CHAPTER 1: INTRODUCTION

The Shashe-Limpopo region has been of archaeological interest ever since gold artefacts were discovered at Mapungubwe in 1933. The allied sites of K2 and Mapungubwe, on the farm Greefswald, are particularly important since they are the sites where socio-political complexity first appeared in southern Africa. International trade played a significant role in this development, and glass beads, which arrived via the Indian Ocean trade network, are the most important evidence. Numerous studies have been made of these beads (Beck 1937; Davison 1972; Saitowitz 1996; Schofield 1958; Van Riet Lowe 1955), but none have succeeded in developing a comprehensive, temporally defined series that archaeologists can use. In addition, little has been accomplished in terms of identifying the sources or trade routes.

Because glass is technically difficult to produce, we can assume that any glass beads in sub-Saharan eastern and southern Africa at this time were imported (apart from the large Garden Rollers that were made locally by reworking imported glass). Being small, beads are easy to transport, but they are also easy to lose, so they often make their way into the archaeological record. Once there, they normally remain intact, unlike most other trade items.

Most archaeologists in southern Africa lack training in identifying or cataloguing glass beads. Thus, coupled with a dearth of references, they have difficulty interpreting their bead assemblages. In addition, their methods of cataloguing are often incomplete or imprecise and, therefore, of little value to other researchers.

I have developed a classification system, based on those used by archaeologists in other parts of the world (Beck 1928; Kidd and Kidd 1970; Karklins 1985), which is designed specifically for the types of beads found in the area and time period under study. The intention is to standardize and simplify bead cataloguing so archaeologists in southern Africa will be able to describe and record excavated beads in a manner that will be consistent, intelligible and useful to others.

I first organize the glass beads into discrete series. This includes beads from their first appearance in the late 9th or early 10th century up to the 16th century. I identify as concisely as possible when the different series first appeared, how long they continued to be imported, where each series occurs in the study area, as well as the possible origins and trade routes.

The importance of developing these bead series is underscored by the fact that beads travel both up and down through deposits with alarming ease. Researchers therefore need to be able to recognize and isolate intrusions. In addition, well-developed bead series, with temporal parameters, can help refine site chronology, although care must be taken to recognize some beads may be curated, so survive long beyond the period in which they were imported.

Glass beads have many potential uses for the archaeologist. They not only may help with dating, but can also provide clues about interaction between peoples locally, regionally and internationally. Being exotic items, they played a pivotal role in the ability of the people who controlled their trade to accumulate enough wealth to gain elite status and eventually change the social, religious and political fabric of society in the Shashe-Limpopo region.

CHAPTER 2: HISTORICAL INTRODUCTION

The Shashe-Limpopo region, where modern-day South Africa, Zimbabwe and Botswana meet, is particularly important archaeologically because it is the birthplace of southern Africa's first state. To understand the process that brought this about, we must first examine what can be discerned about the early cultures in the region through archaeological investigation.

Settlement patterns and indigenous ceramics are some of the most useful archaeological remains for reconstructing the past. Settlement organization provides the framework for studying social relationships, and ceramic styles can be used to identify cultural groups. Working with Kuper's (1982) research on the Bantu settlement pattern, know as the Central Cattle Pattern [hereafter CCP], Huffman (1982, 1986, 1996, 2000) recognized that aspects of this pattern could be observed archaeologically and used to infer a good deal about the life style and worldview of the people. As he notes, both spatial and social organization are based on worldview; they are "different expressions of the same thing" (Huffman 1996:6). Essentially, CCP sites, which are associated with Eastern Bantu speakers, are characterized by central cattle kraals (byres) that are the domain of men and the site of the court/assembly area. They are surrounded by a residential area, which is the domain of married women, and consists of dwellings, kitchens and grain bins.

The centrality of the kraal is a manifestation of the inhabitants' worldview. Cattle are central to life economically, politically and spiritually. Economically, wealth is measured by numbers of cattle and bridewealth is paid in cattle. CCP societies are patrilineal and leadership tends to run through families because of the relationship to wealth. However, these leaders are not physically or socially separated from the others (they do not form a separate class) and theoretically power can pass from one family or individual to another.

If settlement patterns indicate cultural affiliation on a broad scale, then ceramic styles can be used to identify cultural groups on a more refined level. Groups sharing the same culture system at the same time and location can be identified by stylistic features, which can be defined as objects made in a specific and characteristic fashion (Sacket 1977). The most useful and numerous artefacts embodying stylistic features are ceramics, which therefore are used to define group identity. It is important that the pottery be made locally (i.e. not traded in from specialist potters outside the community) and that the style of the ceramics is "determined from multi-dimensional data and not simply 'key' features" (Huffman 1984:28). If these criteria are met, sites can be attributed to various culture groups that existed within temporal and spatial boundaries in the past.

In the Shashe-Limpopo region the earliest Iron Age [EIA] farmers arrived in about AD 500 and sparsely inhabited the area. Roughly 200 years later, they were forced to move elsewhere by a climatic change that brought conditions too dry and cool to accommodate their economy. In about AD 900 EIA peoples re-entered the region in search of ivory for international trade (Huffman, pers. comm.). Based on ceramic facies, these people are referred to as Zhizo. Their ceramic tradition began in southwest Zimbabwe in the 7th century, so the population that moved into the Shashe-Limpopo region probably came from there. They farmed crops such as millet and sorghum and herded various small stock, but, as with all CCP societies, cattle were of central importance. In the region under study, the largest Zhizo site is Schroda (Fig. 2.1).

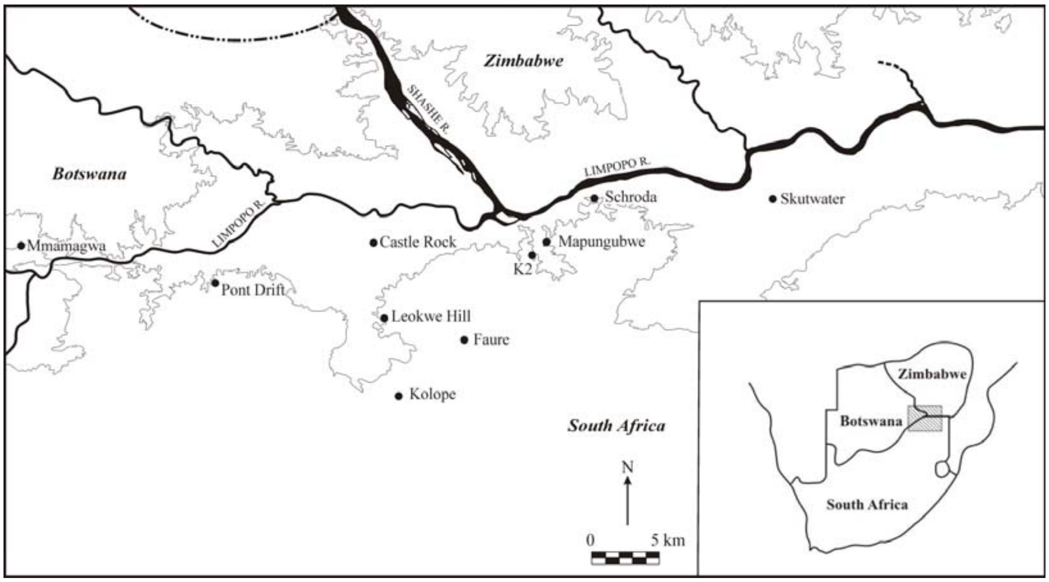

Fig. 2.1: Map of Shashe-Limpopo region with principal sites (courtesy Wendy Voorveldt)

Schroda was occupied from about the beginning of the 10th century to about AD 1020. It has been interpreted as the chief's capital based on its size and a number of special finds, including large numbers of clay figurines, representing stylised humans (Wood 2002b), domestic and wild animals and fantasy figures (Hanisch & Maumela 2002; Van Schalkwyk 2002). Such figures are known to be related to initiation rituals that normally take place at the chief's village (Hanisch 2002; Huffman 2002). In addition excavations (Hanisch 1980, 1981) yielded large numbers of imported glass beads and quantities of worked and raw ivory, which was probably traded for the beads.

By about AD 1000 climatic conditions began to improve (J. Smith, pers. comm.) and a new style of pottery, known as Leopard's Kopje, arrived in the Shashe-Limpopo region, bearing evidence of a new group of Late Iron Age people. It is probable they came initially to take part in the ivory trade. In about 1020 Leopard's Kopje people settled at the site of K2, a few kilometres west of Schroda, and Schroda was then abandoned. It is believed Leopard's Kopje people drove the Zhizo chiefdom out of the Shashe-Limpopo area into neighbouring Botswana (Huffman 1986, 1996), which experienced a large increase in population about the same time (Denbow 1986, 1990). Recent work by Calabrese (2000a), however, supported by findings throughout the region (Huffman, pers. comm.), indicates some Zhizo groups remained in the Leopard's Kopje dominated area. Their presence and separate identity are recognized by their distinctive pottery, which Calabrese has called Leokwe.

Aided by improving climatic conditions, which allowed for increased agricultural output and, thus, growing population numbers, K2 became the regional power, controlling trade with the east coast. Evidence of this abounds in the huge numbers of glass beads (Saitowitz 1996) and large amounts of ivory in all stages of manufacture (Voigt 1983) found in excavations (Meyer 1998). K2 was organized according to CCP principles with a central kraal flanked by a court midden. About 1150, however, the cattle were moved out of the settlement and the midden, whose size increased with the rising power of the chief, grew to such enormous proportions it engulfed the area that had been the byre. These developments were the first indication that changes were taking place in the ideology underlying the power of the elite. At its peak the population of K2 registered somewhere between one and two thousand individuals, making it two or three times larger than Schroda and equally more powerful politically (Huffman 2000, 2002). By about 1220 the height of the midden on top of the old kraal reached nearly six metres, and K2 was suddenly abandoned. At the same time, the site of Mapungubwe, about one kilometre to the northwest, saw an enormous increase in population.

Mapungubwe, a flat-topped kopje (hill) surrounded by valleys, had been sparsely occupied in the K2 period, but its character changed totally with the arrival of the population from K2. In addition, the settlement pattern of the elite changed dramatically, bringing to physical reality ideological changes that must have been taking form in the later stages of K2's existence. At Mapungubwe the elite organized themselves on the slopes of the Hill with the leader and his entourage occupying the top in ritual seclusion. These elite areas were separated from commoner sites in the valleys (which continued to follow the CCP) by prestige stone walling, the first to be seen in southern Africa. The court appears to have been at the base of the Hill and cattle were not associated with it. The new socio-political order reified by these changes in settlement pattern has been called the Zimbabwe Culture Pattern (ZCP) (Huffman 1986, 1996, 2000).

Briefly, the changes that distinguished the ZCP from the CCP are (Huffman 1996, 2000):

- cattle were no longer housed in the centre
- commoner villages were still organized according to CCP
- the court of the ZCP was no longer associated with the cattle kraal
- elite burials took place on hill tops rather than in kraals
- prestige stone walling separated elite areas from commoners
- the leader lived in ritual seclusion on the hill top
- the leader was responsible for the fertility of people and land (rain)
- marked social distinctions were justified by sacred leadership

Mapungubwe, which had a peak population of between three and five thousand people, can be considered the first urban centre and first state in southern Africa

(Huffman 1986, 1996, 2000). Its heyday lasted only from about AD 1220 to 1300, but accumulated deposits measuring over 3m (which includes some K2 period layers) indicate the intensity of use. Trade with the east coast increased as the vast quantities of glass beads testifies. Spindle whorls indicate that weaving was introduced. By 1250, gold, which had long been a major trade export and thus a means to access wealth, became a signifier of power and wealth itself. Three of the burials on Mapungubwe Hill have been recognized as royal based on a seated burial position and the associated gold and other artefacts. Toward the end of the 13th century, Mapungubwe's power declined and the entire region was abandoned, possibly due to the arrival of the Little Ice Age whose cooler temperatures made the Shashe-Limpopo basin unfit for agriculture (Tyson & Lindesay 1992). The inhabitants dispersed in several directions.

At about this time Great Zimbabwe rose to prominence. Its geographical position allowed it to take advantage of what rainfall was available. It became the second of the Zimbabwe Culture capitals and held reign from about 1300 to 1450. The reason for its demise is not entirely clear, but two power centres rose after its fall. In the northeast the Mutapa state took control and in the southwest at Khami the Torwa state, which became the third Zimbabwe Culture capital, arose. About this same time Khami groups began moving south of the Limpopo once again, founding larger sites such as Machemma, and smaller sites such as Faure, which will be examined in this study.

CHAPTER 3: SURVEY OF LITERATURE

3.1 GLASS BEAD RESEARCH IN THE SHASHE-LIMPOPO REGION

The study of glass beads from archaeological contexts in southern Africa began with hopes that the beads could be used as temporal markers (Caton-Thompson 1931; Beck 1937; Van Riet Lowe 1955; Schofield 1938, 1958), but a lack of knowledge about which types were made in which periods, coupled with inadequate comparative data, meant such hopes were not realized. After the introduction of radiocarbon dating, bead studies were largely abandoned until recently. One notable exception was Davison's work (1972, 1973, 1974, 1979).

3.1.1 BECK

Beck was a pioneer and the world's leading bead expert of his time. Thus he was asked to analyse the beads from the early excavations at Mapungubwe and K2. His report formed part of *Mapungubwe* Vol. I (Beck 1937). His analysis included lengthy comparisons of beads on the basis of colour percentages, but unfortunately the samples sent to him were not representative. Of the 2000 beads sent to Beck, many came from historic sites such as Maryland and Shirbeek. Although Beck realized the Mapungubwe beads were much older than the more recent samples, Plate D of Vol. I (ibid.) (Plate 1A) depicted the modern as well as ancient beads, and the captions do not distinguish between the two groups. Regardless of these shortcomings, Beck's analysis was good for its time. He noted that the older black beads were coloured with iron whereas those from European trade were coloured with manganese. He concluded that many of the K2 and Mapungubwe beads were of Indian origin.

3.1.2 VAN RIET LOWE

Van Riet Lowe's essay on the glass beads of Mapungubwe (Van Riet Lowe 1955) was written in 1940 in preparation for the second Mapungubwe volume but publication was delayed due to the outbreak of World War II. Van Riet Lowe died before it appeared in 1963.

Van Riet Lowe objected that Beck's analysis was not rigorous enough and relied on "mere handling and unaided visual inspection" (ibid.:5). He felt that "exact physical, chemical and spectroscopic analysis" (ibid.) were essential in bead studies. Although Van Riet Lowe reported on eight types of beads that were tested by spectroscopic analysis at Pretoria University, his conclusions about the age and origin of the beads were unrelated to those results.

In 1937 Van Riet Lowe travelled to Cairo where he examined beads in the museums and local bazaars. He also showed a selection of beads from K2 and Mapungubwe to the director of the Museum of Arab Art. These included beads 'A' and 'B' from Mapungubwe Hill, which were illustrated in Van Riet Lowe's monograph (Plate 1B). According to Van Riet Lowe, the museum director "was satisfied as I was that both 'A' and 'B' were typical pre-thirteenth century products of Arab-Egyptian glass works" (ibid.:8). 'BB' is a bead similar to 'B' that the director had given him for comparison; it had been excavated at Fustat (ancient Cairo) along with Chinese porcelain dating to the Song Dynasty (AD 960-1279). Van Riet Lowe correctly linked the Song porcelain with similar ceramics excavated at Mapungubwe, using this evidence to suggest dates for Mapungubwe.

Since beads ‘A’ and ‘B’ could potentially have been made at Fustat, Van Riet Lowe – ignoring his advice about scientific rigour – jumped to the conclusion that the Mapungubwe Hill beads must have been made there as well. This conclusion was reached even though few beads had been systematically excavated at Fustat, and Van Riet Lowe had not found beads like the small Mapungubwe ones in any of the museums or bazaars of Cairo. His explanation for this absence was that trade beads “would be used in profusion in Africa, but not necessarily in the country of their origin” (Van Riet Lowe 1955:6). During his stay, he bought a number of beads in the bazaars that were reportedly from Fustat but, as he admitted, “unfortunately too, one cannot be certain what precisely is meant when a dealer describes a ‘lot’ of beads as having come from Foustât” (ibid.:7).

Van Riet Lowe, like Beck, realized that the beads from K2 (he referred to it as Bambandyanalo) were significantly different from those found in upper levels at Mapungubwe. The most important error Van Riet Lowe made in separating the bead types from the two sites was that – although he realized some of the K2 burials contained Mapungubwe type pottery and beads – he insisted they “*cannot be separated in time*” (ibid.:16) (italics original). He speculated that the K2 beads were from Egypt as well.

3.1.3 GARDNER

Gardner, who directed the 1936 to 1940 excavations at K2 and Mapungubwe, made the important observation that, of the 70 burials excavated at K2, only 11 produced black and plum coloured beads and all of those came from burials that were associated with Mapungubwe top horizon pottery. This led him to the conclusion that these burials "do not in fact belong to K2 at all, but are intrusive from the Hill" (Gardner 1963:32). According to Gardner these bead types were not found in any other K2 burials and "not a single black or plum bead was discovered in what was the habitable area where the K2 folk lived and died" (ibid.). Gardner's observations make it possible to disentangle the K2 and Mapungubwe bead series. Remarkably, subsequent researchers largely ignored Gardner's observations.

Gardner also left an important resource in his itemized list of grave goods. Although the excavated material is now largely in disarray, it is possible, through his lists, to recreate the beads that were used in burials.

Gardner developed the most accurate series of the time for the Shashe-Limpopo region. He realized that the beads found at K2 and the lowest levels on Mapungubwe Hill were the oldest at the sites and formed a unitary group. He also recognized that the introduction of black beads in the middle levels at Mapungubwe Hill signalled a new series and that nearly all of the black beads at K2 were Mapungubwe intrusions, found only in graves associated with Mapungubwe pottery.

3.1.4 SCHOFIELD

Schofield (1938; 1958) was a keen observer of beads but was blinkered by his belief that all of the glass beads in southern Africa, save perhaps the Zhizo types, came from European trade, between c. 1550 and 1830 (Schofield 1958:220). He was well aware that early Portuguese traders reported they were forced to purchase beads from Cambay and Negapatam in India since peoples in the southern African interior would not accept European beads (ibid.:183). However, Schofield insisted these early trade beads from India were made of clay or ‘coloured earthenware’ rather than glass, even though he acknowledged not a single bead of this type had been discovered in any archaeological site in the region. He was even convinced glass beads did not become “the usual stock in trade for the east coast of Africa” until the mid-eighteenth century (ibid.:185).

These ideas severely impacted Schofield’s ability to interpret the Shashe-Limpopo bead assemblages. He realized K2 and Mapungubwe had different types of beads (ibid.:211-212), but he conflated the two sites. Schofield thus suggested the differences in bead types could be explained by class distinction: royals at Mapungubwe reserved certain beads for themselves, leaving the other types for the commoners at K2. At other times, when bead types did not fit into his theories, discrepancies were “explained as being due to the dictates of fashion or put down to tribal or individual preference” (ibid.:199).

3.1.5 VAN DER SLEEN

Unlike Beck, who based his classification system on bead shape, Van der Sleen felt his system must answer two questions: “from where” and “when” (Van der Sleen

1967), after which he turned to the beads' origins. He thus organized beads according to the country in which they were found, then by a chronological sequence beginning with the oldest.

Over many years, Van der Sleen studied beads traded into East and southern Africa, as well as all around the Indian Ocean and beyond to Southeast and East Asia. He recognized that two types of monochrome glass beads (one drawn, the other multiple wound) were widespread both temporally and spatially over this entire region. He decided to call them Trade-wind beads (Van der Sleen 1956:27) on the basis that they "could be found all around the Indian Ocean, just so far as the monsoon or trade-winds blow" (Van der Sleen 1967:13). Working with the imperfect archaeological information available to him, he thought that the wound beads were older and dated from AD 200 to 800 and the drawn beads from AD 800 to 1600. His research and chemical analyses of some beads (Tornati & Van der Sleen 1960) convinced him that all were made in India.

3.1.6 DAVISON

In the 1970s, Davison (1972) undertook chemical analysis of ancient glass beads from all over Africa in the hope of tracing some of their origins. Her analyses included many beads from K2 and Mapungubwe as well as the East Coast. She was able to determine that most of the eastern and southern African pre-European beads (and some from later centuries) belonged to a category of soda-lime glasses. She divided the K2 and Mapungubwe beads into three subgroups:

1. the M1 Chemical Group
2. the Trade Wind Bead Chemical Group
3. the Mapungubwe Chemical Group

Garden Rollers were included in the M1 Chemical Group, confirming that Gardner (1963) and Van Riet Lowe (1955) were correct in claiming Garden Roller beads were made locally by reworking the small imported beads (Davison 1973). Davison's TWBCG included wound beads.

Davidson found that the M1 and TWB chemical groups were closely related and she felt they could even come from the same source. The Mapungubwe group, however, differed enough that she felt they must have a different origin. Davison's results were hampered by two factors. First, the technology available was not capable of determining some important chemicals, especially trace elements. Second, she had difficulty obtaining appropriate glass samples from India - and the Indian authorities would only permit her to use the non-destructive, but less useful, XRF analysis. Thus, Davison concluded that her evidence could not determine whether the beads were made in India, China or elsewhere.

After publication of her thesis, Davison was able to obtain additional glass samples from India, some of which came from glass producing sites. Tests on this material showed matches for TWBCG beads from both Deccan (central) and Chola (south) India. But she was reluctant to make a definitive statement about the origins of the TWBCG, noting that her samples came only from Indian sites. Thus she concluded, "we cannot base a suggestion of origin on an objective impartial survey of factory sites. The present chemical evidence suggests India, but the present evidence is too skewed to be acceptable as final" (Davison & Clark 1974:84).

3.1.7 SAITOWITZ

Saitowitz (1996; Saitowitz et al. 1996) carried out chemical analysis on a large number of glass beads from southern Africa as well as suspected glassmaking centres in Egypt, Palestine, Syria, India, Sri Lanka and Southeast Asia. Her methods included refractive index (RI), scanning electron microscopy (SEM), atomic absorption spectrometry (AAS), electron microprobe analysis (EMPA), and laser-ablation inductively coupled plasma mass spectrometry (LA-ICP-MS), a relatively new technology. LA-ICP-MS has several advantages over earlier methods: it is minimally destructive and highly sensitive, being able to measure concentrations of both major and trace elements. With this technology Saitowitz sought to find the origins of the southern African glass beads. Comparing rare earth elements (REE) from her samples, she observed a pattern - characterized by a depletion in cerium - in some beads found in South Africa and in others reportedly from Fustat. This led her to conclude that the REE results “showed positively that some beads excavated in the northern and eastern Transvaal are identical to beads that were produced in Fustat a thousand years ago” (Saitowitz 1996:2).

There are several problems with this conclusion. The five beads used as her standard for the REE results for Fustat glass (ibid.:157) came from the Van Riet Lowe collection at Wits University. As was noted above, Van Riet Lowe purchased those beads in the bazaars of Cairo in 1937, so their origin is unknown. Of the five beads, two (#s 22 & 23) are unusual beads, known as Fustat-fused-rod beads, which are widely accepted as having been made in mediaeval Fustat, but the other three could have come from numerous sources. One (#21) is a drawn transparent colourless cylinder, another (#23a) is a pendant (known as a T’alhakimt) of green glass with brownish red decorations and the third (#24) is a black wound bead with yellow dragged and trailed decorations. Apart from these five beads chosen to represent a Fustat REE fingerprint, Saitowitz analysed one Fustat-fused-rod bead (#s 21a, 21b & 21c – each number represents a different colour in the same bead) (Saitowitz 1996:144) that was lent by Scanlon (Scanlon 1965) who recovered it during his excavations at Fustat. We do not know whether it exhibits the same REE cerium depletion profile since neither data nor a graph are given for its REEs and trace elements. Table 3.1 lists the beads Saitowitz used for her Fustat samples along with the analytical method.

Table 3.1: Analyses performed on beads used by Saitowitz for her Fustat data

Sample #	Source: VRL = Van Riet Lowe GS = G. Scanlon	EMPA Table 8.2.2.1 p. 144	REE & trace element Table 8.3.1.1 p. 153	Chondrite – normalised REE graphs Figs. 8.3.2.2 & 8.3.2.12 pp. 157 & 162
20	VRL		yes	
20a	VRL	yes		
21	VRL	yes	yes	yes – neg. Ce
21a-c	GS	yes		
22	VRL		yes	yes – neg. Ce
23	VRL		yes	yes – neg. Ce
23a	VRL	yes	yes	yes – neg. Ce
24	VRL		yes	yes – neg. Ce
24a	VRL	yes		
25	VRL	yes	yes	
25a	VRL	yes		
27	VRL	yes	yes	yes – normal

As this table shows, twelve ‘Fustat’ beads were examined. EMPA results are provided for eight and REE and trace element analysis results for another eight, of which four overlap (that is both sets of data are provided for four beads). Of the eight beads whose REE and trace elements were recorded, the Chondrite-normalized REE patterns for five appear in Figure 8.3.2.2 and show a negative Cerium anomaly. The only other sample graphed, in Figure 8.3.2.12, does not show a negative Cerium anomaly. Thus, of the twelve beads presumed to be from Fustat one definitely does not demonstrate such an anomaly and six more may or may not demonstrate it.

The next difficulty arises with the beads from South Africa that displayed the Fustat negative cerium anomaly. Again five beads are charted on the graph (Saitowitz 1996:157).

1. #82, described as being an opaque deep turquoise cylinder, comes from Phalaborwa (c. AD 800 – 1300) (Pistorius 1995), an iron and copper mining site in the Limpopo Province lowveld.
2. #79 is from Shikumbu, a site south of Phalaborwa. The bead is drawn, translucent dark brown and is triangular in cross section. This type of bead is unknown in pre-European collections in southern Africa.
3. #86 is from K2 and is described as a translucent shadow blue chopped tube. This is curious in that the description fits only Zhizo series beads, which are found only rarely at K2.
4. #87, also from K2, is a transparent turquoise cylinder – the archetypical K2 series bead.
5. #94 is from skeleton No. 14 on Mapungubwe Hill and described as being an opaque deep turquoise cylinder (Saitowitz does not distinguish between cylinders and oblates). This bead is a classic Mapungubwe Oblate.

It seems highly unlikely that such a wide range of bead types could all come from one glassmaking centre. In addition they range temporally from the 10th century Zhizo series bead to the Shikumbu bead, which is probably from European trade.

Doubts about the relatedness of the Fustat and South African negative cerium anomaly beads are strengthened when one examines their chemical compositions as reported in Saitowitz. Presumably, her chemical composition tables derive from EMPA (Saitowitz 1996:141-46). Table 3.2 shows the chemical composition of the beads that exhibit the negative cerium anomaly. [These data can be correlated to Figs. 2A and B in Saitowitz *et al.* (1996:102)]. Their chemistry indicates widely varied origins.

Table 3.2. Chemical analyses of beads used by Saitowitz. Measurements in percentages (Saitowitz 1996:141-46). Note: no analyses were published for samples 22, 23 or 24

sample #	SiO2	Na2O	K2O	Cl	Al2O3	Fe2O3	MnO	MgO	CaO	P2O5	CoO	CuO	Sb2O3	PbO
21	67.21	11.67	2.56	1.16	0.88	0.57	0.97	3.16	11.75	0.36	ND	ND	0.75	ND
23a	60.50	10.20	3.08	0.91	5.24	0.90	0.41	4.51	4.20	0.33	ND	ND	ND	6.44
79	56.07	13.86	0.40	0.94	1.44	0.71	9.43	1.13	3.28	0.17	ND	ND	ND	4.52
82	64.98	12.33	2.95	0.88	5.07	0.74	ND	4.14	4.47	0.33	ND	1.41	0.11	ND
86	66.70	13.76	3.07	0.71	3.17	1.31	1.34	3.80	6.61	0.26	ND	ND	ND	ND
87	67.63	11.56	2.23	0.67	10.39	2.27	ND	0.63	3.78	0.11	ND	1.23	ND	ND
94	63.27	14.22	3.32	0.92	5.4	0.86	ND	5.69	4.42	0.26	ND	1.12	ND	0.35

It is also disconcerting that beads with similar physical and chemical properties can have different REE profiles. For example, samples 87, 107 and 116 are all described as turquoise (blue-green) cylinders; 87 and 107 are transparent while 116 is translucent. They would all be part of the K2 series, and as Table 3.3 shows they are closely related chemically.

Table 3.3: Chemical analyses of beads that are similar physically & temporally

sample #	SiO2	Na2O	K2O	Cl	Al2O3	Fe2O3	MnO	MgO	CaO	P2O5	CoO	CuO	Sb2O3	PbO
87	67.63	11.56	2.23	0.67	10.39	2.27	ND	0.63	3.78	0.11	ND	1.23	ND	ND
107	60.58	12.76	3.31	0.90	10.50	2.43	ND	1.17	3.90	0.16	ND	ND	ND	2.17
116	62.76	13.39	2.81	1.61	9.51	1.39	ND	0.58	2.66	0.05	ND	0.79	ND	ND

The REE profiles for these beads, however, differ significantly as can be seen in Figure 3.1. Although numbers 116 and 107 may be related, number 87 exhibits a different profile. These results seem to indicate that REE profiles, as used by Saitowitz, do not indicate glass origins. It is possible, however, that REE profiles could be used to pinpoint fine distinctions between glass beads that have been pre-grouped based on chemical composition.

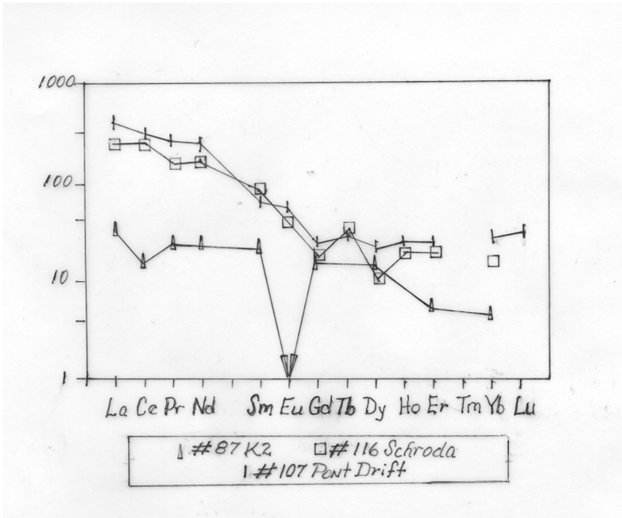

Fig. 3.1: REE profiles for chemically similar beads, compiled from Saitowitz (1996:157, 160)

3.2 WORK IN PROGRESS

Robertshaw, Glascock, Wood and Popelka are currently working on a project to chemically analyse 1000 glass beads from pre-European trade in sub-Saharan Africa using laser ablation-inductively coupled plasma-mass spectrometry. This technique produces chemical data for over 50 elements, including isotopes. A preliminary report (Robertshaw *et al*. 2003) demonstrates the post-Zhizo Shashe-Limpopo bead assemblages can be divided into two basic groups, based mainly on levels of magnesia and potassium oxide. These differences result from the use of different fluxes to lower the melting temperature when making raw glass. The majority of beads, designated Type A, were probably made using a mineral soda as the flux, while the flux used to make Type B glass, which has higher percentages of magnesia and potassium oxide, came from burning desert or marsh plants. Both glass types contain levels of aluminium that indicate they probably could not have been made in Europe, North Africa or Western Asia. Glass made in South and Southeast Asia, however, frequently contains comparable levels of aluminium. Uranium content can also be used to separate Type A from Type B. Type A glass contains elevated levels while Type B is practically void of this element, a trend noted by Davison (1972) and verified by Robertshaw *et al.* (2003).

Type A glass (equivalent to Davison's Trade Wind Bead Chemical Group) includes the K2, Indo-Pacific and Khami series, while Type B is restricted to the Mapungubwe Oblate series. It is hoped that further work on the test results will allow us to recognize sub-types and to place more precisely the origins of the beads. Results of tests on Zhizo series beads have not yet been published, but preliminary analysis indicates they are made from a type of plant ash glass that is unlikely to come from the Middle East (Robertshaw, pers. comm.).

CHAPTER 4: CLASSIFICATION

4.1 CLASSIFICATION SYSTEMS

Beck (1928) developed the first comprehensive classification system for beads and was the first to describe the beads of Mapungubwe (Beck 1937). His classification system, however, is based on bead shape rather than raw material or manufacturing technique, so is not suitable for archaeological assemblages. Nonetheless, most researchers still use his shape categories (Figs. 4.1a & b).

Van der Sleen (1967) focused on origins and temporal ranges so his classification is far more useful to archaeologists. In addition he realized that method of manufacture is pivotal in classification.

For American and many European archaeologists the most widely used system is by the archaeologists Kenneth and Martha Kidd (1970). Beads are first sorted by raw material, then by method of manufacture and next by physical characteristics. Their alphanumeric codes for each bead type facilitate inter-site comparisons. The system has limitations (it was designed for early historical period sites in the Northeast United States) but is open ended so can easily be augmented. Karklins (1985) corrected and expanded the Kidds' system; his work is the base of my classification method. To understand the organization of the Kidd/Karklins system I turn to drawn beads.

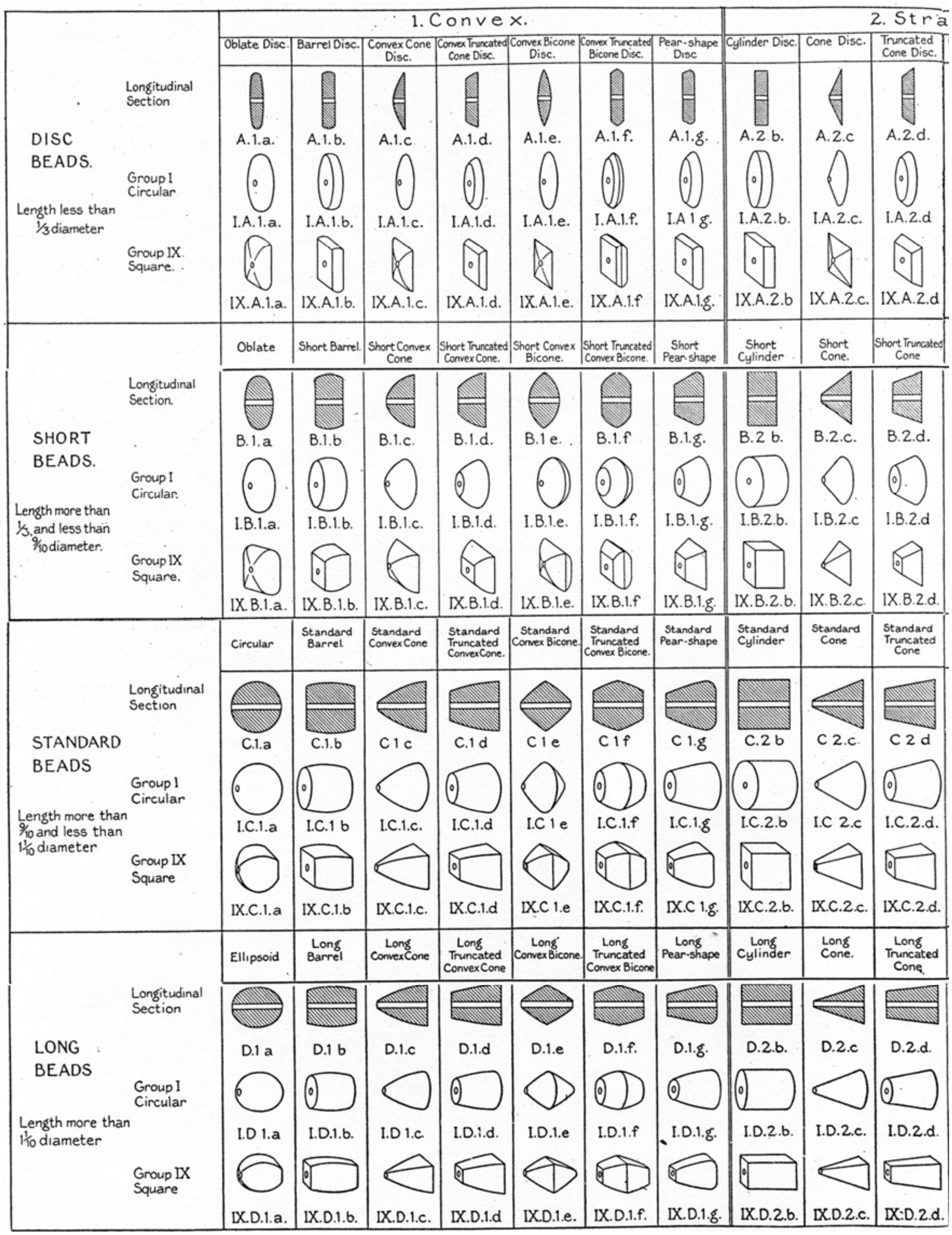

Fig. 4.1a: Beck's bead shapes (1928)

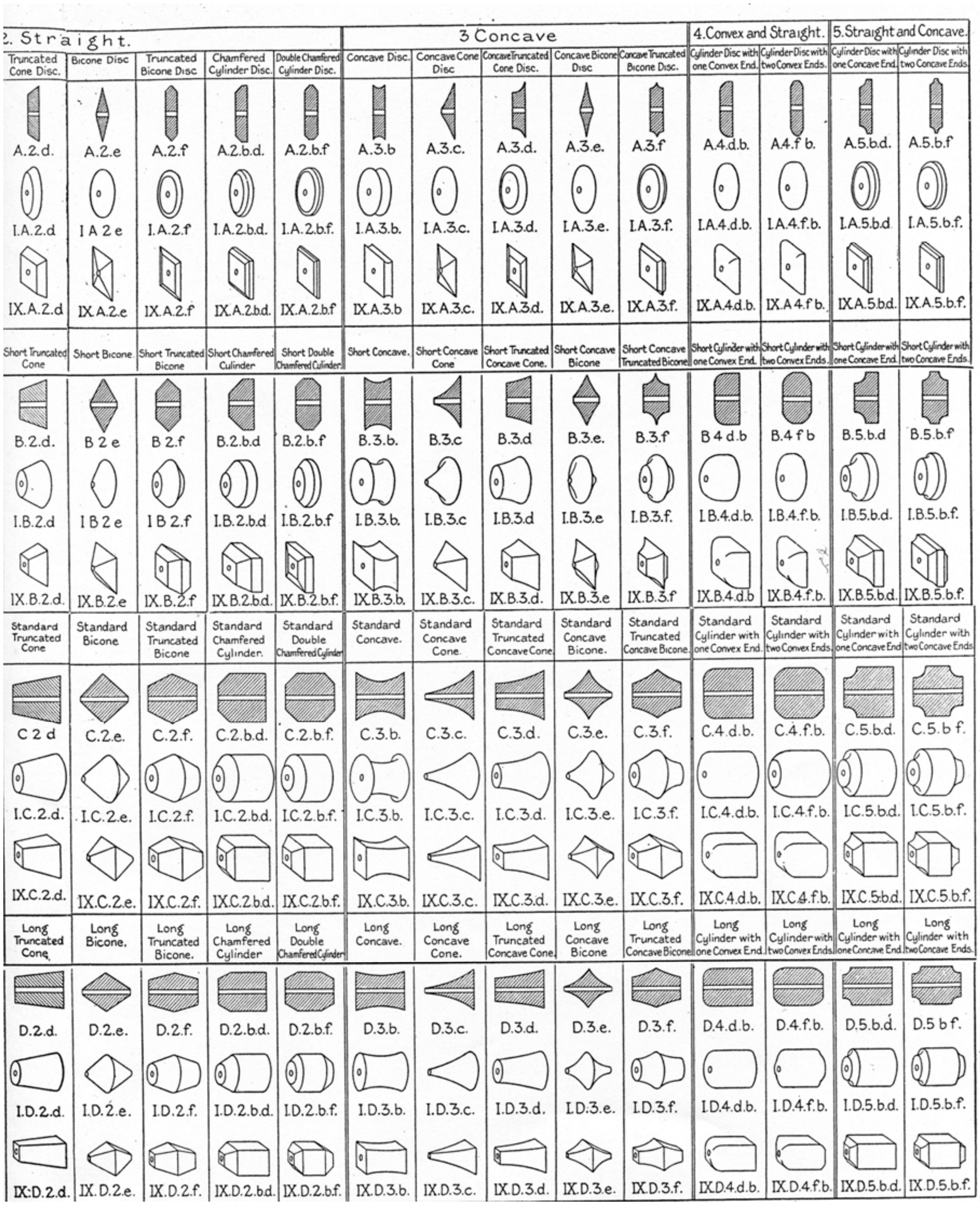

Fig. 4.1b: Beck's bead shapes (1928)

Drawn beads are divided into four classes based on shape (tubular or non-tubular) and structure (simple - made from one layer of glass - and compound from two or more):

Class I: tubular with simple (monochrome) bodies, surface may be
- Ia: undecorated
- Ib: decorated with straight, simple stripes
- Ib': decorated with spiral, simple stripes
- Ibb: decorated with straight, compound stripes
- (variations continue but are not relevant to our assemblages)

Class II: non-tubular beads with simple (monochrome) bodies, surface may be
- IIa: undecorated
- IIb: decorated with straight, simple stripes (etc.)

Class III: tubular beads with compound (multi-layered) bodies, surface may be
- IIIa: undecorated (etc.)

Class IV: non-tubular beads with compound (multi-layered) bodies, surface may be
- IVa: undecorated (etc.)

For our purposes this four-class system for drawn beads is not adequate. We do not have compound or decorated beads, so we must depend on the few variables present. Class II includes all non-tubular beads, so it lumps cylinders and oblates into one category. The difference between the two shapes can sometimes characterize a bead series, such as the Mapungubwe Oblate series, so they need to be divided.

The Kidd/Karklins system classifies wound beads according to shape and then structure. The only categories relevant to our assemblages would be WIa and WIb. They both are single-layered, monochrome or polychrome beads; WIa is cylindrical and WIb is round.

4.2 CLASSIFICATION SYSTEM FOR PRE-EUROPEAN GLASS BEADS IN SOUTHERN AFRICA

(Information for this section was taken from (Karklins 1985; Kidd & Kidd 1970; & Wood 2000).

Pre-European glass beads found in southern African are so limited in variation (in terms of method of manufacture, shape, decoration and colour) they need to be examined in far more detail than most other bead assemblages. The wide range of bead types considered in the Kidd/Karklins systems are not useful here – there are generally no decorated or compound (multi-layered) beads – so characteristics that are more limited but detailed must be defined and utilized. More attention must be paid to bead shape, end treatment and opacity. The system I have adapted from Kidd/Karklins includes the following data:

- Method of manufacture
  - drawn
  - wound
  - moulded
- Shape
  - tube
  - cylinder
  - oblate
  - sphere
  - ellipsoid
  - barrel
  - bicone
  - lenticular [coastal beads only]
- End treatment
  - reheated
  - untreated
  - ground flat
  - moulded
- Size range
  - minute
  - small
  - medium
  - large

Length ratio
- disc
- short
- standard
- long
- very long

Diaphaneity
- transparent
- transparent-translucent
- translucent-transparent
- translucent
- translucent-opaque
- opaque-translucent
- translucent-opaque
- opaque

Colour
- Munsell number
- colour name [based on ISCC-NBS Color Designations (Standards 1964)]
- colour group

Other information that may be noted since it can sometimes be useful in identifying beads:
- uniformity of bead shape
- glass quality
- lustre
- patination
- perforation

4.2.1 METHOD OF MANUFACTURE

Nearly all of the glass beads in this study are drawn. A few are wound and most of the Garden Roller beads made at K2 are moulded.

Drawn beads (more specifically hand drawn beads) were made by creating a hollow in a gather of molten glass either through blowing or perforating with a metal tool. The resultant globe was pulled or drawn into a tube up to 300 metres long. When cool enough to handle, it was broken into manageable lengths that were sorted by diameter then cut into bead lengths using wedge-shaped chisels. The hollow, or bubble, remained in the centre forming the perforation. Sometimes the resultant beads were left in this condition. They have often been called ‘snapped canes’ but are more appropriately named **cut** or **chopped cylinders** or **tubes**. Most beads, however, were placed in large pans, along with ash and sand to prevent them sticking together, and were reheated over a charcoal fire while being stirred. When the glass became viscid they would be removed from the fire. The longer this secondary heating, the more rounded the bead, but overheating would result in collapse. Beads processed in this manner are called **reheated** and were finished by cleaning and sometimes polishing.

A slightly different process for drawing beads, known as the **lada method** (Francis 1989), was developed in India in about the 2nd century BC. It varies in that the glass master shaped a large gather of glass into a cone on a hollow tube, or *lada*, inside a furnace. He then pushed a metal rod through the *lada* into the glass cone, forming a hollow that eventually became the perforation. Next, a second master attached a rod to the other end of the cone through a port in the opposite side of the furnace. He then pulled out a thin glass tube hand over hand, breaking it into manageable lengths as he proceeded. The resultant tubes were cut into bead lengths and reheated as described above. This process, used to make **Indo-Pacific** beads, leaves diagnostic **wasters** that enable archaeologists to identify sites where Indo-Pacific beads were made.

Bubbles and inclusions in drawn beads are parallel to the perforation or axis. Perforations are normally smooth with parallel sides.

The **wound beads** examined in this study are mostly **furnace wound**. Glass is melted in a crucible inside a furnace. The beadmaker dips a **mandrel (**usually an iron rod) into the molten glass and winds a glass thread around the mandrel until the desired bead size is reached. While the glass is still malleable it may be rolled on a smooth surface (**marvered**) or even paddled or moulded into the desired shape. When the glass cools the bead is pulled from the mandrel, which was initially coated with a release agent. Mandrels are usually tapered so the perforations of wound beads are normally conical. The surface of wound beads often displays swirl marks perpendicular to the perforation and bubbles or inclusions are oriented in the same manner.

The only **moulded** beads found in southern Africa in pre-European times are the Garden Rollers that were made at K2. It is generally accepted that, due to technical difficulty, raw glass was not made in sub-Saharan Africa during the period under study. The reworking of imported glass, however, required far lower temperatures and was practiced in several places. At K2 the process used to create the large Garden Rollers from the small imported blue-green and green beads was unique. Single-use finely made clay moulds were used to shape the beads and had to be broken to release them. Glass workers in other regions of sub-Saharan Africa reworked imported glass as well but none employed single-use moulds.

The entire process by which Garden Rollers were made is not understood, but it is clear that more than one method was used to place the glass into the moulds. The full process is described in Chapter 9.

4.2.2 SHAPE

A drawn bead's shape is the result of the ratio between its diameter and length and to what degree it was reheated. These were not carefully controlled, so shapes are not always distinctive. Different researchers will doubtless divide borderline beads into different categories.

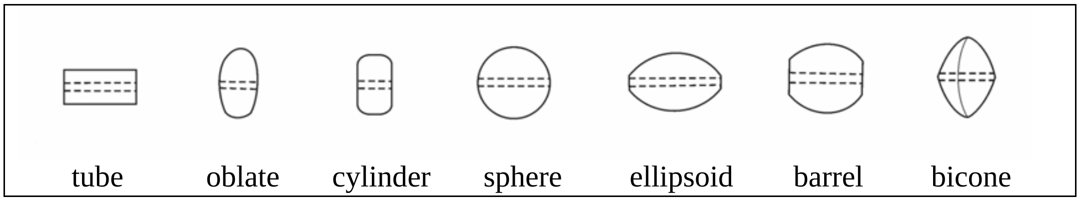

Fig. 4.2: Bead shapes

Tubular beads have parallel straight sides. Their ends may be slightly rounded by reheating or they may be left untreated, in which case they may be called **chopped tubes**.

Cylinders are similar to tubular beads but their ends have been reheated to the point that the bead has a rounded profile. The central section may be straight.

Oblate beads have been reheated to the point that the entire length of the bead has a smoothly rounded profile. Length must be less than diameter. This designation should be reserved for uniform well-formed beads.

Spherical beads are round with lengths that are roughly equal to diameter. Spheres are rare in drawn beads but are frequently found in wound beads.

Ellipsoids are elongated spheres. They have rounded profiles with lengths that are greater than diameters. This term is usually reserved for wound beads.

A true **barrel** bead is one with rounded sides and flat ends – as in a barrel. This shape is not often found in drawn beads and is usually accidental when it occurs. Therefore, I only use this designation for some of the large wound or moulded beads, such as Garden Rollers.

Bicones are wound beads that can be described as two symmetrical cones with a common base. They are far more common in East Coast sites than in the region under study.

4.2.3 END TREATMENT

End treatment is a consideration mainly with drawn beads. It describes whether and to what extent a chopped bead was reheated after cutting.

Untreated beads are left with sharply cut edges. In the beads under study, only the Zhizo series is characterized by untreated ends, but a few K2 series beads are untreated as well.

When chopped beads are **reheated** (as described above under 'Drawn beads'), the length of time they are left in contact with heat, as well as the temperature involved, yields quite different results. A very brief heating produces a tubular bead with slightly smoothed ends, these are particularly prevalent in the K2 series. When more heavily heated, the ends slump and become rounded forming a cylindrical bead.

Some K2 and Mapungubwe Oblate series beads, as well as most Indo-Pacific beads belong to this category. If heated even more intensely, the entire body of the bead will become rounded, resulting in an oblate or rarely a sphere. This process would be difficult to control so most oblate beads in this study were accidental – only the Mapungubwe Oblate series beads are uniform and frequent enough to be considered intentionally formed.

The ends of a few beads – drawn, wound or moulded – have been intentionally **ground flat** – most likely by the consumer rather than the beadmaker. This may have been done so they fit together snugly when strung. Very few of the beads under study have been treated in this way.

The term **moulded** is rarely used to describe end treatment but is necessary when describing Garden Roller beads. The uniformity of their ends could only result from some type of moulding device (see Chapter 9 for details).

4.2.4 SIZE RANGE

Chittick's (1974b:464) size designations are unsuitable for Shashe-Limpopo beads, which are generally much smaller in diameter than beads from the East Coast. His minute category is the same, but his small group ranges from 2.5 to 4.5mm and his medium category from 4.5 to 8mm. Had I employed Chittick's criterion, all of the small and medium beads in this study would have been lumped into one category. Most of my large beads would have been labelled 'medium' and only Garden Roller beads would have fit into the large group. There are so few beads over 4.5mm in this study that they need to be measured individually. The following size ranges have been developed for the beads under study.

Table 4.1: Size categories for Shashe-Limpopo glass beads

Size designation	Diameter
minute	<2.5mm
small	2.5-3.5mm
medium	3.5-4.5mm
large	>4.5mm

4.2.5 LENGTH RATIO

Length ratio measures the relationship between the length and diameter of the bead. These categories are adapted from Chittick (1974b:463).

Table 4.2: Length ratio parameters for Shashe-Limpopo glass beads

Length ratio designation	formula
disc	length =<1/5 diameter
short	length =>1/5 and <4/5 diameter
standard	length =>4/5 and <1 1/5 diameter
long	length =>1 1/5 and <2 diameter
very long	length = >2 diameter

4.2.6 DIAPHANEITY

Diaphaneity describes the translucency of glass. Most researchers use only three degrees: transparent, translucent and opaque. When working with small monochrome beads, it is essential to gather as much information as possible about each bead. Nuances in translucency thus become important and can be used to distinguish beads of one series from those of another.

It can be difficult to determine diaphaneity. If one looks at a bead in reflected light it will often appear opaque even if it is nearly transparent. Patina, dirt and surface abrasion as well as the colour and size of the bead will affect apparent translucency as well. To determine accurately diaphaneity, one needs to employ a strong light source in conjunction with magnification. The object is to determine the original condition of the glass. The following categories (see Plate 2A) blend into one another, but when an entire assemblage is put together, the utility of these divisions becomes evident.

Table 4.3: Diaphaneity of glass in transmitted light with magnification

Diaphaneity	Description
transparent	objects can be clearly seen through glass
transparent-translucent	glass is slightly cloudy (often due to bubbles)
translucent-transparent	glass is cloudy but light passes easily through bead
translucent	light passes through entire bead
translucent-opaque	glow of light from most of bead
opaque-translucent	slight glow of light at edges of bead
opaque	no light seen through edge of bead

4.2.7 COLOUR

Colours were not standardized in early glass, and even beads from the same glass batch could vary in hue depending on the size or shape of the bead. Patination and surface condition also affect colour perception. To describe colours in a manner that will allow other researchers to visualize the beads, a standard is needed. The one most commonly used by bead specialists is the Munsell Book of Colours (Munsell 1976). Unfortunately, it is quite expensive, and the number of choices is too vast. If the varying colours of numerous beads from one assemblage were apparently intended to be the same, it is preferable to define them with a range of Munsell numbers.

Determining separate colours for each bead would be needlessly time consuming and without significance. As with diaphaneity, some colours are not apparent unless viewed through strong transmitted light and even magnification. This is especially true of dark coloured larger beads. Munsell numbers should be determined under natural daylight. If the bead is dull or patinated, wetting it may help reveal the original colour.

Munsell numbers have other limitations, particularly their lack of suitability for databases. Being a combination of letters and numbers, they cannot easily be sorted by colour group. In addition they are not accompanied by descriptive names. Unfortunately, bead researchers have not yet agreed on a standard terminology for colour names. This is possibly due to lack of access to the different colour name systems, compounded by a lack of cross reference as to which colour name to use with any given Munsell number. Karklins (1985:110-111) lists a selection of Color Harmony names (from the *Color Harmony Manual*, Container Corporation of America 1958) with their Munsell equivalents but does not list an adequate selection for use in this study. In addition, the names could confuse readers who lack access to these references.

To overcome some of these difficulties, I have chosen the ISCC-NBS Color Designations (Standards 1964) to assign colour names for Munsell numbers. It is not widely available, but all names are generic (e.g. very light greenish-blue or strong reddish brown) so should be easily understood. I determined each colour name by matching the relevant Munsell chip with a comparable ISCC-NBS chip. Finally, I assigned all Munsell numbers used in this study to colour groups for use in determining colour preferences and availability at each site. A complete list of Munsell numbers used and their equivalent ISCC-NBS names and colour groups is given in Appendix 1.

4.2.8 ADDITIONAL INFORMATION

Such information becomes useful when a group of beads exhibits characteristics that set them apart.

Uniformity may be noted when it is unusual – such as a malformed or heat distorted bead. Uncommonly uniform beads are also remarkable, for example the Mapungubwe Oblate series beads.

Glass quality can be informative. For example, large numbers of bubbles or lack thereof should be noted if diagnostic. In addition inclusions can give clues to glass origins. For example, Indo-Pacific yellow and orange glass contains small particles of colourant that can be seen under magnification.

One should note a bead's **lustre**, or whether the surface of the bead is shiny, dull, satiny, iridescent or striated. Although many of these factors have more to do with age and condition of the glass, some - such as striations - are peculiar to certain bead series.

Levels of **patination** that may be noted include none, light, medium, heavy and very heavy (in which case no colour remains in the glass). Some glasses are more prone to patination than others.

Any unusual **perforations** should be noted. This would include abnormally large or small ones as well as those that are conical in shape.

4.2.9 ROUNDNESS FACTOR

This scale provides a system for recording to what extent a bead's shape has been altered through the reheating process. Its simple format makes it ideal for use with a database. Unfortunately I was not aware of the roundness factor scale when I catalogued the beads for this study. I will use it in future, however, and present it here for other researchers.

Table 4.4: Roundness factor (adapted from Francis 2002:25-26)

Roundness #	Description	Resultant bead shapes
R0	untreated	chopped tubes
R1	slightly reheated	tubes
R2	reheated to point that edges are bevelled	tubes to cylinders
R3	reheated enough to round bead's ends and part of body	cylinders
R4 (added by me)	reheated to point profile is totally rounded	oblates or spheres

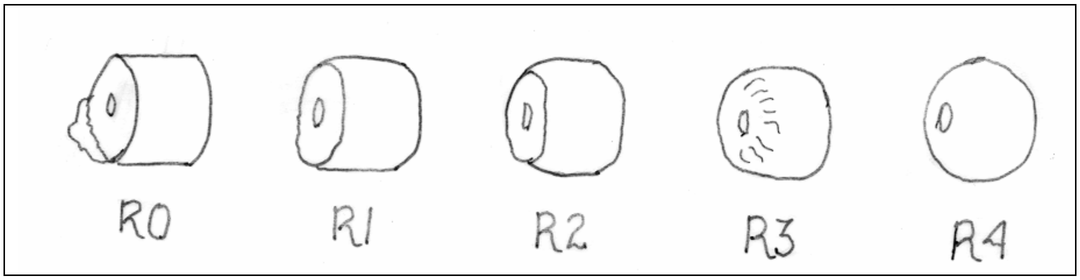

Figure 4.3: Roundness factor (after Francis (ibid.))

CHAPTER 5: THE BEAD SERIES

Other researchers studying beads from the Shashe-Limpopo region have employed series names that can be inconsistent or confusing. For example, Gardner (1963) (based on Schofield (1937)) used the label ‘M1’ to describe beads found at K2 and ‘M2’ to categorize those from Mapungubwe. Confusingly, designations for pottery from the two sites were reversed: K2 pottery being labelled ‘M2’ while ‘M1’ designated Mapungubwe pottery. Gardner’s M1 bead group included both the characteristic blue-green K2 series and beads Van der Sleen (1956) called ‘Trade Wind’, but he excluded black beads. Davison (1972) adopted Gardner’s terminology to label her M1 Chemical Group, while her group incorporating Mapungubwe oblates was labelled Mapungubwe Chemical Group I. Her Trade Wind Bead Chemical Group (TWBCG) is similar to the Indo-Pacific series described here except that Davison’s TWBCG includes both drawn and wound beads while my Indo-Pacific series consists solely of drawn beads. Like Gardner, she excludes black beads from her TWBCG.

Because it is difficult to work with these categorizations, I have introduced ones that relate more readily to the beads and the places they were found.

5.1 ZHIZO SERIES BEADS

Zhizo series beads (Plate 2B to 2H) are principally characterized by ends that have not been reheated. Many researchers have called them ‘snapped canes’, but this is technically inaccurate. They are tubes or cylinders, not canes (canes would be solid without perforations). In addition the beads are cut or chopped into lengths rather than snapped.

The colour range of Zhizo series beads is limited. In the available sample they are most frequently a transparent to translucent blue, which ranges from a soft (but not pale) to a deep colour: the Munsell numbers range from around 2.5PB 5/6 to 5PB 3/6. The colour is less purple than the cobalt blues found in later series. At first glance they may look opaque but a strong light shows this is an illusion (Plates 2G & H). The next most common colour is yellow. This glass ranges from translucent to translucent-opaque. The yellow tends more toward the orange rather than the green spectrum and is often dull or dirty looking, more a statement about the condition of the glass than its original colour. The Munsell range is from 5Y 7/6 to 7.5Y 7/8.

Finally, both blue-green and green beads are found in the Zhizo series; green ones appear only in limited numbers but blue-green can form an appreciable percentage of an assemblage. They both tend to be in the translucent ranges. The blue-green Munsell numbers fall in the range of 2.5BG 6/2 to 10BG 8/4, while the greens range from 5G 5/4 to 10GY 6/4.

Several features of Zhizo beads set them apart from other series:

- The glass may appear striated. This is caused by rows of bubbles, parallel to the perforation, that have risen to the surface.
- They appear in larger sizes than the other bead series under study. In Zimbabwe and Chibuene, Mozambique, they are found in sizes measuring up to 13mm in diameter and 20mm in length. Although such large sizes haven't been recovered south of the Limpopo, the average size and length ratio of Zhizo series beads is larger than later series as can be seen in the relevant graphs in Chapter 14.
- The glass used to make Zhizo series beads is less stable than other glasses in this study so the beads are often heavily patinated. Chemically, Zhizo glass is

> different – it is a plant ash type whereas K2 and Indo-Pacific series glass used a mineral soda as the flux (Robertshaw pers. com.). Although Mapungubwe Oblate series glass also employed plant ash (Robertshaw *et al.* 2003), it is easily distinguished from Zhizo glass based on levels of other chemicals, especially aluminium, which is much lower in Zhizo glass, and uranium, which is low in Mapungubwe Oblate glass.

> I have identified Zhizo series beads from several areas in southern Africa, mainly in 8th to mid-10th century contexts. Sites where they are found in Zimbabwe include Makuru (Huffman 1973), Leopard's Kopje Main Kraal (Huffman 1974), Zhizo Hill (Robinson 1966), Matsheumhlope (Robinson 1958) and Three-Mile-Water (Summers 1969; Huffman 1973). I have also observed beads that may belong to the Zhizo series in assemblages from Gokomere Tunnel Site (Robinson 1963), Surtic Farm, Runyani Ruin, Zhizo Hill (Robinson 1966), Cairnsmore, Ntaba Zika Mambo and Mtetengwe (Robinson 1958). In Botswana they are found at Nqoma (Denbow 1986; 1990; 1999), where they make up a majority of pre-European-period glass beads recovered. In addition they are found at Mmamagwe, Bosutswe-Kgotla 3, Matlapaneng, Mmadipudi and the Zhizo levels of Taukome (ibid.). In South Africa, sites include Schroda, Pont Drift, K2, Castle Rock and Leokwe Hill.

Chibuene (Sinclair 1982), an early trading port on the coast of Mozambique, was undoubtedly the principal entry point for this series. Excavations there (Sinclair 1982; Sinclair *et al*. 1993; Ekblom (in prep.)) exposed an early occupation phase that dates from the mid-first millennium to about AD 1000 . Most glass beads recovered belong to the Zhizo series and many are the large tubular type (Plate 2C & E). Blue is the most common colour at just over 40%, yellow is next at 30% and blue-green and green make up most of the remainder (Kinahan 2001). So far over two thousand have been recovered.

On the East Coast surprisingly few Zhizo series beads have been found. In the bead assemblage from Shanga (Horton 1996), regarded as an important early trading port on the East Coast, I identified only one. Only Pemba Island has produced several Zhizo beads: from recent excavations at Tumbe, I have identified 11 possible examples and at nearby Chwaka one bead is probably Zhizo. I have not examined the beads from Manda, which, like Shanga, lies in the Lamu archipelago off the north Kenya coast, but Morrison (1984:182) reported the presence of tubular drawn beads with 'snapped' ends that could be Zhizo. According to Sinclair (1987:90), however, Chittick said the Chibuene beads were not like those from Manda. Furthermore, it is possible some Zhizo beads may be in the Comoros Islands' assemblages (Wright 1984, 1992), but I have not yet examined them.

The largest number of Zhizo series beads on record comes from the c. 9th century royal burial and ceremonial hut sites at Igbo-Ukwu in Nigeria (Shaw 1970) (Plate 2F). Of the 150,000 glass beads found, nearly 137,000 are probably Zhizo types. Recent chemical analyses have confirmed that the glass used to make these beads is a plant ash type (Robertshaw pers. comm.) similar to the glass used to make the Zhizo beads found in eastern and southern Africa.

Importation of Zhizo beads ceased in the mid 10th century (discussed more fully in Chapter 13), but they appear to have been curated frequently so can appear in later contexts.

5.2 K2 SERIES BEADS

5.2.1 DRAWN BEADS

K2 series beads (Plate 3A to C) - equivalent to Davison's M1 Chemical Group (Davison 1972) - appear in the mid-10th century. They are characterized by small (2 to 3.5mm diameter by 1.2 to 4mm long) reheated transparent to translucent drawn tubes and cylinders in a range of colours from blue-green to greenish-blue; there are even a few green examples. Since they are cut and reheated by hand (as are all beads in this study) they vary considerably in shape and include tubes, cylinders and occasional oblates, but it is important to recognize these oblates as fortuitous rather than intentional, and they belong to the same series. The easiest to recognize are the transparent turquoise (in the range of Munsell # 2.5B 6/6) tubes (Plate 3B). The glass used to make them is quite clear and often very shiny. K2 series beads made of softer shades of blue-green and greenish-blue tend to be more translucent, are often duller and more frequently cylindrical. K2 series beads are seldom patinated, probably because the glass contains such high levels of aluminium (mean level: 13.56%) (Robertshaw, ongoing chemical analysis), which slows weathering (Francis 1982) and resists devitrification of glass (Bray 2001).

Their distribution is somewhat limited. They are found in large numbers only at K2 and related Shashe-Limpopo sites, including Pont Drift and Schroda, which slightly pre-date K2, and Skutwater, which postdates it. In Botswana I have identified a few at Mmamagwe and Bosutswe, but many came from the small commoner site of Kgaswe B55.

At Kgaswe they formed part of a hoard of over 2600 glass beads discovered in a pot on a hut floor (Denbow 1986:19). Brownish red was the most common colour, followed by black and then K2 blue-green. The three calibrated dates available for Kgaswe fall between AD 1000 and 1260 at 1 sigma. The predominance of brownish red and black beads in the assemblage suggests they date towards the end of the calibrated time scale. The black beads, in fact, are a type that frequently devitrify, turning into glass that looks either dull white or rather crystalline and yellowish (Plates 5E & 6E). These black beads are part of the Mapungubwe Oblate series (described below). The mix of colours from the Kgaswe pot suggest they fit the early Mapungubwe period when K2 beads are no longer being imported and coloured Mapungubwe Oblates have not yet appeared. This single find accounts for more pre-European glass beads from Botswana than all other sites combined.

In Zimbabwe, K2 series beads that I have observed come from Gokomere Tunnel Site (Robinson 1963), Chivowa Hill, Mabveni (Robinson 1961), Essexvale (Mt. Alice), Ntaba Zika Mambo (Robinson 1966), Nali Hill (Robinson 1985), Mtetengwe (Robinson 1958) and Great Zimbabwe phase II (Robinson 1961). Robinson (1966) lists two from Leopard's Kopje XII, eight from Matsheumhlope (Hillside) (Robinson 1958) and Huffman (1974) records some from Leopard's Kopje Main Kraal.

Sanje ya Kati, a small island near Kilwa, is the only East Coast site I have discovered with significant numbers of K2 series beads (Chittick 1974a, b). They are found in small numbers at other East Coast sites including:

- Tanzania
    - Kaole (Wood 2002a)

- Kilwa – Period II (early 11th to late 13th century) (Chittick 1974b)
- Kisimani Mafia (Chittick 1966)
- Chwaka (La Violette & Fleisher 1995; 2000; Fleisher 2003)

- A few were found at Mahilaka in northwest Madagascar (Radimilahy 1998), and it is possible a few form part of the assemblage from Shanga, northern Kenya (Horton 1996).

K2 glass belongs to the greater Indian sub-continent/Southeast Asian aluminium-rich mineral soda group [Robertshaw's Type A (Robertshaw *et al.* 2003)] but differs somewhat from the Indo-Pacific series (Davison 1972). The beads appear to have been imported up to the end of the 12th century or slightly beyond.

5.2.2 GARDEN ROLLERS

Garden Rollers (Plate 3D to J) were first found during the early excavations at K2. They were deemed to be shaped like the heavy rollers used to flatten garden lawns. Their discovery roused much conjecture about their origins, but in 1935 Gardner (1963) unearthed a number of clay moulds into which the Garden Rollers fit perfectly, along with small blue-green beads of similar glass. His conclusion - that Garden Rollers were being made at K2 - was strengthened when he found a piece of mould with a fragment of blue-green glass adhering to it and then a complete, unbroken mould (Plate 3F). This mould had obviously not been used since each one must be broken to release its bead (ibid.).

Chemical analysis (Davison 1973, 1979; Robertshaw *et. al*. in progress) has verified the proposition that Garden Roller beads were made from recycled K2 series glass beads. While technically it is very difficult to make raw glass, remelting and reworking it is relatively easy, requiring temperatures of between 1060º and 1100ºC

(Brill 1963), which can be achieved in metal working furnaces but not open fires that can only reach about 700ºC. Other peoples in sub-Saharan Africa have developed glass-reworking industries, but Garden Roller manufacturing may have been the earliest on the sub-continent. It is also unique, being the only single-use-mould technology yet recorded anywhere. Production seems to have taken place mainly at K2 since many mould fragments are found there and only a few have been found at other sites.

Garden Rollers can be quite transparent, especially small fragments that have broken off, but the sheer volume of glass used to produce them usually results in glass that looks translucent to opaque-translucent. The number of bubbles, cracks or other inclusions trapped in the glass also affects opacity.

There appear to be several techniques for working the glass but nearly all begin with a clay mould. These moulds are usually beautifully made of thin-walled fired clay. Experimentation has convinced me some sort of lost wax process was used to make them (see also Saitowitz 1996). A bead blank of desired size and shape would have been created in wax. Clay would then have been applied, surrounding the blank and leaving a large opening at each end. The clay would have been left to harden enough to hold its shape but not enough for shrinkage to cause it to crack. The wax blank would then be melted, perhaps with a hot mandrel, allowing the bulk of the wax to be removed. The mould could then be dried and fired.

Glass appears to have been introduced into moulds in several ways. Perhaps the simplest was to pour whole imported beads into the mould and place it in a furnace long enough for the glass to melt and the beads to fuse together. In some Garden Rollers it is possible to see the outlines and even the perforations of the original beads (3Dd & e), suggesting they were made in this manner. A closely related method used broken, crushed or ground glass to fill the moulds. Many were not fired at sufficiently elevated temperatures, or perhaps not long enough, to fuse the glass so are very friable (Plate 7D). Thus the great majority of Garden Rollers recovered are in fragmentary form. Another possible explanation for this is the makers did not realize the newly formed beads would need to be annealed (cooled slowly) to prevent the glass from shattering later. Whether the original beads were used whole, ground or crushed, however, some sort of plug must have been used at both ends of the mould to prevent the glass from spilling out. Evidence of the use of such plugs can be seen in the finely shaped, uniform ends of finished Garden Rollers. In addition, one example actually has concave ends (Plate 3Db), a shape that would not occur by pushing and pulling the mandrel in molten glass. Finally, a mandrel must have been used to form the perforation, and the plugs must have incorporated holes through which it could pass.

In other Garden Rollers a quite different process seems to have been employed. Wind marks throughout the body of these beads (Plate 3Da) indicate they were created by melting glass in some sort of crucible before dipping a mandrel in and winding on an appropriate quantity in an oblong shape that could pass through one of the holes in the mould. At this point glass protruding from either hole would have to be forced into the mould to fill out the inner shape. Once again end plugs would be needed to perform this operation and to shape the ends. The mandrel would then be withdrawn, usually with a twisting action.

A few other observations can be made about the use of mandrels. Many of the Garden Rollers that were formed by pouring ground or crushed glass into moulds show that the mandrel was twisted repeatedly in one direction, giving the impression from the inside of being wound. The outer glass, however, bears no evidence of winding. Many Garden Roller perforations also show clear evidence - in the form of wave-like overlapping of the pulled glass over the pushed glass - that the mandrel was alternately pushed and pulled while forming the perforation (Plate 3H). Finally, it is clear that at least some of the mandrels were iron. Reddish-brown to blackish deposits, which are commonly found on the walls of perforations, were identified by Saitowitz (1996:136) as ferrous oxide (FeO). The reason traces of iron were left in the perforations might be explained by technology used in some Indian beadmaking industries, such as at Purdalpur. A hot mandrel is rubbed in common salt which reacts chemically with the iron. This causes a skin of iron, which fuses with the glass, to slough off in the perforation, allowing the mandrel to be withdrawn (Kock & Sode 1994:17).

Several mysteries remain about Garden Rollers. Some sort of release agent must have been used to prevent glass from adhering to the moulds. Traces of a white substance are found on a few Garden Rollers, but I haven't managed to connect it to a release agent. The material from which mould plugs/pushers might have been made is also unknown. To date, no trace of anything resembling such an instrument has been found. [Schofield (1958:214) claimed that cylindrical pottery beads were used, but none shaped like the ends of Garden Rollers have been located]. One must, therefore, conclude they were made of some biodegradable substance.

Most Garden Rollers are barrel shaped. A few are nearly spherical and some are cylindrical (sometimes with ends that have been ground flat). Two have been found that are 'waisted' (Plate 3G) – that is shaped a bit like an hourglass - and two are fluted (Plates 3I & J). The fluted bead found at Castle Rock is made of two colours of glass, blue-green and green, sandwiched next to each other. Another two-toned Garden Roller is reported from Mataytsi Hill in Zimbabwe (Davison 1973); it was made of blue-green and yellow glass. To me these unusual shapes reinforce the proposition that moulds were made with a lost wax process for it is relatively easy to create such shapes in wax and mould the clay around them.

Garden Rollers are found in large numbers at K2 and in significant numbers in related surrounding sites. They are also found far afield in limited numbers. In Botswana they have been recovered from Thatswane (a site a few kilometres south of Toutswemogala), Bosutswe (levels 11, 16 and 17 as well as surface), Moritsane, Mmamagwa and Kaitshe, Sua Pan (Huffman field notes).

Several sites in southwest Zimbabwe yielded them including:

- Leopard's Kopje Main Kraal (Huffman 1974)
- Mt. Alice (Essexvale) (Schofield 1938:346; 1958:214)
- Ntaba Zika Mambo (Robinson 1966)
- Chivowa Hill, about 25 km west of Masvingo.
- In addition, fragments of a mould were found at Ntaba Zika Mambo.

Excavations at Isamu Pati, in southern Zambia, produced the farthest travelled Garden Roller yet found. I discovered it in a bead collection at MuseuMAfricA that was put together by Du Toit, who catalogued the beads excavated at Isamu Pati and Ingombe Ilede (Du Toit 1965, 1967, 1969).

5.3 INDO-PACIFIC BEADS

The Indo-Pacific series (Plate 4) is made up of beads that were produced mainly on the Indian sub-continent but could include Sri Lanka and several areas in Southeast Asia. It has been suggested that much of this industry originated in southeast India (Francis 2002) and extended from there with the movement of Indian culture, ideas and technology to the other regions. Peter Francis Jr. coined the term Indo-Pacific (Francis 1986; 2002:20) to refine earlier categorizations of Van der Sleen and Davis, amongst others. It encompasses the drawn beads from Van der Sleen's Trade Wind bead group and Davison's Trade Wind Bead Chemical Group [TWBCG], but eliminates the wound beads included in both. Francis restricts his definition of Indo-Pacific beads to those made by the *lada* process [see section 4.2.1], which are by definition drawn. Since very few of the beads under study here are wound, I have not assigned them to a series. They are discussed individually.

Indo-Pacific beads from the K2-Mapungubwe period in this study tend to be slightly larger in diameter than K2 series beads and are mostly irregular reheated cylinders or tubes, oblates are fortuitous. The glass is relatively poor in quality and often contains bubbles and inclusions. Brownish red glass is always opaque; blue-green, green, yellow and light orange are translucent to opaque-translucent. Their Munsell ranges are given in Table 5.1.

Table 5.1: Munsell ranges for Indo-Pacific beads from the K2-Mapungubwe period

Colour	b-g	green	yellow	orange	br.-red
Muns. #	2.5B 4/6	2.5G 4/4	2.5Y 6/8	7.5YR 5/10	2.5R 2/4
to	7.5BG 5/6	10GY 6/4	7.5Y 8/8	10YR 6/8	10R 3/8

Opaque black beads can be part of this series (confirmed by ongoing chemical analysis, Robertshaw *et al.*) but are often difficult to separate from the succeeding Mapungubwe Oblate series. Davison (1972) excluded all black beads from her TWBCG since she found them to be unrelated chemically, evidently all the black beads she chose for analysis came from the Mapungubwe Oblate group. She included, however, large multiple wound blue-green beads, which are excluded here.

Indo-Pacific beads begin to arrive in the Shashe-Limpopo region at about the same time as the K2 series, but not all colours appear simultaneously. Yellow and green seem to be the first to arrive and are found at Schroda and Pont Drift. Brownish red beads appear next and probably postdate Schroda since none are found there. Black beads are rare in pre-Mapungubwe contexts but do occur and, as has been stated above, can be chemically related to other Indo-Pacific glass. Some of the blue-green beads from these sites are possibly Indo-Pacific in origin, but this is difficult to determine by visual inspection alone. We must await the results of ongoing chemical analyses. Light orange (amber coloured) beads, which appear occasionally, are related to Indo-Pacific yellows, they simply contain higher levels of pigments.

Indo-Pacific beads are the most abundant and widest traded glass beads in the pre-modern world; their trade spanned over two thousand years beginning in about the 2nd century BC and ending in the 17th century (Francis 2002). They are found in post-Zhizo assemblages throughout southern Africa and from even earlier contexts in East Africa. They were traded long after the introduction of European beads by western traders because African consumers preferred them to the ‘new’ varieties. As Theal (1898:303) reported, Portuguese traders were obliged to purchase them at Negapatam

[Negapattinam] on the southeast coast of India because European beads were not acceptable to local inhabitants. Eventually European bead makers produced copies of the older types.

5.4 MAPUNGUBWE OBLATES

The Mapungubwe Oblate series (Plate 5) is characterized by small, drawn oblate beads that can be so uniform there is no doubt the shapes were intentionally formed. Opaque black is the most popular colour. Other colours range from translucent to opaque-translucent and include blue-green, light green, yellow and orange. This group makes up Davison's Mapungubwe Oblate Chemical Group I, but two other bead types are included in my Mapungubwe Oblate series since they appear exclusively in the same contexts. They are transparent to translucent-transparent cobalt blue and a purplish to brownish colour that is commonly referred to as plum.

Even though oblates are the characteristic shape of this series, all colours also appear in cylindrical and even tubular form, always with reheated ends.

Table 5.2 lists the Munsell numbers for the various colours. The two numbers for each colour are those most frequently found but other similar numbers exist as well. Like all early glass, colour is not standardized and can vary even within one glass batch depending on the size of the bead.

Table 5.2: Munsell ranges for Mapungubwe Oblate series beads

Colour	b-g	green	yellow	orange	cobalt	plum
Muns. #	5BG 5/4	10G 6/4	5Y 8/8	10YR 6/8	5PB 3/6	10R 2/4
to	2.5B 6/4	5GY 5/6	7.5Y 7/8	5YR 4/6	7.5PB 3/8	5R 3/6

Sizes of Mapungubwe Oblate series beads are almost all small or minute.

The glass used to make these beads is good quality without large bubbles. They usually have a satiny, shiny lustre. Generally they are not prone to corrosion with the exception of some black beads. There must be a chemical, or combination of chemicals, in the black glass (possibly involving the high levels of iron used to produce the colour) that promotes devitrification. Initially the bead surface takes on a somewhat golden, crazed appearance, but the black glass can be seen if the crust is scraped away. Eventually the entire bead will change to this crazed, clearish/goldish fabric, and no black will remain (Plates 5E & 6E) Interestingly, this tendency to devitrify does not carry over to black beads from other pre-European bead series (which are also coloured with iron).

Chemically, Mapungubwe Oblate beads are distinct from the K2 and Indo-Pacific series, although they all are soda-lime glasses. Mapungubwe Oblates form Robertshaw's Type B category, differing from the others in having been made using plant ash rather than mineral soda for the alkali; they also contain lower levels of aluminium (Robertshaw *et al.* 2003). Davison found them distinct as well, noting they characteristically contain less than 1ppm of uranium, whereas her M1 series (my K2) averaged 34 ± 27ppm and her TWBCG (my Indo-Pacific) averaged 112 ± 55ppm (Davison 1972, 1979). Chemical analyses currently underway reconfirm these uranium levels for the Mapungubwe Oblate series as well as the disparity between it and the others.

Mapungubwe Oblate series beads are found in enormous quantities at Mapungubwe, as well as at Mapungubwe period sites in the Shashe-Limpopo area including Skutwater. In Botswana they are found in small numbers at Bosutswe (Robertshaw *et al.* 2003) and in unknown numbers at Mmamagwe. They occur in Zimbabwe at many sites of the period, including:

- Mapela (Garlake 1968)
- Woolandale (Robinson 1966)
- Ntaba Zika Mambo (Robinson 1966)
- Great Zimbabwe phase III (Robinson 1961)
- Runyani Ruin
- Mtetengwe (Robinson 1958)
- Nebraska Ranch (ibid.)
- Khami (early levels) (Garlake 1968)

Only small numbers have been identified at East Coast sites, including Kaole (Wood 2002a) and Mahilaka. Other possible examples I have seen come from Shanga (Horton 1996) and Chwaka (La Violette & Fleisher 1995; 2000; Fleisher 2003).

5.5 ZIMBABWE PERIOD

Although beads from this period are not found in the area under study, I outline a few of their characteristics to provide a more complete regional picture. It must be understood, however, that I am working with a small sample of beads from Great Zimbabwe. They were sent to Van Riet Lowe in 1944 by the Queen Victoria Museum in Zimbabwe and came from Render's Ruins at Great Zimbabwe. They undoubtedly do not incorporate all types present at the site. I will compare them to beads from Skeleton 10 - the 'Sceptre burial' - on Mapungubwe Hill.

The Mapungubwe Oblate series appeared at Great Zimbabwe, possibly about the same time as at Mapungubwe, and probably continued there for some time after

Mapungubwe was abandoned. Well before Great Zimbabwe was abandoned, however, oblates were replaced by another series (Plate 5F) that superficially looks much the same. The basic colour pallet of black, blue-green, green, yellow, orange and cobalt blue continued, but subtle differences indicate some manufacturing changes[1]. In general the beads are slightly larger than Mapungubwe Oblates (this may be related to the samples), but lengths of the Zimbabwe beads are two to three times longer, resulting in fewer oblates and more cylinders and tubes. The glass is generally more transparent, but the surface is a bit less shiny. Colours have changed slightly for most groups and a few new ones have been added. Table 5.3 outlines the differences. The Munsell numbers represent ranges and include colours in between.

Table 5.3: Differences between beads from Mapungubwe and Great Zimbabwe

Colour	Mapungubwe Oblate series	Great Zimbabwe beads
blue-green	10G 6/4, 5BG 5/4 to 2.5B 6/4. Translucent-opaque to opaque-translucent.	5BG 5/4, 5G 5/4 to 7.5BG 5/4. Translucent-transparent to opaque-translucent.
green	5GY 5/6. Translucent-opaque.	10G 4/4 to 2.5G 4/4. Transparent.
greyish-green	Nothing equivalent.	5GY 6/2. Translucent – almost colourless.
yellow	7.5Y 7/8 to 5Y 7/8. Translucent-opaque to opaque-translucent	5Y 6/8 to 7.5Y 7/8. Transparent-translucent to translucent-opaque
orange	10YR 6/8 to 7.5YR 5/10. Opaque-translucent.	10YR 6/8 to 10YR 5/6. Opaque-translucent.
cobalt blue	7.5PB 2/10, 7.5PB 3/8 to 5PB 3/6. Transparent	5PB 3/6 to 5PB 2/6. Transparent to transparent-translucent.

For those without access to Munsell chips, the general differences between the colours are:

- Blue-greens are much the same but the Zimbabwe group are greener and do not include light turquoise 2.5B 6/4.

[1] Ongoing chemical analysis, however, shows this glass is a variation of that used to produce Mapungubwe Oblates (Robertshaw pers. comm.).

- Greens are very different – the Mapungubwe ones are yellow-green while the Zimbabwe ones are rather emerald green.
- Greyish-green does not exist in the Mapungubwe Oblate series.
- Zimbabwe yellows are greener and duller.
- Oranges are similar, but the Zimbabwe types tend to be duller.
- Zimbabwe cobalt blues appear slightly duller and darker.

A small number of tiny plum and cobalt beads accompanied this collection from Zimbabwe with a note attached saying, “some freaks”; they are stragglers from the Mapungubwe Oblate series.

Apart from sites in Zimbabwe, these beads are found at sites in Botswana that have levels dating to the Zimbabwe period, such as Bosutswe and Tora Nju.

5.6 KHAMI PERIOD BEADS

After the abandonment of Mapungubwe and much of the Shashe-Limpopo region at the end of the 14th century, glass beads are not found until Khami people enter the area toward the beginning of the 15th century. Indo-Pacific beads return with them and are represented in this study by the assemblage from Faure and Kolope. These beads (Plate 4E) differ in many ways from the earlier ones:

- sizes tend to be larger (although small sizes continue)
- yellows (2.5Y 7/6 to 5Y 7/8) tend toward the orange spectrum
- blue-green (5B 5/4 to 5BG 5/4) glass is more opaque – ranging from translucent-opaque to opaque-translucent
- deep blue (7.5PB 3/8 to 2.5PB 5/4) opaque-translucent beads appear
- off-white (5Y 9/1 to 5Y 8/2) translucent-opaque beads appear

The presence of the deep blue and off-white beads makes it easy to distinguish Khami-period Indo-Pacific beads from earlier ones. Greens range from 2/5G 4/4 to 10GY 6/4 and oranges fall in the range of 10YR 6/8. Indo-Pacific beads from this period, roughly AD 1450 to the 17th century, are found in vast numbers at coastal sites and are present at many sites in Zimbabwe, Botswana and the Shashe-Limpopo region.

5.7 OTHERS

Although it would be possible to use the term ‘Trade Wind’ to encompass all of the remaining beads in the Indian Ocean network, it is probably not advisable. First, it would lead to confusion since the new definition would not match Van der Sleen’s or Davison’s. Second, the remaining bead types are diverse and relationships between them in terms of chemistry or origin have not been demonstrated.

5.6.1 POSSIBLE MIDDLE EASTERN ISLAMIC BEADS

A few large decorated beads from Mapungubwe Hill are possibly Middle Eastern Islamic products. The first, illustrated as Plate D no. 12 in Fouché (1937) (my Plate 1A), is a fragment of a roughly spherical black bead with six thin white rings that have been combed to form a scalloped pattern around the body. It reportedly came from the Grave Area but is now missing.

The second and third decorated beads were illustrated in Van Riet Lowe (1955:8) (Plate 1B). ‘A’ (Plate 6Ab) came from the Gold Grave area, while ‘B’ (Plate 6Ad) was found at bedrock near grave No. 14, which contained considerable quantities of gold ornaments and many glass beads. The Director of the Museum of Arab Art in Cairo identified them as “typical pre-thirteenth century products of Arab-Egyptian glass works” (see section 3.1.2). This information helped form Van Riet Lowe’s opinion that many of the Greefswald glass beads originated in Egypt during the pre-13^{th} century Arab period. Although probably accurate for these decorated beads, the hundreds of thousands of small monochrome glass beads that make up the Greefswald assemblage were not represented in the Cairo assemblage.

5.6.2 POSSIBLE INDIAN SUBCONTINENT BEADS

The only other large imported beads found in the Shashe-Limpopo region are multiple-wound opaque blue-green types. One, which is roughly biconal in shape (13.7 x 8 mm) (Plate 6Ac and 6B), was found in the same Gold Grave area as decorated bead 'A'. This type of bead is common on the East Coast but rare in southern Africa. The other examples are roughly oblate to spherical in shape and measure in the range of 11.5 x 8 mm. One was found on Mapungubwe Hill near the bicone just mentioned; another came from Skeleton 31 at K2 (Plate 6B). The remaining examples of this bead type (Plate 6E to G) all came from a single, recently excavated burial at K2 (Steyn *et al.* 1999).

Results from ongoing chemical analysis (Robertshaw *et al.*) point to a close association between these wound beads and Mapungubwe Oblate series glass; the only anomaly being the wound beads contain higher levels of aluminium. But the observation that all of these wound beads in the Shashe-Limpopo region come from the Mapungubwe period adds weight to a possible link with the Oblate series manufacturers. One such bead was excavated at Great Zimbabwe, it appears as 4H on the frontispiece of Caton-Thompson's (1931) book. Another comes from Level 8 at Bosutswe, it is more crudely shaped than the others but chemically it fits (interestingly it's aluminium levels are not elevated).

5.6.3 CHINESE BEADS

A very few beads from eastern African contexts are probably Chinese in origin. None have been found in the Shashe-Limpopo region, but as a type they are distinctive and worth mentioning. They are wound and are small compared to most other wound types (2.6 to 5mm diameter). The glass is translucent and usually contains largish bubbles. To date, only ruby red and amber examples have been identified. Chittick (1974b) found a hoard of 30 red ones at Husuni Kubwa (Plate 6C), an early Period IIIa (late 13th to beginning of the 15th century) palace at Kilwa. I have identified one amber-coloured specimen (Plate 6D) from Kaole (Wood 2002a:55) and three red from Shaka. Chemically they are characterized by very high levels of lead – all those above that have been tested contain lead levels between 42.5 and 52.3 per cent (ongoing analysis Robertshaw *et al.*).

5.8 USES OF GLASS BEADS

It is possible to reconstruct some ways glass beads were used by the Shashe-Limpopo population. Archaeologists have recorded finding beads (which were presumably originally strung) encircling necks, waists, pelvises, arms and ankles of skeletons. Some accounts are fairly specific. Gardner (1963:50) describes a necklace found on a young child as being made of small blue-green 'cane' beads with a light green Garden Roller at the centre. Achatina discs flanked the Garden Roller so the small beads wouldn't enter its perforation. Another report describes large numbers of blue-green 'canes' "at the neck having been threaded in ropes of three" (ibid.:45). Two accounts - one of a royal burial on Mapungubwe Hill (Fouché 1937:126), the other of a burial at Skutwater (Van Ewyk 1987:91) (Plate 10) – report finding what were possibly beadwork panels in the pelvic region of skeletons. There is even one account

(Schofield 1958:206) of tiny blue beads strung into the hair of an infant at Mapungubwe, but no information is provided as to whether or not hair was actually found so it is possible the beads were part of a headband. Beads were sometimes worked into metal adornments. The beautifully made fragment of what was probably a coiled wire and bead necklace was found at Bosutswe (Fig. 5.1), and several metal earrings with beads attached have been found. Gardner (1963:7) reports an unusual use: a 'well-baked' pottery hippo with eyes made of green beads.

Fig. 5. 1: Necklace fragment from Bosutswe (courtesy J. Denbow)

Beads have been used in complicated and symbolic ways in many cultures, including Bantu-speaking ones, but finding archaeological evidence to support such use is difficult. They may be viewed as possessing magical powers and used to maintain health or ward off evil (Broster 1967:20). They are used in rituals and ceremonies, particularly those involving life passages such as initiation and marriage. Wearing beads goes beyond mere self-adornment, they can be markers of age group, clan or class identity(Mertons & Broster 1973; Mertons & Schoeman 1975).

In the Shashe-Limpopo region glass beads played an even more important role. The elite were able to first establish and then reinforce hierarchical relations within their ranks and between themselves and commoners by controlling access to and redistribution of the beads (and surely other exotic goods such as textiles). Some possible ways this may have been accomplished include dispersing beads to create and secure alliances, to create obligations that can never be repaid, to win favour or to increase the prestige of the donor. On a more practical level, beads could have been used to pay for services rendered or even given in friendship.

CHAPTER 6: SCHRODA

6.1 THE SITE

Schroda (29.25.45E and 22.11.0S) sits on a rocky plateau overlooking the Limpopo River about seven kilometres downstream from the Shashe/Limpopo confluence. Dating from about AD 900 to 1020 (Vogel 2000), it is the first recorded site south of the Limpopo containing Zhizo ceramics (Hanisch 1980), up to then found mainly in Zimbabwe (Huffman 1974). It can arguably be called the first capital in this region. It was also the first site in present-day South Africa to have actively traded with the east coast and the Indian Ocean trade network. Glass beads are the principal evidence of the trade.

Hanisch (1980; 1981; 2002; Hanisch & Maumela 2002) excavated Schroda between 1973 and 1982. The site measures 500 x 300 m, and six different areas were trenched. The depth of deposit varied considerably, and Hanisch determined there were no distinguishing features that would permit levels from different areas to be correlated. Furthermore, he thought it unlikely that the entire site was occupied at one time, so the basal level in one area might not match that of another.

Areas 4, 5 and 6 produced large amounts of cultural material, especially bone and ceramics, while Areas 1, 2 and 3 contained little considering the amount of deposit excavated. [Note: since some beads are now missing, the numbers given in this section indicate what Hanisch reported].

6.1.1 AREAS 1-5

Area 1 consisted of a 1 x 4 m trench divided into two 1 x 2 m squares (A1 & B1). There were five levels covering a depth of 50 cm. It produced little cultural material and only 21 glass beads.

Area 2, with fourteen 2 x 2 m squares, was also divided into five levels for 54 cm of deposit. Little cultural material was recovered but two graves were found: one adult and one child. The child had strings of achatina shell beads around its neck and waist but no glass beads. Sixty-four glass beads were found in Area 2 as well as half a Garden Roller mould in square A1 layer 2.

The deposit in **Area 3**, from a 2 x 9 m trench, averaged 75 cm in depth but was affected by rodent disturbances and contained little cultural material. Eighteen glass beads were recovered.

Area 4 was the shallowest deposit, with a maximum of 15 to 40 cm, and was divided into three levels. The 4x12 m trench was separated into three 4 x 4 m squares. The entire area was heavily eroded. Hanisch interpreted it as a midden: it contained a large amount of cultural material, including 81 glass beads and half a Garden Roller mould in B1 level 1.

Area 5 also produced a large amount of cultural material from the 30 m long trench. It was divided into 3 x 3 m squares and included depths up to 120 cm, separated into 12 levels. An extra square was added beside F1 when remains of a hut floor were discovered. A complete Garden Roller bead was found in level 3 of square C1 and 401 glass beads in the entire area. Unfortunately, these beads could not be located and were not reported in Saitowitz (1996). Hanisch (1980:368) gives the following breakdown of Area 5 glass beads (Table 6.1):

Table 6.1: Schroda Area 5 glass beads from Hanisch

Level	# Glass beads
1	9
2	7
3	78
4	74
5	54
6	40
7	45
8	19
9	15
10	16
11	4
12	40

These data suggest that glass beads were present at Schroda from its earliest dates. The surprisingly large number in the deepest layer, however, may indicate beads were filtering down through the deposit. The rest of the sequence progresses as one might expect, with larger numbers as one moves upward. However, the top two levels, which were probably overburden, show a sudden drop.

6.1.2 AREA 6

Hanisch (1980) does not report on beads from Area 6 since he considered the data incomplete due to bioturbation. This study, however, includes data from the 488 glass beads found there, many of which were excavated after Hanisch had completed his dissertation. Saitowitz (1996) reported on the same set of beads discussed here, but numbers will vary since some beads she included are now missing.

Area 6 is the most interesting of the site. A 23 m long curved row of closely spaced charred posts divided the area into two. This palisade had a central gap and paved floor indicating a doorway. Ceramic figures were found on either side of this partition and varied in character. On the northeast side they were mainly large figures representing “wild animals, stylized birds, semi-human and stylized human forms” (Hanisch 2002:28-9), along with large phallic objects and a few domestic animals. On the southwest side were small figures that could mostly be identified as domestic animals – cattle, sheep, goats and possibly dogs – along with small phallic and other objects. Because of these figurines, the area has been interpreted as an initiation venue (Huffman 2000; Hanisch 2002; Van Schalkwyk 2002).

I thought it might prove informative to examine the glass beads found on both sides of the palisade, to see if they differed significantly. There was some difference in gross numbers: 59.2% came from the southwest while 40.8% were from the northeast section. Colour profiles do not differ much, but the southwest zone contained one Garden Roller (in level 3) plus two fragments (in level 1), while the northeast housed only one fragment (in level 2). The overall numbers of Garden Rollers are so small, however, that this may not be significant. In sum there seems to be little difference between the two sides except the southwest section contained 20% more beads.

6.2 THE BEADS

Schroda's glass beads can be divided into three series: Zhizo, K2 and Indo-Pacific.[2] The Zhizo types are the oldest but often appear to be mixed in with the later K2 and Indo-Pacific beads.

6.2.1 BURIAL BEADS

Twenty-nine blue-green beads were found in the burial in Area 6 Square 4F Layer 4.1 (Plate 7A). They are all small: 24 are cylinders and 5 tubular; 28 are short and 1 standard. These beads are an unusual type that is seen mainly at Schroda. Most have been reheated but a few may be untreated. The glass is more opaque than most K2 or Zhizo glass and seems to corrode more easily than that used for the K2 series. Zhizo glass is also prone to corrosion but does not look like this glass. I am not sure where to place them, but there are a number of them in the non-burial deposits at Schroda so they seem to be related to Schroda temporally.

6.2.2 NON-BURIAL BEADS

Of the 599 non-burial glass beads, four are moulded Garden Rollers from Area 6 (Hanisch reported another from Area 5). One of these is complete (but broken) and barrel shaped (Plate 7B), two are fragments too small to determine shape and the fourth is slightly less than half its original size but is highly unusual in that it is fluted (Plate 3I).

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[2] One blue annular bead was found in Area 6 (square and level data are missing) but is a Venda period intrusion so is not included in this analysis.

Drawn beads have been classified based on colour, shape, end treatment and size. [Note: total numbers of beads may vary between these results since some parameters could not be measured in some samples].

Of the 588 beads whose **shape** could be discerned, 410 (69.7%) are tubular, 157 (26.7%) cylindrical and 21 (3.6%) oblate. All oblates would have been the fortuitous result of the reheating process rather than intentional. A breakdown of shapes by bead series is given in Table 6.2. As is evident from these data, Zhizo beads are overwhelmingly tubular, K2 are mixed and Indo-Pacific are mainly cylindrical.

Table 6.2. Shapes of Schroda drawn non-burial beads by series

Series	Zhizo	K2	Indo-Pacific	Unknown
Tubular	305	36	16	53
Cylindrical	30	38	71	18
Oblate	2	7	9	3
Totals	337	81	96	74

Overall figures for diameter **size** ranges and **length ratios** are presented in Table 6.3.

Table 6.3: Schroda diameter size ranges and length ratios for drawn non-burial beads

size range	minute	small	medium	large	unknown
	72	292	212	16	3
length ratio	disc	short	standard	long	unknown
	4	281	287	17	6

Schroda beads appear in a limited range of **colours**: blue, yellow, green and blue-green (Plate 7B). Three black beads were found as well in Area 6 but may be later intrusions. This interpretation is strengthened by the fact that no brownish red beads were found at Schroda. All of Schroda's blue beads are easily categorized as Zhizo, since this colour does not exist in the K2 or Indo-Pacific series. Yellow, green and blue-green are more difficult to place because these colours were also popular in the other series: yellow and green in the Indo-Pacific series and blue-green in the K2 series. Figure 6.1 shows colour groups by percentages based on a total of 599 beads.

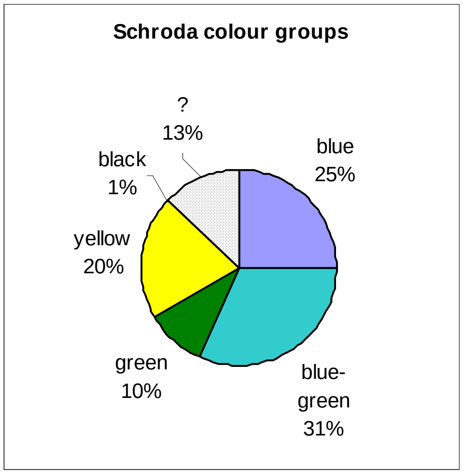

Fig. 6.1: Schroda colour groups as percentages

To add meaning to these figures, I have further categorized them by **end treatment**. Zhizo series beads are almost entirely untreated, while almost all other beads in this study are reheated. Dividing Schroda's drawn beads based on end treatment - 69% are untreated and 31% are reheated - will demonstrate how the Zhizo series differs measurably from the K2 and Indo-Pacific series.

As can be seen in Figure 6.2 almost all blue beads are untreated. Blue-greens can generally be separated into Zhizo or K2 series based on end treatment. Untreated yellows and greens are all Zhizo because Indo-Pacific series beads are almost all reheated. It is not surprising that the majority of beads whose colour cannot be determined are untreated and therefore likely to be Zhizo. The glass used to make Zhizo beads is less stable than the other glasses and is more frequently heavily corroded. In addition, many of the reheated 'unknown' beads are the type found in the burial from Area 6 (Plate 7A) and may be Zhizo series as well.

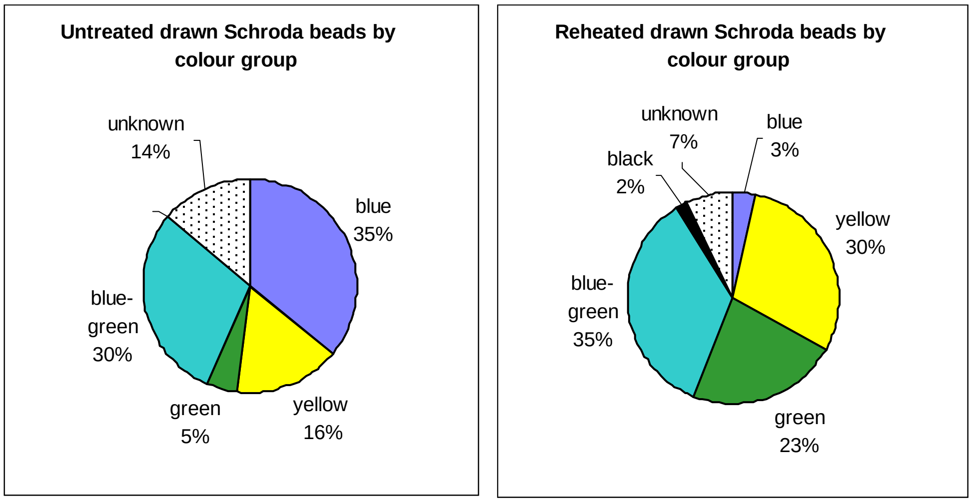

Fig. 6.2: Schroda colour groups of non-burial drawn beads by end treatment

Table 6. 4: Schroda: colour groups of non-burial drawn beads by end treatment

end treatment	untreated	reheated	total
blue	143	6	149
yellow	64	54	118
green	18	42	60
blue-green	119	64	183
black	0	3	3
unknown	55	14	69
total	399	183	582

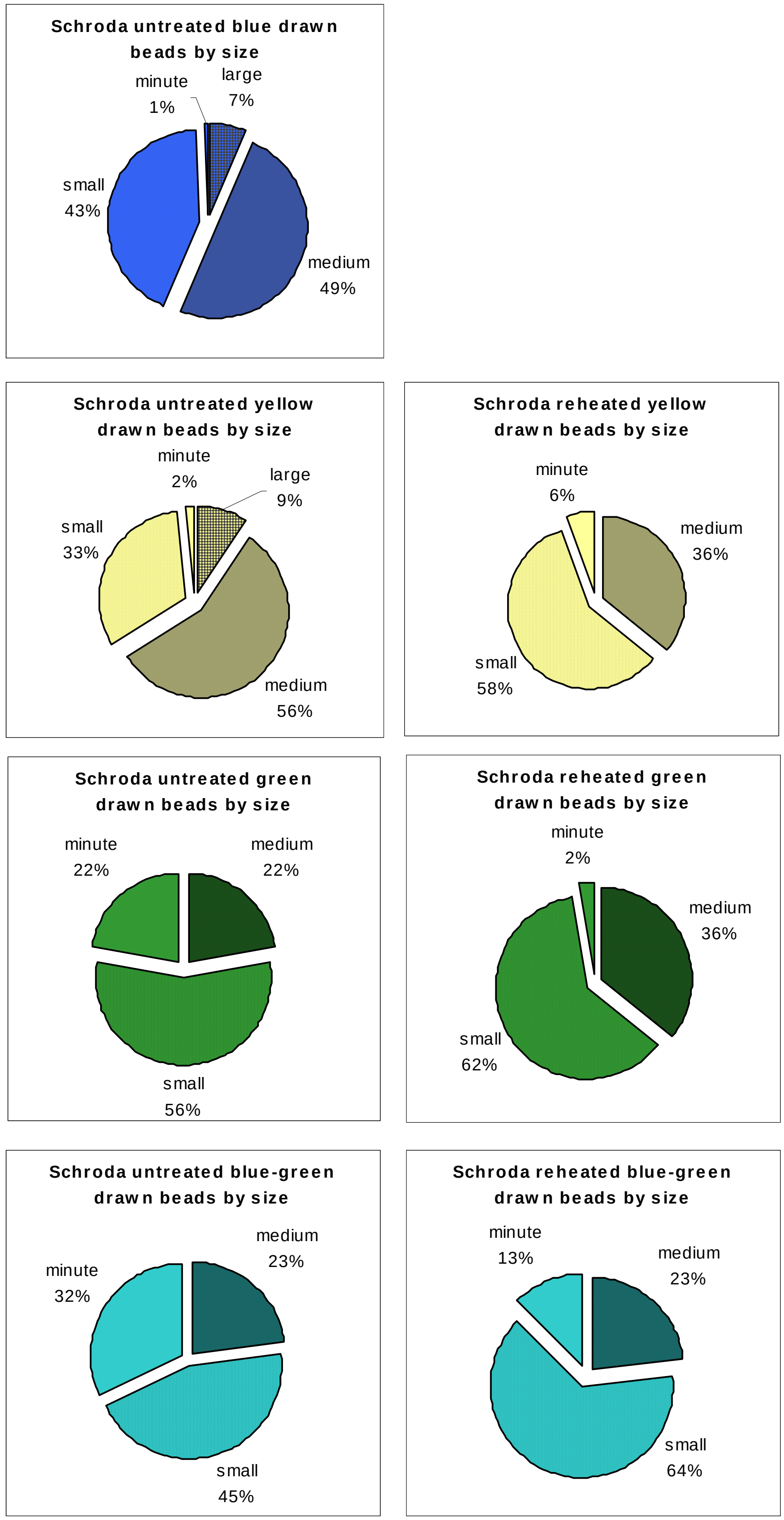

Fig. 6.3: Schroda colour groups by end treatment/size range

Variations in sizes of reheated as opposed to untreated beads (Figure 6.3), shows an obvious pattern linking the blue and untreated yellow groups, which are both Zhizo. Green and yellow reheated beads are also similar, and both are part of the Indo-Pacific series. The blue-green K2 series reheated beads are measurably smaller than their Indo-Pacific counterparts.

Although untreated green and blue-green beads belong to the Zhizo series, they do not fit the size profile represented by blue and untreated yellow; they are significantly smaller, a characteristic I have noted from other assemblages. Of the 44 untreated minute beads found at Schroda whose colour could be determined, 86% are blue-green and 9% are green. All large beads are either Zhizo series blue or yellow, and all but one are untreated.

If length ratios are treated in the same manner, clear patterns emerge again. Figure 6.4 shows that, except for the greens, Zhizo beads are longer than the other series with standard beads making up 50% or more. Over 60% of Indo-Pacific and K2 series bead lengths are short.

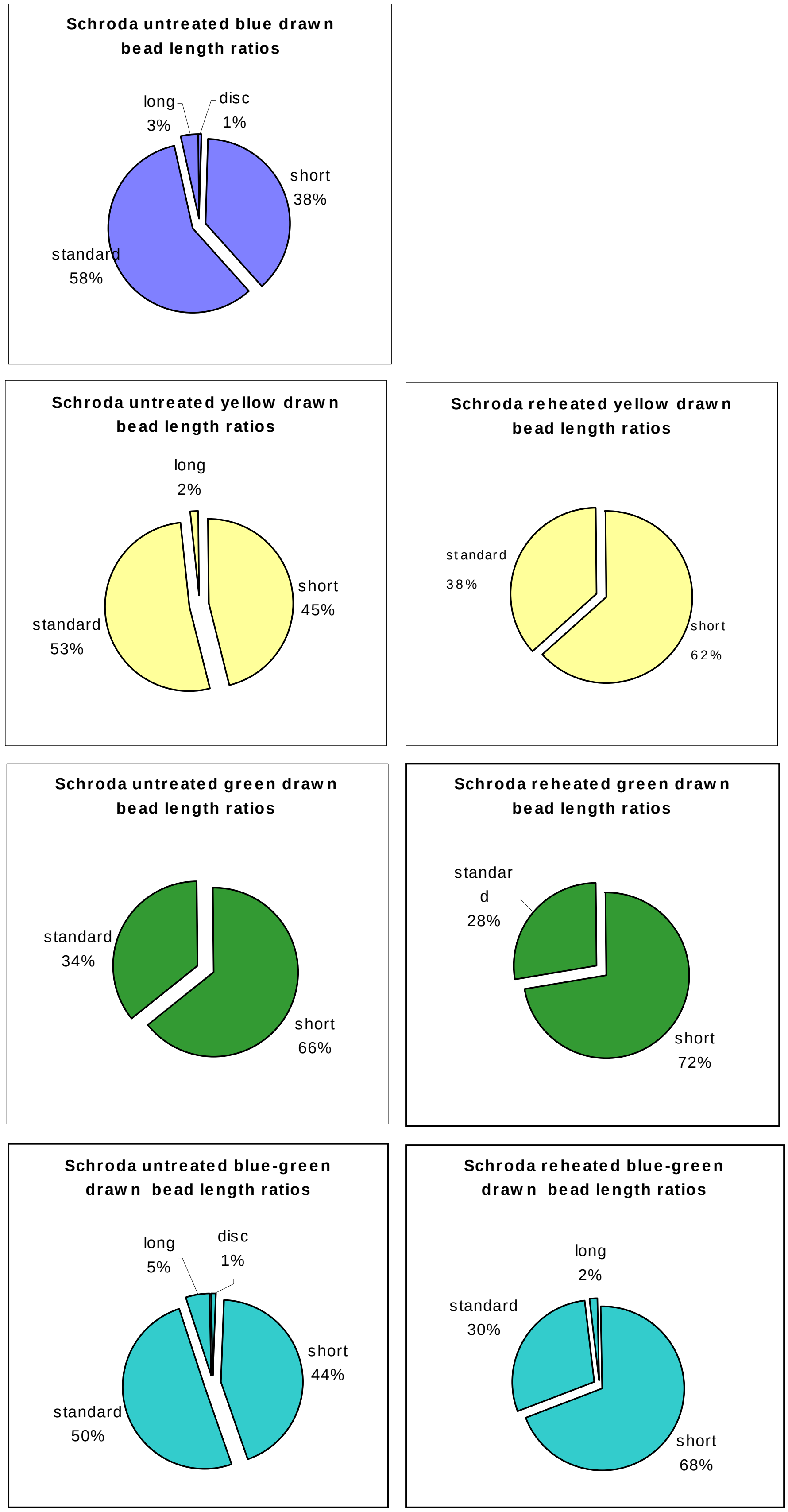

Fig. 6.4: Schroda length ratios by end treatment and colour group

These analyses demonstrate it is possible to distinguish bead series based on combinations of size, length ratios, end treatment and colours. The criterion to use for such examination will vary, however, depending on the characteristics of each series. For example, dividing two or more series based on end treatment will yield meaningful results only if untreated ends characterize one of the series.

6.2.3 BEAD SERIES BY LEVEL

One would have hoped to find a change in bead types through the stratigraphic levels at Schroda, based on the assumption that the lower levels should have contained more Zhizo type beads with the upper levels having higher concentrations of K2/Indo-Pacific types. Unfortunately, there does not seem to be a distinctive pattern in bead types between the different levels. I have examined them area-by-area since levels between areas do not match. Table 6.5 displays by level all of the beads based on series. Area 1 has twice the number of K2/Indo-Pacific beads compared to Zhizo ones, but consist of only 10 beads so is of limited value. The lower levels of Area 2 are solidly Zhizo mixed with beads whose series are difficult to determine. The top two levels are divided evenly between K2/Indo-Pacific and Zhizo, 54 beads are involved. With only 2 K2/Indo-Pacific beads out of 14, Area 3 is decidedly Zhizo but again the sample is small. All levels in Area 4 are firmly Zhizo, and with 58 beads the results are more solid. Area 6 results, based on 443 beads, show Zhizo beads are slightly more numerous than K2/Indo-Pacific in all levels. Overall, Zhizo beads make up 52% of Area 6, K2/Indo-Pacific form 34% and the remaining 14% is indeterminate.

Table 6.5: Schroda glass beads by area, level and bead series

AREA	LEVEL	Zhizo	K2	Indo-Pac	?	% Zhizo	% K2/I-P	% ?
1	1	1	1	3	1	17%	66%	17%
1	2	1	1	1		33%	66%	
1	3	1				100%		
2	1	3	2	1		50%	50%	
2	2	1	1			50%	50%	
2	3	10			7	59%		41%
2	4	2			4	33%		66%
2	5	12			11	52%		48%
3	1	5				100%		
3	3	2	1	1	1	40%	40%	20%
3	4	1				100%		
3	6	3				100%		
4	1	18	3	1	4	69%	15%	15%
4	2	13	2	3		72%	28%	
4	3	8				100%		
4	test	7				100%		
6	1	99	25	26	10	62%	32%	6%
6	2	49	17	26	11	48%	41%	11%
6	3	38	12	12	14	50%	32%	18%
6	4	23	3	12	3	56%	37%	7%
6	5	30	10	4	6	60%	28%	12%
6	6	4	2	1	2	44%	33%	22%

How can these mixed results be explained? Area 1 has too few beads to interpret. It is possible that Areas 2, 3 and 4, with their high proportions of Zhizo beads, were among the earliest inhabited parts of the site when fewer (and mainly Zhizo) beads were being imported. Alternatively, they were less prestigious zones and had limited access to glass beads, especially the newer and perhaps more fashionable varieties.

Area 6 is more complex. Even though bioturbation has severely affected the stratigraphy, bead numbers increase from the lower levels to the upper ones (Table

6.6) as might be expected if trade in exotic goods increased over time. Percentages by series in each layer, however, do not show a shift from earlier Zhizo types to K2/Indo-Pacific types over time; Zhizo beads randomly make up between 44% and 62% of each layer. This mixing of older, no longer imported, Zhizo beads with later varieties could simply be the result of bioturbation, but may as well indicate that Zhizo beads were curated up to the abandonment of the site.

Table 6.6: Schroda Area 6 - # glass beads by level

Level	# beads
1	160
2	103
3	76
4	41
5	50
6	9

CHAPTER 7: PONT DRIFT

7.1 THE SITE

The site Pont Drift (29.9.3.E 22.13.52S) sits on a raised valley in a sandstone ridge about 1.5 km south of the Limpopo River and 23 km west of K2. It was excavated by Hanisch (1980) but, unlike Schroda, excavations were confined to one area of the site[3] and comprised eight and one half 2 x 2 m squares. The depth of the deposit, however, was greater than Schroda's, varying from 1.8 to 2.2 m. This was divided into sixteen levels grouped into four units. Hanisch determined that Unit 4, the basal unit, represented a pure Zhizo phase, the uppermost, Unit 1, was pure Leopard's Kopje and the two intervening units were a mixture between the two phases. Huffman (2000) re-examined the ceramics and concluded that Unit 2 was K2, while Unit 3 was dung deposit from a kraal and contained mixed material. Table 7.1 illustrates how the layers were divided into units and provides associated dates.

Table 7.1: Pont Drift units, layers & dates (Hanisch 1980; Huffman 2000; Vogel 2000)

Unit	Layer	Affiliation	Sample layer	Age BP	Cal. AD	Lab. No.
1	1-4	K2	4	840±50	1200-1270	Pta-1818
2	5-8i	K2				
3	9-12	Kraal dung				
4	13-16	Zhizo	14	1140±50	890-1000	Pta-1959

[3] Hanisch conducted small excavations in three other areas around Pont Drift: TPD1/1, TPD1/3 and TPD1/4. A few glass beads were found in TPD1/1 but are not included in this analysis.

7.2 THE BEADS

Hanisch (1980) gives details of 625 glass beads. Another 64 were recovered in a child's burial in square 2B layer 5.1 (Plate 7C)[4], but he did not include them since they originated from a higher unknown level. They comprised 61 blue-green, 2 brownish red and 1 yellow bead, totally consistent with the layers above the burial.

Ideally, my analysis would compare beads from each unit and possibly each level but, because many are missing and some mislabelled, this is impossible. All is not lost, however, in that it is possible to work with Hanisch's data and the beads that remain, even though their placement in the excavation is compromised.

Of the glass beads presently in the collection, 9 are **moulded Garden Rollers** (there were originally 16). All the Garden Rollers were found in units 2 and 3 (the older K2 unit and the dung). Hanisch notes that 9 Garden Rollers were found in level 7 and 4 in level 6. The other 3 were from levels 5, 11 and 13. The vast majority of blue-green beads came from the same levels as the bulk of Garden Rollers: level 6 yielded 99, and 280 were recovered from level 7 (Plate 7D) (ibid.:283). Garden Rollers are completely absent from Unit 1 so were perhaps no longer in vogue, although the blue-green beads they were made from are still evident. No Garden Roller moulds were found at Pont Drift, but this could be a function of the restricted size of the excavation.

[4] As will be evident from the illustration, there are now far more beads in this layer. Obviously beads from other locations have been mixed in.

Of the 558 **drawn** beads still in the collection, one – a translucent red-on-white-core cylinder – is a modern European intrusion and will be left out of the analysis.[5]

A **colour** profile of Pont Drift's drawn beads (Fig. 7.1) shows that fully 83% are blue-green. Green and brownish red are the next most popular.

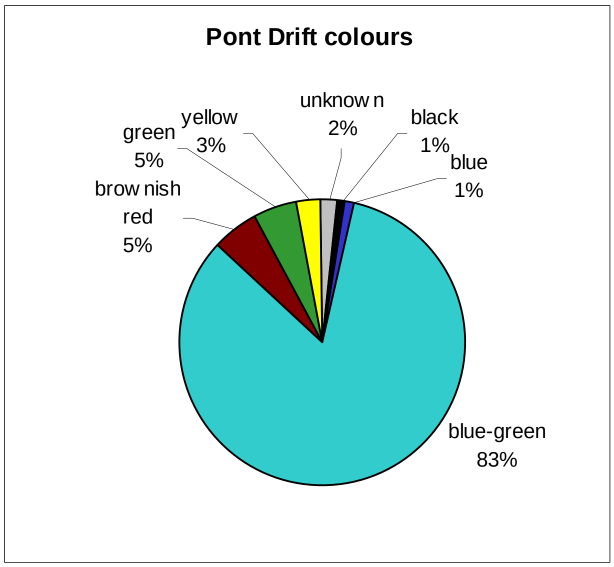

Fig. 7.1: Pont Drift drawn bead colours (after Hanisch 1980:283)

Hanisch's figures (ibid.) show that blue-green was by far the most popular colour through all units (Table 7.2). Other interesting trends are evident in these data. Black beads are found only in the upper unit and in small numbers. Brownish reds appear in small numbers in units 3 and 2 and only become significant in Unit 1. Yellow and blue appear in small numbers in each unit but are only significant in the lower units.

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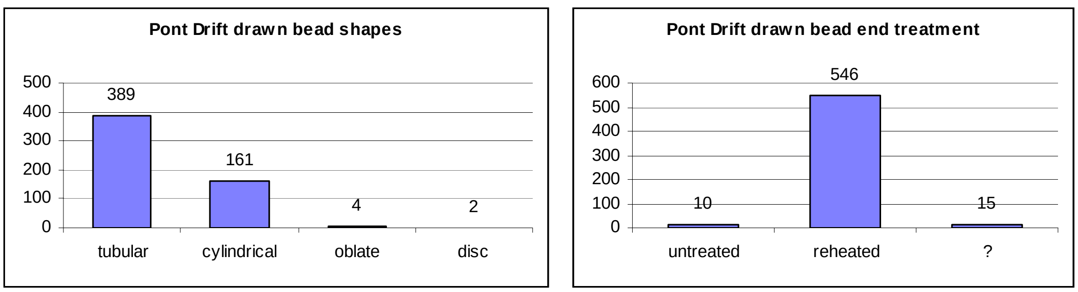
[5] Saitowitz (1996) indicates it came from Square 2A level 4.

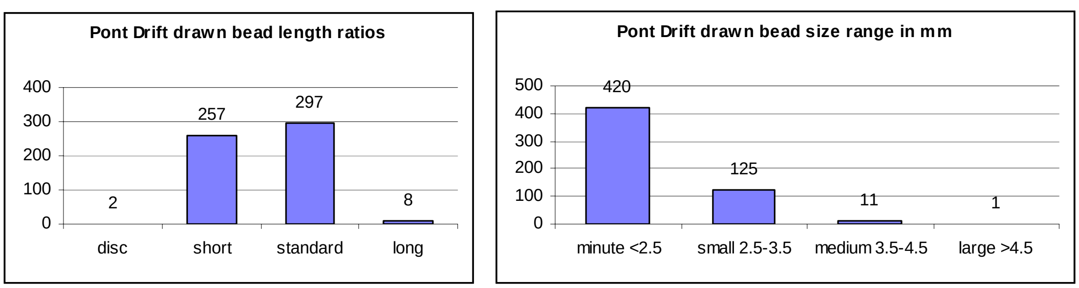
Table 7.2. Pont Drift percentage of colours by unit after Hanisch (1980:283)

Unit	blue-green	blue	green	black	brownish red	yellow	?	total
1	57%	<1%	4%	5%	23%	<1%	7%	115
2	93%	<0.3%	4%		<1%	1.5%	<1%	457
3	51%	8%	18%		2.5%	18%	2.5%	39
4	64%	7%	7%			21%		14

Of the drawn beads remaining in the assemblage, **shapes**, **end treatment**, **size ranges**, and **length ratios** can be seen in the following figures:



Figs. 7.2 a & b: Pont Drift drawn bead shapes and end treatment - data from current assemblage



Figs. 7.3 a & b: Pont Drift drawn bead lengths and size ranges - data from current assemblage

Most beads are tubular and reheated. Minute sizes predominate, and length ratios fall between short and standard.

7.3 DISCUSSION

Even though the Pont Drift assemblage has been significantly compromised, there are a number of things we can learn from the beads themselves and Hanisch's data. The vast majority form part of the K2 series (transparent to translucent blue-green beads). Their presence and preponderance in even the deepest unit suggests these beads made an early entrance into the Shashe-Limpopo region, probably before the Leopard's Kopje people arrived. They increased in both popularity and numbers through time. They appear to have dropped in numbers and favour somewhat in Unit 1, but I wonder whether something unusual was occurring during Unit 2 since such vast numbers were found in levels 6 and 7. Interestingly, most ivory bangles came from levels 7 to 9.

The blue beads are also significant even though they are few in number (6 total). They are the only evidence of the Zhizo bead series in the site. Some of the yellow and green beads could potentially have been Zhizo types, but physical examination shows they form part of the Indo-Pacific series. Curiously, the blue beads are scattered through all units[6], which must mean they were being curated. The general absence of Zhizo beads in the site adds to the evidence that the Zhizo series disappeared from trade by the mid 10th century. The brownish red and black beads also fit local patterns. They are both relative late comers compared to the K2 series, with brownish red preceding and being more popular than black during the entire K2 period. They are both part of the Indo-Pacific series.

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[6] Hanisch (1980:371) notes one each from levels 1, 8, 11 and 15 and two from level 12.

Thus, the beads support other data (stratigraphy, pottery and dates) showing Pont Drift was occupied later than Schroda, although the two could have overlapped during Pont Drift's earliest level. It would appear it remained occupied and was most prosperous during the K2 period. The presence of many Garden Rollers and large numbers of blue-green beads suggest it had a mutually beneficial relationship with K2. The lack of Mapungubwe Oblate series beads suggests Pont Drift was abandoned sometime before the middle of the 13^{th} century.

CHAPTER 8: CASTLE ROCK

8.1 THE SITE

The site of Castle Rock (22.12.23S, 29.15.43E) was originally interpreted as a K2 commoner settlement by Hanisch and Huffman (unpublished survey data, Department of Archaeology, University of the Witwatersrand). Calabrese's (2000b) excavations demonstrated the pottery belongs to the newly recognized Leokwe style, a local development of Zhizo wares. Due to its problematic position in the calibration curve, a range of dates from AD 1045 to 1165 (ibid.:104) resulted from charcoal on bedrock. Calabrese suggests a mid-11th century date is most likely.

8.2 THE BEADS

The beads largely support this view since the majority are classic K2 types. Forty-two drawn glass beads and 16 fragments of Garden Rollers (representing a minimum of 10 beads) were recovered, along with pieces from two Garden Roller moulds (Plate 7H). Of the drawn beads, only four are Indo-Pacific types (two green, one yellow (Plate 7F) and one brownish red), and they fit the time period as well. The two heavily patinated, blue Zhizo types would most likely have been curated since they were not imported after the middle of the 10th century. The only bead that is difficult to place is the single cobalt blue Mapungubwe Oblate (Plate 7G); it is unlikely to have been in circulation before the mid-13th century. Although Calabrese obtained a date ranging from 1225 to 1280 from scattered charcoal towards the top of the deposit, he considered it anomalous since no Mapungubwe ceramics were recovered (ibid.:104). The suspect bead was found in layer 1 so could have been dropped at the site at a later time.

Castle Rock's shape, size and length ratios are shown in Figure 8.1. They vary somewhat from K2 assemblages at K2 and Pont Drift. More Castle Rock beads are cylindrical, whereas at the other two sites tubular beads are more common. This difference spills over into the size and length ratio categories, largely because cylindrical beads in the K2 series tend to be slightly larger and shorter than tubular beads. The rather small sample at Castle Rock may account for these differences. Castle Rock's colour profile (Fig. 8.2) is largely typical for the K2 period. The only discrepancy is the presence of blue beads, which are not normally found in K2 assemblages.

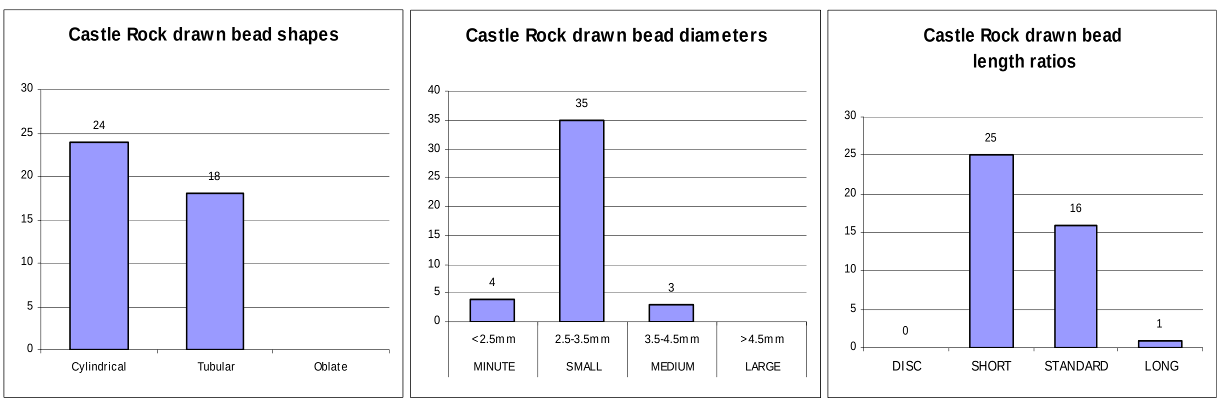


Fig. 8.1: Castle Rock shape, size and length ratio parameters

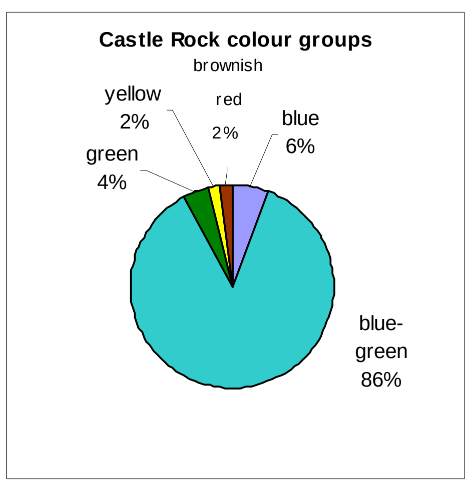


Fig. 8.2: Castle Rock colour profile

8.3 DISCUSSION

Castle Rock's beads are somewhat remarkable considering the limited scale of the excavation (9.25 m^3) (ibid.:107) and the number of Garden Roller fragments that were recovered. These, and the presence of fragments from two Garden Roller moulds (Plate 7H) and a totally unique two-tone fluted Garden Roller[7] (Plate 3J), suggests to me that Castle Rock could have been a bead-making site. This possibility is strengthened by strong evidence of shell bead manufacture: many of the trenches contained achatina shell beads in various stages of fabrication.

[7] The only other example of a fluted Garden Roller is from Schroda (Chapter 6).

CHAPTER 9: K2 AND MAPUNGUBWE

9.1 BACKGROUND

9.1.1 HISTORY OF THE EXCAVATIONS

Greefswald (the farm containing K2 and Mapungubwe) includes three major areas: K2 (in early documents referred to as Bambandyanalo, after the hill to the east), Mapungubwe Hill and the Southern Terrace below the Hill. The early phase of excavations, from 1933 to 1935 (Fouché 1937), was carried out by individuals (Fouché, Malan, Tromp, Jones, Van Tonder and Schofield) with little or no training in fieldwork. From 1935 to 1940 Gardner (1963) supervised excavations, which were somewhat better controlled because of his field experience with Caton-Thompson in Egypt (Fouché 1937:126). Nonetheless, as is well known, the recording was still substandard (Meyer 1998:23).

With regard to the beads, much of the material is missing or unlabeled, and even such rudimentary documentation as totals from various deposits are lacking. It is possible, however, to use the existing beads to judge the types that were available, and it is sometimes possible to compare beads from burials – especially from Gardner's excavations at K2 – with each other and with non-burial beads.

After World War II, Eloff directed excavations of the upper layers on the Southern Terrace; square E2 was fully excavated between 1969 and 1971. From 1971 to 1984 Meyer, directed by Eloff (1979, 1981), oversaw excavations designed to augment and correct earlier work. Work at Greefswald was halted between 1985 and 1992, in part due to increased military activity in the area. From 1991 to 1995 the K2 and Mapungubwe sites were surveyed and mapped and from 1993 onwards the Department of Anatomy at Pretoria University joined in the Department of Archaeology's excavations, especially those aimed at recovering additional skeletal remains (Steyn *et al*. 1999).

9.1.2 DESCRIPTION OF GREEFSWALD SITES

K2, occupied from about AD 1030 to 1220, lies in a sheltered valley surrounded on three sides by sandstone cliffs. It covers about five hectares and is dominated by an enormous mound, at least 100 m long, that began as a small midden and central cattle kraal. When the cattle were moved out of the site, sometime around 1150 (Huffman, pers. comm. 2004), the central midden expanded. Deposits there reach a depth of over six metres, attesting to the duration and intensity of occupation. Remains of residential dwellings (pole and *daga* structures with gravel floors) are clustered around this central area. Between one and two thousand people probably lived at K2 (Huffman 2000:23).

Mapungubwe Hill lies about one kilometre northeast of K2, with the Southern Terrace lying below. Together they cover about 10 hectares, forming part of the same settlement. From the top of the Hill the confluence of the Shashe and Limpopo Rivers is visible 2.5 km to the northwest. The Hill is a 30 m high flat-topped outcrop of sandstone with vertical cliffs. It measures roughly 300 x 80 m at its widest point. Access via four routes on the south and southeast sides is difficult. Deposits cover most of the hilltop but are deepest, measuring up to 2 m, in the northwestern zone. The Southern Terrace was occupied during the K2 period, but those early deposits are shallow, indicating the site was sparsely inhabited compared to K2. The bulk of the deposit on the Hill as well as the Southern Terrace (which reaches depths of 5 m), accumulated between AD 1220 and 1290/1300. Five thousand people may have lived there at its peak (Huffman 2000:23).

9.1.3 QUANTITIES OF GLASS BEADS

It is unclear just how many glass beads were excavated on the Greefswald sites. In general, beads were considered too common to be listed. Jones noted that glass beads were found in abundance and "may be picked out of every sieve" (Fouché 1937:26), but the early excavators often did not use sieves. In the first excavation (in the area where treasure hunters earlier found a gold burial), approximately 4 x 7 m was removed to bedrock. The intention was to sieve all deposit - first with a coarse sieve then a fine one. Fouché (ibid.:5) reports that on the second sifting "numbers of tiny gold beads together with great quantities of glass beads were found. The recovery of these tiny beads took so much time that we decided to leave the concentrates over for later sifting, when permanent work would have begun. About 4 or 5 cu. yards [c. 4 to 5 m^3] were left to be dealt with in future". It is unknown whether this task was completed.

Schofield (Fouché 1937:10) commented, "one cannot help remarking on the vast quantity of such ornaments [glass beads] which came to light on the summit: one day's sieving alone produced 1,125 black oblates, mostly small, while one skeleton had over 1,000 similar beads on or near the waist."

Malan's report (Fouché 1937:125-6) on the skeletal remains from Mapungubwe Hill includes the comment that beads and potsherds were found with only a few infants but were present in all adult burials. He described the "Gold" skeleton (No. 14) as having about 12 000 gold beads. In addition, "The skeleton was surrounded by a large quantity of glass beads, as if it had been buried wearing bead garments or girdles. Behind it there was a cylindrical pile of beads about 12 by 8 in. [300 x 200 mm], as if a bag full of beads had been put into the grave behind the body" (ibid.:126).

Saitowitz (1996:201) counted 26 037 glass beads from this burial of which 24 808 were black. In addition, she recorded glass beads from other burials on Mapungubwe Hill, including the following large numbers: 4099, 2311, 10 951, 7940, 25 315, 16 004 as well as 1094 from an infant burial (ibid.:101-2). Many other burials contained beads numbering in the hundreds.

Gardner (1963:33) commented that millions of beads were unearthed from the Greefswald sites, but this seems a bit of an exaggeration. Unlike Malan's comment about infant burials[8], Gardner noted that some graves with the most elaborate goods were those of small children (ibid.:39). Since Malan was describing burials from Mapungubwe Hill and Gardner mainly those from K2, there may have been a shift in burial practices.

[8] I have not been able to verify Malan's observation from the information available.

9.2 K2

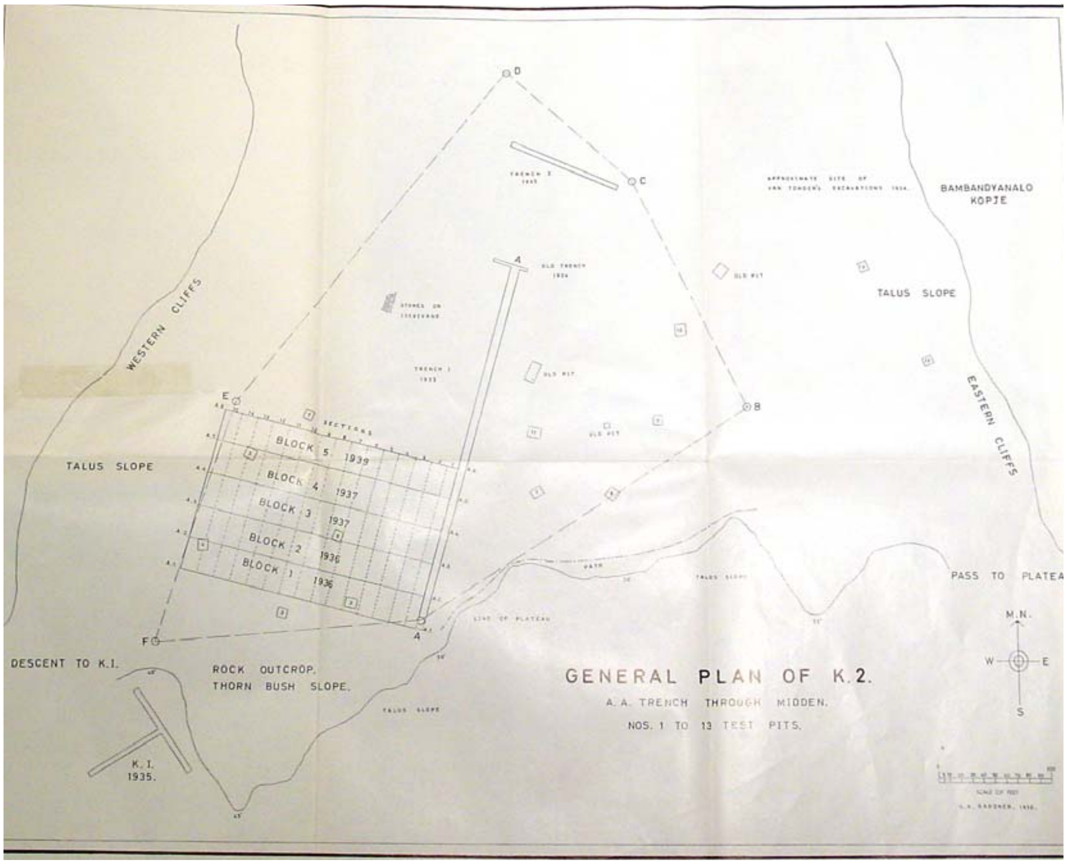
9.2.1 GLASS BEADS FROM RESIDENTIAL AREAS – EARLY EXCAVATIONS

Gardner excavated two enormous trenches at K2. Trench 1 cut right through the central mound from south to north. The trench measured 5' (1,5 m) wide by 340' (103,5 m) long and was divided into thirty-four 10' (3 m) sections, numbered 1 to 34 beginning at the southern end. The deposit in the central mound comprised midden material in the upper levels and kraal remains in the lower. It measured 20' (6 m) at the deepest point. Deposits in areas beyond the mound consisted of residential debris, including local middens. All were dug in 12" (0,3 m) spits. Gardner labelled artefacts according to the location in which they were found. Thus TR.1.S.5. 1' 10' 6" indicates the item came from Trench 1 Section 5, 1' (0,30 m) from the extreme left of the section, 10' (3 m) across the section from left to right and 6" (0,15 m) below the surface (Gardner 1963:3). (In his later excavations the 'B' in B.5.S.3 indicates Block 5 etc.). Four burials were recovered from Trench 1, but only K.S. (i.e. K2 Skeleton) No.1 contained glass beads. A so-called beast burial was found at 10' 6" (3,2 m). Beast burials included partial remains of cattle, and occasionally other animals, which appear to have been ritually buried with grave goods, so they frequently included glass beads, especially Garden Rollers. They appear to have been restricted to the K2 period since none contained Mapungubwe pottery.

In 1936 Gardner set up five equal blocks adjoining the central midden using Test Trench 1 as the eastern base line. Each block measured 225'x 30' (68,5 x 9 m) and was subdivided into 5' (1,5 m) squares (there were 18 squares per section) (Fig. 9.1). The deposit was sifted (necessary to recover beads) only in the vicinity of burials, from pits or near cultural objects.

Gardner’s General Plan of K2

from Gardner 1963: Diagram 1



Gardner’s Plan and Section of Trench 1

from Gardner 1963: Diagram 2

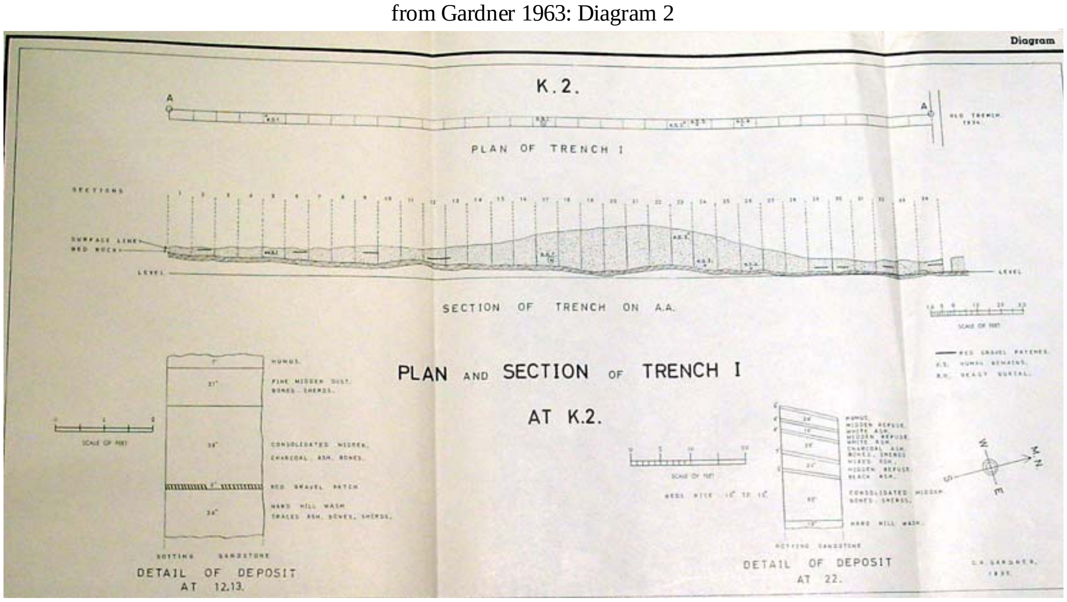


Fig. 9.1: Plans of Gardner's excavations at K2

Finds relevant to this study in Blocks 1 & 2 include:

- a pottery hippo with green glass beads for eyes
- huge numbers of beads, especially with the skeletons
- Garden Rollers at all depths and often with burials – both human and beast
- numerous Garden Roller moulds at all levels
- a Garden Roller mould with globules of glass on the inner surface from Pit 4
- a complete, unbroken Garden Roller mould from B.2.S.9.

in Blocks 3 & 4:

- most skeletons seem to be youths or children but grave goods were rich
- beast burial No. 6 in Block 4 was the richest found

9.2.2 GLASS BEADS FROM RESIDENTIAL AREAS - LATER EXCAVATIONS

I examined beads, excavated between 1972 and 1993, but only from trenches and squares (Fig. 9.2) whose assemblages are largely intact.

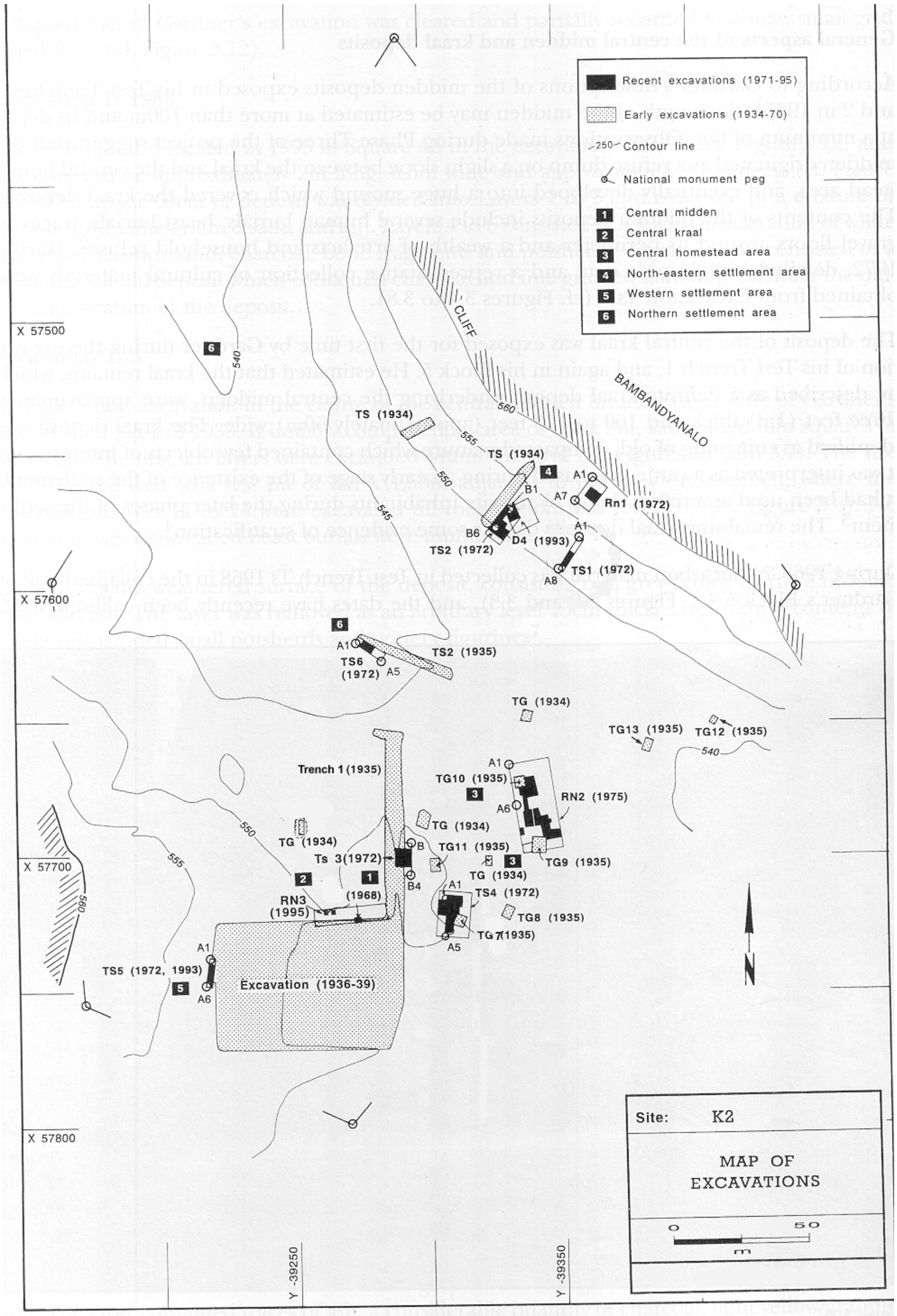


Fig. 9.2: Plan of K2 Excavations (after Meyer 1998:61)

I have divided the excavated beads into two groups for convenience (missing layers probably had beads, but I could not locate them):

Areas in or close to the central midden:

Ts3 Sq. 1 Layers 1-9 (Layer 4 missing)
Ts3 Sq. 2 Layers 1 to 20 (Layers 4 and 18 missing)
Rn2 Sq. C4 Layers 1 to 5 (Layer 3 missing)
Rn2 Sq. C5 Layers 1 to 3

Areas at the base of Bambandyanalo Hill:

Ts1 Sq. A4 Layers 1 to 5
Ts1 Sq. A5 Layers 1 to 5 (part of Layer 3 may be missing)
Ts1 Sq. A6 Layers 1 to 5 (Layer 3 missing)
Ts2 Sq. A1 Layers 1 to 4 plus Graves 1 and 3
Ts2 Sq. A2 Layers 1 to 4 (Layer 2 missing)
Ts2 Sq. A3 Layers 2 to 6 (Layers 1 & 5 missing) plus Grave 2
TR D4 Sq. a1/1 Layers 1 to 5
TR D4 Sq. a1/2 Layers 1 to 4
TR D4 Sq. a1/6 Layers 1 to 4
TR D4 Sq. a1/7 Layers 1 to 4

9.2.2.1 AREAS CLOSE TO THE CENTRAL MIDDEN

Ts3

Ts3 (Meyer 1998:63) was sited in the central midden on the east side of Gardner's Test Trench 1. It originally measured 9 x 3 m subdivided into 3 m squares. Ten layers were excavated over this large area, after which the excavation was reduced to incorporate only 2 x 1.5 m next to Gardner's trench. Layers 11 to 24 in that area were removed to bedrock. No graves or beast burials were found. Springhare activity was noted in Layers 3, 4, 7 and 8. Charcoal from Layer 6 gives calibrated results ranging from AD 1030 to 1170 (Vogel 1998:56). Further calibrated dates, ranging from 1030 to 1180, come from charcoal in Layers 13, 14 and 15. [Unfortunately the calibration curve is flat between AD 1030 and 1150 so precise dates are elusive].

Glass beads were probably found in all layers between 1 and 20 (see Table 9.1), but I could not locate any from layers 4 and 18. The upper one or two layers account for more beads than any others, the only exception being Layer 14 of Square 2, which produced nearly as many as Layer 1. However, it is likely Layer 14 has been mislabelled and should actually be Layer 4. Below Layer 14 (or Layer 11 if 14 is mislabelled) only blue-green and Garden Roller beads are present. Yellow and green beads appear sporadically in small numbers throughout the layers. Brownish red beads appear more frequently and are concentrated in the upper five layers, although a few appear below this. Black beads are rare (10 total), and all but one (from Layer 3 Square 1) were found in the top two layers.

Three unusual beads came from Ts3. In Square 1 Layer 5 a small translucent-transparent purple cylinder (Plate 8A) was found. It is the colour of amethyst and looks like it is related to Indo-Pacific glass. It is the only bead of this type I have encountered in southern African assemblages. Layers 2 and 3 of Square 2 each produced one small translucent-transparent colourless cylinder (Plate 8B). These are the only examples from the study area, but they do appear in small numbers at East Coast sites. Many beads from Ts3 were flattened on one side, probably from wear.

Garden Rollers were found in most layers, especially in Square 2 where nearly every layer down to Layer 20 had at least one example. Layer 10 alone produced eight.

Rn2

Rn2 (Meyer 1998:72) was set up east of Ts3 next to Gardner's Trial Pits 10 and 9. The intention in excavating Rn2 was to find stratified household structures, which was successful. The area covered 33 x 15 m and was subdivided into 3 x 3 m squares. The squares were only partially excavated. Squares C4 and C5, examined here, are close to Trial Pit 10.

This area should give us information about beads from a residential setting. As Table 9.1 shows, most of the beads come from the two top layers. The uppermost layer in both squares contained an unusually high percentage of brownish red beads. Black beads were found only in the upper layer (one in each square). Blue-green beads were the most numerous; other colours were rare (there was only one yellow). Square C4 produced two Garden Rollers while C5 contained one (Plate 8C).

Table 9.1: Numbers of beads by layer and colour: K2 Areas Rn2 and Ts3

layer	blue-green	green	yellow	brownish red	black	Garden Roller	other
Rn2 C4							
1	63			39	1		
2	59			9		2	
4	32			3			
5	3						
Rn2 C5							
1	59		1	45	1		
2	18			6			
3						1	
Ts3 Sq 1							
1	86	1	1	6	3	4	
2	20			2			
3	35			7	1		
5	7	`1				1	1 purple
6	2						
7	28						
8	16						
9	57	1		5		3	

layer	blue-green	green	yellow	brownish red	black	Garden Roller	other
Ts3 Sq 2							
1	114		1	17	3	1	1 ?
2	214	2		16	3	4	1 colourless, 1 ?
3	64			5		4	1 colourless
4*	113	2	3	4		3	
5	22			2		2	
6	24			1		2	
7	80					1	
8	14					4	
9	55			3		4	
10	81		1			8	
11	42	2	1	1		1	
12	22						
13	14					2	
15	27					1	
16	19						
17	10						
19	10					1	
20						1	

***** As mentioned earlier, the bag says Layer 14 but I believe it is Layer 4.

9.2.2.2 AREAS AT THE BASE OF BAMBANDYANALO HILL

Ts1

Meyer (1998:95) sited Ts1 in a midden in a settlement area at the base of Bambandyanalo Hill. An area of 14 x 2 m was divided into 2 x 2 m squares. Most were dug in spits of 15 cm, and only Squares A4, A5 and A6 were excavated completely. Bone from Square A2 Layer 2 provided a calibrated date of AD 1170 to 1260, while tests from charcoal in the same layer gave a range of dates from AD 1025 to 1160 (Vogel 1998:56).

Ts1 squares A4, A5 and A6 produced numerous beads through all five layers (Table 9.2), but the top two had the largest numbers. Black beads were found in small numbers in all layers (three per square). Green and brownish red appeared in moderate but significant numbers, and yellow made up a greater percentage than in any other location. In addition, the yellow beads (Plate 8D) are of an unusual type not common elsewhere. They are larger than the normal Indo-Pacific yellow cylinders found at K2, and are more transparent and paler in colour. Since they appear to be localized in both space and time, it is possible they represent an unusual batch of glass that was imported for only a short time.

A significant number of Garden Rollers was excavated along with six Garden Roller moulds from Square A4. This could indicate Garden Rollers were either being made in this area or perhaps were being finished; that is removed from their moulds and (presumably) polished.

Ts2 and TR D4

Ts2 (Meyer 1998:99) was another midden deposit to the north of Ts1 and next to a trial trench dug in 1934. It was originally set up as a 2 x 12 m trench divided into 2 x 2 m squares. Squares A1, A2 and A3 were completely excavated. Graves of three children were found: Graves 1 and 3 in Square A1 and Grave 2 in Square A3.

TR D4 (ibid.:106) was excavated in 1993 with the aim of finding human skeletal remains. It was situated in such a way that Squares D4/a1/1 and D4/a1/2 partially overlap Squares A1 and A2 of Ts2 (Fig. 9.3).

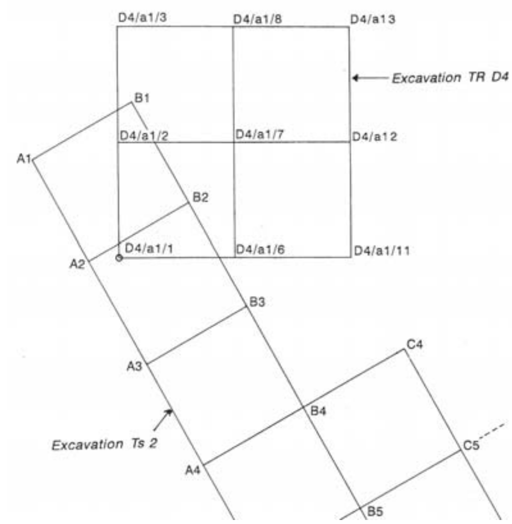


Fig. 9.3: K2 Areas TR D4 and Ts2 showing overlap (after Meyer 1998:107)

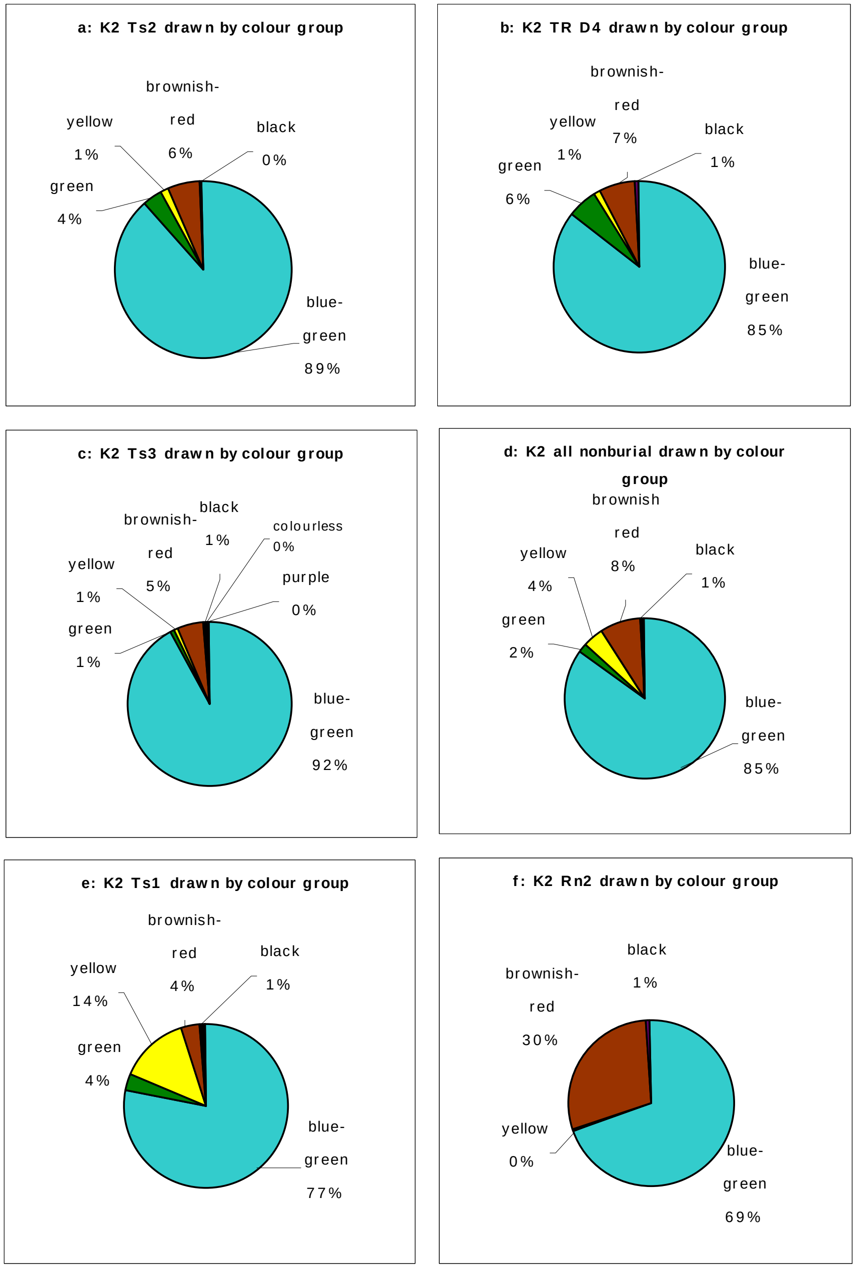
Since areas Ts2 and TR D4 overlap, I look at them together. They both contain fewer beads per square than Ts1, and the TR D4 squares have consistently fewer beads than Ts2 (Table 9.2). Only two black beads were found, both in the top layer of separate squares. Other colours were sprinkled sparsely through various squares and layers. Garden Rollers were found throughout, but in smaller numbers in TR D4. Three Garden Roller moulds came from Ts2.

Table 9.2: Numbers of beads by layer and colour: K2 Areas Ts1, Ts2 & TR D4

layer	blue-green	green	yellow	brownish red	black	Garden Roller	other
Ts1 A4							
1	112	4	2	6	1		
2	30	1	4			2	½ GR mould
3	15		1	1		4	4 GR moulds [6 fragments]
4	71	2	13	4	1	1	GR mould [2 fragments]
5	24	3	1		1		
Ts1 A5							
1	45		23	6	3	1	
2	124	7	47	5		2	1 ?
3						1	
4	46		4	1		1	
5	17		9	1			
Ts1 A6							
1	87	8				1	
2	28	4	5	1	1	1	
4	30	2	2	4	2		
5	14		4				
Ts2 A1							
1	29	2	1	5		2	
2	25					2	
3	18					1	3 GR moulds [5 fragments]
4	24						
Ts2 A2							
1	32			5		2	
3	18	2	1	2		1	
4	53		1	2			
Ts2 A3							
2	51	3		3	1		2 ?
3	8	3	1				
4	1						
6				1		2	

layer	blue-green	green	yellow	brownish red	black	Garden Roller	other
TR D4 a1/1							
1	11	2					
2	14					3	
3	4						
4	3						
5	2						
TR D4 a1/2							
1	20	1		3	1		
2	15	1					
3				1			
4	9			1		1	
TR D4 a1/6							
1	11	1					
2	26	4	1	3			
3				1			
4	3			1			
TR D4 a1/7							
1	12			2			
2	3	1	1				
3	4						
4	11						

In terms of colour profiles (Figs. 9.4a to f), Ts3 (in the central midden and the deepest deposit) and Ts2/TR D4 (a hillside midden) are similar and resemble the overall profile for K2 colour proportions (Fig. 9.4d). Ts1 (another hillside midden) and Rn2 (a residential area) have rather different colour profiles that may be related to limited availability, restricted access or short time spans. I discuss this point later.



Figs. 9.4 a-f: K2 drawn bead colour groups by area

Figure 9.5 shows shape, size ranges, length ratios and end treatment for all drawn non-burial beads. Overall colour profiles are shown in Figure 9.4d and layer-by-layer profiles are presented in Figures 9.6 and 9.7.

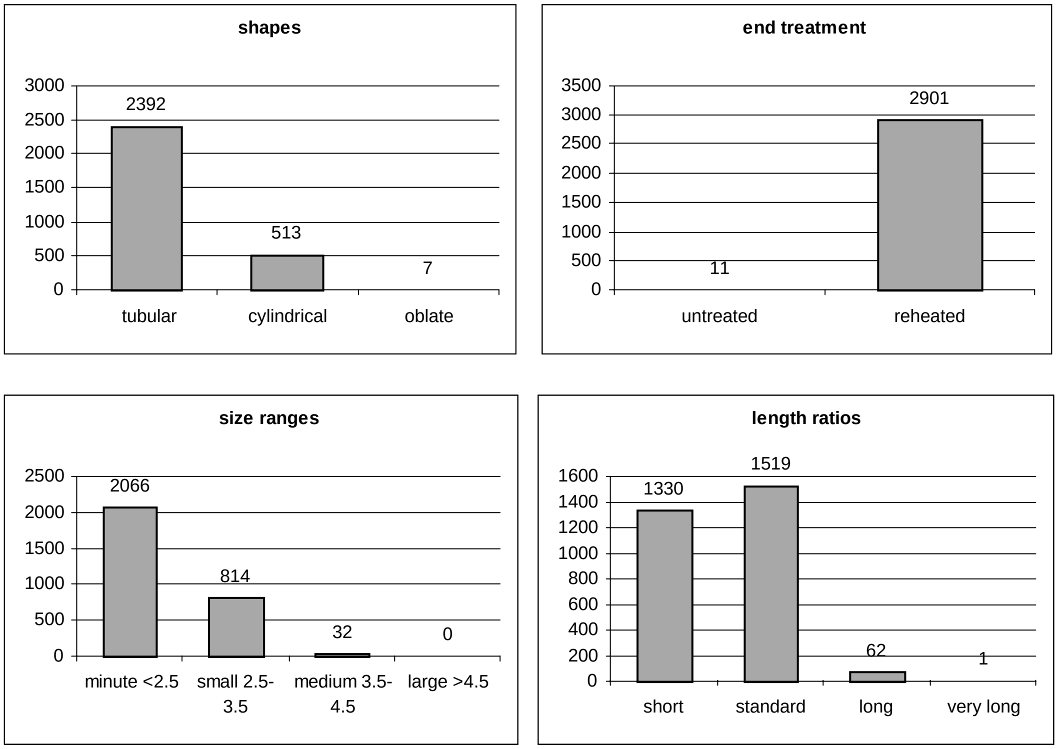


Fig. 9.5: Drawn beads: shape, end treatment, size range and length ratios

Placement of drawn beads from K2 by bead series can be seen in Table 9.3.

Table 9.3: K2 non-burial drawn beads by Series

Number of beads	Series
11	Zhizo
2434	K2
445	Indo-Pacific
22	Unknown

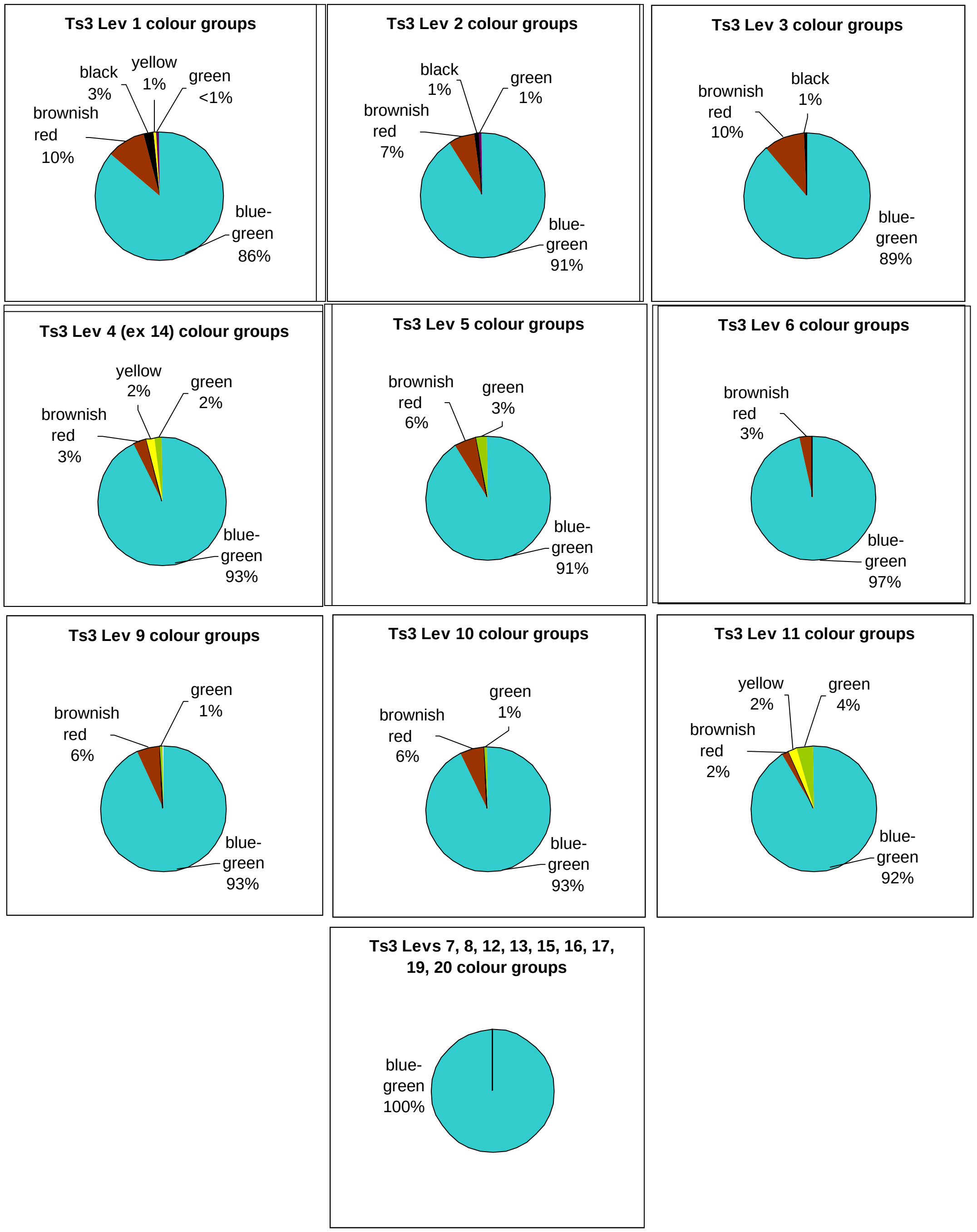


Fig. 9.6: Colour profiles Ts3 by level [Levels 7, 8, 12, 13, 15, 16, 17, 19 & 20 have been combined since their profiles are the same]

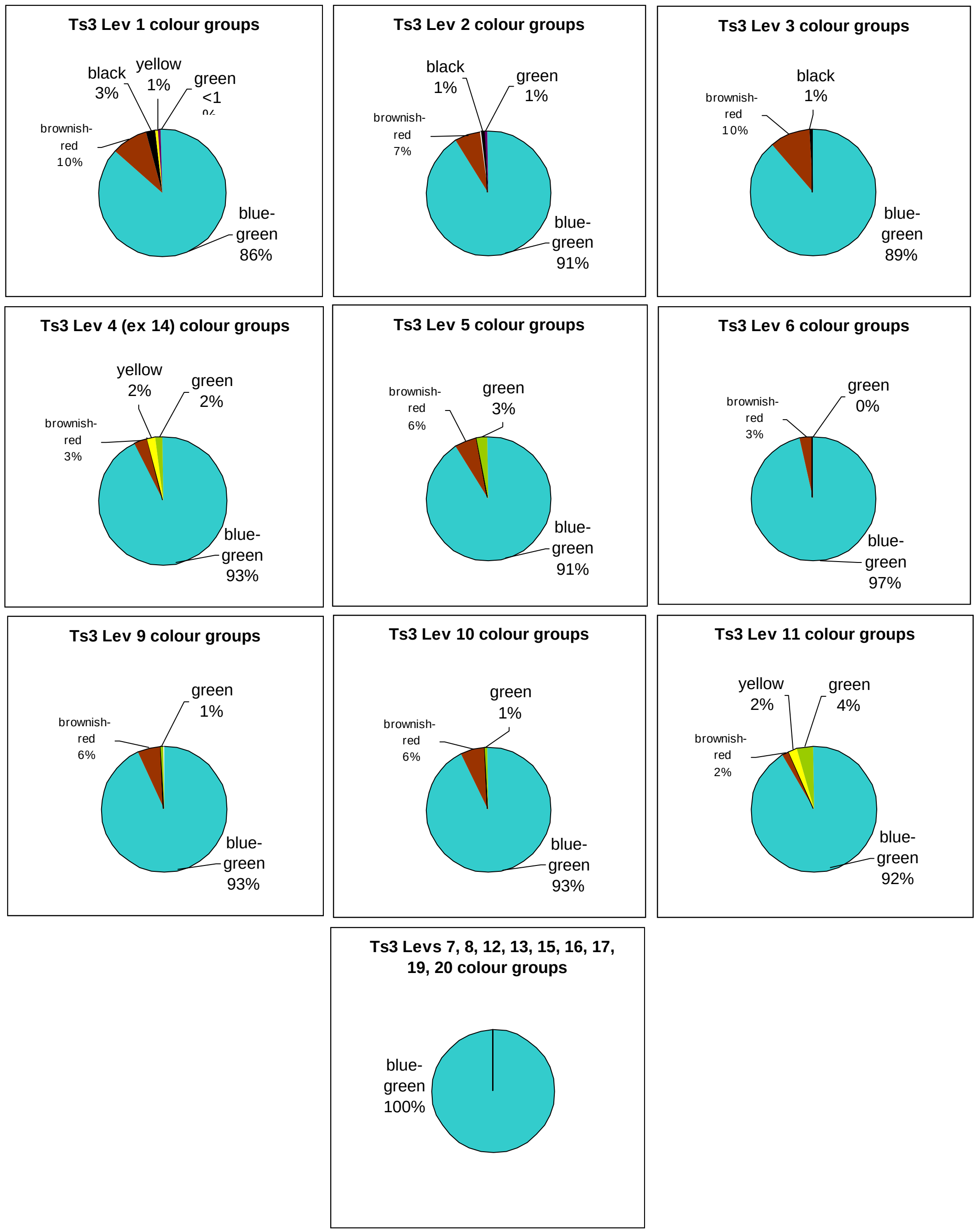


Fig. 9.7: Colour profiles Ts1, Ts2/TR D4 & Rn2 by Level

Colour profiles from individual levels in the K2 squares under study indicate the following:

- In Ts3, the longest sequence:
    - All layers below 11, as well as layers 7 and 8, contain only blue-green beads and Garden Rollers.
    - Brownish-red beads appear for the first time in Layer 11 and gradually increase.
    - Black beads first appear in Layer 3.

- Ts1:
    - Includes brownish red and black beads in all layers, indicating it was formed in the later years of K2's existence.
    - Contains exceptionally high numbers of yellow beads.

- Ts2/TR D4:
    - Brownish red is present in all layers.
    - Black beads occur in Layers 1 and 2: together these indicate this area dates to the later part of K2's history.

- Rn2:
    - Brownish red occurs in all layers, growing from 8% to 40%.
    - Black beads are present in Layers 1 and 2. This, together with the elevated numbers of brownish red beads, indicates the area represents the last years of occupation at K2.

9.2.2.3 BEADS PER VOLUME OF DEPOSIT EXCAVATED

When feasible, it is important to examine the total number of beads compared to the volume of deposit. For K2, the figures were taken from Meyer (1998:63-108), but some depth measurements had to be extrapolated from adjoining squares. As Table 9.4 demonstrates, Ts3 accounts for the largest number of beads, but accounts for the smallest number by volume. The relatively small excavation of Ts1 accounts for more than twice as many beads per cubic metre as other areas, and it yielded the largest number of Garden Rollers per cubic metre as well. However, comparing all 20 layers of Ts3 to the other areas, which have a maximum of six, may not be representative since upper layers generally contain more beads. If only the top five layers of Ts3 are considered, the number by volume increases significantly, but still remains about half of that in Ts1.

Table 9.4: Numbers of beads recovered from K2 sites based on volume of deposit. (See Tables 9.1 & 9.2 for Squares and Layers represented herein.)

Area	Estimated m³ of deposit excavated	Drawn beads	Drawn beads per m³	Garden Rollers	Garden Rollers per m³
Ts3	46.8 m³	1278	27	46	1
Ts3: top 5 layers	14.4 m³	779	54	19	1.3
Rn2	10.8 m³	339	31	4	0.4
Ts1	8.2 m³	828	101	14	1.7
Ts2 & TR D4	12 m³	467	39	14	1.2

Another curious facet of the Ts1 bead assemblage is that it contains 10 of the 11 Zhizo beads[9] (the 11th is from Ts2). Rather than being an early midden (as the Zhizo beads might suggest), other beads demonstrate it must date to the last period. Brownish red beads, in limited numbers, are found throughout Ts1, but do not occur in early layers at K2. Even more significant are the black beads, which are found only in the later levels at K2 and then in very small numbers. Only 23 were found in all areas, yet 9 came from Ts1. Furthermore, the Zhizo beads are all the same size and colour (blue-green which is somewhat unusual), and five were found together in one layer (Sq.A5 L.2), with the others nearby. Thus, it seems the Zhizo beads were curated (that is passed down from generation to generation).

During the last phase of K2, the transition from a rank based CCP-organized socio-political system to the class based Zimbabwe Pattern must have been well advanced. If so, an elite class would have been in control of economic and political power, and

[9] These are all blue-green so do not show up separately in the colour profiles.

therefore, exotic imports, including glass beads. The contents of the midden Ts1, with its large number compared to other areas, suggest it served an elite group.

Other questions arise from the glass bead assemblage in Ts1. It contains more yellow beads than any other part of the site: 115 out of 128. In addition, these particular beads are paler and more transparent than most other yellow beads at K2. Thus, this type of yellow bead may have been reserved for elite individuals.

It is appropriate to note here that one burial from Gardner's excavations at K2 could be associated with Ts1. Burial No. 69, at a depth of 5' (1,5m) in Block 5 Section 9, contained a fairly large number of beads (Gardner lists 891, I located 301) amongst which are several of the pale yellow rather transparent type, as well as 11 Zhizo beads of the same size and colour as found in Ts1. Gardner also lists 21 brownish red (I counted 123) and 2 black beads for this burial. This mix is peculiar enough to speculate that the burial represents an individual (a young child according to Gardner) associated in time with Ts1.

9.2.2.4 GARDEN ROLLERS FROM K2

I consider here Garden Rollers excavated between 1972 and 1993, other than those from burials. Many are fragmentary, so totals reflect what I consider to be whole beads represented, rather than fragments. This was determined mainly on glass colour and diaphaneity, although other qualities are considered when appropriate. If in doubt, I have erred on the conservative side.

Table 9.4 lists Garden Rollers (excluding ones from burials) by area as well as volume of deposit. Table 9.5 lists where they were found.

Table 9.5: Locations with Garden Rollers found at K2 between 1972 & 1993

Area	Square	Layers	Quantity
Ts3	1	1, 7, 9	8
Ts3	2	1-3, 5-11, 13-15, 19-20	38
Rn2	C4	2, 4	3
Rn2	C5	3	1
Ts1	A4	2, 3, 4	7
Ts1	A5	1, 2, 3, 4	5
Ts1	A6	1, 2	2
Ts2	A1	1, 2, 3	5
Ts2	A2	1, 3	3
Ts2	A3	6	2
TR D4	a1/1	2	3
TR D4	a1/2	4	1

As can be seen Garden Rollers occurred throughout the site. Gardner (1963:7 & 93) noted this trend as well. Mould fragments (Table 9.6), however, seem to be concentrated in the residential zone at the foot of Bambandyanalo Hill.

Table 9.6: Locations with Garden Roller moulds found at K2 between 1972 and 1993

Area	Square	Layer	Quantity examined or noted by Meyer
Ts1	A4	1	1 reported in Meyer (1998:95)
Ts1	A4	2	1 observed by me - but (Meyer 1998:95) says several were found
Ts1	A4	3	4
Ts1	A4	4	1
Ts2	A1	3	3
Ts2	A3/A4	2	several reported in Meyer (1998:99)
Ts2	A1	4	Meyer, 1998:102 reports a concentration of moulds in a pit

I have found no reference to moulds from other areas during the later excavations. Gardner (1963:7 & 93), however, reports finding moulds at all levels throughout the site, but recorded them only from his excavations near the central mound. As Table 9.7 demonstrates, the most conservative estimate of those he itemized is 49 (ibid.:101-132).

Table 9.7: Garden Roller moulds mentioned in Gardner (1963:101-132)

Location found	Gardner's comments
B.1.S.8. 13' 2' 2'	
B.1.S.8. ?	
B.2.S.9. 11' 28' 1'	
B.2.S.9. 5' 22' 2'	1 entire mould and portions of others
B.4.S.4. 14' 18' 2'	moulds
B.3.S.10 10' 15' 2'	moulds
B.3.S.13 8' 28' 2'	moulds
B.3.S.13. 12' 22' 3'	moulds
B.3.S.7. 15' 25' 4'	moulds
B.3.S.8. 8' 26' 5'	moulds
B.4.S.8. 9' 15' 1'	moulds
B.4.S.7. 7' 6' 2'	moulds
B.4.S.7. 2' 27' 3'	½ mould with glass globules
B.4.S.7. 6' 11' 3'	½ large mould
B.4.S.7. 14' 27' 4'	moulds
B.4.S.2. 9' 23' 6'	moulds
B.5.S.4. 8' 18' 4'	moulds
B.5.S.2. 9' 20' 5'	moulds
B.5.S.2. 9' 21' 6'	moulds
B.2.S.8. 4' 28' 5' Pit 4	½ mould with glass globules
B.2.S.9. 9' 3' 5' Pit 8	moulds
B.2.S.10. 10' 12' 5' Pit 11	mould
B.3.S.7. 2' 3' 5' Pit 18	moulds
B.3.S.9. 14' 19' 4' Pit 19	moulds
B.3.S.10. 10' 16' 3' Pit 20	moulds
B.4.S.14 7' 16' 4'	moulds
B.4.S.11. 8' 27' 5'	moulds

As Table 9.7 shows, Gardner records the following minimums for moulds by level:

Table 9.8: Garden Roller moulds recorded by Gardner by level

Gardner's depths in feet	converted to cm	minimum # GR moulds
1'	30 cm	3
2'	61 cm	12
3'	91 cm	6
4'	122 cm	10
5'	152 cm	13
6'	182 cm	4

Thus, Garden Roller moulds were found in reasonable quantities throughout the top two metres of deposit near the central midden.

9.2.3 BURIAL BEADS FROM GARDNER'S EXCAVATIONS AT K2

Gardner recognized there were two different periods, or bead sets, represented in burial beads at K2. He noted burials that included black or plum coloured beads were "found only on 12 skeletons out of 70, and they do not in fact belong to K2 at all, but are intrusive from the Hill" (Gardner 1963:32). He pointed out these 12 burials were associated with Mapungubwe pottery, and beads of these colours were not found in any other graves, nor in beast burials or residential zones. Although I have not yet discovered a plum coloured bead from residential contexts at K2, a few black beads have been retrieved. Nonetheless, Gardner's observations made it possible to separate the beads into useful series.

My criterion for identifying a Mapungubwe period bead assemblage includes the presence of at least one of the following:

1. transparent plum beads
2. transparent cobalt blue beads (Gardner did not recognize this)
3. significant numbers of black beads

Applying these criteria, I examined Saitowitz's (1996:220, 217-38) statistics, which included both the early and more recent excavations and burials at K2. Of the total 16,862 beads, 8,568 are black. After excluding burial beads associated with Mapungubwe pottery, only 49 (0.75%) of the remaining 6,546 beads are black (Wood 2000:80). The present study reinforces this pattern. Of the 2,909 drawn beads examined from the 1972 to 1990 excavations, only 23 (0.79%) are black. Similarly, when corrected for intrusive burials, Saitowitz's blue-green beads shift from 12% to nearly 68%. The present work shows even higher levels with blue-green forming 75%.

Gardner's separation of the burials, however, needs some refinement since he considered all burials with black beads to be from Mapungubwe. Because the pottery associated with a burial is perhaps more important than the beads in determining its origins, I consulted Schofield's (1958) analysis of the K2 burials. Schofield recognized two pottery facies: the Mapungubwe series, or 'M1', and the K2 series, or 'M2', [inversely, he called K2 series beads 'M1' while the Mapungubwe ones were labelled 'M2'](Schofield 1937, 1948). In Schofield's opinion, K.S. (K2 Skeleton) Nos. 1, 21, 28 and 29 were associated with Mapungubwe pottery and/or beads. Although K.S. 1, 21, and 29 are surely from Mapungubwe, according to my criterion for Mapungubwe bead assemblages, K.S. 28 is not an obvious fit. Gardner reports it contained 23 green, 16 blue-green and 4 brownish red beads as well as 14 "unidentified white beads, looking like bone or paste, but may be devitrified" (Gardner 1963:44). In my experience only heavily patinated Zhizo beads fit this description. Since the burial did not include pots, it is difficult to understand why Schofield assigned it to the Mapungubwe period. I leave it in the K2 section.

Next, Schofield identified seven burials as having a mixture of K2 and Mapungubwe beads and/or pottery: K.S. Nos. 10, 20, 31, 42, 43, 50 and 59. Based on Gardner, each contained the following:

K.S. 20: 49 black beads
K.S. 31: 20 black beads and a large multiple wound bluish-green oblate
K.S. 59: 417 black and 7 dark blue beads

These all fit comfortably in the Mapungubwe period. Four, however, do not:

K.S. 10: 39 blue-green and 7 brownish red beads
K.S. 42: 23 blue-green and 3 brownish red beads
K.S. 43: 876 blue-green, 1 brownish red and 14 yellow beads
K.S. 50: 24 green beads

In addition, based on Gardner’s descriptions (1963:41-47), the pots from K.S. Nos. 10, 42 and 43 do not indicate Mapungubwe affiliations (Huffman pers. comm. 2004). K.S. 50 did not contain any pots and, with only 24 green beads, it is not likely to have a Mapungubwe origin. I therefore leave it in the K2 section.

Thus, only seven burials should be placed in the Mapungubwe period (Table 9.9).

Table 9.9: Mapungubwe period burials with glass beads excavated at K2 by Gardner

Skeleton #	Position	Age	black	plum	blue	green	yellow	blue-green	brownish red	GR	associated pots
KS1	Tr.1.S.5 1' 9' 6"	adult	2259		23	41	2				pot
KS 18	B.2.S.12. 9' 10' 2'	child 9-11	171				5	17	2		none
KS 20	B.2.S.14. 2' 7' 2'	young child 3-4	49				4	21	4		pots
KS 21	B.2.S.13. 14' 29' 3'	adult 25-30	124	7			3	6			none
KS 29	B.2.S.5. 14' 22' 3'	adult 25-30	356	14				5	1		M1
KS 31	B.2.S.12. 4' 12' 3'	adult 21-23	20		5	1	7	2			pot
KS 59	B.3.S.13. 8' 9' 2'	adult male	417		7			8			large stones

In the K2 group I include three burials that contained a few black beads: K.S. Nos. 69, 38 and 34. As we now know, small numbers of black beads were present in the later period at K2, so they can be expected in later burials. Both K.S. 69 and 38 include small numbers of black beads (2 and 12), but these are offset by large numbers of blue-greens (861 and 748).

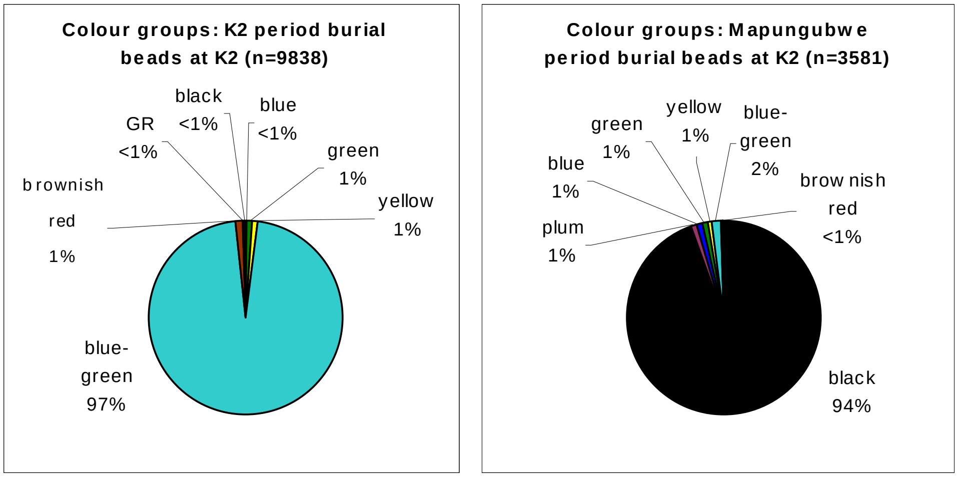
K.S. 34 is more difficult to place. It contains 2 black and 20 ‘blue’ beads along with 11 green and 1 yellow. This suggests a Mapungubwe period interment, but Gardner lumped several bead types under the colour blue, including bluer toned blue-green beads. This confuses matters since blues tending toward green are present in all of the series, but purplish blues are restricted to the Mapungubwe and Khami series. However, Gardner described the blues in K.S. 34 as opaque whereas Mapungubwe series blues are transparent. In addition he placed them in the M1 group, his designation for K2 period beads. Finally, the pots from the burial are K2 types. I therefore place K.S. 34 in the K2 section.

The blue-green beads from K.S. 61 have been left out because Gardner (Gardner 1963:50) stated they represented a necklace, but did not indicate how many beads were included. Table 9.10 lists all of Gardner’s K2 period graves that contained glass beads.

Table 9.10: K2 period burials with glass beads excavated at K2 by Gardner

Skeleton #	Position	Age	black	plum	blue	green	yellow	blue-green	brownish red	GR	associated pots
KS 5	Test Pit No.1 4' 1' 2'6"	young child								1	pot
KS 7	B.1.S.2. 3' 20' 1'	young person			3	1					sherds
KS 9	B.1.S.9. 3' 24' 2'	young child						26	10	4	true pot burial
KS 10	B.1.S.10. 10' 19' 2'	child 11-12						39	7		true pot burial
KS 11	B.1.S.9. 2' 6' 2'	child 8-9					2	18			true pot burial
KS 12	B.1.S.10. 3' 23' 3'	child 12-15						206		3	true pot burial
KS 13	B.2.S.3. 6' 12' 2'	adult 40-50						16			semi pot burial
KS 14A	B.2.S.1. 7' 13' 2' 6"	child 10-12						8			pot burial
KS 16	B.2.S.5. 6' 26' 2'	child 6-7					3	25			pots
KS 17	B.2.S.7. 14' 15' 2'	young child 8-9						17			sherds
KS 24	B.1.S.8. 9' 13' 3'	young child 3						373			pots
KS 26	B.1.S.12 1' 26' 3'	very young child						904	4		pot
KS 28	B.2.S.9. 4' 3' 3'	young child 2				23		16	4		none
KS 32	B.1.S.5. 9' 21' 4'	young child 4-8						1			pot
KS 33	B.2.S.6. 3' 15' 5'	adult 30-40						2364	7		several pots
KS 34	B.1.S.11. 6' 0' 3'	young person	2		20	11	1				pot burial
KS 37	B.3.S.5. 9' 3' 2'	young child						543			pots
KS 38	B.3.S.5. 10' 2' 2'	young child	12			42	19	748	19		pots
KS 39	B.4.S.4. 2' 20' 2'	young child						1			none
KS 41	B.3.S.4. 7'6" 10'6" 3'	newborn baby						11			in pot
KS 42	B.3.S.4. 5' 24' 3'	very young baby						23	3		pot burial
KS 43	B.3.S.4. 11'3" 10' 3'	young child 10-12					14	876	1		pots
KS 45	B.3.S.4. 13'6" 19' 3'	young person						506	1		pots
KS 47	B.4.S.6. 3' 20' 1'	young child						15		1	pots
KS 48	B.3.S.7. 15' 21' 2'	young person						10	1		pot burial
KS 49	B.4.S.7. 3' 22' 2'	young child						13			shard
KS 50	B.4.S.8. 2' 7' 3'	young child				24					none
KS 51	B.3.S.8. 0' 22' 3'	child				1	1				none
KS 52	B.4.S.6. 14' 24' 3'	child					1	6		5	shards
KS 53	B.3.S.9. 2' 20' 4'	young child					1	757	19		pots
KS 54	B.3.S.14. 3' 6' 1'	young child 8-9						9	1	1	none
KS 56	B.4.S.15. 5' 24' 1'	young baby						6			pot burial
KS 57	B.2.S.15. 8' 23' 1'	very young child					11	42	30		pots
KS 58	B.4.S.15. 11' 26' 2'	adult						6			pot burial
KS 60	B.3.S.14. 0' 26' 2'	young child					9	503	1		pot burial
KS 61	B.3.S.15. 2' 15' 2'	young child						0	1	1	none
KS 66	B.3.S.10. 13' 16' 5'	young child						437			pot burial
KS 67	B.5.S.12. 3' 28' 2'	young child				1					sherds
KS 68	B.5.S.12. 14' 16' 2'	young child					14	42	4	2	pots
KS 69	B.5.S.9. 8' 11' 3'	young child	2				7	861	21		none
KS 70	B.5.S.6. 7' 16' 3'	young child			1	1	2	29			none

As Figures 9.8a and b show, K2's burial beads are overwhelmingly blue-green (97%) and Mapungubwe's are black (94%).



Figs. 9.8a & b: K2 burial beads divided into K2 and Mapungubwe periods

9.2.3.1 AGE GROUPS OF SKELETONS FROM GARDNER'S K2 BURIALS

The age groups of skeletons at K2 (Table 9.11), recorded by Gardner (1963), display interesting patterns.

Table 9.11: Age distribution of K2 and Mapungubwe skeletons at K2

Affiliation	# Adult	# Children
K2	11	54
Mapungubwe	5	2

Furthermore, 41 (63%) of the 65 K2 burials contained glass beads, while all 7 Mapungubwe period graves had them. Table 9.12 lists age statistics for both groups.

Table 9.12: Age distribution of K2 and Mapungubwe skeletons at K2 associated with glass beads

Affiliation	# Adult	# Children
K2	3	38
Mapungubwe	5	2

Of the 24 K2 burials that did not have glass beads, 8 were adults and 16 children, but many of them had other grave goods. Only 2 adults and 9 children lacked funerary furniture of any sort.

The rather dramatic differences between the age groups could indicate that a change in burial practices had occurred. Huffman and Murimbika (2003), however, explain the differences. The area to the south of the central midden, where Gardner found all the skeletons, was a residential zone. In Eastern Bantu practice women and children were normally buried in the vicinity of their homes: women behind the hut, children in front, and infants beneath it. Males of the main bloodline were buried in the kraal, where Gardner barely excavated. The Mapungubwe burials at K2, however, involved the transport of bodies, perhaps indicating the deceased were in some way unusual, thus possibly accounting for the high percentage of adults.

9.2.3.2 BEAST BURIALS

Generally, beast burials include parts of cattle and sometimes other animals, but entire carcasses are not involved. Because of the associated 'grave' goods these 'burials' probably involved rituals of some sort. The goods varied amongst the six recorded burials (Gardner 1963:54-58):

1. fragmentary bovine bones and one complete *Achatina* shell carefully covered with shards. Other shards set on edge formed a 'fence', which in turn was surrounded by stones.
2. fragmentary bovine bones and a complete *Achatina* shell set on upturned shards and covered with down turned ones. These shards made up eight complete vessels. Other goods included:
    a. 1 green and 31 blue-green glass beads plus 8 fragments of Garden Rollers
    b. 5 *Achatina* and 4 ostrich eggshell disc beads
    c. 3 lumps of oxidized iron and a piece of iron bangle
    d. 2 grinding and 3 polishing stones
3. a portion of the lower jaw of a young bovine and one complete *Achatina* shell carefully covered by shards that made up four vessels. Also:
    a. 19 blue-green glass beads and 1 fragment of a Garden Roller
    b. 1 *Achatina* disc bead and one ostrich eggshell bead
    c. a large lump of white quartz
4. part of a bovine jaw and a complete *Achatina* shell covered by an inverted spherical pot, plus several *Achatina* disc beads.

5. several fragments of bovine bones, one complete *Achatina* shell and broken shards from four vessels
6. bovine limb bones and fragments of skull plates sandwiched between thick layers of broken pots (14 vessels in all) that were surrounded by shards set on edge. Beneath these a large down turned fragment of pottery covered:
    a. the tusk of a wild pig
    b. a large broken *Achatina* shell
    c. 12 blue-green and 5 brownish red glass beads plus ½ a Garden Roller
    d. 8 *Achatina* disc beads plus 8 cowries with their backs removed
    e. 2 copper rings plus 4 fragments and 2 bangles plus 1 fragment
    f. iron bangle fragments
    g. small piece of quartz crystal
    h. 2 *isifuba* (a game) stones
    i. 4 pieces of good quality mica placed inside rings and bracelets

The glass beads found in three of the six beast burials included 62 blue-green K2 series beads, as well as ten Garden Roller fragments, one green and five brownish red Indo-Pacific series beads. Gardner (1963:54) suggested the beast burials dated to the earliest period at K2, and the beads partially support this interpretation. The one 'burial' with brownish red beads, however, probably dates to a somewhat later time.

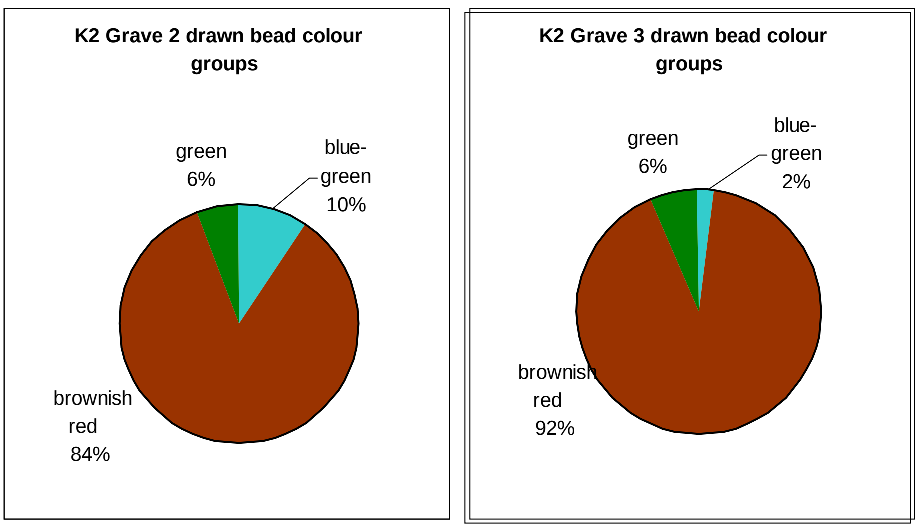
9.2.4 BURIAL BEADS FROM RECENT EXCAVATIONS AT K2

In this study the only burials excavated after Gardner came from Ts2 at the base of Bambandyanalo Hill. Two of these, Graves 1 (Plate 8E) and 3 (Plate 8F), came from Square A1 while Grave 2 is from Square A3. All were children. Grave 1 appears to be a fairly typical K2 burial because all beads belong to the blue-green group. The other two, however, are unusual in that most are brownish red (Table 9.13).

Table 9.13: Ts2 burial beads by colour group

Colour groups	Grave 1	Grave 2	Grave 3
blue-green	606	35	7
brownish red		306	287
green		20	20
Garden Roller		2	

Figures 9.9a and b show the colour groups of Graves 2 and 3.



Figs. 9.9a & b: Colour groups of drawn beads from K2 Graves 2 and 3

As Figure 9.10 demonstrates, shape, size and length ratio also differ.

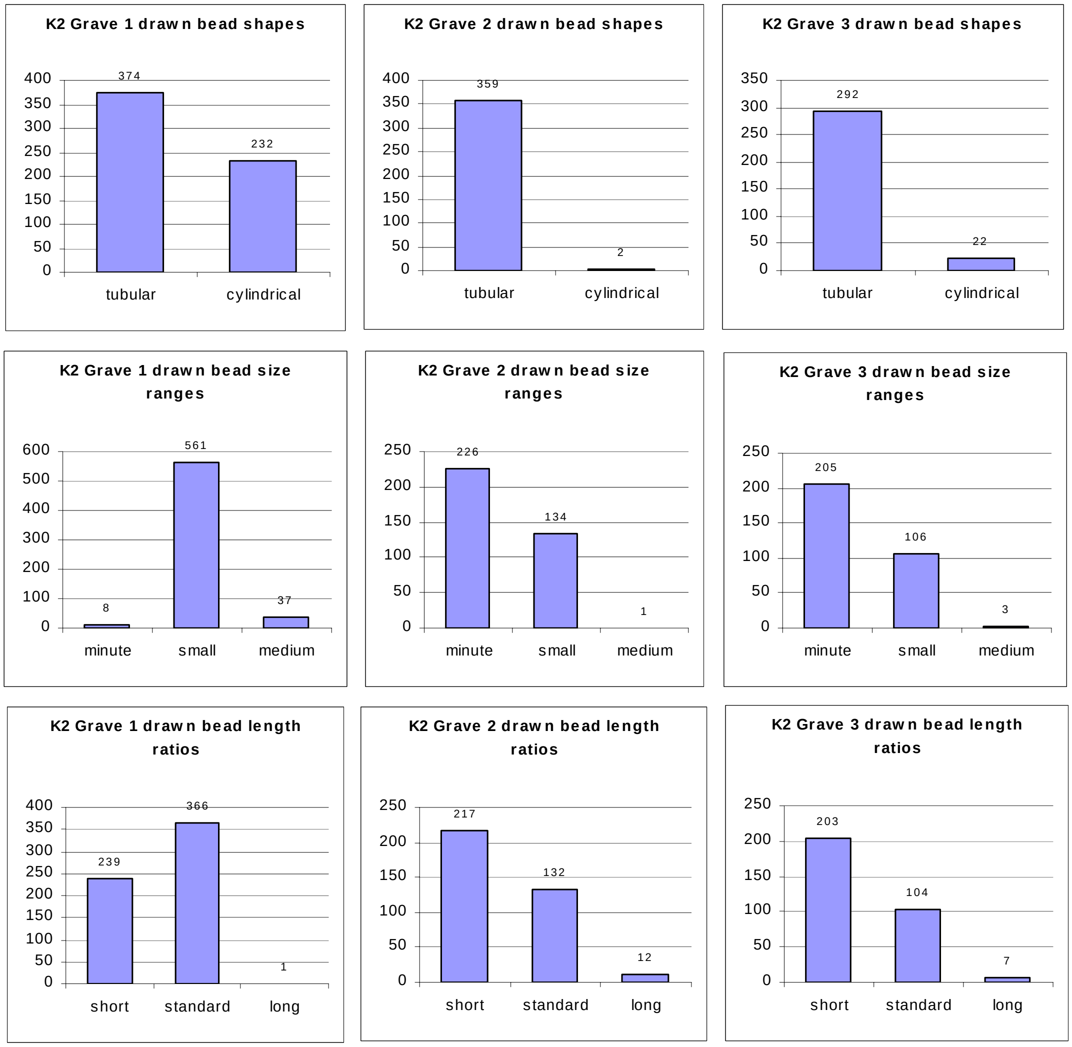


Fig. 9.10: Shape, size range and length ratios of drawn beads from K2 Graves 1, 2 & 3

As these charts indicate, Graves 2 and 3, with a preponderance of brownish red beads from the Indo-Pacific series, are closely related in shape, size and length ratio but differ from Grave 1.

These two rather aberrant burials probably date to the end of occupation at K2 when brownish red beads dominated bead imports. The only other burials with appreciable percentages are K.S. 57 (36.6%) and K.S 9 (27.8%).

Another burial, not dealt with directly in this study, should be mentioned. In 1998, a team from the Department of Anatomy at the University of Pretoria excavated an infant grave exposed by an eroding wall on the periphery of Block 5 Section 2 or 3, on the edge of the central midden. The infant was buried with about 250 glass beads (Plate 6E) near the pelvis, hands and neck, suggesting strings of beads adorned these parts of the body. In the neck area 7 large wound bluish-green oblate beads were found, several with small drawn beads wedged in their perforations (see Plate 6F). This suggests a necklace made of large beads interspersed with small ones. The remaining beads were all small to minute drawn oblates and 95% were black. The Anatomy team thought the burial dated to "the last phase of occupation at K2" (Steyn *et al*. 1999:105), but the black beads indicate this is yet another case of Mapungubwe inhabitants interring their dead at K2 (Wood 2000:83).

The large bluish-green wound beads are also important. Until the discovery of this burial, only two had been found at Greefswald: one on Mapungubwe Hill in the Gold Grave area (Beck 1937:Plate D) and the second in K.S. 31 (Van Riet Lowe 1955:9; Gardner 1963:45) (Plate 6B). It will be remembered K.S. 31 was a Mapungubwe period burial at K2. Thus all examples of this bead type are associated with the Mapungubwe period, and can be considered a marker for Mapungubwe assemblages.

9.2.5 DISCUSSION

9.2.5.1 CHARACTERISTICS OF K2 ASSEMBLAGES

With Mapungubwe period burial beads removed, blue-green drawn beads make up nearly 85% of K2 assemblages. Brownish red beads are the next most frequent, at about 8%. They appeared in significant numbers in only a few locations: in Rn2 they comprise 30%, and in Graves 2 and 3 (Ts2) they make up 84% and 92% respectively. Yellow is the next most frequent colour at 4.4% and green follows at 2.1%. Black is rare at just under 0.8%.

The middens at Ts2/TR D4 and Ts3 have colour proportions that closely resemble the overall K2 profile, but the Ts1 midden reflects a large number of yellow beads. The profile of residential area Rn2 is quite different and appears to foresee the beginning of a trend that becomes more evident at Mapungubwe: blue-green beads decline in numbers while brownish red and then black predominate.

9.2.5.2 K2 BEADS AS A DATING MECHANISM

Since radiocarbon dates at K2 are often inconclusive, it is proposed here that bead assemblages can help to refine dates. First, the earliest levels produce only blue-green and Garden Roller beads. Care must be taken, however, since later assemblages could produce this combination as well. Secondly, brownish red beads arrive in small numbers in the mid or perhaps early-mid period (only a few are found below Layer 5 in Ts3 in the central midden) and can increase in numbers rather dramatically in the final period. Thirdly, black beads appear only toward the end of occupation. Finally, the unusual translucent pale yellow beads, as found in Ts1, are useful in assigning a late date.

Garden Rollers are found throughout the site in considerable numbers. They seem to appear from the earliest levels, raising some curiosity about their ultimate origins. The presence of large numbers of moulds used to make them, however, leaves not doubt they were being made at K2.

9.3 MAPUNGUBWE

9.3.1 EARLY EXCAVATIONS

9.3.1.1 THE SITE

In 1935 Gardner (1963) excavated Blocks 3 and 4 (site of the original gold burials) (Figs. 9.11 & 12). He described one skeleton, M.S. No. 24 (M.S. denoting Mapungubwe Skeleton), as an adult pot burial that contained "thousands of small black oblates", 2 K2 type blue-green cylinders and 4 brownish red beads.

In 1937 he was instructed to excavate simultaneously at both K2 and Mapungubwe Hill. His first task was to set out a grid plan (Fig. 9.12) similar to that used at K2. It incorporated blocks that measured 90'x 75' (27.5 x 23 m). Each block was divided into six sections measuring 15'x 75' (4.5 x 23 m) and then into 5' (1.5 m) squares. Numbers in each section increase from north to south and from west to east. Thus, the code B.5.S.2. 44' 14' 9' indicates the object was found in Block 5 Section 2, 44 feet south and 14 feet east of the section lines and 9 feet deep. Blocks 1 and 2 were excavated to bedrock that year. Gardner, who recognized that Mapungubwe Hill deposits contained at least two pottery phases, was anxious to learn whether Mapungubwe pottery

(Schofield's M1) existed at all depths. He found that after 3' 6" (1,07 m) in Blocks 1 and 2, M1 ware was no longer evident. He also noted that Garden Rollers were not found in association with M1 pots.

Skeleton M.S. 25 was found in B.1.S.3. and M.S. 26 in B.2.S.3.. M.S. 25, a young person, was accompanied by "hundreds" of small black oblates, 48 transparent blue-green K2 type cylinders, 5 brownish red and 3 orange-yellow beads. M.S. 26, a young child, accounted for "hundreds" of small black oblates and 8 brownish red beads.

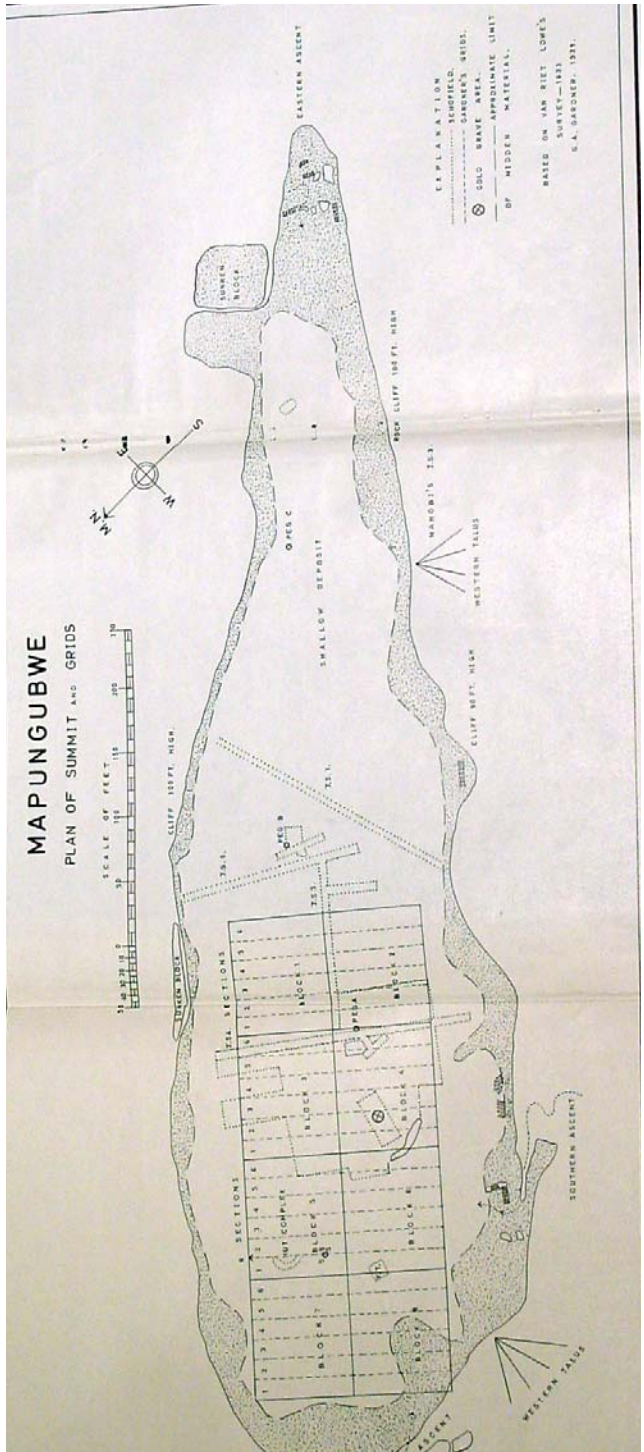


Fig. 9.11: Gardner's plan of Mapungubwe Hill (1963: Diagram 5)

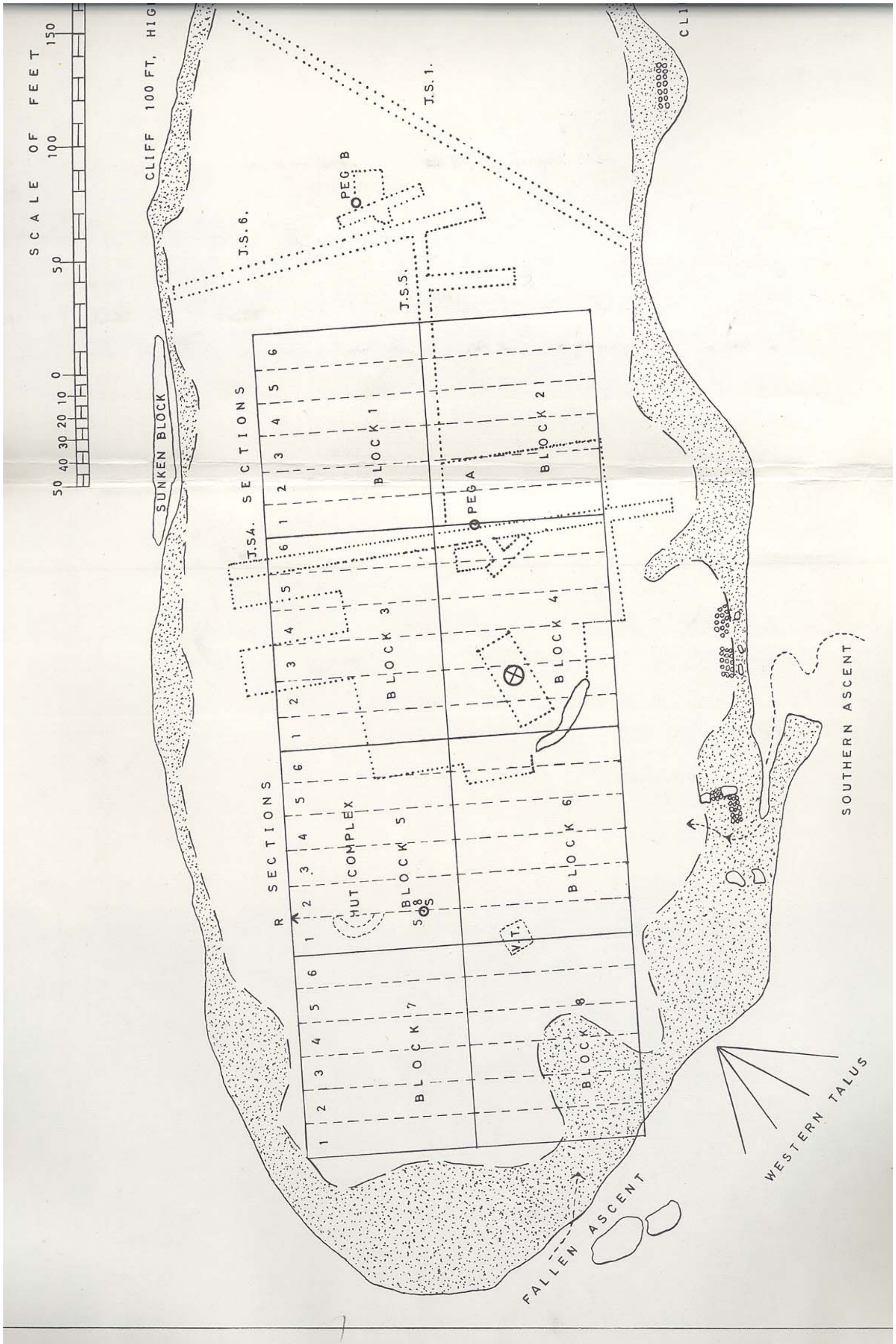


Fig. 9.12: Gardner's grid for Mapungubwe Hill (1963: Diagram 5)

In 1939 Gardner cleared to bedrock several sections begun in 1937. He began with B.4.S.6. and several sections in B.2.. He noted that “remarkably” few beads were recovered (only half a dozen Mapungubwe types from an old hut floor). Blocks 3 and 4 included a few gold beads and numerous black and opaque blue-green beads missed in 1934.

Gardner then set out Blocks 5, 6, 7 and 8 to the west of the gold grave area. Work began in the northeast margin of Block 5 and much to everyone’s surprise bedrock was not reached until almost 11’ (3,3 m). The area, recognized as the oldest and longest inhabited portion of the Hill, came to be known as the ‘great central depression’. Gardner noted that care was taken in the excavation to record details, especially the presence of M1 ceramics [he only included pottery from the last phase at Mapungubwe in this category]. Beads were rare in the deepest levels; only Garden Rollers were found, but no moulds were recovered. Gardner noted that above his Stratum D (2’ or 0,6m deep) beads were found in ‘profusion’.

9.3.1.2 BEADS FROM THE EARLY EXCAVATIONS

There is too little information about most beads from these excavations to be useful. Even the three burials excavated by Gardner cannot be completely reconstructed since he did not give numbers for the black beads. It is evident, however, that colour charts would be almost entirely black.

Nevertheless, it is possible to learn something from Gardner's Inventory No. 4 (Gardner 1963:133-168), which lists the finds from Blocks 1, 2, 5, 6, 7 and 8. As Table 9.14 shows, bead numbers below the 5' [1,5 m] level are very low, but at 5' they suddenly jump to nearly the same numbers as found in the 1' level. This is not the result of a single hoard; the beads came from across the area, but B.5.S.1. did have two levels that account for over half the total: 0'48'5' had 22 glass beads and 0'30'5' contained 39.

Table 9.14: Beads by colour group and level from Gardner's Mapungubwe Hill excavations

DATA FROM GARDNER'S INVENTORY NO. 4 (pp. 133-168)														
Depth	blue	b-g MapO	b-g K2	green	yellow MapO	yellow I-P	orange	br-red	black	plum	br-yellow	wound	Garden Roller	Totals
<= 1'	2	0	0	15	13	0	0	0	80	0	0	0	0	110
2'	3	6	0	10	4	1	3	6	30	2	0	1	1	67
3'	0	2	4	5	0	0	1	12	15	0	0	0	5	44
4'	0	3	0	1	0	0	0	6	0	0	0	1	2	13
5'	0	7	0	8	0	1	0	33	40	0	2	1	9	101
6'	0	1	0	0	0	0	0	1	0	0	0	0	0	2
8'	0	0	0	0	0	0	0	0	0	0	0	0	3	3
9'	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Totals	5	19	4	39	17	2	4	58	165	2	2	3	22	342

Figure 9.13 shows the colour profiles for these beads. Figure 9.13a combines all levels while the others are for individual levels. Below the 5' level, too few beads were recovered for analysis. The 1' level profile is unusual and difficult to interpret, especially the total absence of blue-green beads. The 4' level is odd as well in that it contains no black beads. The lower levels tend to include higher proportions of brownish red beads, a general pattern at Mapungubwe that will be discussed later. The two lowest levels containing beads had only Garden Rollers.

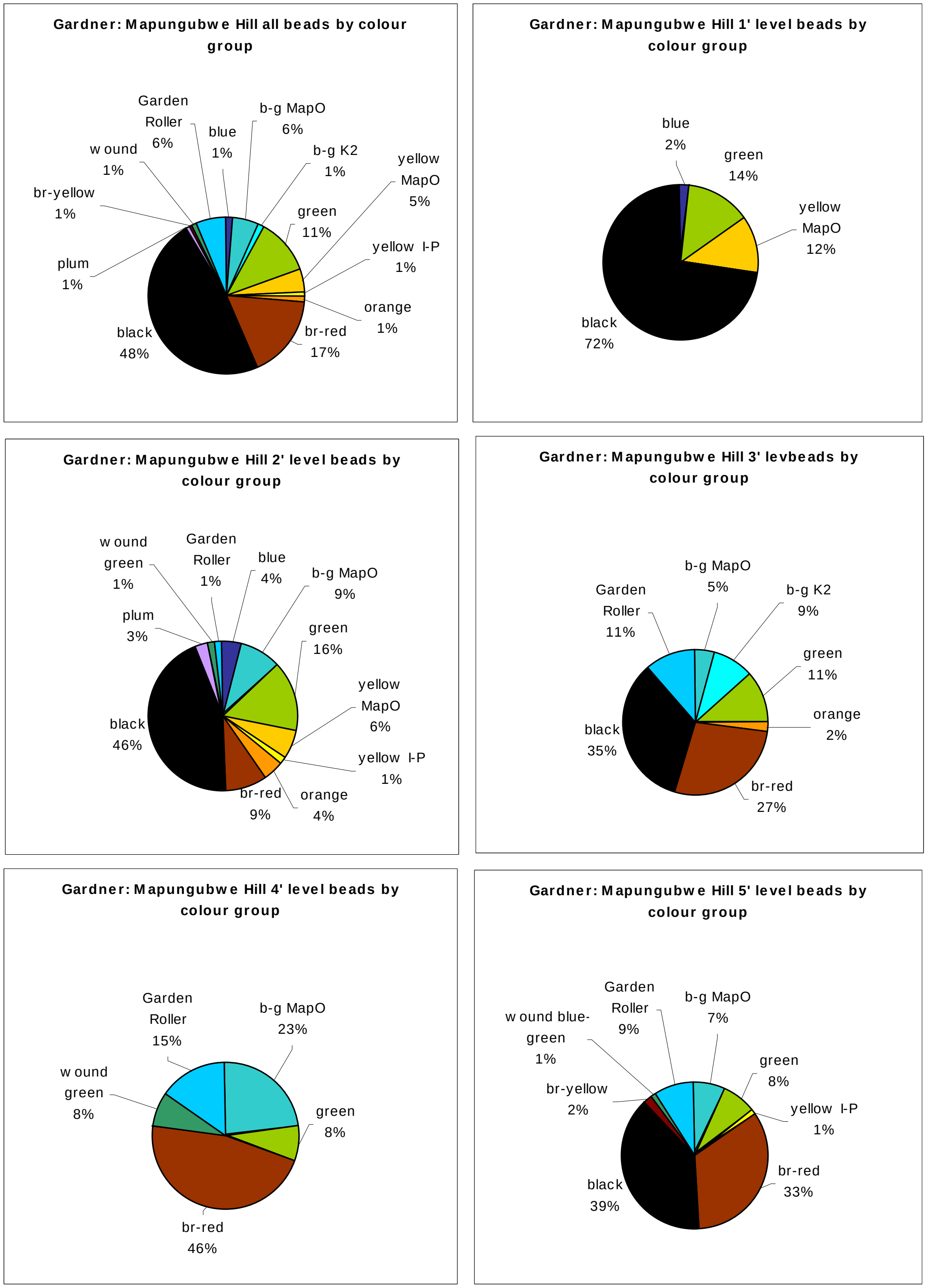


Fig. 9.13: Colour profiles for Gardner's Mapungubwe Hill beads

9.3.2 MAPUNGUBWE HILL – LATER EXCAVATIONS

9.3.2.1 THE SITE

The University of Pretoria excavated both MK1 and MK3 (Fig. 9.14), but I was not able to locate enough of the beads from MK3 to for use in this study.

MK1 was positioned on the northwest end of Mapungubwe Hill in Block 7 Sections 4 and 5 (Fig. 9.12). Gardner excavated Section 6 but did not reach Sections 4 and 5, so MK1 was sited there to examine the only complete stratification remaining and to reconstruct site chronology (Meyer 1998:118). The Pretoria team excavated an area of 18 x 6 m divided into 3 x 3 m squares (Fig. 9.15).

MK1 was a residential area containing household refuse, house floors, stone features and occasional walls. Calibrated dates of AD 1210 to 1270 (Vogel 2000:56) were obtained from charcoal from burnt huts in Layer 11.

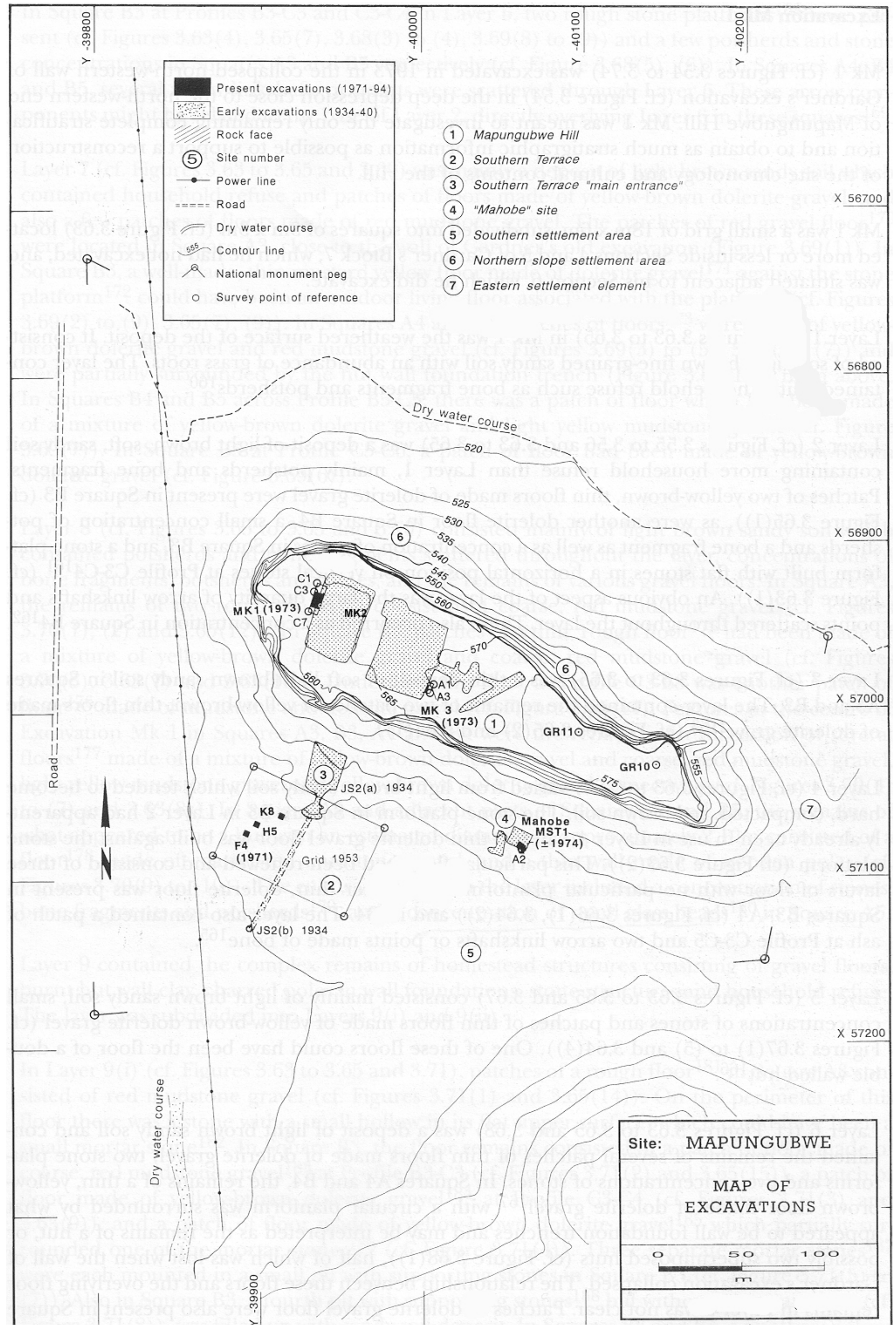


Fig. 9.14: Plan of Mapungubwe Hill and Southern Terrace excavations 1971-1994

(after Meyer 1998:117)

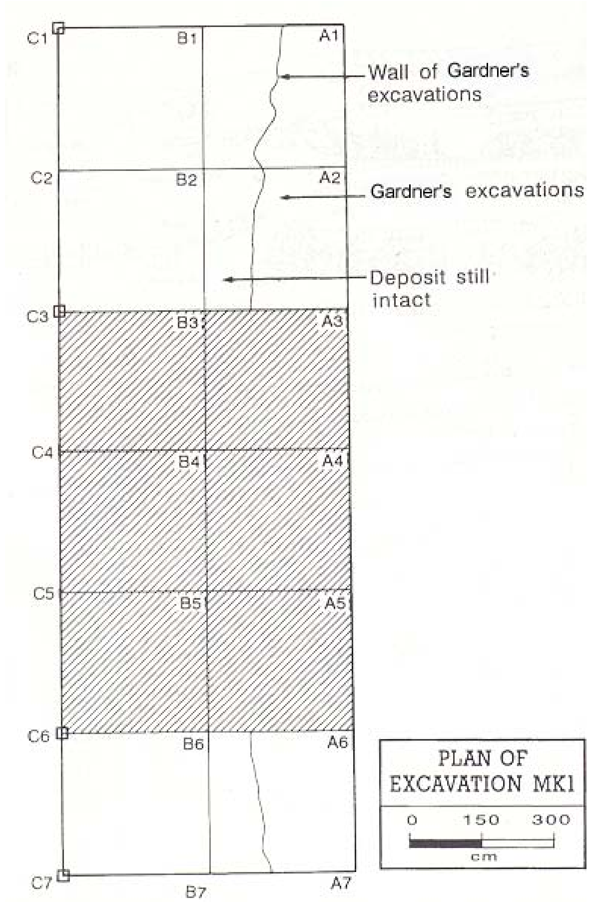


Fig. 9.15: Plan of MK1 (after Meyer 1998:127)

9.3.2.2 MAPUNGUBWE HILL BEADS

Like other areas under study, most of the beads recovered from Mapungubwe Hill and the Southern Terrace are simple, drawn monochrome cylinders, tubes and oblates. The smallest, most uniform oblates seem to have been favoured by elites. This is evident in the royal burials, which contained vast quantities of these tiny uniform beads (Plate 5A). Those from other assemblages – in the residential zones on the Hill and Southern Terrace – are less uniform in both size and shape. Since I am not examining beads from the early excavations, my statistics will not reflect characteristics of beads from elite burials.

Apart from these monochrome drawn beads, a few large as well as decorated beads (Plate 6A) were recovered from Mapungubwe Hill in the early excavations (see Chapter 5 for details). Gardner (1963) recorded 22 Garden Rollers from the Hill and noted they were the only beads present in the two deepest layers. Meyer's excavations recovered only one example (from MK1 Sq. B3 L.10iii). A total absence of moulds and reduced numbers compared to K2 suggest Garden Rollers were not made at Mapungubwe.

The Hilltop beads under study all come from MK1 Squares A3, B3, B4 and B5. As the plan (Fig. 9.15) makes evident, A3 has a reduced deposit since Gardner excavated more than half of it earlier. The total number of beads recovered from A3 reflects the smaller amount – it contained 327 beads while B3 and B4 had over 700 each. Bead numbers in B5 decline to 315 – most likely because the deposit there is shallower: at B3 Layer 9i is approximately 1,15 m below the surface while in B6 it is only 0,65 deep (Meyer 1998:128).

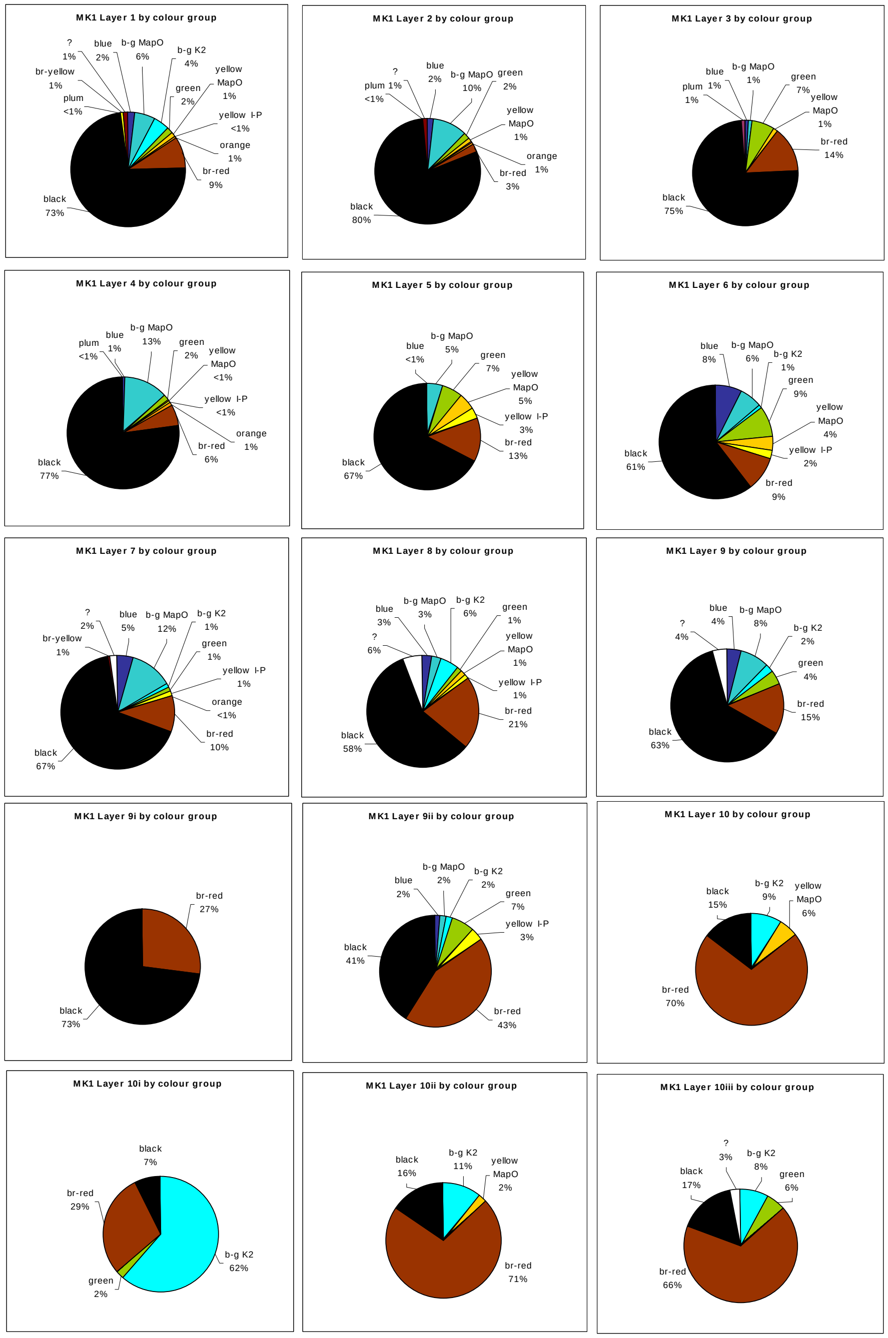
Table 9.15 itemizes bead numbers by layer and colour group for MK1 squares. The layers can be combined because they are contiguous.

Table 9.15: MK1 layers for squares A3, B3, B4 & B5 combined by colour group

MK 1 BY COLOUR GROUP													
[All Squares combined]													
Layer	blue	b-g MapO	b-g K2	green	yellow Map	yellow I-P	orange	br-red	black	plum	br-yellow	?	Totals
1	11	33	25	12	5	1	3	50	416	1	3	8	568
2	6	32		6	4	1	2	8	242	1		4	306
3	1	1		6	1			12	64	1			86
4	2	31		4	1	1	3	14	187	1			244
5		3		4	3	2		8	41				61
6	10	8	1	11	5	3		12	77				127
7	8	20	2	2		2		17	111		1	3	166
8	2	2	4	1	1	1		15	42			4	72
9	2	4	1	2				7	30			2	48
9i								3	8				11
9ii	1	1	1	4		2		25	24				58
10			5		3			38	8				54
10i			25	1				12	3				41
10ii			5		1			32	7				45
10iii			3	2				24	6			1	36
11		1	11			1		91	3				107
Totals	43	136	83	55	24	14	8	368	1269	4	4	22	2030

A key goal of this analysis is to determine when the Mapungubwe Oblate series appears in the sequence. The first indication appears in Layer 9. Below it there are few Mapungubwe Oblate series beads, and those all came from Square B5, which contained a pit that extended from Layer 2 all the way down to bedrock (Meyer 1998:120).

Figure 9.16 gives colour profiles for MK1 beads by layer, including Square B5 and its pit. Plate 9 shows changes by layer for Square B3.



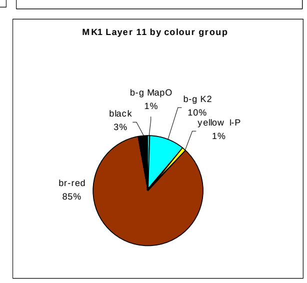


Fig. 9.16: MK1 colour profiles by layer

The beads from the pit could affect the profiles of some layers. To adjust this affect, I removed all B5 beads and determined new profiles (Fig. 9.17)

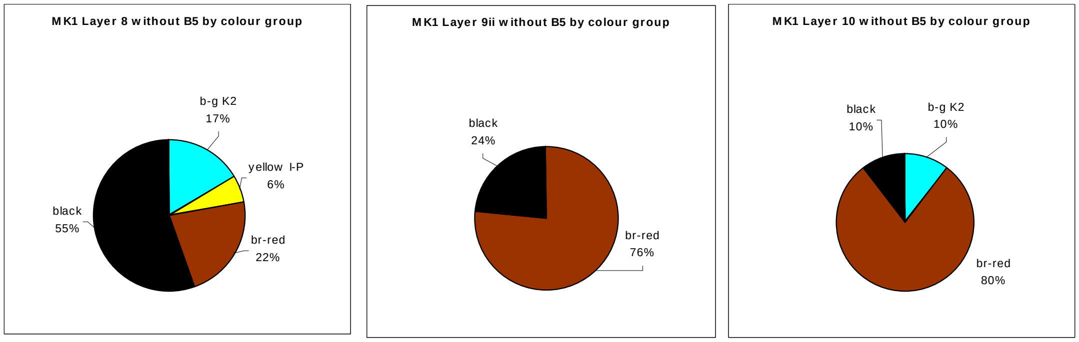


Fig. 9.17: MK1 Layers 8, 9ii & 10 excluding Square B5

The only profiles that changed were for Layers 8, 9ii and 10. With Square B5 beads removed, all layers below Layer 9 consist of mostly brownish red or black beads. A few have a significant number of K2 series blue-green beads, and green beads appear in small numbers. Only 1 yellow bead remains: a Mapungubwe Oblate yellow in Layer 11. It comes from Square A3, the one that was partially dug by Gardner, so was probably displaced.

Therefore, the deposits in MK1 (excluding Square B5) help clarify the bead sequence. The bottom layers (9i and below) contain modest numbers of beads, only 279 out of a total of 1715. Brownish red beads (69%) dominate the bottom layers, and include some K2 series blue-green beads (18%) and black beads (13%). This brownish red dominated mix characterizes the transitional phase between the K2 and Mapungubwe Oblate series, as was first recognized at K2 in residential area Rn2.

Thus, it appears that the Mapungubwe Oblate series arrived some years after Mapungubwe became the regional capital (c. AD 1220), but was well established at the time of the royal burials, which are thought to date to about 1250 (Huffman 2000:24). It, therefore, probably arrived roughly between 1230 and 1240, although some black beads arrived earlier.

9.3.3 SOUTHERN TERRACE – LATER EXCAVATIONS

9.3.3.1 THE SITE

Jones and Schofield removed most of the deposits on the Southern Terrace from what is known as the 'main entrance' to Mapungubwe Hill (JS 2a) in 1934 (see Fig. 9.14). They also extended an enormous trench (JS 2b) from there to the southern edge of the occupation zone. Little information was recorded from this work, so in 1971 Pretoria University archaeologists dug three test trenches, F4, H5, and K8, in the same area to reconstruct stratigraphic detail and cultural materials (Meyer 1998:142). Each trench measured 12'x 12' (3,7 x 3,7 m).

9.3.3.2 SOUTHERN TERRACE BEADS

The two Southern Terrace squares for which I could find the longest and most complete sequences are F4 and K8. Square F4 is represented by 8 layers, which are all present. It is probable some of the beads from Layer 4, 9 and 10 are missing. In Square K8, I was able to locate beads only from the layers shown in Table 9.16: Layer 2 would surely account for a large number of beads but Layers 9 to 10, 13, and 14 to 16 probably contained few beads and some perhaps had none.

Table 9.16: Total number of beads from S.T. Squares F4 and K8 by layer

ST Square F4			ST Square K8	
Layer	Total		Layer	Total
1	113		1	117
2	288		2	missing
3	34		3	45
4	8 [part missing?]		4	52
5	44		5	17
6	14		6	6
7	16		7	5
8	16		8	1
9	none or missing		11	2
10	none or missing		12	3
			17	2
Total	533			250

As Table 9.16 demonstrates, both squares have a large number of beads in Layer 1. Layer 2 in F4 more than doubles the number in Layer 1. Unfortunately, we do not know if K8 Layer 2 was similar since I could not locate the beads. From Layer 5 or 6 down, both squares produced significantly fewer beads, so it seems evident that during its early occupation the Southern Terrace (or at least these two areas) had relatively small numbers of glass beads – K8 having fewer than F4 even though its sequence is longer.

Figure 9.18 illustrates colour proportions for Square F4 by layer and Figure 9.19 shows the same for K8. Tables 9.17 and 9.18 list the data underlying Figures 9.18 and 9.19 respectively.

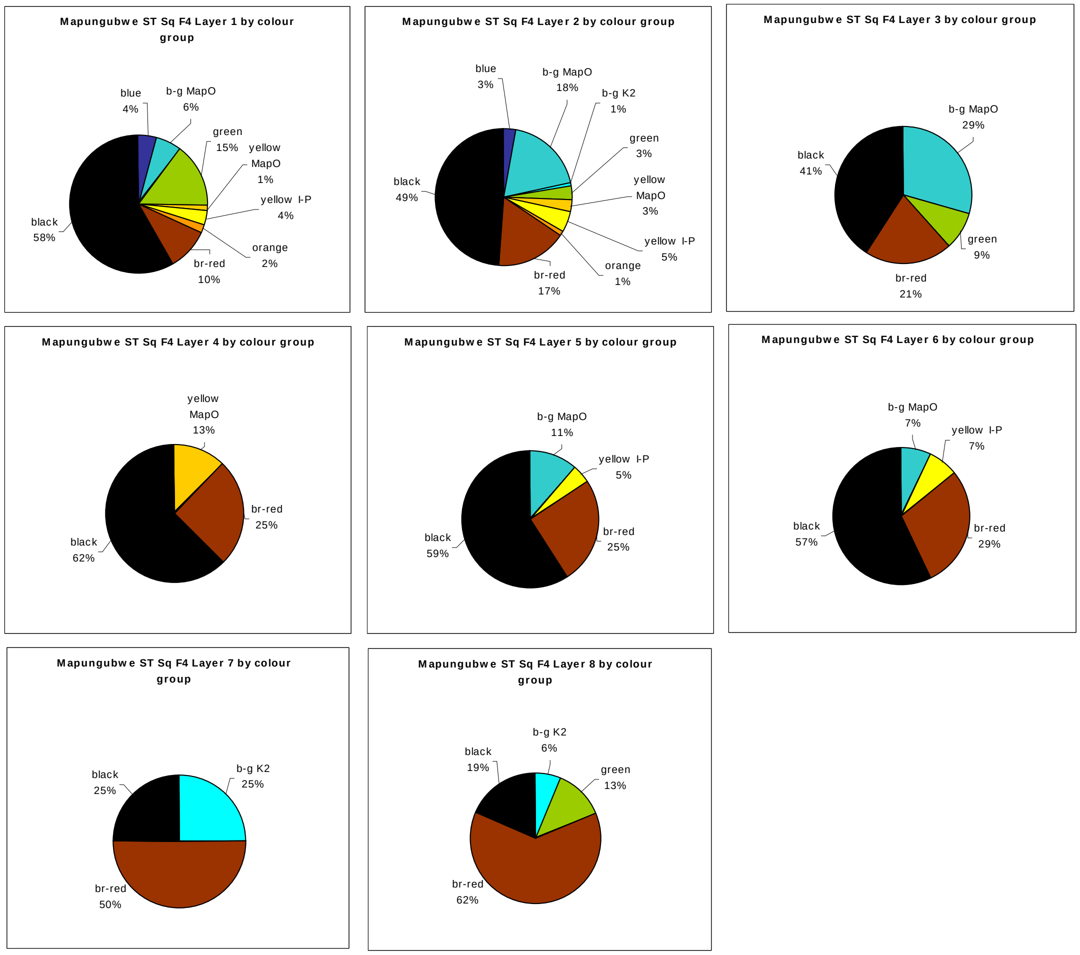


Fig. 9.18: Mapungubwe Southern Terrace Square F4 colour groups by layer

Table 9.17: Numbers of beads from Southern Terrace Square F4 layers by colour group

Square F4:	MAPUNGUBWE SOUTHERN TERRACE BY LAYERS										
Layer	blue	b-g MapO	b-g K2	green	yellow Map	yellow I-P	orange	br-red	black	?	Totals
1	5	7		17	1	4	2	11	66		113
2	9	53	3	9	8	14	3	48	141		288
3		10		3				7	14		34
4					1			2	5		8
5		5				2		11	26		44
6		1				1		4	8		14
7			4					8	4		16
8			1	2				10	3		16
Totals	14	76	8	31	10	21	5	101	267		533

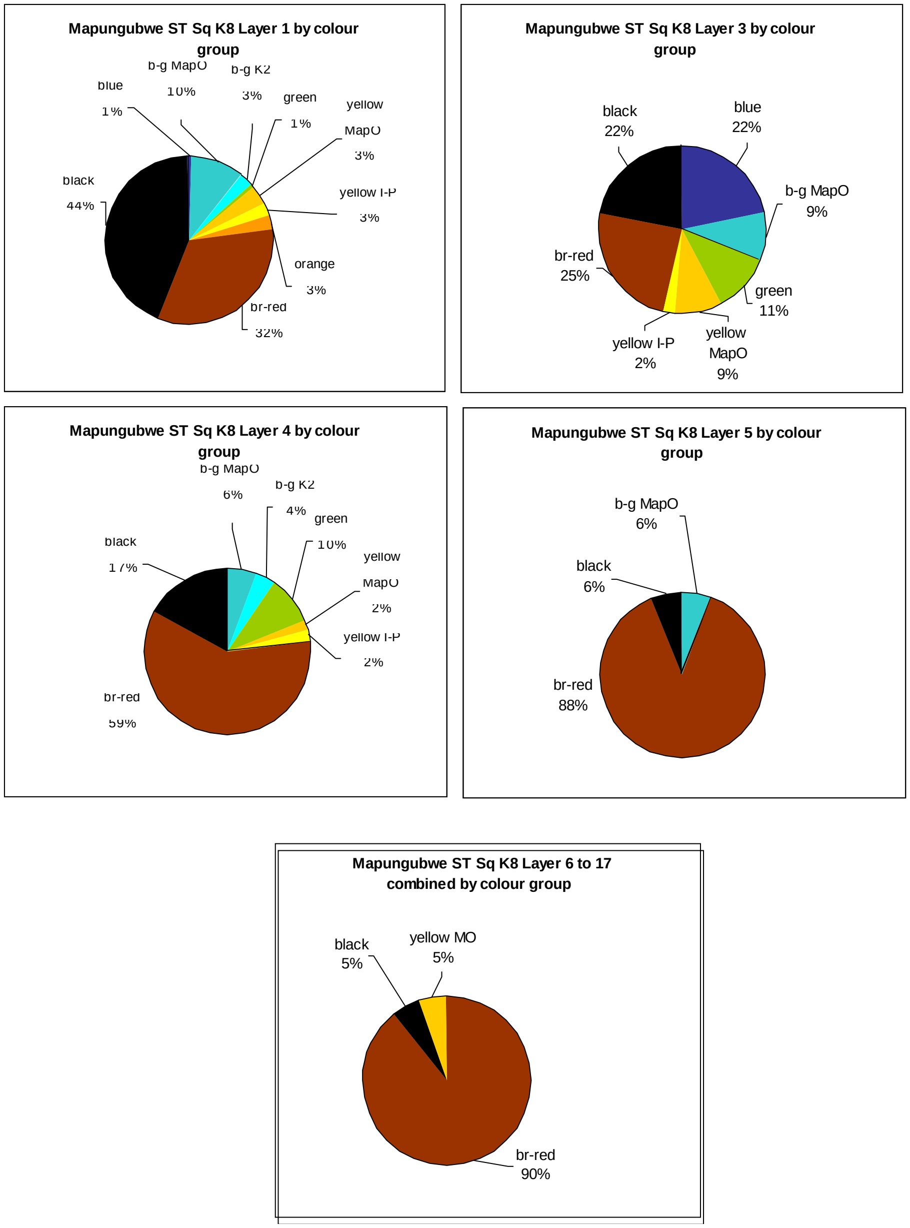


Fig. 9.19: Mapungubwe Southern Terrace Square K8 colour groups by layer

Layers 6 through 17 have been combined since they represent only 19 beads and are mainly brownish red. The Mapungubwe Oblate yellow present is an anomaly that may have filtered down or perhaps I have misidentified it.

Table 9.18: Numbers of beads from Southern Terrace Square K8 layers by colour group

Square K8:	MAPUNGUBWE SOUTHERN TERRACE BY LAYERS										
Layer	blue	b-g MapO	b-g K2	green	yellow Map	yellow I-P	orange	br-red	black	?	Totals
1	1	12	3	1	4	3	3	38	52		117
3	10	4		5	4	1		11	10		45
4		3	2	5	1	1		31	9		52
5		1						15	1		17
6								5	1		6
7								5			5
8								1			1
11								2			2
12					1			2			3
17								2			2
Totals	11	20	5	11	10	5	3	112	73		250

Observations that can be made in comparing F4 and K8:

- Colour profiles are somewhat different. If all levels are combined, black make up 50% of F4 and 30% of K8. This indicates F4's profile is closer to that of MK1 on the Hill. In addition F4 has black beads in all layers but in K8 they don't appear until Layer 6.
- Black predominates in the upper levels and brownish red in the lower ones. The switch to predominately brownish red occurs at a higher level in K8 - there they reach over 50% by Layer 4 while in F4 this occurs in Layer 7.
- While F4 has 267 black beads, K8 has only 73 but both have similar numbers of brownish red. All of this suggests to me that K8 predates F4 and was probably not a residential area by the time the last layer was deposited in F4.

9.3.4 COMPARING MK1 AND SOUTHERN TERRACE BEADS

Because of the preponderance of black beads in royal burials on Mapungubwe Hill, one might safely conclude that black was favoured by elites. It appears the bead assemblages from MK1 and the Southern Terrace support this proposition. Due to its position on the Hilltop, MK1 should be more elite than the residential areas below on the Southern Terrace. As Fig. 9.20 demonstrates, black beads make up 63% of MK1's colour profile while at F4 they form 49% and at K8 only 29%.

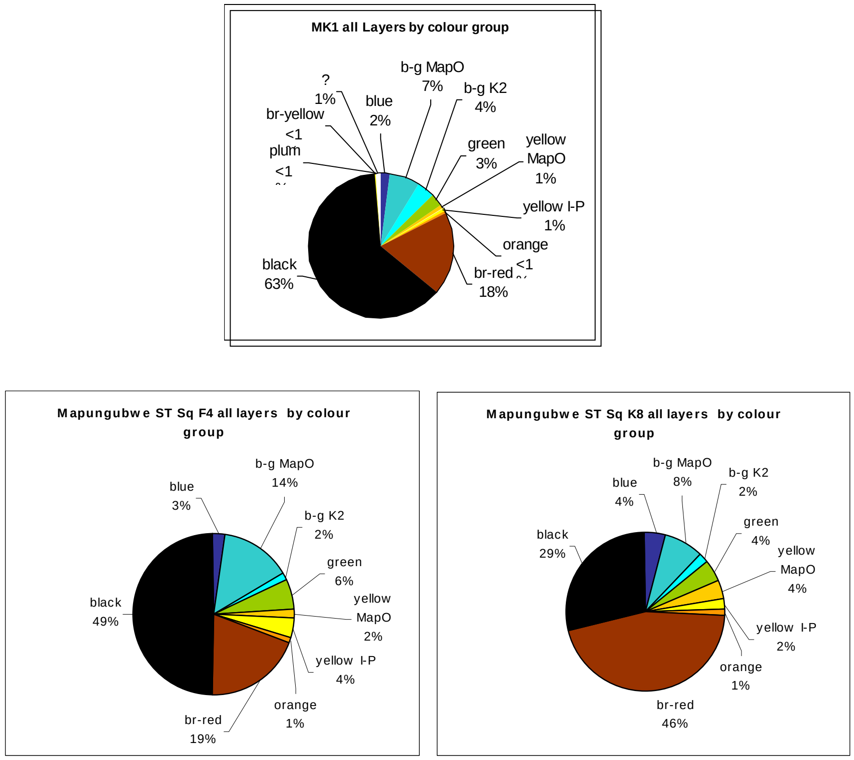


Fig. 9.20: MK1, F4 & K8 colour profiles

Because beads from the royal burials were mostly small uniform oblates, bead shapes and sizes might also support this conclusion. Figure 9.21 shows shapes from the three areas. MK1 and F4 both have higher proportions of oblates than K8.

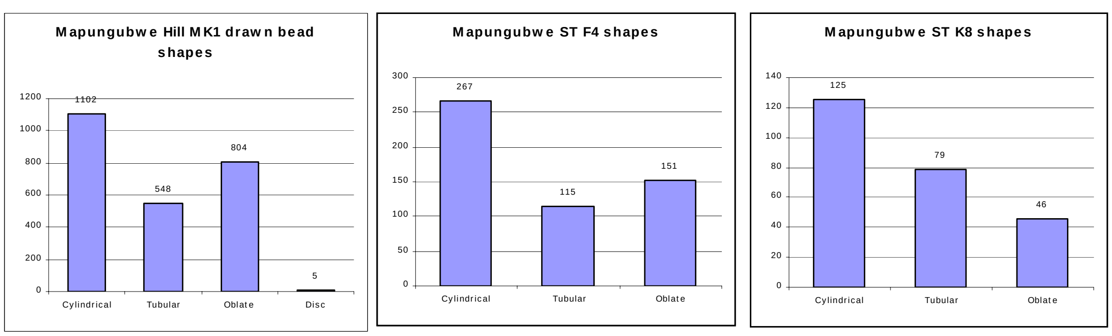


Fig. 9. 21: Shapes of MK1, F4 & K8 beads

Figure 9.22 presents diameters of the three areas. MK1 has proportionally more minute beads than the other two.

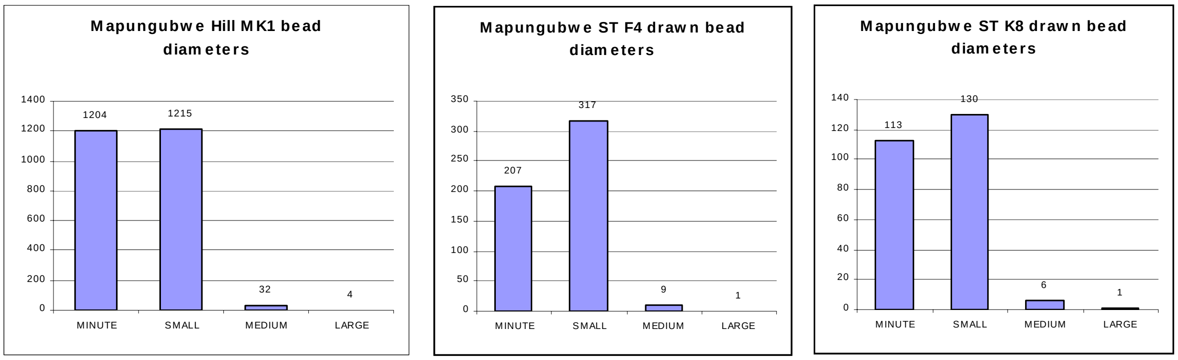


Fig. 9.22: Sizes of MK1, F4 & K8 beads

9.3.5 DISCUSSION

The Greefswald sites of K2 and Mapungubwe were the capitals of the Shashe-Limpopo region from the early 11th to the end of the 13th century. Their bead assemblages provide a comprehensive picture of the types available and in use. Some important trends are evident. The blue-green K2 series and the large Garden Rollers characterize the earliest period. Indo-Pacific yellow and green beads arrived next and are found in small numbers throughout most of the three centuries. Brownish red Indo-Pacific beads made their appearance somewhere around the second or early third quarter of K2's time span. By the end of occupation they form an appreciable proportion of total beads. Black beads arrive in small numbers toward the end of K2's existence. These early blacks are chemically related to the Indo-Pacific series.

Increasing proportions of brownish red beads characterize late assemblages at K2 and early ones from the Mapungubwe sites. (I believe, due to events on the supply side, that K2 series beads were no longer available and, for perhaps a few decades, mainly brownish red beads were being imported. K2 bead types were being curated, however, so still appear - but in decreasing numbers – in the lower levels at Mapungubwe sites.) Gradually the Mapungubwe Oblate series makes its appearance. First in the form of black beads, followed by the full range of colours. Black characterizes Mapungubwe period assemblages, accounting for 50% or more of totals in later phases and up to 98% in burials (Wood 2000:83).

CHAPTER 10: SKUTWATER

10.1 THE SITE

The site of Skutwater (22°21'S 30°02'E) lies about 18 km east of Mapungubwe and 3.5 km south of the Limpopo River. It consists of a mound of cultural debris covering just over one hectare, in which Van Ewyk (1987) uncovered a cattle byre surrounded by dwellings, providing a good example of the Central Cattle Pattern. Temporally, he recognized the site encompassed a single component. Present radiocarbon results date Skutwater from about AD 1220 to 1280 (Vogel 2000:57), at the peak of Mapungubwe's power. Van Ewyk excavated two trenches, abutting to form a T and measuring 9 x 5 m and 6 x 21 m. The longer trench extended into the byre, while the other exposed the habitation area. The area was excavated in 10 cm spits, except when visible layers were evident, and the depth (Layer 13) reached 1,25 m.

10.2 THE BEADS

Van Ewyk noted 1250 glass beads (not including burial beads). He divided them into types based only on colour, although he did separate the cylindrical transparent blue-greens from the opaque blue-green oblates. His main approach was to compare them with beads excavated at Mapungubwe by Eloff (1979) and Meyer (1980). Problematically, he placed all beads (including glass, shell and bone) into one group, so his similarity index and Pearson r correlation coefficient figures are strongly affected by the large numbers of non-glass beads, which are not comparable between the two sites, Skutwater has 60% and Mapungubwe only 36%.

All Skutwater glass beads, both non-burial and burial, are drawn, simple and monochrome with reheated ends. I treat burial beads separately and have used Van Ewyk's original bead count since many beads are now missing or misplaced.

10.2.1 NON-BURIAL BEADS

As can be seen in Table 10.1, bead numbers increase fairly consistently from lower levels to upper ones. The deepest four layers (10 to 13) have no glass beads (although 10 to 12 do contain ostrich eggshell beads). Colour preferences changed over time as well, with black in particular increasing through time.

Table 10.1: Skutwater non-burial bead colours and percentages by layer, from Van Ewyk (1987)

Layer	tsp. blue-green tubular		opaque blue-green oblate		opaque green		opaque yellow		opaque orange		opaque brownish red		tsp. cobalt blue		opaque black		Totals
1	25	5%	63	12%	65	12.5%	33	6%	2	0.4%	32	6%	4	0.8%	294	57%	518
2	7	3%	35	16%	30	13%	8	4%	1	0.4%	23	10%	0	0	119	53%	223
3	6	2.5%	33	14%	22	9%	11	4.6%	1	0.4%	35	15%	0	0	131	55%	239
4	5	4%	7	6%	12	10%	5	4%	1	0.8%	35	29%	2	1.7%	52	44%	119
5	4	9%	7	15%	2	4%	1	2%	0	0	7	15%	2	4%	23	50%	46
6	0	0	4	14%	3	10%	3	10%	1	3%	6	21%	0	0	12	41%	29
7	2	5.5%	2	5.5%	1	3%	1	3%	1	3%	20	56%	1	3%	8	22%	36
8	16	50%	4	12.5%	1	3%	0	0	0	0	1	3%	0	0	10	31%	32
9	0		2	25%	2	25%	2	25%	0	0	1	12.5%	0	0	1	12.5%	8

Figure 10.1 shows the overall colour profile of the Skutwater glass beads and Table 10.2 gives the data on which it is based.

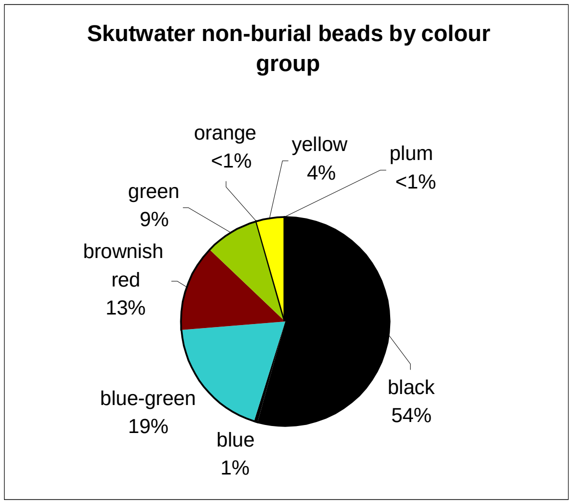


Fig. 10.1: Skutwater non-burial beads by colour group

Table 10.2: Skutwater non-burial beads by colour group

Colour group	# beads
black	612
blue	9
blue-green	211
brownish red	151
green	99
orange	1
yellow	48
plum	1
Total	1132

However, some colour groups – especially the blue-green group – include beads from different series. Thus, they must be divided to determine series representation. As Table 10.3 shows, the majority (72%) belong to the Mapungubwe series, 23% are Indo-Pacific and 5% K2.

Table 10.3: Skutwater non-burial bead colours based on bead series

Colour group	K2 series	Indo-Pacific series	Mapungubwe Oblate series	Total
blue			9	9
blue-green	58		153	211
green		97		99
yellow		8	40	48
brownish red		151		151
black			612	612
orange		1		1
plum			1	1
Total	58	257	815	1120

Shapes for Skutwater glass beads are illustrated in Figure 10.2

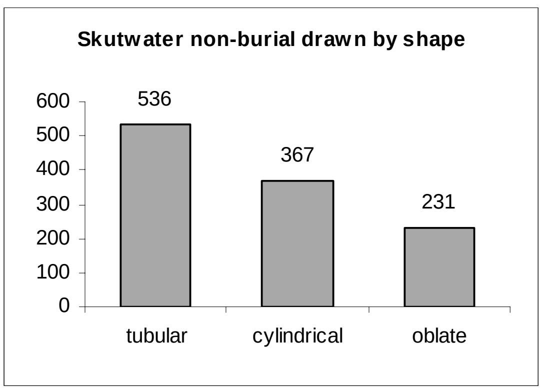
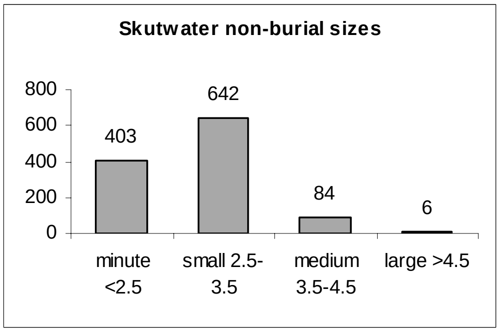
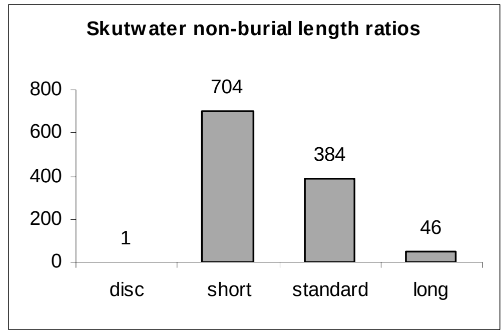


Fig. 10.2: Skutwater non-burial beads by shape

Figures 10.3a and 3b show size ranges and length ratios for Skutwater non-burial beads.





Figs. 10.3 a & 3b: Skutwater size ranges in mm and length ratios for non-burial beads

10.2.2 DISCUSSION

The access of Skutwater's inhabitants to glass beads, which probably were connected to status on some level since they were exotic and their access most likely controlled, increased over time. The uppermost layer contains more than double the number in the preceding layer and forms more than 41% of all beads found in the site.

More than 50% of Skutwater's non-burial beads are black. Although a few black beads may belong to the Indo-Pacific series, it is impossible to separate them without resort to chemical analysis, so all have been placed in the Mapungubwe Oblate group. Black beads follow the overall trend of increasing in numbers while rising through the layers. Brownish-red beads appear in significant numbers only in Layer 7. Their only visible trend is a decrease as a percentage from Layer 4 to Layer 1 (Plate 7I & J).

Cobalt blue, yellow, green and orange beads exhibit no particular patterns and appear in small numbers throughout the deposit. Mapungubwe Oblate series blue-green beads make up 12% to 25% of the total in 7 of the 9 layers, but no pattern is evident in their distribution. K2 series blue-green beads form 50% of Layer 8 but are absent in Layer 9. Significantly all 12 of the Layer 8 examples came from one square (E9) (Van Ewyk 1987:248), indicating a small cache. In any case these layers contain too few beads to be statistically viable. Apart from this concentration, blue-green K2 series beads appear in small numbers (2.5% to 9%) fairly randomly throughout the squares and layers, suggesting they were being curated.

10.2.3 BURIAL BEADS

Van Ewyk (1987) excavated five adult and three juvenile burials. Four adults were interred in the kraal area; all others were found in the domestic zone. None of the residential area burials contained glass beads, but all byre interments did. Presently, 1351 burial beads are in the collection, but it is impossible to determine how many were recovered originally since Van Ewyk itemized only non-burial ones. A further complication is that bead labels do not correspond to the burials listed in the thesis. My only recourse was to match Van Ewyk's descriptions with the existing beads (Table 10.4).

Table 10.4: Identification of Skutwater burial beads (Van Ewyk 1987:91-104)

Burial #	Van Ewyk's description of beads from the burial	Beads present that fit his description	Bag #
F14.8.7	a small number of glass beads, black predominate	25 black, 23 blue-green, 1 green, 1 yellow	E13.9
E13.9.B3	a large number of glass beads, black predominate – from neck area	464 black, 1 green	E13.6
E13.8.B2	beads recovered were all of only one type: translucent blue-green canes (tubes) – from pelvic area	124 blue-green	E13/142
E14.5.B1	from neck area: large number of black with brownish red and a few green and yellow beads from pelvic area: beadwork panel of black and brownish red beads (measured 15x10cm)	467 black, 244 brownish red, 1 green	E13/142

It will be noted that the bag labelled E13/142 contains beads from two burials and that the label itself cannot be correct – there is no layer 142.

Since the number of burial beads (1351) is similar to non-burial beads (1250), it is possible to compare them. The burial beads show a somewhat different profile than non-burial beads. As Fig. 10.5 demonstrates, black is more frequent in the burial beads, making up 71% as opposed to 54%. As statistics from Mapungubwe and K2 demonstrate, it is typical for Mapungubwe period burials to have elevated percentages of black beads. Brownish red beads (18%) are slightly more popular in burials than in non-burial contexts (13%) while the proportion of blue-green beads from burials is 11% compared to 19% from non-burial deposits. However, if blue-green beads are separated by series, the differences between burial and non-burial assemblages are more defined:

only K2 types are present in burials while in non-burial contexts they account for only 27% of all blue-greens. The rest are Mapungubwe Oblates.

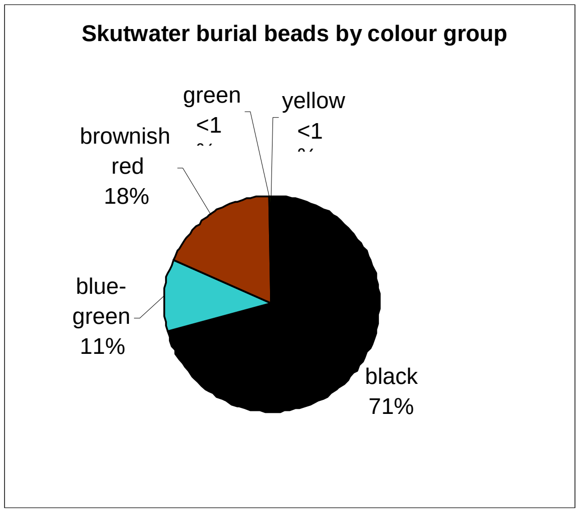


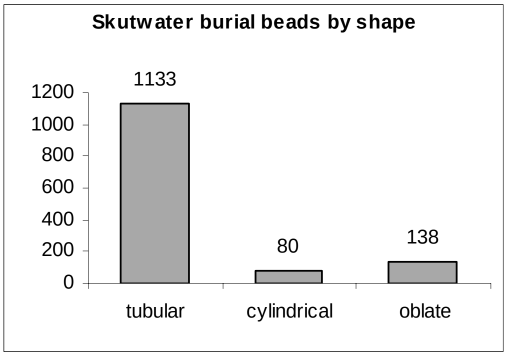
Fig. 10.4: Skutwater burial beads by colour group

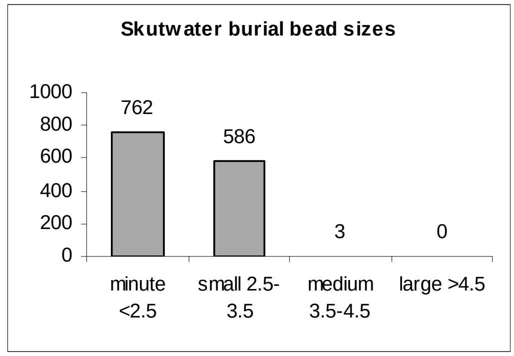
As Table 10.4 shows, almost all burial beads are black, brownish red or blue-green. All but 23 of the blue-greens came from one burial, and all are from the older K2 series. All brownish red beads came from one grave, the one with the largest number of beads.

Table 10.5: Skutwater burial bead colours based on bead series

Colour group	K2 series	Indo-Pacific series	Mapungubwe Oblate series
blue-green	147		
green		3	
yellow		1	
brownish red		244	
black			956

Over twice as many burial beads are tubular in shape compared to non-burial finds, and they tend to be smaller in diameter (Figs. 10.5a & 5b). Length ratios do not vary significantly.





Figs. 10.5a & 5b: Skutwater burial beads by shape and diameter size (in mm)

10.2.4 DISCUSSION

Three main observations can be made about the burial beads.

First, only adults were found buried in the kraal and only these interments contained glass beads. Second, the grave goods of one burial consisted solely of transparent blue-green beads. These are the classic K2 series bead and would have been unavailable and somewhat out of date by the time this individual was interred. They were probably heirlooms. Thirdly, the individual with the largest number of burial beads was found with the remains of a beadwork panel in the pelvic area (Plate 10B). Fouché reported that the skeleton from the 'Gold' grave (No. 14) on Mapungubwe Hill was buried with "a large quantity of glass beads, as if it had been wearing bead garments or girdles" (Fouché 1937:126). These two reports of beadwork panels or garments are a strong intimation that people in the Shashe-Limpopo area were making and wearing beadwork.

In terms of the entire site, another point is important. No other Mapungubwe period commoner site is known to have glass beads in such quantity. Van Ewyk found no indication of what the glass beads might have been traded for, but he did note that the byre size and depth of deposit indicate "large numbers of domesticated animals were herded throughout the period of occupation on the site" (Van Ewyk 1987:160). It is possible, given their proximity to Mapungubwe, that the inhabitants were custodians of part of the royal herd and were rewarded in part with glass beads.

CHAPTER 11: LEOKWE HILL

The Leokwe Hill site is on the farm Little Muck (22.15.20S, 29.16.00E), about 13 km west of Mapungubwe. It was excavated by John Calabrese (2000a; 2000b) who interpreted the western hilltop, Area A, as an early Mapungubwe elite residential area and the terrace below, Area B, as a commoner zone. Huffman (1986), after an early survey of the site, interpreted it as a Mapungubwe period provincial capital and more recently considers the hill might have been a rainmaking site before it was an elite residence (pers. comm.). Calibrated radiocarbon dates for the site (Vogel 2000; Vogel & Calabrese 2000) indicate that both areas were occupied sometime around AD 1200. There is also a much more recent Venda component. Ceramic evidence from Area A indicates it was used by K2-to-early-Mapungubwe people, while that from Area B shows it was inhabited by groups using Leokwe style pottery at the time of K2. The two groups possibly shared the area simultaneously, but more importantly, the evidence shows that some Zhizo-derived groups were still inhabiting the Shashe-Limpopo region long after the arrival of Leopard's Kopje people.

11.1 THE GLASS BEADS

Only 5 glass beads were recovered from Area B while 172 came from Area A. The number of Area A beads, however, is somewhat deceiving since many of them are the result of the later Venda occupation. It is difficult to determine exactly which beads should be removed from this study, since many beads remained popular over long periods, and Europeans eventually copied some of the earlier varieties.

11.1.1 AREA A BEADS

I first removed all beads that are obviously European in origin. This includes white or oyster coloured beads and opaque brownish-red-on-green (Indian red-on-green). Forty-four beads were thus excluded. The remainder I assigned to the most likely category based on colour, diaphaneity, glass quality and shape, assisted by comparing individual beads to pre-European and Venda types in the Van Riet Lowe collection. Division was aided by the observation that Venda beads often have flat ends (possibly ground flat locally) in contrast to older beads. Table 11.1 shows the results. Thus it appears that 64% of Area A beads are too recent for this study.

Table 11.1: Leokwe Hill Area A beads by probable source

Bead series	Number beads	Percentage of total
European	103	64%
European?	7	
Zhizo	2	1.2%
K2	16	17.4%
K2?	14	
Indo-Pacific	24	15.1%
Indo-Pacific?	2	
Mapungubwe Oblate	2	2.3%
Mapungubwe Oblate?	2	

The remaining 62 beads are mainly K2 and Indo-Pacific types. The high proportion of brownish red beads, along with a few black ones, indicate they belong to the late K2/early Mapungubwe period. The two brownish orange Mapungubwe Oblates suggest a date around or after 1230 (see Chapter 9).

The colour profile of pre-European beads in Area A (Fig. 11.1) shows a transitional pattern typified by high proportions of K2 blue-green and Indo-Pacific brownish red beads.

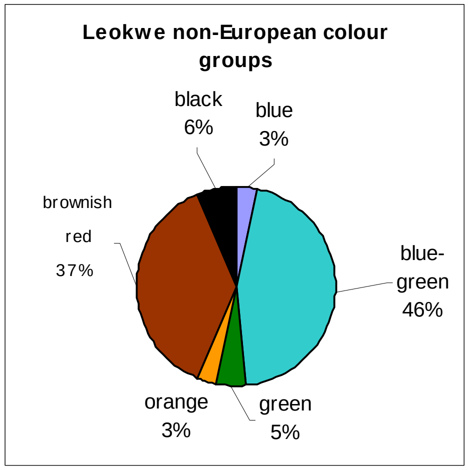


Fig. 11.1: Leokwe Hill Area A pre-European bead colour profile

11.1.2 AREA B BEADS

The five beads found in Area B are more difficult to place. They are all drawn tubes with untreated flat ends. Two appear to be Zhizo series beads that were probably curated because that bead type was last imported in the mid 10th century. One is blue, the most common Zhizo colour, and the other is blue-green; both are heavily patinated. The remaining three beads are unusual in K2/Mapungubwe contexts – they are tubular and black with flat ends. Although tubular black beads are found in both K2 and Mapungubwe assemblages, they are not found with untreated, flattened ends. The patination on these beads is unusual as well: one has a slightly golden patina similar to that found on some Mapungubwe black beads, and the other two have a shiny iridescent, rather metallic patina. It is possible the owners flattened the ends of K2 or

Mapungubwe Oblate tubular beads, but the unusual patina cannot be as easily explained.

11.1.3 COMPARISONS

Clearly, access to imported glass beads was different in the two areas. When numbers of beads from each are divided by volume of deposit (18.15m³ in Area A and 19.21m³ in Area B) (Calabrese 2000b:107), Area A accounts for 3.4 glass beads per cubic meter while Area B accounts for only 0.26 – a thirteen fold difference. It appears the Zhizo inhabitants of Area B had little access to these prestige items. Indeed, it is possible their access was even less because two beads were probably curated.

Comparing pre-European glass beads from Area A to other assemblages in the region is also instructive (Table 11.2).

Table 11.2: Concentrations of glass beads by site (Van Ewyk 1987; Calabrese 2000b:107)

Site	m³ excavated	# beads recovered	# beads per m³
Leokwe Area A	18.15	62	3.4
Castle Rock	9.25	52[10]	5.62
Pont Drift	67 (approximate)	625	9.33
Skutwater	222 (approximate)	1250[11]	5.63
K2 (Ts1, Ts2, Ts3, Rn2)	(see Chapter 9)	(see Chapter 9)	27.3 to 101

Castle Rock, which predates Leokwe, and Skutwater, which postdates it, are both considered to be commoner settlements. Pont Drift predates Leokwe but the two could overlap at their extreme ends. All three sites produced more glass beads per cubic metre

[10] This figure includes 42 glass beads and 16 Garden Roller fragments (representing 10 beads). If the fragments are excluded, the figure for beads per m³ is 4.54.

[11] This does not include the 1351 beads recovered from burials

than Leokwe Area A. However, all these commoner sites produced far fewer beads per cubic metre than the capitol K2. If exotic goods were controlled by elites, then elite areas would be expected to contain greater concentrations of such goods. Given these bead concentrations, and presuming the deposits are equally representative, Leokwe Area A does not conform to the expected pattern for an elite residential area. Perhaps the use of the prestigious hilltop area should be re-examined, or it might be necessary to reassess our definition of an elite residential zone.

CHAPTER 12: FAURE AND KOLOPE

12.1 THE SITES

Faure and Kolope are Khami period sites situated in the Venetia Limpopo Nature Reserve. They are roughly contemporaneous, dating to about the 16th century. Geoffrey Lathy (1996) excavated both in the late 1990s' but the work remains unpublished.

Faure (22.16.15S, 29.19.15E) lies some 40 km north of Alldays. It has been interpreted as a Zimbabwe Pattern level 3 site, indicating it would have been the residence of a petty chief (Huffman & Hanisch 1987). It is a west-facing, walled complex that is roughly horseshoe in shape (Hanisch & Fish 1995) and consists of various cattle kraals, middens and residential structures, as well as some decorated stone walling in an area thought to be used for initiation activities.

Kolope (22.18.20S, 29.16.15E) lies about 6 km southwest of Faure. It is a commoner site organized according to the Central Cattle Pattern and is made up of numerous residential structures, middens, some stone features (probably grain bin supports) and several cattle kraals. The main kraal contains a vitrified dung deposit over 1 m deep.

Together the two sites should provide an example of the role of glass beads in the region at the time and perhaps show differences between elite and commoner access to imported goods.

12.2 THE BEADS

Excavations at Faure produced 711 glass beads, while Kolope produced only 32. All are drawn with reheated ends and belong to what I call the Khami series. Chemical analysis (Robertshaw *et al.* in prep.) shows that this series is a subset of the Indo-Pacific industry (Chapter 5).

As Fig. 12.1 shows, there is little difference in colour preferences/availability between the two sites. Only Faure produced white beads, but the samples are too small to be definitive.

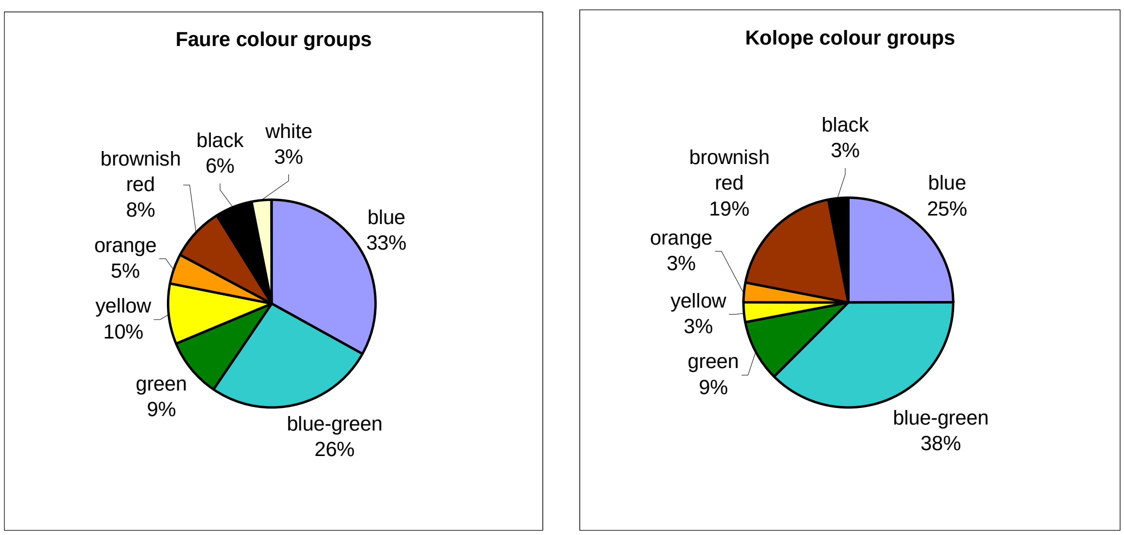


Fig. 12.1: Colour profiles of glass beads from Faure & Kolope

There is little difference in shapes or length ratios between the two groups, but as Fig. 12.2 shows, bead sizes are somewhat smaller at Kolope.

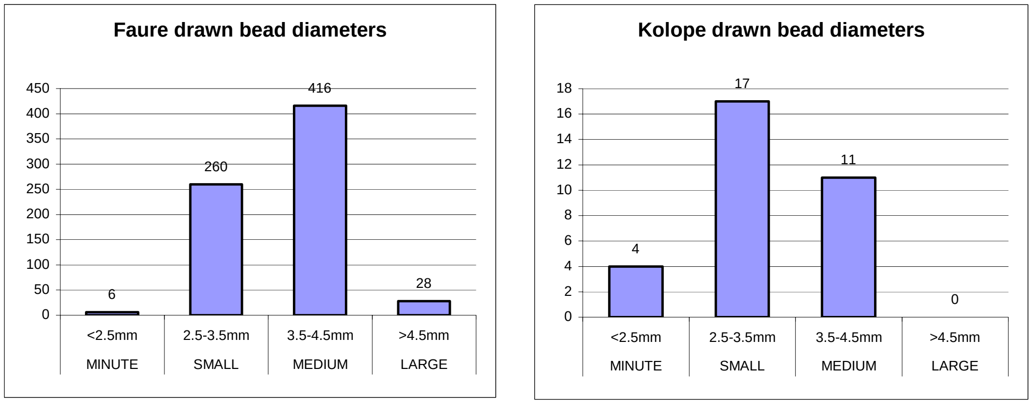


Fig. 12.2: Size ranges of Faure & Kolope glass beads

Thus it appears the elite site had a preference for larger beads. If beads were mainly strung together as necklaces etc., rather than used for beadwork, larger beads would have more impact than smaller ones. Other evidence indicates the beads were being strung rather than worked into patterns. First, the ends of many are worn flat; this occurs when strung beads rub together. Second, the beads vary considerably in size (Plate 4E); this is acceptable in strung beads but is not suitable for beadwork

Furthermore, nearly 60% of Faure's glass beads came from Trenches 1, 2 and 3. According to Huffman (pers. comm.) these were situated in the area where the chief's wives resided.

To compare bead concentrations between the sites, I divided bead numbers by volume of midden deposit (most beads came from middens). At Kolope 3.37 m^3 of deposit were removed from Trenches 1 through 6 (Lathy pers. comm.). Thirty glass beads were recovered from these trenches, so 8.9 beads were recovered per cubic metre. At Faure

8.07 m^3 were removed from Trenches 1 to 5, 7 to10 and 12 to 13. With 711 beads recovered, the middens produced 88.4 beads per cubic metre, or almost 10 times more than Kolope.

Even though only two Khami period sites have been examined, it is possible to draw a few conclusions. Significant numbers of glass beads, which all appear to belong to a single series, were finding their way into the region. Elites had greater access to these trade items, but there seems to have been little difference in colour preferences. It is possible, however, larger beads were favoured and, thus, more available to elites.

CHAPTER 13: GLASS BEADS AND INTERNATIONAL TRADE

As has been noted, glass beads are the most abundant artefacts testifying to international trade in the pre-European period in southern and eastern Africa. They have been under utilized by archaeologists mainly because most are small and monochrome and, at least superficially, look similar. But as this study has shown, it is possible to determine differences between bead types, and use these differences to aid site interpretation. The beads can also help reconstruct international trade patterns.

Changes in bead assemblages are sometimes attributed to changing fashion or the arrival of a new cultural group in a region, but in the period covered by this study it is more likely that external circumstances were responsible. From the rise of Islam to the arrival of Europeans, trade in the Indian Ocean was continuous but not static. Trading ports and routes varied along with the traders themselves. Local and international politics often determined who the dominant players were and where trade goods were sourced. For instance, Chinese involvement in maritime trade varied greatly depending on the interests of the dynasty in power.

In addition, glassmaking and bead-making centres appeared and disappeared. For example, Fustat (ancient Cairo) was an important beadmaking centre from the 7^{th} or 8^{th} century AD up to 1168, when it was intentionally burned to the ground as Crusaders approached the city (Scanlon 1965). Glass production was obviously affected at least for some time. Other glassmaking centres in the Middle East and North Africa were periodically disrupted, or even destroyed, by upheavals caused by the Crusades (late 11th to the 13th centuries), followed by the Mongol invasion from Asia in the mid-13th century. Southeast Asia also had several glass beadmaking centres dating as far back as the early first millennium AD. Locations of those industries changed periodically depending largely on which political entity was in power (Srisuchat 1996; Francis 2002). Such events obviously affected bead supplies and trade dynamics.

McPherson summarizes current perceptions concerning trade dynamics on the East Coast and beyond to southern Africa:

> Merchants from the Middle East ventured more frequently past the Horn and down the Somali and Kenyan coast as far as Kilwa, where the monsoon winds faded. South of Kilwa, foreign traders travelled less frequently, and coastal traffic carrying cargoes of local food-stuffs and export commodities, as well as cargoes of foreign goods such as ceramics and textiles, was organized by African merchants and mariners. These cargoes were redistributed via the northern entrepôts, most particularly the great redistribution port of Mogadishu on the Benadir coast, to the Middle East and South Asia along monsoon-driven sea routes (McPherson 1993:100).

I show here that the situation was more complex.

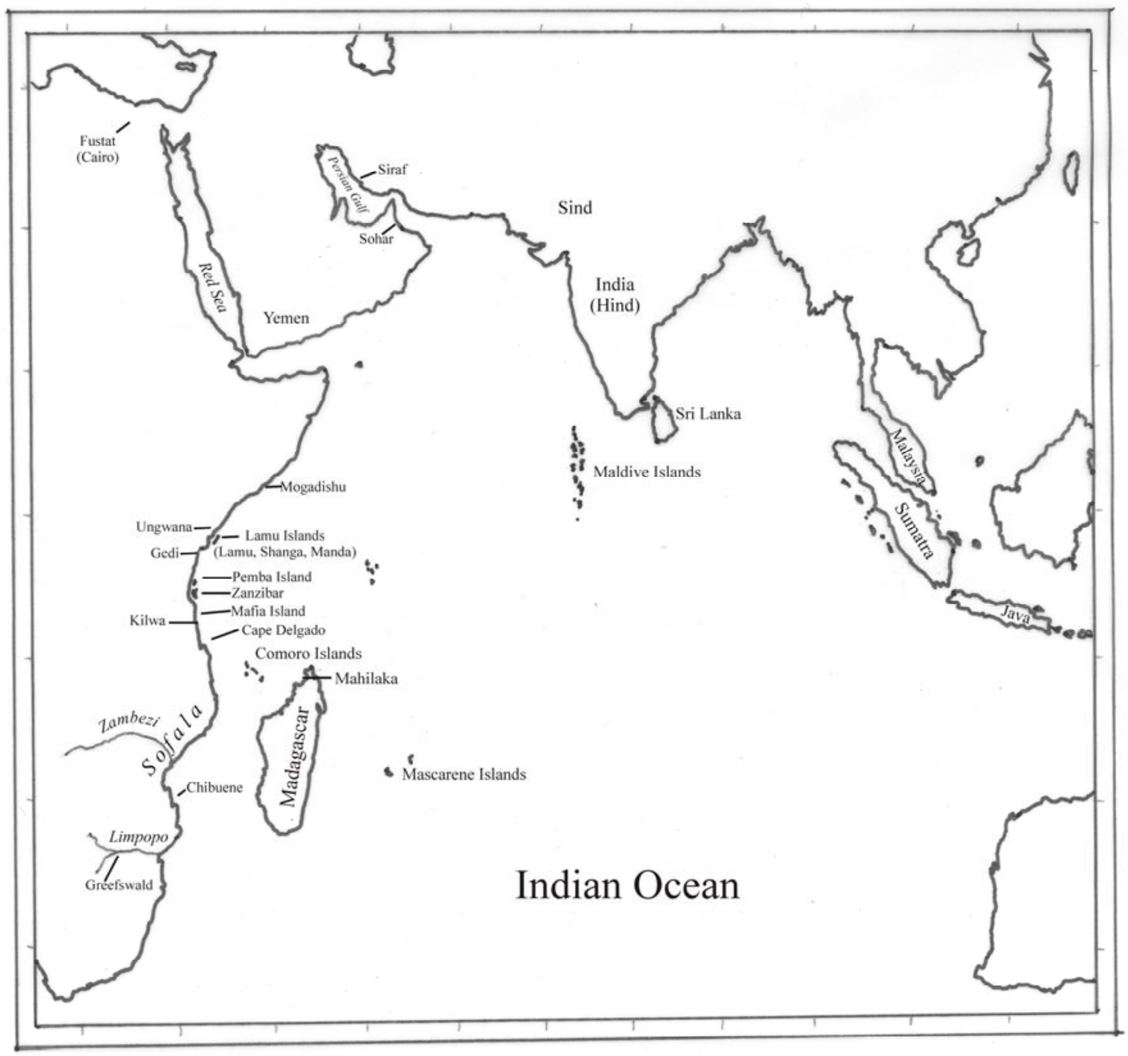


Fig. 13.1: The Indian Ocean in the Islamic period with principal sites mentioned in text

13.1 PHASE I: 8TH TO MID 10TH CENTURIES

13.1.1 THE GREATER INDIAN OCEAN

From the 8th to the mid-10th centuries the Abbasid Empire controlled most of the Middle East from its capital at Baghdad, at least initially. Maritime power in the Indian Ocean was concentrated around the Persian Gulf. The Persian port of Siraf (Whitehouse 1968, 1970, n.d.) was perhaps the most important followed by the

Omani port of Sohar (Williamson 1973). Both sent ships to destinations as far removed as China and Mozambique, and acted as transhipment ports for traders from other nations. Most early historical records relating to Indian Ocean trade mention these sites, as well as numerous destinations of traders and the goods traded.

A prime source of information about Indian Ocean trade to Africa is Islamic chronicles. Al-Mas'udi (AD 843-957) is one of the more valuable and reliable sources for this period since he actually travelled to most of the countries he wrote about. On the return leg of a journey to India and China in AD 916 (Trimingham 1975b:274), he visited Qanbalu [or Kanbalu] [generally accepted to be Pemba (Trimingham 1975a:122, 135; Chittick 1977:192; Hourani 1995:148; Horton & Middleton 2000:66)]. Al-Mas'udi recorded[12]:

> The pilots of Oman pass by the channel [of Berbera] to reach the island of Kanbalu, which is in the Zanj sea. ... The aforesaid Kanbalu is the furthest point of their voyages on the Zanj sea, and the land of Sofala and the Waqwaq, on the edge of the Zanj mainland and at the end of this branch of the sea. The people of Siraf also make this voyage....
>
> They [the Zanj] settled in that area, which stretches as far as Sofala, which is the furthest limit of the land and the end of the voyages made from Oman and Siraf on the sea of Zanj. In the same way that the sea of China ends with the land of Japan, the sea of Zanj ends with the land of Sofala and the Waqwaq, which produces gold and many other wonderful things. ... The Zanj rush upon them [elephants] armed with very long spears, and kill them for their ivory. It is from this country that come tusks weighing fifty pounds and more. They usually go to Oman, and from there are sent to China and India. This is the chief trade route, and if it were not so, ivory would be common in Muslim lands.
>
> In China the kings and military and civil officers use ivory palanquins ... thus they seek after straight tusks in preference to the curved .... In India ivory is

[12] The term Zanj referred to Africans living along the East Coast of Africa, although sometimes it included blacks from farther north. The Sea of Zanj referred to the waters off the East Coast and sometimes included the Mozambique Channel.

> much sought after. It is used for the handles of daggers …. But the chief use of ivory is making chessmen and backgammon pieces....
>
> ... The Zanj, although always busied hunting the elephant and collecting its ivory, make no use of it for domestic purposes. They use iron instead of gold and silver ... (Freeman-Grenville 1962:14-16).

This extract of al-Mas'udi's writings supplies us with much information about Indian Ocean trade and Arab knowledge of eastern and southern Africa in the early 10th century. In particular, this is the earliest reference we have to the gold trade.

References to the Waqwaq can be difficult to interpret because different chroniclers used the term in different ways. However, it always seems to refer either to people who speak Indonesian (or related languages) or to the islands where they live. Thus, it sometimes refers to Madagascar and/or its people, or it can refer to part or all of the Indonesian archipelago or its inhabitants, or possibly even parts of Malaysia (Trimingham 1975a:120, 1975b:279; Hourani 1995). In this instance I believe al-Mas'udi is indicating that Gulf ships sailed to Madagascar rather than Indonesia. Since he had actually sailed through Southeast Asia himself, it is unlikely he would confuse a destination at the end of the Zanj Sea with Indonesia.

Another section of al-Mas'udi's record emphasizes the importance of trade to southern Africa and reports that the Zanj "traded with [Asiatic] ships whose *main* commercial and southern limit was 'the gold country' of Sofala" (Trimingham 1975a:121) (emphasis mine).

Finally, al-Mas'udi provides us with information about the geography of the east African coast, which he divided into four sections (ibid.:120):

1. *Bilad al-Barbara* – now the northern and eastern coasts of Somalia
2. *Bilad az-Zanj* – "The Land of Zanj" proper, which included East Africa and its offshore islands
3. *Bilad as-Sufala* – "The Land of Sufala", which was also known as *Ard at-Tibr* or *Ard Adh-Dhabab* – "The Land of Gold"
4. *Ard al-Waq-Waq* – a somewhat ambiguous and ill-defined zone explained above

It is important to note that in pre-European documents the term 'Sofala' usually refers to the entire southern coast of eastern Africa, more-or-less equivalent to present-day Mozambique. Several towns were known on the Sofalan coast: al-Mas'udi listed Sayuna as the capital and commercial centre.

The next pertinent chronicle comes from a captain of Ramhormuz named Buzurg ibn Shahriyar. Between AD 930 and 947 he collected tales from sailors and recorded them in a book called *'Aja'ib al-Hind (Marvels of India)* (Trimingham 1975b:273). One tale that provides insights for this study records the invasion of the East African coast and islands in 334 (945-946) by Far Eastern Waq-Waq, who arrived in 1000 ships. According to Trimingham (1975a:133), Qanbalu was attacked but did not fall "since it is surrounded by a strong wall, around which extends an estuary full of water." The Waq-Waq took a year over their journey, during which they "pillaged islands and conquered villages and towns of Sofala" (ibid.). Buzurg's informant said the invaders had undertaken the expedition "because they found ... products useful to their country and to China ... such as ivory, tortoiseshell, leopard skins, and ambergris, and because they sought [to export] Zanj owing to the ease with which they supported the state of slavery and their [strong] physique" (ibid.).

Trimingham further notes, "both the term Zanj and African slaves were known in Java. ... Java sent four slaves, *seng-k'i*, to the emperor of China in 813, and a little after 860, a Javanese inscription mentions *jengi* slaves" (ibid.).

Buzurg's information gives us several insights. For example, the invading Waq-Waq are identified as being from the Far East, so cannot be confused with Malagasy. If correct, this invasion of the towns and villages of Sofala in 945-946 (just a year before Buzurg recorded the incident) is a critical point[13].

The Waq-Waq invasion could help explain the glass bead sequence. Evidence from the Shashe-Limpopo region shows that Zhizo series beads ceased to be traded at about this time. It also coincides with the abandonment of the first phase at Chibuene (Sinclair 1987:91; Sinclair *et al.* 1993). As a consequence, another Sofalan port took over the interior trade, and a new source for trade goods, most especially glass beads, was established. Given the origins of the invaders, it may not be coincidental that the next series of beads appears to have been manufactured in South or Southeast Asia.

Also of interest is the comment that the Waq-Waq took a year over their journey. This indicates they travelled to the African coast via a southern route (to be discussed more fully below). Richard Hall (1996:25) reports that between May and October ships could sail from Sumatra to Madagascar in one month using the equatorial trade

[13] Coincidentally, 945 is the year in which Buyid generals took Baghdad and instituted military rule, but left the Abbasid caliphs in office (Meloy 1996a:356). This political turmoil suggests that Persian Gulf dominance of trade routes was problematic by this time, making an Indonesian invasion of the African coast more feasible.

winds, which blow from east to west, aided by the westward flowing Malabar current. Had the invaders followed the route via the west coast of India and the Persian/Arabian coast, their journey would have taken far longer, they would likely have met with resistance, and Buzurg or some other scribe would probably have recorded their passage.

Another indication the Waq-Waq may have travelled via a southern route can be observed in the sites mentioned in the account – no site north of Qanbalu (Pemba) is mentioned and the Sofalan coast is emphasized [although admittedly I did not have access to the full document].

The final relevant account about the early period of Islamic trade in the Indian Ocean comes from the Arab astronomer, al-Biruni. In his volume published in AD 1040, *Book on India*, he remarks "The reason why in particular Somanath [on the northwest Indian coast] has become so famous is that it was a harbor for seafaring people and a station for those who went to and fro between Sufala in the country of the Zanj and China" (Trimingham 1975b:273). Furthermore it appears he was aware that the Indian and Atlantic Oceans meet beyond the Mozambique Channel for he noted "the Sea of the Berbers 'stretches from Aden to Sufalah of the Zanj, beyond which no ship ventures because of the great risks involved. Beyond this point it joins the Western Ocean [the Atlantic]'" (ibid.). Interestingly, later Arab geographers either ignored or lost this knowledge and reverted to the Ptolemaic concept that a landmass spanned the southern oceans from the south end of Africa to Southeast Asia. This suggests that Arab/Persian mariners no longer made voyages to the far south, and thus were no longer directly active in trade there.

It has generally been believed that trade before AD 1100 was concentrated toward the northern part of the East Coast (Insoll 2003:136). But recent excavations at Tumbe on Pemba Island (La Violette & Fleisher 1995; La Violette 2000; Fleisher 2003) yielded Islamic Sasanian pottery and 11 Zhizo series beads, evidence that this more southerly island was active in international trade by at least the 9th century. The same bead series provides proof that interior southern Africa, through links on the Mozambique coast, was involved in Indian Ocean trade from at least the 8th century, and the beads indicate the volume of trade in the south may have been more elevated than that to the north.

13.1.2 SOUTHERN AFRICA

In Southern Africa during this first phase, Early Iron Age Zhizo communities were establishing themselves in present-day Zimbabwe and Botswana. Some moved into present-day South Africa in about AD 900; Schroda being the most important centre excavated to date. Evidence that Zhizo groups were integrated into the Indian Ocean trade network exists mainly in the form of glass beads. All early beads belong to the Zhizo series, and their chemistry suggests they had a common origin (Robertshaw *et al.*, in prep.). Up to now, the only Mozambican coastal site known to have Zhizo beads is Chibuene; it was probably the main trading entrepôt.

Glass beads can help explain the dynamics of Indian Ocean trade in this period. Although present perceptions presume all trade into southern Africa arrived via the East Coast, the beads suggest otherwise. Distribution of Zhizo series beads demonstrates how different the assemblages on the East Coast are compared to those in southern Africa. Many hundreds, if not thousands, have been found at archaeological sites in interior southern Africa, including at least 340 at Schroda. Even remote Nqoma, beyond the west side of the Okavango Delta in Botswana (c. 1500 km inland from Chibuene), produced 34 Zhizo beads. At Chibuene over 2500 have been excavated so far (Sinclair 1982:161; Kinahan 2001). In contrast, I have identified very few from assemblages on the East Coast. Tumbe on northern Pemba Island accounts for eleven, while Shanga in the Lamu archipelago produced only one. I have not examined the beads from Manda, but descriptions of those from Period I include "a few instances of tubular drawn beads with snapped ends" (Morrison 1984:182) that could be Zhizo. However, Sinclair (1987:90) reports that Chittick saw the beads from Chibuene and stated they were unlike those from Manda.

Furthermore, Whitehouse does not believe that any Zhizo types were found at Siraf (pers. comm. 2004). If Siraf was the main entrepôt for trade to the south, it should yield at least a few specimens.

This distribution pattern suggests Zhizo beads did not arrive in southern Africa via the north, opening the possibility they were being traded from South or Southeast Asia directly via a southern route. This idea is supported by chemistry.

Zhizo beads are made from plant ash glass. Such glasses were made in the Middle East, South Asia and Southeast Asia during this period, but chemical analysis shows the levels of some chemicals in Zhizo beads do not match glasses from the Middle East (Robertshaw pers. comm. 2004).

A southern route would have made it possible for traders from South and Southeast Asia to trade directly with Sofalan ports. Not only would their journeys have been greatly shortened, they would not have passed the many ports along the coastal route where they would have been obliged to pay heavy taxes or duties on their cargoes.

However, the presence of other imported goods at Chibuene, such as Islamic ceramics and glassware, shows that concurrent trade was conducted with northern trade networks. Thus, there were probably two separate systems supplying goods to the southern Mozambique coast. The beads suggest that goods sent onward to the interior arrived mainly via the southern route, but this obviously does not take into account biodegradable goods, such as textiles, which could have arrived by either route.

One fascinating, presently inexplicable, situation involving Zhizo beads is the presence of nearly 137,000 of them at Igbo Ukwu, the royal burial chamber and storeroom, in the Niger Delta (Robertshaw *et al.* in prep.).

Phase I came to an end in the mid-10th century. Political events in the Middle East, which began well before this, led to a decline in the power concentrated in the Persian Gulf (Meloy 1996b). In southern Africa, Chibuene was abandoned (Sinclair 1987:91; Sinclair *et al.* 1993), and Zhizo beads were no longer imported. Occupation at Schroda continued up to about 1020, but the glass bead assemblage shows a switch in about the mid-10th century from the Zhizo series to the newly introduced K2 series, accompanied by a few Indo-Pacific beads. Events outlined above indicate that this shift from one bead series to the next had nothing to do with local preference or events, but was the result of political changes unfolding in the greater Indian Ocean arena.

13.2 PHASE II: MID 10TH TO MID 13TH CENTURIES

13.2.1 THE GREATER INDIAN OCEAN

In the mid 10th century power in the Middle East shifted away from the Persian Gulf. In 945 the Abbasid Empire (which began to lose control in the late 9th century) fragmented, leading to a politically decentralized cultural commonwealth. International trade remained important, but local entities wielded much economic and political power (Meloy 1996b:500). Siraf was devastated by a series of earthquakes in 977 from which it never recovered, and the Fatimids, rivals of the Abbasids, seized power in Fustat (ancient Cairo) in 969, becoming the dominant force in the region.

The period between AD 950 and 1150 was a time of change on the East African coast, characterized by a total lack of records from Muslim mariners (Trimingham 1975a:119). Any documents that were produced merely followed established lines (Hourani 1951:83).

With the decline of the Abbasid Empire and the Fatimid rise to supremacy in Egypt, power shifted westward (Insoll 2003:144). The Red Sea and the mouth of the Gulf harboured the most important trading ports. Trade between India and the Red Sea increased, but evidence of direct Red Sea-East African contact is obscure. In fact, contact between the East Coast and India is more apparent than that between East Africa and the north. Indian pottery is found on the coast for the first time, while no

Fatimid ceramics have yet been discovered (Horton 1996:417). In addition, Horton notes this was a period of intense craft activity at Shanga – especially in textile and iron working - and he concludes “It is probable that the bulk of early contact with India was on a technological level, with craftsmen resident on the African coast” (ibid.:418). In addition, chemical analysis shows that nearly all glass beads found at Shanga belong to types whose origins appear to be Indian (Robertshaw, pers. comm. 2004). East Coast trade with Gulf and southern Arabian ports did not cease, however, as the presence of late *sgraffiato* ware attests, but it may have declined in importance and frequency.

The geographer Al-Idrisi (1099-1166) is the main documentary source during this period. He was born in Morocco but worked under the patronage of King Roger of Sicily in Palermo (Trimingham 1975b:279). His accounts are based largely on other writers or informers. He wrote (comments in square brackets are from Trimingham):

> The Zanj have no ships in which they can travel [the open sea], but ships come to them from ‘Uman and other places [concerned with trade with the Zabaj islands[14]] that belong to the islands of Hind. They exchange there [in Zanj country] their goods for those of the Zanj. The people of the Zabaj islands [also] travel to the Zanj in both small and large ships ... and engage in trafficking in their goods because they understand each other’s language (Trimingham 1975a:125-6).

Concerning the last comment, Trimingham interpreted the trade as having taken place between Madagascar and Malagasy inhabitants in Sofala. I, however, feel Idrisi makes it clear that mariners were coming from Indonesia (the Zabaj islands) to trade with inhabitants of the Sofalan coast, some of whom were Malagasy speakers and may well have been of Malagasy origin.

In another passage Idrisi states, "The people of Qumr (Madagascar) and the merchants of the country of the Mahraj (India) come to them [the inhabitants of Jabasta of Sofala] where they are hospitably received and trade with them" (ibid.:126). This indicates Indian and Malagasy traders were also active in Sofala.

Idrisi retained the geographic divisions of the East Coast used by earlier chroniclers, as can be seen in his map of 1154 (Fig. 13.2). He noted that Sofala incorporated several towns, including Sayuna, which was

> medium in size and its inhabitants are a collection of people from Hind [India], Zunuj,[15] and others. It is situated on the shore of the sea and is the residence of the ruler of this country. He has an army of foot-soldiers for they have no horses. This town is situated on an estuary into which the ships of the voyagers can enter (ibid.: 126).

Other Sofalan towns mentioned by al-Idrisi include Bukha, Jabasta and Daghuta (which is noted as being "the last place of the country of Sufalat at-Tibr") (ibid.:126). Of interest is Idrisi's observation that Indians as well as people from Mogadishu made up part of the population of the capital.

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[14] Trimingham notes that Zabaj is an early Arabic rendering of Java or sometimes Sumatra.
[15] Trimingham (ibid.:127) identifies Zunuj as blacks from Mogadishu

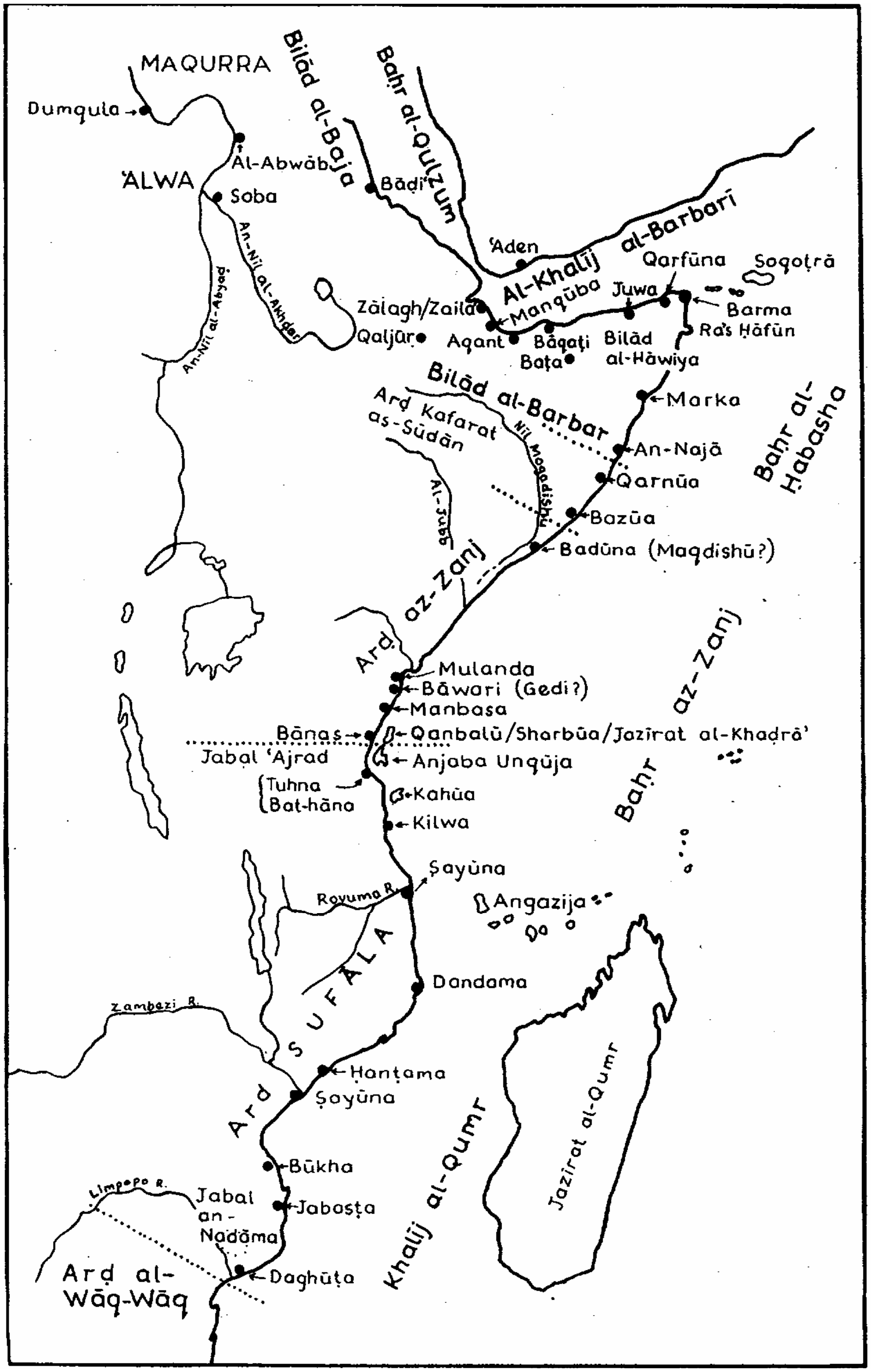

Fig. 13.2: Trimingham's interpretation of Idrisi's map of 1154 (after Trimingham 1975:138)

13.2.2 SOUTHERN AFRICA

When importation of Zhizo beads into the Shashe-Limpopo basin ceased in the mid-10th century, K2 series beads appeared for the first time accompanied by a dribble of Indo-Pacific beads. Evidence from Schroda indicates that for several decades they arrived in numbers not highly elevated from late-period Zhizo beads. After K2 was occupied (c. 1020) glass bead numbers gradually rose, suggesting increased trade with the coast. The port of entry for K2 beads on the Mozambique coast has not yet been identified, but in terms of trade patterns in the greater Indian Ocean, trade goods arriving in the southern interior can be revealing. Perishable items, such as cloth, are not preserved, but indications that it was an important import come from later records, and India is usually cited as its source. No imported ceramics or glassware have been found in the interior from this period. Glass beads were probably the most important import and chemical analyses indicate they all originated in either South or Southeast Asia (Robertshaw *et al.* 2003). But this does not mean they all came from the same source or via the same route. The distribution of K2 and Indo-Pacific series beads on the East Coast indicates that the K2 series is found in large numbers only in southern Africa, and the few that appear on the coast are more numerous toward the south. Indo-Pacific beads, on the other hand, are the most common bead type found on the East Coast - both north and south. Relatively few, however, made it to inland southern Africa compared to K2 types; at K2 itself, they make up only 15 percent of the assemblage (Chapter 9).

Based largely on these distribution patterns, I would suggest it is possible the two bead series were traded by different routes and therefore by different traders. It seems likely Indo-Pacific beads arrived via trade networks down the East Coast; thus the traders could have been from the mouth of the Gulf or the mouth of the Red Sea. It is likely traders from northern or western India were involved as well, since the beads' origins seem to be in India. K2 series beads, however, are more likely to have arrived via a southern route with either southern Indian or Southeast Asian traders. In addition, K2 series glass exhibits unusually high mean aluminium levels (Robertshaw *et al.,* in prep.), which are matched so far only by some previously analysed glasses from Southeast Asia (Francis 2002). Given the preponderance of K2 series beads in the Shashe-Limpopo region at this time, it seems likely that traders from a southern route accounted for the bulk of the trade. Thus, dual trade patterns explain the distribution of the two sets of beads on the East Coast.

During this period, K2 developed as the capital of the region. It was a prosperous period and, as the many thousands of glass beads demonstrate, trade with the coast and the Indian Ocean beyond grew to impressive levels. Although ivory and other 'bush' products continued to form part of this trade, gold was surely the most sought-after and profitable export. Nothing else could account for the enormous discrepancies between numbers of glass beads found in the Shashe-Limpopo region and those from the East Coast (Table 13.1), whose inhabitants traded many of the same products, with the exception of gold.

Table 13.1: Frequency of glass beads from sites in eastern and southern Africa

Site	Time period	Pre-11th c. beads	11th c. to European contact	Post-European contact	Total beads for site
East Coast north to south					
Shanga	mid 8th – mid 14th c.	33	543	0	576
Manda	mid 9th – 14th c.	79	528	0	607
Kaole	1100 – 1800	0	1014	175	1189
Kilwa	9th – 19th c.	4	2021	15,840	17,865
Offshore islands					
Mahilaka, Madagascar	late 9th – 15th c.	157*	2143	0	2300
Comoro Islands	9th – 15th c.	18	9	0	27
Southern Africa					
Chibuene	7th – mid 10th c.	+/- 2600	0	0	2600
Schroda	late 8th c. – 1020	1029	0	0	1029
Pont Drift	late 10th – mid 13th c.	0	635	0	635
K2	1020 – 1220	0	6564**	0	6564
Mapungubwe	11th – end 13th c.	0	108,052**	0	108,052
Skutwater	13th c.	0	2601	0	2601
Faure	16th c.	0	711	0	711

* Both the large number of beads and the types present (personal observation) indicate dates for this period may be later than represented.
** These figures are from Saitowitz (1996). No one has attempted to bring together and count all of the beads excavated at K2 and Mapungubwe.

About the time K2 was abandoned and the populace moved to nearby Mapungubwe (c. 1220), changes are evident in bead imports. The K2 series ceased to be imported and there followed a period of perhaps several decades during which bead numbers seemed to drop, and most of the beads arriving were brownish red (part of the Indo-Pacific series). These were gradually supplanted by black ones, which appear to belong to the Mapungubwe Oblate series. Then in about 1230 to1240, the full range of Mapungubwe Oblate beads appeared, but black always remained the most popular colour.

It will probably not be possible to account for the disappearance of K2 series beads until their manufacturing site is identified. After this time they do not appear elsewhere except perhaps as curated objects. Thus, local events in the Shashe-Limpopo region are not likely to have affected their demise

13.3 PHASE III: AD 1250 – 1350

13.3.1 THE GREATER INDIAN OCEAN

Further changes were taking place in the Middle East during this period. In 1250 the Mamluks seized power in Egypt and in 1258 the Mongols sacked Baghdad (Meloy 1996a:356). Influence in the north Indian Ocean seemed to shift from the Red Sea to Yemen. Evidence for this transfer is seen on the East Coast with the appearance of diagnostic black on yellow pottery, which was produced near Aden and replaced the earlier *sgraffiato* ware from the Gulf (Horton 1996). This period represented the height of the international gold trade as European polities began issuing gold coinage (Sutton 1997). On the East Coast, Kilwa, Gedi and Ungwana were at their peaks.

Arab accounts that are useful to us during this period include those of Ibn Sa'id (1214-1274) an Arab geographer who prepared an itinerary of the East African coast (Trimingham 1975b:280). Next is Abu al-Fida (1273-1331), an Ayyubid prince, soldier and governor of Hamat. He was known for historical and geographical writings in which his sources were frequently cited. He recorded names of several towns in the country of Sofala including Batyna (or Banyna), Seruna (which he named as the capital), Leirana and Daghuta (which was noted as the last town in the country "and the furthest of the inhabited part of the continent towards the south") (Freeman-Grenville 1962:24). Citing Ibn Sa'id, he reported the Sofalans' chief means of existence was "mining gold and iron" (ibid.). Thus, gold is again reported as an important export, but al-Fida seems to be unaware that it comes from inland rather than from coastal regions. Iron exports, which were noted earlier by Idrisi (who said it was being exported to India), are mentioned as well.

There is some debate about the accuracy of this information. Killick (in press) notes that India was an exporter of iron, so questions whether it would have been imported as well. But Horton points out that iron from Sofala was sent to India, where it fetched a good price, because Indian iron was inferior (Horton 1996:416). Chittick and Rotberg (1975:14) note that the iron exported to India was "made into the famous steel goods which were re-exported to Africa."

Ibn Battuta (1304-1377), the third important source, was the greatest Muslim traveller of the Middle Ages. His travels took him to China and basically all countries between there and West Africa. In about 1331 he visited the East Coast, reportedly travelling as far south as Kilwa (Freeman-Grenville 1962:27). Accounts of his travels were dictated sometime after 1353, perhaps with the aid of some notes, but much seems to have been recreated from memory since errors are frequent (Trimingham 1975b:274). Of interest here is his statement: "A merchant told me that Sofala is half a month's march from Kilwa, and that between Sofala and Yufi in the country of the Limiin is a month's march. Powdered gold is brought from Yufi to Sofala" (Freeman-Grenville 1962:31). Although Ibn Battuta mistakes Yufi - which is in West Africa - with the hinterland of southern Africa, his report is the first to identify the interior - rather than coastal Sofala - as the source of the gold (Wood 2000:86).

13.3.2 SOUTHERN AFRICA

The second half of the 13th century was the high point in international trade for the Shashe-Limpopo region as well. Mapungubwe was at its zenith and hundreds of thousands – if not millions - of glass beads, mostly from the Mapungubwe Oblate series, arrived in the region. This bead series is different both in physical characteristics (see Chapter 4) and chemical composition from earlier ones. Its higher percentages of magnesia and potassium oxide indicate the alkalis used to make it were derived from plant ash acquired by burning marsh or desert plants (Robertshaw *et al*. 2003:144). This type of glass is rare and apparently has not been recorded outside of Shashe-Limpopo contexts[16], so its origins are still unknown. However, present knowledge indicates that, during this period, glass beads were no longer being made in Southeast Asia, Sri Lanka or most areas of the Middle East. And Venice – which was later to become the premier beadmaking centre – did not produce drawn beads before about 1480 (Francis 1988:13).

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[16] Davison (1972) is the only person to have analysed it previously

As was the case with both the Zhizo and K2 series, Mapungubwe Oblates are found almost exclusively in southern Africa. The port of entry on the Mozambican coast has not been located but, when it is, should be easy to recognize through its bead assemblage. I have identified Mapungubwe Oblate beads in small numbers at some coastal sites, including Mahilaka in Madagascar; Kaole, Chwaka and Mafia in Tanzania; and Gedi, Mwana and Shanga in Kenya. However, there is little evidence of them at Kilwa in Tanzania.

Kilwa has been widely regarded as the most important southern Swahili trade centre during this period (Hourani 1995:147; Insoll 2003:184) and, thus, in control of the gold trade coming out of Sofala. The glass beads, however, provide little support. If one compares Kilwa's beads from Period II [17] with those of Mapungubwe, the two have little in common. The extensive excavations at Kilwa produced only 240 glass beads during this period (which incorporates time spans of both K2 and Mapungubwe). Just 109 of these are drawn and only one of those is black (Chittick 1974b:486-493). It is difficult to equate this with Mapungubwe where one burial alone contained over 26,000 glass beads - 24,000 of which are black [18]. These figures suggest that Kilwa, although it may have been the conduit for Indo-Pacific beads, was not the port through which Mapungubwe Oblates were traded and, therefore, its access to the gold trade from southern Africa may have been less than that of the traders who were supplying the

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[17] Chittick places Period II between the late 12th and the late 13th centuries but Chami (1998) reports it is now considered to extend from the 10th to 13th centuries.
[18] Chittick reported that glass beads were found in "great profusion" after 1300, but compared to southern Africa bead numbers were low. If one combines the beads from Periods IIIa (the time after 1300 when Kilwa was at its peak) and the transition layers on either side of it, only 1054 beads were found. In fact, of the 17,867 glass beads recovered from Kilwa, only 2369 came from pre-European deposits.

Mapungubwe Oblates. Once again this suggests these beads were being traded directly to southern Africa via a southern route.

The possibility exists, however, that gold was also being traded out of present-day Zimbabwe through more northerly ports in Mozambique, and that Kilwa had control over that sector of the trade. If this were the case, a different set of beads, related to those found at Kilwa, was probably involved. A study of the glass beads from Zimbabwe's northern areas might clarify this.

I have not been able to determine when the Mapungubwe Oblate series ceased to be imported or produced. They were the main import into the Shashe-Limpopo region up to the time it was abandoned in about 1300, and I assume they were traded into Great Zimbabwe. The sample from the Render's Ruins area at Great Zimbabwe appears superficially similar to the Mapungubwe beads, but chemical differences suggest they form yet another series (see Plate 5F), which is probably a subset of the Mapungubwe Oblate series (Robertshaw *et al.* in prep.).

After the abandonment of Mapungubwe, glass beads are not found again in the Shashe-Limpopo region until about the 15th century when people related to the Khami culture entered the area from the north. Since only small commoner groups with modest numbers of beads are found scattered around the countryside, I do not have enough information to determine their role in international trade.

13.4 OTHER TRADING POWERS AND PORTS

I have not integrated China, Madagascar or the Comoro Islands into the above text but they were important participants in Indian Ocean trade during the period under study.

13.4.1 CHINA

China has not been mention in this account largely because it played no direct role in trade into southern Africa in the period under study, although it surely was an importer of goods from there, especially ivory and gold. In addition, early accounts concerning trade and geography were written by various Chinese scribes, but up to the 15th century - when Chinese mariners reached the African coast for the first time - the information contained in them was gathered from secondary sources and generally reiterates what we have already gleaned from Arab documents. Two shards of Song celadon (probably from the same vessel) were found on Mapungubwe Hill, but are the only evidence of Chinese goods arriving in the interior during the period under study. Some Chinese ceramics were found at Great Zimbabwe, and I have identified one glass bead found there that is of Chinese origin.

On the coast Chinese glass beads are rare as well. I imagine that is because they could not compete with the cheaper drawn varieties available for trade. Chinese beads of the period were all wound, meaning they had to be individually formed, a time consuming, and thus expensive, process. Most are small, translucent ruby red or golden yellow rough oblates (see Plate 6C & D), but a few roughly elliptical translucent green or opaque white beads may be of Chinese origin as well. It is interesting, however, that all the Chinese beads I have identified from coastal sites date to the same period, which (probably not coincidentally) is about the time the fleets of the Chinese admiral, Zheng

He, visited the shores of the East Coast [19]. It is likely the Chinese glass beads were distributed then. Apart from the one found at Great Zimbabwe, I have thus far identified one from Lamu and three from Shaka [near Ungwana at the Tana River mouth (Kirkman 1975)] in northern Kenya, as well as one each from Chwaka and Kaole (Wood 2002a:62) and two from Mafia in Tanzania. The only large number comes from Husuni Kubwa, constructed in the 14th century at Kilwa, where 33 (all ruby red) were found (Chittick 1974b:464). This site has been interpreted by Chittick (1974a:174) as a palace and the nearby Husuni Ndogo as "a royal trading emporium and warehouse system with the palace itself" (Sutton 1998b). The possibility exists that the Chinese beads at Husuni Kubwa came from one of Zheng He's ships anchored in front of the site. Apart from this rare direct contact, Chinese goods could have been brought to the East Coast, not only by Arab and Persian traders, but by Indian and Indonesian ones as well.

13.4.2 MADAGASCAR

Mahilaka, on the northwest coast of Madagascar, is the only site on that immense island that has yet produced large numbers of glass beads during the period under study. Proposed dates place it between the 9th and 15th centuries (Radimilahy 1998), but I have not identified any Zhizo series beads in the assemblage. Table 13.2 lists the number of beads in each occupation unit and the percentage each colour forms.

[19] Two expeditions were involved, one from 1417 to 1419, the second from 1421 to 1422 (Wheatley 1975).

Table 13.2: Beads from Mahilaka (after Radimilahy 1998: 283)

Occupation Unit & dates	total # beads	brownish red	blue	black	green	yellow	white	other
Ia 9-10 c	157	28%	22%	31%	7%	6%	3%	3%
Ib 10-13 c	50	22%	50%	14%	8%	4%	0	2%
IIa 13-14 c	1124	24.8%	25.8%	19.6%	12.5%	10.8%	4.7%	1.2%
IIb 14-15 c	969	28.4%	29.3%	13.6%	11.9%	9%	4.6%	3.2%
Total	2300							

Unfortunately, Radimilahy does not mention method of manufacture, but some beads are wound (of the 180 beads I examined 16 were wound). Also, blue-green is lumped with blue so it is not possible to separate them (of the 41 'blue' I saw 11 were blue and 30 blue-green). Even with these obstacles, as Table 13.3 shows, the Mahilaka assemblage has little in common with Shashe-Limpopo assemblages of corresponding periods.

Table 13.3: Percentages of Shashe-Limpopo bead colours by period[20]

Dates	brownish red	blue-green	blue	black	green	yellow	white
9–10 c	0	31%	25%	<1%	10%	20%	0
10-13 c	8%	85%	0	<1%	2%	4%	0
13-14 c	16%	10%	2%	63%	3%	2%	0

Colour percentages are not the only differences. Apart from a lack of Zhizo beads, I found only small numbers of K2 and Mapungubwe Oblate series beads in the Mahilaka assemblage. Furthermore, in the Shashe-Limpopo region wound beads are found only

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[20] 9-10th c. data from Schroda (13% were indeterminate)
10-13th c. data from K2
13-14th c. data from Mapungubwe Hill

in the Mapungubwe period, and are exceedingly rare, while at Mahilaka they comprise an estimated 9% present of the assemblage [based on the sample I examined]. In sum, the Mahilaka bead assemblage has more in common with assemblages from the East Coast than the Shashe-Limpopo region.

Imported ceramics from Mahilaka reinforce this observation. Ceramics from both Islamic and Chinese origins are present in all units, but Islamic ones form the bulk of imports in each: in Units Ia and Ib they represent roughly 85%, in IIa the figure is 80% and in IIb it is 75% (ibid.:182). Islamic ceramics must have arrived from the north via a coastal route while Far Eastern ones could have been introduced by the same route or via a southern route. Thus, Mahilaka's imported ceramics and beads indicate it was more closely linked to Islamic trade from the north, which could include merchants from northern or western India.

I have no information about glass beads or imported ceramics at sites in the southern portion of Madagascar. It would be instructive to discover whether any show evidence of contact with traders using a southern route, such as Far Eastern ceramics or Zhizo/K2/Mapungubwe series beads.

13.4.4 THE COMORO ISLANDS

Like Mahilaka, the Comoro Islands were articulated with the monsoon system Indian Ocean trade, as is shown by the large number of Islamic ceramic sherds retrieved there. Glass beads, however, have been found in such small numbers (Table 13.1) (Wright 1984, 1992), they provide little insight for this study.

13.5 CERAMICS AS EVIDENCE OF TRADE PATTERNS

It is beyond the scope of this work to go into detail about imported ceramics in eastern and southern Africa, but general trends can be useful in interpreting trade patterns. The vast majority of imported ceramics from pre-15th century sites, including Chibuene (Sinclair 1987:151), are Islamic. Chinese (and other Far Eastern) wares appear only in small quantities if they appear at all (Wright 1993:664 & 670). This is a clear indication that trade carrying these goods had originated in, or passed through, Arabian Sea ports. From the 14th and more particularly the 15th centuries, Chinese ceramics increase significantly in numbers at many sites. For example, Chittick reported that at Kilwa and Gedi "very large quantities of [Chinese] porcelain are imported in the 15th century and later" (Chittick 1984:70). It is probable this increase in Chinese wares began with the re-emergence of China into international trade after the Tang dynasty (1368-1644) came to power. The sudden spike in numbers, however, can probably be explained by the presence of the large Chinese fleets at East African ports in the early decades of the 15th century. The ceramics they carried would have been used not only in trade but also as gifts to encourage favourable relations.

Whereas glass beads were extremely important in the Shashe-Limpopo region, exotic ceramics and glassware were almost non-existent. The reverse seems to be the case on the East Coast, where ceramics and glassware were coveted imports, and glass beads, although present, appear to have been less important (at least they are less numerous) than in the south. Possibly the introduction of Islam on the coast influenced cultural values leading to a preference for ceramics rather than beads. This, however, would not account for the small numbers of beads found in pre-Islamic contexts on the coast compared to southern Africa. I suspect that the differences in imported goods between the two regions can be attributed to trade in gold, even during the earliest period under study.

13.6 GOLD

There has been much discussion about the use of gold in pre 11th century trade in southern Africa. The absence of archaeological evidence for mining during this time has led some to claim gold was not a factor. But I believe only trade in gold can explain the vast discrepancies in imported goods, especially glass beads, between the south and north. The interiors of both regions were sources for the export of ivory and other 'bush' products, but - particularly in the early period - there is a marked lack of exotica evident to date in interior East Africa, even though goods from there would have been far more accessible to Arab and Persian traders than those from southern Africa.

Historically we know that demand for gold increased dramatically in the period between the 10th and early 14th centuries when Muslim, European and Indian states adopted a gold standard and/or issued gold coinage (Killick in press). Evidence that gold was part of trade in the early Islamic period exists in the statement by al-Mas'udi (916) that the land of Sofala "produces gold and many other wonderful things"(Freeman-Grenville 1962:14). Axelson adds that al-Mas'udi stated Sofala was wealthy for "it produced gold in abundance" (Axelson 1938:4). Drawing references back even further in time, Sutton reported, "southerly gold sources were known from at least the end of the eighth century" (Sutton 1998a:113). It is likely that much of the gold used in early trade was obtained from panning alluvial sources. Rivers that drain the western gold reefs of Zimbabwe flow into the Shashe and Limpopo rivers, so it is possible to pan gold anywhere in the region (Trevor & Mellor 1908).

Although Hall (1987) claims there is no evidence of adit mining in southern Africa in the 10th century, a report by Buzurg ibn Shahriyar (c. 947) may indicate otherwise. Describing the farthest point in the land of Zanj, his informant stated, “men dig for gold there, and excavated galleries like ants” (Freeman-Grenville 1981:38). According to Horton (1996:416) this passage refers to adit mining. An additional clue supporting the possibility of early mining lies in Summers’ statement that the only imported goods found in association with ancient workings are blue-grey “snapped canes” (Summers 1969:199); in other words, beads from our Zhizo series, which this study has shown were not imported after the mid 10th century. Furthermore, Swan’s (1994) lists of glass beads from sites around southern Zimbabwe during this period all appear to belong to the Zhizo series. In sum, this evidence builds a reasonable case for gold having been an important export from southern Africa well before the 11th century and helps account for the discrepancies in volume of imported beads between southern Africa and East Africa.

13.7 GLASS BEADS AS EVIDENCE OF TRADE PATTERNS

As has been suggested above, differences between the glass bead assemblages found in eastern and southern Africa suggest the beads were being introduced by traders using different routes. Exotic beads from the Shashe-Limpopo region are almost exclusively drawn and are small to minute in diameter (with the exception of some Zhizo series beads). They appear to come from Indian or related Southeast Asian beadmaking centres. In contrast, beads from the East Coast (Plate 4F & G) are frequently wound and the majority are medium to large in size, and some are even decorated. They appear to be somewhat more varied in origin and - based on preliminary results from chemical analysis (Robertshaw *et al.* in prep.) - some may come from the Middle East, as well as those from the Indian sub-continent and allied industries. But the principal difference between bead assemblages from the south and the East Coast is found in raw numbers. As Table 13.1 demonstrates, pre-11th century assemblages from Schroda and Chibuene alone account for over thirty times the total number of glass beads recorded to date from contemporaneous East African sites[21]. Similar differences exist in assemblages dating from the 11th century up to European contact, and these figures do not include the vast quantities of beads found in Zimbabwe and Botswana.

There are various possible explanations for these differences. Perhaps the Swahili inhabitants of coastal sites were less interested in beads than the non-Muslim populations in the south. The only reference I have found concerning the use of beads on the coast stated they were employed as prayer beads; obviously larger beads would be most appropriate for this use. In addition, in the Shashe-Limpopo region, beadwork was probably being practiced. Large or variable sized beads are not suited to this work, so small uniform types were demanded. Furthermore, as has been suggested above, the most probable explanation for the discrepancy in bead numbers (apart from local demand) would be the gold traded out of southern Africa. Finally, retrieval techniques, such as whether deposits were sieved and with what size mesh, could account for some differences but not ones as great as noted here.

Detailed comparisons between bead assemblages from southern African and most East Coast sites are not possible since sufficient data are lacking. Glass beads from the

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[21] Tumbe, on Pemba Island, is not included since those beads have not been fully catalogued or published.

Tanzanian site of Kaole, however, have been catalogued (Wood 2002a) in a manner similar to those employed here, so can serve to demonstrate differences between bead assemblages from the two regions. General comments will be made about other East Coast assemblages.

13.8 COMPARISON OF GLASS BEADS FROM KAOLE AND SHASHE-LIMPOPO SITES

The site of Kaole Ruins (roughly AD 1100 to 1800) lies on the northern Tanzanian coast about 5 kilometres south of the town of Bagamoyo (Chami 2002). I use glass beads only from the pre-European period at Kaole (c. 1100 to 1500) for comparison with ones from K2 (c. 1020 to 1220) and Mapungubwe (c. 1220 to 1300). The time frames do not match precisely but overlap enough to give an idea of how the assemblages relate to one another.

The first differences can be noted in method of manufacture. The Greefswald (K2 and Mapungubwe) beads examined here are all drawn except for a small number of Garden Rollers, which were made locally and, thus, are not included in the category of imported goods, the object of this study. At Kaole 89 percent of beads are drawn while the remaining 11 percent are wound. From other East Coast sites: during Period II at Kilwa (10^{th} to 13^{th} centuries) more than 50 percent of glass beads are wound while the remainder are drawn (Chittick 1974b). At Manda in Period II (mid 11^{th} c. to late 13^{th} century) 75 percent of beads are drawn and 25 percent wound (Morrison 1984). Finally, at the northern Kenyan site of Shanga, glass beads from contexts between 1050 and 1250 are over 50 percent wound (Horton 1996). Thus, wound beads at East Coast sites account for between 11 and over 50 percent of assemblages while in southern Africa they are all but absent.

Bead shapes at both Kaole and other East Coast assemblages are more varied than those found in the Shashe-Limpopo region. Figure 13.3 demonstrates these differences[22].

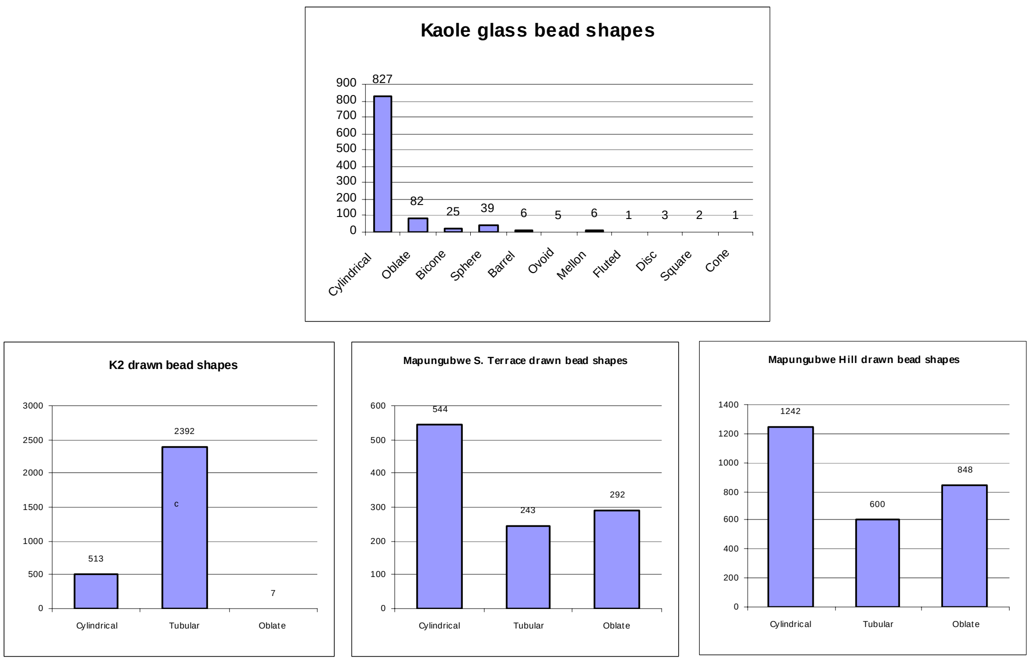

Fig. 13.3: Bead shapes - K2 & Mapungubwe vs. Kaole

Bead diameters are more difficult to compare directly since those from East Coast sites are reported with parameters developed by Chittick [see Chapter 5], which – except for minute beads - are larger than my categories. Direct comparison is possible with Kaole, however, and shows that its beads, similar to other East Coast sites, are larger than Greefswald ones (Fig. 13.4).

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[22] Tubular beads were not separated from cylindrical ones for Kaole so are incorporated therein.

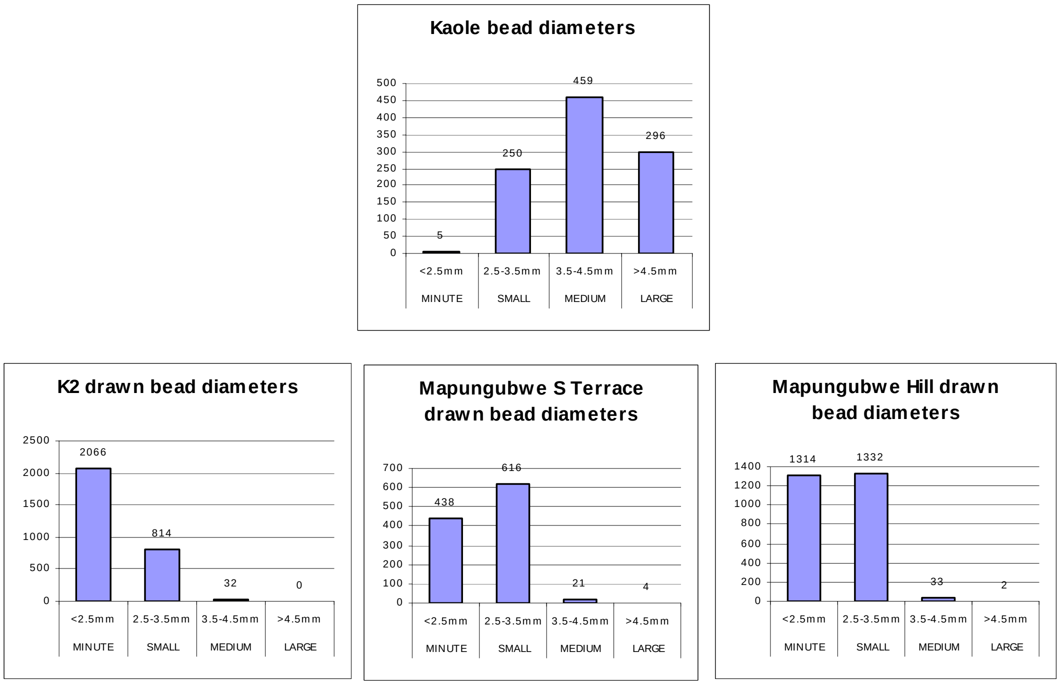


Fig. 13.4: Bead sizes - Kaole vs. K2 & Mapungubwe

Finally, colour preferences between Kaole and the Greefswald sites vary significantly, as can be seen in Figure 13.5. As has been shown in previous chapters, distinctive colour profiles that are temporally specific characterize Shashe-Limpopo bead assemblages, and all contemporaneous sites in the area have similar colour profiles. East Coast sites do not exhibit such similarities, and colour preferences seem to be dictated more by local tastes. In addition most East Coast sites, including Kaole, have a variety of decorated beads in their assemblages. Only three decorated beads have been found in the Shashe-Limpopo region and they were all recovered from the royal burial area on Mapungubwe Hill.

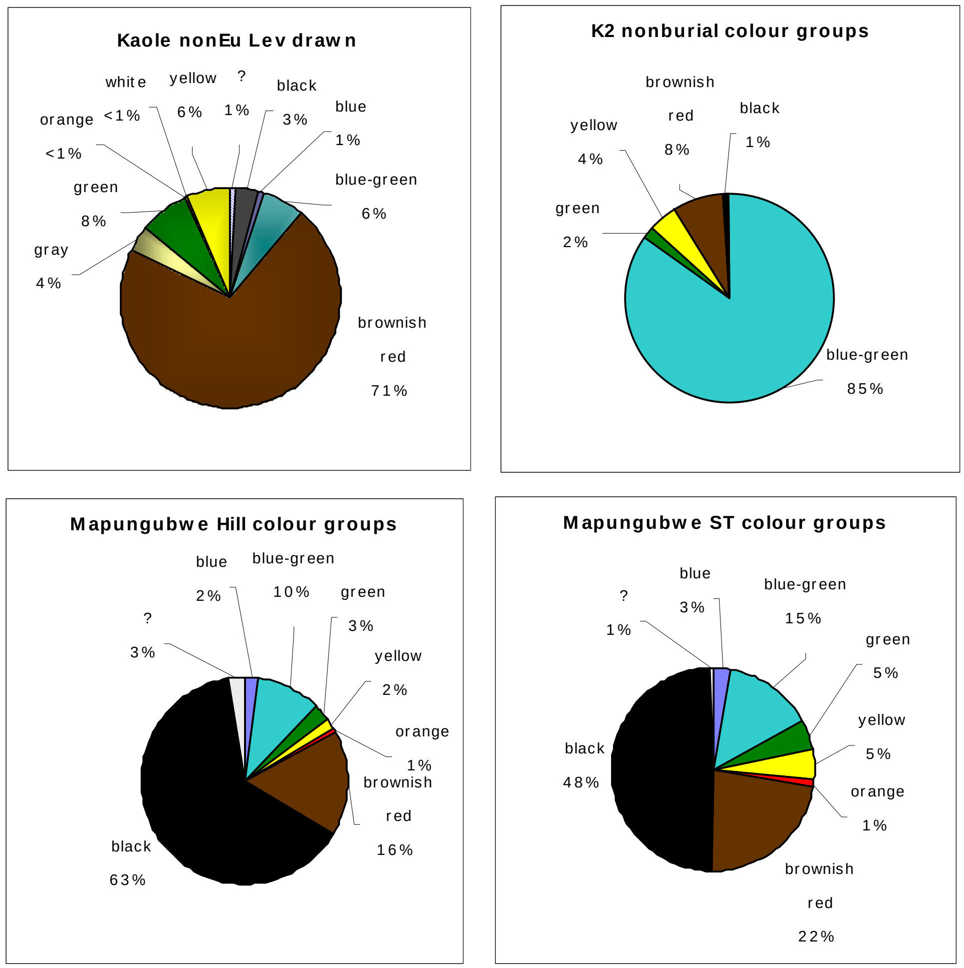


Fig. 13.5: Colour preferences - Kaole vs. K2 & Mapungubwe

In sum, detailed descriptions of Kaole's beads, along with more general ones from other East Coast sites, shows they have little in common with Shashe-Limpopo assemblages.

13.9 SOUTHERN ROUTES

Most students of Indian Ocean trade offer monsoon patterns as an explanation for the movements of men and ships from India and further east, to eastern and southern African. Monsoon winds in the northern Indian Ocean blow from the northeast from November or December up to about April, and reverse to a southwestern direction from May until August (Fig. 13.6) (winds in the middle of this period may have been too strong for most ships of the day). Using these winds it was possible to sail from western India or the Persian Gulf/southern Arabia region to the East African coast and back in one year with ample time to trade en route. This was true for destinations as far south as Zanzibar or Mafia and, in most years, Kilwa. But sailing farther south, especially to Mozambique (Sofala), required an additional monsoon cycle, and thus another year (Chittick & Rotberg 1975). For this reason it is generally assumed many merchants traded for southern African goods via middle men in Kilwa or ports farther north. As a result many believe trade between those ports and Sofala was left largely to local mariners familiar with the difficult conditions in the Mozambique Channel (McPherson 1993).

Few researchers, however, have considered the more southerly systems of currents and winds as a means to reach the southern African coast directly from South or Southeast Asia. Since the monsoon system affects areas mainly north of the equator (Düring 1970:7), the South Equatorial Current and even the Equatorial Current are little affected by the monsoons and flow westerly year round (Fig. 13.7), making it possible to travel to Mozambique from South or Southeast Asia much of the year. The Equatorial Current flows westward just south Sri Lanka and then through the Maldives or their southern cousins, the Chagos Archipelago, where water and other provisions could be obtained and vessels repaired. From there a straight run ends anywhere between the southern shores of East Africa and the northern end of Madagascar. Vessels headed for Sofala could then pass into the Mozambique Channel.

The more southerly route, via the South Equatorial Current (Figs. 13.7 & 13.8), would have been the most direct from Indonesia, particularly Java and southern Sumatra. It passes through the Mascarene Islands (Mauritius and Reunion) before reaching the east coast of Madagascar. There the current splits into north and south flowing streams, enabling mariners to sail in either direction around the giant island. To the north ships would catch the southern end of the Equatorial Current, which would carry them past the Comores to the coast in the region of Cape Delgado, where they could join the south flowing Mozambique Current. Although I have found no references suggesting travel via the southern end of Madagascar, there are several reasons it should be considered for vessels heading for southern sections of the Mozambique coast. It would be shorter than the northern route and would have avoided contact with ships from the Arabian Sea, who might not have welcomed competition. It would also have been feasible since there is a weak but fairly constant north flowing counter current up the west coast of Madagascar (Summers 1969:203). Following this current, it would be possible to sail north far enough to set a westward course for the Mozambique coast. Wright's observation, based on imported ceramics, that "there was no direct shipment to the Comorean villages from the Far East or even from South India or Sri Lanka" (Wright 1984:44) may support the idea that a route around the southern end of Madagascar was being used.

The return trip would have been more difficult. To exit the Mozambique coast ships would have struck an eastward course toward Madagascar. The Mozambique Current would have carried them southward until they reached Madagascar's west coast where they could pick up the north flowing counter current and slowly make their way north to the Equatorial Current, from which they could join the eastward flowing Equatorial Counter Current. Thus the return trip would be lengthy compared to the outward leg. Another, far quicker possibility – for the brave at heart with sturdy ships – would be to sail south from Mozambique to pick up the east flowing Southern Ocean Current. This route would have been viable only for travel to Southeast Asia.

13.9.1 TECHNICAL ISSUES

Obviously direct ocean crossings demanded adequate craft and navigational skills. Indians and Southeast Asians both constructed large ships capable of such voyages, but they differed in construction. The Indian vessels, which were used in the Persian Gulf, Arabia, the Red Sea and on the East African coast, carried several masts and were built of teak planks usually sewn together (Plate 11). Indonesian ships, like those used in China, are referred to as junks. They also carried several masts and were made of teak, but the planks were held together with iron nails. In addition their hulls were divided into a series of watertight compartments (Lewis 1973:247-8). Lewis claims "Junks were much superior to Indian-style large ships..." (ibid.:249). Several bas-reliefs depicting such junks appear on the walls of Borobudur, an early 9th century temple in central Java (Plate 11).

Smaller vessels were constructed as well. Those used for Arab waters and the East African coast were similar to today's dhows. Indonesian models were canoes with sails and outriggers and were capable of ocean travel (ibid.:250-1). Such ships were not new developments, Glover (1996:63) states that as early as "the middle of the third Millennium B.C. substantial improvements had been made in maritime technology in Southeast Asia and that long distance voyaging in double – or single – hulled outrigger canoes and plank-built boats was taking place."

Indonesians navigated by the stars, particularly the Southern Cross. Discussing the use of this constellation for navigation, Lewis proposes "Since so much Javanese navigation was in the southern part of the Indian Ocean direct to the Maldives and Laccadives and perhaps to Madagascar and the Zeng Coast of Africa ... we would probably be correct in crediting them, and not the Arabs or Chinese, with this discovery" (Lewis 1973:252). Indonesian mariners were able to mark locations, even when discovered by chance, return to home base and then lead or direct others back to the newly discovered site (Chittick & Rotberg 1975:6; Vérin 1975 :180), skills that were surely used in the colonization of Madagascar.

13.9.2 EVIDENCE SUPPORTING USE OF SOUTHERN ROUTES

Evidence that vessels were using southern routes comes from several sources.

As was mentioned earlier, Hall (1996:25) reported that between May and October ships could travel from Sumatra to Madagascar in one month. Also, in 1491 a Portuguese mariner wrote to his king: "From these localities [Madagascar and Sofala] it was a matter of facility to cross to Calicut [on the south-western coast of India]" (Axelson 1938:36). In addition he implied Indian ships frequented waters off the south coast of Africa in his statement, "the passage round [the southern tip of] Africa was not particularly dangerous; for the Cape was known in India" (ibid.). In addition, Marco

Polo noted that “The vessels that sail for this island [Madagascar] from the coast of Malabar [southwest India] perform the voyage in twenty or twenty-four days, but in their return voyage are obliged to struggle for three months, so strong is the current which constantly runs to the southward” (Lewis 1973:250).

An obvious factor favouring direct routes would have been the advantages gained from bypassing various ports along the way, thus avoiding competition and the payment of duties or taxes each port levied on passing ships[23]. The observation that southern coastal groups did not convert to Islam like their northern counterparts may indicate Muslims from the north travelled infrequently to Sofala.

Most references to the use of a southern route between Southeast Asia and southern Africa are concerned with the peopling of Madagascar. My study, however, postdates the early period of migration by at least several centuries and its focus is somewhat different. For example Vérin and Deschamps (Deschamps 1960) refer to two routes, but both are variations on the Equatorial Current route. The question they pondered revolves around whether early immigrants first sailed to the East Coast or directly to northern Madagascar after leaving the Maldives. They favoured the former “because this is also the pattern of distribution of the outrigger canoe in the Indian Ocean” (Vérin 1975:179). For the second wave of immigration, however, Vérin favours a route “directly between the area which includes India, southern Sri Lanka, the Maldives, and the Laccadives, on the one hand, and the northeast or northwest of Madagascar on the other” (ibid.).

[23] Summers (1969:197) noted that customs duties levied on trade goods were very high at Kilwa and Mombasa and were probably levied elsewhere as well, especially on gold being transported.

Vérin discounts use of the South Equatorial current for travel between Indonesia and Madagascar "because the Mascarenes were not inhabited by humans until the coming of the Europeans" (ibid.). If, however, the mariners were seeking trade (or even raid) rather than immigration, their passing via these islands for water and other provisions would probably not be visible archaeologically.

Chittick and Rotberg (1975) also discuss the possibility that Indonesians travelled to southern Africa via the southern routes, but concluded the coastal route seemed most logical. They did, however, admit there is a lack of "linguistic, social, and cultural evidence to support the supposition that Indonesians were ever in India or Arabia" (ibid.:6).

Another reference to direct travel between Southeast Asia and Madagascar concerns pre-Islamic trade. In his examination of the spice trade of the Roman Empire, Miller (1969) proposed that cinnamon and cassia were shipped directly from Southeast Asia to Madagascar before being sent on to the East Coast.

The distribution of artefacts also suggests southern routes were used. Horton (1996:418) notes that Chinese and Indian coins plus Chinese whitewares are found more frequently on Pemba and Zanzibar than further north at Shanga. Thus, he proposes that Indian merchants might have developed a direct southern route from Indian to the southern areas of the East Coast.

Carswell provides evidence attesting to use of the more northerly southern route for westbound traffic. He found that from the 9th to the 19th century all exotic ceramics in the Maldives are Far Eastern in origin. The absence of Islamic wares indicates that traffic through these islands was one way, from east to west (Carswell 1977). In 1515 Tomé Pires also noted that ships returned from the Far East via the Maldives and that this route permitted the journey to be made in one monsoon season. In the opposite direction voyagers had to stay over in south India or Sri Lanka to wait for the second monsoon (Lewis 1973).

Lewis provides additional pertinent information concerning Indian Ocean trade. He notes that prior to the 14th century the region's most active and numerous traders were Tamils from Coromandel, who specialized in jewels, money-lending and *gold* [emphasis mine] (ibid.:245). After that Gujeratis assumed the leading role. He also noted that Javanese sailed directly to the Maldive and Laccadive Islands (ibid.:246). He (ibid.:246-7) concluded:

> If one thing emerges from all of this, it is that during this period (1368-1500) and probably even earlier Arab merchants were less important than most historians have tended to believe. ... Instead, the Indian Ocean was now dominated by Indian, Burmese, and Indonesian merchants who handled the bulk of its maritime traffic.

Lewis's information concerning the Tamil traders is provocative. Their position in southeast India coupled with their interest in gold suggests they might have been using a southern route to trade directly with southern Africa up to at least the 14th century. It is also interesting Javanese were active in long distance trade even beyond that time.

It might not be coincidental that Great Zimbabwe became the most powerful entity in southern Africa about the same time the Gujeratis came to dominate trade in the Indian Ocean. Gujerat, the pre-eminent foreign trade entrepôt from about the 14th century, is situated on the northwest coast of India. Thus, the focus of trade shifted from southeast to northwest India. As a result, it seems likely trade using the coastal route would have increased, raising the possibility that the port of entry for trade into southern Africa would have shifted northward, favouring Great Zimbabwe at the expense of Mapungubwe. This may have contributed to Mapungubwe's demise. It is important, however, to be aware that Gujeratis were not restricted to their homeland. As Lewis (ibid.:243) points out they were found everywhere and maintained large colonies along the Malabar Coast. In addition Tomé Pires recorded:

> There is no place where you do not see Gujerati merchants. ... If Cambay were cut off from trading with Malacca, it could not live, for it would have no outlet for its merchandize.... The Gujeratees were better seamen and did more navigating than the other people of these ports, and so they have *large* ships and more men to man them. They have great pilots and do a great deal of navigation (ibid.:244).

When Portuguese vessels first entered the waters of the Indian Ocean they reported finding (and sometimes capturing) Indian ships along the Mozambique coast, as well as farther north. As was mentioned earlier, Indian mariners were familiar with the Cape and sailed from the Malabar Coast to Madagascar in less than a month, an action that would have been possible only if they had been using a southern route.

13.10 DISCUSSION

Careful examination of Islamic period bead assemblages from eastern and southern Africa suggests trade into southern Africa was far more complex than is generally recognized. Enormous discrepancies exist between numbers of glass beads found in southern and eastern Africa. In addition, the distribution of bead types varies significantly between the north and south from the earliest period.

From the mid-8th to mid-10th centuries only a handful of glass beads were recovered from northern sites, whereas large numbers were found in the south. In the south virtually all pre-mid 10th century beads come from the Zhizo series, but in the north such beads are rare and assemblages consist of types not found in southern Africa. These distribution patterns - reinforced by preliminary work on the glass chemistry of Zhizo series beads - suggest a source in South or Southeast Asia.

From the mid 10th to the mid 13th century, similar discrepancies in bead numbers and types between the north and south indicate the K2 series originated in South or Southeast Asia and was being transported via a southern route. However, an additional but volumetrically smaller trade appears to have come down the coast from the north carrying Indo-Pacific series beads.

Beginning in the mid 13th century another change in bead origins and trade patterns occurred. K2 series beads were no longer imported, and the Mapungubwe Oblate series arrived in vast numbers. Indo-Pacific beads arrived only in small numbers, if at all. Mapungubwe Oblates seem to have been traded via a southern route, but the site of their manufacture, although possibly in southern Asia, is not the same as the K2 or Indo-Pacific series beads.

In sum this suggests South, and possibly Southeast Asia, controlled much of the trade out of the Shashe-Limpopo region up to the collapse of Mapungubwe at the end of the 13th century. In addition, a separate trading network, using the monsoon system, linked the Mozambique coast with the north. It is possible the more northerly ports of ancient Sofala were engaged mainly in that trade. If so, examination of glass beads from sites in that region, for example the Zambezi basin, might clarify this. If it proves to be the case, one would expect to find beads related to assemblages found at East Coast sites.

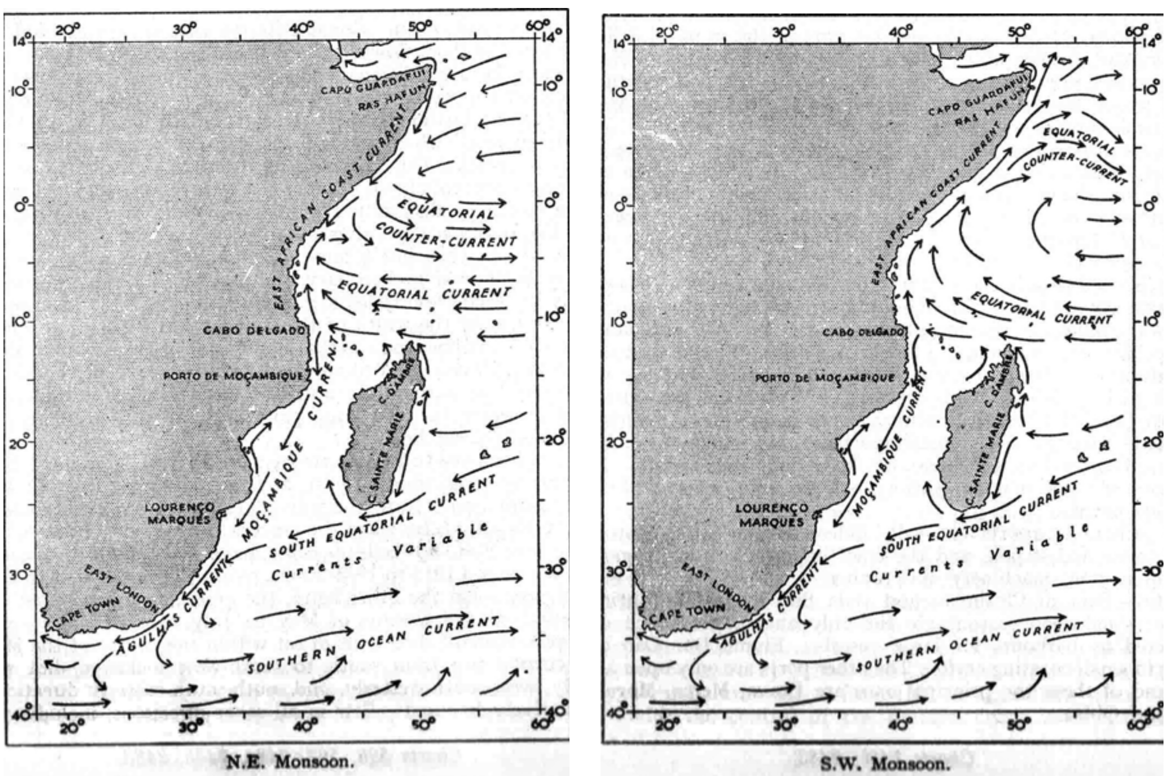


Fig. 13.6: Northeast and Southwest Monsoons (Africa Pilot 1954:16-17)

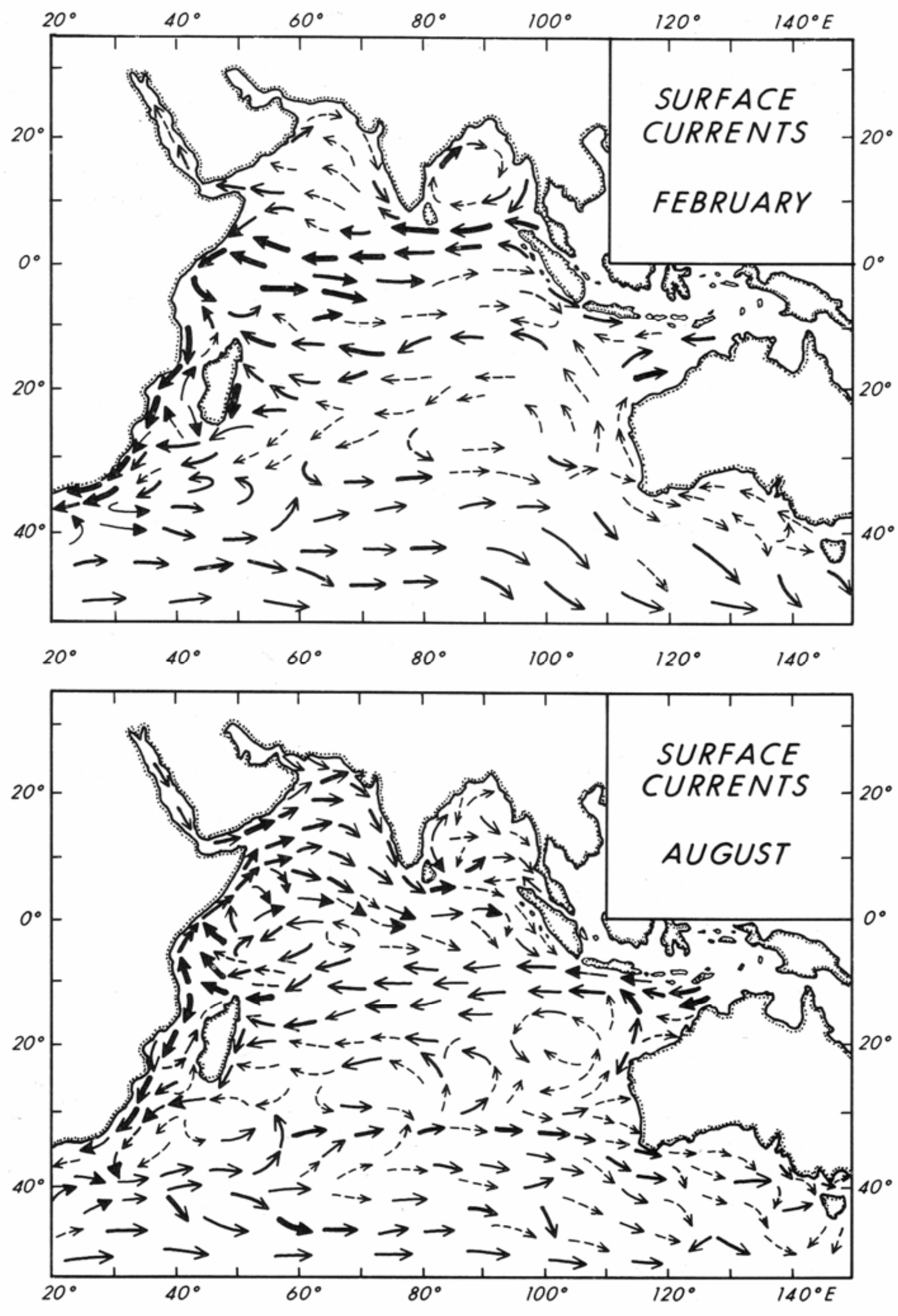
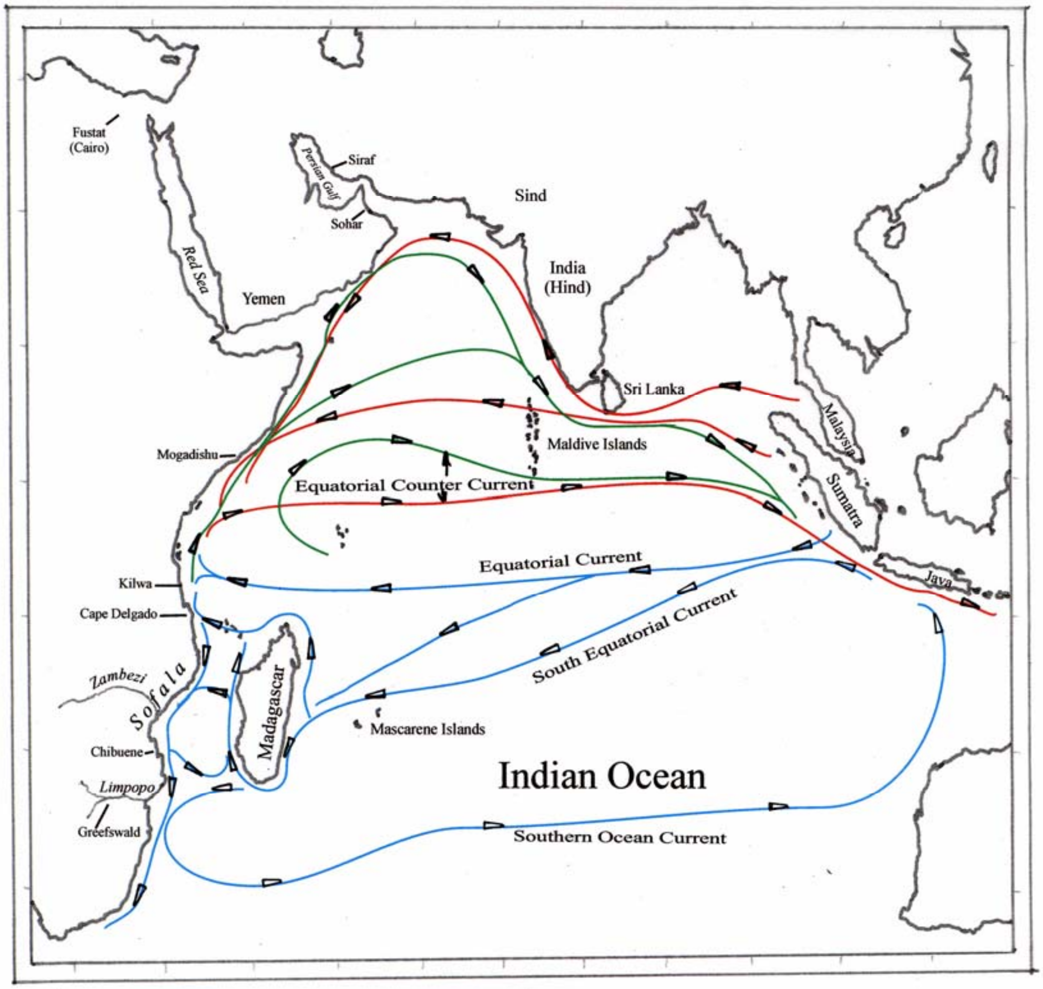


Fig. 13.7: Indian Ocean currents (During 1970:5)



Southwest Monsoon – May to Aug

Northeast Monsoon – Nov/Dec to April

Year round currents that are constant (with seasonal variations in strength)

Fig. 13.8: Proposed trade routes based on currents and winds

CHAPTER 14: CONCLUSIONS

14.1 COMPARING BEAD DATA BETWEEN SHASHE-LIMPOPO SITES

The glass beads from the Shashe-Limpopo region belong to five series: Zhizo, K2, Indo-Pacific, Mapungubwe Oblate and Khami. Patterns derived from the beads help to identify relationships between - and time frames of - assemblages.

14.1.1 COLOURS

As Figure 14.1 demonstrates, colour profiles vary considerably over time. The Zhizo profile presented here is not clear-cut since it comes from Schroda, which has a mixed Zhizo/K2 assemblage. Of the 514 non-burial Schroda beads I could assign to a series, 337 are Zhizo types and 177 are K2 or Indo-Pacific; this obviously affects the overall colour profile.

K2 period sites, however, exhibit a clear pattern in which blue-green beads make up between 83 and 86 percent of assemblages. Brownish red, yellow and green beads are found in small numbers, while black ones are rare and found only in the latter phase of the period. Blue beads occur only as curated objects saved from Zhizo times.

Mapungubwe period assemblages are dominated by black beads, which make up between 48 and 63 percent of all non-burial glass beads (and can account for up to 98 percent of burial beads). Brownish red and blue-green beads are the next most common. In the samples, brownish red beads represent between 13 and 22 percent, while blue-green form between 10 and 18 percent. Green and yellow are next, making up less than 10 percent of any assemblage. Blue beads are rare, as are orange ones (a dull brownish orange).

The colour profile for Leokwe Hill's non-European beads suggests they were deposited during the period when K2 beads were being replaced by the Mapungubwe Oblate series. As was discussed in Chapter 9, the period between the two series was characterized by unusually large numbers of brownish red beads, along with a reduction in numbers of blue-greens and the appearance of increased numbers of black beads. The orange and blue beads are types found only after the introduction of the Mapungubwe Oblate series.

Colour profiles for beads from Faure and Kolope probably give us a basic idea of what to expect from Khami period sites in the area. The samples are small, however, so more sites should be examined before parameters are deemed definitive.

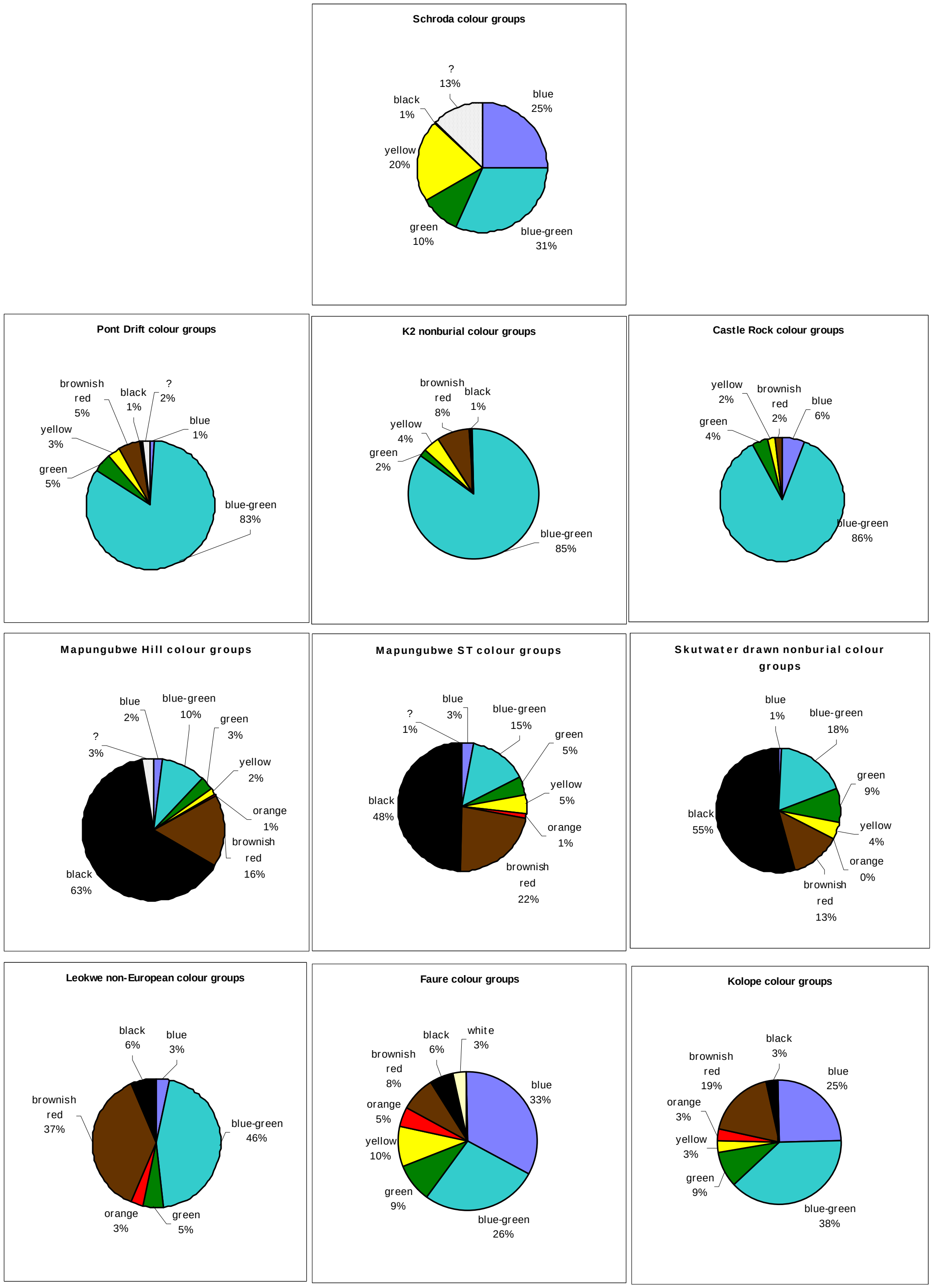


Fig. 14.1: Shashe-Limpopo bead colour profiles compared

14.1.2 END TREATMENT

In the samples, end treatment is useful in determining classification only with the Zhizo series since most Zhizo beads have untreated ends. The ends of beads from all other series have been rounded to varying degrees through reheating.

14.1.3 SHAPES

As Figure 14.2 demonstrates the majority of beads from Schroda, Pont Drift and K2 are tubular with the bulk of the remainder being cylinders. This is typical for K2 series assemblages. Castle Rock, however, has more cylindrical than tubular beads, but this difference may be related to the small sample size.

Mapungubwe Hill and Southern Terrace profiles are similar, with cylinders being the most frequent followed by oblates and finally tubes. Skutwater has fewer oblates than the Mapungubwe sites, which supports the assumption that oblates were preferred by elites. Leokwe Hill produced mostly cylinders with very few oblates and no tubes. The Khami sites of Faure and Kolope produced mainly cylindrical beads. In all of these sites, except the three from the core Mapungubwe period, oblate-shaped beads are fortuitous and infrequent.

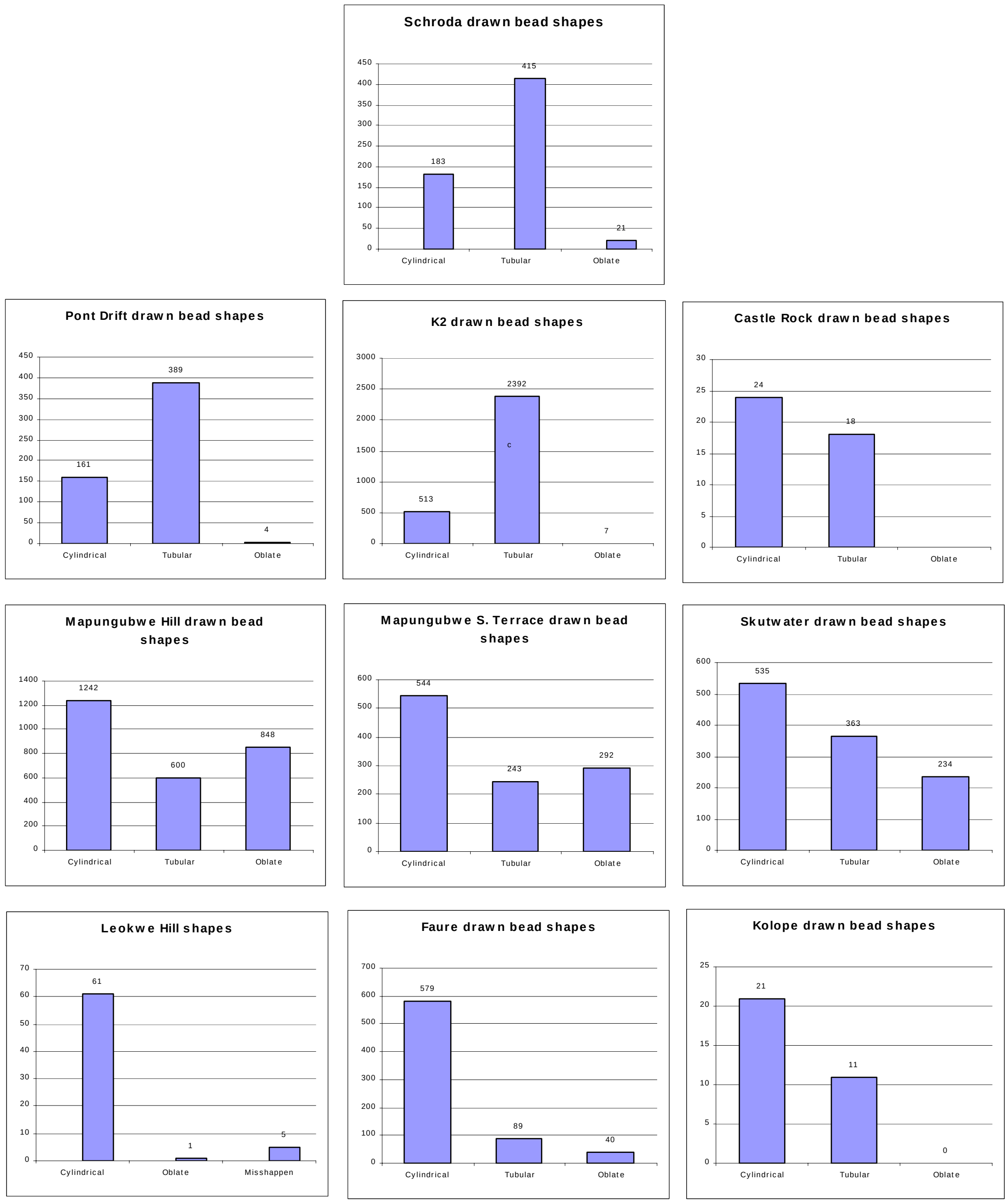


Fig. 14.2: Shashe-Limpopo bead shapes compared

14.1.4 SIZES

As Figure 14.3 shows, assemblages with larger beads appear at the two ends of the time span under examination. Only Schroda, with a substantial proportion of Zhizo beads, and the Khami period sites of Faure and Kolope contain significant quantities of medium sized beads. Schroda and Faure are the only two with more than a few large drawn beads. Pont Drift and K2 have similar profiles with mainly minute beads. Mapungubwe Hill, Mapungubwe Southern Terrace and Skutwater (all Mapungubwe period sites) assemblages consist mainly of minute and small beads. The elite Hilltop has the highest proportion of minute ones; again a reflection of elite preferences. Castle Rock and Leokwe have similar profiles, but this is fortuitous.

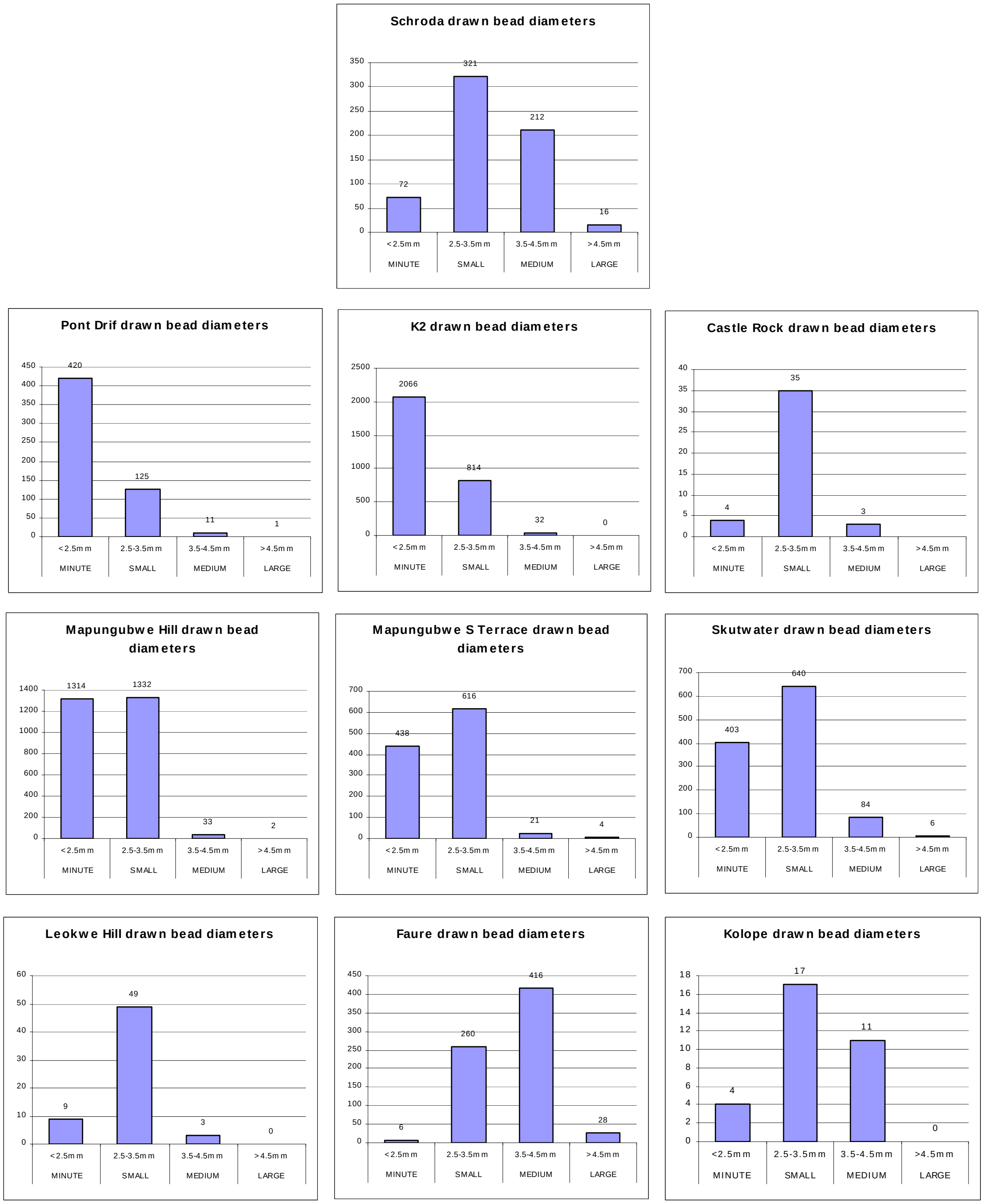
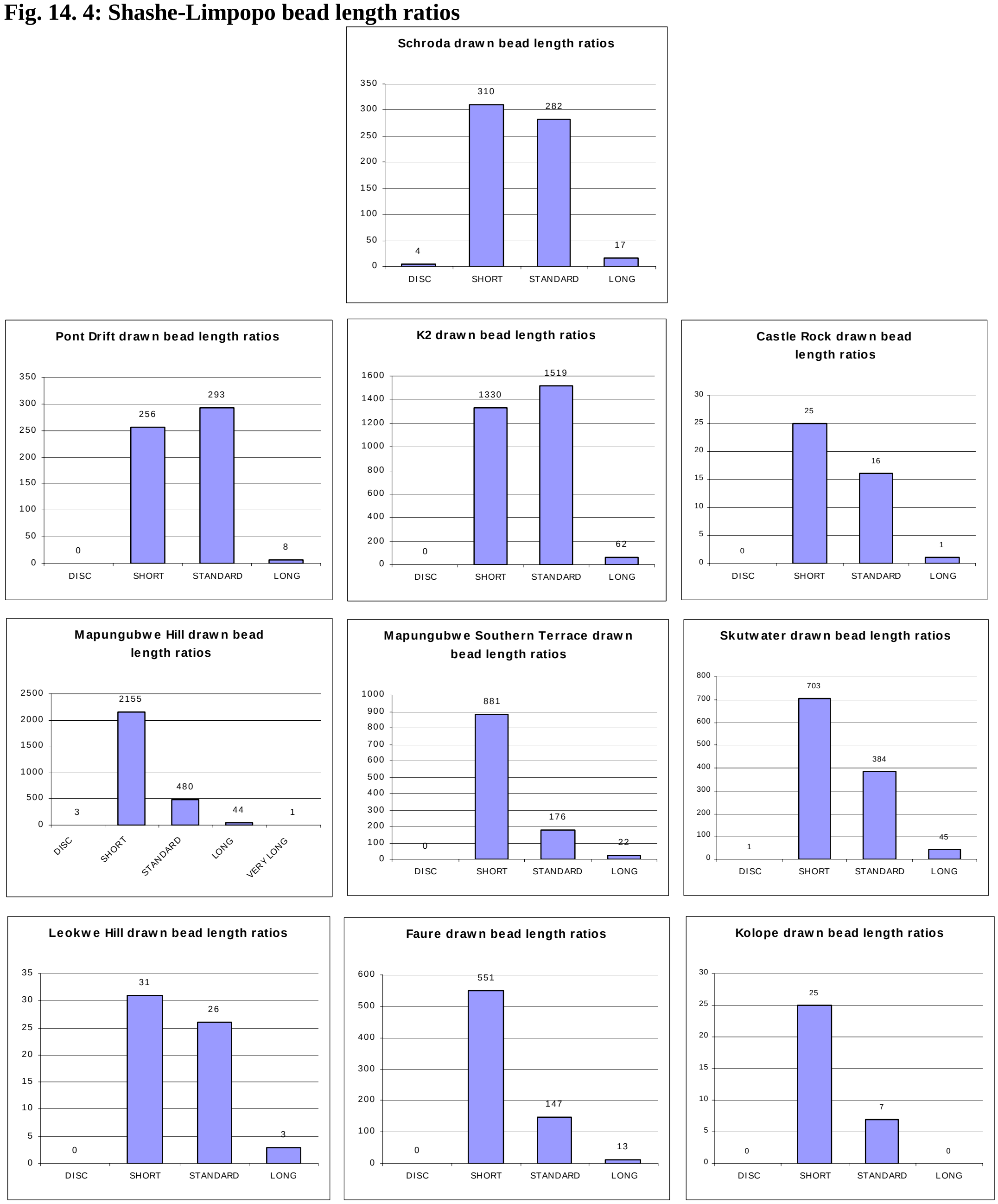


Fig. 14. 3: Shashe-Limpopo bead sizes compared

14.1.5 Length ratios

Length ratios don’t vary as much as other parameters so are less useful in defining assemblages. Most profiles mainly comprise short and standard length beads, with short ones being most common. Only the K2 period sites of Pont Drift and K2 contain more standard than short lengths.

Fig. 14. 4: Shashe-Limpopo bead length ratios



Overall, the above figures demonstrate that measurable differences, particularly in bead colours and sizes, can be used to determine what period a given glass bead assemblage may belong to, and in some cases can differentiate between elite and commoner sites. Results are more secure with large samples. In addition, researchers must be aware that beads from earlier periods may be curated, so can appear long after they ceased to be imported.

14.2 GLASS BEADS AND SITE INTERPRETATION

Was the introduction of K2 series beads linked to the arrival of Leopard's Kopje people in the Shashe-Limpopo region? Evidence from Chibuene (Chapter 13) indicates importation of Zhizo beads stopped around AD 950, when Indonesian raiders sacked coastal sites. This was well before Leopard's Kopje people appeared in about 1010 (Huffman 2000:17). Although it is possible the bead trade ceased between AD 950 and 1010, it is unlikely. Indeed, the large number of K2 beads at Schroda suggests they were traded there for some time before its abandonment in about 1020. Furthermore, Pont Drift, which was inhabited from about 970, had K2 beads beginning with its first occupation levels, but contained only 6 Zhizo beads. Since they were scattered throughout the deposit, it is likely they were curated. Although these data suggest to me that K2 beads arrived in the region before the arrival of Leopard's Kopje people, another interpretation is possible. Schroda may have been occupied longer than is presently thought, in which case the K2 beads could date to the later occupation. A re-examination of the site could clarify this.

The first appearance of Garden Rollers is interesting as well. It has been recognized since Gardner's time that they were made at K2, and perhaps allied sites. However, evidence suggests they appeared soon after, or even along with, the arrival of the K2 beads from which they were made. Their presence at Schroda, along with fragments of moulds,[24] suggests an early arrival. In addition, at Pont Drift all 16 were found in the older K2 unit and the dung levels below. Finally, Gardner noted they appear in the earliest contexts at K2.

14.3 GLASS BEADS AND REGIONAL INTERACTION

On a regional level, the huge concentrations of beads found at K2 and Mapungubwe show these capitals carried on extensive trade with the coast, and probably controlled the importation and distribution of these exotic items. They were obviously highly valued, for many hundreds of thousands have been recovered from burials, especially elite interments. Control over importing and distributing glass beads provided the elite with a means to accumulate vast wealth, which played a significant role in the development of a class-based society and the establishment of southern Africa's first state.

In addition, Garden Rollers provide a window into contacts between K2 and other locations in southern Africa, including Zimbabwe and Botswana, and even southern Zambia.

[24] In Area 6 two were found in level 1 and one each in levels 2 and 3. Hanisch (1980) recorded one in

14.4 SOUTHERN AND EASTERN AFRICA BEAD ASSEMBLAGES COMPARED

As was noted in Chapter 13, differences between bead assemblages in southern and East Africa (including offshore islands) are numerous. Bead numbers are far higher in southern Africa during all periods examined. East Coast assemblages contain significant numbers of wound beads (sometimes over 50 percent), whereas in southern Africa wound beads are excessively rare. Colour profiles in southern African assemblages show clear region-wide patterns that are linked to various time periods, but no specific profiles are evident either temporally or regionally in East Africa. Bead sizes in southern Africa are consistently smaller and more uniform than those on the East Coast, while coastal assemblages contain far greater variation in bead shapes and decoration. Finally, the bead types that are most prevalent in southern African assemblages – Zhizo, K2 and Mapungubwe Oblates – are rare in East Africa, and the most common type on the East Coast – Indo-Pacific – accounts for only a small percentage of southern African assemblages.

These differences, supported by ongoing chemical analyses [Robertshaw *et al.*, in prep.], suggest that two separate trading systems were active in the western Indian Ocean. It is clear that trade to and from East Africa was structured around monsoon cycles with goods arriving via the north, or possibly directly from western India. Within this coastal system, trade to destinations south of Kilwa (and thus beyond the effects of the monsoons) required an additional year of travel, or would have been

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level 3, Area 5. The mould fragments came from Area 2, level 2 and Area 4, level 1.

carried out by middlemen: local seafarers who brought goods from the south for transhipment at East Coast ports. Indo-Pacific series beads - and Islamic ceramics and glassware (on the coast) - provide evidence this coastal system trade reached southern Africa.

The vast majority of exotic beads found in southern Africa, however, are unlikely to have arrived via this coastal system since few beads from the Zhizo, K2 and Mapungubwe Oblates series are found at East African sites. Based on these distribution patterns, and results from chemical analyses, these beads appear to have been traded via routes that bypassed the monsoon cycles, crossing the southern Indian Ocean more or less directly from South or Southeast Asia.

In sum, present perceptions about trade patterns in the Indian Ocean have been based largely on the most accessible and easily interpreted information – that is Arabic documents and Islamic ceramics[25]. This has resulted in a decidedly Arab-centric bias that ignores or minimizes the importance of southern Africa, and the role played by South and Southeast Asians. This research indicates the situation was more complex and should be re-examined.

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[25] Chinese ceramics have been used as well, but are more difficult to interpret since they could have been traded via either coastal or southern routes.