

2. THE VIJAYANAGARA METROPOLITAN SURVEY: PRELIMINARY INVESTIGATION

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Aimed at gaining an understanding of the city of Vijayanagara within its regional context, the Vijayanagara Metropolitan Survey was formulated and preliminary work began in 1987. This work consisted of walking several exploratory transects radiating outward from the Urban Core, in order to learn about the variability of cultural remains in the area and to better plan subsequent seasons. A brief summary of the goals and methods of the project and the results of the initial investigation follow.

Large urban centres, such as the capital at Vijayanagara do not exist in isolation. Rather, they depend economically and politically on their hinterlands, which supply the foodstuffs, raw material, and labour which ensure the continued viability of the city. In turn, the demands of a large, nucleated population constrain the organisation of production in the countryside so that the functioning of urban and suburban economies are inexorably linked. It is the goal of this project to investigate the organisation of both agricultural and non-agricultural production at Vijayanagara; this connection between the city and its hinterland requires that a regional approach to the problem be adopted. Certainly the primary focus of agricultural production was outside the zone of urban occupation, encompassing not only fields watered by the extensive canal and tank systems, but also rainfed agricultural lands. Areas of craft production may also be located in the suburban zone, as the results of the 1987 season indicate.

The Vijayanagara Metropolitan Survey is an extension of the programme of surface archaeology begun in the city of Vijayanagara itself,¹ and an expansion of the scale of that analysis from an urban to a regional one. The methodology employed is one of foot-survey or reconnaissance; systematic walking over of land in the study area and documentation of cultural remains encountered. The Metropolitan Region of Vijayanagara is defined provisionally as the portion of the Tungabhadra river basin containing the city and its suburbs, continuing west to the Tungabhadra Reservoir. On the north and east the sample area extends a short distance into the granitic uplands surrounding the valley. On

the south, surface investigation ends at the base of the Sandur Hills. By this definition, the greater metropolitan area is approximately 21 kilometres east-west and 16 kilometres north-south, an area of more than 300 square kilometres (see Fig. 51).

Not all of the study area can be covered. Instead, a stratified sampling programme will be employed in which different topographic zones will be sampled at varying intensities. Thus, the relatively flat lowland areas thought to contain more abundant evidence for past agricultural land use and settlement will be sampled at a higher intensity than the rocky, upland areas. The map series squares of approximately 2.5 minutes of longitude and latitude² will be used to locate north-south linear transects. Some additional documentation will be carried out of cultural features which fall outside the sampled area, such as temples, tanks, fortification walls, and gateways.

During the survey, features of the landscape and of the archaeological record relevant to the economic and political organisation of the city will be identified. Documentation of the nature, scale, and spatial organisation of the remains of settlement, agricultural and craft production, defensive arrangements, transport routes, and religious and civic institutions will all inform on the regional economic organisation of the Vijayanagara polity. Thus, traces of abandoned villages and temples, and indications of roadways and fortifications are as important to the study of Vijayanagara productive systems as are inscriptions, soil and water control features, and loci of craft production.

Variable surface density of artifacts, notably pottery, may also indicate intensity of past land use, and controlled documentation of ceramic densities along selected survey transects is planned. Preliminary transects carried out during the 1987 field season give some indication of the great density and diversity of Vijayanagara-period archaeological remains in the Metropolitan Region, and suggest that abundant materials exist for the study of economic organisation from an archaeological perspective.

PRELIMINARY TRANSECTS

The preliminary transects explored in 1987

were oriented outward from the urban Core, one each to the north, east, and south. These were located so as to cover the maximum amount of topographic variability in a relatively short distance. Records of surface artifact types and densities were made at 500 metre intervals along these transects. All materials within a 4 metre diameter circular unit were described and counted; no collections were made. Although the 1987 fieldwork was quite limited, it revealed a number of interesting patterns in artifact distribution. These are discussed within the context of each transect. It should be noted that sites encountered and described were not all previously unknown, but most were apparently undocumented. It is only through systematic documentation of these cultural features and analysis of their spatial distribution that they can be understood in their regional context.

The east transect began just outside the walls of the Urban Core, and is contained in Map Series square N and O.³ This transect sampled a range of zones of modern land use, from intensively irrigated fields, to dry farming areas, to uncultivated wastes. Irrigated areas included a large portion watered by the ancient Turtha Canal, areas that would have been under cultivation in the past as well. Ceramic densities along the transect fell off sharply just outside the walls of the Urban Core, but thereafter frequencies rose and fell, indicating that these artifacts were not scattered uniformly across the landscape, but rather occurred in discrete clusters. Areas of high sherd density did not co-occur with any particular type of modern land use. This suggests that the observed distribution is not solely a factor of variables affecting surface visibility, such as plowing or erosion, but rather does reflect patterns of artifact discard. Two sites were recorded along the east transect.

The south transect began at the village of Malapanagudi and is contained in the Map Series squares R and W.⁴ All of the area sampled along this transect is currently dry farmed, although at least a portion of this area was under a more intensive regime in the past (see VMS-3, below). In general, ceramic densities were much higher than those along the east transect, although they displayed the same rise and fall pattern. Here chunks of iron slag were also found along nearly the entire length of the transect, whereas no slag was found on either the east or the north transect. Three sites were recorded along the south transect.

The north transect began immediately north of the Virupaksha Temple (Hampi) and traversed the large island in the Tungabhadra river and the rocky upland to its north. It is contained within Map Series squares N and H.⁵ Nearly all the area included in this transect is currently under an irrigated agricultural regime, with the exception of some granitic knolls and uplands. Ceramic density was extremely low along this transect; in fact, none of sherds noted fell in the 500 metre collection units. One site was recorded along the north transect.

SITE DESCRIPTIONS

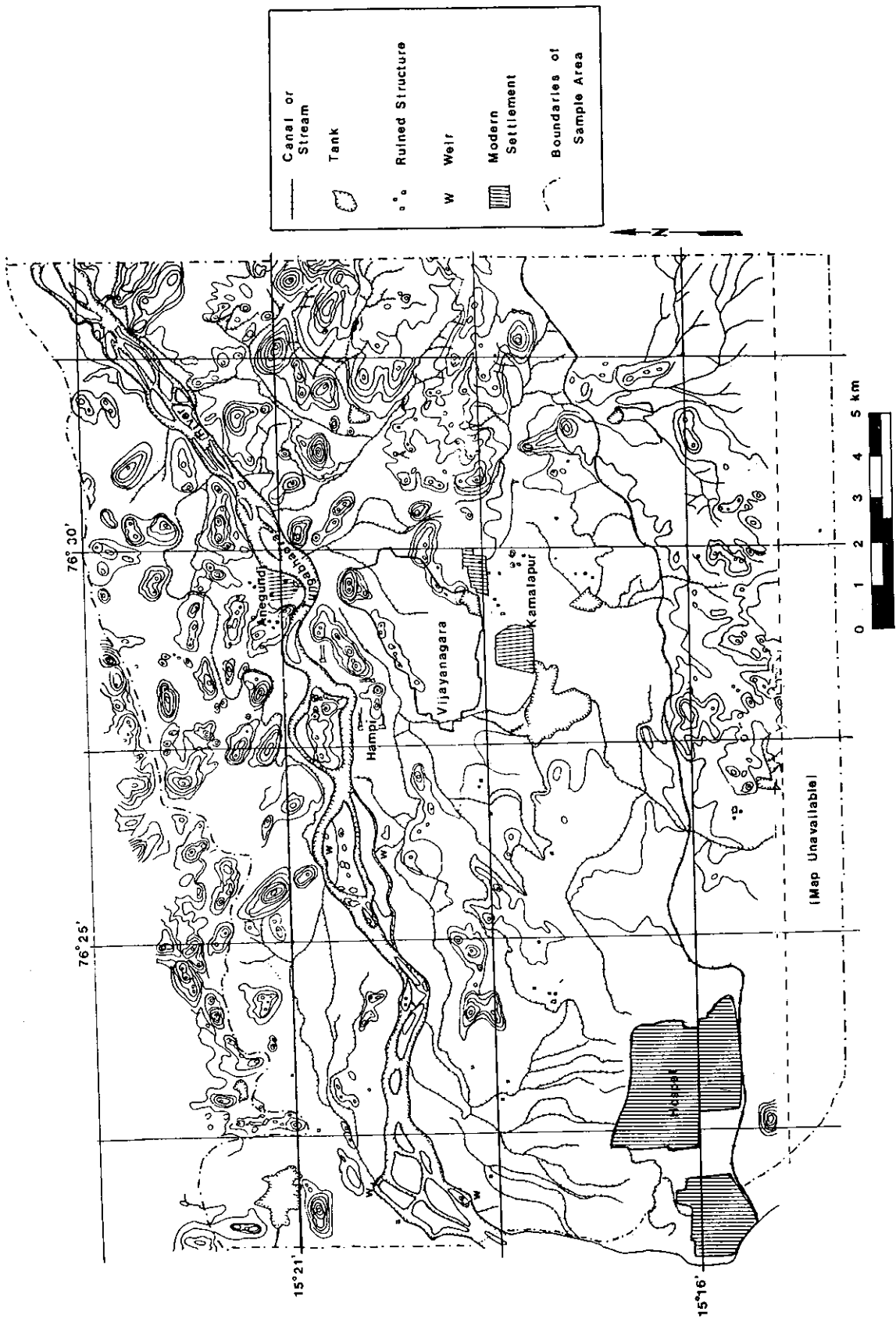
VMS-1

Located on the east transect, this is an abandoned lime processing site. Its most notable features include three large mounds in north-south alignment (see Fig. 52). These are simply huge piles of the soil accretion, kankar (calcium carbonate), and may represent stockpiled or rejected raw material. The kankar was apparently processed for its lime content, which could be used in concrete, plaster, in the process of iron smelting, and so on. Limestone, a sedimentary rock, is not indigenous to the area.⁶

Two circular clay-lined (diameters of fired clay rings: 179 and 250 cm.) stone features located on and to one side of the centre mound appear to have been kilns in which the caliche was fired. Modern lime-kilns are ubiquitous in the region and process the same material. These are simple conical structures of brick or stone, open on top, with dual air vents near the ground. Although the kilns of VMS-1 are not well preserved, their form is not inconsistent with that of their modern counterparts. This correspondence does make the dating of VMS-1 problematic. However, no modern artifacts were noted and the centre mound is supported by a level of rough concrete similar to that used in Vijayanagara-period structures. Sherd density was quite low on and around this feature. Only 3 sherds were collected in a 4 metre diameter unit placed in a plowed field less than 100 metres from VMS-1.

VMS-2

Located slightly to the north of the east transect, this abandoned village has been heavily disturbed by borrow-pits excavated for the construction of the north embankment of the Tungabhadra Right Bank Main Canal. Site area is estimated to be 1-3 hectares. VMS-2 contains two small temples, one on either side of the village (north and south), a



51. Vijayanagara Metropolitan Survey: Survey Area.

masonry-faced step well (circa 5 by 5 metres), and extensive remains of structures and occupational debris. The constructional styles of both temples are consistent with a Vijayanagara-period date, but both also show indications of subsequent remodelling. Both contain images of Hanuman. The southern temple faces the power canal (south) and is noted on the Survey of India 1:50,000 topographic map of that area. Inside this temple are two elephant balustrades; various architectural elements, including mouldings and capitals, are piled up in front. While none of these pieces is *in situ*, they may have come from a palace or similar structure in the area.

The village itself contains numerous small rubble-walled structures and open areas. The disturbed nature of the site allows one to see numerous house floors and details of wall construction and plastering. Earthenware ceramics and granite block mortars are abundant on the surface, and numerous strata and pits filled with, domestic trash -- ash, charcoal, animal bone, potsherds, and the like -- can be observed in profile. No modern artifacts can be seen in the sections. The village is approximately 500 metres from the Turtha Canal, and 2.5 kilometres from the outer walls of Vijayanagara's Urban Core.

VMS-3

Located somewhat to the west of the north transect, this massive aqueduct and its distributary channels carry water from the Anegondi channel to the large island north of the village of Hampi. The aqueduct itself is approximately 16 metres high and 50 metres long, although it clearly once extended much further on the south side. It is constructed of very large dressed blocks which form 11 to 12 course high rectangular pillars which carry an overhead channel. The pillars have simple stepped capitals and are joined by long slabs, which alternately recess and protrude. This form mirrors that found on several Vijayanagara gateways. The aqueduct is very heavily built, presumably to withstand the force of the river floods.

At least two channels lead to the irrigable land of the island from the aqueduct. The southern is the most well preserved, as a portion of it is rock-cut. The low artifact density and absence of other indications of settlement on the island suggest it was used primarily for agricultural production. A small Hanuman temple is found on the island, however, on a rocky knoll east of VMS-3. Finally, a massive masonry wall or platform of medium undressed

stones, 11 courses high is found on the island less than 75 metres from the point at which the aqueduct discharged its water into the two channels. This structure is circa 6 metres wide and 15 metres long, and is breached by a modern dirt road. Its function is unknown.

VMS-4

Located on the south transect, this abandoned tank lies immediately south of the modern village of Malapanagudi. The tank embankment is circa 800 metres long and 5 metres high. Like other Vijayanagara-period tanks, it is constructed of sterile earth and gravel fill and lined with terraced stone work on the upstream side. Some of the masonry consists of large rounded cobbles, while other sections are faced with quarried stone, suggesting several episodes of construction and/or repair.







On the west side there are two granite sluice gates, one with carved donor portraits (see Fig. 43). Opposite this sluice gate is a staircase of long dressed slabs set into the tank embankment. A plastered brick and cement tunnel near the south end of the embankment also served to channel water to the east. Downstream are various channels designed to distribute water from the tank to the fields below it. These include a long enclosed channel of plastered cement and brick with a square open tank at its outlet, and a square brick basin circa 5 by 5 metres, of unknown depth. A clay pipe, now blocked, once connected this feature to the tank.

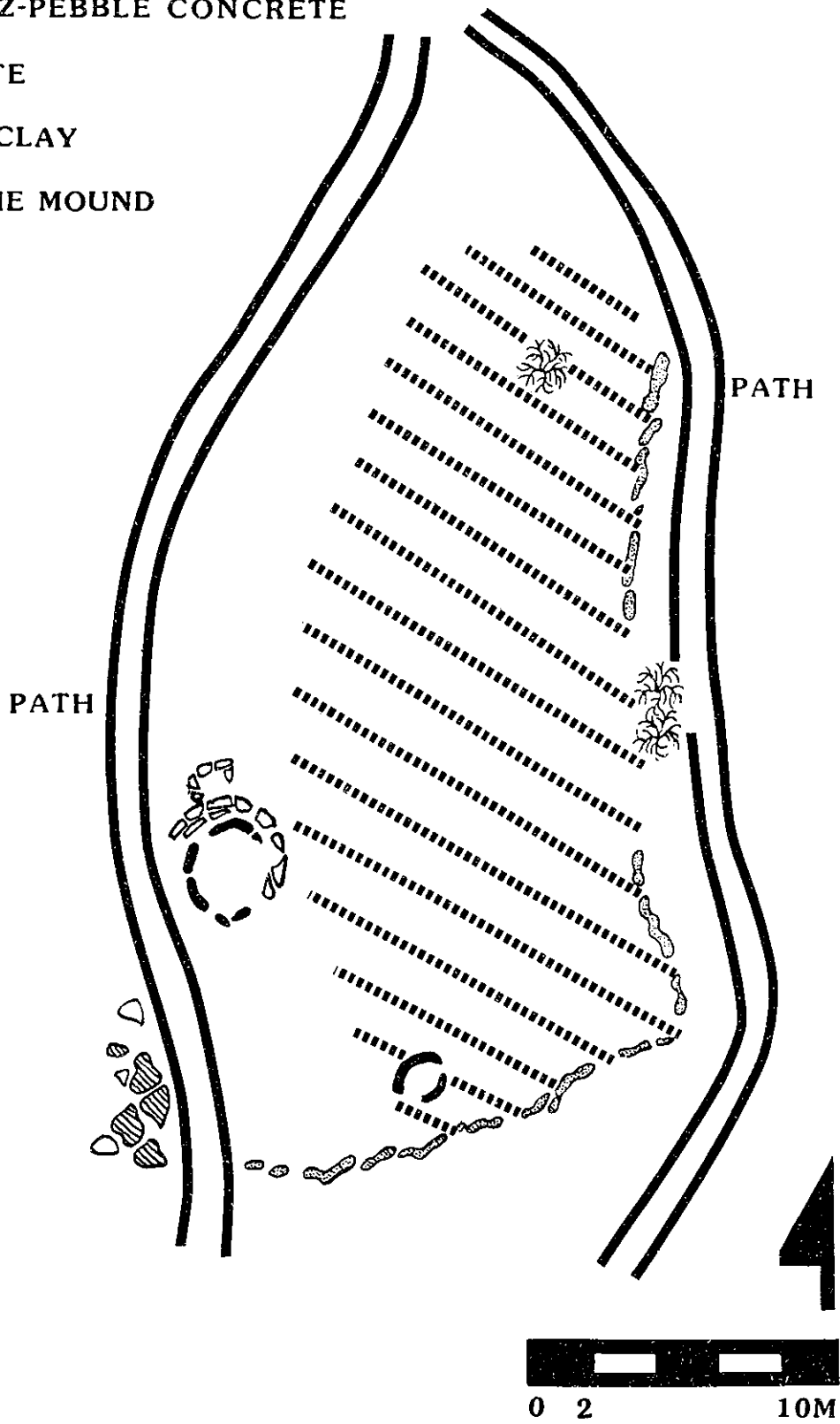
Ceramic density is moderate to low above the embankment. Eleven sherds were recovered from a collection area 4 metres in diameter placed approximately 450 metres west of the embankment. Although most of the land in this area is now dry farmed (or irrigated with electric pump-sets), the presence of this defunct tank indicates an irrigational regime in the past. Below the tank, an extension of the Basavanna channel runs approximately parallel to the embankment of VMS-4 at a distance of circa 400 metres. This canal section post-dates VMS-4.

VMS-5

Located on the south transect, this is a concentration of iron slag. Although some fragments of vitrified brick and of iron ore were also found in this roughly oval area (100 by 50 metres), the scatter of iron smelting by-products was too diffuse to be certain if they were in primary context. As many are now in field margins, there is a strong possibility that

KEY

-  QUARTZ-PEBBLE CONCRETE
-  GRANITE
-  FIRED CLAY
-  CALICHE MOUND
-  SLAG
-  BUSH



52. VMS-1, Lime Processing site.

these waste products have been redeposited here. VMS-5 is circa 1 kilometre southwest of the embankment of VMS-4. If the two were contemporary, the slag may have been near the original shoreline of the tank.

VMS-6

Located on the south transect, this fortified hill commands an excellent view of the countryside north of the modern village of Kariganuru. The multi-level fortifications consist of thick (1.5 to 2 metres) earth and rubble core walls, and round bastions constructed of large rounded fieldstone. No quarried granite blocks are employed. Abundant earthenware ceramics, but little else, are to be found inside the fortifications. Some internal rooms are located on the north side of the hillock, but at the highest point on the south the walls are built on bare stone, apparently without any attempt to create level floor surfaces.

Below and to the northwest of the hilltop is a complex of several large, multi-roomed, rubble-walled structures. These structures are spaced closely together, separated only by small courtyards. Room sizes appear to be quite small, with approximately 3 by 3 metres the model size. A small step-well is found adjacent to the complex of structures. Earthenware ceramics are also found in and around this area. 33 sherds were recovered from a collection unit about 150 metres north of VMS-6. Low but consistent densities of iron slag are also present in this area.

DISCUSSION

Archaeological techniques of surface survey are as appropriate to the study of historic as to

prehistoric regional systems. Systematic documentation of cultural features and analysis of spatial patterning on a scale larger than that traditionally employed by archaeologists may shed light on aspects of economic organisation not accessible through textual sources. Preliminary investigation of the Vijayanagara Metropolitan Region has made a beginning toward supporting these assertions, and has revealed a rich and varied archaeological record which includes traces of past settlement, agricultural and craft production, and military activity. Understanding of the nature and distribution of these remains will assist in the elucidation of the economic system of the Vijayanagara polity, and of the nature of interactions between the city and its hinterland. Continuing research will undoubtedly clarify many of the patterns suggested by this preliminary study, and raise many new issues as well.

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REFERENCES

1. Fritz, J.M., 1983, "Report on Fieldwork - January-March 1983," in *Vijayanagara: Progress of Research 1979-1983*, ed., M.S. Nagaraja Rao, Directorate of Archaeology and Museums, Mysore, pp. 43-44; and 1985, "Report of Research, 1980-1984," in *Vijayanagara: Progress of Research 1983-84*, ed., M.S. Nagaraja Rao, pp. 69-95; Fritz, J.M., G. Michell, and M.S. Nagaraja Rao, 1984, *The Royal Centre at Vijayanagara: Preliminary Report*, Melbourne, Department of Architecture and Building.
2. Fritz, J.M. and G. Michell, 1985, "Map Series on Cultural Remains of Vijayanagara," in *Vijayanagara: Progress of Research 1983-84*, ed., M.S. Nagaraja Rao, Directorate of Archaeology and Museums, Mysore, p. 165.
3. *Ibid.*
4. *Ibid.*
5. *Ibid.*
6. Dr. D.P. Marsh, personal communication, 1987.