

Light Memory

A memorial space in
Sago Mine, West Virginia

Arch 384
Research Essay
International Velux Award: 2006

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The absence of light, when not corresponding to natural cycles or the flick of a power switch can be disturbing; in such an event we can immediately lose a sense of space, time and ultimately a sense of oneself. Darkness is palpable and material; it renders us incapable of purposeful action. In this state, we are left to the memory of our experience, whose image was invariably conveyed through light. On the architects' relationship to light, Louis Kahn wrote,

“At the threshold, the crossing of silence and light, lies the sanctuary of art, the only language of man. It is the treasury of the shadows. Whatever is made of light casts a shadow. Our work is of shadow; it belongs to light.”¹

The Velux Award was an open-ended ideas competition which asked for an exploration into the role of light in architecture. On January 2, 2006, around the time of application for the competition, there was a fatal explosion at Sago Mine, West Virginia which claimed twelve coalminers' lives.² This tragic incident generated the design of a memorial space which would investigate the miner's relationship to light and the *shadow* left in its absence.

Located in the depths of the earth, the coalmine is a dark, cavernous and labyrinthine space of inscrutable darkness. The project I proposed sought to investigate the notion of a miner's memory of light and experience; which would be his or her only way of remaining connected to the lit upper surface while labouring in a space of endless night. The project focused on the threshold between the absence and presence of light, a transition space that is the shadow cast by light or what I would like to call, *light memory*.

The camera obscura acts as precedence for creating this space of *light memory*. That light travels in a straight line is a simple law of physics which can be used to explain the workings of this 'dark room'. When rays of light pass through a small aperture they cross and as these intersecting rays make contact with a surface parallel to the opening they reform upside-down. In the 17th century Dutch painter Johann Vermeer used the device as a tool to transcribe the pattern of light and shade of his subjects. The camera obscura, like our own eyes, traces in virtual or *memory* space the varied images from our world of experience. The very structure of the camera obscura relies on the threshold between absence and presence of light to convey and display the information of 'real' space. Its ability to produce an experience of connectedness and presence through the luminous images it



Vigil for trapped miner's. Sago Mine, 2006

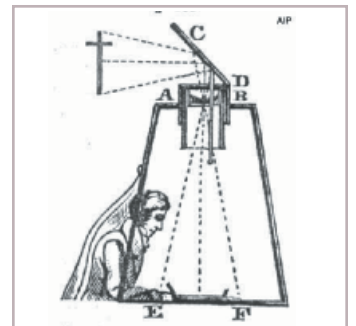


Diagram showing workings of a camera obscura

projects, acts as inspiration for the design of the proposed memorial project.

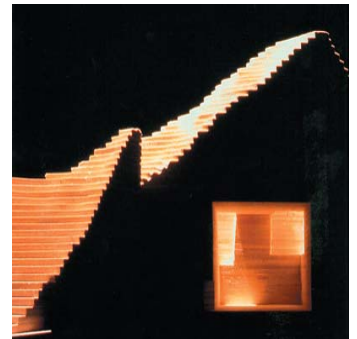
In the tradition of Vermeer, contemporary artists have experimented with the basic principles of the camera obscura. The work of photographer Abelardo Morell is a prime example of using the device to capture unconventional views of the city and to highlight the notion of light as the conveyor of vast amounts of information. His photographs fuse outdoor elements with domestic scenes, allowing the viewer to see the existing reality outside the window. For example, he has created an image of Times Square displayed onto the walls of a hotel room and that of the Empire State Building projected inside a bedroom. In these pinhole projected vistas of cities onto domestic interiors, Morell proposes that we are enveloped by a plurality of images. These images from the camera obscura alter our perception of reality and our placement in it. As a result, this device is central to the design of the miner's memorial space.



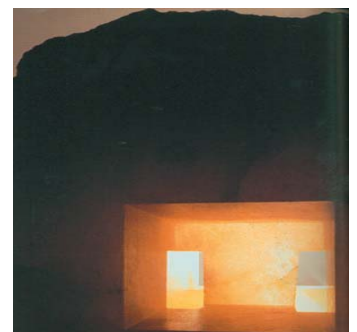
Abelardo: Manhattan looking west in empty room. 1996

Works which engage in large scale earthworks were influential in formulating the carved earthen spaces of the project. The work of artists and designers such as Eduardo Chillida, James Turrell and Maya Lin acted as precedent for the design of the memorial space. Their unique responses to light, sculpture, context and site have been investigated in an effort to generate a response to a disturbed and heavily excavated mining site.

In the work of the late Spanish abstract sculptor, Eduardo Chillida, materials such as steel and stone are pierced, penetrated or otherwise replaced with volumes of light and air. Chillida fervently believed that, “emptiness is the great source from which all is created.” For his final project, which is currently under construction and overseen by Arup Engineers, Chillida proposed the creation of a vast sculptural space within Tindaya Mountain on the island of Fuerteventura. This excavation project transformed his earlier experiments in sculpture to that of a monumental carved space lit from above by two massive skylights. Like many of his acclaimed works, the Tindaya Mountain project was focused on expressing ‘negative volume’.



Within the mountain, the artist wanted to hollow a cubical void measuring one-hundred and thirty feet per side. Two vertical shafts would allow beams of sun - and moon -light to penetrate into that chamber and project shifting trapezoids of light on its inner surfaces. A narrow grotto would provide ventilation, access and a view of the horizon to “make us feel smaller and far more alike one another than we think we are”³. In response to the work of Eduardo Chillida, the miner's memorial space is designed with the intent to create a dialogue between the dark



Chillida: Model for Mt. Tindaya 1985

and the light, the empty and the full by proposing a series of rooms which address this theme. After circulating through rooms that each act as uniquely configured camera obscurae, the journey culminates in a final monumental volume. This bold move ultimately links the miners working below in the existing mine site with the light found hundreds of meters above them.

The installation work of James Turrell is composed primarily of artificial and natural light. In his work, projected light creates phenomenal surfaces which although immaterial can be transversed and felt by the observer. His ongoing project is entitled Roden Crater, a monumental work which involves carving out tunnels and creating chambers in an extinct volcano in the Arizona desert. Turrell has said, “my work is about space and the light that inhabits it. It is about how you confront that space and plumb it. It is about your seeing.”⁴ His large-scale, often architectural works incorporate the complex interplay of sky, light and atmosphere in motion across expanses of ocean, desert, and city. Taking the Roden Crater project as precedent, the memorial proposal focused on designing a series of spaces where light, as opposed to form, becomes the subject and is given a palpable, material presence. Where we are asked to contemplate and question our relationship to light, space and time.

Maya Lin’s Vietnam Veterans Memorial powerfully engages landscape, sculpture and memory. The project is an earthwork and memorial space which was conceived as two retaining walls of granite which leads the visitor along an inclined path past the inscribed necrology of veterans. Lin produced a monument lacking in historic content but capable of serving as a necessary cathartic vehicle for mourning the tragedy of the victims⁵. In response to the tactile spaces Lin creates, the miner’s memorial attempts to generate a full-bodied response; one that encompasses sight, sound and touch. Its purpose is to connect those temporarily inhabiting the project to the memories and thoughts of those being commemorated.

Christian Norberg-Schulz writes in the *Poetics of Light*,

“The study of light is something more than a mere investigation of illumination. Light and things belong together and every place has its light. The sky is the origin of light and the earth its manifestation. Always the same and always different, light reveals what is.”⁶

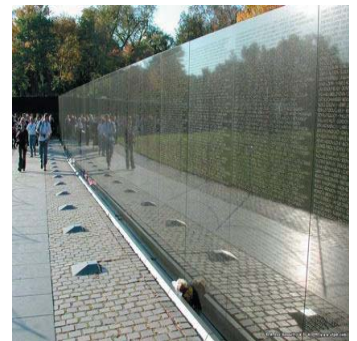
The central issue in responding to the memorial site lay in challenging the notion of the mine as a dark place impermeable to light. Questions which arose early in the design process focused around how to humanise and subtly illuminate such an



Turrell: Aphrum-Proto. 1966



Turrell: Roden Crater. 1972



Lin: Vietnam Memorial. 1982

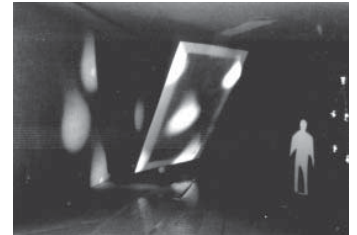
inhabitable and unnatural space.

Experiments into the concept of *light memory* are detailed on the first presentation board. These investigations tried to describe light's synaesthetic or material qualities. In the competition scheme, light is described beyond its ability to simply illuminate. In the spaces proposed, light takes on a material quality and can be revealed as a powerful carrier of information of the external landscape. Small scale light studies were a useful way to understand and consequently manipulate pinhole projections of the outside using various screens and filters to alter spatial qualities. To further this investigation into the communicatory nature of light, a full scale camera obscura was constructed in my bedroom as a way to investigate the experience of complete sensory immersion within the virtual or memory space of the projected light. Various lenses, prisms, mirrors and filters were tested to gain a better understanding of how light information could be manipulated within a space to transform its sensual and material qualities. Sketching and creative writing were also invaluable preliminary exercises in gaining a better understanding of the project as a means to sensitively engage the memorial site.

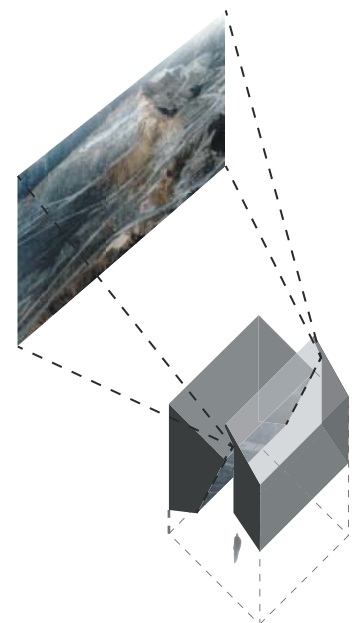
From the aforementioned investigations, a sequence of spaces arose for the memorial project. The location for the memorial space overlays and engages the site of the explosion at Sago Mine. Its organization reflects the unerring rhythm of the mine's rigorous room & pillar plan, mirroring spatially the experience of the miner below. The proposal is for a series of dark rooms, each containing a unique aperture from which are cast shadowy impressions from the outside as a means to create a palpable, synaesthetic experience to the observer. In effect, these projections attempt to recall the memory of the sky, the land, the presence of others, and of natural cycles such as the path of the sun and weak shadows of the moon. In response to the seminal works of artists such as Abelardo Morrell, Eduardo Chillida, James Turrell and Maya Lin, the proposed memorial reveals the hidden qualities and characteristics of light as a carrier of information and memory.



Light study: bedroom camera obscura, outside projected on wall



Light studies: pinhole projections



Camera B: Memorial proposal

(Footnotes)

¹ Twombly, Robert. Ed. Louis Kahn. Essential texts. New York: W.W. Norton & Company, Inc. 2003, p.259

² Sago Mine Disaster: http://en.wikipedia.org/wiki/2006_Sago_Mine_disaster

³ Eduardo Chillida: Tindaya Mountain <http://www.tindaya-chillida.com>

⁴ Turrell, James. Ellipse. New York: Hatje Cantz Publishers. 2000 pg. 57.

⁵ Lin, Maya. Boundaries. New York: Simon & Schuster. 2006 pg. 88.

⁶ A+U: extra edition, issue12. 1987. Poetics of Light. H. Plummer, C. Norberg-Schulz, T. Nakamura p. 112

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Web references:

An interview with Abelardo Morell: <http://www.angelfire.com/ma2/modpixie/morellint.html>

Abelardo Morell: http://www.abelardomorell.net/camera_obscura1.html

Chillida: Tindaya Mountain: Arup Engineers <http://www.arup.com/spain/project.cfm?pageid=3945>

Eduardo Chillida, Tindaya Mountain: <http://www.tindaya-chillida.com>

Floornature: Eduardo Chillida: <http://www.floornature.com/worldaround/articolo.php/art80/3/en>

James Turrell: Roden Crater

http://www.bbc.co.uk/worldservice/arts/highlights/001102_turrell.shtml

Greeting the light: An interview with James Turrell

<http://www.conversations.org/99-1-turrell.htm>