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The Zulu ceramic tradition in Msinga, South Africa

Kent D. Fowler

Department of Anthropology, University of Manitoba, 435 Fletcher Argue Building, Winnipeg, Manitoba, R3T 5V5, Canada; fowlerk@cc.umanitoba.ca

ABSTRACT

This paper summarizes fieldwork conducted in 2009 with Zulu potters in the Msinga region of KwaZulu-Natal, South Africa. New data collected from this area of the Upper Thukela Basin are used to compare and contrast production technology, the scale of production, distribution, seasonality, and labour organization with Zulu potters in the Lower Basin. The results of this study indicate that pottery production in Msinga has a distinctive character, which generates an equally distinctive ceramic style. This report demonstrates that potters' social networks influence the visible and technical dimensions of pottery in the Thukela Basin. A better understanding of these social influences provides explanations for pottery variability that link the social context of ceramic production with style.

KEY WORDS: Ceramics, *chaînes opératoires*, production, Msinga, Zulu, South Africa.

Most of what we know about Zulu pottery production has been gained from potters in the Thukela Basin of KwaZulu-Natal in South Africa. Fieldwork by artists and social scientists over the past three decades has improved upon earlier ethnological accounts. Most recent accounts have reported on vessel names and functions, aspects of the manufacturing process and symbolic representations, either as the explicit objectives of research or through biographies of potters (Levinsohn 1984; Kennedy 1993; Armstrong & Calder 1996; Reusch 1996, 1998; Garrett 1997, 1998; Armstrong 1998; Fowler 2006; Legg 2006; Armstrong et al. 2008). There has been little commentary on the socio-economic context of production, learning, or the relationship between style and the identity of artisans, and less still on detailed treatments of the technological aspects of production (but see Jolles 2005; Fowler 2008).

My study of pottery production in the lower Thukela Basin (Fowler 2008) was based on the wide-ranging research protocols developed principally for West and Central Africa. My data are not directly comparable with work done by other scholars. To provide such comparative data, I extended my research (the Nguni Ceramics and Society Project, University of Manitoba) to Msinga in the upper reaches of the basin.

Lawton (1967) and Reusch (1996, 1998) had previously conducted fieldwork in Msinga. Repeated research amongst ceramic-producing communities is desirable for three main reasons. First, different research agendas, questions and expertise yield different data. Second, long-term research allows us to monitor trends in production practices and factors that influence them. Lastly, examining variation in production within a particular group allows for better definition of a particular ceramic tradition and leads us to a deeper understanding of the historical forces that shaped it.

With these considerations in mind, the objectives of this paper are (1) to outline the current repertoire and lexicon of ceramics in Msinga, (2) to examine the social influences on ceramic production practices in Msinga, and (3) to develop a comparative understanding of these social influences within rural communities by highlighting

regional variation in the organisation of production and manufacturing sequences in the Thukela Basin. These objectives are a response to a dearth of commentary on the socio-economic context of production, learning and the technological aspects of production in rural pottery-producing communities in southern Africa. I treat each objective in turn and demonstrate how the cultural constraints on choices made during ceramic production in Msinga give it a distinctive character.

RESEARCH DESIGN

My research aims to document the social factors influencing Zulu ceramic technology and production arrangements. These factors are accessed through a detailed study of ceramic *chaînes opératoires*, or 'production sequences' (Leroi-Gourhan 1963; Tixier 1967; Pelegrin et al. 1989; Dobres 2000). *Chaîne opératoire* is a research strategy that involves both a research, or analytical, method and a research methodology, each of which has different goals (Lemonnier 1992; Pfaffenberger 1992; Dobres & Hoffman 1999). As an analytical method, the goal of *chaîne opératoire* research is to describe complete manufacturing sequences and examine both the technical and social factors influencing the decision-making strategies artisans employ during production. To make ethnographic observations more directly relevant to the study of ancient technologies by archaeologists, various analytical techniques (e.g. petrographic, chemical and use-wear analysis, refitting studies, typological analysis and replicative studies) provide quantitative data on the technical operations that comprise manufacturing sequences. These data can be used to generate and address specific archaeological research questions that can improve our understanding of the technical and cultural factors influencing past ceramic manufacturing.

In this paper I test a social interaction network model that links the process of artefact production with the social identities of artisans. Studies show that social identities and networks variously influence and constrain the choices potters make (Miller 1985; van der Leeuw 1993; Gosselain 1998, 2002; Pétrequin & Pétrequin 1999; Livingstone Smith 2000; Livingstone Smith et al. 2005). As choices become more technical and inflexible, smaller networks of people influence them. For instance, more people influence what pots will look like, but fewer people influence the specialized gestures used to fashion vessels. Consequently, choices are variously affected by the different learning and post-learning interactions of potters (see Fowler 2008: fig. 4a).

These observations have been developed into three general hypotheses that attempt to explain why people choose to produce technologies in one manner (or 'technical style') as opposed to using other functionally equivalent raw materials, techniques and procedures. Testing of these three hypotheses using data from Msinga and the Lower Thukela Basin forms the final section of this paper.

Data collection methods

Our work in Msinga focused upon two Traditional Authorities: Mabaso in the lowlands northeast of Tugela Ferry, and Mchunu on the plateau in southern Msinga, which together cover just less than a third of the region (Fig. 1). Data collection involved extensive unstructured interviews with potters of varying age and skill levels, making trips to clay and fuel sources, and visually recording demonstrations of all production stages. Interview questions were developed from existing questionnaires

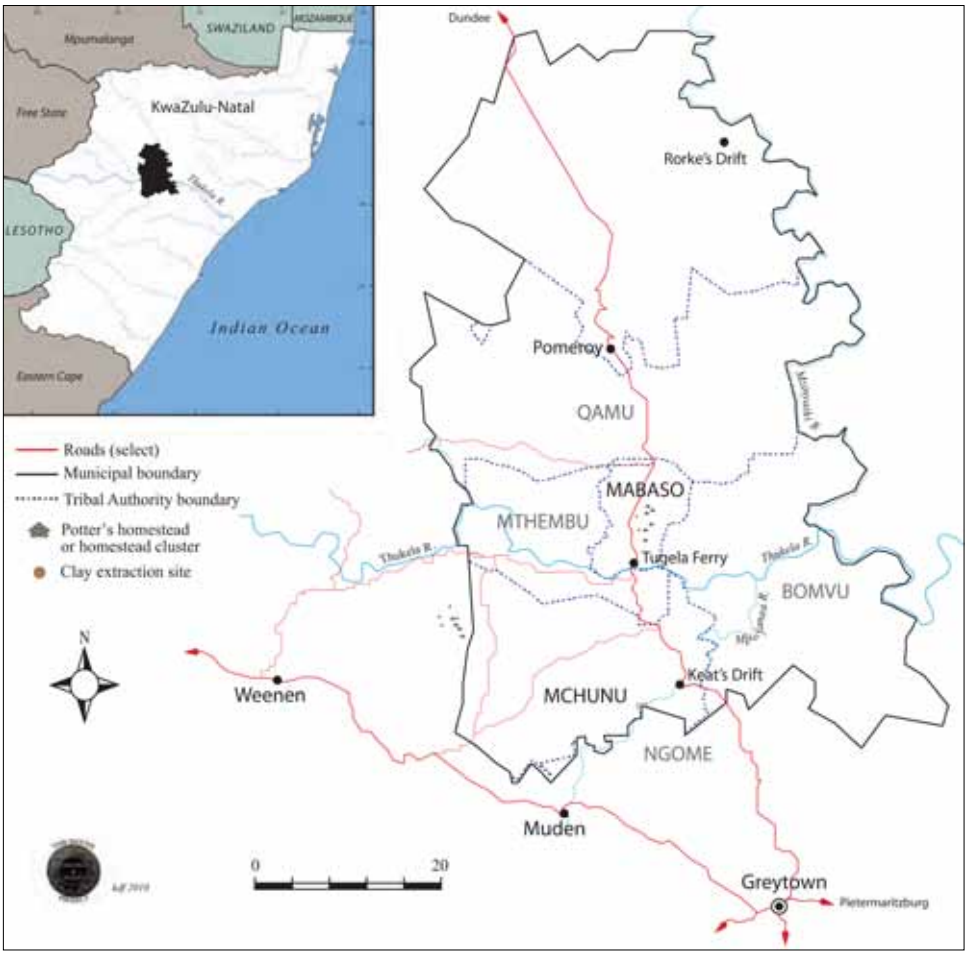

Fig. 1. The Msinga study area showing the distribution of potter homesteads and clay extraction sites.

(e.g. Gosselain & Livingston Smith 1997; Gosselain 2002) and focused on seven topic areas: (1) identity (e.g. age, gender, literacy), (2) socio-economic context of production, (3) vessel shape and function, (4) vocabulary, (5) manufacturing process, (6) learning and (7) symbolic representation.

Between May and June 2009, we gathered information about 18 potters in Msinga. The potters were women between the ages of 28 and 73. Most of our time in Mabaso was spent with a single informant who had taught eight of the thirteen potters in the area. Indirect information on several other potters was obtained from interviews with her and her past apprentices. In contrast, there are five active potters in Mchunu. All but one are related through marriage. We extensively interviewed two of these potters and their apprentices who now live just outside the recently readjusted municipal boundary of Msinga, and one other potter who now lives in Weenen. Our data spans three generations and the practices of twenty-two apprentice, active and deceased potters.

THE CONTEXT OF PRODUCTION IN MSINGA

Msinga lies in the Upper Basin of the Thukela River, about one hundred kilometres from both the Indian Ocean to the east and the Drakensberg mountains to the west (Fig. 1). As of December 2000, Msinga was designated a local municipality covering some 2500 km^2, but the name has long been used to denote a much larger area. Currently, the municipality is one of four comprising the Umzinyathi District Municipality and it administers six Traditional Authority areas, namely, Qamu, Mchunu, Bomvu, Ngome, Mabaso and Mthembu (Fig. 1).

The district is distinctively arid and rocky with a wide alluvial plain (400–650 m asl) that rises to the highveld north and south of the Thukela River (1200–1600 m asl) (Fig. 2). Temperature, rainfall and vegetation correspond closely with altitude. The average annual temperature in the valley is higher (20°C) than in the highland areas (14°C). On the whole, the area receives an average of 670 mm of rain per year. The valley is dominated by thin bushveld, but at higher elevations there is a mix of moist or dry grassland, sourveld, sandveld and thornveld. Soils across this landscape are non-arable, shallow reddish-brown calcareous soils of the Sunvalley-Ferry-Weenen series that overlays a lithology characterized by the shale- and sandstone-rich Hutton form of the Msinga Series (van der Eyk et al. 1969). The distribution of clay sources is therefore limited to exposed clay-rich beds in seasonal streams that experience the most erosion and potters tend to be situated close to them.

The nature of the topography is such that the high hills isolate the municipal area from those immediately surrounding it. A single tarred secondary road running north to south links the three peri-urban settlements of Tugela Ferry, Pomeroy and Keate's Drift, and provides the main access to the area. Several poorly maintained tertiary

Fig. 2. The Thukela River Valley looking north-west from west of Tugela Ferry.

gravel roads remain the only means of travel to homesteads west and east of the main highway. Although vehicles regularly travel these roads, the dominant mode of transportation is by foot (Department of Local Government and Traditional Affairs 2006). As such, Msinga is considered by many to be one of the more isolated districts in KwaZulu-Natal. With limited mobility within and out of the region, potters in different Traditional Authorities have infrequent contact with each other and with potters outside Msinga.

Systemic factionalism throughout the last half of the nineteenth and throughout the twentieth century has given Msinga a reputation as violent and rife with crime (Clegg 1981; Minnaar 1991; Lambert 1994). Tensions are no longer consistently as high as they were two decades ago (Thomas 1972; Freund 1996), and there remains a strong sense of identity locally (between Traditional Authorities) and collectively, relative to other districts in KwaZulu-Natal (cf. Mathis 2008: 94–5). Adamantly traditionalist and widely acknowledged as staunch preservers of 'the old Zulu ways', the people of Msinga live in communities impoverished by underemployment, underdevelopment, and compromised immunity.[1] Consequently, avoidance and respect behaviour (*ukuhlonipha*; Raum 1973) still strongly guides daily life,[2] and for some women, pottery making is a key source of income.

CERAMIC USE AND TERMINOLOGY IN MSINGA

Ethnographic sources indicate that pottery vessels were made to cook and serve meat, cereals and vegetables; brew, serve and drink sorghum beer; transport and store water; administer medicines; and burn incense. Shards were used to fry slivers of cattle, sheep or goat meat in ceremonies venerating and communicating with the ancestors. From the 1820s, European metal containers largely replaced cooking vessels (Fowler 2006). Most potters today make vessels for brewing, serving and drinking sorghum beer (*utshwala*), and a series of smaller serving and eating vessels for consuming *uphutu*, a maize-based porridge, and *amasi*, a delicacy of sour milk.

Potters in the Thukela Basin divide their current repertoire of vessels into six broad series that reflect a contraction of the ceramic repertoire during the nineteenth century (for discussions of function see Armstrong 1998; Armstrong et al. 2008; Fowler 2006; Jolles 2005). The six series include (1) *izimbiza* for beer brewing, (2) *izinkhamba* for serving and storing water/beer and preparing medicines, (3) *iziphiso* for transporting water or beer, (4) *isingcazi* for serving, storage and transport of beer or water, (5) *izinkhamba* for cooking or serving vegetables and other dishes, and (6) *izinkhanzi* for cooking meat (see Fig. 3).[3]

Potters were provided with silhouettes of these vessel forms to investigate what term, or range of terms, they would provide without reference to scale or decoration.[4] The illustrations were drawn from the literature, previous fieldwork and, specifically, vessels collected by Reusch during his research in Msinga.

Msinga potters recognize and can name most vessels in the ethnographically documented repertoire (Table 1). Potters from each area most clearly agreed on the names of three forms: *imbiza* (beer brewing), *umancishana/umgodi wenyoka* (denoted by potters as the same form used, respectively, for beer drinking and offerings to ancestors; Fowler 2006), and *ingcazi* (water or beer transport) (Reusch 1998:34).

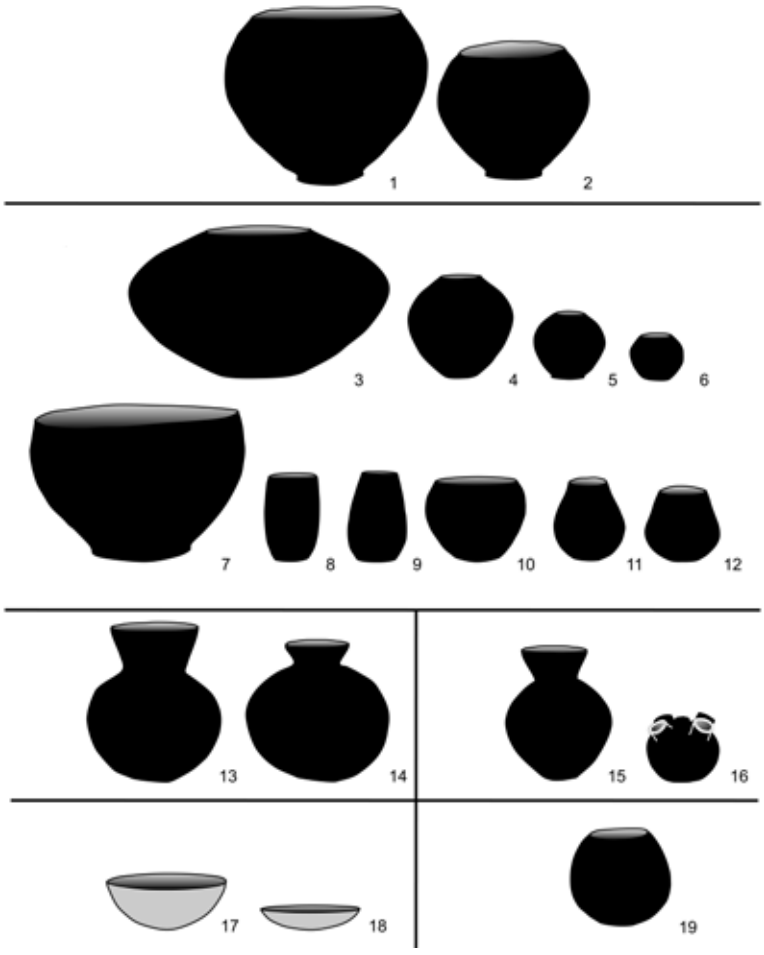

Fig. 3. Pottery series in the Zulu ceramic repertoire. *Izimbiza* for beer brewing (1. *imbiza ugaga*; 2. *imbiza impofana*). *Izinkhamba* for serving and storing water/beer and preparing medicines (3. *iphangela*; 4. *ukhamba udabulibheshu*; 5. *ukhamba ninepence*; 6. *umancishana*, 7. *ukhamba lwentelezi*; 8, 9. *izinkamba*; 10. *ukhamba lwamasi*; 11. *umcengezi*; 12. *umgodi wenyoka*). *Izinphiso* for transporting water or beer (13, 14. *uphiso*). *Izingcazi* for serving, storage and transport of beer or water (15. *ingcazi*; 16. *ingcazi elinemilomo emine, 'ingcazi* with four mouths'). *Izinkhamba* for cooking or serving vegetables and other dishes (17. *isikhangezo/umgenqele/ umcengezi/isiyoco*; 18. *umcakulo/isoco*). *Izinkhanzi* for cooking meat (19. *ikhanzi*). For a complete discussion of vessel functions see Fowler (2006).

Potters had heard the term *uphiso* for a necked vessel like an *ingcazi*, but they do not use it. Only potters from Mabaso identified *umcakulo* as a small beer-brewing vessel.

There was less agreement on forms used for serving. While potters from Mchunu used the generic term *ukhamba* for a serving vessel, Mabaso potters were more specific. *Maimphense* was the specific term given this serving vessel. *Mamsamo* was the term ascribed to a very small version of this form that can only be drunk from by grandparents and is often placed in *umsamo* at the back of houses to hold offerings to the ancestors.

TABLE 1

Names provided for vessel silhouettes shown to Msinga potters. (See Figure 3 to relate number to vessel shapes. * = identified only by a *sangoma*.)

No.	Name	Function	Mabaso	Mchunu
1	*ikhanzi*	cooking	-	*ukhamba lwamasi*
2	*isoco*	cooking	-	-
3	*isiyoco*	cooking	*ukhamba lwamasi*	*ukhamba*
4	*imbiza impofana*	brewing beer	*umcakulo*	*ukhamba*
5	*imbiza ugaga*	brewing beer/ storage	*ukhamba*	*imbiza*
6	*isikhangezo/umgenqele*	serving	*imbiza*	*imbiza*
7	*umcakulo*	serving	*impofana (small imbiza)*	*imbiza*
8	*ukhamba lwamasi*	serving	*maimphense*	*ukhamba*
9	*ukhamba*	serving/ medicinal-ritual	*umancishana*	-
10	*ukhamba*	serving/ medicinal-ritual	*mamsamo*	*ukhamba lwamasi*
11	*ukhamba udabulibheshu*	serving	*imbiza ugaga*	*iquthu*
12	*ukhamba ninepence*	serving	*umgodi wenyoka*	*umgodi wenyoka*
13	*umancishana*	serving	*umgodi wenyoka*	*umgodi wenyoka*
14	*iphangela*	serving/storage	*umgodi wenyoka*	*umancishana/umgodi wenyoka*
15	*ingcazi*	transport/serving/ storage	*umgodi wenyoka*	*umancishana/umgodi wenyoka*
16	*multi-spouted ingacazi*	transport/serving/ storage	*ingcazi*	*ingcazi*
17	*uphiso*	transport	*ingcazi*	*ingcazi*
18	*uphiso*	transport	*ingcazi*	*ingcazi*
19	*uphiso*	transport	*ingcazi*	*ingcazi*
20	*umgodi wenyoka*	medicinal-ritual	-	-
21	*umcengezi*	medicinal-ritual	-	-
22	*ukhamba lwentelezi*	medicinal-ritual	*ukhamba lwentelezi**	-

A *sangoma* (diviner) referred to the *mamsamo* form differently. The terms are based upon function. She explained that different *ukhamba* are used for different medicines and cannot be exchanged or used for another medicine. She called the *mamsamo* form *umkhamba lwedlozi*, if used for the ancestors. If she used it for making medicine, she called it *igobongo*. *Igobongo* is used for medicines for respiratory problems, the illnesses she treats most often (see Hutchings 1996: 130, 323, 332). An *ukhamba lwentelezi* was also identified as a vessel used to prepare medicines. *Intelezi* (pl. *izintelezi*) is a protective charm (Dent & Nyembezi 1969: 440) and there is a range of medicinal plants generally referred to as *intelezi* (see Hutchings 1996: 45, 112). While some *sangomas* now use plastic containers, our informant explained that medicine must be made in *ukhamba*, but can then be moved to plastic for treating patients. Her *izinkamba* last a long time. When they break, she discards them by hiding them in the bush. It was emphasized that the vessels still hold powerful medicines and must be properly discarded to avoid

any future danger of them being mistreated or mishandled; this is clearly a reference to the potential for pollution through contamination, a key principle in Zulu cosmology regarding threat to people and the order of the world (see Ngubane 1977: Chapter 5; Armstrong et al. 2008).

No potters in Msinga identified illustrated silhouettes of meat, cereal, and vegetable cooking vessels using terms in the literature. It has been suggested that while vessel shapes of the *izinkamba* and *inkhaze* series are still made, they have not been used to cook meat, cereals and vegetables for at least a hundred years, perhaps longer (Reusch 1998: 23; Fowler 2006: 99). The terms associated with these forms have therefore fallen out of collective memory. However, in discussing the names of forms after the initial sorting, the older potters we interviewed indicated that *inkhaze* were still in use when they were young girls during the 1940s and early 1950s. Indeed, it was said they often make a similar looking shape in the early stages of shaping *umgodi wenyoka*.

Our fieldwork thus indicates regionalism regarding ceramic terminology, classification and use in the Thukela Basin. Differences in nomenclature appear to be based upon associations made between vessel form and function. The same form may be ascribed different functions by groups and therefore receive a different term. But each specific term is merely a variation of a shared classification scheme (e.g. *incgazi* vs *uphiso*) or a subset (qualification) of a broader category (e.g. *ukhamba* vs *ukhamba lwamasi*). Additionally, potters agreed that if size and decoration were included in the illustrations, it may have been easier to sort them, but they explained that form is the primary, or at least initial, criterion that both potters and buyers use to distinguish types.

CERAMIC PRODUCTION IN MSINGA

In pottery making, the production sequence (or *chaîne opératoire*) is carried out in seven general stages, namely, (1) raw material procurement, (2) clay processing, (3) shaping, (4) decoration, (5) drying, (6) firing, and (7) post-firing treatments, such as applying waterproofing resins, paints or other surface treatments (Rye 1981; Gosselain 2002). Not all stages are necessary. The choices made during production are governed by norms and values as much as the range of shapes and decorative attributes of vessels, making ceramic *chaînes opératoires* full stylistic phenomena. In this section, the pottery *chaînes opératoires* practised in Msinga are presented along with a consideration of the rationale for the choices made during the production process.

Resource acquisition

Resource acquisition involves the selection and extraction of clay and the collection of fuel for firing. *Ubumba* is the term used for clay. There is no specific term to distinguish clay used for pottery and that used in house construction or for other purposes. Potters instead qualify clays based upon whether they are appropriate for potting. Typically, potters claim it is unnecessary to add tempering material if an appropriate clay is found.

However, we have observed that potters in the Thukela Basin always add temper to clays (Fowler 2008) by combining a coarser clay body with a finer one. The clays may come from two different sources or from the same source. The coarseness of temper varies according to the particular clay being used and the type of vessel being produced.

This potential misidentification, or at least misunderstanding, of tempering by Zulu potters is a direct result of Zulu perceptions of clay and the processing sequence. Potting is an additive technology, so any addition to an original clay body must be treated as 'tempering material'. For Zulu potters, the minerals and rocks they remove from clays during processing are simply thought of as part of the clay, so when different fractions of clays are mixed, potters view them not as 'added' but merely 'replaced'. Yet they are replaced in a different form from that in the original clay body and we must characterise this practice as tempering.

In Msinga, potters use clays gained from dry stream beds comprised of the well-drained reddish-brown Rensburg and Katspruit calcareous soils of the Sunvalley-Ferry-Weenen series (van der Eyk et al. 1969). The fine-textured, non-swelling clays of this series vary across the region, but tend to have a high base and nutrient status, a relatively high organic content (15–35 %), and rounded fractions of the parent rock primarily comprised of quartz, feldspars, metamorphic limestones and granites, and calcite granules (Brink 1981; Du Toit 1954; Marshall 2006). Our preliminary analysis indicates that they are secondary clays (transported or sedimentary) dominated by illite and kaolinite.

Clay sources are neither owned nor controlled by any single family. Potters can generally access them freely even though clays do not occur on land owned by them. In Mabaso, 13 potters extract clay from two sites located between 2.5 and 5.5 km from their homesteads (Table 2). Both sites are wide drainage streams less than two meters deep. At the larger, which has 100 m of exposed bank, a coarse and a fine sandy clay from a single horizon is obtained from numerous extraction locations (Fig. 4a). For two potters, this source is the furthest from their homesteads. One of these potters produces full-time and makes regular weekly visits. Travel time and labour investment are significant for her, so she uses donkeys to transport the clay. Those who live closer walk. The second site in Mabaso is a small drainage channel that has exposed finer, sandy clay. It has only 20 m of exposed bank and is the closest, fine-clay source for all potters. Clays from both sites can be reached by walking 30–60 minutes. On collection days, much of the day is spent digging and transporting clay home in plastic maize-meal bags. Other potters, or their older daughters, often accompany them so each potter may collect and transport 20–40 kg at one time.

A different situation prevails in Mchunu. In the plateau above the southern bank of the Thukela, potters obtain clay from four different sources (e.g. Fig. 4b). All have the same mineralogical composition (similar to those in Mabaso), but two are fine-

TABLE 2

Distance to clay sources used by Msinga potters, based on an average walking time of 13 min/km.

Tribal Authority	Clay source	Name of extraction site	Utilized by	Max. geodesic distance (km)	Estimated travel time
kwaMabaso	7	-	11 potters	5.47	65
	13	- (*izimbiza* only)	11 potters	2.88	37
kwaMchunu	12	eNcujane	4 potters	2.07	26
	9	eNcujane (*izimbiza only*)	4 potters	0.8	10
	10	eMhlwaneni	4 potters	1.8	23
	11	Not named	2 potters	0.02	3

Fig. 4. Clay acquisition and processing in Mabaso: (a) extracting clay from the furthest clay source; (b) storage of clay in old oil drums; (c) pounding clay; (d) sifting clay with a sieve fashioned from an enamel bowl; (e) the coarse fraction (left) separated from the desired clay body (right) after pounding and sifting is completed; (f) mixing and kneading the batch of clay with water.

grained and the others coarse-grained. As a result of a dispute with a local landowner in the early 1990s, a number of families moved several kilometres east and built new homesteads. With access to the old clay sources cut off, potters had to find new sources. The old clay sources are about 2 km from potters' homesteads and are located in a dry streambed. The new sources are closer, one being only 20 m from one homestead. While the new sources are considered adequate, potters prefer the older ones. Unlike Mabaso potters, those in Mchunu make pottery only in July and August, but they get their clays in December during the rainy season, saying it is easier to dig damp clay from the streambeds.[5] Potters will collect clay together and 20 kg maize meal bags are used to transport the raw clay.

These data indicate that potters tend to obtain clays from sites near their homesteads, usually within 3 km. This range falls within the typical distances to clay and temper sources exploited by other potters in Africa (Gosselain 2008) and worldwide (Arnold 1985: fig. 2.5). Animal transport is used for sources further than 3 km.

Cattle and goat dung are the primary fuels used by potters. 'Hard fuels' such as euphorbia and aloes are used sparingly even though, for their purposes, these species are abundant and easily harvested. In the case of aloes, both the leaves and stalks are left to dry extensively before being used for firing. In contrast, cattle dung is readily available only seasonally. Herds are moved widely around the valley during the dry winter months as pasturage becomes depleted. Cattle dung usually is found some distance from homesteads and requires more time and effort to collect. Most homesteads keep goats, so their dung is available year round. Cattle dung is nevertheless preferred.

Clay processing

Obtaining clay can be a communal activity, but potters prepare clay for their own vessels. Clay is stored in metal drums (Fig. 4b) or old *izimbiza* until it is needed (Fig. 5b). Elsewhere in KwaZulu-Natal, the pretreatment of clays typically involves saving clay for a week or more and processing it when needed (Fowler 2008). Zulu potters we have studied dry at least some of the clays to increase workability. Potters in Msinga follow these same practices, but use different techniques in subsequent steps of clay preparation.

In Msinga, the removal of nonplastic materials is first accomplished by hand sorting. Two techniques are used to reduce the size of coarse particles further. Potters in Mabaso pound clays with a stick (Fig. 4c), whereas in Mchunu potters grind clays on a grindstone (Fig. 5c). The same stone used for grinding grains is used for preparing clay, and the technique is identical to grain preparation: this involves a pounding and then a rolling motion. Both pounding and grinding techniques are equally effective, but a somewhat finer clay power is produced when using a grinding stone. After pounding or grinding, potters from both areas sieve the clays using homemade sieves made of enamel containers or plastic buckets (Figs 4d, 5d).

In the third step, potters add temper once unwanted non-plastic materials are removed. Some observers have noted the addition of grog when manufacturing large beer-brewing pots (Armstrong & Calder 1996: 108). However, in our work we have only ever seen other processed clays used as a temper source, regardless of the kind of vessel being made. All Msinga potters use this same tempering strategy. Vessels

Fig. 5. Clay acquisition and processing in Mchunu: (a) extracting clay from a deep deposit; (b) storage of clay in old *imbiza*; (c) grinding clay; (d) sifting clay with a sieve made from a plastic bucket; (e) the coarse fraction (left) separated from two desired clay bodies, the centre from a first grinding which will be added to that from a second grinding (right) to make *izimbiza* if no other clay is available; (f) mixing a slurry of clay and water into the dry batch of clay prior to kneading.

intended for beer drinking or eating are made using a single fine fraction of clay. Beer-brewing vessels are instead made using different recipes. Potters from the Mabaso and Mchunu areas prefer to use coarse fraction clay from a source other than the one used for other vessel types. In Mchunu, potters may modify clay from one clay source if only that one is available. They first generate fine and coarse fractions of clay through an initial grinding. They then further grind the gritty by-products and then combine them with the finer clay to make a coarser clay body for *izimbiza* (Figs 4e, 5e). Thus, different 'recipes' are used to achieve a balance between workability and plasticity depending upon the size and function of the pots to be made. A 50:50 ratio is desired when making *izimbiza*, but potters explain that a 60:40 ratio, with either fine or coarse clay being dominant, still produces serviceable vessels.

The last step, homogenizing the paste, is always done by adding water to the prepared clay and kneading it with the hands. In Mabaso, potters will add water to dry clay prior to fashioning (Fig. 4f). Mchunu potters leave clays to sour for a month or more before potting. If the clay is new (freshly ground), however, it is left to soak for a short time (10–20 minutes) after processing (Fig. 5f). Both soaking and souring alter the pH of the clay and increase plasticity. These different homogenizing techniques may be related to the quality of clay available in the different locations, and this question is currently being addressed through mineralogical and chemical study of the clays.

Vessel shaping

All of the potters shape vessels in a near identical manner, although the sequence of techniques is slightly different. Regardless of the vessel type being made, the potter begins by forming the bottom of the vessel out of a lump of clay. The lump is shaped into a slab disc about 1 cm thick. The clay disc is placed either on a square of melamine board (Mabaso, Fig. 6a) or a pressed board placed on an inverted enamel basin (Mchunu). Prior to forming the disc, Mchunu potters sprinkle dry clay on the board to act as a separating agent so the clay does not stick (Fig. 7a).

The edge of the clay disk is then drawn up slightly to produce a lip to which coils are placed on the interior (Figs 6b, 7b). Coils are rolled vertically by hand. Pots are coil-built in sections, each roughly a third to half of the total height of the final vessel, depending upon its size. For the most commonly made smaller vessels, the first section is built of a series of coils about 10–12 cm long and one to one-and-a-half centimetres in diameter. Single coils are added to the base until the lower third of the pot is reached. This interior of the section is smoothed and trimmed with a spoon head or piece of plastic while the potter holds her hand on the exterior of the form (Fig. 7c). Each subsequent section is coiled in the same manner, though potters in Mabaso first rub the exterior vertically with a maize cob before proceeding (Fig. 6c-d), whilst potters in Mchunu complete the entire roughed-out form before using a maize cob on the exterior to join coils (Fig. 7d). Potters from both areas trim the exterior with a sharp tool (usually an old knife) (Figs 6f, 7f) and smooth the rim with their fingers.

If a necked vessel of the *ingcazi* series is made, two or three further coils are added in the opposite direction to that in which the body was coiled, to complete the roughed-out form, the interior is scraped, and the maize cob is then used on the exterior

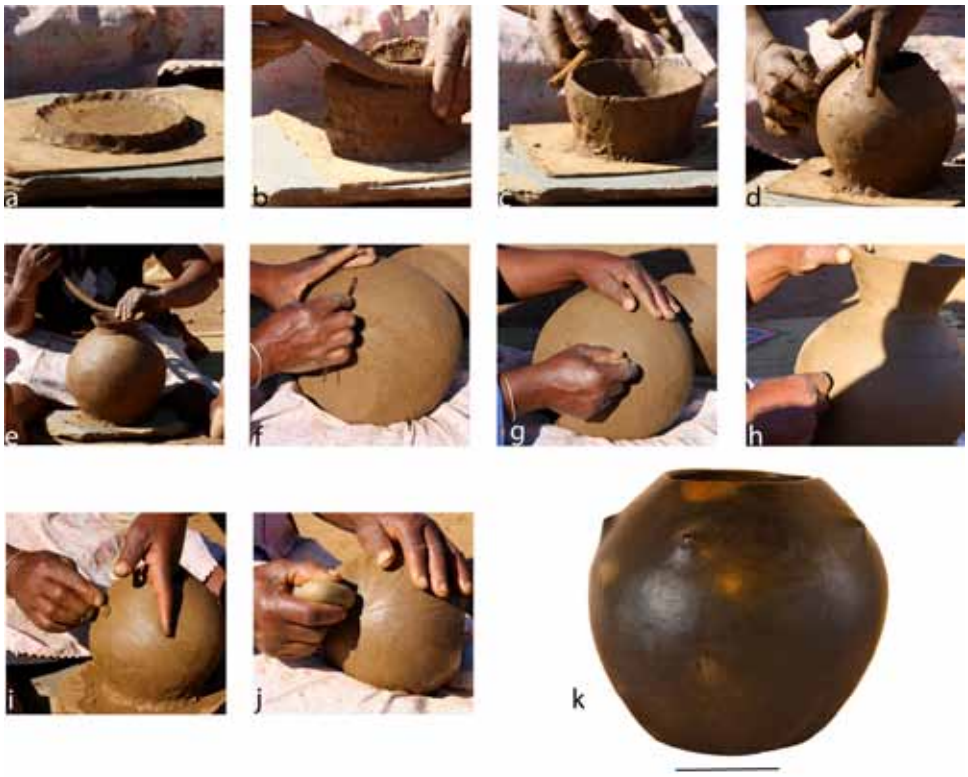

Fig. 6. Fashioning and decoration of vessels in Mabaso: (a) finished slab base for the vessel; (b) coiling the bottom third of the pot; (c-d) scraping the exterior with a maize cob at subsequent steps in fashioning; (e) fashioning the rim of *ingcazi* by coiling in the opposite direction of the body; (f) scraping the exterior with a metal knife; (g) burnishing with a smooth pebble prior to (h) grooving geometric and curvilinear designs; (i) application of *izinsumpa* (bosses); (j) burnishing with a smooth pebble to complete decoration; (k) finished *umancishana* with *izinsumpa* (scale = 5 cm).

(Figs 6e, 7e). In making *izimbiza*, the exterior surface is only smoothed with a maize cob and is not burnished. All forms for drinking or eating are smoothed on the exterior to obliterate coils, level rough spots and create a working surface to be decorated. For smoothing, Mabaso potters will rub the outside of pots with a burnishing stone (Fig. 6g). Mchunu potters use a piece of plastic (Fig. 7g) and only burnish pots after they have been decorated and dried (Fig. 7j). Finished rough-outs are left to dry for a very short time before decoration, usually while potters rest or perform other duties around the homestead.

Decoration tools and techniques

Msinga potters use three groups of techniques when decorating pottery. Grooving (shallow cutting into the surface) is a cutting technique, appliqué (applying clay to surface) is a joining technique, and burnishing (smoothing the surface using an implement) is a surface-finishing technique (Rye 1981:89–94). Grooving is used to create geometric, curvilinear and naturalistic (e.g. leaves) motifs. Appliqué involves attaching clay bosses. Potters we interviewed never combine grooved and applied

Fig. 7. Fashioning and decoration of vessels in Mchunu: (a) sprinkling board with clay for a separating agent; (b) coiling the bottom third of the pot; (c) smoothing the interior of the pot with a spoon head; (d) scraping the exterior with a maize cob once the rough-out is complete; (e) fashioning the rim of *ingcazi* by coiling in the opposite direction of the body; (f) scraping the exterior with a metal knife; (g) smoothing the exterior with a piece of plastic prior to and during decoration; (h-i) grooving geometric designs; (j) burnishing with a smooth pebble after decoration and drying are complete; (k) finished *izimbiza* with *izinsumpa* (scale = 5 cm).

decoration on the same pot. Regardless of which technique is used, a light burnishing occurs after decorations are completed before firing. In the post-firing phase, beer-serving and drinking vessels are rubbed with a cloth after they are carbonized during a second firing to blacken them (see below). This is merely to clean the pots of dust and ash and is not a decorative technique.

The types of motifs and their layouts are different in each Traditional Authority. In Mabaso, leaf designs and incised triangles predominate. Potters first demarcate the design field by marking a horizontal line around the pot. Motifs are then added between or below this line. Thus, cut motifs are normally arranged in horizontal zones on vessels (Fig. 6h). After decoration is completed, pots are burnished again (Fig. 6j). Mchunu potters use no such boundaries to demarcate the fields and instead create free-form vertical and horizontal hatched lines and leaf motifs (Fig. 7h–i). Unlike Mabaso potters, Mchunu potters rub their vessels with vegetable oil and burnish them only after they have dried, and this is usually done just prior to firing (Fig. 7j).

Zulu potters working in the past twenty years have been very open to decorative innovations in general. In some cases, these involve the rearrangement and combination of traditional motifs (i.e. design layout but not the location of decoration on pots), and in others the development of new techniques and motifs. Armstrong (1998: 42) reports that the use of stylized plant motifs by some potters is a recent development, and may be restricted to the twentieth century (cf. Jolles 2005). The work of some younger potters can be distinguished by a greater intricacy of design than those used by their teachers. We have observed this in the Lower Thukela (Fowler 2008) and also in Msinga. For instance, one apprentice potter in Mchunu drew several of the designs she has thought of for her future vessels, and these are far more elaborate than those used by her mother-in-law.

The meaning of certain motifs is often difficult to determine and our enquiries elicited none (but see Reusch 1996: 120; cf. Armstrong et al. 2008). But when prompted, potters recognized the association of certain motifs with those found on pottery and clothing. In particular, the arrangement of triangle motifs in beadwork on women's capes and the belts, necklaces, bands and loin coverings worn by both men and women are used explicitly to communicate marital status—whether men or women are married, unmarried or are eligible for marriage (see Armstrong et al. 2008). However, symbolic significance is seldom attributed to motifs found on many pots post-dating the 1950s, because many are original creations or are copied from motifs seen on pots produced by other potters in local markets (e.g. Tugela Ferry). Msinga potters clearly acknowledge that they copy motifs seen on vessels in markets that were made by potters from other areas, but they do not speak to each other about them. The potters from Mchunu acknowledged that Mabaso potters are better at decorating their pots, but claim Mchunu potters are better at firing them.

In recent years, there has been some discussion of the origin and distribution of one type of decoration, known as *amasumpa* (appliqué bosses alone or in patterns) that is distinctive of Zulu material culture. *Amasumpa* are found on pottery, wooden milk pails (*amaithunga*), meat plates (*izingqoko*) and head rests (*izigqiki*). This type of decoration has parallels with bodily adornment. Similar patterns of raised cicatrisation-nodules on the shoulder, upper arm, chest and thigh are documented in photographs from the early nineteenth century (Armstrong et al. 2008).

In Msinga, potters do add bosses of clay to *izinkhamba* or *izimbiza* (Fig. 6i,k; Fig. 7k). They term these *izinsumpa* (sing. *insumpa*) and were unaware of the term *amasumpa*, although they did discern its meaning. No connection was made between *izinsumpa* and bodily scarification. Rather, they were described as having a likeness to breasts. *Izinsumpa* (sing. *insumpa*) literally means warts. As Armstrong et al. (2008: 533) explain, *amasumpa* has incorrectly been translated as warts and the term *izinsumpa* can be confusingly used to refer to decorative bumps on vessels. Perhaps for this reason, in his discussion of the Msinga style, Jolles (2005: 121–2) makes no mention of the use of *amasumpa*. Whatever the origin, meaning or significance of *amasumpa* may be, decoration is clearly not limited to only incised motifs in Msinga.

Drying, firing and post-firing treatments

Once decoration is completed and pots are dried (over a period ranging from a day to a week, depending on the weather), they undergo firing. Firing involves three distinct

but concurrent stages in Msinga. 'Pre-firing' is an extension of the drying stage that further allows the gradual evaporation of residual water by placing burning dung and/or grass in the pots (Figs 8a, 9a). The firing is used to bisque pottery, and immediately following this is a post-firing smoking used to blacken all vessels except *izimbiza*.

All potters in the region use pits to fire pottery. Pits are dug into the rocky substrate to a depth of 50 to 100 cm and can be 100 to 150 cm wide. They are placed some 30 to 60 m away from the nearest dwelling in the homestead, in an area surrounded by trees and bushes that act as a windbreak.

Both light and hard fuels are used for firing. Light fuels include dung (cattle and/or goat), dry grass and the thoroughly dried leaves and stalks of aloes (*Aloe marlothii*). Cattle manure is preferred. Goat manure is a ready substitute and is more easily obtained, as most homesteads keep goats. Hard fuels, primarily euphorbia species, are used sparingly.

Pottery is placed upright in a nest of some combination of grass, aloes and dung before being covered with more fuel (including some branches of hard fuel) and ignited (Figs 8b–e, 9b–d). Potters will continually add fuel to obtain temperatures below 900°C for less than an hour (our recorded times were 40 and 55 minutes). Once the fuel is nearly exhausted, dried goat dung is spread over the pit and a shovel is used

Fig. 8a–d. Drying, firing and post-firing treatments in Mabaso: (a) placing coals and smouldering cattle dung in a vessel during preheating; (b) layer of dung placed in the bottom of the pit; (c) nesting vessels in the pit; (d) adding dung and dried acacia branches during firing.

Fig. 8e–h. Drying, firing and post-firing treatments in Mabaso: (e) adding dung and dried acacia branches during firing; (f) once the initial fuel has almost been exhausted the vessels are covered with goat dung and soil to begin smoking (the post-firing stage); (g) removing vessels from the pit at the completion of smoking; (h) rubbing rehydrated cattle dung on an *imbiza*, which is removed prior to post-firing to blacken vessels.

to cover the pit with soil (Figs 8f, 9e). The soil acts to create a reducing atmosphere. Smoke billows out of the soil for about 15 minutes before the pots are removed with long sticks and are set to cool beside the fire or are moved indoors (Figs 8g, 9f). Different functional types receive different surface treatments after the initial firing is complete.

As reported elsewhere for Zulu potters (e.g. Reusch 1998; Armstrong 2008; Fowler 2008), *izimbiza* are left to cool after firing and then rubbed with cattle dung (Fig. 8h).[6] All other vessel types are smoke-fired.

This series of stages is not documented for Zulu potters elsewhere in KwaZulu-Natal or amongst Nguni-speakers elsewhere in the region. The technique of pre-firing used in Msinga is comparable to that found in the Democratic Republic of the Congo (Kanimba & Bellomo 1990; Mercader et al. 2000), and the pit-firing technique is only documented for non-Nguni speaking groups outside the region (Laidler & Scot 1936; Lawton 1967; De Crits 1994). To our knowledge, this sequence of drying, firing and post-firing techniques in Msinga is unique in Africa.

Only one potter in the region has been documented using a bonfire technique to fire batches of small vessels. She uses the same fuels, arranged in the same way as in a

Fig. 9a–d. Drying, firing and post-firing treatments in Mchunu: (a) placing coals to ignite cattle dung and grass in vessels during preheating; (b) layering grass over dung in the bottom of the pit; (c) vessels covered with cattle dung and sticks of acacia during firing; (d) vessels are covered with goat dung and soil during the post-firing stage (photos taken in 2005, courtesy of Rauri Alcock).

pit firing, but surrounds the pots with stones to stabilize the fuel.[7] To smoke the pots, she covers them with grass and sets it alight. The soot from the grass blackens the pots, but does not leave the same creosote patterns that are typical of pit-fired vessels from Msinga. Indeed, it is this pit-firing technique that gives Msinga ceramics their distinct appearance, although decoration may be used to distinguish potters from different Traditional Authorities (Fig. 10).

THE ORGANIZATION OF PRODUCTION

Here I compare four aspects of production in Msinga and the Lower Thukela Basin (see Fowler 2008).

Production technology

The clay sources used today have been tapped for as long as potters in Msinga can remember. The sources are typically large and plentiful, but are not ubiquitous. Mchunu potters attest to this, as they had searched for the best part of a year in the vicinity of their new homesteads to locate appropriate sources. Clays preferred by potters must

Fig. 9e–h. Drying, firing and post-firing treatments in Mchunu: (e) vessels are covered with goat dung and soil during the post-firing stage; (f) removing vessels from the pit at the completion of smoking; (g-h) firing batches of small vessels (*omancishana*) with a bonfire, using the same fuels and sequence of techniques during a pit firing (photos taken in 2005, courtesy of Rauri Alcock).

meet a certain standard in terms of clay content, workability and the kinds, quantities and size of inclusions. Potters appear more apt to seek out appropriate clays rather than alter their processing techniques. This practice interestingly contrasts with much of what we know about potting elsewhere in Africa, for potters are usually willing to alter their processing techniques and technology when faced with poorer quality clays (Gosselain 2002). However, the potters in Msinga have not had to relocate to entirely new areas, so they have not been placed in a position where they must rethink entire stages of production, the gestures and tools they use, or the associated decision-making processes. Consequently, hand-building techniques are duplicated for every size and shape of vessel, and tools are few, uncomplicated and are usually refashioned or recycled from other objects.

Pit firing does not necessarily achieve higher firing temperatures, but does somewhat alter the control potters have over the rate at which fuels burn and, consequently, how quickly the pit attains the maximum temperature. They also allow the firing and post-firing stages to be run concurrently.[8] The same issues are solved using bonfire technology in the Lower Basin by the particular placement of firing areas on slopes, scheduling firings, and by using a combination of 'soft' and 'hard' fuels. While the pits

Fig. 10. Despite differences in production techniques, beer drinking vessels (*omancishana*, sing. *umancishana*) from Mabaso (left) and Mchunu (right) look remarkably similar. The creosote patches from the burning grass, dung and aloe branches give Msinga pottery its unique appearance. Scale = 5 cm.

used in Msinga and the bonfires used in the Lower Thukela Basin represent different technologies, they are technically equivalent. Both provide a suitable technology that generates low firing losses and the desired appearance of finished vessels.

Labour organization and learning

Labour organization and learning are paired aspects of ceramic production insofar as learning is governed by the number of potters willing to teach, where they live, and the labour and social investment required of both students and teachers in the process. Labour investment is simply the time and energy spent learning pottery making. Learning also involves a social investment. Potters and their students stated that intelligence, a willingness to learn, and the potential for developing a strong bond between students and teachers are required for students to learn and master the craft.

The homestead is the unit of organization in pottery making in Msinga. Each woman has control over the production of her own works, although they will work together to prospect for, collect and transport clay. Potters typically work alone while fashioning and decorating vessels, and most fire their own pots when they have enough. Only two potters in Mchunu work together through the whole process. They live in homesteads adjacent to one another and were taught by the same potter.

Interviews indicate that novice potters have learned from neighbours, relatives, or their husband's mother. Most potters who have learned recently were taught by their neighbours or by relatives of their husband's patriline. Fewer potters were taught by their husband's mother after marrying into the homestead. The link between learning and the husband's patriline is an important one, as learning to make pottery can be viewed as part of the integration of a new wife into her husband's family.

While any woman may potentially learn to pot, there are observances regarding when she can begin. Potters in Msinga explain that they can only learn the craft and

touch clay after having given birth to their first child.[9] Men are also not permitted to handle clay or touch unfired vessels. These observances are also found in the Lower Thukela Basin (Armstrong et al. 2008), although there it was also cited as a means to ensure that potters put their family first and not business (Fowler 2008). In Msinga, it was explained that beginning to make pottery before having a child might offend the ancestors and bring ill fortune to the family. Armstrong et al. (2008: 520) discuss how the relationship between procreation and pottery-making also restricts pregnant women from potting because it would interfere with the development of the foetus. Thus, concerns with pollution pervade the entire ceramic production process and extend through to the customs involving the appropriate use of ceramic containers.

Because clay is in a state of transformation prior to being fired, it appears that these restrictions are part of a broader set of avoidances that can be linked to dealing with ambiguity in the Zulu world. Respect behaviour (*ukuhlonipha*) is a set of guidelines to govern thinking about ambiguity, and avoidances regarding clay are linked to other beliefs about human reproduction and pollution, and social categories based on age, gender and status, that define and contextualise social interactions (see Armstrong et al. 2008).

Scale of production

We can calculate output using a range of time intervals, from weekly to annual, to determine production rate. Potters can be rather ambiguous regarding their production rate and scale, particularly if they are small-scale producers. This situation exists in the Lower Thukela Basin, where we documented a range of 30 to 200 pots produced a month. Taken over a year, production ranges from very low (<1000 pots/yr) to low (<2000 pots/yr) relative to full-time specialist potters who use throwing technology (Stark 1995; Longacre 1999; Roux 2003: 779), but fall within the range of small-scale producers who use hand-building techniques (Arnold 1985).

Msinga offers an opportunity to contrast full-time versus part-time producers. The only full-time potter in the region, in Mabaso, will make up to 15 beer-drinking vessels of the *izinkhamba* series a week, but slightly fewer if she also makes *izimbiza*. She rarely makes more than 60 or 70 vessels a month, but commissioned works increase around Christmas time. Other potters in Mabaso produce part-time, usually for local sale, but they may occasionally take vessels to the market in Tugela Ferry. In Mchunu, potters only produce for local clientele during July and August. Each potter rarely makes more than 50 pots during this time. This results in a dramatic difference between full-time and part-time production in the region. Full-time potters may produce upwards of 900 vessels a year, while part-time potters produce a mere 5–10 % of this amount. Clearly, the scale of production is related to the economic significance of potting to different individuals. For part-time potters, making pottery is a supplement to household income, and usually an unimportant one at that. For the full-time potter, who has long been widowed, it is the only source of income for her and her dependants.

The weight of pots, the range of the repertoire produced, decoration quality and shaping speed are the only obvious differences between the wares made by full- and part-time potters. The part-time potters in Mabaso produce slightly heavier pots than the full-time potter, and all part-time potters make three or four types of drinking

vessels, have a considerably slower rate of production, and may decorate pots in a less refined fashion usually because the pots are decorated before they have adequately dried. Interestingly, it is only through assessing the relative quality of decoration and vessel weight that archaeologists would be able to discern differences between part- and full-time potters. Additionally, analysing the quantity of wares would not be helpful. The number of vessels made by the full-time potters would be underrepresented because many are being distributed out of the municipality.

Marketing and distribution

At least three modes of distribution are known for Zulu pottery production. Buyers either come to the potters' homesteads or potters sell from another location, such as a market, road-side stand, or a pension office, in the hopes of attracting a larger clientele. Located along the highway and near Tugela Ferry, potters in Mabaso tend to sell pots out of their home or take them to the market in town. Only the full-time potter arranges to transport her pots to sell at the market in Greytown. This is done at considerable expense, because she must hire space in a taxi to transport them, so she often charges twice as much to offset the capital outlay. Potters in Mchunu say they used to sell at the pension office along the river. It was a great distance to travel by foot to sell only a few pots so they now prefer to sell from home.

Msinga potters therefore rely on local or regional clientele. In Mchunu, distribution seldom extends outside the boundaries of the Traditional Authority. Distribution in Mabaso is far more widespread in the municipality and the district as a result of potters' proximity to a busy roadway. Consequently, Msinga pottery has a restricted regional distribution (cf. Jolles 2005).

Conclusions

Previous research in the Lower Thukela Basin suggested that Zulu ceramic production may generally be characterized by a production technology that requires no specialized tools or structures, a low scale of production, and alterations in labour organization and learning strategies due to an increased demand for 'collectors' wares' outside of Zulu communities.

In Msinga, we find few parallels with the situation in the Lower Thukela Basin. While it is true that most of the production technology in Msinga requires no specialized tools, the tradition of pit firing introduces a little-known kind of firing practice in the Zulu repertoire as well as in the whole of southern Africa. The scale of production can be characterized as low for full-time potters in Msinga. But most potters only produce vessels for domestic replacement and the scale of production is very low indeed. This is symptomatic of low demand for Msinga pottery outside the region, particularly as 'collectors' wares. Msinga potters only produce blackened wares for beer drinking, which are less commonly desired by non-Zulu customers (Armstrong et al. 2008: 524). The exposure provided by well-known potting families in the Magwaza and Umlalazi Traditional Authorities of the Lower Thukela Basin in the 1990s and the new clientele that followed have not affected potters or their practices in Msinga. As such, there has been no stimulus to alter labour organisation or production practices to meet new demand. Full-time potters do produce more but have not altered their practices, whilst part-time potters note a clear decline in

the demand for their work. Changes in learning strategies, on the other hand, have occurred but for different reasons. Some senior potters are willing to take on novices both to preserve the tradition and provide a means for women in this impoverished region to bolster their meagre household incomes. The effects of this have yet to be felt in the region simply because few potters, senior or junior, can afford the capital outlay to expand their clientele base. Ceramic production in Msinga therefore remains a distinctively regional variant of the Zulu ceramic tradition.

EXPLAINING VARIATION IN ZULU CERAMIC PRODUCTION

Even a cursory comparison of ceramic production in the two regions we have focused on in the Thukela Basin show some striking contrasts. Table 3 outlines how clay acquisition practices, the techniques for processing, drying, firing and post-firing, and the terminology used for vessel forms are different between the Upper and Lower Thukela Basin. Six of the seven stages (or 86 %) of ceramic production in the Thukela Basin are organized differently. Yet, the pottery produced in each region is widely acknowledged as distinctively Zulu. Clearly, the study of ceramic *chaînes opératoires* provides a different perspective on the "style zones" defined by Jolles (2005) and encourages us to think further about the perceived homogenous nature of ceramic traditions.

These differences in Zulu ceramic production are founded in the history of various groups and the consequent social networks to which potters belong, because these social networks differently influence and constrain the choices potters make during production (Miller 1985; van der Leeuw 1993; Gosselain 1998; Pétrequin & Pétrequin 1999; Gosselain 2002; Livingstone Smith 2000; Livingstone Smith et al. 2005). At this stage in our research we can identify how certain technical choices are influenced by the various social interaction networks potters have belonged to in Msinga over the past three generations. These influences have a different impact on three groups of techniques.

First, techniques that have an impact on the appearance of pottery (e.g. shape, texture and decoration) are more greatly influenced by (1) the level of capital outlay by potters, (2) the age of artisans, and (3) the target consumer groups. The potters in Msinga who generate higher revenue from potting regularly transport vessels and their vessels can be distinguished by the quality of decoration, but not by the kinds of techniques used or the complexity of designs. Rather, the age of potters has an impact on the kinds of decoration techniques and design concepts potters employ. In our observations, novice potters decorate within the same design fields as their seniors but use more techniques and create more complex motif combinations; thus, potters of different ages and skill levels conceptualise and execute designs differently. The third point is evidenced by the different kinds of decoration desired by local and non-local consumers, and decorations have changed with increased non-local demand. Mabaso potters are known to decorate pots better, while Mchunu potters are known to make 'stronger' (i.e. better fired) pots. These observations support the hypothesis that techniques that purposefully alter the visual and tactile characteristics of pottery will correspond to the economic situation of potters, their age, and the broad interaction networks through which their goods are consumed (Gosselain 2000).

TABLE 3

Comparison of production methods and techniques in the Thukela Basin study areas. (Stages, sub-stages and techniques based upon definitions presented in Gosselain (2008) and data from the Lower Thukela Basin from Fowler (2008).)

Stage	Sub-stage and tools	Upper Basin (Msinga)		Lower Basin
		Mabaso	Mchunu	Magwaza-Umlalazi
Extraction	**Extraction technique**	Surface collection	Surface collection	Surface collection
	Transport	Foot, donkey	Foot	Foot
Processing	**Pretreatment**	Drying	Soaking (months), drying	Drying
	Removal of non-plastics	Hand sorting, pounding with stick, sieving	Hand sorting, grinding, sieving	Hand sorting, grinding, sieving
	Addition of non-plastics	Coarse or fine clay	Coarse or fine clay	Mix of coarse and fine clays
	Homogenization	Kneading	Kneading	Kneading
Shaping	**Roughing out**	Coiling from slab base	Coiling from slab base	Coiling from slab base
	Preforming	Scraping and smoothing	Scraping and smoothing	Scraping and smoothing
Decoration	**Decoration techniques**	Grooving, appliqué, burnishing	Grooving, appliqué, burnishing	Grooving, incision excision, appliqué, burnishing
	Slip		Vegetable oil	
Drying	**Period**	Days	Days	Days
	Location(s)	Inside	Inside	Inside
	Preheating	Dung and straw	Dung and straw	Water sprinkling
Firing	**Fuel**	Cattle and goat dung, straw, dried acacia stalks and leaves	Cattle and goat dung, straw, dried acacia leaves	Euphorbia sp., dried acacia leaves
	Structure	Pit	Pit	None
	Type	Pit firing	Pit firing	Bonfiring
	Location	50+ m from homestead, sheltered	30+ m from homestead, sheltered	60+ m from homestead, open
	Duration	<50 min.	<50 min.	~60 min.
Post-firing	**Fuel**	Goat dung	Goat dung	Euphorbia sp., tamboti, rubber, plastic
	Structure	Pit with isolation (dirt-covered)	Pit with isolation (dirt-covered)	Bonfire
	Location	50+ m from homestead, sheltered	30+ m from homestead, sheltered	Within yard or inside, sheltered
	Duration	~20 min	~20 min	~10 min / vessel
	Organic coating	Dung (*izimbiza*)	Dung (*izimbiza*)	Dung (*izimbiza*)
	Resin application			Shoe polish

Second, we have observed that only other Zulu potters influence clay preparation and firing techniques used in the study area. For example, grinding was taught to potters in Mchunu by a potter from Mabaso some three generations ago and the technique corresponded with the one already in use in Mchunu. In Mabaso today, potters only use a stick to pound clays for processing. In contrast, pit firing is executed in nearly the same way in both Traditional Authorities, denoting a shared tradition. Only other potters are concerned with these details of the production process. This observation supports a second hypothesis derived from ceramic ethnoarchaeology—that the techniques and tools (and structures) involved in clay preparation and firing are influenced by fewer people (potters and assistants) and the distribution of these techniques should reflect local or regional networks and the degree to which potters have access to them (Wahlman 1972; DeBoer 1986; Dietler & Herbich 1989, 1998; Gosselain 2000, 2002).

Third, despite variation in the outward appearance of pots throughout Msinga and some minor variations in clay preparation and firing techniques, the techniques of fashioning vessels and the steps in which pots are shaped are identical in the area. Elderly potters have explained that how a pot is built, even the gestures that are used in coiling, trimming, scraping and smoothing vessels, has not changed since their mothers taught them sixty or more years ago, although the tools have. It appears then that shaping techniques have great durability over time. This is a significant observation, because ethnographers and archaeologists working in Africa and elsewhere have argued that the shaping stage is the most resistant to change because potters rely on specialized gestures, or "motor habits", which are mastered and internalized through repetition and practice over time (Foster 1965; Nicklin 1971; Hill 1977; Arnold 1981, 1985, 1989; Gosselain 1998, 2002). Others have further argued that these techniques should correspond to specific and durable local and regional categories of identity, such as kinship, language, gender (Gosselain 1992) and class (Miller 1981, 1985). In support of this hypothesis, we find that precisely the same techniques and the same gestures in sequence characterise fashioning throughout the Thukela Basin. This bespeaks an ancient, shared common cultural foundation for Zulu ceramic shaping techniques. Reconstructions of shaping techniques using archaeological ceramics from the region will permit direct comparison between modern and ancient practices and illuminate the origin of this shared tradition.

CONCLUSIONS

Our study in Msinga has attempted to build on the work of Lawton, and of Reusch in particular, by visiting many of his main informants as well as areas in which he did little or no work. With this expanded view of pottery production in Msinga, we can begin to view the region in a broader context to better understand the variation in ceramic production in Zulu society. The results of this study indicate that pottery production in Msinga has a distinctive character. The organisation of production in Msinga underpins the area's equally distinctive style of ceramics (Jolles 2005). This study demonstrates how the social networks with which potters are involved can impact the visible and technical dimensions of pottery in the Thukela Basin. The cultural constraints on choices made during manufacturing stages have an impact on and are materialised in the practices of Zulu potters. The results support three

related hypotheses that have emerged from studies of the technical style of pottery elsewhere on the continent: (1) the visual and tactile characteristics of pottery will correspond to the economic situation of potters, their age and the interaction networks through which their goods are consumed; (2) clay preparation and firing techniques are influenced by local and regional networks and the degree to which potters have access to them; and (3) fashioning is more greatly influenced by specific and durable categories of identity, including kinship, language and gender. A better understanding of these social influences provides explanations for pottery variability because they link the social context of ceramic production with style.

NOTES

[1] More detail on the present socio-economic conditions and history of the region can be found in the community report at http://www.mdukatshani.com/.

[2] A full study of the relationships amongst ceramics, ceramic production and formalized respect behaviour in Zulu society is not possible in the present report. The reader is referred to the recent paper by Armstrong et al. (2008) for a thematic treatment of ritual pollution and respect behaviour as it pertains to Zulu ceramics.

[3] In this repertoire I do not include European-inspired forms, such as candlesticks, salt and pepper shakers, and the like. In Msinga, anyway, potters we interviewed do not make them.

[4] A companion aim was to elicit responses as to the significance of size and surface treatments in sorting and naming vessel forms through interviews with potters and buyers.

[5] The clay is heavier when wet, of course, and during our visit in the autumn potters found they could transport more clay. However, the quantity of clay moved was not the main concern. Wet clay was also desired because it did not have to be rehydrated for soaking. It could just be covered or placed in a sealed plastic container (soured) until spring.

[6] For a discussion of the significance of this practice see Armstrong et al. (2008) and Fowler (2008).

[7] I am indebted to Rauri Alcock for the photographs (Fig. 9g–h) and description of this practice. This seems to be an innovation of only one potter in Mchunu who is the daughter of one of our main informants in the area.

[8] A gap of some days can follow the bisque firing and post-firing smoking in the Lower Thukela (Fowler 2008).

[9] Only one potter interviewed did not follow this tradition. Because she was having trouble conceiving, she consulted a *sangoma* and was allowed to begin learning to pot, after which she had her first child.

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REFERENCES

Armstrong, J. 1998. The Magwaza family. In: B. Bell & I. Calder, eds, *Ubumba: aspects of indigenous ceramics in KwaZulu-Natal*. Pietermaritzburg: Tatham Art Gallery, pp. 41–5.

Armstrong, J. & Calder, I. 1996. Traditional Zulu pottery. *Zulu treasures: of kings and commoners. A celebration of the material culture of the Zulu People*. Ulundi & Durban: KwaZulu Cultural Museum & Local History Museums, pp. 107–14.

Armstrong, J., Whitelaw, G. & Reusch, D. 2008. Pots that talk, *izinkamba ezikhulumayo*. *Southern African Humanities* **20**: 513–48.

Arnold, D.E. 1981. A model for the identification of non-local ceramic distribution: a view from the present. In: H. Howard & E. Morris, eds, *Production and distribution: a ceramic viewpoint*. Oxford: British Archaeological Reports 120, pp. 31–44.

Arnold, D.E. 1985. *Ceramic theory and cultural process*. Cambridge: Cambridge University Press.

Arnold, D.E. 1989. Patterns of learning, residence and descent among the potters in Ticul, Yucatan, Mexico. In: S.J. Shennan, ed., *Archaeological approaches to cultural identity*. London: Unwin Hyman, pp. 174–84.

Brink, A.B.A. 1981. *Engineering geology of southern Africa*. Pretoria: Building Publications.

Clegg, J. 1981. Ukubuyisa IsiDumbu – 'Bringing back the body': an examination into the ideology of vengeance in the Msinga and Mpofana rural locations, 1882–1944. In: P. Bonner, ed., *Working papers in southern African studies*. Johannesburg: Ravan Press, pp. 164–8.

De Crits, E. 1994. Style et technique: comparaison interethnique de la poterie subsaharieene. In: D. Binder & F. Audouze, eds., *Terre cuite et société: la céramique, document technique, économique, culturel*. Juan-les-Pins: Éditions APDCA, pp. 343–50.

DeBoer, W.R. 1986. Pillage and production in the Amazon: a view through the Conibo of the Ucayali Basin, eastern Peru. *World Archaeology* **18**: 231–46.

Dent, G.R. & Nyembezi, C.L.S. 1969. *Scholar's Zulu dictionary: English-Zulu, Zulu-English*. Pietermaritzburg: Shuter & Shooter.

Department of Local Government and Traditional Affairs. 2006. Spatial representation of Umzinyathi District profile. Durban, KwaZulu-Natal Provincial Government. Accessed on-line August 2009 at http://devplan.kzntl.gov.za/

Dietler, M. & Herbich, I. 1989. Tich matek: the technology of Luo pottery production and the definition of ceramic style. *World Archaeology* **21**: 148–64.

Dietler, M. & Herbich, I. 1989. Habitus, techniques, style: an integrated approach to the social understanding of material culture and boundaries. In: M.T. Stark, ed., *The archaeology of social boundaries*. Washington and London: Smithsonian Institution Press, pp. 232–69.

Dobres, M.-A. 2000. *Technology and social agency: outlining a practice framework for archaeology*. Oxford: Blackwell.

Dobres, M.-A. & Hoffman, C.R. 1999. *The social dynamics of technology: practice, politics, and world views*. Washington and London: Smithsonian Institution Press.

Du Toit, A.L. 1954. *The geology of southern Africa*. London: Olive and Boyd.

Foster, G.M. 1965. The sociology of pottery: questions and hypotheses arising from contemporary Mexican work. In: F.R. Matson, ed., *Ceramics and man*. New York: Wenner-Gren Foundation, pp. 43–61.

Fowler, K.D. 2006. Classification and collapse: the ethnohistory of Zulu ceramic use. *Southern African Humanities* **18**: 93–117.

Fowler, K.D. 2008. Zulu pottery production in the Lower Thukela Basin, KwaZulu-Natal, South Africa. *Southern African Humanities* **20**: 477–511.

Freund, B. 1996. The violence in Natal 1985–1990. In: R. Morrell, ed., *Political economy and identities*. Durban: Indicator Press, pp. 179–95.

Garrett, I. 1997. *Nesta Nala: ceramics 1985–1995*. MAFA thesis, University of Natal.

Garrett, I. 1998. Nesta Nala: an overview. In: B. Bell & I. Calder, eds, *Ubumba: aspects of indigenous ceramics in KwaZulu-Natal*. Pietermaritzburg: Tatham Art Gallery, pp. 47–9.

Gosselain, O.P. 1992. Technology and style: potters and pottery among Bafia of Cameroon. *Man* **27**: 559–86.

Gosselain, O.P. 1998. Social and technical identity in a clay crystal ball. In: M. Stark, ed., *The archaeology of social boundaries*. Washington & London: Smithsonian Institution, pp. 78–106.

Gosselain, O.P. 2000. Materializing identities: an African perspective. *Journal of Archaeological Method and Theory* **7**: 187–217.

Gosselain, O.P. 2002. *Poteries du Cameroun méridional. Styles techniques et rapports à l'identité*. Paris: CNRS Edition.

Gosselain, O.P. 2008. Ceramics in Africa. In: H. Selin, ed., *Encyclopaedia of the History of Science, Technology, and Medicine in Non-Western Cultures*. New York: Spring 1, pp. 32–44.

Gosselain, O.P. & Livingston Smith, A. 1997. The Ceramic and Society Project. An ethnographic and experimental approach to technological style. In: A. Lindahl & O. Stilborg, eds., *The aim of laboratory analysis in archaeology*. Stockholm: Kungl. Vitterhets Historie och Antikvitets Akademien, pp. 147–60.

Hill, J.N. 1977. Individual variability in ceramics and the study of prehistoric social organization. In: J.N. Hill & J. Gunn, eds., *The individual in prehistory*. New York: Academic Press, pp. 55–108.

Hutchings, A. 1996. *Zulu medicinal plants: an inventory*. Pietermaritzburg: University of Natal Press.

Jolles, F. 2005. The origins of the twentieth century Zulu beer vessel styles. *Southern African Humanities* **17:** 101–51.

Kanimba, M. & Bellomo, R.V. 1990. Methods of pottery construction and firing techniques observed in the village of Bukokoma II, Zaïre. In: N.T. Boaz, ed., *Evolution of environments and homindae in the African Western Rift Valley*. Martinsville: Virginia Museum of Natural History, pp. 339–56.

Kennedy, C.G. 1993. *Art, architecture and material culture of the Zulu Kingdom*. PhD dissertation, University of Southern California.

Laidler, P.W. & Scot, F.S.A. 1936. South African native ceramics: their characteristics and classification. *Transactions of the Royal Society of South Africa* **26**: 93–172.

Lambert, J. 1994. Violence and the state in colonial Natal: conflict between and within chiefdoms. *South African Historical Journal* **31**: 149–64.

Lawton, A.C. 1967. Bantu pottery of southern Africa. *Annals of the South African Museum* **49**: 1–440.

Legg, M. J. 2006. *Saggar fired ceramics: incorporating European lace design*. Master of Technical Ceramics dissertation, Technikon Witswatersrand.

Lemonnier, P. 1992. *Elements for an anthropology of technology*. Anthropological Papers, Museum of Anthropology 88. Ann Arbor: University of Michigan.

Leroi-Gourhan, A. 1963. *Le geste et la parole, vol. 1 - Technique et langage, vol. 2 - La mémoire et les rythmes*. Paris: Albin Michel.

Levinsohn, R. 1984. *Art and craft in southern Africa*. Johannesburg: Delta Books.

Livingstone Smith, A. 2000. Processing clay for pottery in Northern Cameroon: social and technical requirements. *Archaeometry* **42**: 21–42.

Livingstone Smith, A., Bosquet, D. & Martineau, R., eds. 2005. *Pottery manufacturing processes: reconstitution and interpretation*. Oxford: Archaeopress.

Longacre, W.A. 1999. Standardization and specialization: what's the link? In: J.M. Skibo & G.M. Feinman, eds., *Pottery and people: a dynamic interaction*. Salt Lake City: University of Utah Press, pp. 44–58.

Marshall, C.G.A. 2006. The Natal Group. In: M.R. Johnson, C.R. Anhaeusser & R.J. Thomas, eds., *The geology of South Africa*. Geological Society of South Africa. Pretoria: Council for Geoscience, pp. 433–42.

Mathis, S.M. 2008. *After apartheid: chiefly authority and the politics of land, community and development*. Boston: Emory University.

Mercader, J., Garcia-Heras, M. & Gonzalez-Alvarez, I. 2000. Ceramic tradition in the African forests: characterisation analysis of ancient and modern pottery from Iturui, D.R. Congo. *Journal of Archaeological Science* **27**: 163–82.

Miller, D. 1981. The relationship between ceramic production and distribution in a central Indian village. In*:* Howard, H. & Morris, E. (eds.) *Production and distribution: a ceramic viewpoint*. Oxford: British Archaeological Reports pp. 221-228.

Miller, D. 1985. *Artefacts as categories*. Cambridge: Cambridge University Press.

Minnaar, A., ed. 1991. *Conflict and violence in Natal/KwaZulu: historical perspectives*. Pretoria: Human Sciences Research Council.

Msinga Municipal Council. 2010. Msinga Integrated Development Plan 2010/11. Report IDP 08 July 2010. Tugela Ferry: Msinga Municipality. Accessed on-line August 2009 at http://devplan.kzntl.gov.za

Nicklin, K. 1971. Stability and innovation in pottery manufacture. *World Archaeology* **3**: 13–48.

Ngubane, H. 1977. *Body and mind in Zulu medicine*. London: Academic Press.

Pelegrin, J., Karlin, C. & Bodu, P. 1989. Chaînes opératoires: un outil pour le préhistorien. In: J. Tixier, ed., *Technologie préhistorique*. Paris: Centre Nationale de la Recherche Scientifique, pp. 55–62.

Pétrequin, P. & Pétrequin, A.-M. 1999. La poterie en Nouvelle-Guinée saviour-faire et transmission des techniques. *Journal de la Société des Océnistes* **108**: 71–101.

Pfaffenberger, B. 1992. Social anthropology of technology. *Annual Review of Anthropology* **21**: 491–516.

Raum, O.F. 1973. *The social functions of avoidances and taboos among the Zulu*. Berlin: Walter de Gruyter.

Reusch, D. 1996. Reflections concerning the pottery from kwaMabaso, Msinga. *Zulu Treasures: of Kings and Commoners*. Durban: KwaZulu Cultural Museum and the Local History Museums, pp. 115–27.

Reusch, D. 1998. *Imbiza kayibil' ingenambheki*: the social life of pots. In: B. Bell & I. Calder, eds, *Ubumba: aspects of indigenous ceramics in KwaZulu-Natal*. Pietermaritzburg: Tatham Art Gallery, pp. 19–40.

Roux, V. 2003. Ceramic standardization and intensity of production: quantifying degrees of specialization. *American Antiquity* **68**: 768–82.

Rye, O. 1981. *Pottery technology: principles and reconstructions*. Washington, D.C.: Taraxacum.

Schofield, J.F. 1948. *Primitive pottery: an introduction to South African ceramics, prehistoric and protohistoric*. Cape Town: South African Archaeological Society, Handbook Series No. 3.

Stark, M.T. 1995. Economic intensification and ceramic specialization in the Philippines: a view from Kalinga. *Research in Economic Anthropology* **16**: 179–226.

Thomas, H.J. 1972. Faction fights among Africans in Natal and Zululand, together with some comparative material on those in the Transkei. Honours project, University of Natal.

Tixier, J. 1967. Procédés d'analyse et questions de terminologie concernant l'étude des ensembles industriels du Paléolithique récent et de l'Epipaléolithique dans l'Afrique du North-Ouest. In: W.W. Bishop & D.J. Clark, eds., *Background to evolution in Africa*. Chicago: Chicago University Press, pp. 771–820.

Van Der Eyk, J.J., Macvicar, C.N. & De Villiers, J.M. 1969. *Soils of the Tugela Basin*. Pietermartizburg: Natal Town and Regional Planning Commission.

Van Der Leeuw, S. 1993. Giving the potter a choice: conceptual aspects of pottery techniques. In: P. Lemonnier, ed., *Technological choices: transformation in material cultures since the Neolithic*. London & New York: Routledge, pp. 238–88.

Wahlman, M. 1972. Yoruba pottery making techniques. *Bässler-Archiv* **20**: 313–46.