

INTRODUCTION

The archaeological survey of the Zulti North and TiSand mining lease areas began near the end of 1994. The survey program emerged from recommendations by Whitelaw (1993) after a Richards Bay Minerals initiative for a systematic archaeological survey ahead of dune mining activity. Both the initial and current survey form part of Richards Bay Mineral's Integrated Environmental Management Program for dune mining. This report serves to consolidate the results of the archaeological survey undertaken by the ICRM during the course of 1996 and 1997. I have retained the ceramic groupings proposed in last years report, which contextualises the ceramic groupings for this year's report. Thirty new archaeological sites were recorded during 1997, making a grand total of 96 new archaeological sites recorded so far in the mining lease (fig. 1).

While the historical aspect of archaeological surveys in this area was discussed in last year's report, I repeat it here in order to contextualise the importance of the work undertaken with RBM.

A systematic archaeological survey of the Richards Bay area has not been undertaken for some time, apart from Hall's (1981) survey, the results from this survey contribute to our understanding of the Iron Age in KwaZulu-Natal. A regional study of an area such as Richards Bay has important implications for our understanding of small communities interacting in a larger social framework. A similar argument has been placed for the management of ± 20 archaeological sites near the Ohlanga River (Anderson 1997b). Previous surveys and excavations have been undertaken in north-eastern KwaZulu-Natal. The first of these occurred in 1904 by Anderson, who excavated a shell midden near St. Lucia. Several years later Chubb and King (1932) excavated several shell middens along the coast. These middens contained both EIA and LIA pottery. Hall (1981) surveyed the Kingsa/Tojan Lease area as well as the hinterland and recorded several EIA and LIA settlements. More recently Maggs *et al* (1989) surveyed the eastern shores of St Lucia and recorded approximately 140 Iron Age sites ranging from shell middens to settlements. Further south of Richards Bay several Iron Age and Stone Age sites have been recorded and/or excavated (Anderson 1996, 1997; Anderson and Whitelaw 1996; Davies 1971; Horwitz, *et al* 1991; Maggs 1980a, 1982). In the interior Iron Age sites have been excavated in the Tugela River Valley (Maggs 1980b) and near the Drakensberg (Davies 1974). All of these excavated sites have yielded much information regarding the different Iron Age settlement patterns in KwaZulu-Natal. However, few of these studies have been able to study a small, well-defined area as is the case at Richards Bay. The Richards Bay survey includes the sampling of most sites and has yielded information regarding the socio-economic changes in a specific area through time. The results of this survey are thus particularly important to our understanding of KwaZulu-Natal history.

The terms of reference for this project are to :

- undertake an archaeological survey of the Zulti North and TiSand Lease area;
- to record archaeological sites and undertake appropriate mitigation,
- the results will be written in a report..

While CRM work is not research orientated, the mass of information obtained necessitates a comprehensive analysis.

THE ENVIRONMENT

The area consists of a flat coastal plain interspersed with dune cordons, often greater than 150m in height. These dune cordons were formed during the Late Pleistocene as the sea retreated (Hobday and Orme 1974). This marine transgression resulted in several lakes being formed, often being estuarine, and the rivers were deflected so as to run parallel with the coastline. The KwaZulu-Natal coastal plains have been described by Moll (1976) as Coastal Dune Forest. Present day vegetation tends towards grasses along the flatter plains, although in the past they were probably Coastal Dune Forest. These changes in vegetation are probably a result of Iron Age farmers' slash-and-burn methods for clearing plots of land (see Hall 1981).

The soil tends to have a low nutrient status, although exceptions do exist. This is probably a result of the soil consisting of weathered marine deposits formed during the Cretaceous Period (King 1972). This is in contrast to the hinterland which is mainly formed on the Karoo formations.

METHODOLOGY

The archaeological survey entails a foot survey of areas affected by the mining process, including the mining ponds and their servitudes. In the initial surveys we realised that the dense forest vegetation resulted in poor archaeological visibility, since many sites were approximately 20 - 30cm below the surface. These initial surveys were conducted along fire breaks, dune slumps and roads, where the topsoil had been removed, thus making the sites visible. It soon became apparent that more sites were to be found beneath the soil of the coastal forest. The new strategy was to co-ordinate the surveys after bush-clearance had taken place, but before dune mining began. This interim period in the mining process allowed several sites to be exposed, yet causes minimal damage to the site itself. The use of RBM personnel, e.g. the 'exploration teams', has been of great assistance to the survey as well.

Each site is recorded according to the standard Natal Museum Archaeology Department site record form. The Natal Museum is the regional data base for all known archaeological sites in KwaZulu-Natal. Each site has a site record form and sites are plotted on a 1:50 000 map. Included on this form is information regarding a site's significance and whether it requires reassessment. All observed artefacts from each site are recorded.

Sites are plotted by means of a Geographical Positioning System (GPS), and also on a 1:50 000 map in the field. The GPS is used since many landmarks in the mining area change, making accurate recordings problematic. The GPS has an approximately 5 - 10m error of deviation.

Each scatter of artefacts is usually regarded as a site. This allows me to create a finer resolution of pottery styles and thus reduces problems with multicomponent sites. All sites have been grouped according to low, medium and high significance for the purpose of this report. Sites of low significance have no diagnostic artefacts, especially pottery. Sites of medium significance have diagnostic artefacts and these are sampled. Sampling includes the collection of artefacts for future analysis. All diagnostic pottery, such as rims, lips and decorated sherds are sampled, while bone, stone and shell are mostly noted. Sampling usually occurs on most sites (see table 1). Sites of high significance are excavated or extensively sampled. The sites that are extensively sampled have high research potential, yet poor preservation of features. I attempt to recover as many artefacts from these sites by means of systematic sampling, as opposed to sampling diagnostic artefacts only.

I have increased the number of artefacts sampled since the beginning of this year for two reasons. First, the approval for the interpretative centre by RBM, and *Inkosi Mthiyane* has been given, which means that material would be needed for displays. Second, the sites dating to +350 years ago (or Group 7 pottery) require a comprehensive analyses (see discussion).

Significance is generally determined by several factors. However, in this survey, a wider definition of significance is adopted since the aim of the survey is to gather as much information as possible from every site. This strategy allows for an analysis of every site in some detail, without resorting to excavation.

Significance is usually determined by the following factors:

- Is the site the only one of its kind so far recorded in the province or area?
- Does the site have any rare or unusual features?
- Is there good preservation of artefacts and is the site relatively undisturbed?
- Has the site the potential to answer any questions currently asked in the related research and/or literature?

Archaeological sites in KwaZulu-Natal usually occur in areas that are characterised by:

- close proximity of a water source;

- close proximity to the sea;
- sandstone outcrops;
- Sweetveld and Bushveld vegetation;
- areas with fertile soil conducive to the cultivation of crops;
- the top of hills;
- iron ore bodies

DESCRIPTION OF TERMINOLOGY

Archaeological sites are divided into three general periods: Stone Age, Iron Age and Historical. These classifications are used for convenience and do not reflect a social evolutionary trajectory of human development; rather, they refer to the artefacts found on the site. I have omitted Stone Age definitions since these sites do not occur, in the affected area, so far.

Iron Age

The Iron Age refers to the period of settlement in southern Africa by agriculturists. These people spoke a Bantu language, herded cattle, sheep and goats, and cultivated crops such as sorghum, millet, legumes and various squashes. The Iron Age is conventionally divided into the Early Iron Age (EIA) and Late Iron Age (LIA). The main differences between these two periods is in the pottery styles, settlement patterns and vernacular architecture. Both periods are restricted to summer rainfall areas in southern Africa.

The EIA dates from AD 400 to AD 1000. Settlements occur below the 1 000m contour line and in areas with more than 300mm of rainfall per annum. They have been found in major river valleys such as the Tugela River Valley, close to rivers and around coastal lakes. Settlements may be approximately twelve hectares in size, although they are often smaller (Maggs 1980, 1984a, 1984b). The pottery styles tend to show diachronic change; that is, there are stylistic similarities between sub-periods.

The LIA dates from AD 1050 to \pm AD 1820. These sites are different to those of the EIA in their pottery styles and settlement patterns. Settlements are located in savannah and grassland areas and often on the upper slopes of hills. The introduction of maize in the 1700s resulted in a change in the form of several artefacts such as grindstones. There is also an introduction of foreign, or exotic, artefacts such as ceramics and glass beads from the Middle and Far East and Europe, possibly indicating a more extensive trade network than existed during the EIA.

The Historical period dates from approximately AD 1829 to fifty years ago in KwaZulu-Natal. These sites, in general, include those associated with both black and white agriculturists.

SMALL FINDS

This section describes the archaeological remains according to their ceramic classifications. Six main groups are analysed: pottery, utilised stone; iron ore, slag and metal; bone, and; marine shell.

Pottery

Many pottery fragments have been sampled and these include pots, bowls and lids. Pottery decorations are varied and form the main basis for classifying different phases of the Iron Age and Historical periods. This allows for several sites to be grouped together, even if separate sites do not initially appear to have the same stylistic decoration. It is easier to identify specific phases in the EIA sites than for the LIA and Historical periods. However, this is due to the emphasis on Early Iron Age research in KwaZulu-Natal in the past - much of the LIA remains unresearched. Pottery categories are according to the 1995 survey pottery Groups. I have noted where certain Groups were not recorded in 1996. Only (decorated) lips and rims have been redrawn. Pottery classifications and figures are given in Appendix A.

The ceramic classifications can be divided into nine groups.

No Group 1 pottery sherds were recorded during the 1996 survey.

Group 2 pottery decoration occurs on the rim, neck, shoulder and body of the vessel, and is thus more varied than the Group 1 decorations. Group 2 sherds were recorded at MPC30, MPC31

No Group 3 pottery sherds were recorded during the 1996 survey.

Group 4 pottery decoration occurs mainly on the neck of the vessel and to a lesser degree on the rim and body. Group 4 sherds were recorded at NDO1.

Group 5 pottery is characterised by fingernail impressions. Group 5 sherds were recorded at MPB25a-g and RBM002a-d

Group 6 pottery is characterised by circular impression on the shoulder, neck or body of the pot - no rims were found and thus the precise position of the decoration is difficult to establish. Group 6 sherds were recorded at MPAC1, MPB20, MPB22, MPB30a-b; MPD30, MPD31, MPD32,

Group 7 pottery is characterised by shell-impressed decorations, *iiSumpa* ('warts'), notched lip impressions and rectangular impressions on the shoulder or body of the vessel, circular to square notching on the rims of the pots. Group 7 sherds were recorded at MPC30, MPC31, MPD40.

Group 9 pottery is characterised by impressions on the lip, while rim, shoulder and body decorations are scarce, with the exception of two sherds at Mananga 4. Group 9a pottery is characterised by elongated notches on the lip that extend from the inner to outer lip, but mostly on the outer lip. Group 9b pottery has elongated notches on the lip and is in association with clay pipes. This is similar to group 9d that has elongated notches on the lip. However, in group 9d the notching extends over the whole lip. Group 9c pottery has small oblique incisions on the lip. Group 9d pottery consists of notched lips. Group 9e sites are characterised by small scatters of sherds with undecorated rims and lips, suggesting a more recent age.

In general, group 9 pottery may reflect either temporal or spatial variation within a pottery style. I have not presented these subgroups in a chronological order, and these divisions will probably change as more sites are assessed.

Utilised Stone

Upper and lower grindstones occur at approximately half of the sites. The upper grindstones tend to be beach pebbles that have been systematically utilised forming the standard wear patterns associated with these artefacts. Only one EIA site, NDO1, has upper grindstones, while both the LIA and Historical sites have both upper and lower grindstones. The lower grindstones tend to be made from white beach sandstone, are dished in shape, and vary in size. The average size of these grindstones is 60cm X 30cm X 10cm. The grindstones are associated with sites that are probably the remains of houses, as opposed to shell middens and iron working areas.

Whetstones were probably used for sharpening metal artefacts. They are made mostly on the coarse white beach sandstone, although a few beach pebbles have been used. They occur at all sites, but tend to be more frequent at the LIA and Historical sites.

The term palettes is used in a general sense for stones that are approximately 20cm long and made on beach pebbles. They show signs of utilisation in the form of being rubbed smooth on one or more sides and tend to be flat in shape. Their use is unknown. Palettes were found on LIA and Historical sites only.

Hammer stones are beach pebbles that have been used to break other pieces of stone or used as pounders or mortars. They have characteristic impact marks along the edges of the pebble. While these artefacts have been recorded at LIA and Historical sites, they were probably used during the EIA.

Iron ore, slag and metal

Iron ore is found more often at EIA sites. The ore is 'bog-iron' (ferruginised ore), or high iron bearing rock. While ore was found at only eight sites, the 1995-1996 surveys indicate that there is a notable decrease of raw materials that have a high iron concentration from EIA sites through to the LIA sites and Historical sites. The Historical sites tend to have ferruginised ore only.

Slag occurs in smaller quantities in this year's survey. NDO1 (an EIA site) has the highest density of slag, followed by MPD30 (an LIA site). There is a noticeable lack of slag at other sites. No metal artefacts have been recorded in the 1996 survey. Appendix C discussed the preliminary analyses undertaken by RBM personnel.

Faunal Remains

While a larger range of animals was eaten, poor preservation has made it difficult to diagnose fragmentary bones to the species level. The rate of deterioration of organic remains along the dune cordon is rapid and those sites that have organic remains probably date to the LIA or Historical period - more so the latter. The EIA phase of the MPC30 site has one piece of bone. The LIA and Historical has a wide range of species and the bone is often well preserved.

Bos taurus (domestic cattle) occurs on all sites where bone is preserved. Fish mandibles, operculi and ribs, are found at Groups 6, 8 and 9. These are often in association with shell middens and/or humic layers of excavated sites. Sheep-sized bones occur at Group 7 sites. These may be small wild antelope, sheep or goats. Tortoise and bird bone occurs, but infrequently.

Human remains

The management of human remains is often a problematic issue when extant people claim 'ownership'. The policy with the RBM contract is one of consultation with the Interested and Affected Parties. We have reached an agreement where those graves directly affected by dune mining may be excavated, analysed, and returned for reburial after dune rehabilitation has occurred. I define a human burial as having at least half of the skeleton in an identifiable grave. Individual human bones, or partial scatters, are only noted on the site record form. The report from the 1995 burials is attached in Appendix D).

Three graves were excavated during the 1996 survey and all came from the site MPC31 (Group 7). While the graves had been partially damaged the preservation of the burials justified removal. The three graves were within a 30m radius of each other and appeared to have been located beneath the house floor (although this needs to be confirmed by an intact and excavated site). All skeletons appear to have been interred in the same position and approximately on similar levels near the current apex of the dune - the area would have been flatter during occupation. The skeletons were buried in an upright crouched position. Two skeletons faced roughly west (towards Lake Nhlabane) while the other faced roughly south-east (towards the other two). The third burial may be a female. All skeletons were adults - observable in the tooth eruption patterns, ossified epiphysis, and crania. Human remains are to be analysed by Prof Allan Morris, UCT, who will write a detailed report regarding all human remains.

The graves were circular-like holes dug into the sand. They were approximately 1m in diameter and 1m - 2m deep - bulldozer activity had disturbed all graves. No artefacts were found in direct association with the graves.

Marine shell

Marine shell in the dune forest area does not preserve well, and is found on the more recent LIA and Historical sites. However, marine shell is common on EIA shell middens along the coast. This suggests that the forest is more destructive, bioactive, or that different shellfish exploitation patterns exist. Several marine shell species have been recorded and are the remains of shell middens (rubbish dumps), often in association with identifiable domestic areas. The middens are circular in shape and approximately 2m in diameter¹. Middens occur at Groups 5, 6, 7, 8, 9.

Perna perna (brown mussel) is the most abundant species in the middens. oyster (*Ostrea ?algoensis* (Sowerby)) occurs at Groups 5, 7, 8 and 9. Oyster is the second most abundant species. Limpet (*Patella concolor*) is infrequent and found at Groups 6 and 9. Key-hole limpet (*Fissurellidaea spp.*) is only found in Group 9.

Two shell pendants were found near MPB. A bloody cockle (*Anadara natalensis*) had been smoothed along the base, and the apex perforated. An oyster fragment had been worked into an oblong shape. The edges had been smoothed and the surface buffed. Two conical perforations occurred besides each other below the apex.

DESCRIPTION OF EXCAVATIONS & FEATURES

Several sites had recognisable features. These features were either excavated sampled.

¹During the 1997 survey two large and deep middens have been recorded. These middens have stratified layers of shell, and include ash deposits.

MPD32:

MPD32 is located near the top of a sand dune nearby the current MPD stockpile. The site consists of a shell midden and a hut floor possibly dating to the Late Iron Age. Approximately 2m above this site is another unexcavated site more recent in age. Those sherds on the dune slope may thus relate to either site. Nonetheless, by excavating the features, I was able to associate artefacts in their primary context. A total of 18 1m x 1m squares were excavated at this site.

The midden was $\pm 100\text{cm} \times 150\text{cm}$ in diameter and ranges from 12cm to 20cm in depth. The shell consisted mainly of *Perna perna*, although *Ostrea ?natalensis* and some *Patella concolor* did occur. The midden that was still *in situ* was removed as a whole and will be sieved and sorted at the Natal Museum. The midden contains pottery, fish, bird and bovine bone, and some 'bog iron'. A possible human bone may occur in the midden.

The main cultural horizon occurs below part of the midden and extends into the dune. This horizon is dark brown to black in colour, humic, and has faunal remains (more human bones may occur in this horizon). This deposit ranges from 10cm to 25cm in depth, with the deepest areas occurring in the centre, and $\pm 5\text{m}$ in diameter.

While the site extended further into the dune, the sand became unstable and further excavations were not possible. The site requires further excavation, however, the site above MPD32 needs to be removed first. The occurrence of this upper site is important since it can then place MPD32 into a tighter chronological sequence, provided that both sites have diagnostic pottery. Alternatively, if MPD32 is radiocarbon dated, I will be able to place the upper site into the chronological sequence.

MPC30

MPC30 consists of both an EIA (Msuluzi phase) and LIA (*Tsonga*) component. The LIA component occurred on the perimeter of the EIA site and $\pm 5\text{m}$ above it. The LIA phase may relate to MPC31 that occurs further above the same dune face. The LIA phase of this site consisted of a dark black-like humic soil $\pm 20\text{m}$ in diameter. Faunal remains, marine shell and ceramic vessels occurred within this feature.

The EIA phase extended for $\pm 40\text{m}$ in diameter and consisted of a very dispersed ceramic scatter. One piece of bone and four fragments of bog iron were sampled at the site.

MPC31:

MPC31 was an extensive surface scatter of $\pm 100\text{m}$ in length. The site included the remains of 4-5 homes/huts as well as three skeletons, probably dating to the Group 7 pottery. The surface finds occurred as generally

isolated scatters along the dune face, and were thus not *in situ*. Many sherds were collected and these are presently being refitted.

MPB25a-g/RBM003:

These scatters of sherds occurred for $\pm 600\text{m}$ along the last dune before the interior coastal plain 'begins'. The site had been negatively affected by the erection of electricity pylons, and much of the area consisted of semi-isolated scatters of artefacts. It was notable to discern the extent of adjacent sites in many places, and I thus subdivided the entire area into artefact concentrations.

The artefact concentrations consisted of scatters of ceramic vessels, ash features, and areas of humic soil. The ash features are probably the remains of hearths and were $\pm 15\text{-}20\text{cm}$ deep. The hearths included burnt bovine and bird bone, with few fragments of marine shell. The humic areas are probably the remains of hut floors, however they had been too disturbed to positively identify.

1997:

Several sites are planned to be excavated in the near future. Four occur north of MPDs present location, and one occurs between MPD and MPC. The sites are new components to the archaeological analyses of the area and should yield interesting material.

DISCUSSION

The 1996 survey recorded approximately half the number of sites recorded in the 1995 survey. Furthermore, fewer Historical sites were recorded, but more LIA sites. This is a result of the mining path direction, rather than a decrease in potential sites. In addition to this, more sites of medium to high significance were recorded, and several have excavation potential. While the categorisation of pottery groups is relatively easy, they are still 'floating' groups, with no absolute dates. These groups form the basis for my proposed relative chronology, for the surveyed sites. This chronology uses other excavated sites in KwaZulu-Natal to provide a time frame for the Zulti North/TiSand mineral lease area. I discuss settlement patterns in the RBM mining lease area after establishing this chronology. Changing settlement patterns are used to discuss resource use patterns, such as food sources and iron working, through time and place.

Pottery

The use of pottery sequences to date archaeological sites with similar pottery styles is an established procedure in Iron Age studies. However, these sequences are related to other sites that have been radiocarbon dated. In this way relative dates for the sequence are obtained. I use this process since, so far, no archaeological sites in the survey area have produced material that can be radiocarbon dated. In addition to using the

established sequences, the more recent sites are dated by means of oral histories (*amasiko*), historical ethnographies (from the late nineteenth century, such as James Stuart and Bryant), and associated artefacts. I discuss groups according to the EIA, LIA and Historical phases. The EIA has been systematically studied and dated in KwaZulu-Natal, while the LIA and Historical periods have received less attention. EIA material is thus placed in the relative chronology with greater certainty, while the LIA and Historical sites are placed with less certainty. Groups with uncertain relative dates are noted.

The survey methodology adopted for this project was to record each scatter of artefacts as a separate site, unless scatters were directly associated - I subdivided the associated scatters. This allows for a tighter control over pottery styles, and decreases the amount of intersite contamination.

Early Iron Age

Group 2

This group is associated with the Msuluzi phase and dates from AD 650 to AD 750 in the Tugela River Valley (Maggs 1980) - calibrated radiocarbon dates place this period between AD 615 to AD 879. Msuluzi sites are probably village settlements, often greater than eight hectares in extent. Cattle byres have been located in the centre of these settlements.

The pottery decoration is distinct from the Matola pottery, although continuities in several motifs exist. This can be seen in the related figures where some Matola-like sherds were recorded.

The Msuluzi site found near MPC and is probably a settlement, located on the then flatter summit of the dune. This site differs from the main Matola-Msuluzi site recorded last year, in that it is not directly associated with metal working activity, but rather domestic activity. Several Msuluzi sherds were found at other sites; however, these were mostly isolated incidents of one or two sherds and therefore did not constitute a site. A potential Msuluzi site may occur underneath the LIA horizon at MPD30.

Group 4

The pottery in this group is associated with the Ntshokane period, which dates to the tenth century AD. Few sites of this time period have been recorded and excavated (see Anderson 1997; Maggs and Michael 1976). As with the Msuluzi sites, settlements are large with a central cattle byre.

Last year only one Ntshokane sherd had been recorded in association with a Historical site. This year a Ntshokane site was recorded near Sokhulu Reservoir. The site was probably an iron working area, since there

were several pieces of slag, iron-ore (some had been broken and showed signs of being hammered), hammer stones with crush marks, and possible vitrified sherds.

Late Iron Age

Group 7

Shell impressed decoration is characteristic of Tsonga-speaking potters from southern Maputaland (Len van Schalkwyk, pers. comm.) and southern Mozambique (Morais and Da Silva 1975). Similar decorations have been recorded at the excavated site of Enkwazini near St Lucia (Hall 1979, 1982). The shell-impressed pottery at Enkwazini has been radiocarbon dated, and calibrated to between AD 1650 and AD 1800.

Both historical ethnographies (*cf* Hamilton 1985) and Mbonambi and Sokhulu oral histories indicate that Tsonga-speaking people originally occupied this area. These sources indicate that the Mbonambi and Sokhulu chiefdoms had established themselves between Richards Bay and St Lucia by the late 1700s, and that Tsonga-speaking people were subsumed into the greater Mthethwa polity. Tsonga-speaking people live amongst the Mbonambi today, but “trace their lineage to an independent Tsonga *inkosi*” (Van Schalkwyk 1995:5)

The term *Tsonga* has been loosely applied in KwaZulu-Natal for some time. According to Felgate (1982), the Tsonga-group is an ethnolinguistic group. Moreover, there are several different dialectical groups as one goes north and north-east of Maputaland, and these dialectical groups have distinct ethnolinguistic identities. *Tsonga* is however a Nguni language but there were few cultural similarities with Zulu society. As the Zulu kingdom increased in socio-political power, the Tsonga were incorporated into Zulu society. *Tsonga* males tended to learn and speak Zulu, while *Tsonga* females tended to speak their own dialects unless they married into Zulu society. The rate of change has increased dramatically since the turn of the century. I do not, however, imply that the *Tsonga-people* do not presently have their own ethnolinguistic identity.

The studies undertaken by Schofield (1948) and Felgate (1982) suggest that the *Tsonga* of Maputaland have no oral history relating to their occupation of the land near Richards Bay. Felgate suggests that the *Tsonga* never came as far south as Richards Bay, and probably not even as far south as Lake Teza. This implies that the oral history and archaeology are contradictory and this is a potential area for research. The importance and value of collating data from the oral history project and archaeological survey is exemplified in this group of pottery. The Mbonambi *amasiko* informers do have knowledge regarding Tsonga-people living in the area when they had arrived some 225 years ago, and several Tsonga-speakers still live in the northern parts of the Sokhulu area. These people do however trace their lineage to an independent *Tsonga inkosi*.

The high incidence of Group 7 pottery, characterised by shell impressed decorations, in this years survey is important to note. This is an unresearched time period of which we know very little. Furthermore, several

Tsonga sites exist that have excavation potential. Of importance is that several of these sites have stratified deposits, often below sites dating to the Historical Period. While this sequence reaffirms the relative chronology I have introduced, it is not satisfactory. These sites need to be radiocarbon dated and analysed in more detail before a more detailed discussion is given. I have written a proposal for obtaining radiocarbon dates for excavated sites, and for the reconstruction of ceramic vessels (Appendix C).

It is of interest that much of the *Tsonga* pottery has circular to square notching on the rims of the pots - more so than in groups 5 and 6. These notches are more common in subsequent phases and may indicate some continuity in pottery styles with Group 9, in other words, the terminal Iron Age and Historical period.

Historical Period

Group 5

In the 1996 report I had subsumed group 6 into group 5. I still tentatively continue this grouping, but have differentiated these groups in the analyses. Three sites with group 6 pottery have been recorded in the dunes at MPB. One site consists of several smaller concentrations of artefacts running along the dune cordon for ± 600 m. I divided them into sub-categories, in order to inhibit potential mixing of sites. However, the pottery is similar along this cordon, and I believe there is either a single lineal occupation, or several small occupations through time. Unfortunately no datable material exists.

Other sites with Group 6 pottery are located near MPD and MPB. Of these only one has been partially excavated - MPD31. MPD31 was observed eroding from the face of the dune. By using a bulldozer the upper layers of the archaeologically sterile sand was removed. The site consisted of a wide, but shallow, shell midden on the dune face, with the remains of the house floor behind it. Sixteen square meters were excavated before it became too dangerous to continue the excavations, because of potential dune slumping. The material remains are however interesting. Apart from a wide variety of shellfish, the midden included fish remains, bone, and pottery. The remains of the house floor (dark brown in colour) yielded several sherds and animal bones.

Ceramics with fingernail impressions occur at Mgoduyanuka, in the Bergville district (Maggs 1982a). Mgoduyanuka dates to the late eighteenth to early nineteenth centuries. The ceramics were divided into U-shaped pots, bag-shaped pots, globular pots, open-mouthed bowls and U-shaped bowls (Maggs 1982a). Bag-shaped pots tend to have poorly defined necks, while the small bag-shaped pots have most of the decoration. Decorations are predominantly in the form of fingernail impressions in vertical rows. Less common decorations include comb stamping, finger pinching and cross hatching. Applied bosses were not found. The rims have mostly round lips, while pointed/tapered and flattened lips occur less frequently. The sherds from Mgoduyanuka are possibly similar in decorative style to the pottery from group 5. Similar decorations have been recorded at Mpambanyoni (Robey 1980).

Group 8

I tentatively place this group in the Historical period with group 9 pottery due to slight variations in decorative motifs. However, it remains in a separate category until further data is obtained.

Group 9

The pottery from this group is associated with the Mbonambi and Sokhulu chiefdoms, dating these sites to within the last 225 years for this area. Forced government removals dates the sites prior to 1950. While oral histories indicate that people still collected marine resources after 1950, and that these forays occurred through the afforested areas, these sites have too many sherds to be the result of single and brief occupations. Mananga 4 dates to approximately 100 years ago. This indicates that at least some of the group 9 pottery dates from the late 1700s to the early 1900s.

I have divided this group into several sub-groups, based on slight variations in the pottery decorations. Although most of these decorations include rim notching, other features suggest that changes may be temporal as well. If decorated sherds are observed at these sites, they tend to be EIA sherds. This is in accordance with Bryant's (1947) observations that Zulu pots were primarily undecorated from the mid nineteenth century onwards.

GENERAL AGE.GROUPS.DATE

EIA...Group 1...AD 300 - AD 400

EIA...Group 2...AD 650 - AD 750

EIA...Group 3...9th century

EIA...Group 4...9th to 10th century

LIA...Group 7...AD 650- AD 1800

Historical 1..Groups 5,6,

Historical 2..Groups 8,9a-e... “?Early Zulu”

Groups 5 and 6 may be subsumed in the larger group 9 pottery category. I have distinguished between Groups 5/6 and 8/9 in this report, *vis-à-vis* the 1995 report. I believe that they are different from each other with the Group 5/6 being possibly older.

The occurrence of more sites and thus a larger archaeological vessel sample, has not refined the chronological sequence of the area. In some instances it has made it more problematic, especially where an overlap between two different sites may exist. The pottery decorations from Groups 5, and 6 in the RBM mining lease are similar and overlap to a degree. Similarly the pottery from Group 6 and 7 also overlap to a degree. The overlapping of

pottery styles has important implications for the establishment of a relative chronology. First, I may not have been able to differentiate the differences between the sites due to the small sample size. Second, the sites were adequately differentiated, but some may have been mixed by bulldozer activity. Third, there may be some form of cultural continuity through time, and perhaps geographical space, between these sites. Lastly, the Groups may belong to the same time period but difference exist in geographical space.

While some of the Group 7 decorations are similar to the later Zulu pottery decorations, the *Tsonga* pottery appears to have unique features, such as shell impressed decorations. Archaeologists studying the EIA have suggested that it is not necessary the type of decoration that signifies different phases, but the location of these decorations on the pot itself. For example, the changes from the Matola to Msuluzi Phase is one of rim and body decorations to rim, neck, shoulder and body decorations. The question that needs to be answered for the LIA is if this trend decorative locations continues, or if the changes are in decoration style through time². Whatever these changes are, they would relate to the general changes from the EIA to LIA in terms of settlement location, and possible language and cosmology. Since pottery decoration is intrinsically symbolic, and related to an ethnolinguistic identity, any changes in the styles should reflect changes in the society.

The are thus three important questions:

1. What were the social and material changes from *pre-Tsonga* to *Tsonga*?
2. What were the social and material changes from *Tsonga* to *Zulu* occupation of the area?
3. When did these changes occur?

To answer these questions, and thus to recreate a more complete history of the area, will need more excavations, radiocarbon dates of these excavations, and to reconstruct the pottery from various sites. The sampling strategy I use has allowed for large collections of sherds to be processed and generally grouped during the curatorial process. In addition to the understanding of the history, the reconstructed vessels may be used for the interpretative centre (with permission from the KwaZulu Monuments Council/Amafa aKwaZulu-Natali).

The radiocarbon dating of sites will allow me to place specific sites into the chronological sequence. Sites of similar ceramic styles may then be relatively dated more securely. In addition to the chronological sequence, Groups 5 and/or 6 may either pre- or post-date Group 7. This has important implications for either result. If they predate Group 7, then I would have recorded sites dating to the early to middle LIA. These sites have not been recorded in this part of KwaZulu-Natal. Moreover sites of this time period have important implications in our understanding of the EIA and LIA people, and the transition between the two periods. If these Groups post-date Group 7 then they may relate to formative “Zulu society” of the Mbonambi people, and thus may indicate the processes involved in entering a ‘new’ area and interactions with other Nguni dialectical groups.

²Schofield (1974) did not record pottery styles similar to those found in the dunes.

Current interpretations of ceramic vessels suggest that ceramic decorations are related to language and identity (social and/or gender identity). Ceramic decorations are more than utilitarian decoration, but are imbued with social meaning: decorations are symbols. The position of these decorations, and the type of decorations, are thus important to note when discussing changes within and between a society/societies. In the case of the RBM contract, I have sampled sites with the intention of reconstructing vessels for research and the interpretative centre. Due to the bioactive nature of the coastal dune system, as well as unintentional damage by heavy machinery, very few complete, or whole, vessels are recovered. While these vessels are fragmented, they can still be reconstructed.

Changing Settlement Patterns Through Time

The relative chronology that I have proposed above can be used to assess the changing used of the landscape through time. I include the 1995-1996 survey results. I view these settlement patterns on the micro- and macro-level. By micro-level I refer to the mining lease area, or surveyed areas. By macro-level I refer to KwaZulu-Natal and Transkei. Conclusions reached in this section can only be based on areas that have been surveyed. Thus, while sites probably exist to the west of the mining ponds, we have no data from this area. Figure 2 is a schematic representation of the mining ponds and archaeological sites according to their pottery groups.

The orientation of each site has been noted during the survey, in terms of facing the sea or lake. In general there is a tendency for sites to face Lake Nhlabane, and this may be related to prevailing wind and rain patterns. Position of a site is however, determined by its current location on the dune. The correct position would only be discernible if a hut floor, or cattle byre, was located.

EIA sites only occur north of the Nhlabane River MPD and MPC. Moreover, both the Matola and Msuluzi sites occur in close proximity of each other, while the Nthsekane pottery is at least 10 km away. The EIA sites are mostly located at the base of the dunes or in the dune basin, except for MPC31, which is near the summit of the due. All except EIA sites, MPC31 except, are associated with large scale iron working activity - MPC31 has only a few pieces of slag.

The location of these two sites and the associated metallurgy is significant. The nearest iron ore sources are south of the Nhlabane estuary, or occur as bog-iron (ferruginised iron) either at Lake Nhlabane or in the sand dunes. The latter iron source is of poor quality and one would expect that alternative sources would have been used. EIA sites have not been located south of the estuary in this survey, suggesting that either bog-iron was indeed utilised, or that the location of the smelting sites have specific social meaning, since smelting is normally associated with ritual activity. Both explanations are probable occurrences. The MPD Msuluzi site has yielded

iron ore and slag, however, the MPC site has, so far, only yielded bog iron. This may indeed indicate the spatial dichotomy suggested previously. The MPC site is of great significance, since it is often difficult to differentiate between a smelting and a forging site, by the remains of slag and iron ore alone - both activities produce slag and ore. The MPC and MPD sites may indicate subtle differences between these two metallurgical activities.

As with the EIA sites, the LIA sites are clustered around specific dunes. These sites differ from the EIA sites in that they are located near the top of a dune, as opposed to the base. This change in settlement patterns, from the EIA to LIA, is evident elsewhere in KwaZulu-Natal - although the new MPC Msuluzi site may now question this methodological assumption. If group 6 pottery is indeed a LIA site, then it is a very small site. I tend to place it in association with the group 5 pottery and thus it is more likely to be historical in age. The only certain LIA phase is that of group 7, Tsonga, pottery. There appears to be a linear settlement pattern for the Tsonga-related sites. These sites are located at Mananga, MPA, MPC and MPD. These settlements appear to have large dunes between them, and spaced at regular intervals, suggesting small boundaries between individual settlements or family clusters. I am uncertain whether this is a result of a real phenomenon or a result of the survey methodology that is concentrated in the mining path.

Historical sites follow a similar pattern of site location on the dunes. They are mostly on relatively flat areas at the top of the dune, or near the edge of the dune face. Group 5, 6 and 8 pottery is localised around MPC, while group 9 pottery is more evenly distributed. There is a slight pattering of group 9 sites on a south-north axis. Group 9d is only located at Mananga 4. Group 9a is located south of the Nhlabane estuary at MPA and MPB. Group 9c is located at MPB, MPA and MPC, but not further north. Group 9b pottery is found in the vicinity of MPA, MPC and MPD. This group has the widest distribution of all group 9 sites. Further assessment is not yet possible for the group 9 pottery due to the lack of a well defined chronology.

In the 1995 survey I speculated regarding the apparent absence of sites dating to the early LIA. I tentatively explained this phenomenon as a result of environmental factors. While this still may be the case, I may have been incorrect in that these types of sites may not yet have been recorded, or that two potential sites (MPD32 and MPB25a-g) may belong to this phase. This issue may only be resolved by means of radiocarbon dating some of these sites. The proposal in Appendix C explains this in detail.

Marine resources

Marine shell and bone are found only at the Tsonga and Historical sites. This is due to the poor preservation of organic remains in the dune cordon. However, EIA shell middens do exist along the coastal strip, and several have been recorded north and south of Richards Bay.

The most commonly exploited marine shell is the brown mussel (*Perna perna*), followed by oyster (*Ostrea spp.*). Hall (1982) noted a similar pattern for sites near St Lucia, and I have excavated a midden near Westbrook revealing similar patterns (Anderson 1997). Brown mussel was probably collected because it is an important protein source and it has a high biomass. It can thus support a large group of people. The mussel is located on rocky outcrops or marine shelves during low tides³.

In the 1995 report I stated the following:

While these marine resources provide a high energy intake, overexploitation is a problem. If the sources are depleted, it tends to take several years for the mussel populations to establish themselves. This phenomenon of overexploitation can be observed along the Transkei coastline where communities of mussel have either disappeared or are rapidly dwindling. It is possible to determine overexploitation patterns of these mussels in archaeological sites by measuring the internal band width of the mussel. However, due to the fragmentary nature of the brown mussel in the dunes, most of the shells cannot be measured. Moreover, the chronology of the sites is not yet refined to such a degree to assess marine exploitation through time. My only observation is that the mussels tend to be small to medium in size in comparison to living specimens, although larger ones do occur to a lesser extent.

Since the ‘completion’ of parts of the *amasiko* project⁴ I believe that this view needs to be placed into a more social context. An example of the use of *amasiko* with archaeological interpretations is that of shell middens. We noticed that several shell middens occur in the mining lease. However, these varied in size. After several months of collecting artefacts and arranging the sites into a chronological order, we noticed that shell middens became smaller in size through time. There were no plausible environmental explanations for this phenomena. Shellfish exploitation patterns had remained similar and there was no evidence for overexploitation. Sitting on the sand dunes with colleagues one day, an elderly female passed us. Van Schalkwyk decided to question her regarding shellfish exploitation patterns in the area. With delight she told a story of her younger days in the current mining lease.

When she was a young girl she used to collect bags of brown mussels as part of the families subsistence. With the formal adoption of *apartheid* and the creation of a state commercial timber forest, people were removed from the dune cordon and relocated a few kilometres away. At first this was not a problem, since foraging now occurred at night when they would not be seen. Eventually a new manager who was vociferously committed to keeping people out of the forest was sent to this area. She smiled and told Van Schalkwyk how it was now more difficult to run away from the authorities with a full bag of mussels - shells and all. To counter this shellfish was

³ Several large shell middens with stratified deposits have been recorded in the 1997 survey. These middens reveal similar patterns are potentially excavatable.

⁴ See Len van Schalkwyk’s report. These two paragraphs are from personal communications with L. Van Schalkwyk.

procured at the beach and the meat placed into smaller bags, with a significant loss of weight, and thus making “escape” easier. While she reminisced on this story we began to understand the changes of shell middens. This story also highlights the importance of keeping records of individuals and societies where levels of literacy is low, and where the youth are becoming increasingly marginalised from their own past and are attracted to western material culture and way of life.

Metallurgy

Preliminary analyses by RBM geologists/mineralogists has indicated that the iron ore source may be from the nearest Port Durnford Formation, e.g. near Port Durnford (see Appendix B). Furthermore the slag from one site is similar in chemical composition to that reported by Miller and Whitelaw (1994). An analyses of two slag samples indicate that one included wustite, the other fayalite, while both had pieces of geothite. The differences between the two samples may be either because of different cooling rates, or bulk chemistry. The MPD2 slag sample indicate that the chemicals include: 63% = Fe_2O_3 (iron dioxide); 32% = SiO_2 (silicon dioxide); 3% = Al_2O_3 (aluminium trioxide); 2% = CaO (calcium monoxide); 1% = MgO (Manganese monoxide); 1% = TiO_2 (tin trioxide).

A project had been proposed to establish whether different iron ore sources were used through time. While the project was not completed⁵, tentative conclusions may be drawn from the initial results. The geological entities along the coast between Richards Bay and Cape St Lucia comprise the Port Durnford, Berea and Bluff formations, and yellow redistributed sand. Further inland are extensive outcrops of the Karoo sequence, including the Vryheid and Pietermaritzburg Shale formations. These two Karoo sequence formations were a source of iron ore for precolonial metal workers elsewhere in the province and, despite the distance involved, it is conceivable that this is where smelters living north of modern Richards Bay obtained their ore. There are several examples in southern Africa of ironworkers using ore mined at a considerable distance from the smelting area. However, this scenario appears inconsistent with Mbonambi oral history which suggests that they produced tools and weapons for the powerful Mthethwa who, in fact, lived closer to the Vryheid and Pietermaritzburg Shale formations.

A second possibility is that ironworkers were exploiting patches of consolidated, ferruginised sand that may occur in the Berea Formation. This seems unlikely, however, because as an ore source the patches would be both too limited and high in silica. Furthermore, much of the Berea Formation in our area occurs north of Lake Nhlabane and possibly outside the boundaries of the Mbonambi chiefdom. The most likely source of iron ore, therefore, is the Port Durnford Formation, outcrops of which occur along the coast both north and south of Richards Bay. It consists of mudstone, shale, sandstone, lignite, clay and sand deposited under both aeolian and

fluvial conditions. Lenses of hematite and other iron ores in the Port Durnford Formation are exposed in cliffs north and south of Richards Bay and among collapsed rocks on the beach, from where they are easily collected. Moreover, the distribution of the Port Durnford Formation matches that of the ironworkers of the Mbonambi chiefdom.

The samples analysed by the RBM geologists indicate that the ore may be similar to that analysed at KwaGandaganda (Miller and Whitelaw 1995), as well as the bog iron. The iron ore from KwaGandaganda is located in shale deposits, snuffbox shale, and probably originates from the Port Durnford Formation. Bog-iron is located around Lake Nhlabane.

CONCLUSION

Several archaeological sites have been surveyed in the Zulti North/TiSand mining lease. We have evidence for EIA occupation along the dune cordon, as well as increased human occupation over the last 400 years. These changes are seen in diachronic pottery styles and settlement patterns. It is envisioned that with a large data base we will be able to place these changes into a more precise chronological order.

Apart from the potential research that has been recorded during the course of the archaeological survey, several other issues have arisen:

- An interpretative centre.
- Potential research extending outside of the terms of reference.
- The viability of the CRM project in the future.

A main issue related to the work undertaken in the RBM mining lease area is that of an interpretative centre. The issue arose when we were discussing the future of the research material. While the archaeological remains belong to the state, and the KwaZulu Monuments Council and National Monuments Council determine where the material is housed, we thought it would be appropriate to share the research knowledge with the communities of the area. This would be in the form of an interpretative centre. The purpose of the centre(s) would be to use the results of the archaeological findings, *amasiko* project and local *amasiko* to portray the history of the Lake Nhlabane area and its inhabitants.

Several meetings between the TA, RBM, KwaZulu Monuments Council and Natal Museum have occurred during the course of 1996. The Mbonambi TA has allocated land besides the Rural Development Centre to be

⁵ This project was not completed as we do not believe it would be possible to differentiate between the chemicals located in

used for the interpretative centre. RBM has agreed to finance a specified amount for the centre. The KwaZulu Monuments Council had appointed an architect to design the centre. The initial design plans have changed to allow for the maximum use of existing space. The KwaZulu Monuments Council has agreed in principle to employ a 'curator' for the centre and will be responsible for the future management of the centre once it has been completed. We intend for the interpretative centre to be completed and running by the end of next year.

During the course of the survey it became clear that many of the issues being addressed by myself and colleagues, were rapidly extending beyond the scope of a standard CRM program. Furthermore, in order to provide the CRM survey with more information regarding site importance, time is needed for research. We regard this research as being necessary to the project and will aid in the development of a community history. The results of these projects will be published in accredited academic journals, and papers may be given at conferences.

Several research concepts have arisen since the beginning of this contract. A main delaying factor is that of obtaining a significant sample size and reliable material. All material to be analysed needs to have a full provenience from a site, as well as having been treated in specific ways. For example, it would not be conducive to take charcoal samples for radiocarbon dating from an excavated site, since the charcoal may be more recent in origin, but filtered down through the unstable sand.

Despite these limitations I have identified the following projects for 1997 onwards:

1. **Gas Chromatography-Mass Spectrometer (GCMS) analyses of organic residues:**
 - 1.1. samples have already been taken from vessels, and at least two smoking pipes may have residue. The GCMS analysis will identify the food remains in the various vessels. This analysis may then indicate whether different vessels had stylistic and/or functional purposes.
2. **Radiocarbon Dating of excavated sites:**
 - 2.1. As I discussed above there is a need to place the ceramic groupings into a more precise chronological framework.
3. **Ceramic vessel reconstruction:**
 - 3.1. I discussed this in detail above. The use of stylistic attributes to indicate function and social meaning is inherent in Iron Age studies. Without reconstructed vessels, even if it is on the profile of a vessel, will give additional meaning.
4. **Excavations of shell middens and household settlements:**
 - 4.1. Several middens and two settlements have been recorded and they have high archaeological significance. At least four of these require full excavation. Excavation time is estimated to be at least 2 - 3 months in total.

5. Analysis of Human skeletal remains:

5.1. The analysis of human skeletal remains is an ongoing project. At least three skeletons will be analysed from the 1996 survey, and further remains may still be found.

Some of the above projects have already been initiated and are in various phases progress.

A final 'project' that has been undertaken, although this occurred in 1997, is the increase in media coverage of the role of RBM, Natal Museum and the KwaZulu Monuments Council in developing the cultural resources of the area for the local communities, the larger Richards Bay community, and for tourism in general. This year an extensive media release was undertaken including the Mercury, Sowetan, Ilanga, Zululand Observer, Prime Media Publishing and SABC radio. In addition to these releases, the archaeological work undertaken at RBM has been mentioned twice in the Natal Witness, and I have recently written a popular article for Review magazine.

The archaeological survey of the mining lease has been undertaken for two years. To date 105 sites have been recorded (including the 1997 survey), of which most were sampled, and two excavations have been undertaken, with a further three sites identified as requiring excavation. While there initially appears to be a decrease in the number of new sites recorded, there is however an increase in the frequency of sites of high archaeological significance. The commencement of Mining Pond E (MPE) in the near future may yield more sites, especially along the higher dunes.

The question that needs to be answered is whether archaeologists will gain further academic knowledge by continuing to monitor the impact of mining on archaeological sites. MPD is in an afforested area that is unlikely to yield many archaeological sites in primary context. Furthermore, we have already documented many archaeological sites dating to the Historical Period. However, there are still more sites within the mining path that warrant mitigation. Several areas are known to have archaeological sites which cannot be recorded until the bulldozers have cleared the area, or until an opportunity arises for their excavations. These areas are located at MPB and MPC and north of MPD. The imminent completion of the current dune at MPC is unlikely to yield more archaeological sites.

I suggest that the archaeological survey continues for the duration of 1997-1998, whereupon the contract would need to be reassessed.

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Appendix A
Pottery Classifications

Numbers in the text correspond to the figures.

1. Group 1

1.1. not recorded in 1996 survey

2. Group 2

2.1. Lip - double horizontal rows; rim double horizontal rows at base; neck - band of oblique hatching

2.2. Lip - flat; rim - everted

2.3. Lip - flat; rim - everted and subcarinated with a band of oblique grooves

2.4. Lip - flat; rim - everted with oblique hatches

2.5. Lip - flat; rim - external emphasis and everted with oblique hatches

2.6. Lip - flat; groove below rim

2.7. Lip - flat; rim - everted with a band of oblique hatching; band of horizontal grooves on shoulder

2.8. Lip - flat; rim - everted with bands of alternate hatched triangles

2.9. Lip - flat; rim - band of oblique hatching

2.10. Lip - flat; rim - tapered

2.11. Lip - rounded

2.12. Band of interlocking hatched parallelograms

2.13. Band of interlocking parallelograms

2.14. Band of oblique hatches - several variations of obliqueness

2.15. Hatched quadrilaterals

2.16. Lip - flat; rim - bands of uneven cross-hatching

2.17. Rim - everted with band of oblique grooves above horizontal row of short impressions. vertical groove

2.18. Rim-neck-shoulder: short horizontal rows on a vertical groove

3. Group 3

Not recorded in 1996 survey.

4. Group 4

4.1. Not available for drawing since material is with the KwaZulu Monuments Council, Ulundi.

5. Group 5

- 5.1. Lip - flat with circular notches; rim - external emphasis
- 5.2. Lip - flat with semi-circular notches; rim - everted with external emphasis
- 5.3. Lip - flat
- 5.4. Lip - flat; 2 circular perforations on shoulder/body
- 5.5. Lip - flat; rim - 2 horizontal grooves & external emphasis
- 5.6. Lip - flat; rim - bevelled
- 5.7. Lip - flat; rim - everted & bevelled
- 5.8. Lip - flat; rim - everted & internally bevelled
- 5.9. Lip - flat; rim - everted and internally bevelled
- 5.10. Lip - flat; rim - everted
- 5.11. Lip - flat; rim - external emphasis & internally bevelled
- 5.12. Lip - flat; rim - external emphasis & externally bevelled
- 5.13. Lip - flat; rim - external emphasis
- 5.14. Lip - flat; rim - externally bevelled
- 5.15. Lip - flat; rim - indent at base & internally bevelled
- 5.16. Lip - flat; rim - internally bevelled
- 5.17. Lip - flat; rim - inward slope with indent below lip – not drawn
- 5.18. Lip - flat; rim - slightly everted – not drawn
- 5.19. Lip - flat; rim - square – not drawn
- 5.20. Lip - flat; rim - tapered
- 5.21. Lip - flat; rim everted & bevelled
- 5.22. Lip - flat; rim straight; externally applied *isumpa* on neck
- 5.23. Lip flat; rim bulbous
- 5.24. Lip - rounded; 4+ discontinuous rows of triangular impressions
- 5.25. Lip - rounded; rim - everted with shell impressed impression at base; neck - oblique rows above horizontal row of semi-circular impressions
- 5.26. Lip - rounded; rim - internally bevelled
- 5.27. Lip - round & tapering
- 5.28. Lip - rounded; rim- everted
- 5.29. Lip - rounded; rim-neck-body - concave - bowl?
- 5.30. Lip rounded; rim-neck-body straight.
- 5.31. Horizontal rows of 6+ circular impressions
- 5.32. Horizontal row below vertical rows of rectangular impressions
- 5.33. Horizontal row of rectangular impressions below oblique rows of rectangular impressions.
- 5.34. Rows of circular impressions

- 5.35. Lip flat; horizontal groove on rim-neck
- 5.36. Horizontal row of elliptical impressions
- 5.37. *Isumpa*
- 5.38. *Isumpa*: 2 below each other
- 5.39. Horizontal row below vertical rows of triangular impressions
- 5.40. Row of square impressions below an oblique row of square impressions
- 5.41. Oblique rows of semi-circular impressions
- 5.42. Horizontal rows of semi-circular impressions and an oblique row of
- 5.43. Single row of elliptical impressions semi-circular impressions
- 5.44. Vertical rows of semi-circular impressions between horizontal row of semi-circular impressions
- 5.45. Horizontal row below vertical rows of shell impressions
- 5.46. Oblique band of circular impressions

6. **Group 6**

- 6.1. Lip - flat with circular impressions along the outer lip; rim - internally bevelled
- 6.2. Lip - flat with circular impressions on outer lip; rim - everted; neck-body double horizontal row of shell impressions.
- 6.3. Lip - flat with circular notches; rim - everted
- 6.4. Lip - flat with elliptical notches on outer lip; rim - everted; neck - double horizontal row of square-like notches; body - double horizontal row of shell impressions
- 6.5. Lip - flat with circular notches on the outer lip
- 6.6. Lip - flat with elliptical notches on the outer lip
- 6.7. Lip - flat with elongated notches; rim - everted; horizontal row of semi-circular impressions
- 6.8. Lip - flat with oval impressions rim - bevelled
- 6.9. Lip - flat with square notches on outer lip; rim everted; double horizontal row of circular impressions on neck
- 6.10. Lip flat with elliptical notches on outer lip
- 6.11. Lip - flat
- 6.12. Lip - flat; rim - tapered & slightly everted
- 6.13. Lip - flat; - rim internally tapered
- 6.14. Lip - flat; rim - angled
- 6.15. Lip - flat; rim - bevelled on both sides
- 6.16. Lip - flat; rim - bevelled
- 6.17. Lip - flat; rim - everted and internally bevelled
- 6.18. Lip - flat; rim - everted with an external emphasis and internally bevelled

- 6.19. Lip - flat; rim - everted with an external emphasis
- 6.20. Lip - flat; rim - everted with horizontal groove at base of neck (various sizes)
- 6.21. Lip - flat; rim - external emphasis & bevelled
- 6.22. Lip - flat; rim - external emphasis & everted
- 6.23. Lip - flat; rim - external emphasis
- 6.24. Lip - flat; rim - externally bevelled
- 6.25. Lip - flat; rim - internally bevelled
- 6.26. Lip - flat; rim - inward sloping
- 6.27. Lip - flat; rim - slightly everted
- 6.28. Lip - flat; rim - slightly tapering
- 6.29. Lip - flat; rim - tapered
- 6.30. Lip - flat; rim-neck-shoulder-body - concave
- 6.31. Lip - flat; with elliptical impressions on the outer lip
- 6.32. Lip - rounded with circular notches
- 6.33. Lip - rounded with elliptical impressions; rim - slight external emphasis
- 6.34. Lip - rounded with elongated notches; rim - everted; vertical row of semi-circular impressions
- 6.35. Lip - rounded with evenly spaced circular impressions
- 6.36. Lip - rounded with thin vertical notches
- 6.37. Lip - rounded with triangular impressions on the outer lip; discontinuous triangular & circular motifs on the neck-shoulder-body
- 6.38. Lip - rounded
- 6.39. Lip - rounded; rim - external emphasis; concave body
- 6.40. Lip - rounded; rim - with circular impressions; rim - dimpled
- 6.41. Lip - rounded; rim - everted; circular perforation on shoulder/body
- 6.42. Lip - rounded; rim - external emphasis
- 6.43. Lip - rounded; rim - internally bevelled
- 6.44. Lip - rounded; rim-neck-shoulder-body in concave shape
- 6.45. Lip - squared with elliptical notches; rim - external emphasis
- 6.46. Lip flat; indent on neck
- 6.47. Lip rounded with elliptical impressions
- 6.48. Circular impressions
- 6.49. Lip - rounded; rim -neck: shell impressed - double horizontal rows
- 6.50. Horizontal row of semi-circular impressions above oblique row of semi-circular impressions
- 6.51. Lip flat; rim everted with vertical impressions between row of circular impressions
- 6.52. Horizontal row of semi-circular impressions

- 6.53. Rows of vertical semi-circular impressions with 2 alternating oblique rows of semi-circular impressions
- 6.54. Lip flat; rim everted; rim-neck oblique rows of square-rectangular impressions
- 6.55. Lip rounded with circular impressions; rim-neck straight
- 6.56. Lip - flat; rim - external emphasis; rim-neck-body: 3 oblique grooves
- 6.57. Discontinuous triple horizontal rows of shell impressions
- 6.58. Discontinuous horizontal row of shell impressions
- 6.59. Lip rounded with v-shaped notches; rim-neck straight
- 6.60. Lip rounded with small circular impressions

7. **Group 7**

- 7.1. Lip - bevelled; rim - external emphasis and notched
- 7.2. Lip - flat with elliptical impressions; rim - horizontal row of impressions (squared top, but elliptical bottom)
- 7.3. Lip - flat with elliptical notches; rim - everted; three horizontal rows of rectangular impressions (with rounded base) on neck/body
- 7.4. Lip - flat with oblique notches; rim - everted
- 7.5. Lip - flat with oval notches
- 7.6. Lip - flat ; rim internally bevelled
- 7.7. Lip - flat with rectangular notches; rim - everted with external emphasis; shell impressed: three vertical rows over a perforation between two sets of three oblique rows
- 7.8. Lip - flat with row of vertical notches extending to the rim
- 7.9. Lip - flat
- 7.10. Lip - flat; rim - everted
- 7.11. Lip - flat; rim - everted & external emphasis
- 7.12. Lip - flat; rim - everted & internally bevelled
- 7.13. Lip - flat; rim - external emphasis & internally bevelled
- 7.14. Lip - flat; rim - external emphasis
- 7.15. Lip - flat; rim - tapered; two conical perforations on body
- 7.16. Lip - flat; rim - tapered
- 7.17. Lip - flat; rim -everted; shell impressed: 2+ oblique rows on neck-shoulder
- 7.18. Lip - rounded with circular impressions; rim - flat; shell impressed: oblique rows between two horizontal rows
- 7.19. Lip - rounded with circular impressions; rim - notched; neck everted; shell impressed: triple alternating & oblique double rows between two horizontal double rows on neck-shoulder-body
- 7.20. Lip - rounded with elliptical impressions

- 7.21. Lip - rounded
- 7.22. Lip - rounded; rim - everted with notch at base
- 7.23. Lip - rounded; concave shape - bowl?
- 7.24. Lip - rounded; rim - everted & internally bevelled
- 7.25. Lip - rounded; rim - everted and tapering
- 7.26. Lip - rounded; rim - everted; horizontal row of rectangular impressions on neck
- 7.27. Lip - rounded; rim - external emphasis
- 7.28. Lip - rounded; rim - external emphasis; horizontal row of elliptical impressions on shoulder
- 7.29. Lip - rounded; rim - inverted
- 7.30. Lip - rounded; rim - tapered
- 7.31. Lip - rounded; rim everted with external emphasis; brown burnish
- 7.32. Lip - rounded; rim- everted; double horizontal rows of rectangular impressions over an *isumpa*
- 7.33. Lip - tapering with circular impressions; triple horizontal row of shallow rectangular impressions
- 7.34. 6+ oblique rows above a horizontal row of circular impressions
- 7.35. Double horizontal row of circular impressions - closely banded
- 7.36. Double horizontal row of circular impressions - not closely banded
- 7.37. Double row of circular impressions
- 7.38. Horizontal row of semi-circular impressions
- 7.39. Horizontal row of square impressions below ?continuous oblique row of square-like impressions
- 7.40. Oblique row of 11+ circular impressions surrounded by a square of circular impressions
- 7.41. Oblique row of elliptical impressions
- 7.42. Rim - discontinuous? 4+ horizontal rows of triangular impressions against oblique shell impressed row
- 7.43. Shell impressed : triple oblique rows below horizontal row
- 7.44. Shell impressed: double horizontal row on neck-shoulder
- 7.45. Shell impressed: five horizontal rows between two oblique rows
- 7.46. Shell impressed: horizontal row between 2 oblique rows
- 7.47. Shell impressed: oblique row between 2 continuous horizontal rows
- 7.48. Shell impressed: three horizontal rows
- 7.49. Lip flat with horizontal nortches; oblique impressions on rim-neck
- 7.50. Lip rounded with horizontal nortches; oblique impressions on rim-neck

- 7.51. Lip - rounded; rim - internally bevelled with double horizontal row of fingernail impressions; neck - horizontal row of fingernail impressions above double vertical row of fingernail
- 7.52. Vertical rows of rectangular impressions between two oblique & alternating rows of rectangular impressions
- 7.53. Vertical rows of shell impressions between two oblique & alternating rows of shell impressions
- 7.54. Lip rounded with semi-circular notches on the outer lip; rim everted
- 7.55. Lip flat with elliptical impressions; rim everted
- 7.56. Lip flat with elliptical notches on outer lip; rim everted
- 7.57. Lip flat with elliptical notches on outer lip; rim everted – variation of 7.57
- 7.58. Lip flat with rectangular notches; rim-neck-body straight.

8. **Group 8**

Not recorded in survey

9. **Group 9a**

- 9.1. Lip - flat
- 9.2. Lip - flat; rim - everted
- 9.3. Lip - flat; rim - external emphasis
- 9.4. Lip - flat; rim - external emphasis; brown burnish
- 9.5. Lip - flat; rim - internally bevelled with horizontal groove in interior
- 9.6. Lip - flat; rim - slightly internally bevelled
- 9.7. Lip - flat; rim - tapered
- 9.8. Lip - flat; small horizontal groove below rim
- 9.9. Lip - round; rim - internally tapered
- 9.10. Lip - rounded
- 9.11. Lip - rounded; rim - internally bevelled
- 9.12. Lip - rounded; rim - tapering
- 9.13. Lip - rounded; circular perforation in body

APPENDIX B

APPENDIX C

1.04 **APPENDIX D**