

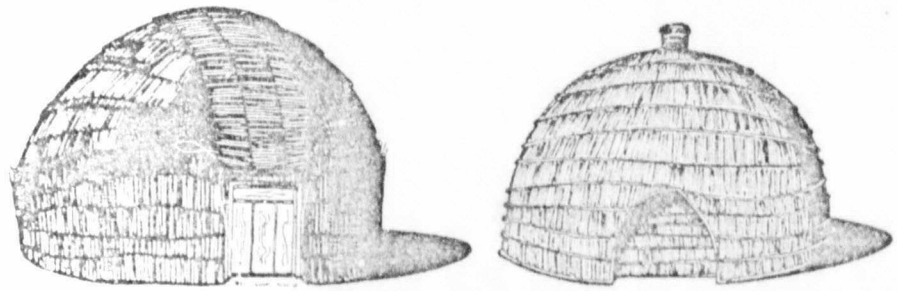
https://dspace.org/

The development of rural vernacular architecture in Southern Africa

Frescura, Franco

2015-01-26
http://hdl.handle.net/10539/16763

Downloaded from a DSpace repository. https://dspace.org/



The Beehive dome: Units 1 and 2.

ASSOCIATION - BEEHIVE DOME.
LOCATION 1. KWA ZULU
2. SWAZILAND.
TWO SAPLING DOMES SET AT 90° TO EACH OTHER, THE INTERSECTIONS BETWEEN MEMBERS BEING BOUND WITH BARK OR GRASS ROPES. TWIN POSTS CARRY A TRELLIS WHICH PROVIDES CENTRAL SUPPORT TO THE FRAME. IN UNIT 1. THE FRAME WAS COVERED WITH GRASS MATS, OVERLAID WITH THE THATCH CLADDING SEWN ON WITH GRASS ROPES & FINALLY RE-COVERED WITH GRASS MATS. IN UNIT 2 THE THATCH CLADDING WAS APPLIED DIRECTLY ONTO THE FRAME WITH GRASS ROPES, WHICH ROSE RADIALLY TO THE APEX WHERE THEY WERE FORMED INTO A DECORATIVE KNOT. IN BOTH CASES THE UNITS WERE THE ONLY BEEHIVE FORMS WITHIN THE SETTLEMENT.
NO WINDOWS; UNIT 1 FUNCTIONED AS A COOKING HUT; DOOR OPENINGS APPROX 1200 HIGH; DOORS SELF-MADE IN TIMBER & HINGED TO POST, OPENING INWARDS; CONDITION OF UNITS AVERAGE TO SURROUNDS BUT UNIT 1 IN POOR MAINTAINANCE. TRADITIONAL HUSBAND/WIFE DIVISION OBSERVED IN UNIT 1 INTERIOR.

Figure 39 c.

Walton "African Village" 1956.

Figure 40 b.

Duggan-Cronin "The Bantu Tribes of South Africa — the Xhosa and Thembu" 1939.

Figure 40 c.

This study has not as yet been able to record at first hand the construction and structure of the Xhosa beehive. Walton, in his book, does give both an historial account by Seba and the record of an interview conducted by him in 1951 with an old Xhosa man, both of which are seemingly in agreement with each other. These indicate that the Xhosa beehive differed from the Zulu and Swazi in the basic framework which, if anything resembled that of the Hottentots, previously described. Pictorial evidence from the Duggan-Cronin Gallery seems to show that little if any difference existed between the thatching methods of the three groups.

The Nguni beehive is today seldom if ever found in its original and traditional form as shown by early pictorial evidence and written records. Even in cases where the old formula has been followed to the full, one basic innovation is invariably introduced, being the treatment of the doorway. Originally a reed mat was secured by means of a "bar", which spanned across the doorway. Today however this method has largely fallen by the wayside and only two such examples have been recorded currently. Instead the structural stability of the framework has been sacrificed to the modern need for a more comfortable entrance. This has partly been resolved by creating a timber lintel over the entrance, supported by timber posts on either side from which the door is hung with hinges, the sapling arches being doweiled into the lintel. This can and often does create a problem for huts positioned on a more than slight incline, causing the structure to ultimately deform and slide forward.

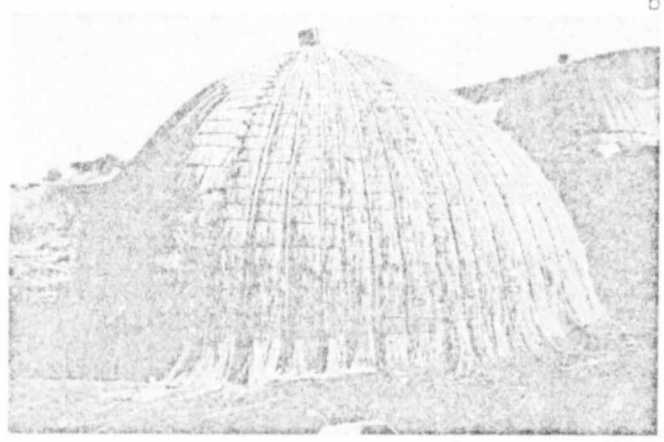
The fact that of all the beehive forms this is the only one to survive to any large extent into the present day is testimonial to both the efficiency of the house form itself and the ability of the Zulu housebuilder. Seven different types of grasses are necessary to build the traditional beehive, each one being put to a function best suited to its ability to perform a specific task in the structure. Such a high degree of specialization could only be possible in a society which has the ability to understand the nature of the materials available to them and accept their limitations. The Zulu have proved to be such a society and the degree of adaptability of their rural house form is evident from its richness and variety.

a. Beehive dome: Ndalini, KwaZulu.
b. Beehive dome: Tugela Ferry, KwaZulu.
c. Detail of apex: Ndalini, KwaZulu.
d. Beehive dome under construction: district of Bergville.

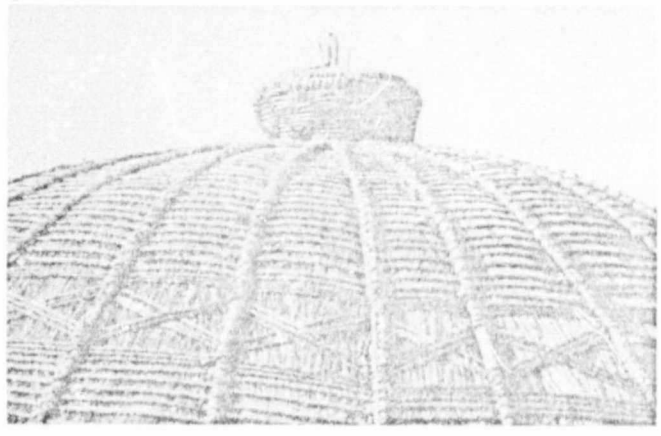
a



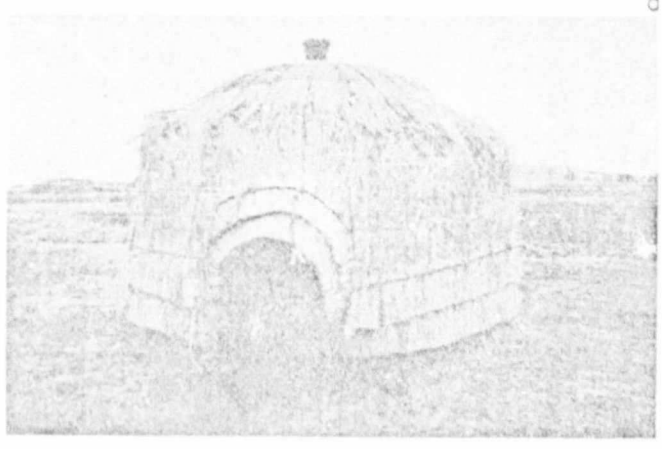
b

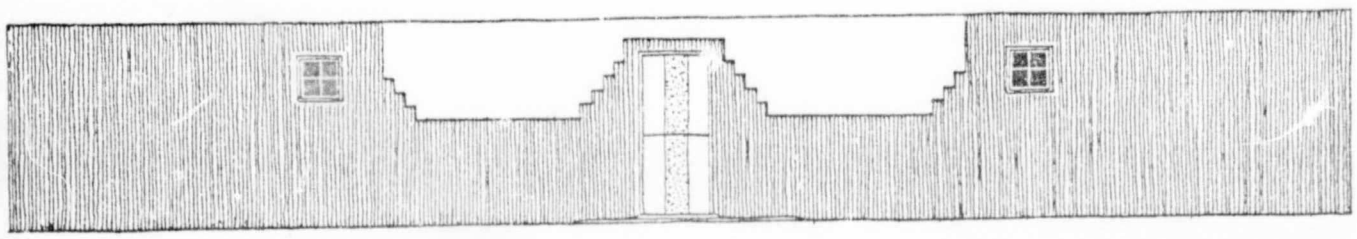


c



d





CHAPTER 8 : THE BEEHIVE DOME ON CYLINDER

The Dome on Cylinder house form is linked directly to that of the beehive dome through a common structure which, in the latter's case, is placed directly onto the ground, whilst in the former, the framework is elevated onto a circular drum which may vary in height from 600 mm to 1,500 m. Although this house form is limited almost exclusively to the Zulu, similar developments have been recorded among some Swazi groups in the district of Pongola which neighbours northern KwaZulu. Also, houses which approached the aesthetic of the beehive but did not share in its basic structure were recorded in the Ciskei and in the Northern Cape.

The development of the dome on cylinder probably resulted as a response to the following social and environmental pressures:

a. Greater densities of settlements increased fire hazard and the raising of the thatch off the ground would to a certain extent minimise fire spread.

b. A higher daga kerb improved surface rain-water run-off exclusion and increased structural stability.

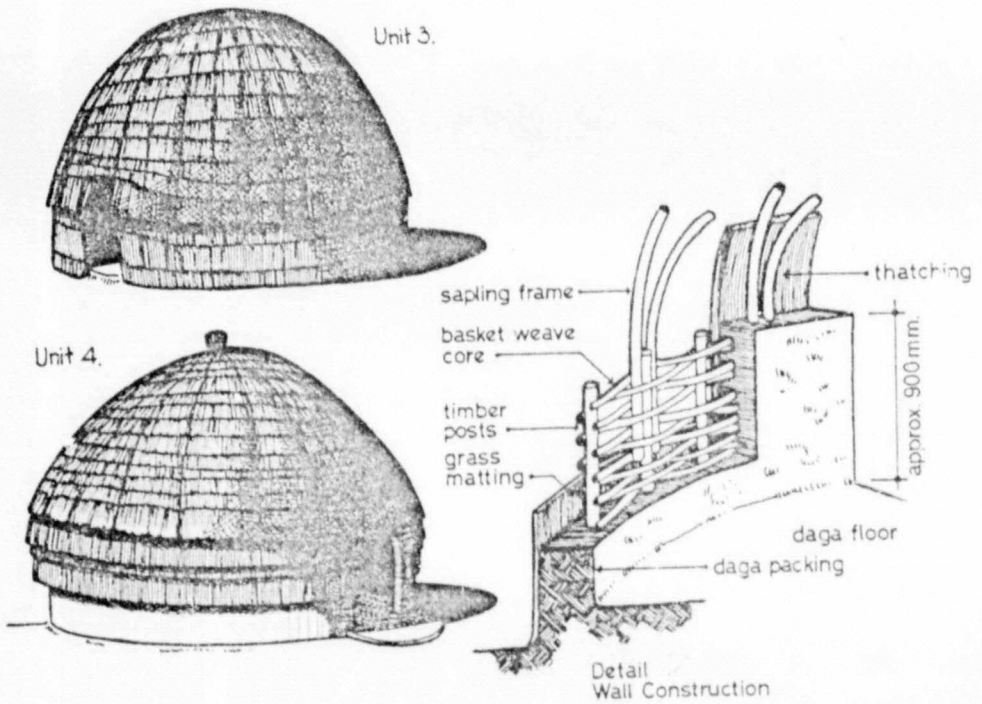
c. With subsequent re-thatchings, a system of eaves developed which kept rain-water off the cylinder walls.

d. Increasing population densities have led to a shortage of grasses suitable for construction.

e. Greater sophistication of lifestyles may have led to a demand for dwellings offering greater comfort of entry, higher internal head room and increased light and ventilation.

The structural limitations of the Zulu beehive form could not afford either a bigger doorway nor windows set into the hut sides. However, by raising the structure, all of these things could, to a greater or lesser extent, be achieved.

This meant that the low kerb used in more traditional construction but



Beehive dome on minor cylinder: Units 3 and 4.

UNITS 3. & 4.

- CLASSIFICATION : BEEHIVE DOME ON MINOR CYLINDER.
- LOCATION : BOTH UNITS KWAZULU, DISTRICT OF PONGOLA, SAME HOUSEHOLD GROUPING.
- CONSTRUCTION : TIMBER POSTS SOME 900 mm HIGH ARE SET INTO THE GROUND ALONG THE HUTS' PERIMETER. SAPLINGS ARE WOVEN IN BETWEEN TO FORM A 'BASKET' CORE INTO WHICH THE BEEHIVE DOME'S FRAME & COUNTER FRAME ARE SET. EARTH PACKING & A DAGA PLASTER ARE APPLIED INTERNALLY & EXTERNALLY TO FORM THE WALL DRUM. GRASS THATCH IS APPLIED TO THE DOME & SEWN DOWN WITH GRASS ROPES. IN UNIT '3' GRASS MATTING WAS TUCKED BENEATH THE EAVES, RUNNING THE EXTERNAL PERIMETER OF THE WALL DRUM THUS INCREASING ITS WATERPROOFING PERFORMANCE. IN UNIT '4' SUBSEQUENT RETHATCHINGS HAD FORMED A NARROW EAVES WHICH AFFORDED THE WALL DRUM A MEASURE OF SHELTER THUS ALLOWING THE MATTING FOUND IN UNIT '3' TO BE DISPENSED WITH.
- SOCIAL GROUPING : LARGE SETTLEMENT OF DWELLINGS OF MIXED COMPOSITION WITH HOWEVER THE BEEHIVE DOME BEING DOMINANT. SOCIAL SPACES ARE LOOSELY LINKED & THE ORIENTATION OF HUTS IS DOWN-HILL & TO THE SOUTH.
- GENERAL : NO WINDOWS. DOORWAY OPENINGS TRADITIONAL BUT DOORS ARE HINGED OFF A POST JUST WITHIN THE ENTRY.

which was never a really effective structural element, was developed to provide a raised base from which the main structure could take off. The concept of a raised kerb had been used in the beehive dome to strengthen the base and improve the hut's water exclusion. This it did, but it also stiffened the structure to an extent where it hampered normal movement and structural shifts leading in its turn to cracking of the base thus allowing water penetration. Also the kerb once raised internally could only go up to a limited height before it was forced to follow the inward curve of the structural dome, a development which is inefficient in an earth-wall technology.

The concept of a raised kerb was therefore replaced by one of a raised drum, a cylinder which could serve the same functions as the ground by taking up the lateral thrust of a herispherical structure whilst at the same time raising it. All similarity with a kerb however ceases there. Quite clearly the mass required of a monolithic packed earth kerb would make its construction highly inefficient. Thus the drum became an extension of the main structure being given an internal timber framework to which the dome frame was secured whilst the earth packing served as an infill panel and structural stiffener.

House forms in this group fall into two major types:

The beehive dome on minor cylinder

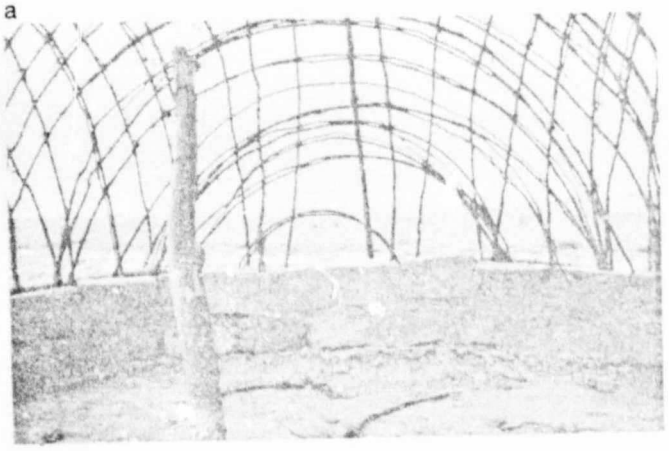
The drum is formed of a series of timber posts set into the ground in a circle of the desired radius. Saplings are then usually fixed to the internal and external perimeter of the posts parallel to the ground or, as in the examples recorded in the district of Pongola, woven as in a basket to give an almost solid timber screen. The sapling dome structure is fixed to the timber drum and thatched in the normal manner as described in a previous chapter. The drum is then packed with earth and plastered over with daga, a mixture of mud and cow dung. Externally the drum may be expressed or it may be covered over with woven grass or reed matting to safeguard it from water erosion. In one example in the district of Pongola, the dwelling had undergone a number of seasonal rethatchings which had created a system of eaves wide enough to keep the rainwater off the cylinder. In this type the drum will usually not exceed 900 mm although some as low as half this height have been recorded.

Figure 46.

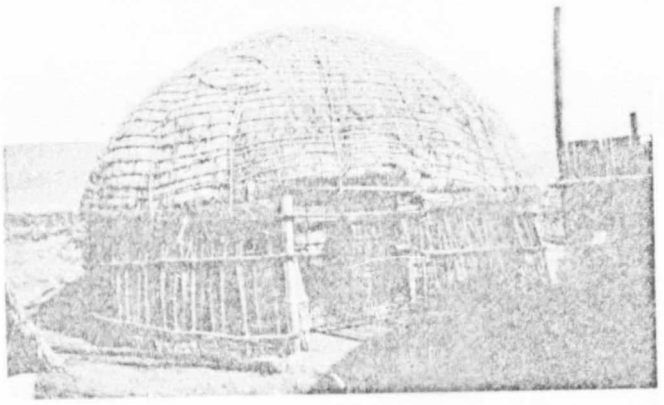
The beehive dome on major cylinder

The major difference between this type and the previous one lies in the height of the drum. Oddly enough it is not really possible to bring them both together under one generic title for two main reasons:

a



b



c



d

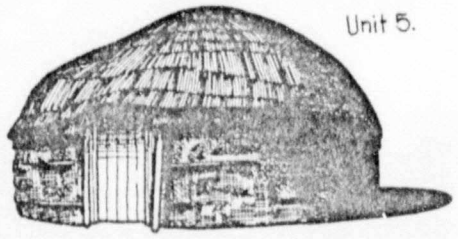


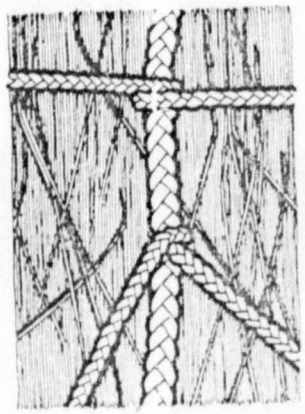
1. There is no real even graduation in drum heights. Usually the drum is either about 900 mm or about 1,500 mm high with very few if any examples falling in between those two.
2. The Dome on Major Cylinder begins to have structural problems which are not present in its smaller form and which, remaining unresolved, ultimately serve to catapult it into the next structural development and hence house form.

Generally however there is little to separate the "major" from the "minor" cylinder in terms of structure and construction.

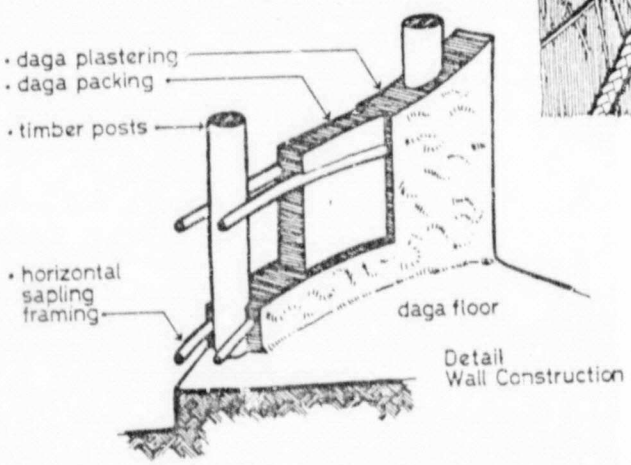
Many of the dwellings of this type recorded tended to fail in two major areas of their construction:

a. Beehive framework being built on a low drum: district of Vryheid.
b. Thatched framework on timber drum: Ndalini, KwaZulu.
c. Dwelling of headman: Mpembe, KwaZulu.
d. Dwelling: district of Bergville.





Detail
Grass Weave Rope
and Thatching



Detail
Wall Construction

Beehive d
cylinder: L

UNIT 5.

- CLASSIFICATION : BEEHIVE DOME ON MAJOR CYLINDER.
- LOCATION : KWAZULU. DISTRICT OF MELMOTH.
- CONSTRUCTION : TIMBER COLUMNS ARE SET INTO THE GROUND TO STAND 1,500 m HIGH. SAPLINGS ARE FIXED ALONG THE INTERNAL & EXTERNAL PERIMETER OF THE WALL SPANNING FROM COLUMN TO COLUMN & PARALLEL TO THE GROUND. THE CAVITY THUS FORMED IS PACKED WITH EARTH & THE WALL IS PLASTERED INTERNALLY & EXTERNALLY WITH DAGA. THE BEEHIVE DOME FRAMEWORK IS SET WITHIN THE PACKED EARTH CAVITY & TIED TO THE MAIN COLUMNS. THE DOME FRAME IS THATCHED WITH GRASS & TIED DOWN WITH WOVEN GRASS ROPES. IN THE CASE OF UNIT 5 POOR MAINTAINANCE & WEATHERING HAD ALLOWED THE DOME'S SAPLING FRAME TO BREAK THROUGH THUS CAUSING CRACKING OF THE WALLDRUM.
- SOCIAL GROUPING : ZULU HOMESTEAD WITH CATTLE ENCLOSURE AT ITS FOCUS. ORIENTATION OF DWELLINGS IS DOWN-HILL.
- GENERAL : SETTLEMENT DWELLINGS OF MIXED CLASSIFICATION. NO WINDOWS OR SMOKE FLUE. CONDITION OF UNIT RELATIVE TO SETTLEMENT - AVERAGE ; RELATIVE TO AREA - POOR. HUT FUNCTIONED AS KITCHEN, & WAS EXTENSIVELY SOOTED INTERNALLY.

a. The dome framework is not suited to the forming of wide eaves and this becomes expecially pronounced in the major cylinder where they are unable to afford any great measure of protection to the increased wall surface area. Thus in most recorded cases serious erosion of the wall had occurred necessitating constant maintenance work.

b. While the drum is in itself a fairly stable structure, once raised to the height of a major cylinder and topped by a beehive dome, the point of junction between the two is not resilient enough to take the structural movement which does occur and thus fairly widespread cracking of the dagga walling was recorded at this point.

Generally this was not found to be an efficient house form and a number of residents questioned on this expressed both a dissatisfaction with it and a desire to build a cone on cylinder form as their next house. Thus whilst not wishing to directly suggest that any structural link does in fact exist between this form and the cone on cylinder, it would appear that in a hierarchy of human desires and need for living space, the two are in fact closely connected. In terms of structure however, the dome on major cylinder does represent a partial advance in that although the roof is still tied to the now inefficient form of a beehive dome, the wall has made an appearance in a visual, if not entirely in a structural sense.

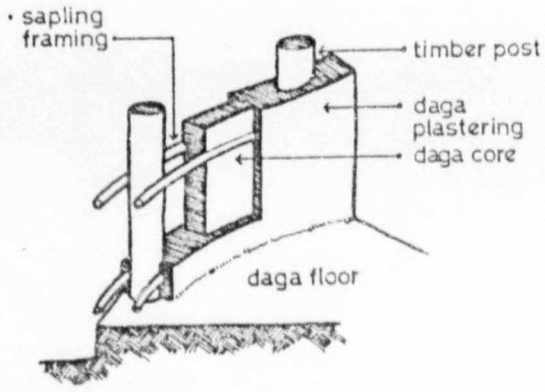
Figure 48 d.

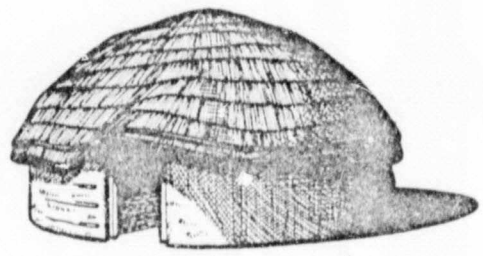
A major development that does take place in this house form relates to door and window openings. The doorway which was greatly improved by the added height given by the minor cylinder has now become almost comfortable requiring the caller to only stoop rather than crawl in on hands and knees, in order to enter, as was the case previously. Windows up to this point were virtually unknown but, although still rare, are now made possible, only a few isolated examples being recorded in the Bergville district of KwaZulu.

In one example recorded in KwaZulu, district of Melmoth, a cylinder some 1,400 m high was constructed by placing timber posts in a circle 6,000 m in diameter with saplings being fixed horizontally from post to post, internally and externally. The cavity thus formed was filled with earth packing and both internal and external wall surfaces were plastered with daga. Saplings were fixed within the wall and then bent over in the form of the traditional beehive dome. The roof was thatched and sewn down with grass ropes in the usual traditional manner.

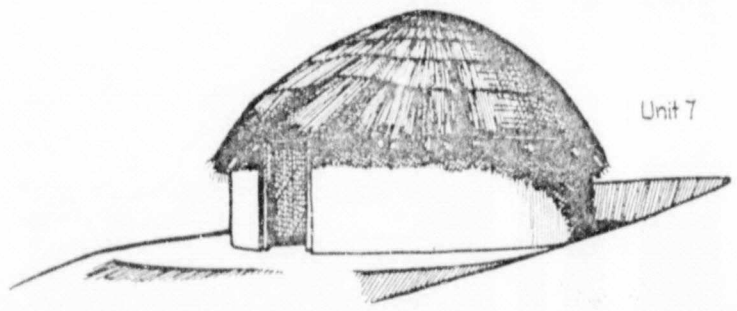
Unfortunately, while the cylinder was rigid and well-braced due to the monolithic earth packing, the roof structure was not and considerable cracking had occurred where it was fixed inside the wall. Despite the

Figure 49.





Unit 6



Unit 7

Beehive dome on major cylinder: Units 6 and 7.

UNITS 6 & 7

- CLASSIFICATION : BEEHIVE DOME ON MAJOR CYLINDER.
- LOCATION : KWAZULU, DISTRICT OF MELMOTH.
- CONSTRUCTION : TIMBER COLUMNS ARE SET INTO THE GROUND TO STAND 1500 m HIGH. SAPLINGS ARE FIXED ALONG THE INTERNAL & EXTERNAL PERIMETER OF THE WALL SPANNING FROM COLUMN TO COLUMN & PARALLEL TO THE GROUND. THE CAVITY THUS FORMED IS PACKED WITH EARTH & THE WALL IS PLASTERED INTERNALLY & EXTERNALLY WITH DAGA. THE BEEHIVE DOME FRAMEWORK IS SET WITHIN THE PACKED EARTH CAVITY & TIED TO THE MAIN COLUMNS IN UNIT 6 WHEREAS IN UNIT 7 THE SAPLING DOME RESTS UPON THE TOP RING BEAM & OVERHANGS TO FORM AN EAVES. THE DOME FRAME IS THATCHED WITH GRASS TIED DOWN WITH WOVEN GRASS ROPES. IN UNIT 6 THE THATCH IS ALLOWED TO OVERHANG & FORM A SHALLOW EAVES.
- SOCIAL GROUPING : ZULU HOMESTEAD WITH CATTLE ENCLOSURE AT ITS FOCUS. ORIENTATION OF DWELLINGS IS DOWN HILL.
- GENERAL : SETTLEMENT DWELLINGS OF MIXED CLASSIFICATION. CONDITION RELATIVE TO HOUSEHOLD - GOOD; RELATIVE TO AREA - GOOD. UNIT 7 SHOWED GOOD ENGINEERING OF SURFACE WATER RUN-OFF CHANNELING. BOTH UNITS FUNCTIONED AS LIVING/SLEEPING AREAS.

internal timber supports — the "izinsika" of the beehive dome — the roof also sagged badly. Also, the walls showed considerable erosion from rain-water and surface water run-off.

Two other structures recorded in the same homestead were similar in that the same method of wall construction, of roof structure and thatching were used. However, unlike the previous example the roof structure had not been fixed within the daga wall but had been allowed to rest upon the timber posts of the wall framing. In the one, the roof frame stopped at the posts and only the thatch cover was allowed to overhang and provide a type of eaves. Rain-water erosion of the walls had nevertheless occurred. In the other, the roof frame had been allowed to overhang the wall structure and provide the thatch a measure of support.

Figure 51. Unit 7.

Figure 51. Unit 6.

Two other 'house forms' should be mentioned in this chapter although they are discussed more fully elsewhere.

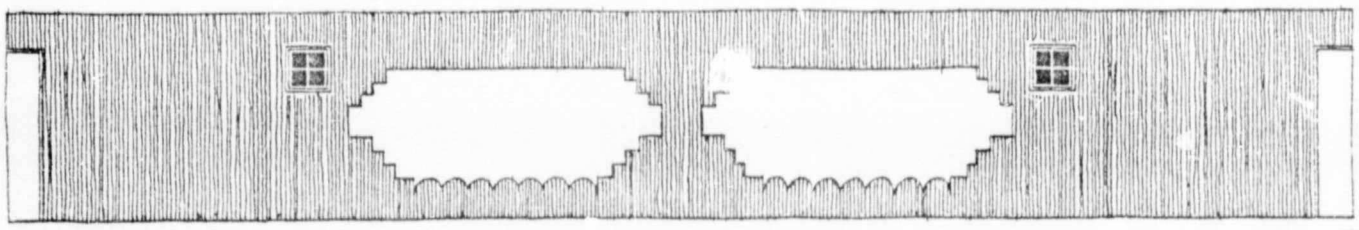
The beehive dome on "pseudo" cylinder

Essentially this is a beehive dome which, through the exaggerated raising of its earth kerb has, to all casual and outward appearances taken on the aspect of a dome on cylinder. The structure and construction however firmly place this type into the group of the beehive dome previously described.

The "false" dome on cylinder

This has been recorded in various differing forms in the Ciskei and the Northern Cape. In each case however the structure was found to be of the cone on cylinder type, the outward appearance of a dome being achieved by the thatching technique. These will be discussed in subsequent chapters.

Finally it is worthwhile noting that although the form of the beehive dome on a cylinder of whatever size is usually unmistakeable, especially in a Zulu context, no historical or pictorial records of the dome on major cylinder have to date been found that predate the 1950's. It would appear therefore that the development of the dome on cylinder is of comparatively recent date and because of this perhaps, its technological shortcomings are as yet unresolved.



Burchell "Travels in the Interior of Southern Africa" 1822.

Campbell "Travels in South Africa" 1813.

Figure 56.

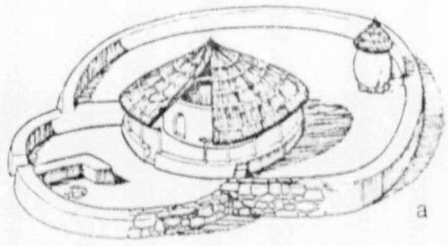
CHAPTER 9: THE CONE ON CYLINDER

This is possibly the most universal of Southern Africa's house forms, being found in such geographically dis parate areas as Venda in the north through to the Ciskei in the south. Historically it not easy to determine exactly when it began to infiltrate a region that had hitherto been dominated by the beehive hut. Records from the likes of Burchell and Campbell during the early years of the nineteenth century indicate that the Tswana who inhabited parts of present-day northern Orange Free State and south western Transvaal were by that stage building verandah houses in the form of a cone on cylinder. It may well be that, as a result of the Difaqane in 1822 which led to wholesale migrations of people on the Highveld plateau, such groups as the Sotho, Swazi and Zulu came into contact with the new dwelling form and absorbed it into their own cultures and settlements.

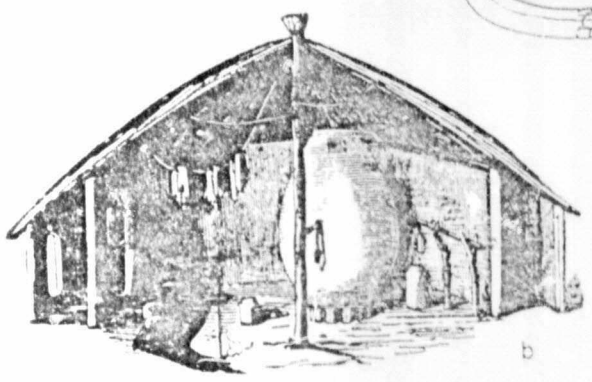
If this were to be the case, then we could assume that during the post-Difaqane years the cone on cylinder spread from the Highveld into the coastal plains at an even rate supplanting the beehive dwelling in the process. We know however that this was not so for whilst the beehive hut had fallen out of general use in such areas as Lesotho, Ciskei and the Transkei by the early years of this century, their northern neighbours have stubbornly stuck with tradition and it would appear that only today a combination of factors is finally bringing the existence of the beehive to a conclusion in KwaZulu and in Swaziland.

Perhaps therefore the absorption of the cone on cylinder as a house form into the Southern African region was due to factors more complex than just a simple "cultural contamination". For want of better records let us assume that the northern groups of Tswana and Venda were building cone on cylinder dwellings by the years of the Difaqane. As a result of the Difaqane such groups as the Thonga and pe. haps the Pedi came under the influence of the Tswana/Venda and began to build in their style, the Thonga being especially singled out as they use many of the building techniques of the Venda, and which the Venda pointedly claim as their own.

Figure 54 a.



a



b



c

a. Reconstruction of Tswana iron age bilobial dwelling: after Maggs (*Iron Age Communities of the Southern Highveld* 1976).
b. "Section of Barolong hut": Eugene Casalis (*The Basutos* 1861).
c. "Barolong village": Eugene Casalis (*The Basutos* 1861).

Figures 54 b. c.

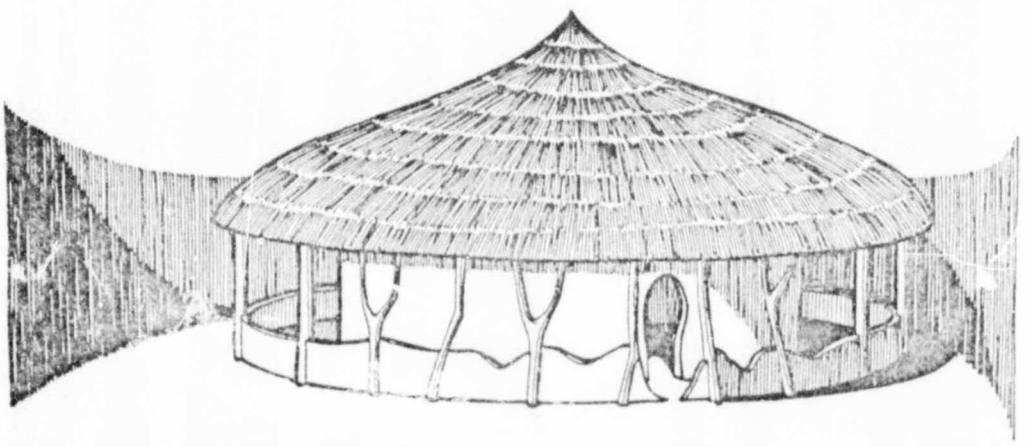
Also as a result of the Difaqane a Tswana group, the Rolong, sought refuge among the Basotho at Thaba 'Nchu. Their cone cylinder was found to be highly suitable to the harsh winter conditions in the mountains of Lesotho and spread, through cultural contact, through the Herschel district and thence into the Cape districts of the Transkei and Ciskei. The Zulu and Swazi, each imbued with their own highly disciplined traditional values and nationalism managed to cling to the beehive house form through into the mid-twentieth century when, pictorial records show, the first departures from tradition began to be made. Today the major part of southern KwaZulu has almost totally converted to the cone cylinder whilst such strongholds of traditional architecture as the districts of Bergville, the Tugela Ferry and Pomeroy are slowly beginning to show signs of crumbling before the onslaught. Swaziland, reportedly, too is giving way to innovation.

Related to this and of importance might also be the differing tribal administrations of the Zulu and of their neighbours to the south and west during the last century. The former, since the days of Chaka, had had a strong centralized governing authority devolving about the King, whereas the latter's administrations were generally of a more scattered and regional nature. The exact role that this might have had must however be resolved more fully.

The role of missionaries in the spread of the cone on cylinder should also be considered. Pictorial evidence of this comes from mid-nineteenth century illustrations of both Casalis' mission station at Morija and the mission of St. Saviors, Thlotse Heights, both located in present-day Lesotho and both of which show the existence there of cone on cylinder dwellings. It should come as no surprise were we to learn that part of the "civilizing" gospel of these holy men was to persuade their "heathen" parishes that building a "decent" house went with wearing clothes and paying taxes. The pattern of development set out previously is reinforced when we consider that while in the period between 1830 and 1850 missions were springing up like mushrooms in the Transkei areas, similar ecclesiastical expansion was largely stunted by a strong central Zulu leadership to the north, which was not to be broken until 1879.

We must add to this, the added factors of white cultural and technological "contamination", the overall increasing breakdown of tribalism and traditional values, the growth of aspirations based on urbanization and consumerism and the current overlay of a so-called "homeland policy", all of which serve to complicate the picture immeasurably and deserve a dissertation as a subject in its own right.

In terms of structure, it will be seen that the development of a conical roof



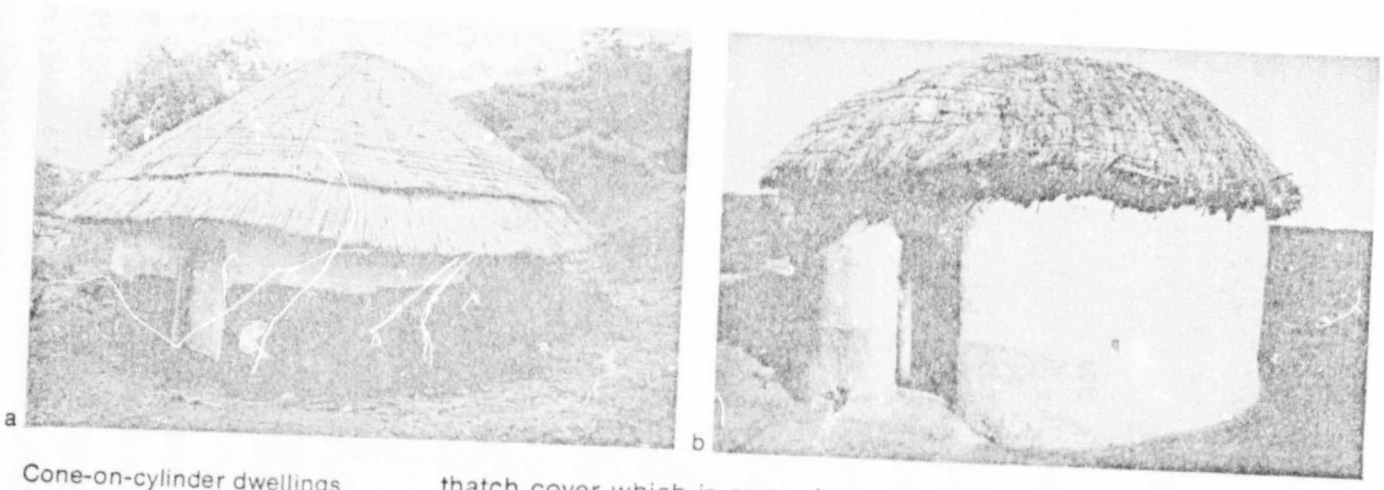
"Ditbakong dwelling": after William Burchell (*Travels in the Interior of Southern Africa* 1812)

surrounding a cylindrical living space is the natural progression from the previous and inefficient hemispherical roof. While it would be quite simple to show such a progression in the case of the Basotho whose beehive cone framework brought radically to a central apex naturally lends itself to adaptation in a conical roof whose stiff beams are similarly brought to a central apex, no such structural links can be found to the Zulu beehive.

Perhaps the Zulu beehive specialized to such an extent that it branched off from the mainstream of house form development to enter almost an architectural cul-de-sac in which further adaptation became impossible. This would to an extent explain the poor performance of the beehive dome on cylinder when it is not normally in the real nature of rural vernacular to invent an inefficient house form. It would also explain why the beehive lingers in KwaZulu when all other rural groups in Southern Africa have developed beyond it. Thus in the Zulu case at least, if any development from a beehive to a cone on cylinder form is assumed, then such a development must have been in spirit rather than an evolutionary one.

In a more detailed sense, in the dome-on-cylinder we saw the separation of the wall from the roof into two separate identifiable structural entities, each with their own functions to perform. Also for the first time we had the introduction, albeit probably unconsciously, of an eaves as an element of the structure.

In the cone on cylinder, we see the formalisation of the roof as an entity in its own right with a form following its own function. The water-sensitive crown of the dome which had been partially solved at the height of the grass-oriented technology has been resolved into a peak and the wind-susceptible sapling frame has been replaced by a more rigid framework of timber beams brought together to a central apex. Sapling battens carry the



a b

Cone-on-cylinder dwellings, thatch held down by a rope network:
a. Krantzkop, KwaZulu.
b. Committee's Drift, Ciskei.

Figure 64.

Figure 59.

thatch cover which is sewn down agains the wind. The grass and rope netting found in the beehive dome no longer occurs.

Originally, during the initial stages of this study, it was believed that the cone on cylinder house form could be neatly divided into two categories: the ones with a central structural support and those without it, the latter representing a technological advance over the former. Further research has now shown that barring a few exceptions this is not the case. Most groups in Southern Africa build their conical roofs by initially having a central support to the apex which is only removed once the roof structure has been completed and thatched over. In some cases, depending on the function the room is to serve, the central post is retained, all of the examples recorded with a central post being used as kitchens.

Two notable exceptions were recorded. The first, a unit in Kangwane, used walls which, being made of a reed screen plastered over with earth, were too flimsy to provide any substantial support to the roof structure and hence required the addition of a central post. In the second recorded in various places in Bophuthatswana, the house diameter was too large for the roof timbers to span without support and the central post not only served to carry the roof structure, but also acted as a central pivot about which the divisions of the internal space functioned.

The purist will probably argue that where the walls are not load-bearing but are timber framed with an earth-daga-rubble infill, they still belong to the tradition of the beehive structure. This would be true if all cone on cylinder structures in Southern Africa were timber framed. However, they are not. In many cases a packed-earth technology has taken over house wall construction to an extent that many rural groups no longer build timber framed structures but have developed systems of sun-dried brick

construction.

Generally the cone on cylinder form is significant because of the following developments:

- Doorways are now of full height or at the very least 1,600 m high. Doors usually are of split or "stable" type.
- Windows are used at first as mere ventilation flues, often left unshuttered. Later, with greater sophistication, they progress from setting a sheet of glass into the wall through the manufacture of hinged timber shutters to ultimately, in some more prosperous examples, the use of steel cottage section window frames.
- Roof eaves begin to be an integral design element of the house keeping both rain-water off the walls and providing an area of shade about the house.

Although the cone on cylindjer is fairly universal throughout Southern Africa, regional variations can be extremely important in assessing the implementation of the same house form under different cultural, economic and environmental factors. It therefore becomes necessary to make some general points on each.

Bophuthatswana

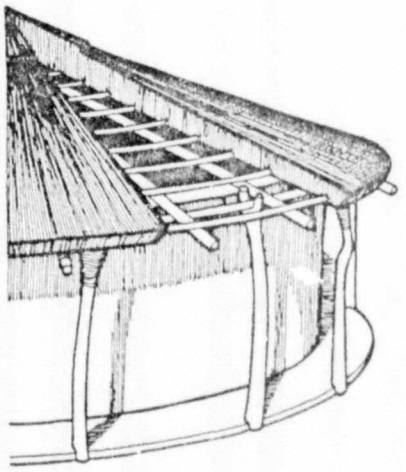
Most cones on cylinder are built on the principle of the verandah house, consisting of a series of timber posts or columns some 2,100 m high set in a circle and supporting a timber ring beam which, in its turn, carries the conical roof structure battened and thatched with the grass bundles laid seed-end upwards. Thatching takes place from the eaves upwards. The wall is constructed in monolithic earth or sun-dried brick plastered over with daga and usually stands from 600 mm to 1,000 m within the external perimeter of posts, thus providing the dwelling with a verandah.

Figure 59.

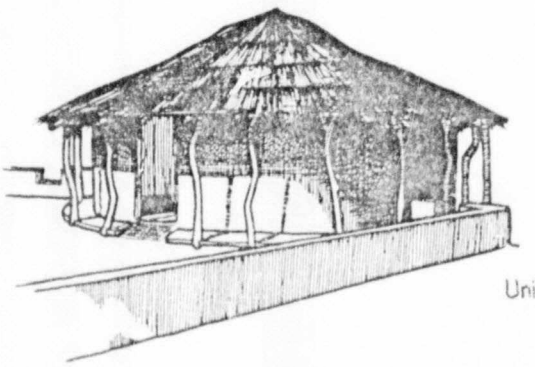
Several variations on this theme have been recorded in the Northern Cape. In some examples in the region west of Mafeking (now renamed Mafikeng or "place of stones"), the circular plan is retained except for the frontage of the house which has been "flattened" at the doorway. Another, at Genesa, was similarly "flattened" but the room had been extended into the rear verandah space to create two storage rooms. In most examples recorded the central post had been retained and, unusual in rural architecture, in a few isolated instances the dwelling had two doorways, one to the front and one directly opposite, to the rear.

Figure 60 a.

It is also interesting to note that development and innovation has occurred in the field of thatching techniques. In the area of Silwerkrantz research

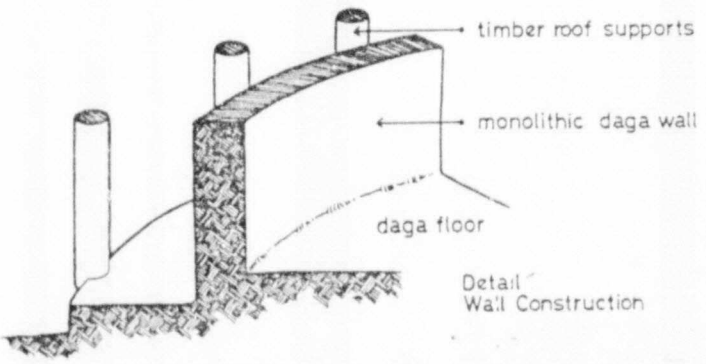


Detail
Roof Construction



Unit 8.

Cone-on-Cylinder, Unit 8.



Detail
Wall Construction

UNIT 8.

- CLASSIFICATION: CONE ON CYLINDER.
- LOCATION: NTSHTELENG, BOPHUTHATSWANA.
- CONSTRUCTION: THE WALL IS NON-LOADBEARING & FORMED IN MONOLITHIC PACKED EARTH. IT STOPS SHORT OF THE EAVES THUS ALLOWING VENTILATION INTO THE INTERIOR. THE ROOF LOAD IS CARRIED BY A PERIMETER OF TIMBER COLUMNS STANDING WITHOUT OF THE WALL. THE ROOF BEAMS REST UPON A TIMBER RING BEAM SPANNING FROM COLUMN TO COLUMN & ARE BROUGHT RADIALLY TO A CENTRAL CROWN WHERE THEY ARE SUPPORTED BY A CENTRAL POST REACHING TO THE GROUND. CONCENTRIC RINGS OF SAPLING BATTENS CARRY THE THATCH COVER LAID SEED-END UP.
- SOCIAL GROUPING: UNIT CAVE ONTO A COURTYARD WHICH IT SHARED WITH A DWELLING BUILT IN THE PATTERN OF A 1930's ORANGE GROVE OR MAYFAIR SUBURBAN PROTOTYPE. THE UNIT'S INTERIOR WAS SUBDIVIDED INTO THREE ROOMS, THEIR WALLS PIVOTING ABOUT THE CENTRAL ROOF SUPPORT.
- GENERAL: UNIT WAS PROBABLY BUILT AS AN INTERIM STRUCTURE AWAITING THE CONSTRUCTION OF A DWELLING MORE IN KEEPING WITH THE RESIDENTS SOCIAL & FINANCIAL EXPECTATIONS. THE UNIT WAS HOWEVER BEING MAINTAINED IN GOOD REPAIR.

a. Dwelling: Genesa, Bophuthatswana.
b. Dwelling: Silwerkrantz, Bophuthatswana.
c. Dwelling: Committee's Drift, Ciskei.
d. Dwelling: road Committee's Drift to Alice, Ciskei.

a



b



c



d



showed that the layered or shingled application of the thatch bundles, although simpler and requiring less labour, was now considered to be "old-fashioned". Instead, the thatch bundles were now laid on the roof frame and once in position were broken open and the grass was padded into a smooth even surface by the use of a large flat "paddle" or wooden trowel.

No research in Botswana proper has to date been possible.

Ciskei

Figure 60 d. Most cone on cylinders recorded appeared to have a timber framework internal to a packed earth wall which then, acting as a whole, supported the roof. The door lintel was distinctly separate from the eaves line. A small window or smoke flue was usually placed diagonally opposite from the doorway. Variations recorded included monolithic walls constructed of sun-dried bricks and roofs cladded over with galvanized iron, necessitating a measure of deformation of the material.

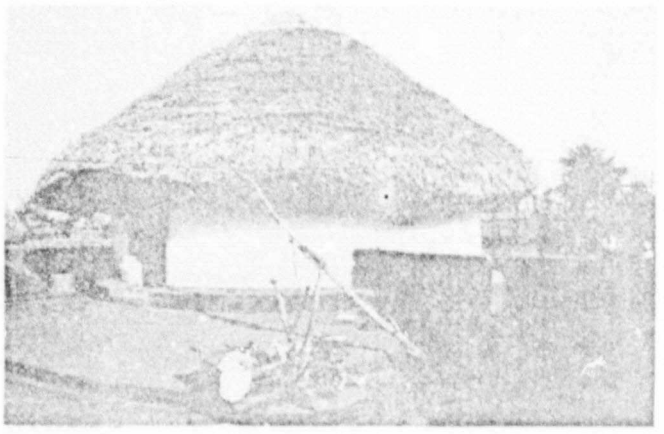
Figure 57 b. The house form described as a "false dome on cylinder" in a previous chapter is also found in this region in the Committee's Drift area. It
Figure 60 c. consists of a high drum built of earth packing on a timber frame carrying a shallow conical roof which is then "thatched" with coarse reed and covered over with locally-found vegetation to give the roof the appearance of a dome. The roof structure of this dwelling places it firmly in the category of a cone on cylinder. However the treatment of the roof thatch seems to serve as a direct link to the no-longer-built beehive dome of this region whose grass covering was sewn down in the same manner as these current examples — by casting a woven grass rope net over the whole and thus tying it down to the timber framework beneath. Although this is the only settlement of this particular house form recorded during this study, pictorial evidence dating from the early 1900's through to the 1920's shows that it was common to many areas of the Transkei and other Xhosa-speaking regions.

Gazankulu

Four main cone on cylinder house types have been recorded in this region.
Figure 62 c. In the first, the conical roof is usually supported by an external ring of timber posts which stand proud of a monolithic sundried earth brick wall some 600-900 mm within. The wall is usually load-bearing. The space between wall and external column perimeter is built up with earth to form a verandah seat some 400 mm high. The eaves are generally low causing the visitor to have to stoop in order to enter the dwelling although the doorway itself is usually a full man's height. Windows are seldom used. Thatching is

a. Dwelling: Xikukwana, Gazankulu.
b. Dwelling: Mavambe, Gazankulu.
c. Dwelling: Mavambe, Gazankulu.
d. Dwelling of the eighth wife: Thonga Open Air Museum, Eiland.

a



b



c



d



done with the grass bundles being placed seed-end down, the apex being finished with what can almost be described as a thatch "skirt" which is then wound about the crown.

Figure 60 b.

The second type resembles the first in almost every respect except the basic one of structure. The timber posts are dispensed with and the load of the roof is carried by a monolithic sundried earth brick wall. The wide eaves and verandah seat are however retained.

Figure 60 d.

A third type which has been recorded at the Thonga Open Air Museum at Eiland, in the Hans Merensky Game Reserve, should also be mentioned although no trace of such a structure has to date been found either in historical references nor in current rural Thonga society. It essentially consists of a conical roof structure which has been placed directly onto the ground without the benefit of a drum although a low kerb has been formed within the cone itself. Thatching has been done in the normal manner and entry is gained through a doorway so low as to require the visitor to crawl through. The builders of this hut claim it to represent a Zulu influence dating back to the early days when the Thonga inhabited the coastal areas adjacent to present day KwaZulu, and prior to them moving inland as a result of the Difaqane. It is not an efficient hut and without some kind of historical, written or pictorial evidence some doubts must inevitably arise as to it ever having existed. On the positive side however similar structures, albeit on stilts, were recorded by Barrow near the Kashan Mountains (1834-36), and considering the variety and richness of the Southern African rural vernacular, it is not impossible that such a hut has indeed existed. It is to be hoped that the latter case is eventually substantiated.

Barrow "Travels in the Wilds of Africa" 1971.

Figure 60 a.

The fourth type is essentially a verandah house whose internal drum has been largely dispensed with leaving behind the support posts usually four in number. The bulk of the roof load is taken up by the perimeter posts which are incorporated into a full or half height wall at the leaves. Such structures usually function as kitchens or cooking areas.

Figure 136.

Thonga architecture was noted for one truly unique feature which distinguishes it from that of all other Southern African groups — the roof frame of the Thonga house was built upside down and quite separate from the drum and was only manhandled into position once it was finished and ready to receive the thatch cover. It is not known whether this practice is currently followed.

Kobus Basson (personal communication).

Two other important points emerge from the house reconstructions at Eiland. Firstly it would appear that at one time all Thonga houses had two doorways, the front acting as the doorway proper, the rear being plastered up and thus hidden to strangers. In the case of attack, a few swift

Author Frescura Franco
Name of thesis The Development Of Rural Vernacular Architecture In Southern Africa. 1980

PUBLISHER:
University of the Witwatersrand, Johannesburg
©2013

LEGAL NOTICES:

Copyright Notice: All materials on the University of the Witwatersrand, Johannesburg Library website are protected by South African copyright law and may not be distributed, transmitted, displayed, or otherwise published in any format, without the prior written permission of the copyright owner.

Disclaimer and Terms of Use: Provided that you maintain all copyright and other notices contained therein, you may download material (one machine readable copy and one print copy per page) for your personal and/or educational non-commercial use only.

The University of the Witwatersrand, Johannesburg, is not responsible for any errors or omissions and excludes any and all liability for any errors in or omissions from the information on the Library website.