EARTH IN ARCHITECTURE

An Exploration of Malawian Vernacular and Healing

Lumbani Ngwira
EARTH IN ARCHITECTURE

An Exploration of Malawian Vernacular and Healing

Lumbani Ngwira

Thesis is submitted to the faculty of Virginia Polytechnic Institute and State University in partial fulfilment of the requirements for the degree of

Master of Architecture
in Architecture

Paul Emmons, Chair
Susan Piedmont-Palladino
Marcia F. Feuerstein

May 25 2017
Alexandria, VA

Health, Garden, Materiality, Light, Passivity
Can a hospital be more than a center for treatment? Can it initiate a sense of healing in the individual as well as the community?

The hospital in its earliest form was a facility meant to house the sick in ancient Egyptian temples. Prayers, sacrifices and dream interpretations were used in the healing process as well as quintessential medical procedures such as opium for pain and stitching of wounds. Monasteries were later established to accommodate travelers, the indigent and the sick. Hospitals were constructed next to Religious institutions but also utilized house calls for the wealthy class. Monasteries were also organized in cloisters which were places of retreats from the mundane.

The idea of hospitals today is to diagnose, treat and heal patients which has proven to be effective with most diseases being prevented and eradicated entirely from our day to day lives. However, these conditions aren't as similar in Malawi. The origin of the word hospital is derived from the Latin word "hospitalia" meaning a place of refuge for guests and strangers. The need for effectively functioning hospital in Malawi is apparent, but the need to create a hospital that heals and creates a sense of community and tranquility for both the guest and wondering traveler is paramount.
EARTH IN ARCHITECTURE

An Exploration of Malawian Vernacular and Healing

GENERAL AUDIENCE ABSTRACT

Explorations of the thesis included delving into what it means to live in a communal village to designing a healing hospital from the outside inward to inform the design to it's fruition. Research entailed looking at perspectives of rural living in Malawi and reflecting those elements in the built environment to create a hospital with gardens of healing and roofs that reflect rural architecture and natural materials.

Research began with exploring the cultural influences of community and expressing it through graphic representation and data analysis which informed the location of the site in Blantyre, Malawi. The idea of creating a hospital that can heal through gardens of community or "Khonde" that are synonymous with the people of Malawi.

The concept of the hospital is based on the organization of a rural village composed of a center point at the driveway entrance which unfurls out to allow for possible future expansion of the campus. The curvature of the maternity breaks the linear organization to help guide the gardens and circulation of pedestrian paths and patients to and from the hospital departments whilst keeping a certain amount of public access and private ownership.
Table of Contents

EARTH IN ARCHITECTURE

Site - The language of community.................................................. 1-10
Parti - Healing from the exterior.................................................. 11-16
Process - Vernacular..................................................................... 17-24
Production - Visualizing gardens of healing................................. 25-48

Bibliography................................................................................. 49
Image Credits
Early parti image of Hospital concept
SITE - THE LANGUAGE OF VERNACULAR

Africa has long been a symbolism of a unified people regardless of the countries and plethora of cultures embedded in each particular location. Malawi, a country located in the southern region of Africa, is one that radiates in it’s sense of community. Often known as the warm heart of Africa, Malawi houses a population of families that creates a hierarchy from the rural organization of the village to the urban configuration of the typical home.

Growing up in Malawi gave me a sense of what community and family was in our culture, Neighbors were extended family and the typology of house became an extension of hospitality from the entrance to the veranda as though greeting the visitor with open arms.

Malawi is afflicted by a number of diseases that cause distraught in the country. Being a developing country, the location of the site was based on the data collected to administer a form of healthcare that engaged the public the same way the host welcomed the guest and stranger. It also took into account the methods of construction and social norms of the community as well as limited resources available to inform the parti of the hospital.
Data provided revealed the main causes of death in Malawi were respiratory, malaria and HIV. A graphic location showed the main areas affected would determine the location of the hospital and its contextual approach. The climate and solar orientation were both taken into consideration and an approach was formulated based on the numerous times the site had rainfall throughout the year. The solar angles and passive methods of heating and cooling were also taken into account to formulate a respective response to the site.
(1) Rural village in Southern Malawi

(2) The city of Blantyre
The site is located in the Namiwawa which is a district located north of the city of Blantyre. Access and wind direction were analyzed to inform the design's parti. The site was also chosen in accordance with the primary users of the site who would be traveling to the hospital primarily by walking or bicycle.

The site is within the vicinity of the city and rural village to accommodate the pedestrian and still provide access to the primary road leading up to the site and emergency services. Population density and terrain were also taken into account which presented the opportunity for the architecture to either react with or against the landscape.
PARTI - HEALING FROM THE EXTERIOR

The parti of the hospital is based on the quintessential definition of the hospital. A place of reclusion that allowed for healing by juxtaposing the concept of path and garden shown in the cloisters of ancient times. The cloister here is created from the National anthem of Malawi to build a parallel between garden the users and create a sense of Nationality and belonging for the people.

The contribution of Malawian culture is also included in the Site analysis to help inform the materiality and form as the hospital starts to take shape. Having been raised in Malawi, the culture was heavily based upon the inclusion of all guests as extended family. This meant the guests would eat together from one bowl and perform other activities as though they were all one inclusive family.

Other rituals to celebrate culture would also include the Gule Wamkulu which consisted of a mythical creature with a mask that performed tribal dances during ritualized celebrations such as the ascension from boyhood to manhood. The identity of the masked man would only be know to the chief of the village creating a sense of mystery around the figure.
(3) Village Homes constructed of compressed earth

(4) Artisan items

(5) Vernacular forms of construction

(6) Village Community
PROCESS - VERNACULAR

Several different typologies of the home were studied and put together to form a language of engaging the outside through several different uses. The homes are typically placed on a base that allows the facade of the home to be lifted away from the street. This also allows the home to stay protected from water as it rains throughout most of the year.

The facade typically consists of a patio or veranda to greet the user and become part of the street life and community whilst still keeping a sense of privacy be recessing it into the home. The thatched roof acts as the apex of the home and keeps the home cool by allowing partial ventilation. The vernacular architecture shown here is super-imposed into the hospital to allow the hospital to engage and heal the community as well.

The materiality of the homes consists mostly of sun-dried or kiln dried bricks which is a ubiquitous form of construction in the rural areas. So much so that is it becomes ritualistic to repair the compacted clay and brick homes as a community and incorporate elements of personalization through graphical motifs and arrangements.
The parti was derived from the elements of a cloister to create a series of gardens to engage the different users. The hospital programming was based on proximity to the adjacent services and allowing for proper sunlight and ventilation whilst still creating a sense of fortitude.

The roof elements would replicate the thatched roof and cool the users passively by creating a secondary shading element whilst still communicating the language of the vernacular. The hospital form becomes part of the landscape but as an iconic entrance to allow the pedestrian to be drawn into the hospital.

The public spaces help define these gardens as elements in a small village which is centered by the maternity building which is known in our culture that the mother is the center of a home.
The materiality consist of compressed clay with a thatched roof to juxtapose the vernacular elements of a typical home. These elements seen as for the indigent hold a lot of narrative because they reflect an architecture born out of necessity that steadily matures with several different articulations.

The walls constructed entirely out of compressed earth would be repaired often which would be become part of the annual ritual. These walls include the circular wall in the maternity building and the meditation room which can allow for room to grow and for the users to engage one another.

The glazing openings would include a selection of different heights in formal spaces to allow patients sitting on hospital beds to see through to the outside but keep the size and height of the punched opening lower, or higher, than the person walking on the outside to create a sense of privacy for the patient and frame a vista for help with the healing process.
The passive methods of cooling and heating the building shown in the diagram on the left help mitigate the use of highly electrical and mechanical components. The shaded south facing wall helps keep the patients cool whilst allowing for cross ventilation and the use of a sloped roof help the warm air to rise up to the ceiling.

Solar panels are placed on some of the roofs to generate energy passively and water collection systems help collect water that can be used as gray water in the buildings. The low punched glazing is also shown to allow the resting patient some privacy as well.
(8) Constructing compressed earth wall

(9) Personalizing walls with motifs

(7) Creating framing reinforcement for compressed earth
Perspective of hospital towards TB and Pediatrics
View of hospital gates into the community garden
View of Men's Ward
Lobby of Community Engagement
EARTH IN ARCHITECTURE

Bibliography & Image Credit

P.5  Google earth. (Digital Image) https://www.google.com/maps/place/Blantyre,+Malawi


(5) Vernacular forms of construction. (Digital Image) http://africanarchitecture.blogspot.com/2015/01/malawian-vernacular-architecture.html


P.40 (7) Creating framing reinforcement for compressed earth. (Digital Image) http://www.endingextremepoverty.org/housing/


EARTH IN ARCHITECTURE

An exploration of Malawian vernacular and Healing

Lumbani Ngwira
2017 Thesis