

Reconstructing the Ndebele grass dome house: an integrated heritage initiative

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In this article, the cultural heritage of the Ndebele grass dome house is investigated. Multiple sources, ranging from the written record, oral tradition and archaeological evidence are applied, in order to reconstruct the dome house which has become extinct in the Ndebele community. The reconstruction process is then described in detail. It is argued that this multidisciplinary approach complies with the basic guidelines of national and international heritage legislation and practice.

Key words: Ndebele grass dome house

Die rekonstruksie van die Ndebele-graskoepelwoning: 'n geïntegreerde erfenis inisiatief

In hierdie artikel word die kultuurerfenis van die Ndebele graskoepelwoning ondersoek. 'n Veelvoud van bronne wat wissel van geskrewe rekords, mondelinge oorleweringe en argeologiese getuieis word aangewend ten einde die koepelwoning wat in die Ndebele gemeenskap heeltmaal in onbruik geraak het, te kan rekonstrueer. Die rekonstruksieproses word dan in detail beskryf. Daar word aangevoer dat hierdie multi-dissiplinere benadering voldoen aan die basiese riglyne van nasionale en internasionale erfenis wetgewing en praktyk.

Sleutelwoorde: Ndebele-graskoepelwoning, erfeniswetgewing

The study of vernacular architecture in South Africa has been the domain of a number of disciplines, such as architecture, anthropology, art history and archaeology. The focal point of these studies has also varied in terms of how the house form was documented and described (Meiring 1955, Knuffel 1973), the mural art (Moss 1955, Weiss 1963, Berman 1970, Mathews 1971), and the survey and classification of homestead and settlement types (De Jager 1964, Walton 1956, Frescura 1981, Larsson & Larsson 1984), to name a few. The contribution of Frescura (1981), for example, emphasises the value of the pictorial record in postulating chronological sequences (evolution) in house form. The rural study of the Zulu grass dome¹ by Knuffel (1973) provides detailed information on measurements and indigenous nomenclature, and should thus be regarded as an exceptional contribution. The area study of the Larssons (1984) in Botswana shows how regional differentiation should be accounted for. Maggs' (1976) archaeological investigation into iron age settlements on the southern Highveld, contributes to our understanding of spatial principles in pre-colonial architecture. Notwithstanding the above contributions, a significant number of area and community-specific studies in traditional architecture have been ignored. Some of these studies incorporate architecture as part of a wider study in material culture of a specific community. These studies have emerged from both academic and museum anthropologists.²

The study of indigenous architecture is challenged by rapid changes in both rural and urban settlement patterns, a depletion of available natural resources (which formed the basis of indigenous technology) and the disappearance of knowledgeable artisans. Thus, Steyn's (2003: 181) argument in favour of the study and preservation of architecture and the exploration of Indigenous Knowledge (hereinafter referred to as IK) appears to have lapsed to a large extent. In view of the limitations of the above-mentioned disciplines, there is a need for an interdisciplinary approach to the study of the indigenous African house. The anthropologist lacks the ability to interpret and contextualise space and structure, which are unique to his discipline; the architect and art historian might feel uneasy in a fieldwork setting; while the archaeologist might not always share an interest in the ethnographic process and in extant homesteads and settlement patterns.

Scholars in the aforementioned disciplines stand to benefit from the insights of art historians as they attempt to elucidate style differentiations in decorated surfaces. Steyn (2003:

191-192) acknowledges the value of local language terms and admits that the architect might not be as 'thorough' as the archaeologist (2003: 182). Frescura (1985: 3) recognises the inability of architects 'to draw on the richness of oral traditions' (1985: 9). An anthropologist, however, who conducts a survey of house forms will be aware of the fact that any comprehensive understanding of the settlement chronology of the studied community depends heavily on the archaeological evidence from pre-colonial sites.

In this article, the cultural heritage of the Ndebele grass dome house will be traced by scrutinising written records and comparing this information with oral data, which the author has collected since 1978³. This data formed the basis for the reconstruction of the first prototype Ndebele grass dome house in 1979 and the ensuing replications thereof. The article provides a step-by-step technical description of the building of the first prototype. More than two decades later (1997), it became possible to corroborate some of the above data with archaeological evidence. It will be argued that the intangible database (as in oral tradition) of an extinct pre-colonial house form can be successfully integrated with the tangible database. In doing so, the cultural heritage, as a conservation enterprise, is complemented and augmented considerably. The reconstruction of a prototype with the support of the archaeological process could form a guideline for similar heritage salvage endeavours.

Literature on the grass dome house in South Africa

The literature and pictorial record of this house form is revealing. Frescura's seminal work (1981) in this regard provides us with data on the development of early pre-colonial and early colonial house types. Travelogues by early explorers and descriptions by missionaries provide us with some information. These documents, as cited and discussed by Frescura (1981), include Kolbe (1727), Burchel (1812), Campbell (1815), Daniell (1820), Gardiner (1836), Backhouse (1844), Arbousset and Daumas (1846), Casalis (1861), Holub (1881), Baines (1876), and others. Frescura appraises these pictorial records of the beehive (his term) dome (1981: 11) and describes them as 'sketchy and generally open to interpretation'. Steyn and Roodt (2003: 197) allege that most drawings of traditional settlements are 'sketchy rather than measured'. Some of the above sketches include shelters built by Khoi nomads as well as house types which can be regarded as prototypes of the later dominant cone-on-cylinder form. By the 1800s, the grass (beehive) dome (or cone) seemed to have been the dominant house form in many black communities in South Africa. Notwithstanding the limitations of these records, scholars have been able to compile crucial data on aspects such as construction materials, approximate size of the house, settlement layout and domestic material culture.

The earliest grass-orientated technology is generally associated with forager communities such as the Khoi and San. The Khoi house was a completely mobile and dismountable unit with a diameter of approximately 420 centimetres (Frescura 1981: 33). In sedentary communities, the grass house technology came to be associated with the Swazi, Zulu, early Xhosa and early Ndebele communities. Frescura ascribes this to higher rainfall and the grass rich coastal areas east of the Drakensburg escarpment. (Frescura 1981: 9-10). Earthen (wattle and daub) architecture seems to have dominant in the drier heartland regions of the Tswana, Northern Sotho, Venda and Tsonga communities, where mud walls were less likely to erode (Frescura 1981:11). Sansom (1959:135) is accredited for this dichotomy.

There are two types of grass structures, namely, a cone structure and a dome form (Frescura 1981: 39). Three distinguishable techniques of grass coverage can be identified, namely, grass mats (see Knuffel 1973), grass thatch sewn onto a frame but with a mat crown, and the fully thatched style without mats. Two later developments in the grass dome, unique to Kwa-

Zulu-Natal and some areas in the Eastern Cape Province, were the dome-on-cylinder and cone-on-cylinder, generally known as a rondavel.

It is clear from the early literature that there are similarities between the house frame construction of the Cape Nguni Xhosa type, the Sotho types in Lesotho and the Ndebele grass dome (Van Warmelo 1930: 46-47). Evidence from a Thomas Baines drawing of 1848 (Hammond-Tooke 1993: 125), a description by Soga (1931: 409) who uses the term *ngqu-phansi*, as well as photographs in Van Warmelo and Shaw (1974) show a similarity in techniques used to construct the early Xhosa and Ndebele domes. The Sotho grass dome, which Walton (1956) and Casalis (1861) describe, is similar in frame to that of the Xhosa and Ndebele forms. The similarity in terminology is also worth noting. The Sotho term for the beehive type, *mohlongoqfatse*, and the Xhosa term, *ngquphansi* (Soga 1931: 408), both mean 'it points downwards'. The Ndebele word for the type, *umhlonywa phasi*, describes saplings which point downwards and are tied together. The tradition of the dome house in the Xhosa community continues to be popular and is used as a temporary initiation shelter (*itonto*). Although this structure is nowadays also covered with plastic sheeting, the frame matches the pre-colonial house frame. Initiation houses are burnt upon completion of the male initiation ritual (*ulwaluko*) (Van Vuuren & De Jongh 1999).

The construction of the grass dome or beehive dome in the mentioned three communities differs significantly from the Zulu form. The Ndebele-Xhosa-Sotho type features a frame in which the planted saplings are bent inwards at the apex. Parallel saplings are then applied in concentric circles starting from the bottom (the largest circle) to the apex (the smallest circle). Van Warmelo (1930: 46-51) describes the construction of a Manala-Ndebele dome house. In the dual text of IsiNdebele-English, he translates the tying (*ngiyaibalela* = 'I tie this') of the parallel saplings with 'wattling' (with reference to the Wattle tree, *Acacia mearnsii*). Significantly, the verb *balela* and its noun *ubalelo* clearly point to the use of parallel saplings which are tied at a ninety degree angle across the vertical poles (termed *indungu* here). Van Warmelo's informant also describes that the 'wattling finally reaches the door again' (Van Warmelo 1930: 47). According to this Ndebele person, by the 1930s, the Manala 'no longer build according to that old style of building' (Van Warmelo 1930: 49).

The construction of the Zulu and Swazi (Ziervogel 1957: 20⁴) dome can be described as a 'series of saplings planted in a circle, bent into arches at the diameter and diminishing in size as circle reaches its extremities'(Frescura 1981: 39, Nyembezi & Nxumalo 1975: 43). In this way, the plan image of the Zulu/Swazi frame is that of four interlaced hemispheres. The plan image of the Ndebele/Xhosa/Sotho dome resembles a circle being divided in a multiplicity of slices.

Another feature of the South African grass dome is the addition of a tunnel, snout-type entrance or a frontal verandah. The drawings of the Parisian missionary, Casalis (1861), and the traveller, Backhouse (1844), both cited by Frescura (1981:37), feature a grass house with a tunnel in front of the dome. Frescura (1981: 20) identifies both the 'beehive cone' with 'extended door' and a 'beehive with front verandah' (1981: 37) Both types are cone shaped rather than dome shaped. It seems that only the South Sotho (Basotho) *mohlongoqfatse* and the Ndebele grass house have included these additions. Both types of doorways have been in use in Lesotho for a long period of time. Walton (1965: 141) illustrates, in more detail, the type known as *mohlongoqfatse*, which the author encountered in rural Lesotho in the late 1980s and which is now considered to be dwindling. The South Sotho snout type was referred to by Backhouse in 1844 as a 'sparrow pot' (Frescura 1981: 34, 38). The Sotho version has a verandah-type entrance, while the Ndebele type features both. The Ndebele call both these variations *amaturi* or *amawoba*. The first term is presumably borrowed from the North Sotho term⁵ *matudi* which refers to the space in front of the inner wall of the cone-on-cylinder wall type of the Pedi. From inter-

views it appears that *amawoba* was the original Ndebele term. Chronologically the verandah-type entrance was a later development in grass dome architecture, which some Ndebele believe co-existed with the early cone-on-cylinder type.

Oral tradition and the Ndebele dome house

To gain access to the oral information on the Ndebele grass house, it had to be possible to assess and grade the knowledge base of experts in that community. From the outset in 1978, it became obvious that although many elderly people in the Ndebele had 'heard' about the existence of a dome house type, only a handful were potential sources of knowledge. The challenge was to evaluate and grade the knowledge bases of elderly members in the community, most of which were illiterate and had no record of their date of birth. It later emerged that the latter problem could be circumvented by applying a unique local dating mechanism.

This oral dating mechanism, which is ingrained in initiation age classes, has proved to be extremely valuable in a number of ways (Hennige 1974: 5). The practical application of this method was discussed in previous contributions (Van Vuuren 1993, 2006, 2007). In brief, the system operates as follows: The Ndzundza-Ndebele allocate fifteen regimental names (*iindanga*, singular: *indanga*) in a fixed cycle to males who are initiated every four years⁶. The cycle repeats itself after approximately sixty years. It is possible to backdate each regimental date of installation to at least the 19th century. Men remember their own *indanga* names as well as those of all the members in their male lineage. Ndebele women also associate themselves with the regimental names of their husbands for comparative purposes. If a man named Peter Sibiya, for example, was initiated in the Dzibha regiment in 1939, we can calculate his approximate date of birth to 1919 (1939 minus 18-20). This places him in an age-time category within which he would know and remember some information on Ndebele settlement history and structures (see Van Vuuren 1993: 52-54). This kind of extrapolation is presented only as a model and a methodology, as it certainly has its limitations.

For the sake of clarity and in order to summarise an earlier contribution (Van Vuuren 1993: 53-54), the value of oral data on the grass dome house may be assessed as follows. It emerged that men who were initiated in regiments in the period 1907 to 1923⁷ possessed remarkable knowledge about the grass dome house, which they referred to as *umthathana*. The author located less than seven such individuals despite considerable efforts to track down more people. They explained that they had known about the grass dome since childhood and a few of them were present during the construction. It also emerged that all of these men were born in areas close to the original capital of the Ndzundza-Ndebele at KoNomtjharhelo, Roosenekal, Mpumalanga (Van Vuuren 1993: 55). In the Ndebele community, elderly people who were born around Stoffberg, Blinkwater, Laersdrift and the Nebo plateau (Dlawulale) are referred to as being from KwaMahlungulu (the name constituted an old tribal ward) and they are seen to be knowledgeable about 'tradition' (*isikhethu*). The reason for this could be that these Ndebele managed to maintain a sense of indigenous knowledge despite the fact that they were severely affected by the post-1883 Mapoch War diaspora⁸, and by the fact that they were probably less influenced by urbanisation. The author was advised by elderly people in the former KwaNdebele homeland to scout this Mahlunqulu region for possible information on early Ndebele architecture.

Information was obtained on the approximate diameter, the spatial arrangement of structures in the homestead complex (*umuzi*), indigenous terms for various construction components and processes, building material and the preparation of these structures. What also emanated during these first interviews was that the grass dome house co-existed with the first cone-on-

cylinder (rondavel) type houses. It appeared impossible, however, to establish an approximate date when these grass dome-type structures fell into disuse. Most experts explained that 'many things in Ndebele culture changed rapidly after the war' (of 1883) (see Van Vuuren 1993: 54). The author was convinced, though, that despite the scant nature of the oral data, it was sufficient to put it to test and to construct a prototype.

Reconstruction of the grass dome

The Ndebele grass dome is known by at least four names which are descriptive of its general shape. Most of the elderly men interviewed knew it as the *umthathana* or *umdlodlhana*. Some referred to it as the *umgudwana*, while a minority of experts knew it as the *umhlonywa phasi*. Based on the oral data above, it was decided to build a prototype of a grass house on a portion of cleared land at the Botshabelo mission station near Middelburg, Mpumalanga. The prototype was to form part of the construction of the Ndebele open air museum. It was speculated that once this first example or prototype was successful, a number of these structures could be replicated. The first structure was erected in 1979 (Van Vuuren 1993: 54). During the construction process, men and women of younger ages were trained in the construction techniques.

Construction

The construction of the grass house involves three phases, namely, the building of the wooden frame, applying thatch and rope, and then the earthen work. Women are engaged only during the latter phase. To describe the construction process, the author includes Ndebele terminology and nomenclature, since these indigenous terms are specifically applicable to the construction of Ndebele houses. Dimensions are provided based on the construction of the prototype. These dimensions were later corroborated with the data on dome houses at the Ndebele village museum which followed the construction of the prototype.

The numerical data (e.g. house diameter, number and length of saplings), which was obtained from elderly experts during the field work, was put to test. The early information, which had been obtained from the elderly men, was obviously challenged, as many of their accounts about this obsolete dwelling type were vague. Notwithstanding these constraints, however, the author utilised some of this field data during the construction of the prototype.

The wooden frame

For the purpose of clarity and sequence, the ensuing description of the manufacturing process of the dome house frame is subdivided into seven arbitrary stages or phases

- 1 The house circle is marked by using with a string tied to a centre peg at the one end and the ankle of the builder at the other, at a length which will create a diameter of a minimum of 300 centimetres. Holes (35 centimetres deep), which are interspaced between 30 and 60 centimetres apart, are dug using a crowbar (*ingembu*). A gap of 80 centimetres is left for the door opening.
- 2 Between 17 and 19 wall poles are planted on the perimeter of the marked circle. Poplar wood saplings⁹ (*Populus canescens*) of between 400 and 600 centimetres in length and 3 centimetres in thickness are placed in the holes. The holes are filled with soil and stone and are then compacted (*ukudzidlhela*) using a sharpened wooden pole (*imphini*). These saplings

are known as *iinsikana*. There is no knowledge on which species of wood was used before the introduction of poplar during the colonial period. The innerpart of the dome is finally cleared of grass and shrubs (Van Vuuren 1983:86-88).

- 3 The following step entails binding the horizontal or parallel saplings, called *amabalelo* (*ibalalo*=sg). These poplar saplings are tied horizontally to the vertical wall poles with parallel interspaces the size of the width of an adult man's stretched hand (approximately 20cm). The tying process starts at between six and ten centimetres from ground level. These *amabalelo* are secured in a way to allow for overlaps on two vertical poles in order to strengthen the entire frame. The door frame is strengthened by tying the bases of the saplings onto the vertical poles. The fifth *ibalalo* forms the top of the doorframe.

Ndebele women plait ropes by using one of two plant species, namely, *Hypoxis galpinii* or *ikofe* and *Vellozia equisetoides*, popularly known as baboon tail or *isifunzi*. The latter is more generally available. Some elderly spokespeople claims that tree bark (*incoza*) from the *Acacia karroo* (*umunga*) was also used. The manufacturing of these ropes is not discussed here (See Van Vuuren 1983:80).

The sixth parallel row is called the *umrabheleko* and it can be compared to a (carrying) truss. It consists of a bundle of 3 to 4 thinner saplings which are tied together by a rope in spiral fashion. The entire *umrabheleko* is supple and can be easily bended. This truss strengthens the frame in order to prepare it for the inward bending of the vertical saplings. The Ndebele see the part of the frame beneath this truss as the wall, while the upper part is considered to be the roof.

- 4 The inward bending process (called *ukugobanisa*) is preceded by the planting of a vertical pole in the middle of the house circle. This will help to centre the bending process and provide for temporary support of the entire structure. The first two opposite saplings, that is, at the 12-hour and 18-hour positions, are bent towards the apex and fastened at the top to provide for a small overlap. The same is done with the third and fourth saplings in the 15-hour and 21-hour positions. The central pole is removed at this stage and all remaining saplings are bent towards the apex and tied into a tight crown. The frame now resembles a perfect dome of more or less 220 centimetres in height. In the process of snapping the vertical pole, a shorter substitute pole is simply tied to the broken pole and then bent over.
- 5 The next step entails the manufacturing of the *amakatha* rings (figure 1). These rings are manufactured in the same way as the *umrabheloko* truss, with rope being spiralled (*ukungada*) around a bundle of thin saplings. The rings are between 45 and 50 centimetres in diameter, and are about 4 centimetres thick. One ring is placed outside on top of the dome, while the other is placed directly beneath it. The two rings are then tied together on the frame poles and tightened to form a strong and almost impenetrable unit at the apex. Now the rooftop peg *iwotlo* (50cm to 60cm in length) is driven from below through the centre of the roof. This peg is also known as *ihloko lendlu* ('the head of the house') (Van Vuuren 1983: 89).
- 6 The remaining horizontal saplings (*amabalelo*) above the *umrhabeleko* truss are now secured on the hut frame. As many as six rows of *amabalelo* can fit between the truss and the *ikatha* ring.
- 7 The Ndebele dome featured two types of doorway, namely, the snout type (figure 2) and an extended doorway with verandah walls on either side (figure 3) of the doorway. The Ndebele oral record does not reveal distinctive terms for either type, other than to refer to the verandah walls as *amaturi* and *amawoba*.

The dimensions of the wooden frame of the snout-type doorway are as follows: Height: 110 centimetres at the highest point (at the truss) sloping to 86 centimetres at the front, 100 centimetres wide and 70 centimetres in length. There are three arches on either side of the snout. These arches are manufactured in exactly the same way as the carrying truss or

umrabheleko. The inner arch is larger than the frontal arch, since it has to fit in the space underneath the *umrabheleko* truss. A second arch is planted 25 centimetres from the previous arch, while the frontal arch is some 70 centimetres further to the front. An additional four arches are planted in between the previous two, which brings it to a total of six arches. Straight beams, called *amakapa* (ten in total), are tied to the six arches on top and on either side of the arch frame. The frame now resembles a tunnel rather than a snout (Van Vuuren 1983: 90).

The construction of the verandah-type doorway is more complex, since it involves earthen work which is similar to the verandah and house walls of the typical South African cone-on-cylinder house construction. During the construction of the first prototype in 1979, the artisans maintained that the width of the verandah rooms (*amaturi*) on either side of the entrance were each large enough to accommodate an adult in sitting position.

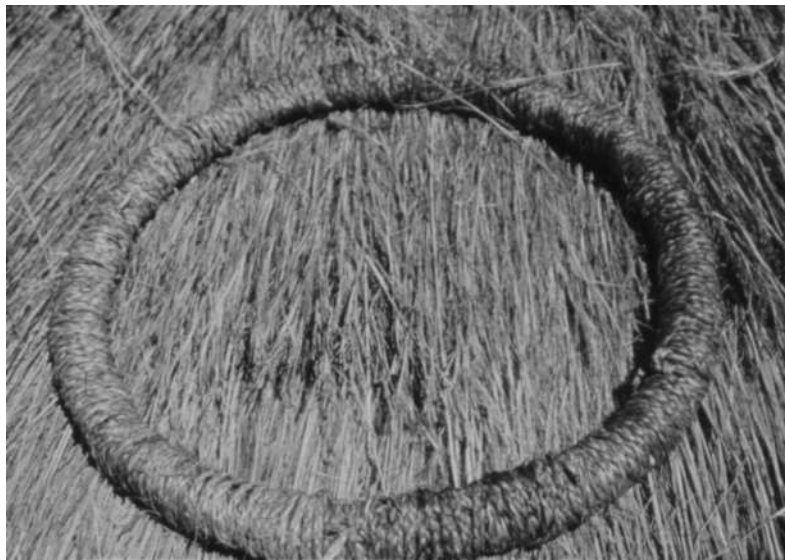


Figure 1
Ikatha ring (Photograph by the author).



Figure 2
Snout type doorway (Photograph by the author).



Figure 3
Verandah type doorway (photograph by the author).

The verandah consists of three to four vertical poles (*iinsikana*) approximately 100 centimetres in height. The five roof beams (*amakapa*) rest on the truss of the hut frame (*umrabheleko*) and on the verandah wall truss also called *umrabeleko*. However, the latter truss consists of a single beam. The height of the roof frame is 100 centimetres and the width between the main wall and the verandah wall approximately 100 centimetres. The roof has a slight downward slope. The verandah was either an open area, walled on the sides or walled on three sides. The earthen work on the walls comprised either wicker and earth (daub) or stone and earth (Van Vuuren 1983: 91).

The thatch and rope process

The selection of suitable sites and grass types, the cutting, raking and bundling of grass into sheaves, the harvesting of plant material for ropes and the plating of ropes have always been the work of women. Women are not normally involved in the thatching process (called *ukufulela*) (Van Vuuren 1983: 81-83).

Tamboukie grass (*igunga*) is used for the first layer of thatch on the dome house, in order to strengthen the structure (figure 4). Bundles of this tall grass (more than 200cm in height) are spaced (*ukuseka*) around the house frame at a depth of approximately 7 centimetres thick. The grass bundles are now tied onto the frame using thin thatch saplings (*imbalelo yokufulela*), rope (*indambo*) and a thatching needle (*ihlabo*). Upon tying, the top seeds of the grass protrude above the hut frame and these are temporarily tied at the top.

Next follows the fastening of layers of short thatch grass (*utjhani*). These layers are tied upside down with the seeds pointing downwards. The first layer (figure 5) is tied around the entrance door, tunnel or verandah (*amaturi/amawoba*). The seeds point upwards and are tied by means of a sapling and rope on the third and fourth *imbalelo* of the house frame.

The third phase consists of three consecutive layers of grass which are tied with the seeds pointing downwards. These layers cover the entire house frame. The first layer of grass is tied on the fourth *imbalelo* and sixth *iimbalelo*, respectively, the second layer on the eighth *imbalelo* and the third layer on any *imbalelo* above that. All layers overlap to ensure a thick and water-tight protection. The thatching process on the extended doorway is similar, except for the Tamboukie grass layer. In fact, the previously-mentioned grass layers on the mainframe are twisted

and turned in such a way that they accommodate the doorway tied and woven into the main framework (Van Vuuren 1983: 92).



Figure 4
First layer of thatch closest to house frame (Photograph by the author).

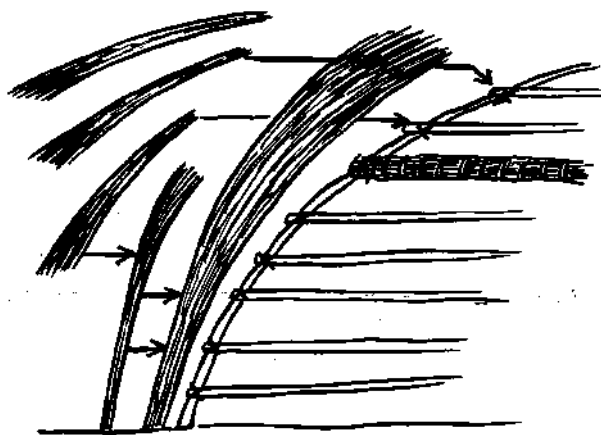


Figure 5
Consecutive layers of thatch.

The next phase in the thatching process consists of weaving a spread layer on the inside of the house. There is no Ndebele term for this process or for the grass blades which are inserted to prevent the seeds of the Tamboukie grass from sticking through the frame on the inside. The artisans argue that the spread layer fulfils an aesthetic function; it appears neat and soot from the fireplace is less likely to form clots on the seeds of the Tamboukie grass. This process is time-consuming as small bundles of grass blades are pushed between the wooden frame and the already tightly woven thatch.

The penultimate stage involves manufacturing the grass crown. Two types are used, a woven type called the *isiqongolo* (see figure 3) and a rudimentary type called *isihloti* (figure 6).

By 1979, a handful of artisans could manufacture the complex and rather impressive *isiqongolo* type. This process is not discussed here (see Van Vuuren 1983: 93-94). The *isihloti* type of crown consists of a bundle of grass which is tied with ropes near the base to resemble a large sheaf of grass. The sheaf is then pushed over the *iwotlo* peg, while the seeds are spread out evenly around the apex of the hut on the outside. Ndebele cone-on-cylinder houses of the early 1900s used the same type of crown.



Figure 6
Isihloti type crown (Photograph by the author).

The last stage consists of the grass ropes which are tied to the third and outer *ikatha* ring. The ring is 45 centimetres in diameter. As many as 50 plated ropes are tied around and onto this ring. The ring and ropes are placed over the crown, and are evenly spread around the dome house and then tied to the bottom *imbalelo*. The outer *ikatha* ring is tied with ropes on the interior *ikatha* ring. These vertical ropes are called *iindambo zogika*, while the horizontal ropes which are woven through them are referred to as *iindambo zonghadiwe* (the woven ropes), from *ukunghada* (to weave). The horizontal ropes are interspaced at between 10 and 12 centimetres. As many as 70 ropes may be used. When this weaving net is complete, the grass dome house has a neat, netted cover (Van Vuuren 1983: 94).

The earthen process

The earthen process is used on the following surfaces: house walls (*amawoba/amaturi*), the interior bench or platform (*umsamo*), the house floor (*iphasi*), the inner perimeter wall (*iboda* or *umgigidwana*) and the fireplace (*iziko*). The process itself involves four phases, namely, the plastering of the cow dung and mud mixture (*daga/daka*) called *ukupara*, followed by stroking of the dried surface with the same mixture (*ukurhaya*). The third step is called *ukutshidza*, which is a polishing process and which consists of cow dung and pulverised ant heap (*isithubi*). A special polishing stone, which fits the hand, , called *itshidzo*, is used for this purpose. The first three phases are collectively known as *ukusinda* (to plaster). The fourth and final phase is called *ukukguphula*, which is the spreading of moisturised or fresh cow dung patterns on the floor surface (Van Vuuren 1983: 95).

The floor surface is build up in several layers (each 5cm thick) and compacted with a wooden spade (*isibhulo* or *isibando*). The compacted floor is between 20 and 30 centimetres thick. The dried surface is then prepared according to the four stage process. The two types

of verandah walls were mentioned earlier. The use of a wicker process (also called wattle and daub) was more common than the stone wall process, according to elderly artisans. The building of the *umsamo* platform is a stone and mud process. The average dimensions for this platform are 33 centimetres (height) by 190 centimetres (length) by 32 centimetres (width). The inner perimeter wall (*umgigidwana*) is built for fire protection. It is approximately 15 centimetres thick and its height reaches the second row of parallel saplings (*amabalelo*) at approximately 40 centimetres. The fire place *iziko* is a raised platform (3cm to 5cm) in height, 30cm to 40 cm in diameter) in the centre of the house (Van Vuuren 1983: 96).

In later dome houses at the Botshabelo project, wattle wood (compare Knuffel 1973) was used; these houses also included a number of different types of doorways. The dome house model was later successfully replicated at other sites (see later); these homes were built by some of the young artisans who were trained during the construction process of the first structure.

Archaeological evidence

A number of Ndebele archaeological sites were explored since 1978. The locations of many of these sites are known in the oral tradition (Van Vuuren 2007). Most of these sites, with the exception of the KwaMaza site, near Stoffberg, in Mpumalanga Province, are unexcavated and are thus not dated. The layout of most of the early Ndebele archaeological sites consists of stone circles which vary in size and interconnection. Some of the more prominent circles are believed to be cattle enclosures around which smaller circles appear.

During site visits, Ndebele experts have often pointed to the smaller circles as being the basis of the earliest grass domes houses. Many of these circles, such as those at the settlement site at KwaMnyamana, north of Pretoria, are as small as 200 centimetres in diameter and consist of two rows of stone often no higher than 30 centimetres. Elderly men demonstrated to the author how the saplings were placed on the inside of the stone circle and bent inwards at the apex (figure 7). The saplings were not planted at the bottom. The wall served as a retainer to the saplings. Parallel saplings were then tied to the vertical ones and the structure was thatched in the same way as was discussed above. The seeds of the grass thatch extended over the retainer wall. The wall was plastered on both sides. The men agreed that this house had a conical rather than a dome shape (Van Vuuren 1983: 85-86).

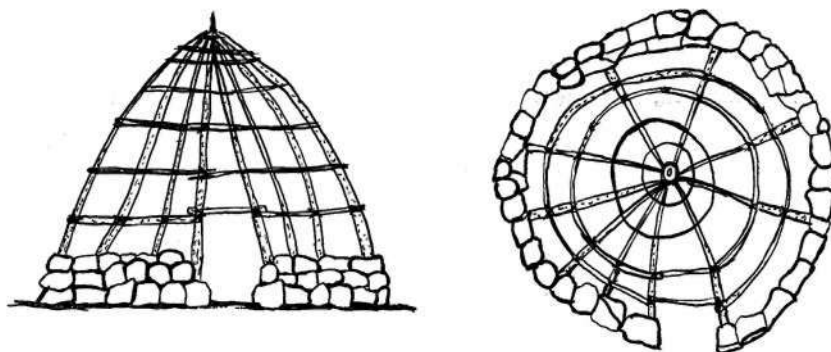


Figure 7
Suggested image of the first grass house type, front and plan.

Schoeman (1997) excavated three Ndebele sites during the late 1990s. The three sites, KwaMaza, Esikhunjini and Umklaarkom¹⁰, which were situated in the Steelpoort River drainage basin, were, according to oral tradition, consecutively. Her findings are important as far as the possible house form and its size are concerned. On the two KwaMaza sites, she found

circular house floors which suggest that the structures were of the grass dome type, as well as the presence of a central fire place and a 'relatively small size of floor' (1997: 93). A so-called dhaka ridge against the back rear of the wall suggests the existence of the *umsamo* bench (1997: 104). The house floor at the Esikhunjini site was 2,95 metres in diameter and it displayed the same design as the previous house. What is particularly significant is evidence obtained from the impressions made in lumps of house clay (dhaka), namely, a pole impression in the middle, a grass imprint on the one side and a (hand) plastered imprint on the other side of the lump (1997: 126). Schoeman found that the plastered wall was not high judging from the scarcity of dhaka on the house floor (1997: 135). As far as the third site at Spitskop (*Umklaarmaak*) is concerned, her data suggested the persistence of the grass dome (beehive) (1997: 164), even during historical times.

Schoeman's archaeological data became available almost two decades after the ethnographic experiment whereby the first Ndebele grass dome houses were constructed at Botshabelo from oral data. Schoeman provided the first excavated evidence to confirm data on the tangible specifications for the grass house. This included house diameter, walling, pole construction and grass coverage. What is also significant is the chronological sequence in house form which emerged from the three excavated sites. The persistence of the grass dome type into the late 1800s corroborates the oral evidence which the author has collected since 1978. What remains to be presented is data from earlier sites, such as KwaSimkhulu and even KwaMnymana.

The grass dome as cultural heritage

In terms of the national and international frameworks on cultural heritage, the grass dome project requires heritage and conservation perspective. Locally, the concept of heritage is guided by the definition, application and usage of the concept of heritage in a number of South African governmental and legal guidelines and directives. The author emphasises the issue of intangible heritage, since it guided a large component of the research in the discussed project. The White Paper on Arts and Culture (1996) includes 'historic buildings' and 'oral traditions' (chapter 1, p 15) as components in the inventory of heritage. In the National Heritage Resources Act (No 25 of 1999), there is specific reference to 'living heritage' which includes 'skills and techniques' and 'Indigenous Knowledge Systems (IKS)' (Schedule xxi). One must take cognisance of the fact that the White Paper, in particular, is not a legislative framework and it remains by and large idealistic. The latter legislation has a bearing on the recognition, preservation and conservation of those intangible components which are ingrained in a heritage product such as a structure, an artefact and a place.

On the international level, UNESCO adopted the 'Convention for the safeguarding of the intangible cultural heritage' in 2003 in which the 'domains' of intangible heritage are circumscribed. These domains include 'traditional craftsmanship', 'oral traditions and expressions' and the 'safeguarding' (2003: 3) thereof, which encompasses the 'revitalization of the various aspects of such heritage' (p 3). The (cultural) heritage of indigenous manifestations of the built environment is, therefore, also guided within the ambit of the above stipulations.

A further dual distinction between movable and immovable heritage is often drawn (Naude 2003: 2). This type of analysis, however, should not be utilised to dismantle the integrated components of the heritage product beyond its sociocultural context. As was argued thus far, the grass dome house has a heritage significance and value in terms of its oral or intangible database, in addition to its inventory of building materials, technical requirements, place and archaeological artefacts and visual attributes which composes the entire heritage product.

Conclusion

The principal of sequence in the scientific process in the case of building the Ndebele grass dome house was certainly not in the ideal order; rather, it was sacrificed. The archaeological investigation normally and ideally should have preceded the reconstruction phase ancillary to oral data. The latter category of information was, nevertheless, crucial. The notion of the value of ethnographic analogy often foregrounds itself in a situation such as this one. How relevant is oral data from elderly people when an aspect of the tangible heritage outdates their generations? Was the indigenous technology which these craftsmen reproduced from the late 1800s — based on oral tradition and aspects thereof which they still applied during their lifetime (1920s) — still relevant in 1979 at the time when the grass dome house was reconstructed? Evidently, a remarkable range of techniques have survived for more than a century, including tying ropes and knots, bending poles and measuring structures and frames. Despite the adjustment to a different house form, namely, the cone-on-cylinder and cornered shapes, a number of building techniques have survived and have not fallen into disuse.

One lesson to be learned is that the IKS inventory and its skills transfer process remains markedly resilient and adaptable. What transpired after the construction of the first prototype was indeed an ethnographic salvage endeavour and younger people are now trained to replicate these houses. The re-skilling of younger people has been successful elsewhere in recent times. In a multi-village project¹¹ in Kathorus, Ekuruleni urban young people were introduced in the construction technologies of Zulu and Swazi dome houses, Sotho and Tswana roof and thatching work, Venda wall frame and roof construction, and so on. On the archaeological site of Hoekfontein¹² within the Tshwane metropolitan area, members from the neighbouring Tswana-speaking community successfully reconstructed stone walls and house frames on the site.

This type of reconstruction process, as illustrated here with the Ndebele grass dome house, provides an opportunity for students to document and survey indigenous techniques which have largely become redundant.

Notes

- 1 The author applies the term 'grass' dome as an alternative for 'beehive' dome for the following reasons: Firstly, in view of the conspicuous usage of grass. Secondly, many readers might be unfamiliar with the term 'beehive' to describe the general shape of the dome. The term 'house' is used in the text as a substitute for 'hut'. The latter term carries a colonial etiquette. (see Sources Cited). The former City Council of Middelburg (Mpumalanga Province) also funded the construction of an Ndebele open air museum, at the former Berlin Missionary Station at Botshabelo, fifteen kilometres north of Middelburg. The building process which is described formed part of the building process of this museum.
- 2 See Du Toit (1968), Hardie (1985), Herbst (1985), Kaltenbrun (1979), McDonald (1940), Monnig (1968), Myburgh (1949), Nyembezi (1994), Van der Waal (1977), Van der Wateren (n.d.), Van Schalkwyk (1985), Van Vuuren (1984), Van Warmelo and Shaw (1974), Vogel (1985), Ziervogel (1957), and others. Full bibliographic details are contained in Sources Cited.
- 3 Fieldwork into the Ndebele settlement patterns and architecture formed the basis for an MA dissertation which was submitted in 1984
- 4 Ziervogel's third drawing from the top (no 22) does not correspond with the first drawing. The second drawing features an image of the Ndebele-Xhosa-Sotho frame design and not that of the Zulu-Swazi model. His first drawing (no 20) features the correct design (Ziervogel 1957: 20).

The North Sotho equivalent term for the Ndebele *amaturi* cannot, nevertheless, be traced in any Northern Sotho dictionary. The IsiNdebele language has adopted a multiplicity of words from Sepedi.

Number and name	1 st cycle	2nd cycle	3rd cycle	4th cycle	5th cycle	6th cycle	7th Cycle	8th cycle	9th cycle
1 Duba		1556	1616	1676	1736	1796	1856	1915/7	1975
2 Dlowu	1540	1560	1620	1680	1740	1800	1860	1919	1979
3 Dlhari	1544	1564	1624	1684	1744	1804	1864	1923	1982
4 Nyathi	1548	1568	1628	1688	1748	1808	1868	1927	1985
5 Rudla	1552	1572	1632	1692	1752	1812	1872	1931	1989
6 Gawu		1576	1636	1696	1756	1816	1876	1935	1993
7 Dzibha		1580	1640	1700	1760	1820	1880	1939	1997
8 Thula		1584	1644	1704	1764	1824	1886	1943	2001
9 Dlaza		1588	1648	1708	1768	1828	1888	1947	2005&6
10 Rhasa		1592	1652	1712	1772	1832	1892	1951	(2009)
11 Duku		1596	1656	1716	1776	1836	1896	1955	
12 Sinya		1600	1660	1720	1780	1840	1899	1959	
13 Phoko		1604	1664	1724	1784	1844	1903	1962&3	
14 Phaswana/ Rhorha		1608 1612	1668 1672	1728 1732	1788 1792	1848 1852	1907 1911	1966 1970	
15 Nghana									

Note: The underlined dates explain the double installation of the same regimental name as a result of the death of a king during the same year of the regular installation. The second installation carries a much smaller number of initiates and carries the notion of ritual and symbolic cleansing.

- 7** Regiments in this period were the Phaswana (1907), Nghana (1911), Duba (1915), Dlowu (1919) and Dlhari (1923). The implication of these dates of installation is that the eldest of these men were born as early as 1887, four years after the Mapoch War of 1883.
- 8** There were major conflicts between the Ndzundza-Ndebele polity and Boer forces from the Zuid Afrikaanse Republiek (ZAR) in 1849, 1863 and 1883. The last one became known as the Mapoch War (after king Mabhoko), which resulted in the arrest of most of their royal leaders, annexation of their territory and a system of forced labour indenture which lasted at least until 1888. Indenturees were scattered as far west as Rustenburg, as well as to the Ermelo, Carolina and Cullinan districts. The Ndzundza never regained their original territory. There is currently a sizable land claim which was gazetted

for the original land (Mapochsgronden 500JS) and adjacent land.

- 9** Spokesmen explained that poplar wood were preferred to the wattle species in view of its resistance against termites.
- 10** The Ndzundza-Ndebele use the name *uM-klarkom* (Afrikaans: 'Waar die oorlog klaar gekom [geraak, voltooi is] het'), or 'Where the war came to and'. The site was fortified before the Mapoch War of 1883 and its defenders showed strong resistance against the Boer forces on several occasions. Schoeman received the name 'Klaarkom' from her spokespeople. The hill is also known as Spitskop (Van Vuuren 1985: 42-43).
- 11** The project called Ke-Ditselana village was a joint venture between the DEAT (Department of Environmental Affairs and Tourism), the Ke-Ditselana Trust and ACACHS (African Centre for Arts, Culture and Heritage Studies at Unisa).
- 12** The project is coordinated by Dr US Kusel, a museum scientist, heritage expert and archaeologist who conducted the HIA (Heritage Impact Assessment) for the site.

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