categories. The recording techniques used and the measurements
taken on individual sherds were at the level of the individual vari-
able or feature—for example, rim diameter, neck thickness, or rim
height. However, the goal of the classification was to go beyond
the variable level to look at broader vessel characteristics such as
vessel shape or size. Such dimensions of variation cannot necessarily
be measured by a single variable; shape, for example, is a product
of complex geometric relations between diameters, heights, and
angles. Assessing these dimensions is made even more complex by
the partial nature of the sample; given the small number of com-
plete vessels, I had to reconstruct vessel shape and size from rim
fragments alone. In attempting to define significant dimensions of
ceramic variation I took a statistical approach, focusing on the
range and distribution of individual variables and their interrela-
tions.

Statistics is a set of methods for dealing with data in one of two
ways: descriptive statistics allows us to summarize our data in stan-
dardized form (concepts such as mean, standard deviation, and
median are very important here); inferential statistics allows us to
use principles of probability to infer something about entire popu-
lations from subsets or samples of those populations.4
Archaeologists almost always work with samples. The ceramics I
examined were only a small sample of all of the Vijayanagara
ceramics, yet I wanted to be able to say something about Vijayanagara ceramics in general. Inferential statistics, based on probability theory, allows us to do this in much the same way that political pollsters attempt to infer general public opinion from interviewing a sample of voters.

The precise statistical methods used in the analysis of Vijayanagara ceramics do not concern us here. Essentially, I focused on the distributions of individual variables and groups of related variables to subdivide the vessels into overall vessel form categories. I defined nine general shape classes (referred to as vessel use classes; see Figure 3). These included three categories of unrestricted (i.e., neckless) vessels or bowls: (1) small saucers (used as lamps); (2) round-bottomed shallow bowls; and (3) other bowls (a miscellaneous category); and six categories of restricted (i.e., with neck constrictions) vessels or jars: (1) small serving vessels (perhaps drinking cups, ritual vessels, or individual serving vessels); (2) medium broad-necked food preparation vessels; (3) large broad-necked food preparation vessels; (4) small vertical-necked serving or transport vessels; (5) medium vertical-necked serving, transport, or storage vessels; and (6) large vertical-necked transport or storage vessels. Other less common ceramic forms included incense burners, gaming pieces, water pipes, ceramic braziers, and architectural fittings such as roof tiles and well linings.

I used three separate lines of reasoning to interpret vessel use or function: (1) analogies with modern vessels still produced in the area; (2) traces of vessel use (use wear) such as burning around the base of a cooking pot or abrasion where a lid was used; and (3) general geometric principles that play a role in the relations between vessel shape and function. For example, it is highly unlikely that a large shallow bowl would be used to transport water from a well, as most of the water would spill out before the carrier got home; nor would we use such a vessel to store water because the large opening would lead to a high rate of evaporation and the water would get dirty very quickly. Similarly, we would not expect people to dine out of a tall narrow-necked jar because they could neither reach nor see their meal; and a cooking pot should have an opening wide enough so that we can stir and serve the food within it. This does not mean that humans always use the most efficiently shaped pot for a particular task; at times we reach for whatever vessel is nearest, whether it is the best for our purpose or not. However, we do expect that there are some general and logical relations between vessel use and vessel form.
Figure 3
Vijayanagara Vessel Use Classes
I further subdivided vessels within each of the nine shape categories on the basis of more subtle variations that could reflect the activities of different ceramic producers or the demands of different communities of ceramic consumers. Ultimately, I defined a total of more than seventy ceramic classes on the basis of rim form, base form, orientation, or other distinguishing features.

This approach to ceramic classification is far more cumbersome than the traditional technique of laying sherds out on a table and sorting them into piles that look more or less alike. It does, however, provide several benefits. First, it is explicit. Rather than relying on an intuitive sense of which pots look most alike (a difficult challenge in a ceramic inventory where different forms grade continuously into one another), I examined clearly defined traits measured in clearly defined ways. Second, the Vijayanagara classification is potentially replicable. It is not dependent on my personal expertise or experiences; rather, other scholars could record the same information and analyze it in the same way (or in different ways, if they so chose). Finally, unlike most traditional classifications, which tend to group vessels into very broad categories and ignore variation within them, the Vijayanagara ceramic classification explicitly examines fine-scale variations, which may be culturally or behaviorally meaningful.

CERAMIC USE AND ACTIVITY DISTRIBUTION IN THE NOBLEMEN’S QUARTER

When the ceramic classification had been developed it was possible to begin asking other kinds of questions about the nature and organization of the imperial city of Vijayanagara, using the ceramic data. One of the areas from which I recorded these ceramics was an area consisting of several large architectural compounds that had been excavated by the Government of Karnataka Department of Archaeology and Museums, who graciously allowed me to study their ceramics. They designated this area “The Noblemen’s Quarter” (NMQ) because the major structures that comprised it were interpreted as elite residences (Figure 4). Twelve walled architectural compounds had been excavated between 1982 and
1986, when I was conducting my initial research at the site. Each compound consisted of a large central structure with between two and four stepped tiers and several chambers, surrounded by subsidiary structures on carved stone platforms or basements, poorly constructed rubble wall structures, and, in some compounds, by wells and toilet facilities.

Figure 4
The Noblemen's Quarter
The NMQ compounds provided me with an unusual opportunity to examine the organization of space in a well-defined elite residential area of the site. Fortunately for archaeology (though not for the original occupants of the compound), the NMQ structures had burned down, presumably in the sacking that followed the city’s abandonment after a major military defeat in A.D. 1565. The inhabitants of Vijayanagara fled precipitously on learning of the defeat and did not bother to straighten out their houses or pack and move their utilitarian ceramics. It is also highly unlikely that the people who looted these compounds paid much attention to low-value items such as earthenware pots. Therefore, many of the shattered ceramic vessels found beneath layers of burnt debris in the NMQ areas could be assumed to be located in the area where they were last used. By examining the distribution of functional or vessel use classes from floor areas in the burned structures of the NMQ, I could potentially contribute to the understandings of the activities that occurred within these complex architectural compounds. I could also compare overall distributions in each of the compounds to examine differences in the activities that occurred within them. And finally, I could compare NMQ ceramics to ceramics collected from other areas of the site in order to examine variations between elite and nonelite areas, as well as other sources of variation in ceramic use, such as religious or caste identification.

I recorded information on approximately eight thousand diagnostic sherds from eighty-seven different excavations or provenience units in the NMQ. Ceramics are common throughout the NMQ area. In general, low ceramic densities occur within the central structures and higher densities are found in open areas and in subsidiary structures within compounds. Although the residents of these compounds no doubt also used metal vessels (very few of which are found in excavations), the abundance of ceramics suggests that they were the most common kind of container used by Vijayanagara’s inhabitants.

I used a number of analytical approaches to examine ceramic distributions in the NMQ provenience units. These ranged from simply plotting the relative frequencies of individual vessel classes to using more sophisticated computer-assisted techniques, such as cluster analysis. The analyses helped to classify areas using distinct ceramic signatures, which reflected the predominant activities in which vessels were used or deposited. Areas identified include dump areas (with a wide range of vessel use classes, roughly in proportion to their overall frequencies in the ceramic inventory),
kitchen areas (with lots of food preparation and storage vessels, and few serving vessels), shrines (with lamps, incense burners, and small offering vessels), and serving and storage areas (see Figure 5).

The analyses indicated that the NMQ compounds varied significantly in the activities that occurred within them. Some compounds contained ceramics that were indeed congruent with domestic compounds, with the full range of food preparation, storage, and serving vessels. Other compounds contained a much more restricted range of ceramic forms, focused especially on serving and water-storage vessels. The latter may have served largely as public or administrative areas and may not have been residential areas at all. The small rubble wall structures that surrounded the walled compounds appear to have been residences of lower status people, who may have served the inhabitants of the palace compounds. These structures typically contained many food preparation vessels, and their occupants may have been involved in preparing meals for their elite neighbors. Judging from their ceramic contents, at least two of the compounds contained small shrines. The ceramics from these areas included many oil lamps, incense burners, and well-made miniature jars (see Figure 6). Shrines are common in Hindu households, with each family maintaining a small shrine dedicated to the family god. In compound NMQ12 the shrine was located in the central room of the structure.

**Spatial and Social Variation in Ceramic Use**

In the next stage of my research I wanted to broaden my scope—to use ceramics to consider the social and spatial organization of Vijayanagara at a larger scale. Were there differences in how ceramics were used by different castes or religious groups? Could high- and low-status areas be distinguished on the basis of the ceramics their inhabitants used? Could residential areas be distinguished from marketplaces, workshops, or temple zones? Did inhabitants of different neighborhoods at Vijayanagara acquire their ceramic vessels from different ceramic-producing workshops, and could these be identified?

In order to look at these broader issues concerning
Figure 5
Activity Distribution in Noblemen’s Quarter
Compounds NMQ3–NMQ10
Figure 6
Vessels from the Shrine in NMQ12
Vijayanagara’s organization, I compared the NMQ ceramics to collections from two other areas of the site. These were the city’s main Islamic Quarter, occupied by Muslim mercenaries who served in the Vijayanagara army, and an area known as the East Valley, which contained high- and low-status occupation areas. The inner wall of the city’s core bisects the East Valley, and an inscription near the gate in the wall refers to it as the “Monday Gate,” alluding to the occurrence of a weekly market. These three areas housed very different segments of Vijayanagara’s population: the Hindu elites of the Noblemen’s Quarter, the soldiers and other Muslim inhabitants of the Islamic Quarter, and the inhabitants of the commercial zone of the East Valley, in addition to its diverse Hindu, Jain, elite, and nonelite residential zones.

The ceramics that I examined from the East Valley and Islamic Quarter were not recovered in excavations but came from the surface of the site. Surface collection units were systematically placed across each of the areas, using a combination of judgment and random sampling techniques. In the Islamic Quarter, where ceramic densities were relatively low, I collected ceramics from seven ten-meter square units. Some ceramics from the Islamic Quarter came from Government of Karnataka excavations at the quarter’s main mosque and from a nearby well. The total samples collected from the Islamic Quarter were 1,661 sherds, of which 584 were measurable diagnostics. In the East Valley, where it was literally impossible to walk without stepping on fragments of pottery, collection units were much smaller—circular units four meters in diameter. A total of 294 units were collected from across the Valley. Unit location was determined through random sampling to assure even and representative coverage of the valley. Because of the large number of ceramics that the collection produced, analysis focused on roughly half of the units; approximately 7,000 rim sherds and more than 33,600 body sherds were documented from 143 collection units.

Analysis of overall patterns of ceramic distributions of the three areas focused on multiple levels of ceramic variation. These included vessel ware (defined by color and surface treatment), the nine functional or vessel use classes described previously, and the finer variants within each of those functional classes. Significant differences in ceramic use were identified at all levels of ceramic variation. Differences were especially pronounced between the city’s Islamic Quarter and the two non-Muslim areas of the site. Inhabitants of the Islamic Quarter used more red ware vessels than were used in either the Noblemen’s Quarter or the East Valley. It is
uncertain whether the preference for red wares is a function of different cultural conceptions concerning appropriate colors of ceramic vessels or of differences in the production practices of workshops serving these different areas of the city.

Variation also existed between the Islamic Quarter and the other areas in frequencies of different functional classes of vessels. In particular, the inhabitants of the Islamic Quarter used significantly more bowls than did people in predominantly Hindu neighborhoods. The three bowl forms (lamps, shallow bowls, and other bowls) comprised nearly 23 percent of the ceramics from the Islamic Quarter, and only 10.9 percent of vessels from the East Valley and 12.3 percent of vessels from the Noblemen’s Quarter. Thus, bowls were roughly twice as common in the Islamic Quarter as in other areas—a statistically significant difference. Cultural differences in food consumption practices appear to account for these differences. Elaborate rules exist in Hinduism concerning food consumption. In particular, cooked foods are believed to be particularly potent vehicles for absorbing and conveying ritual impurities, and earthenware ceramics are believed to be especially vulnerable to absorbing impure substances. Thus high-caste and low-caste Hindus cannot eat foods from the same dishes, and Brahmins, the highest ritual caste, are required to discard earthenware dining vessels after a single use. As a consequence of these beliefs, Hindus typically do not eat from ceramic vessels; instead, food is served on banana leaves or on metal plates, which are believed to be less vulnerable to ritual impurities and more easily cleansed.

Other differences were also observed in the frequency of vessel use classes among the three areas. The Noblemen’s Quarter contained higher than expected frequencies of large food preparation vessels and water-storage and transport vessels than the other areas, suggesting a greater emphasis on the preparation of large quantities of food and the serving and storage of higher quantities of liquid than occurred in the East Valley. This pattern makes sense, given that the NMQ was a high-status area, in which public gatherings and private receptions would have been important. The ceramics of the East Valley appeared to be more typical domestic assemblages, with high frequencies of small and medium cooking, storage, and serving vessels. The area near the Monday Gate in the East Valley yielded a great diversity of ceramic forms, supporting the interpretation that a market in which ceramics were sold may have existed there.

The frequencies of the finer formal variants defined for the
Vijayanagara ceramics also differed among these three areas. These differences were more in frequency than in kind; that is, certain variants were more common in one area than in another, but all variants were found across the site. The significance of this kind of variation is difficult to interpret at present. It may be the result of social or temporal variation in ceramic use and distribution, or it may be the result of relatively open distribution networks, in which individual households could obtain vessels from any of a large number of ceramic workshops.

The analysis of the spatial distribution of Vijayanagara ceramics provided evidence for pronounced variations in ceramic use and distribution within the Noblemen’s Quarter and among the three quite distinct areas of the site. The study of these materials adds considerably to our knowledge of the imperial capital of Vijayanagara, both to refine interpretations based on architectural remains and to provide information on areas such as the East Valley, where there are few monumental structures and elite constructions.

**THE ORGANIZATION OF CERAMIC PRODUCTION AT VIJAYANAGARA**

No ceramic manufacturing workshops have yet been identified at Vijayanagara, either in the city core or in the suburban outskirts of the imperial capital. There is thus no direct evidence concerning the organization of ceramic production in the city. However, the sherds themselves can provide some clues to the scale and technology of production. Ceramics can be produced using a variety of hand-building or wheel-throwing techniques. Each manufacturing technique leaves distinct traces on vessels—for example, the interior striations of wheel throwing, or the identifiable joints that appear when individual rolls of prepared clay are rolled and linked together to form handmade coiled jars or bowls. The Vijayanagara ceramics were produced using a combination of the wheel-throwing and the paddle-and-anvil technique. In the paddle-and-anvil technique vessels are thinned and shaped by banging a wooden paddle against a stone anvil held on the interior of a vessel. This allows potters to produce very thin-walled vessels with characteristic surfaces, and also permits the construction of round-bottomed vessels, preferred by Vijayanagara’s consumers. Some Vijayanagara
vessel forms were produced entirely by hand, through coiling or a technique known as slab building, in which large flat slabs of clay were joined together to form large storage and other irregularly-shaped vessels, such as three-sided ovens or braziers.

As noted earlier, the ceramics at Vijayanagara exhibit a wide range of variability. Vessels conform to some broadly accepted ideas concerning what cooking, storage, or other functional categories of pots should look like, but within each of these categories there is a high degree of variation in shape and rim form. In other words, the Vijayanagara vessels were not highly standardized. Archaeologists expect that ceramics produced in large-scale or centralized workshops should be standardized as a result of increased regularity and efficiency of production in workshops that produced many vessels over short time periods. Because Vijayanagara had a population of more than two hundred thousand inhabitants there was clearly a need for a very large number of ceramic cooking, storage, and serving vessels. The lack of standardization in ceramic forms suggests that these vessels were produced in many small workshops rather than in a small number of large workshops. These workshops may have distributed their products to distinct neighborhoods of Vijayanagara, accounting at least in part for some of the variation in ceramic distributions among different areas of the site.

**CHRONOLOGY**

One of the most important uses of ceramic analysis in archaeology is in the construction of cultural chronologies. Like other items of material culture, the ceramic vessels used by a community tend to change over time. These changes can result from a variety of causes: stylistic innovations by creative artisans, the emergence of new technologies, imitations of exotic or status items, or fashion trends. Temporal changes in ceramic forms or decoration allow archaeologists to place ceramics in a chronological sequence. Ceramics from well-defined stratigraphic excavations can be studied to develop temporal frameworks. Archaeologists can also use materials’ nonstratified contexts to develop ceramic chronologies using a technique known as seriation. Seriation is a relative dating technique that is based on the assumption that new styles appear slowly, become increasingly popular, and then gradually decline in popularity as new fashions appear and replace them. By compar-
ing relative frequencies of different ceramic wares from individual
sites or excavation units, using this basic assumption about mater-
ial culture change, it is often possible to place individual assem-
bles in a relative chronological order.

As noted previously, it is possible that chronological differ-
ences may play a role in differences in ceramic frequencies across
Vijayanagara. One of the goals of my research at the site was to
understand patterns of chronological change in Vijayanagara
ceramics. So far, however, I have not been successful at this. The
city of Vijayanagara was occupied for slightly more than two hun-
dred years, a relatively short time from the perspective of archaeo-
logical analysis. Although the ceramics exhibit a tremendous
amount of variability, at present it is not possible to attribute any
of that variation to change over time. Attempts at seriation and the
analysis of ceramics from dated structures and stratigraphic exca-
vations have not provided evidence for any clear patterns of
change over time. It may well be that the Vijayanagara ceramics
did not change much over the two hundred years that the site was
occupied, and indeed, some vessel forms made by Vijayanagara
potters continue to be manufactured by local potters in the area
today. Perhaps as more archaeologists begin to study the ceramics
of earlier and later periods in South India we will be able to iden-
tify general patterns of temporal change in ceramic forms and
styles.

**DISCUSSION**

The city of Vijayanagara is a large and complex archaeological site,
yielding a wide range of archaeological remains. The ceramics of
Vijayanagara provide archaeologists with a unique perspective on
this ancient city. The ceramics were produced by specialists and
distributed in markets to all of the inhabitants of Vijayanagara.
Unlike other kinds of archaeological remains at the site, such as
architecture or metal goods, ceramics were used by both high- and
low-status people from a range of religious and economic groups.
A careful study of ceramics from across the site can provide inform-
ation on aspects of Vijayanagara’s social, economic, and sacred
life that could not be learned from either written records or elite
archaeological remains.

This chapter has examined a study of archaeological ceramics
at a single site to illustrate the contributions that ceramic analysis can make to the study of the human past. The questions I asked and the approaches I took in analyzing Vijayanagara ceramics were oriented toward my specific research interests and the kinds of data available to me. The issues addressed in this chapter in no way encompass the full range of questions about the past that archaeologists can address through the study of ceramics. The broad range of uses to which ceramics are put and their excellent preservation in archaeological contexts means that archaeological ceramics are often the most numerous class of artifacts found in archaeological sites (at least from those time periods and societies that produced ceramics). Further, the technology of ceramic production and decoration allows for a great deal of variability in the finished products. Vessel shape, size, color, raw material composition, and a wide range of other variables can vary widely as a result of the conscious decisions made by individual potters as they formed and fired their vessels. These decisions are culturally informed; that is, potters (and consumers of pottery) within any society tend to share basic cultural values about what pots should look like, how they should be made, and how they should be decorated. Within the parameters defined by these broadly shared values, ceramics will vary as a result of individual and group preferences, skill, technologies used in their manufacture, and available raw materials.

The study of archaeological ceramics thus provides an important way to look at cultural norms (the shared values of communities) as well as internal variation within or between societies on the basis of deviations from those norms. Interaction between different societies can also be approached through ceramic analysis, through documenting the movement of ceramics over space and time. Studies of ceramic exchange can be approached through documenting the presence of exotic styles of ceramics in sites (such as the presence of Egyptian-style ceramics in sites on Cyprus) or through chemical and microscopic studies of ceramic raw materials, many of which are derived from a small number of source areas. Chemical studies can also allow the analysis of the contents of ceramic vessels; archaeologists have been able to identify residues of milk, meat, oils, beer, and wine in ceramics from a range of archaeological contexts. The extremely wide range of questions that can be asked about the human past through the study of archaeological ceramics makes their careful study an essential part of any archaeological analysis.
Notes


Suggested Readings


