Southern African Humanities **24**: 121–42 November 2012 KwaZulu-Natal Museum

Anatomy of a pottery bonfiring in the Port St Johns region, Eastern Cape, South Africa

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ABSTRACT

This paper seeks to document and contextualise the unique bonfiring methods of octogenarian potter Alice Gqa Nongebeza, who works from her homestead at Nkonxeni village in the Tombo area near Port St Johns. Her firing technique is compared with those of fellow local potters Debora Nomathamsanqa Ntloya and Nontwazana Dunjana. These three Mpondo potters, and their understudies, create ceramic utilityware and other items for a mainly local market that sometimes also appeals to collectors and tourists. Although they are aware of each other, they use their own clay sources and clayworking methods, and have evolved very different firing techniques. This paper, with reference also to potters in KwaZulu-Natal, shows that Nongebeza, in particular, has developed a rare approach to firing, and calls for the inclusion of her type of firing technique in African firing lexicons. It also calls for greater attention to sequential firing detail as practised by individual potters, in forthcoming reports that add to knowledge about zero-electricity-usage ceramics production in southern Africa, and elsewhere.

KEY WORDS: Alice Gqa Nongebeza, bonfired pots, ceramics praxis, *chaînes opératoires*, Debora Nomathamsanqa Ntloya, Eastern Cape, handbuilt pottery, Mpondo potters, Nontwazana Dunjana, zero-electricity-usage firing technology.

My research into ceramics production and firing techniques has been informed by my own experience as a practising potter, and by relationships forged with Alice Gqa Nongebeza (Fig. 1a) and Debora Nomathamsanqa Ntloya (Fig. 1b). These relationships were established in the mid-1980s while I was managing the Ikhwezi Lokusa Pottery in Mthatha. In March 2001 our associations became more formalised. We agreed that I would actively record local ceramics praxis in the Port St Johns region (Fig. 1c), and sometimes make and fire pots under the direction of Nongebeza. This fieldwork took place on 17 occasions from 2001 until 2009, with at least one visit a year since then. I was introduced to Nontwazana Dunjana (Fig. 1d) in 2009, and made two visits to her homestead in that year as well as for two days in 2011.

My interest in firing techniques is twofold. I want to draw attention to Nongebeza's unique firing method and place it in context; I believe that current practices may hint at aspects of precolonial ceramics-firing procedures in the region, though no direct evidence of such links has been specifically established in the Eastern Cape. This study will also complement a growing body of work focused on "pottery production by Nguni-speaking peoples in southern Africa" (Fowler 2008: 477, 2011, citing Levinson 1984; Kennedy 1993; Armstrong & Calder 1996; Reusch 1996, 1998; Garrett 1997, 1998; Armstrong 1998; Jolles 2005; Fowler 2006; Legg 2006; Armstrong et al. 2008).

SOME ARCHAEOLOGICAL BACKGROUND

Looking back into archaeological records for hints at potential influences on contemporary praxis has revealed that the Port St Johns region of the Eastern Cape is under-researched. Early published evidence of Precolonial Agriculturist (see Steele 2001 for objections to the usage of the term 'Early Iron Age') and other ceramics in this

Fig. 1. (a) Alice Gqa Nongebeza of Nkonxeni village (S31° 37' 59.66"; E29° 23' 22.26") in the Tombo area, near Port St Johns, on the R61 road towards Mthatha. Photo: John Costello 2008; (b) Debora Nomathamsanqa Ntloya of Qhaka village (S31° 36' 34.04"; E29° 24' 34.78") in the Chaguba area, near Port St Johns, also on the R61 road towards Mthatha (2008).

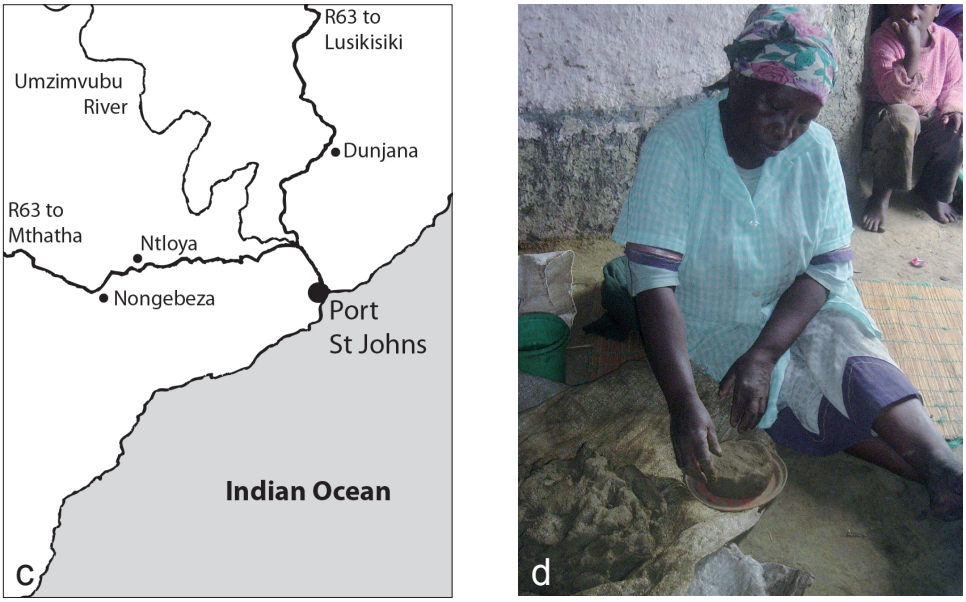

Fig. 1. (c) Main homestead sites; (d) Nontwazana Dunjana of Esikhululweni village (S31° 32' 17.58"; E29° 32' 40.69") in the Gemvale area at the Mtambalala turnoff, near Port St Johns, on the R61 road towards Lusikisiki (2009).

region includes a report by Percy Laidler (1929: 779) on finding only one "small shard of squared lipped neck with incised string pattern". Thereafter, a few illustrations and brief discussions of potsherds discovered at the Umgazana and Zig-Zag caves (Chubb et al. 1934; Schofield 1938) were published. More recently, some reports that have served to contextualise indirectly, from an archaeological point of view, the Umgazana and Zig-Zag cave ceramics include, for example, Prins and Granger (1993), Binneman (1996) and Whitelaw (1998). Gavin Whitelaw (2009: 141, referring also to Huffman 2007: 159–61 and Simon Hall 1986) suggests that "Umgazana ware resembles … for the most part Moor Park".

CLASSIFICATION OF MAIN ZERO-ELECTRICITY-USAGE FIRING TECHNIQUES IN AFRICA

In order to contextualise further the Zig-Zag and Umgazana ceramics, and thereby also the firing practices of Nongebeza, Ntloya and Dunjana, it is useful to take cognisance of observations about firing methods in Africa made by Olivier Gosselain (2008: 473–4, referring also to Livingstone Smith 2001: 993). Gosselain conducted an extensive overview of sub-Saharan zero-electricity-usage firing techniques and principles. After observing several hundred non-industrial solid-fuel firings in Africa, he originated a guide that differentiated eight basic types of firing procedures. I have chosen to reflect on and use this typology because it sets out viable guidelines, briefly explored below, to nuances in both local and continental firing techniques.

According to Gosselain (2008: 473) the most common and widely used structural type for solid-fuel firings is '#1 bonfire'. With this technique, "pots are placed on a bed of fuel at ground level and covered with another layer of fuel" before the whole structure is set alight. Sometimes more fuel is added during the firing cycle, depending on the desired results. He also observed that "such structures vary tremendously in dimension … 50 cm to 250 cm in height and 50 cm to 700 cm or more in diameter … [and in] firing duration … from 20 minutes to several hours … [as well as in] the number of vessels fired at once … from 1 to 500". Such consistency in placement procedure but variance in scale can be seen, for example, in small-scale firings undertaken by an individual such as Namsifueli Nyeki of Tanzania (Thompson 2007: 56), which can in turn be contrasted with larger group firings such as those conducted by potters of Doguèlèdougou in Mali (Frank 2007: 37).

While #1 bonfire is a frequently chosen firing technique, the type '#2 elevated bonfires' is rare. Gosselain (referring also to Célis & Nzikobanyanka 1984) observed that this technique has only been reported in the Great Lakes region, where firing is accomplished by "placing vessels on an elevated bed of fuel consisting of a rack-like layer of branches placed on four or five big stones". Another type of firing method is '#3 bonfires with isolation' (Gosselain 2008: 473). This type "differs from simple bonfires in that a layer of fireproof materials, such as shards, old basins and sheet metal, is placed either between the vessels and the upper layer of fuel, or upon the whole structure", which may have low sides.

Gosselain (2008: 473) has also identified another type of bonfiring that shows pots being fired in a '#4 depression', which he describes as featuring a "shallow excavation made in the ground … in which vessels stand higher than ground level after having been placed on the bed of fuel". This technique is contrasted with '#5 pits' and '#6

pits with isolation' (Gosselain 2008: 473), which are similar because "vessels always stand below the ground surface after having been placed on a bed of fuel" with or without further isolation.

This contrast between #1 bonfire at ground level, with #4 depression, and then with #5 pit, shows a significant distinction between firing methods that reflects, for example, an understanding that the depth of the hole in which the works are fired directly influences the extent to which prevailing weather conditions can affect outcomes. Breezes playing on items being fired can cause cracking of ware, resulting from a sudden contraction when one part of the work cools faster than the rest (Fournier 1977: 70). The #4 depression and #5 pit methods may thus respectively be aimed at minimising such risks. Another factor that validates the differentiation between #4 depression and #5 pits is that oven-like conditions created by heated earth in a pit would also influence the fuel types and quantities thereof that would be needed to reach the required temperatures for any particular length of time. Likewise, speed of ignition, rate of burn and duration of top temperature are all factors that are influenced by whether items are fired at ground level, in a depression or in a pit. The same fuel, for example, would burn faster when totally exposed to the elements than when progressively submerged and gradually denied full access to air movement and oxygen.

For the last two techniques in Gosselain's scheme (2008: 473), he observes that both '#7 oven' and '#8 updraft kiln' types have been in use in sub-Saharan Africa. The #7 oven type has constructed sides with bottom stoke holes and ware is stacked on the fuel from ground level upwards, whereas the #8 updraft kiln has constructed sides with a firebox fed with fuel via stoke holes, and ware is stacked above the firebox within the kiln.

Despite the basic differences evident in these eight firing procedures, there are several commonalities; the most important two, for the purposes of this paper, are that the ware and fuel are placed together prior to ignition, and that all variants are geared towards achieving similar results. The techniques are therefore 'functionally equivalent' (Fowler pers. comm. 2011).

Furthermore, the usual fuel types used for firing should be noted in conjunction with the different approaches to firing structure. In this regard, and as further background to contextualising the firing practices of Nongebeza, Gosselain (1992) and Alexandre Livingstone Smith (2001) usefully conducted tests with pyrometers in sub-Saharan Africa. They concluded that most solid fuels used for firing ended up achieving similar temperatures "of between 600°C and 940°C" (Gosselain 1992: 244), albeit at different rates. Gosselain (2008: 472–3) has also pointed out that fuel for firing can usually, but not invariably, be divided into three basic types: "manure [of] cows, donkeys, camels or horses"; "light fuels [such as] dry grass or cereal stalks, cereal chaff, palm fronds, leaves, twigs, barks or roots"; or "heavy fuels … [such as] branches and logs from dozens of tree species".

So, with minor variations, Gosselain and Livingstone Smith found that in sub-Saharan Africa various fuels are used in different circumstances depending on local practice, availability and suitability, in one or other permutation of the eight basic types of firing layouts. Their exposition of firing types and fuels both correctly identifies broad trends and provides workable parameters for thinking about techniques likely to have been used by the potters who created the Zig-Zag and Umgazana ware. Furthermore, it

provides a useful lexicon with which the firing techniques of Nongebeza, Ntloya and Dunjana can be described and compared.

ASPECTS OF NONGEBEZA'S CERAMICS PRAXIS

Collecting and preparing the clay, as well as the process of creating the works, are important stages in *chaînes opératoires* prior to firing. Nongebeza, for instance, collects clay and a coarser component used for temper, known as *sabhunge*, from different seams at the same clay source some distance from her homestead. These components are beaten together on a flat rock with desired additions of water until the clay reaches a workable consistency. In practice I found that this clay body is quite coarse and robust. It also has good workability, allowing it to take various shapes without cracking, and has such excellent stand-up strength that a thigh-high vessel can be created in one sitting (Steele 2007, 2009; Steele et al. 2010).

These technical features are important because factors such as the coarseness of the clay body, and a usually concomitant capacity to withstand thermal shock better (Hamer 1975: 294; Fournier 1977: 229), have an influence on how such works are strengthened or break when being fired. For example, in my own ceramics studio I use highly refined clay of a much smoother consistency. My clay is quite sticky, and is excellent for use on the potter's wheel, but tends to collapse so quickly that, when handbuilding, I can only achieve about one fifth of the height possible compared with what can be accomplished in one sitting when I am using Nongebeza's clay. Furthermore, my clay body needs to be absolutely bone dry prior to being put into an electric kiln for firing, at an initially slow rate of temperature climb of about 60°C per hour for the first four hours to avoid cracking and breakages. It will be seen, in contrast, that Nongebeza's much coarser clay can be ever so slightly damp when rapidly fired.

Over the past few decades I have seen that Nongebeza usually fires in an open field near to her homestead, and prefers a relatively windless, clear morning. She favours days not too soon after heavy rain because the earth should be relatively dry, otherwise she goes to sometimes extreme lengths to ensure that a surface is created that would raise the items to be fired off the earth. In 2006, for example, she conducted a firing on top of an old bed mattress because the ground was too wet. Nongebeza also prefers to have firings completed by midday, before the atmosphere gets too hot for her to work effectively. She uses mainly heavy fuels such as any available branches and logs. Her need for various thicknesses of wood means that fuel collection in preparation for firing is difficult and time-consuming, as are so many tasks associated with ceramics praxis.

With regard to her actual firing technique, Nongebeza explained that quite soon after her marriage, she was initially shown how to work with clay by neighbouring women in the Tombo area. It happened that way because neither her mother, nor her mother-in-law, nor any other family member was a potter. She said that for firing she was taught by her early mentors to create a fireplace at ground level, without making a depression in the earth or building up sides around the space to make a rudimentary kiln or furnace. She was also taught to place first the fuel then the pots, whereafter more fuel was positioned in between and on top of those works. This pyre was lit once both pots and fuel were adjudged suitably placed, and the fired works were removed once the bonfire had died down.

This description corresponds closely with Gosselain's #1 bonfire technique, but Nongebeza found that she was suffering many losses. In fact, she has related that she regarded it as strange that the potters she had learnt from continued to utilise that firing method even though they too experienced heavy losses. The extent of these losses was not specifically quantified, but it appeared to me that on occasion perhaps close to half the works cracked completely or exploded during firing. Despite misgivings, she said that as a young potter she initially continued using that system because it was how firing was done in the Tombo area at that time, but that upon reflection she decided to adopt a different approach.

Nongebeza's approach is in essence still a #1 bonfire technique, but with one very important difference: the fuel for the bonfire is first laid, then lit, then the pots and other items are placed on top once the bonfire is close to its peak and raging, whereafter more fuel and pots are intermittently added.

The actual procedure is that large logs for the perimeter of the fire-bed are usually collected beforehand, with bundle loads of thinner brushwood-type combustibles (Fig. 5a) being brought in by whomever can help on the firing day. Finalisation of wood gathering, dry burnishing of pots and preparation of the firing site take place simultaneously. Vessels and other items ready to be fired are brought out and placed on a blanket at the same time as wood is brought in and the site is cleared (Fig. 5b) for the upcoming firing.

The following description of events is, for the sake of clarity, focused on one particular firing in 2006, but the principles were similar to those I witnessed on many other occasions. Once the site had been cleared, a basic rectangular structure with a hollow interior was built using quite large, longish logs, the thickness thereof depending on the wood available (Fig. 5c). The space this structure encloses is determined by the

Fig. 5a. Nesiwe and Nonzuzuo Nongebeza, and Onele Jikandaba, from left, bring loads of wood that together account for about one third of what is required by most firings (Steele 2007).

Fig. 5b. Nonzuzuo and Nesiwe Nongebeza clear old mattress wiring from the site of the previous firing (2006).

number and sizes of works to be fired, and can range from an interior dimension of about one to two metres wide, and up to between three and five metres long. Even positioning the logs seemed to be by no means a straightforward issue on this particular occasion. Each step involved extensive discussion amongst most of those present, who all had opinions on how best to optimise available wood fuel in order to accomplish a successful firing.

On this occasion, decisions needed to be based on whether it would be better to build a long rectangle that would fit most works on one level, or a shorter but deeper rectangle that would then be appropriate for extensive double-decker placement of works. Initially this double-decker technique of firing seemed unusual to me, although many potters do place works on top of each other prior to light-up in normal #1 bonfire-type firings. Nongebeza's procedure for double-decker firing is that after the first tier of vessels and other items has been introduced to the blaze, and more fuel has been stacked on top, then second and third tiers of works are placed in between, and more layers of fuel are added.

One of the reasons it is difficult to make bonfire-design decisions is that each layout carries different risks that vary according to prevailing breezes and the size of the items for firing. The items in this particular batch varied greatly in size. Also, the available wood presented a complication. From the outset doubt was expressed as to whether there was enough. Furthermore, the logs that had been collected were quite twisted and bifurcated, and initially did not seem to lend themselves easily to forming either potential bonfire-layout design. Such complications are normal, and in due course an optimal framework layout was achieved.

Once the log framework had been built, Nongebeza sat at one end and her helpers set about filling the structure with smaller branches and brushwood previously carried

Fig. 5c. Alice Nongebeza placing logs, with help from Siziwe Sotewu and Nesiwe Nongebeza, to create the framework within which firing will occur (2006).

in on their heads. Then light fuel in the form of dry long lengths of thatching-type grass was laid on top, and whatever pieces of plastic were lying around, including the remains of heavy plastic buckets and other containers that were old and broken, were laid on top of that. The use of plastic took me by surprise at first, but I soon realised that plastic as a fuel worked well because it burned furiously once alight, thus helping to distribute the fire throughout the pyre very quickly. Altogether it took about 30 minutes to prepare the framework and lay the other fuel.

Nongebeza then quickly and deftly moved around the awaiting fuel, lighting it here and there (Fig. 6a), encouraging flames to grow, and then sat down at one end for a moment and used a long stick to prod and arrange the growing bonfire to her liking. Then, about four minutes after light-up, she decided that the blaze was sufficiently intense and her granddaughter Nesiwe, who is also a potter, briskly stepped forward with the largest pot and placed it directly, in an upright position, onto the fiercely burning bonfire. Nongebeza immediately placed another piece and checked the stability of the first vessel by giving it a small tweak, and then fluidly positioned a third pot next to the second one. At this point the fire was already intensely hot, and moving close enough to it to place unfired pots in its midst required great care and experience, as the possibility of getting burnt was very real. Nesiwe then passed three vessels to her grandmother, who placed them in the bonfire in quick succession (Fig. 6b), and then herself placed two more downwind of the fire. At this point Nesiwe got quite a scare from the intense heat and put on a long-sleeved jersey to protect her arms from the fire. This phase of positioning the first eight vessels took about one minute. At this stage the number of pots introduced was adjudged sufficient and more wood was placed on top (Fig. 6c) in order to cover all the pots.

Fig. 6. (a) Nongebeza lights the fire prior to placement of works. Siziwe Sotewu is in the background (2006); (b). Nongebeza rapidly places raw works into the fire once it is blazing (2006).

The bonfire rapidly became enormous (Fig. 7). Thereafter, only 11 minutes after light-up, Nesiwe created a gap in the pyre by taking a long stick and rotating it in the fire, spreading pots and fuel sufficiently to create space for another large pot. This act of making space began the difficult second-phase, double-decker process of sliding raw pots into the fire in such a way as to not damage those below and alongside, and to avoid getting burnt. More fuel was added and four more double-decker additions

Fig. 6c. Nongebeza then adds more pots and fuel until all items introduced at this stage are covered (2006).

Fig. 7. Fuel placed on top of the first layer of vessels burns strongly (2006).

of fairly large vessels were placed during the next few minutes, and then intermittently thereafter. Some were placed directly by hand, but the fire was so hot that most were introduced to the blaze from the end of a stick.

After each new double-decker inclusion, great care was taken to cover that item completely with fuel to ensure that heat was evenly distributed. During this phase some of the smaller works such as a doll, birds and children's pots were placed into gaps. The bonfire burned very strongly, but soon the possibility that there may not be enough fuel to cover the second- and third-tier items as comprehensively as the first became evident and generated much discussion. Despite the possible complication, Nesiwe, now assisted by my translator and fellow potter, Siziwe Sotewu, added more vessels and fuel on top.

At various stages vessels glowing cherry red in the midst of the fire became visible, and then disappeared as more pots or fuel were added. About 20 minutes after light-up, another fairly large vessel with a flared neck was placed in a corner of the bonfire and some fairly substantial pieces of wood that seemed to have been kept aside expressly for this purpose were placed around it. Despite such provision, however, there was just not enough wood to cover the most recently included vessel completely. This problem was immediately solved by Nesiwe, who walked into the nearby field and returned with an armful of light fuel in the form of dried corn stalks, which were tossed on top. These stalks were available because, as it was the middle of May, harvesting of the corn had taken place earlier and the plants had died back. Armful after armful of these stalks was thrown on top of the bonfire during the next five minutes, but the vessels most recently introduced kept immediately reappearing out of the top of the fire, unlike those that had gone in earlier and remained submerged by fuel for a longer time.

At this stage more brushwood, which seemed to have been earmarked for household cooking use, and other lengths of wood were brought from elsewhere and broken up into manageable bundles. Then, to my amazement, a space was made in the fire and Nesiwe picked up a vessel made two days previously that still felt cool to the touch and

slightly damp despite having been lying in the sun. She carefully positioned this vessel in the bonfire and then, using a long stick (Fig. 8), settled it down in between other pots so that hardly any of its parts projected, and the recently brought wood was piled on top. This event took place a full 34 minutes after light-up, thereby marking quite an extensive time frame during which additions of works had been made to the bonfire, as those vessels that were introduced right at the beginning had already experienced up to 30 minutes of fluctuating levels of intense heat.

Newly added fuel burned away quickly and fully fired pots became ever more evident in what had only moments earlier been a raging bonfire. Soon thereafter an old sheet of galvanized roofing iron was brought from the homestead and placed on the ground and Nesiwe, taking hold of her stick, moved some of the now subsiding bonfire aside, hooked one of the pots placed right at the beginning and transported it to the sheet of roofing iron. This was quite a spectacular event, as the stick caught alight, and even after the vessel had been placed on the iron it burned ferociously and spouted fire from the mouth while embers inside burned away. Over the next three minutes another five vessels were removed by being hooked out of the ashes using a long stick (Fig. 9). Most, but not all, had been put in first. The very first vessel to have been put in, for example, proved to be difficult to retrieve and was left in for quite a while longer, eventually coming out several minutes later. In the meantime, the remaining pots were moved about within the embers according to whether they were deemed to require a bit more heat or needed to have particularly darkened parts burned away.

Once all items had eventually been retrieved, a total of 75 minutes had elapsed since the fire had been lit. Post-firing conversations about successes (Figs 10a, 10b, 10c) and questionable outcomes took place while some coals were being gathered together on one side. A large three-legged cast-iron cooking pot that would be used for a welcome meal was brought out and placed on the embers. Those actions signalled that it was

Fig. 8. Nesiwe Nongebeza settles a vessel made two days previously into the pyre (2006).

Fig. 9. Nesiwe Nongebeza removes fired works from the pyre and places them on a piece of roofing iron, which can be seen in the foreground (2006).

time to undertake the next task of carrying all the works back inside, which we did. Thereafter the works were cleaned with a damp sponge and polished (Fig. 10c), and then put aside for sale.

DISCUSSION

Nongebeza's firing technique

Some main characteristics of Nongebeza's firing praxis are that log walls are built up on level ground in a rectangular shape, into which brushwood and other combustibles are placed. Then the #1 bonfire is lit and shortly thereafter works to be fired are introduced to the blaze in an upright position. Further works and fuel are intermittently added, and once deemed fired are removed while still very hot.

Nongebeza's technique of using log walls is well suited to her special procedure of double-decker firing because those walls continue to burn strongly and provide heat for a long time while the lighter fuel inside burns away more rapidly, making space for more works, which in turn benefit from the heat coming off the logs and the other already red-hot pots, as well as from more fuel placed on top. Interestingly, there are no obvious signs of fired difference between pots introduced to the blaze early on and thus fired for a longer time, and those introduced towards the end, indicating that the top temperature reached is perhaps more important than the duration of exposure to heat.

It also seems to me that Nongebeza's works are well fired, the cherry red colour sometimes exhibited by the pots indicating a probable temperature of between 800°C and 900°C (Fournier 1977: 83). Her pots also give off a pleasing ringing sound characteristic of a well-fired ceramic item struck sharply with a knuckle or spoon, and they do not disintegrate if exposed to moisture. Furthermore, she has, in my opinion, a minor loss rate, with generally slightly less than 15 % of her works spalling or

Fig. 10. (a) Siziwe Sotewu, left, and Nesiwe Nongebeza discuss results (2006); (b) Some of the vessels fired on that occasion, still covered in wood ash (2006); (c) Polishing the works with Cobra floor wax gives them a pleasing glow. This particular vessel was purchased in 2011 by the Iziko Museum, Cape Town.

developing noticeable cracks, most of which are easily fixed with black self-hardening adhesive putty, much like Pratley's Putty, known as *potapota*. In short, I find her firing technique to be very effective, especially if seen in light of unsuccessful experiments I have conducted in my own studio with my usual clay.

Nongebeza's method of placing works into an existing bonfire seems to be unique in relation to her contemporaries and to what is known of past firing practices in southern Africa. I have so far been able to find only one other reference to such a procedure,

made by Percy Laidler (1929: 760) when referring to what was probably a localised firing method practised by particular Khoikhoi potters of the southern African South Coast Basin (Sadr 2008: 107). Laidler cited a 1695 letter written by Johannes de Grevenbroek (Schapera 1933: 253) who described that "the pot is stuffed with dry cowdung, provided with handles and placed on a bright fire. After baking it is ready for various uses". This account of a vessel being placed into a 'bright fire' is also particularly interesting because the act of filling the vessel with dried cow dung shows that fire in the interior of a vessel was regarded by those potters as being complementary to fire on the outside. Their experiences may well have shown that such concentrated heat from both inside and outside contributed to good post-firing strength, as well as to achieving an optimal success rate because of relatively even heat distribution. Nongebeza, on the other hand, does not specifically place fuel inside her vessels prior to firing.

Dunjana's firing technique

In order to contextualise Nongebeza's method of #1 bonfiring further, it is useful to look briefly at the procedures of some other contemporary local potters creating zero-electricity-usage ceramics in the East Coast Basin (Sadr 2008: 107) of southern Africa. Nontwazana Dunjana, of Esikhululweni village between Port St Johns and Lusikisiki, for example, employs a classic #1 bonfire method of firing. She digs her clay from two separate sources near her homestead and grinds the dried-out clay and *sabhunge* on a grindstone until fine. She mixes these components in a 50/50 ratio and then adds water until the clay reaches the desired consistency. Vessels and other items are created mainly by means of a coil technique, and firing is conducted on a relatively clear and windless day, on a specially cleared surface near the homestead.

Dunjana, like Nongebeza, uses mainly heavy fuel. Wooden sticks that are on average no thicker than 8 cm were distributed in one direction over the earth surface at ground level. Vessels were then placed mouth to mouth on top of the fuel (Fig. 11a), and a further layer of pots was added after the bottom layer had been stabilised. Thereafter more sticks were placed on the sides and above the pots to be fired, and once deemed ready, this heap of pots and fuel was lit from downwind (Fig. 11b). The bonfire was quickly fully alight, and during the next few minutes various adjustments to fuel and pot positioning were made, and more fuel was added (Fig. 11c). It could soon be seen that some pots were glowing reddish in a promising manner, and we went and sat inside the nearby studio where it was nice and cool. Dunjana only retrieved the fired vessels (Fig. 11d) several hours later in the early evening, after we had departed, because she requires that they be cool enough to the touch to be removed by hand.

Nongebeza's firing technique compared to some in KwaZulu-Natal

Dunjana's #1 bonfiring technique is similar to those described by Gosselain for many parts of sub-Saharan Africa, and is quite similar to that used, for example, further north in KwaZulu-Natal by Peni Gumbi of Pondwane (Fig. 12). Gumbi, like Nongebeza and Dunjana, digs her own clay and creates vessels by means of variations on coiling techniques. Her firing method is described by Elizabeth Perrill (2008: 21, 22) as "taking place in two stages. First, pots are placed [… then] fuel is stacked around the pots, creating a large bonfire-style structure" that is circular in form. She goes on to report that Gumbi's pots are "fired for less than an hour, or up to several hours using wood,

Fig. 11. (a) Nontwazana Dunjana lays wood flat on the earth, then vessels, in preparation for a firing (2011); (b) Nontwazana Dunjana, using the #1 bonfiring technique, lights the pyre once all vessels are fully covered with fuel (2011); (c) Nomvulo, granddaughter of Nontwazana Dunjana, adds fuel to the fire. Sitting in the background, from left to right, are Alice Gqa Nongebeza, Lindiwe Matimba and Debora Nomathamsanqa Ntloya (2011); (d) Fired works are retrieved once cool to the touch (2011).

dried aloe, or dung". Perrill does not make reference to a firing depression or pit, and the photo (2008: 20, fig. 6) depicting this stage also seems to indicate that Gumbi has set her bonfire on level earth in a #1 bonfiring method.

Variants on basic #1 bonfire methods of firing in KwaZulu-Natal have also been recorded as being performed by potter Khozeni Magwaza (Armstrong et al. 2008: 523) and others, as well as in a study conducted by Kent Fowler (2008: 496, 497). The latter study was conducted in the Inkandla–Umlazi area along the lower reaches of the Thukela Basin. It is difficult to tell which specific potters Fowler features in which instances, but he indicates (Fowler 2008: 478, 480) that visits to the Magwaza, Nala and Nxumalo family homesteads were made for research purposes. Fowler (2008: 496) observes that in this region "potters use an open-firing technique and never excavate into the ground to create a pit", and the firing sequence he describes is clearly a #1 bonfire type wherein "pottery is placed upright in a nest of aloes and some hardwood branches before being ignited". The pyre structure favoured by these potters appears to be roughly circular, which is similar to that of Gumbi, but different from the rectangular firing layouts preferred by Dunjana and Nongebeza. It is also interesting to note that an image in this publication (Fowler 2008: 469, fig. 8b) shows a bed of dry ash having been prepared prior to the placement of pots and fuel in order to keep them away from the damp earth, much in the same way as Nongebeza used an old bed mattress to separate her pots from the ground in 2006 after heavy rainfall the previous day.

Although the #1 bonfire firing practices of Dunjana, Gumbi (Perrill 2008) and potters of the Lower Thukela Basin (Fowler 2008) bear an initial resemblance to that

Fig. 12. Peni Gumbi uses the #1 bonfire technique of ware and fuel placement prior to light-up in KwaZulu-Natal (Perrill 2008: 20).

of Nongebeza, the matter of placement prior to or post ignition remains a significant difference. Furthermore, Nongebeza's firing method also differs from what was said to be practised in Pondoland prior to and during the era of her becoming a potter. A.C. Lawton (1967: 36, 37, citing records of the University of the Witwatersrand, and also Hunter 1936) refers to firing practices in the Port St Johns and hinterland region on two occasions. Lawton noted that in Pondoland "vessels are placed on their sides in a slight hollow" and that, according to Hunter 1936, "firing generally took place in a slight hollow; firewood was piled around the pots, a little fuel being put inside each vessel. A blazing fire was kept going for one and a half to two hours".

Of primary interest here, apart from the fact that Dunjana fires her vessels on their sides, are three factors: fuel and vessels appear to have been placed prior to ignition; they are placed in a hollow; and they contain some fuel inside. This method of firing in a hollow fits with Gosselain's classification of a #4 depression-type firing in which works being fired are placed on fuel in a hollow, but at least some of the works partially project above ground level after placement. Without doubting the veracity of the information recorded by Lawton, it must be said that I have not yet, during the past 30 or so years, seen such a firing practice taking place in the Port St Johns region, or in the Eastern Cape. This is probably due to many factors, two of which could be that there are many potters in Pondoland and the Eastern Cape whom I have neither met nor heard of, and that in any case practices change over time.

Despite the lack of #4 depression-type firings being recorded in the Port St Johns region during the past few decades, it is a well-known type, especially in the Msinga area of the Upper Thukela Basin of KwaZulu-Natal, which includes the regions surrounding Rorke's Drift in the north, and Tugela Ferry as well as Keat's Drift towards the south (Fowler 2011: 175). Tim Maggs and Val Ward (2011: 153, 155, 157), for example, in an article focused on aspects of the ceramics praxis of Judith Mkhabela of St Augustine's Mission area near Rorke's Drift, refer to some photos taken by Otto Lundbohm, principal of Rorke's Drift Art School in the 1970s. One of these (Maggs & Ward 2011: fig. 5) shows the potter standing with others next to the depression in which she fired vessels. The hollow in the earth looks as if it has been in use for many years and is wide and deep enough to cater for communal firings of many works at any one time. Close perusal of the photo reveals large vessels in the background, which, once stacked on top of fuel in the depression, would surely have projected above ground level, thus revealing that Mkhabela probably engaged in #4 depression methods of firing at that time.

Furthermore, Fowler (2011: 173, 189–91, referring also to previous research of Lawton 1967 and Reusch 1996, 1998) has found that potters in the Msinga area are still using similar firing techniques. He has observed that they dig pits "into the rocky substrate to a depth of 50 cm to 100 cm" and that the pits "can be 100 cm to 150 cm wide". In contrast to Nongebeza's technique of post-ignition placement of items to be fired, pottery at Msinga 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". The accompanying photographs (Fowler 2011: figs. 8b–e, 9b–d) hint that some ware being fired usually projects above ground, so perhaps, strictly speaking, if one was to accept Gosselain's (2008: 473) firing typology, these are also firings of the #4 depression type.

Ntloya's pre-firing technique and use of isolation

In Fowler's description of firing praxis in the Msinga area (2011: 189, 191, and citing of technical comparisons with those found in the Democratic Republic of Congo by Kanimba & Bellomo 1990; Mercader et al. 2000), he has also shown how "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". This procedure is quite the opposite of Nongebeza's, who seems to be comfortable with residual dampness in a vessel when it is placed on an already blazing bonfire. It is also interesting to note that, in contrast to Nongebeza's technique, the Msinga pre-firing method is similar to that practised by Nongebeza's near neighbour, Debora Nomathamsanqa Ntloya, who lives only a few kilometres away along the road to Port St Johns.

Ntloya prepares her clay by grinding two main components by hand into a powder before mixing and adding sufficient water to achieve the preferred workability. She usually begins shaping her works the next day by placing coils on a flattish base. Her highly refined clay does not have good workability or stand-up-strength, and can crack quite easily. These factors contribute to Ntloya usually creating fairly small works with an average height of less than 15 cm.

Ntloya tends to fire small numbers of items at a time, in a method largely adapted from her mother's. She allows several days to pass for her works to become bone dry prior to firing, which she begins with a separate pre-firing process. At a particular firing observed in 2008, for example, this step of final drying out was achieved by building a small wood fire on an old sheet of metal, this surface helping to prevent moisture being absorbed from the earth by the pots once they had been placed close to this fire (Fig. 13a). These pots were assiduously turned to receive gentle, evenly distributed heat, thereby preparing them for the next phase of firing. Once adjudged sufficiently pre-fired, the pots were moved to one side and an old galvanised zinc basin without a bottom was placed on top of the smouldering ashes. Then a bed of dried cow dung fuel was laid at the bottom of the basin, and the pots to be fired were filled with cow dung and placed almost upright within the basin on top of the fuel, and finally more cow dung was added to cover the vessels fully.

The fuel caught alight rapidly, and the blaze quickly became quite intense (Fig. 13b). Within about 20 minutes it could be seen that the pots were glowing a healthy red, indicating that they had been fired successfully (Fig. 13c) and that the fuel could be allowed to burn out. The pots were retrieved only once they had cooled sufficiently to be removed by hand (Fig. 13d), gradual cooling being another precaution against loss that could be caused by sudden changes in temperature. Despite all the precautions of pre-firing and the protection from the elements afforded by Ntloya's variation on #3 bonfires with isolation, it seems that cracks and other losses can sometimes occur in slightly more than 15 % of her works, which is marginally higher than the loss rate resulting from Nongebeza's more robust approach.

CONCLUDING REMARKS

This very brief look at Nongebeza's seemingly unique firing technique has reminded me that to this day I remain as excited, amazed and intrigued by her approach to firing as I was on the first occasion that I witnessed that event. There is something deeply

Fig. 13. (a) Ntloya makes a separate fire to gently pre-fire vessels (2008); (b) Cow dung fuel blazing intensely during one of Ntloya's #3 bonfire with isolation firings (2008); (c) Ntloya's pots were soon seen to be glowing, indicating that top temperature had been reached (2008); (d) Ntloya's vessels ready for retrieval once cool to the touch (2008).

and poetically intuitive in her decision to reverse common practice and proceed with her own method of firing despite what other potters have been doing.

Nongebeza's method of first lighting the bonfire and then adding the works to be fired should be recognised as a possible variant in types #1 bonfire, #2 elevated bonfire and #4 depression (Gosselain 2008: 473) African firing techniques. Any other instances of placing raw pots into an existing bonfire, in a context of zero-electricity-usage ceramics praxis, should be made known and studied in order to understand better how such procedures arose and how they best suit the circumstances, materials and intended outcomes. Perhaps Nongebeza's technique could be termed 'pre-ignition of fuel prior to deposition of ware', although that seems rather clumsy.

Nongebeza's firing praxis has been situated very briefly within an only slightly broader context of some other methods used by potters located near Port St Johns and in KwaZulu-Natal. However, the variety of alternatives in firing techniques and the nuances of difference identified in this context have shown that as one looks more closely at individual practices, further subtleties may be revealed. I hope that future studies will look closely at sequential detail, as practised by individuals, with an eye to finding both differences and commonalities between firing methods, and indeed, for all other aspects of ceramics praxis, thereby adding to understanding by richly describing such events. In this paper I have not tried to establish why these potters choose to make pots in the first place, nor why they utilize such different firing techniques, so it is hoped that this study will have laid some groundwork for such questions to be investigated further.

ACKNOWLEDGEMENTS

I am grateful to Alice Gqa Nongebeza, Debora Nomathamsanqa Ntloya and Nontwazana Dunjana, among others, for graciously welcoming me into their lives and studios, and also thank Siziwe Sotewu as well as the late Gcinikhaya Dase for help with translation. John Costello is also thanked for permission to use one of his photographs, as is Linda Mynhardt for help with the map. Heartfelt thanks are also extended to Kent Fowler for in-depth comments and constructive criticism, and to Laila and Lesley for help with 'proper English'. Financial assistance from Walter Sisulu University, as well as from a Govan Mbeki Bursary awarded by the University of Fort Hare, is also hereby acknowledged. All views expressed are my own.

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