

THOMAS BUILDS HIMSELF A HOUSE

Kalonga School Campus, Kabwe (Broken Hill), Zambia

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By John Harris (2003)

The story behind the house

John Harris took the photographs when he was a high school science teacher in Kabwe, Zambia. Like all other expatriates, his family employed a house servant to help with cleaning, cooking and looking after three children. He would be forever known as Thomas. Thomas Tembo, then in his fifties was married to the much younger Mary, still in her late twenties. The couple had a six year-old boy, Peter. Shortly after Thomas had been hired, John Harris learnt that his house servant had to walk eight miles to get to work each day—a total of sixteen miles. Although a delightful wise man, excellent with children, highly competent, honest and hard working (as a younger man he had worked in every department of a large international five-star hotel) he had what some regarded as a disability. Thomas suffered from a very serious stutter. It seems that expatriate housewives did not have the patience to listen to him. Sadly, as a result, he had been out of work for twelve long years. Therefore, Thomas was destitute—too poor to even own a bicycle. The Harris family loved him.

Fortunately, the solution was simple and straightforward. John Harris arranged for him to build a house in the back garden. Though no other new staff houses on the campus had quarters for servants, there was nothing extraordinary in this solution. It had been a long-standing colonial custom in Africa and India to have the servants' quarters built at the bottom of the garden, often behind the vegetable patch.

And thus, it happened that Thomas built his house.

Most men had the skills

In parts of central Africa people continue to use house styles and construction technologies that have remained virtually unchanged for thousands of years. Occasionally a modern tool such as a saw or axe may be used. In the village, house building was not a specialised task. Like the ability to hunt, track, kill and butcher wild animals, most men had all the skills needed.

Upon betrothal for example, a young man's first task would have been to build the house for himself and his bride. After discussion and consultation, the village elders would allocate the plot. Depending on the local lore and custom, this would be close to the bride's parents (if matrilineal) or the groom's family (if patrilineal). The husband-to-be would then organise his team of builders and supply of raw materials. Usually the team was made up of two or three male helpers (paid by the promise to help them out on some big project of theirs).

Raw materials

Only four kinds are needed: short, strong wooden poles for the walls; long thin flexible for the horizontal tie beams; longer lighter poles for the roof rafters and long elephant grass for the thatch. Though the bush poles (of different lengths and diameters) and roofing straw could be bartered from other villagers, most men would simply go out and cut the supplies they needed from the surrounding bush and savannah forest.

Method of construction

These are a rare set of photographs. Most pictures of African houses only show the completed buildings. Here we only see the basic structure go up.

After the basic structure, that is the walls and rafters, has been erected, the next phase (not shown) is to fill the void around the posts and tied beams of the walls with a mixture of thick mud and straw (wattle

Provided there is a large overhang of thatch and the rainwater can drain freely from the walls' foundations, the structure is safe and solid—and will usually last for more than ten years. However, termites will eventually eat away the main supports. This outcome, however, is not regarded as a serious disadvantage. Indeed, it is more of a convenience. The people of rural central Africa are only semi-permanent residents because their “slash and burn” (chitemene) system of agriculture requires that every seven years or so the entire village moves to a fresh part of the bush three to five kilometers (two or three miles) away.

After the walls have been completed, the roof's thatch goes on. Inside the house the builder's wife with a women friend or two will thoroughly soak the dirt floors buckets of water to make a soft muddy surface that can be easily worked with the hands. This mud surface is then packed and beaten down to form a hard even floor. Finally, the floor is made smooth and allowed to dry out. The house is now more or less complete. Photographs show the typical size.

The time required to build the house depends on the number of helpers—usually two, rarely more than five. On average, the entire construction from start to finish takes between four and seven days. Men learn the skills needed in their boyhood and youth as they help other men folk build homes. Where polygamy is practiced, the man will build a separate house for each of his wives. When a couple or person gets too old to be comfortable with the hard work required their hut will be erected by fellow villagers – more often than not out of gratitude for the elderly's wisdom and contribution to communal life. If either the husband or wife dies, the thatch will be torched and the dwelling destroyed by fire – a new house free of evil omens will be built for the survivor by close relatives.

Living in the house

Cooking is done on a hearth three or four yards away outside the house. This fire also serves as a nightly focal point around which neighbours will gather to gossip and share stories. A fire, inside the house, even for heating, is unknown. Not only is the tropical weather rarely cold enough but also smoke from a fire would quickly make the single room unusable. The house is more to provide shelter and a modicum of personal space. Mats and animal skins cover the floor. The few personal possessions that the couple has are hung from the rafters. Where there are small children in the family an animal skin or blanket is hung up at night to give parents privacy. In some communities, the external walls may be decorated with large, bold and colourful designs. Finely ground wood ash, charcoal, different shades of brown and reddish earths, dark grayish clays and yellow ochres are used for the colouring.

The community context

The village itself would usually consist of around fifteen to twenty five such houses. The small community would be within comfortable walking distance of neighbouring villages of a similar size. After nightfall, a high camel-thorn hedge or defensive barrier, a kraal, protected the village from prowling predators such as lion and leopard.

Perhaps crude and rough to Western eyes, houses of this kind are nevertheless, supremely well adapted to their environment. Better so than most homes in Europe and North America. Low cost to build and maintain, the homes are in harmony with the people's communal spirit and sensitivities. They fit the human scale of the village. Moreover, the use local, natural eco-friendly materials means that after each has served its purpose, the appetites of insects and the passage of rainy seasons will rapidly weather the structures back into the earth from whence they came.

European colonialists and Afrikaner farmers only introduced three main changes to the traditional design. One was the rectangular shape like the one adopted by Thomas to replace the circular layout. Another was the 'Kimberly Brick' made of sun dried mixture of mud and straw. Towns of the Nile Valley of ancient Egypt also used this material. The third innovation was the corrugated iron roof. Though adopted by the more wealthy because it was fire-proof, and so could not be burnt down by enemies, the metal had none of the insulating and cooling properties of thatch – and worse, after a few rainy seasons the sheets would rust and soon look squalid.

and daub). Where available, cow dung may also be added to the mud, ostensibly to keep down insects. At 2002 values, the house cost Thomas around GBP 30 (USD 50). This was largely the money spent on drinks and food to give thanks and celebrate the completion of the house.

The Harris's House



Here is our first house in Africa. Thomas built his hut in the back yard behind our house. It was one of several staff houses built for teachers at the Kalonga Secondary School, on the outskirts of Kabwe, Zambia. Note the large fig tree and crop plants in the front garden. In the driveway is a Mini-cooper, one of the most popular cars of the 1960s.

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1 Installing uprights

These poles are key structural elements. As well as their length and diameter, they have been carefully selected for the type of wood, strength, resistance to insect attack and straightness—and then freshly harvested from the wild bush and savannah forest that is within a short walking distance. Then a trench is dug and the uprights are installed in the trench.

2 Plant sap protection

Termites (Isoptera) rapidly destroy most dead wood in the African tropics. Since the house uses wood for its main structures, protection is essential. Hence, poisonous plants are used. In this case a euphorbia with its thick white sap is used. The sap is a toxic irritant, sure to discourage hungry bugs. The plant material is broken up, mashed and buried in the trench around the base of the uprights (you can see the twigs if you look closely). The protection lasts several years.

3 Firming uprights

The next step is to fill the trenches and make sure the uprights are firmly in place. Thomas uses a traditional cast iron hoe to tamp down the clumps of earth around the base of the uprights. This

is not crucial because with the tied horizontal beams, the entire structure forms a strong and self-supporting basket-like framework. Iron, like that in the hoe, was in use in this part of Africa long before the metal had been discovered and used in prehistoric Europe.



4 Peeling bark

Rope with which to bind the structure together and make it firm and stable is made from the bark of a local tree. Other fibers are used to make rope for other uses, but for house building the bark remains in its simple form.

5 Bark rope

So that the rope can be pliable, flexible and easy to use, it is first soaked in water. It is used to tie horizontal beams to the uprights as well as hold the rafters together. The bark rope is knotted securely while it is wet. The bark contracts as it dries so it pulls the entire structure tightly together.

6 Three of four sets of uprights

This close up shows the vertical poles more clearly. The bark is left in place to keep the wood protected from insects and moisture.



7 Floor is leveled

he man who builds the house only does only the initial leveling. He breaks large clumps of clay and earth into smaller pieces. When the house structure is complete and has its roof, women come in, sprinkle water on the surface and make a mud floor. This is then evened and smoothed to make the floor on which the family will sleep and live.

8 Tying horizontals

Tied to the poles by bark rope, these are made from a species of tree similar to that used for the thicker uprights. The horizontal beams brace the entire building; much as the cross strips might do in a basket. Later all the poles and wood bracing will be buried inside a mud straw mixture.

9 Detail of structure

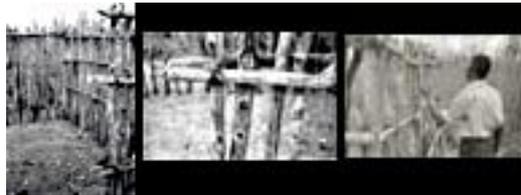
The relationship between the many uprights and the horizontal beams tied to them clearly shows the straightforward traditional technology.



10 Some horizontals complete
One of the inside corners shows the basic structure.

11 **Structure detail**
Notice the bark rope and how the horizontals run both on the inside and the outside, to reinforce the walls around the entire structure.

12 **Thomas checks horizontals**
Like every craftsman, Thomas checks his work. Notice the tall elephant grass in the background. This grass will be cut and used for thatching the roof.



13 **First rafter is trimmed**
The house begins to take shape. The square outline marked by the completed uprights of the four walls (note the gap in the left facing wall for the entrance). As with the uprights, the longer roof poles need to be trimmed.

14 **Trimming rafters**
Thomas continues with the task of trimming. The completed longer poles that will be used to construct the roof can be seen resting against the walls. Later these will be pulled up and tied together in a cone-shape to form the roof. (See the head of a 5 year old boy? That's me!)

15 **Friend helps to start roof**
Care needs to be taken. It would be easy to fall. This difficult stage requires that long components for the roof are first pulled up. Then the poles are balanced by length and their angles made equal before tying them up. It would be even riskier for someone to do this alone.



16 **Work on roof begins**
Now the firm framework exists, Thomas and his friend can stand to complete work on the roof. Everything is "calculated" by eye. No tools for measuring length or angles are used.

17 **Center post supports roof work**
Use of proven traditional methods ensures a well built home. The roof's crossbeams are lashed to a stout center post that will be the main support for the roof. Working together to build a house helps to bond the men of the village. It is a frequently shared experience among all the men, young and old—and so is a much-discussed topic among them. (Note the lack of footwear.)

18 **Both men work on roof rafters**
While the house is built, there is little discussion. Everyone knows what needs to be done and they do it. Most times, the house owner acts as "the Boss". House building is an exclusively male role. Once completed it becomes the wife's responsibility to look after it and to keep it maintained and cleaned.



19 Friend helps with roof poles

Some tasks require teamwork. Here for instance one man holds up the short ridgepole while Thomas binds on the long rafter poles.

20 Work on roof 1

Thomas holds up the ridgepole while his friend attends to the lower ends of the rafters (out of picture).

21 Work on roof 2

The lower ends of several rafters are tied to the walls while (as in the previous picture) Thomas squats on the skeleton (over the center post) holding the ridgepole. The frame of the house is virtually complete. The final stage (not shown) is to fill spaces between the wall uprights with a mixture of clay and straw. This dries to form a strong solid wall that will last several years with occasional repairs. Fine mud smoothens the wall to which decoration is applied. The roof is completed with thatch made from large bundles of the tall elephant grass (see photo). The single stems of grass are each long enough that only one layer is needed, radial about the center post. The base of the grass bales is set toward the apex of the roof, and the top of the bale faces down. Rain readily runs off and a small opening remains for fire smoke to escape.

