Chapter 4

Theory and concept

This dissertation is situated within a UNESCO World Heritage Site, named for the abundance of prehistoric hominid fossil sites in the area. This chapter provides a background to the archaeology, the theoretical approach and theoretical intention.

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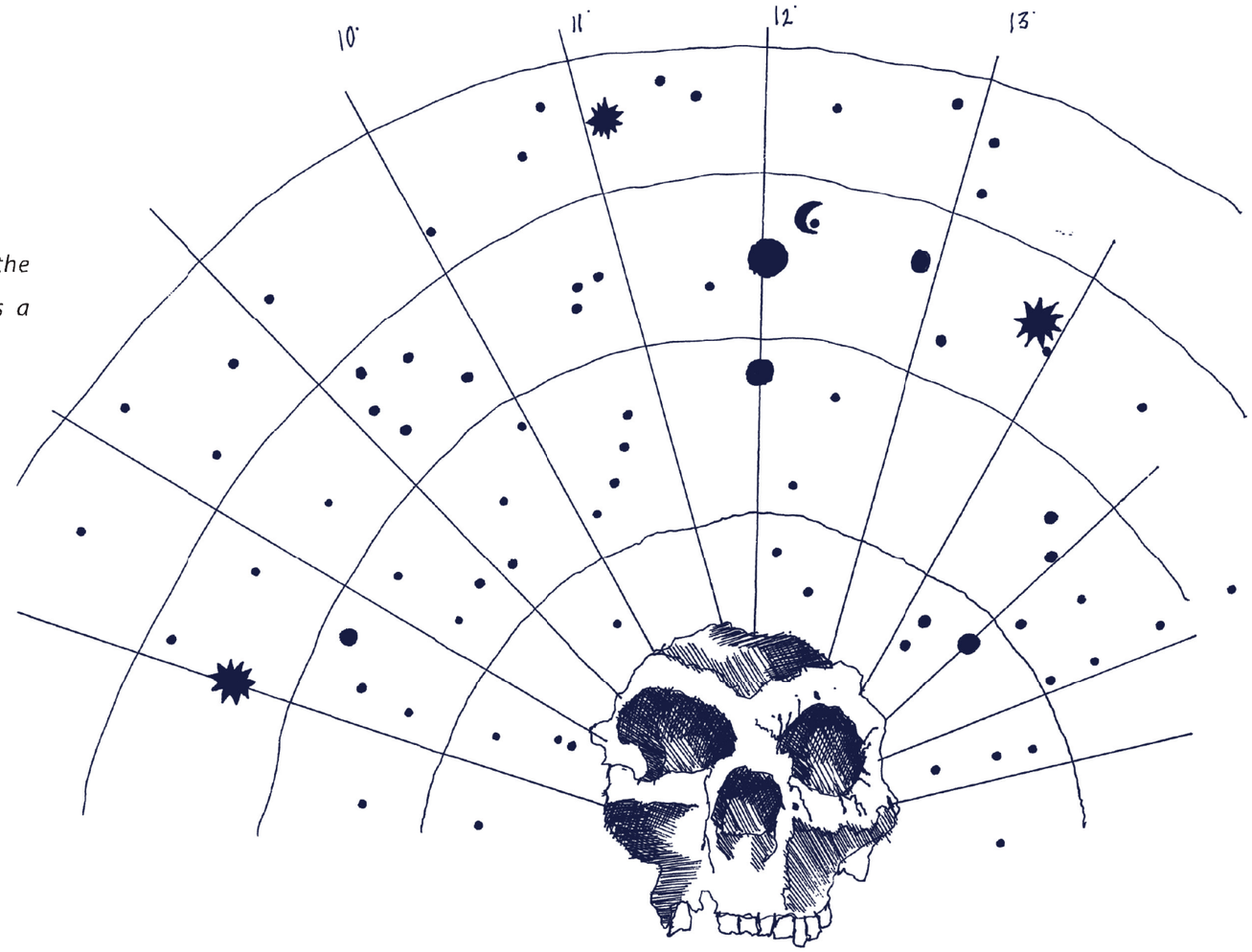


4.1 - Background to archaeology (Author, 2016).

4.1 Background to archaeology

Humankind has through time expressed a fascination with the mysteries of the world. Authors and film producers have simulated fantasies and adventures based on ancient civilisations and natural phenomena, making archaeologists into explorers, treasure hunters and collectors – brave souls charting unknown territories and defying danger. The romance of archaeology transports people across the world and stimulates tourism and associated economic enterprises.

Although the exact definition of archaeology and its delimitations are disagreed upon in the field itself, it is generally accepted that archaeology consists of three components: the past, material remains, and excavation (Drewett, 2001:1). Archaeology thus constitutes the use of material remains to reconstruct the past; in other words, to understand the way man interacted with his environment in the past. The general field is divided into four distinct subdisciplines, of which paleoarchaeology concerns itself with the study of deep time, before the existence of the written word, from the time of the earliest human beings (Fagan, 2012:35-36).

4.1.1 The purpose of archaeology

Archaeology provides answers to the curious fascination humankind has with its complex and mysterious world. Quoting Gotthard Booth, Pallasmaa (2012:35) states, "nothing gives man fuller satisfaction than participation in processes that supersede the span of individual life", and argues that man has a mental need to grasp that he is rooted in the continuity of time. This process superseding the span of life, known as time, is defined by the Timekeeper (Popova, 2016) as "most simply a coordinate which lets us understand the evolution of the universe".

Central to the field then is the philosophical place of humankind in the universe (McCarthy & Rubidge, 2005:298). For many years the Earth lay at the centre of the universe, with man having dominion over it. Astronomical discoveries such as Nicolas Copernicus discovering that the sun and not the Earth was the centre, shifted the status and place of man. While astronomical discoveries erode our imagined status in the universe, the fields of archaeology and geology erode our place on the planet, as the existence of humankind has been proven to have been very short. The record of mass extinctions, five in total, warns us that Homo sapiens may not be very special, and that our intellectual actions and developments may have accelerated the sixth mass distinction a thousand-fold (McCarthy & Rubidge, 2005:298&315) . As the philosopher George Santayana (1905:6) wrote: "Those who cannot remember the past are condemned to repeat it." Our set of unique evolutionary skills, proven in the geological record, places a responsibility on us to learn from the past and to prepare for the future.

Archaeology is not only important to mankind seeking its place in the world, but relates to the world directly as well. The late authority on world myth, Joseph Campbell, stated unequivocally that "we need new myths that will identify the individual not with his local group but with the planet" (Campbell, 1988:30). The world is filled with bewildering diversity, yet mankind is yet to come to an understanding of said diversity, and its ability to collaborate between multiplicities remains elementary. History, as well as prehistory, serves the present, as every society projects its umwelt (the world as it is experienced according to one particular organism) to manufacture the past according to a specific agenda. Archaeology provides an educational weapon in the fight against ignorance, with paleoarchaeology especially providing a heritage common ground in a world where racism is commonplace (Fagan, 2012:40-41).

Lastly, archaeology today provides a means of protecting shared universal value, as well as sharing roots in private business. Post World War II, the role of archaeology has primarily shifted towards the identification and conservation of important sites rather than its adventure-filled Hollywood role previously mentioned. Archaeologists have become managers, overseeing a precious and rapidly vanishing resource: the human past (Fagan, 2012:35-36).

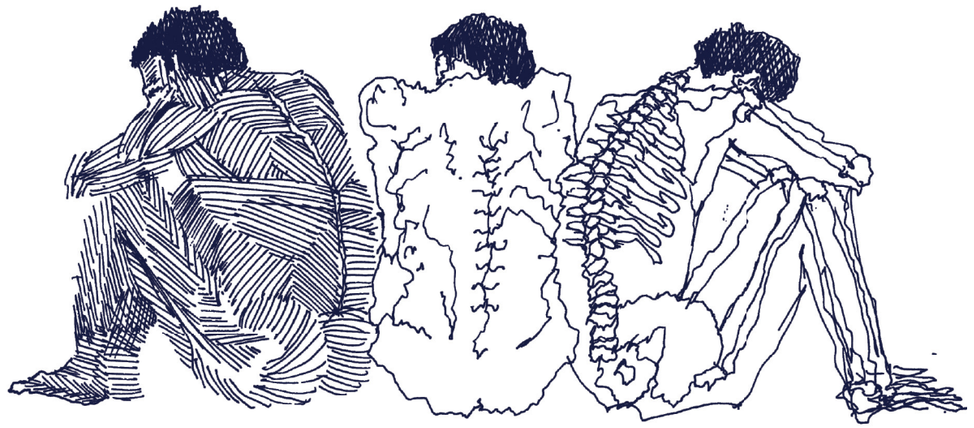
4.1.2 The archaeologist, collector and treasure hunter

In the academic community, according to Drewett (2001:7), field archaeologists are broadly divided into three groups: members of the scientific archaeological community; cultural resource managers; and persons participating as a hobby or form of leisure.

Scientific archaeology, being driven by field research supported by academies, usually engages in archaeology as part of a wider project due to limited funding. Projects often entail museum curation or field schools with research funded by government institutions and universities.

4.1.3 Archaeological sites

The archaeological site is seen as a matrix and an amalgam of layers, as these sites are areas which have experienced change through time. The change occurred during the life of the activity area, at the point of discard or abandonment, and then changed again after discard. Archaeological sites are therefore transformed or changed activity areas (Drewett 2001:24).



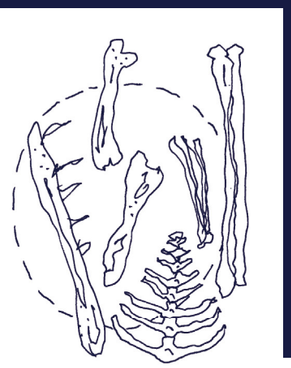
4.2 - The archaeologist, collector and treasure hunter (Author, 2016).

Physical remains, together with tangible and intangible context derived from the site, form the supporting facts for speculation on the distant past (Drewett 2001:3). Although the process of archaeology relies primarily on the physical remains of the past, the contemporary context of the find is of equal importance. Humans consciously and unconsciously shape and change their environment as they interact with it, leaving more clues on the behaviour of the studied subjects (Nash, Edwards, Thompson & Barfield, 2000:1). Nature, too, interacted with the studied subject, as it played a large part in shaping and reshaping the habitat and forming the background for the story, while finally working towards removing its traces in the continuum of time (Drewett 2001:25).

An archaeological site exists in a state of tension and contradiction. Materiality lends itself to continuity as traces of the past have survived, while ruin and decay present the reverse as discontinuity. Fragments of the past can be assembled into a narrative, although this narrative relies on socio-cultural continuity. Historical discontinuity throws suspicion on the narrative as it transcends history and human values.

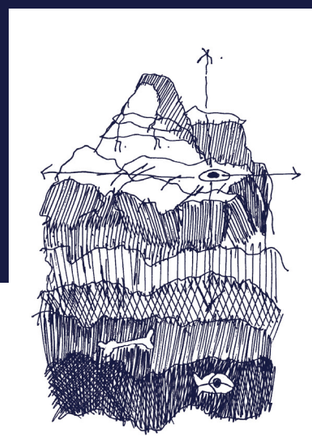
The state of contradiction is further reinforced in the act of excavating archaeological remains. The process depletes the archaeological site and in doing so discontinues the status of the site in history. Excavation then, being inherently destructive, permits questions to be asked only once. If the excavation is very precisely recorded, some questions can be asked of the record, but never again of the whole site (Drewett 2001:58). The site is a finite resource which can never be replaced or recreated. Remains in context provide two vital clues to the archaeologist: what activity took place and where it took place. Without the context, the remains become objects allowing no insight into the depths of human behaviour, and effectively cheat society and future generations of knowledge (Fagan 2012:31).

4.1.4 The archaeological process



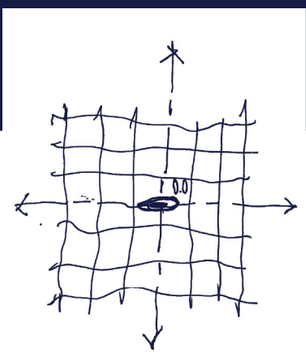
1
Identify presance of fossils.

4.3 - Identify presance of fossils (Author, 2016).



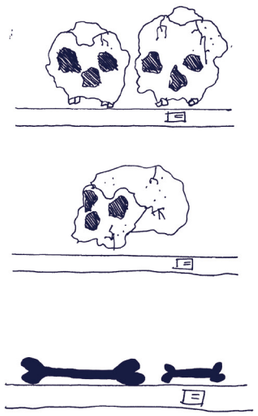
2
Select datum point.

4.4 - Select datum point (Author, 2016).



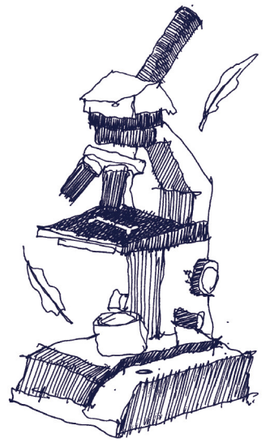
3
Develop grid according to cardinal points.

4.5 - Develop grid (Author, 2016).



4
Collect fossils.

4.6 - Collect fossils (Author, 2016).



5
Analyse and deduce.

4.7 - Analyse and deduce (Author, 2016).

6
Distrobute new knowledge.

4.8 - Distrobute new knowledge (Author, 2016).

The archaeological process consists of five phases (Drewett, 2001:15):

- The project planning phase
- The fieldwork phase
- Assessment and potential for analysis
- Analysis and report preparation
- Dissemination

The following explanation of the archaeological process is based on that provided by the Archaeological Institute of America (2016), unless stated otherwise:

The recording of archaeological sites discovered in the field essentially has three elements: a written description of the site, a survey including plans and elevations, and a photographic record.

Excavation, the most well-known part of the archaeological process, is the result of a careful scientific process. Excavations are aimed towards answering a particular question or resolving a particular issue. Once a reason to dig is provided, the archaeologist must establish where to dig and has to create an excavation plan after acquiring permission from the government of the place being excavated. At first the goal is not to excavate, but rather to identify and plot sites across a landscape or region to see the big picture of the habitation or activity which took place in the area.

The process of excavation starts with a site identified during a manual or digital survey, usually revealed by identifying sites corresponding to specific patterns. Imagery from satellites and airplanes aid archaeologists in identifying surface features, while geophysical prospecting tools, such as magnetometers, conductivity meters and ground-penetrating radar, aid in locating subsurface features. Once an excavation site has been located, a detailed map is also made before digging begins. Traditionally, archaeological surveyors used compasses, tape measures, stadium rods and various other survey tools. Today, most archaeologists also employ electronic devices, such as total stations and Global Positioning System (GPS) units, to help them map an area or site. In GPS technology satellite signals are used to record the location of a feature or site. The map is thus the first of a series of records made during an archaeological investigation.

The archaeological matrix is considered as an amalgam of layers formed in time through slow accumulation or dramatic climatic events that are evidence of the site growing, changing and being destroyed. The concept of stratigraphy is used to decode this amalgam as the archaeological map extends on section to strata. The strata allow for the recording and reading of the layers, although the process is impossible without the concept of horizontal surface interfaces, i.e. edges and moments of discontinuity when one layer becomes another (Shanks 2016:10).

In aiming towards recording the archaeological site in order to preserve the context of the remains and features, the digging site is furthermore divided into a grid consisting of squares to help keep track of the location of each find. To allow for a vertical recoding, a datum point is established in an easily identifiable location. The remains are allocated coordinates within the grid and the vertical relationship to the datum is established, the site plan being continually updated. Other means of recording such as photographs, drawings and detailed notes are taken or made in order to assist future investigations.

The process of setting out the grid starts with determining a point of origin. This point is a fixed point outside the area to be surveyed and provides a permanent spot, undisturbed by future work. The origin is determined by convenience, as it is used constantly for reference and for locating the grid on a map. The orientation of the grid is usually north-south, although this bears no significance in archaeology and is done generally for neatness. In writing up data and in the field, magnetic north, not geographical north, is used.

Laying out the grid can be performed by two people using half a dozen ranging poles, two tapes and, if the site slopes, a plumb bob or theodolite. The longest possible line is laid out from the point of origin along one side of the grid, and if the grid is orientated north-south, it is set up using a prismatic compass. The prismatic compass is a hand-held compass with a prism, which one reads by looking between two sighting marks (Drewett, 2001:64-65).

Excavation tools include shovels and trowels, brooms and brushes, buckets, and sieves. In the case of fine and delicate excavations, archaeologists use dental picks, brushes, spoons, and very fine blades. When an artefact is removed from dirt, it is sieved in order to preserve small finds such as seeds or small bones which might be missed. The sieved finds are then recorded as coming from the square or deposit within it. The excavation process works horizontally until all the finds in an area have been exposed and their relationships noted.

Post excavation, the find and the conservation thereof usually takes place in a laboratory, but sometimes the object is so fragile that the archaeologist needs to work immediately to save or stabilize it. In the laboratory, objects are further cleaned, stabilized and conserved, and thorough records are made. Once excavation is completed and the features and objects have been conserved and analysed, the archaeologist is responsible for interpreting the findings and creating the story of the site, making the significance of the find known. The story is one possible version of the site's history, as the evidence will always prove incomplete.

4.2 Theory

4.2.1 Time and space

In architecture one is fundamentally confronted with questions of human existence in space and time, expressing and relating to man's being in the world. This is mostly due to aesthetic and cultural practices being susceptible to the changing human experience of space and time. Architecture becomes the construction of the spatial representations and artefacts of human experience, and thus becomes the primary instrument in relating the human body to the world. It is the task of architecture to enable us to create embodied and lived existential metaphors that concretise and structure our being in the world (Pallasmaa 2012:19 &76).

Otero-Pailos (2005:ii-iv) and Till (2009) state that, since modernism, design cultures have tended to prioritize space apart from time. Buildings of this technological era in general deliberately aim at ageless perfection and avoid incorporating the dimension of time, mentally avoiding the significant process of aging.

According to Juhani Pallasmaa (2012:35), this weakening experience of time has had devastating mental effects, and Gotthard Booth (cited in Pallasmaa, 2012:65) states that "nothing gives man fuller satisfaction than participation in processes that supersede the span of individual life". Pallasmaa goes on to say that we have a mental need to be rooted in the continuity of time, and it is the task of architecture to facilitate this need.

In order to explain this disjunction between space and time in architecture, capitalist globalization has brought forth the theory of the 'incredible shrinking world' where globalization has become tied up in a crisis of the capitalist mode of production. This crisis has brought forth a state of accelerated time, with a dual spatial state evident in modes of travel, highways, and data transmission such as the internet (Crysler, 2012:292).

The crisis of accelerated time has simultaneously led to the commodification of the past. The past has become dependent on Baudrillard's (1975:117) "the mirror of production", which is based on economies of desire. This way of thinking was absorbed into postmodernist architecture, originally as a reaction to the symbolic alienation of high modernism, but then became a means of enabling Manfredo Tafuri's (1976)"architecture and utopia", where architecture has become a self-advertising sign. Instead of architecture being grounded in special experience, it has adopted the strategy of advertising and instant persuasion. Buildings have become products detached from existential depth and sincerity (Pallasmaa, 2012:33) . The sense of 'aura' and the authenticity of presence as a necessary aspect of an authentic piece of art have been lost (Pallasmaa, 2012:33).

The strategy of visual advertising is described by Pallasmaa (2012:33) as an ocular bias, never more apparent in architecture than today, in the type of architecture which intends to create a striking and memorable visual image. The use value of architecture has therefore become that of communication, a visual currency of an emerging brandscape. Contemporary culture has drifted towards a de-sensualisation of reality, with a distinct change occurring in our sensory and perceptual experience of the world.

The argument is not for rejecting the notion of time, but rather to reconceptualise how time can be defined and related to architecture. Architecture inhabits limitless space but should likewise inhabit endless time, allowing us to inhabit the continuum of time.

4.2.2 Memory as a measure of time

As one of the consequences of accelerated time, the world is in a state of a ballooning 'memory industry', characterized by the exponential growth of museums, archives, institutional sites, scholarly research and memory devices. The need to capture memories, as C. Greig Crysler (2012:281) explains, is yet another consequence of the boundaries between the past and present becoming less distinct as the past has become constructed in the present. Events have started slipping from the historical domain into another, with time speeding up and thus causing the past and future to disappear.

4.9 - Natural History Museum (Author, 2016).

Merleau-Ponty's (1992:203) philosophy makes the human body the centre of the experiential world. He argues that it is through the body that we choose our world and that our world chooses us, thus making the body in the world as the heart is in the organism, keeping the spectacle alive and becoming part of a system.

As buildings lose their plasticity, the connection architecture has with the body becomes increasingly isolated in the realm of vision, ignoring the conceptual and material nature of architecture as embodying the passing of time and the experience of architecture as multi-sensory. In our culture of photos and pictures we have begun to experience our world from the outside as spectators of images. Reality has become what we see in the camera (Pallasmaa, 2012:33).

The loss of the connection between architecture and the human body has caused structures to become flat, sharp-edged, immaterial and unreal (Pallasmaa, 2012:34). The psychological result has been a loss of critical consciousness in that the body isn't able to locate itself, order its immediate surroundings perceptually, or cognitively map itself and its position in the external world (Crysler, 2012:293). To combat the loss of temporality, architecture should embrace body and emotion as a means of knowing the world and transcending the empty realm of vision. Memory, seen as something worth preserving, can then be redefined in architecture as something that is socially constructed in the present. The past is therefore codependent on the present (Crysler, 2012:299).

The potential for minimalist architecture to engender multiple meanings incorporates a more inclusive strategy. As Michael Kimmelman (2002) states: "minimalist abstraction, with its allegorical pliancy, turns out to function in a memorial context as the best available mirror for a modern world aware of its own constantly changing sense of history." Buildings should allow for strong associations with experiences and provoke feelings, while leaving history unresolved. Memories are therefore imparted through an embodied experience.

4.2.3 Theoretical application

The following section relates Kromdraai Cave fossil site to the relationship between space, time and the body. An imagined illustration is given of how the intervention can incorporate and relate to the notion of time within the design and programme.

4.2.3.1 Intervention

During the excavation of Kromdraai Cave the programme would function towards facilitating researchers by providing infrastructure to complete the dig. The knowledge of the researchers is harnessed through the means of community involvement and an educational programme. In interacting with the researchers, the community will benefit directly from the excavation process in learning new skills, and in turn the value of the environment is made clear and actively conserved.

4.2.3.2 Post excavation

As the excavation has a time limit, the structure will take on the role of acting as physical evidence of the excavation event as well as commemorating the presence of fossils. Functions associated with research and excavation are disassembled and fall away, and the functioning of the site as an interpretation centre commences as a means of generating income and continuing the process of awareness. If it is found that the site is no longer relevant or heritage values have changed profoundly, the structure can be completely demounted. The educated and informed community is left to take ownership of the site and to act as managers thereof. The landscape intervention on the excavated area draws new life to the cave starting the cycle once again.

4.2.3.3 The distant future

When all traces of known society have disappeared the question becomes: What will the legacy of our society be and what place does the site have in the future? The programme takes on the role of signifying that Kromdraai Cave was significant to modern man and played a role in our understanding of our place in the world. In allowing for permanence, this point in time is celebrated in the form of a monument, and leaves some clues as to what the site would represented after all memory is lost.

4.2.4 Theoretical premise

Within the world heritage context, this dissertation looks at designing for a transient site. Evidence of man, and man's interaction with his world, have been preserved in the unique geological archive of the site, with time gently grinding the evidence away. Where the site has a rich stratigraphy, with multiple narratives forming a palimpsest over time, the architecture is considered as one of these layers. The physical character of the space relates to the fleeting nature of life, the experience of forgotten times and unknown worlds. The focus lies on anchoring architecture to its time, time here referring to the past, present and future.

The dissertation explores architecture as a celebration of the value of the site while revealing the tangible and intangible qualities thereof. The landscape developed over millions of years and carried with it the aspects we find of value today, and the qualities of the landscape which made this possible, are all

still evident. The celebration and acknowledgement of these qualities and the character of the landscape will create a new memory of the site, the memory then keeping the site alive.

Time in architecture is visible through weathering, temporality and use of space. This dissertation focuses mainly on the ideas of temporality and use of space, as temporality dually provides a means of a sensitive intervention. The design resolution therefor focuses on designing a building to accommodate changes over time while permanent elements maintain clues to future civilisations of the importance the site held to this civilisation.

The design process was informed mainly by understanding the context and value of the site. Other informants included: design intent, theoretical and conceptual premise, existing values and threats, programmatic requirements and the relationship between the programme and existing facilities, the tangible and intangible values of the site and environmental concerns. The process was challenged by a lack of physical informants and limits, an abundance of intangible informants and necessities of interventions. The question was asked: How do you build where you should not build?

4.3 The architectural intention

The architectural intention aims to continually give utterance to the valued aspects of the site through the creation of a sensitive coordination system, expressed and generated from the grid. The building accommodates the collection of knowledge of the past and its application in the present, while looking to its conservation for the future. The interpretation of the prehistoric past leads to the creation of a new memory and connection to the landscape, facilitated by the intervention on site. The research centre becomes an expression of excavation and interpretation while respecting the existing character of the landscape. The intervention is inspired by the rural agricultural nature of the site and its mining history, and facilitates the changing climate of the UNESCO environment.

The intervention on the Kromdraai Cave site was approached by addressing the sensitivity of the site, and focused on allowing human interaction in a fragile landscape in a way that would protect and enhance the landscape, rather than destroy and cause harm to it. The project focused on creating an environment of value to the international tourism and science community as well as the local community directly affected by the site. The research facility therefore amplifies the value of the site for all. The architectural intention aims towards the creation of spaces which exhibit the landscape, creating an awareness of spaces which might have gone unnoticed and unarticulated. The intervention responds to the hierarchy of the site as well as the hierarchy of the site in the context, while framing and defining in-between spaces.

The design acknowledges the existing state of the site as an excavation site, while mediating the value of the site as an exemplary and intact landscape system. The vision is for the intervention to create a seemingly transparent building not only framing the context, but also carrying a narrative for the site and creating a link between the lost memories of place.

4.4 The architectural vision

The architectural intention endeavors to create a means of accessing the site as well as accessing the values of the site through a system of co-ordination derived from the site's archaeological grid. The connection of the cave to other caves within the landscape, as well as the experience of the natural landscape guided the masterplan for the experience of the site to co-ordinate the visitor within the landscape. The intervention attempts to expose the visitor to the many layers and rich history of the site as well as to the current state and use of the site.

The grid is once again used as a means of framing specific views and articulating important areas in the landscape. The frames then link to a proposed identification system scattered within the Cradle, indicating the presence of caves or fossil finds. The architecture aims to allow the visitor to interact with the landscape and in this way stimulates learning and new memories of the site. The frames does not present biased information to the user but rather highlight instances of note, letting the user imagine and extract meaning.

4.5 The conceptual approach

The design relies heavily on the archaeological grid placed over the site as a device to excavate the site while linking the excavated material symbolically to the cave. The geological context of the site is the most important aspect of the cave and so becomes the most significant attribute of concern. The geology carried and protected our heritage for millions of years and influenced the development of the area in various ways. Understanding and expressing the nature of the unique geological environment will allow for an intervention to facilitate the existence of the environment into the future and therefore support the proposed programme.