I. Introduction

I arrived at Vijayanagara in January of 1983 in order to undertake a study of the ceramics of this great imperial city. Prior to that time, medieval ceramics had not been systematically studied in India. Rim profiles appeared occasionally in the reports of archaeological surveys and excavations, but no systematic attempt had been made to recover, classify, and interpret the vast ceramic remains that litter the surface of medieval sites throughout the subcontinent. I will argue in this work that the lack of attention to artifacts of everyday use, of which ceramics are the most common, has denied researchers a valuable source of evidence on the lifeways, economy, social organisation, and chronology of the historic towns and cities of medieval India.

The general lack of interest in ceramics, in India and elsewhere, is readily understandable when one considers the scale of many medieval sites — their spatial extent, the complexity of their architectural remains, the availability of literary texts and inscriptions, and their rich artistic heritage of sculptures, paintings, jewels and other valuable and beautiful works of art. Most ceramic remains, particularly from Hindu sites such as Vijayanagara, are, in contrast, simple, plain, and taken individually, quite uninspiring.

In this chapter I will present some reasons why ceramic analysis is valuable to our studies of medieval sites and societies, and some of the research questions we can pursue using ceramic data. As in all archaeology, historic and prehistoric, the usefulness of any class of materials depends on the sorts of questions we are asking of the past, or better, of the contemporary remains of past activities. If, for example, we are interested in examining the development of architectural styles, or of iconography, then the study of domestic ceramics will be of little use in answering these questions. Ceramics are useful, though, for examining a variety of other questions — concerning chronology, the definition of activities which occurred across a site, the spatial distribution of elite and non-elite social groups, and information on a number of aspects of economic organisation, including craft production and distribution, and trade. Each of these concerns is abundantly treated in the archaeological literature (see Bibliography, also Sinopoli n.d.a), and for present purposes each topic will be only briefly outlined.

The analysis of the ceramics of the Noblemen’s Quarter of Vijayanagara, which comprises the bulk of this work, provides an illustration of a number of methods and approaches to ceramic analysis, and presents a detailed typological description of the ceramic inventory of the medieval city of Vijayanagara.

USING CERAMICS TO ANSWER QUESTIONS

In order to effectively address any of the questions presented below certain basic requirements must be met. The ceramic samples used in these studies must be: (1) sufficiently large as to encompass the total range of variation in the ceramic repertoire of the site or region under study; (2) collected in such a way as to be a representative sample of the sites, strata, or areas under study; and (3) organised into a classificatory system that records information on ceramic variation relevant to approaching particular research questions. This last point is of extreme importance as the system of ceramic classification employed provides the basis for all subsequent analyses.

As noted above, the first step in any study of archaeological materials is, necessarily, ordering the material into some sort of classificatory system. A pile of undifferentiated sherds tell us nothing about their producers other than that they made pottery. In order to learn something more from the sherds, about, for example, their chronology, use, or production, we must be able divide that pile into groups or classes which encode the form and structure of ceramic variation relevant to temporal change (i.e., were certain rim shapes used in certain chronological phases?), vessel use or function (i.e., does a certain form show evidence of being a cooking pot or water jar?), or production techniques (i.e., can we identify marks from the potter’s wheel, or traces of coils, or paddle and anvil impressions?). As these examples demonstrate, approaches to ceramic typology are, and should be varied. An archaeologist studying changes in ceramic technology will record very different sorts of information than one studying
ceramic decoration. The variables, or characteristics, of vessels which we choose to focus on should largely depend on what we ultimately wish to learn from our ceramic sample (Hill and Evans 1972).

Along with defining relevant variables, we must also consider how we will measure and record them, and how our measurements will ultimately be used to construct our typology. Numerous publications discuss the merits of descriptive or qualitative variables vs. numerical or quantitative variables, and both certainly have their place in ceramic analysis (for discussions of these issues see Whallon and Brown 1982). If we are examining vessel size through the variable rim diameter, for example, we may record the variable qualitatively by coding vessels as belonging to small, medium and large rim diameter classes, or we may take a quantitative approach by measuring rim diameter to the nearest centimetre, and then identifying size groups or classes from our numerical measurements. Once we have recorded information on this and other aspects of a vessel (e.g., surface colour, wear traces, height, shape, decoration, and so on), we can use this information to construct a typology of the vessels, by grouping similar vessels into types or classes which share one or more defining characteristics. As with our choice of variables, our approach to typology can be qualitative — “large red bowls with black painted designs” or quantitative — “vessels with heights of 20–25 cm., and rim diameters of 10–15 cm., neck diameters of 5–8 cm., and maximum diameters approximately twice the value of the rim diameter”. Most often our typology will rely on some combination of qualitative and quantitative characteristics.

A number of approaches may be used for constructing a ceramic typology: (1) traditional typology involves laying out sherds on a table and grouping them into coherent groups that look alike and then assessing their defining characteristics retrospectively (see Whallon 1972); (2) the type–variety method, pioneered by Wheat, Gifford, and Wasley (1958) in which qualitative variables are used hierarchically to sort and subdivide vessels from a region; or (3) statistical approaches, where we examine the relations between groups of variables, and the distributions of individual variables using statistical techniques in order to subdivide the sample into meaningful and consistent classes. A statistical approach to ceramic classification was used in the development of a classification system for the Vijayanagara ceramics. This approach and its results will be presented in considerable detail in Chapter IV.

Establishing a ceramic classification, while critical, need not be the end of our analysis. A classification in and of itself tells us little about the society which produced the ceramics. While we may be able to say, for example, that the Vijayanagara potters produced a large number of vessel form variants, we cannot consider the significance of this fact until we use our classified sample to examine other factors or conditions of Vijayanagara society which may have contributed to the form and structure of the ceramic inventory. Such factors may include, among other things, temporal change, social selection, or differences among pottery making workshops. A ceramic classification, then, organizes our data base, the piles of sherds recovered in excavations and survey, in such a way that we can ask and seek to answer a variety of questions about the society and culture which produced the ceramics we collect. Some of these questions will be discussed in the remainder of this chapter.

Using Ceramics to Study Chronology

The use of ceramics in the construction of chronologies has a long history in archaeological studies, extending back to the late 19th century. The association of certain classes of vessels in stratigraphic levels provides one means for constructing ceramic chronologies based on the principles of stratigraphy. When such sequences are repeated in part or in whole across a number of sites it is possible to build up broad regional sequences. Recently, the availability of absolute dating techniques, such as carbon 14 dating and dendrochronology, has allowed the dating of associated materials, including ceramics, with increasingly fine precision.

In many archaeological situations, however, archaeologists deal with single phase sites or sites with disturbed stratigraphy and a paucity of materials which can be dated using absolute techniques. In such cases, alternative techniques must be employed to develop chronological sequences. One such method is seriation, defined as “the procedure of working out a chronology by arranging local remains of the same cultural tradition in the order which produces the most consistent patterning of their cultural traits” (Rouse 1967: 157).

Seriation entails a basic assumption on the nature of artefact change. This is that a class of objects is slowly introduced into a social system, gradually increases in popularity, and eventually declines in use and disappears. A new pottery class, for example, may first be adopted by only one or two members of a
community. As it becomes better known and more accepted, the assumption that vessels are always used for the purposes for which they were originally intended. Additional evidence of ceramic use may be derived through wear traces found on the vessels. Cooking vessels may be charred on the exterior, vessels traditionally covered with lids may be abraded on the rim top, and residues of materials held in vessels may remain on their surfaces. Given these differing lines of evidence—morphology, technology, and use wear—it is frequently possible to make some inferences about the range of activities in which particular vessels were ‘most likely’ used.

Under certain circumstances it may be possible to consider the precise spatial location of activities across a site using ceramic data. Such circumstances occur when vessels enter into archaeological deposits in the same area in which they were used. Much attention has been devoted, particularly in prehistoric studies, to the identification of activity areas (see Binford 1976; Binford et al. 1970; Yellen 1977). An activity area is, simply, an area where specific past activities occurred which can be identified from archaeological data. Most types of activity areas are seldom identifiable in the archaeological record. Behaviors such as clearing the refuse of activities, and depositing it in trash middens or dumps destroys traces of many past activity loci. Site formation processes can also lead to the displacement of materials once they have entered into the archaeological record (Schiffer 1976).

Under certain conditions, ceramics may enter the archaeological record in the locations where they were used; the analysis of materials deposited in such contexts can provide a tremendous amount of information on the distribution of activities across a site. Vessels might be deposited where they were used in contexts such as at water-collecting locations, such as wells or tanks, where a certain number of vessels are inevitably dropped and broken. A more important context in which activity loci might be preserved archaeologically arises when a site or part of a site is suddenly abandoned or destroyed through natural or cultural disaster. Such events might include fire, flood, warfare, or volcanic eruptions. In such an event, and assuming limited post-depositional disturbance, materials should be found in the areas in which they were last used. Ritual or votive deposits or caches represent another sort of activity-specific deposit in the archaeological record.

Even when we cannot use ceramic distributions in the identification of specific activity areas, in many contexts the spatial distribution of ceramics across
archaeological sites can reveal much information. It can often be assumed that middens or trash deposits are located relatively close to occupation areas, e.g., in abandoned rooms or buildings, against the back wall of a house or house compounds, in a neighborhood dump, and so on (Boone 1987). In the case of ceramics, sherds may often be incorporated into walls or roof of a house or other structures in later construction phases. The assumption that materials tend to be deposited relatively near to where they were used underlies many of the attempts to use ceramics to examine intrasite social, economic, or political organisation (see for example, Hill 1970, 1972; Deetz 1965; Longacre 1968). As will be discussed in later sections of this work, the ceramics from the Noblemen's Quarter of Vijayanagaram, where a series of burnt palaces have been excavated (presumably burnt at the end of the city's occupation), provide a good case for using ceramics to examine the distribution of activities within that area.

Using Ceramics to Study Social Organisation

The use of ceramics in studies of social organisation is predicated on basic concepts concerning the transmission of knowledge on ceramic production techniques and the communicative nature of material culture. Ceramics, like all material products of human activity, are used and produced in a social context. Ethnographic studies of the transmission of the pottery craft in societies where pottery making is a household industry, have demonstrated that potters absorb influences from many sources and learn from many individuals (see Friedrich 1970; Hardin 1979, 1984; Stanislawski 1969, 1973). While certain aspects of pottery manufacture and decoration may be conditioned by learning contexts (as, for example, how one holds a brush or other tools, or micro-characteristics of design application and form), potters are typically very conscious of the form their products take and are very much in control of their products. Potters can readily alter the form and style of their products when circumstances encourage such changes. Potters should therefore be viewed as active transmitters and transformers of their craft, rather than as passive recipients of traditional knowledge.

Potters produce for consumers and make vessels in accordance with the demands of their users — demands for functionally effective and formally appropriate vessels. Culturally conditioned opinions on the appropriate form of ceramics or other goods ultimately determine whether new forms will be accepted or rejected, and contribute to the historic continuity of particular forms over multiple generations. Goods, then, are produced in a system of meaning, which governs definitions of appropriate form, techniques, and use, as well as the assignment of value.

"Goods", write Douglas and Isherwood, "are needed for making visible and stable the categories of culture" (1979: 59; see also Appadurai, ed. 1986; Miller 1985). The symbolic importance of goods is readily recognisable in contemporary contexts, clothing styles, house forms, jewellery, the foods one eats, and numerous other categories of goods convey information on the social or economic position of their user, or on the status that the user wishes to present. Even the simplest of cultures has, of course, a great many social categories, with a large number of multi-layered sets of social relations. It is therefore, not adequate to say simply that material culture participates in the definition and reinforcement of social relations. Different classes of goods and their specific contexts of production, distribution, use, and valuation, must be considered independently in order to assess at what level they might be expected to convey and represent social relations, and what sort of relations they might convey, or, possibly, obscure.

Turning specifically to ceramics, consideration of the symbolic or significatory role of ceramics in specific contexts must entail the examination of: (1) how they were used and the importance of such activities to the society; (2) who would have seen them while they were in use; (3) contexts of production and distribution; and (4) the valuation of ceramic classes in themselves, and relative to non-ceramic equivalents of metal, basketry, cloth, etc. Different classes of ceramic vessels, such as utilitarian storage pots, plain serving vessels, and fancy serving wares are used in very different contexts, and their forms, as well as their occurrence and distribution within and between settlements could be expected to convey very different sorts of social information. Types of information which may be conveyed through ceramics include social status — through distinctions between elite and non-elite wares, and group identity — such as variations in ceramics used by different kin groups or clans in egalitarian societies, or by equivalently ranked social groups in more complex societies.

Vessel use and the context of use are very important to evaluating the potential and level of social variation in ceramics, and their possible potential symbolic content (Pollock 1983a). While ceramic vessels may
be put to a wide variety of uses, the major use of ceramics involves food — its storage, cooking or serving. Ceramic forms are consequently associated with, and meaningfully linked to, the specific foods used by members of a society (and these may vary significantly between individuals and groups within that society), their means of preparation, and the cultural significance of food consumption and sharing.

The involvement of vessels in the highly ritualised and meaning-laden food system of a culture (see Goody 1982; Levi-Strauss 1969; Douglas 1974) contributes both to the conservation of vessel forms, and to the association of symbolic significance with vessels and their use. Thus, royalty may eat off plates of gold and commoners dine on wooden slabs or banana leaves, the 'good china' may be used only on special feast days or to entertain the gods, and disposable plates are appropriate for outdoor picnics. The association of vessels with foods and contexts of use and with the user's status does not only apply to serving vessels, but to food preparation vessels as well. Even in the context of food preparation and/or consumption, the types of information conveyed by these vessels may vary considerably. In the examples presented above, gold or wood plates express rank or status, the use of the 'good china' denotes a specific time in the annual cycle, and disposable plates signify a particular kind of meal and dining context.

While in the examples presented above vessel raw material is considered, similar differences may be expressed through vessel shape or decoration within a single material class. Ceramics must, however, always be considered as only one of many possible materials for vessel construction. The 'status' of ceramics relative to alternative materials is perhaps nowhere made more explicit than it is in traditional India where, because of their vulnerability to ritual impurity, the precious metals are most highly rated, followed by other metals (copper, bronze), below which is ranked earthenware. As with rules concerning food sharing and food preparation, the relative ranks of different materials and different ceramic wares (e.g., porcelains vs. earthenwares) may vary contextually. However, I would expect the valuation of such goods to be subject to some generally applicable rules involving the "cost" of their acquisition or production. Following Pollock (1983b: 19-20), more 'costly' goods may result from (1) the use of materials which are in limited supply locally or are non-local, (2) the care and elaboration involved in the production of the object, and (3) the abundance of the good or some dimension of it (e.g., size).

I have considered thus far only ceramics used in activities involving foodstuffs. Ceramics may be used in a number of other contexts as well — as ritual vessels, perfume holders, well-linings, water pipes, dove coops, and so on. Functional interpretations of such vessels may be approached through a consideration of their morphology and depositional contexts. A consideration of the role of varying vessel forms in symbolising and defining social relations must take into account the nature and significance of the activities in which they were used. For example, the importance of ritual in formally and often publicly expressing social positions of various types (gender, rank, and so on; see Rappaport 1971), likely extends to the material paraphernalia associated with ritual events. Other functional classes of vessels must be similarly considered with respect to their specific contexts of use.

The analysis of ceramic data in studies of social organization involves, as do all archaeological studies, the recognition of patterns — consistent associations of ceramic classes, spatial clustering within sites, and so on. The assignment of specific meanings to these patterns operates on two levels. The first is an analytical meaning: ceramic cluster A is found in area C, while ceramic cluster B is found only in area D. Differences between ceramic clusters A and B do not appear to be functional (i.e., the same array of general vessel-use forms are found in each cluster, indicating a similar array of activities in each area) or chronological. They can therefore be interpreted as representing meaningful social variation between the occupants of areas C and D.

The second level of meaning is much more difficult, and often impossible for archaeologists to deal with — that is, the meaning that the pottery makers and users assigned to specific symbols, colours, or forms. We can look at the archaeological contexts of material deposition and use and temporal changes in artefact occurrence and distribution, and can develop some abstract framework of 'value' and access to and categorisation of goods. Such information can then be used to infer much about the social system in which the goods were produced. We cannot, however, precisely define why some symbols were chosen over others, or what they signified to their makers and users.

Most studies of ceramics and social organisation have focused on painted vessels and design form and structure (see Washburn 1977; Kintigh 1985; Plog 1980). The reasons for this are readily apparent. Ceramic decoration is typically highly structured and
easily recognised and decodable (see Washburn 1977). Unlike other dimensions of ceramic variability, such as vessel form, decoration belongs solely to the realm of expressive treatment. However, within the technological constraints imposed by raw materials and pottery making techniques, ceramic form is also highly flexible. It is reasonable to expect, therefore, that micro-variation in rim form, vessel shape, and other morphological characteristics, within broad functional groups of vessels, might also exhibit meaningful variation between social groups.

Because the assignment of meaning to particular attributes is an historical and, to some extent, arbitrary process (or at least one that we don’t have direct access to), there can be no exact formula for determining which attributes to study and how to define them in an analysis of social variation in ceramics. While we can develop some general expectations based on criteria of context of use and visibility, value, and so on, we must also engage in an analytical process which involves intensive feedback between pattern recognition and interpretation. Analysis should involve a process of: (1) developing a theoretical framework in which to view ceramic variability in general and in specific archaeological contexts; (2) identifying patterns or structure in a body of data; (3) evaluating the occurrence of these patterns over space and time, and with respect to the underlying analytical framework; and (4) reevaluating and revising, when necessary, both interpretations of the data and the underlying theoretical perspective.

Using Ceramics to Study Economic Organisation

Included under the heading ‘economic organisation’ are a number of issues which we can study with ceramic data. We can examine, first of all, the organisation and techniques of ceramic production — whether ceramics are produced by their users, in small neighbourhood workshops, or in large ‘industrial workshops’. Each of these implies very different things about the scale of production and equally important, about the nature and scale of the distribution systems. In examining the organisation of ceramic production we can also learn about the political setting in which ceramic producers operated — were materials produced by independent potters, or by potters attached to and regulated by higher authorities, such as chiefs, temples, or states? Third, we can use ceramic data to examine local and long-distance trade. Vessels can be sourced to their production locale through chemical or petrographic analyses, through workshop marks, or regional styles, and we can ask questions about how far they travelled from their locus of production and how the trade was structured.

Ceramic Production. Van der Leeuw (1977) has presented a useful typology of the organisation of ceramic production, ranging from simple to complex productive systems. At the simplest level is household production, in which members of each household produce vessels for their own use. Household production was probably characteristic of the earliest pottery producers and may have held for many ‘neolithic-level’ non-hierarchical sedentary agricultural societies throughout the world. In household production, pottery is typically handmade and fired in the open, a relatively simple technology with little investment in raw materials, tools, or permanent facilities. Pottery manufacture is periodic; the yearly needs of the household for ceramic vessels can be satisfied in a relatively short period of time. Even in such a system, it is likely that pottery moves beyond the boundaries of the household, as gifts, parts of dowries, or in exchange for other goods.

The second level of production described by van der Leeuw is the household industry. In this system, ceramics are still produced at the level of the household, though much production is oriented towards trade or sale beyond the household. Potters are not full-time specialists, and pottery making generally supplements agricultural activities or other sources of income. However, pottery is produced in larger quantities than in the first level, and pottery production takes place more frequently. The technology of ceramic production remains relatively simple, and time-consuming. Household industries may emerge under a number of conditions: Widows or non-married women may become part-time specialists in order to generate necessary income (see Balfet 1981), or members of households which lack access to sufficient good agricultural land may specialise to some extent in pottery production in order to supplement limited agricultural returns (see Arnold 1985: 226).

The third level of ceramic production defined by van der Leeuw is marked by the emergence of specialists who work virtually full-time at pottery production. This is a workshop industry, characterised by increased scale and efficiency of production, typically involving major changes in ceramic technology. Vessels may be wheel- or mould-made. Both technologies permit the production of large quantities of vessels in a short period of time. Firing technology is also improved with the introduction of permanent ovens or kilns. Pottery is produced more or less year
I. Introduction

round, except during rainy periods, and is distributed through markets, middlemen, or directly from the workshop. Because pottery making is a regular activity and there is incentive to produce many vessels, vessels can be expected to become increasingly standardised, as potters attempt to minimise time and energy invested per vessel.

Workshops are typically family enterprises; potters include both male and female members of a nuclear or extended family. While females were the major ceramic producers in the household production and household industries, males typically are the primary labourers in workshop industries, particularly as regards work on the potter's wheel. Contemporary ceramic production throughout rural India is organised at the level of the workshop industry (see Saraswati and Behura 1966; Saraswati 1978; Behura 1978; Sinopoli and Bl Burton 1986; Junker 1985; Miller 1985).

The last level in van der Leeuw's framework is the large-scale industry. This system of ceramic production is characterized by workshops or factories which employ large numbers of people. Production is full-time and large scale investment in drying chambers and kilns minimises the effects of rainfall and climate on production. Ceramics are extremely standardised and productive technology is highly refined and highly specialised.

The broad classification of scales of organisation of ceramic production is a useful framework in which to view ceramic manufacture. Other productive systems may exist, and van der Leeuw has discussed itinerant potters as one example. Nonetheless, the classification of ceramic production does seem to describe the most common modes of organisation of ceramic production, as known from world-wide ethnographic studies (see Kramer 1985), and provides a general framework for viewing pre- and proto-historic and historic systems of ceramic production.

The organisation and scale of ceramic production has very important implications for the nature of the finished products which we recover archaeologically. When pottery production is at the level of the household, vessels are typically simple in form, produced by coiling or other hand-building methods, and fired in open fires at relatively low temperatures. Since pottery manufacture in such industries is periodic, with vessels produced at certain times of the year or when needed by the household, there is a fair amount of variation in vessel shape and other characteristics from year to year. In addition, the clays and tempering materials used are likely to be those locally available at little or no cost to the potters.

As the scale and frequency of ceramic production increases, so will the impetus for more sophisticated techniques for vessel production and firing. The introduction of potters' wheels or moulds will lead to increased standardisation of the final products. Increased frequency of manufacture will also encourage standardisation, as it is more efficient to produce many identical or nearly identical vessels, than to make each vessel unique. In addition, the range and variability of these standardised types may increase, as ceramics come to play increasingly important roles in daily life, and as market or other demands become important to workshop survival and success. In order to fire larger numbers of vessels more efficiently, permanent firing facilities such as kilns or ovens may be introduced. Such facilities, in turn, generate higher firing temperatures and more efficient transmission of heat, which lead to well fired vessels.

Innovations in production and firing techniques place constraints on the raw materials which can be used in vessel manufacture. The introduction of the potters' wheel, in particular, imposes limitations on the quality of clays and tempers which can be used. The potters' wheel is an efficient tool, with which a proficient potter can form vessels in just a few minutes. Not all clays are suited to wheel-throwing, however, and potters must become more selective in the materials they use. In addition, more attention must be devoted to clay and temper preparation, as the presence of large non-plastic inclusions in a vessel wall can result in the vessel being torn apart on the wheel, due to the friction of the force of the wheel against the potter's hands. Successful kiln firing requires the use of good quality, hot burning fuels, i.e., wood or coal, which must also be acquired by the potters. In contrast, low burning fuels such as dung or brush are quite effective in open or pit firing. The effects of higher firing temperatures on finished vessels are readily observable in vessel hardness, chemical transformations of clay and tempering minerals, degree of oxidation, and so on (see Rye 1981).

Even in the absence of direct archaeological traces of pottery manufacture, such as firing or workshop facilities and implements, it may therefore be possible to argue back from the vessels themselves to the techniques which produced them, and in turn, to develop some reasonable expectations concerning the organisation of ceramic production. The organi-
sation of ceramic or other craft production is not independent of the socio-political and economic context of the society in which the vessels are produced. The emergence of full-time craft specialization, for example, has been linked to the ability of a society to produce an agricultural surplus to support non-agricultural segments of the population (Arnold 1976; Rice 1981). It has been argued by Foster (1960), Arnold (1985), and others, that specialized production emerges in agricultural societies under conditions of population pressure. In such cases, it is proposed that specialists come from groups which occupy marginal agricultural lands, and use supplementary income to meet their subsistence needs. Other factors, such as the size and density of the consuming population, the nature and regulation of distribution and transportation channels, the valuation of ceramics and alternative vessel materials, as well as social, ideological, and political factors, may also condition or determine the nature and organisation of ceramic production systems.

Ceramic production, as we have seen, can be organised in many ways and at a variety of scales. It should be noted that different scales and systems of production can coexist in a single society (Ballet 1981). The coexistence of multiple production systems can endure at more or less constant levels for long periods of time, as seen in North Africa. In addition, the relative importance of one or another system of production can change over time. If, for example, trade routes or traditional market systems are disrupted and products of specialists can no longer be distributed, household production and household industries may become increasingly important. The coexistence of multiple modes of ceramic production, then, provides a highly flexible and adaptive system of ceramic production.

Archaeological studies of ceramic production call on several lines of evidence. Including among these are direct traces of pottery manufacture (Stark 1985). Such traces include remains of kilns or ovens. Materials frequently associated with firing areas include large numbers of misfired or over-fired vessels, or 'wasters', often blistered or warped; kiln furniture—pieces of shaped clay placed between vessels to prevent them from sticking together during firing and which permit the flow of air between vessels in the firing chamber. Large deposits of ash from firings may also be present. The discovery of firing areas is most likely to occur when pottery production was on a fairly large scale, such as in workshop industries or large-scale industries. In household production, firing usually takes place in the open without permanent facilities, and leaves little easily identifiable trace in the archaeological record.

Probable areas of vessel forming are more difficult to identify than large-scale firing areas. Recovery of moulds, large deposits of raw materials, or pottery-making tools, such as stone anvils, wheel sockets or axles, and decorative stamps, may be used to identify production areas. As noted earlier, additional indirect evidence on the organisation of ceramic production may be inferred from the vessels themselves, including evidence for production techniques, firing temperature, standardisation, and so on.

Ceramic distribution. Along with variation in the organisation of ceramic production, considerable variation can exist in the ways in which ceramics are distributed, and the distances over which they are transported. The study of distribution systems is of great interest to archaeologists concerned with the nature of interaction between different cultural groups, including diffusion and long-distance trade, as well as with distribution systems internal to a single cultural system, including such issues as the development of market systems. The study of ceramic distribution involves, first, identifying the source of the vessel, either the workshop or region in which it was produced, and second, examining mechanisms by which it may have reached its ultimate destination. Sources of ceramics may be accomplished on stylistic grounds or by studying technological attributes, including clay and temper mineralogy. Methods such as neutron activation or x-ray spectroscopy can be used to characterise clays from various regions and to identify the probable sources of vessels, providing that sufficient regional variation in clays and tempers exists (see Rye 1981). Macroscopic variation in ware colour and paste consistency may also be used to identify probable locations of ceramic production.

The identification of distinctive regional ceramic styles may also provide evidence on the general location of pottery production. Both decorative treatment and vessel form may be distinctive to a particular region or 'culture' and their presence outside of their core area indicates some sort of contact between regions. This contact may take the form of trade or gift-giving, or local imitation of non-local or exotic wares. Imitations of exotic wares may be identified through microscopic or macroscopic studies of raw materials and construction techniques.

Within their region of production ceramic vessels
may be: (1) used where they were produced; (2) sold or traded directly from production sites for use within the community in which they were produced; or (3) transported to and sold at weekly markets by the potters themselves, by middlemen, or by merchant groups. Because ceramics are both bulky and breakable, transportation of large numbers of vessels over long distances is not very common. Foster has suggested that 150 miles is the maximum distance which pots will be transported in traditional economies (1965: 56), and typically the distance is far less than that. Where water transportation is possible, pots may travel greater distances than when they must be moved overland on the backs of draft animals or humans (Nicklin 1971; Ellen and Glover 1974).

Ceramic vessels, however, sometimes travel considerably beyond the bounds of their immediate area of production and primary use. It probably is relatively rare for vessels themselves to be objects of long distance trade, except in contexts where the vessels are indicators of status or are required in rituals or other special purpose activities. Ceramic vessels, however, serve as containers for materials which are objects of long-distance trade, such as oils, spices, wine, and so on. In such cases, vessels containing these materials may travel considerable distances; witness, for example, the Roman amphorae which are found throughout the extent of the Roman empire and beyond its bounds, in South Asia and the Near East (Wheeler 1946; Williams 1981).

As will be discussed in more detail in later chapters, present evidence for Vijayanagara ceramic production indicates that, like contemporary South Indian pottery production, ceramic manufacture was a household industry, conducted by full-time specialists. Production involved the use of a potter’s wheel, as well as hand-building techniques including moulds, paddle and anvil, and slab building methods. It appears that ceramics were not traded over long distances during the Vijayanagara period, and vessels used within the city were probably produced within the greater metropolitan area of Vijayanagara (see Sinopoli n.d.c).

The Ceramics of the Noblemen’s Quarter of Vijayanagara

With this background on some of the problems that ceramic analysis may consider, the remainder of this work will examine the ceramics of the medieval south Indian city of Vijayanagara, and in particular the ceramics of eleven palace complexes recently excavated by the Government of Karnataka, Directorate of Archaeology and Museums in an area known as the Noblemen’s Quarter. Many of the questions addressed in this chapter will be examined with the Noblemen’s Quarter (NMQ) ceramics. A typology of Vijayanagara ceramics is developed, and analysis of the NMQ ceramics will consider activity distributions, social organisation, and chronology of the Noblemen’s Quarter. Before presenting the ceramic analysis, a description of the plan and structure of the Noblemen’s Quarter will be provided in Chapter II. Two other areas of the site from which ceramics were examined—the East Valley, and the city’s main Islamic Quarter—will be briefly discussed.

Chapter III presents information on the ceramic sample analysed from the Noblemen’s Quarter; how it was collected, where it was collected from, and its size. The goals of the Noblemen’s Quarter ceramic analysis will be presented in greater detail. The Vijayanagara ceramic typology will be examined in Chapter IV. Definition of relevant variables, techniques employed, and the final ceramic classification will be presented. Chapter V will examine the spatial distribution of ceramics in the Noblemen’s Quarter, looking at distributions within and between the sampled compounds. Ceramic distributions will be used in interpretations of activity distributions and social variation in the NMQ area. In Chapter VI, the Noblemen’s Quarter ceramics will be compared to ceramics from the East Valley and the Noblemen’s Quarter to examine differences in production, ceramic use, and social organisation across the city. Chapter VII will summarise what we have learned from the analysis of the Noblemen’s Quarter ceramics about Vijayanagara period ceramics, about the Noblemen’s Quarter in particular, and about the city and empire of Vijayanagara in general.