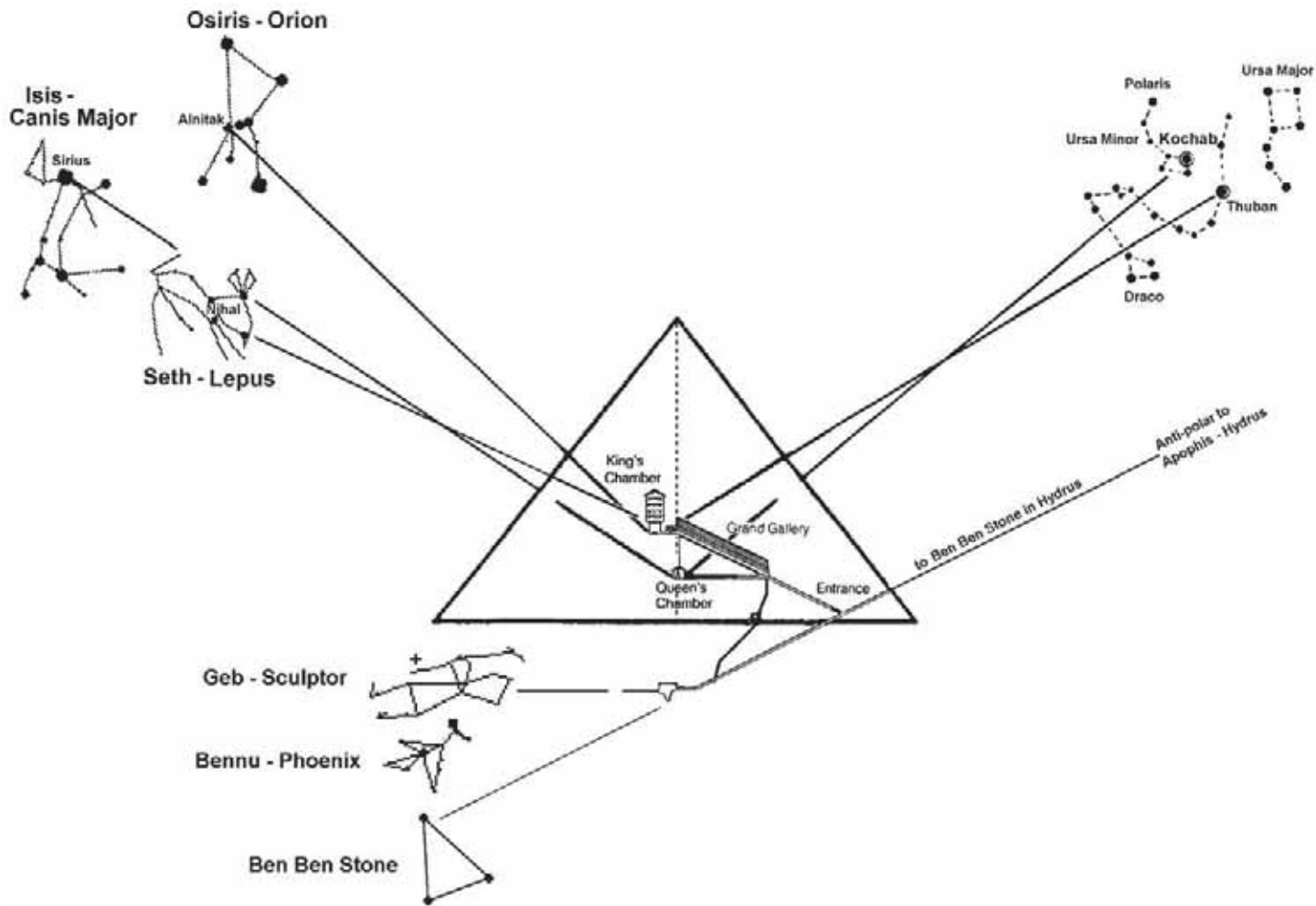


# THESIS

**Jacob Walker** | Master of Architecture  
School Of Architecture and Urban Planning | UW-Milwaukee



# Content

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Introduction



Polemic



Site



Program



Process



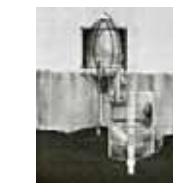
Conclusion



Explanation



Precedents



## **A House for Galileo:** A Supposition on Earth, Sky, and Phenomena

Project Site Location:  
**East Bank of the Mississippi River**  
**501 SE Main St.**  
**Minneapolis, MN 55414**

A house that reveals the datum like quality of the horizon and  
the realization of an experience that transcends architecture.





Optical devices assist in our understanding of our place in the universe

Remove the horizon which facilitates the feeling that the cosmos is what is moving instead of us

## Polemic

Humanity has always looked to the stars for answers. Ancient cultures found gods in the cosmos and signs in the stars. Recently, we discovered the elements on the periodic table are formed in the stars themselves. What is most interesting about this discovery is how scientific fact gives credence to the ancient narrative that we are the children of the stars. Stargazing remains a search for universal logic and humanity's place, as well as a method of contemplative practice that simultaneously engages humanity as spiritual and logical beings. The question I explore in this project is how can architecture enhance the contemplative ritual of stargazing?

NGC 4414  
Messier 33  
Distance: 2.7 Mpc  
Radius: 52,500 ly  
Mass: 2.5 x 10<sup>11</sup> M<sub>☉</sub>



Left Brain

2000, 21, 25, 27, 28, 30, 31, 32  
The Lion



Right Brain

Yours and Mine  
100% 100% 100%  
100% 100% 100%



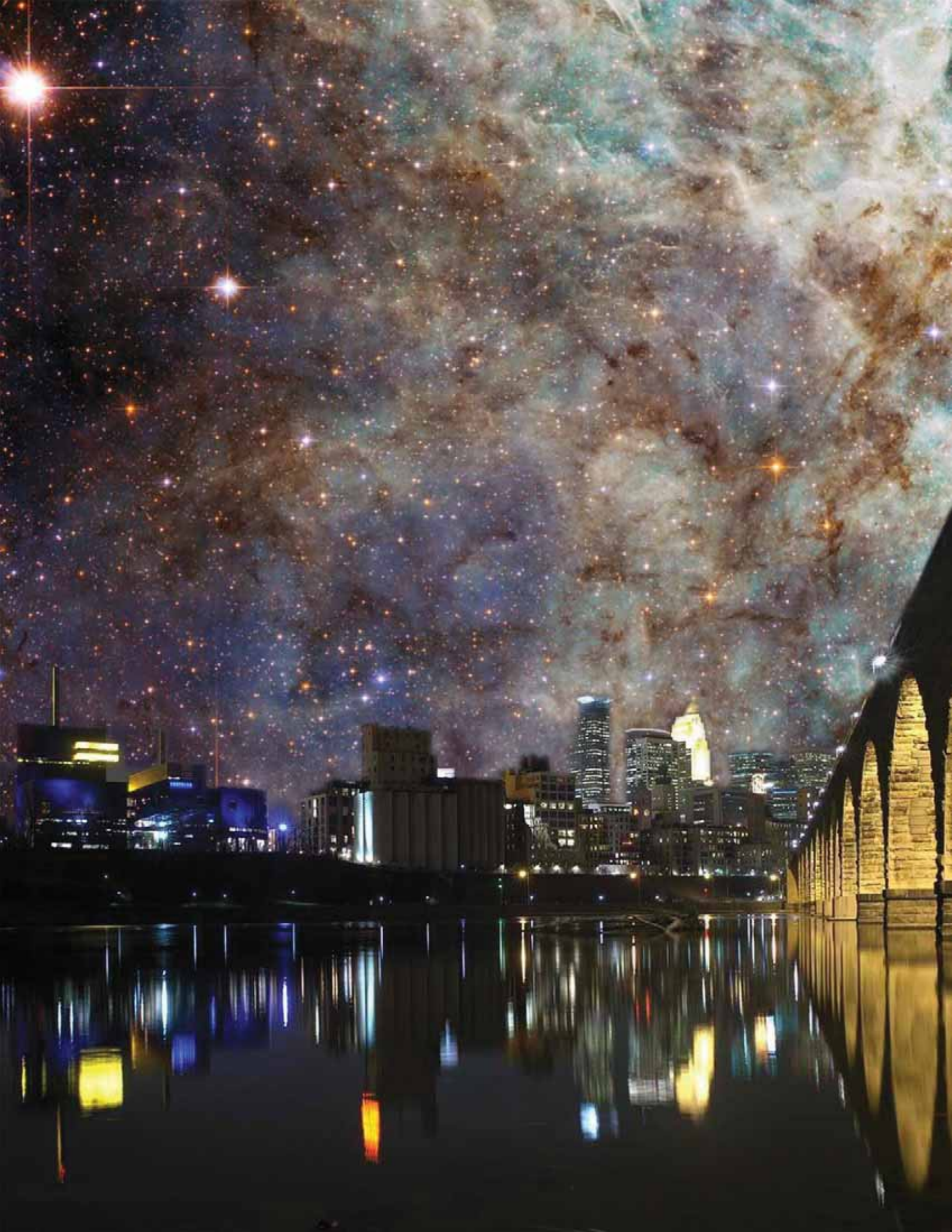
Same Big Questions

# Site

**East Bank of the Mississippi River  
501 SE Main St.  
Minneapolis, MN 55414**

Minneapolis is a prime location for this project. The fact that the river, which digs into the earth, and the city, which reaches for the stars, act as two discreet elements within a single field. These existing conditions encourage the architecture to mediate these two conditions by digging down into the objectivity and stability of the earth while still reaching for the subjective, dynamic heavens. The architecture itself investigates the unique nature of the site in an attempt to reunite the opposing methods of discovery that embody the city and the river.

Rivers uncovers earth  
Buildings reach for the sky  
Humanity tries to make sense of it all





Hennepin Ave Bridge

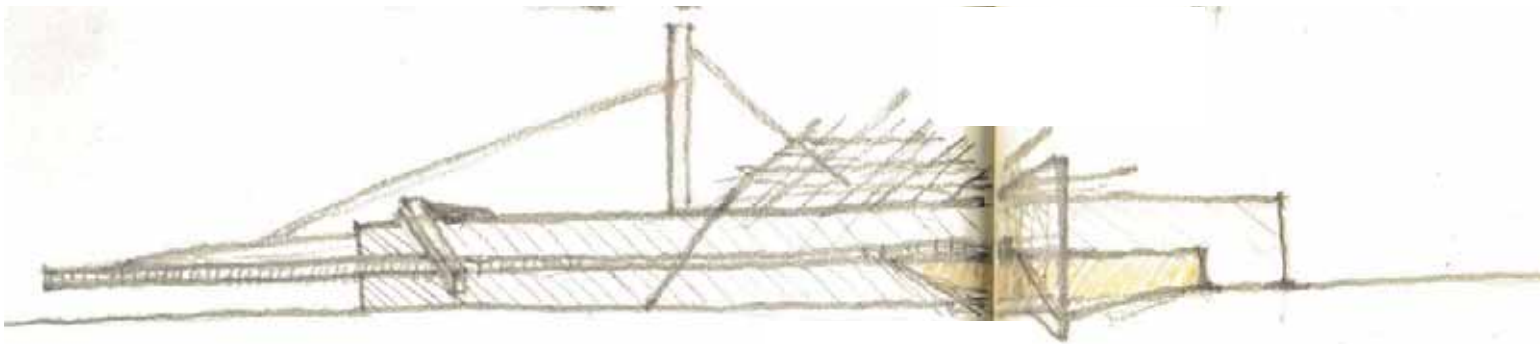
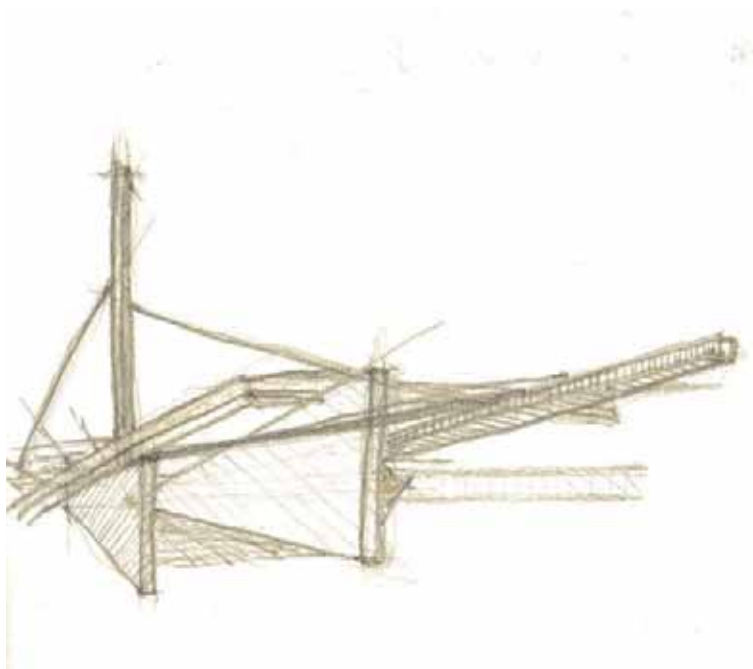
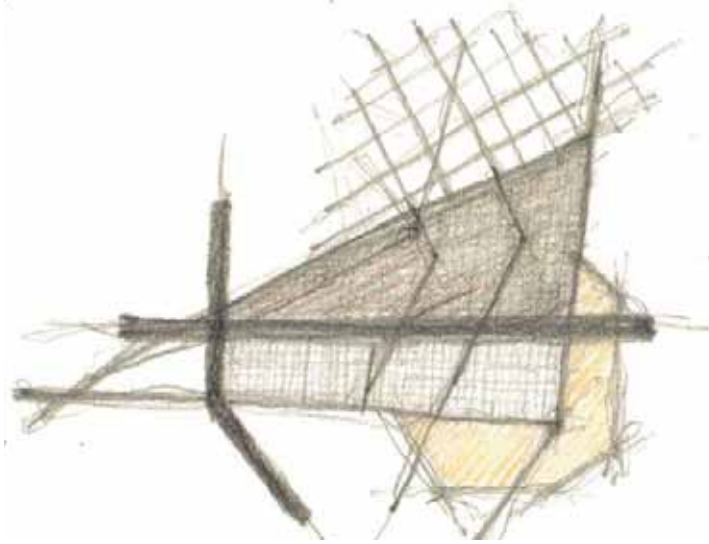
Downtown Minneapolis

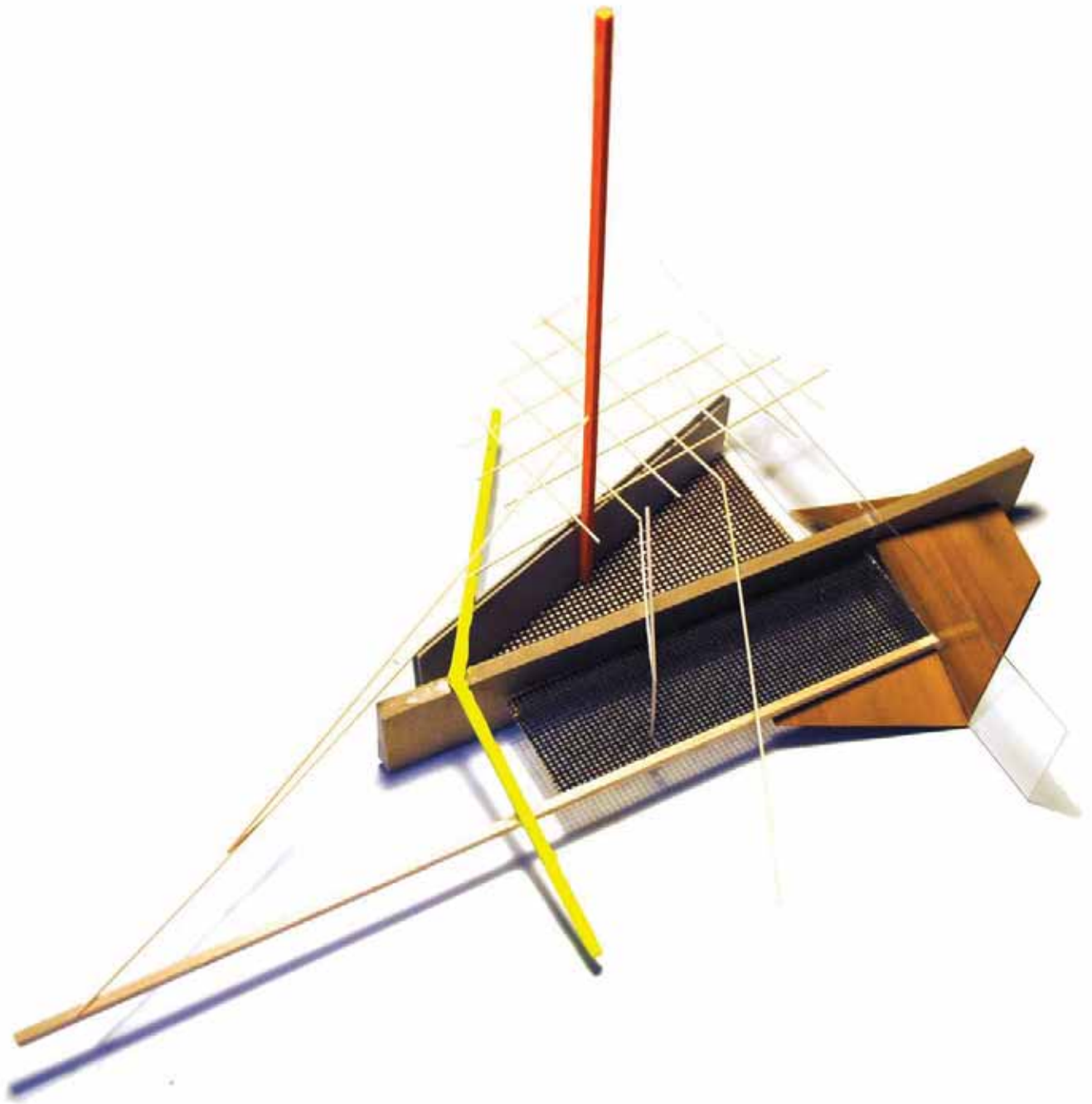


Stone Arch Bridge

35W Bridge

Guthrie Theatre





# Program

The Program of this project was a result of research on optical devices. A house for Galileo is the most logical way to incorporate the optical device, as well as create a narrative that helps to generate the layout and program. The size of the program is the result of the reductive nature that a thesis requires. Questioning what is necessary to the logic that is set up in the thesis and recognizing what is not important is an important distinction that helps focus the thesis and fulfill the requirements.



## Program

**Reception Hall-** A place for Galileo to greet his guests

**Work space-** A place for Galileo to grind lenses for the large telescope

**Observation Deck-** A place to look at the stars

**Individual-** 1-3 individuals

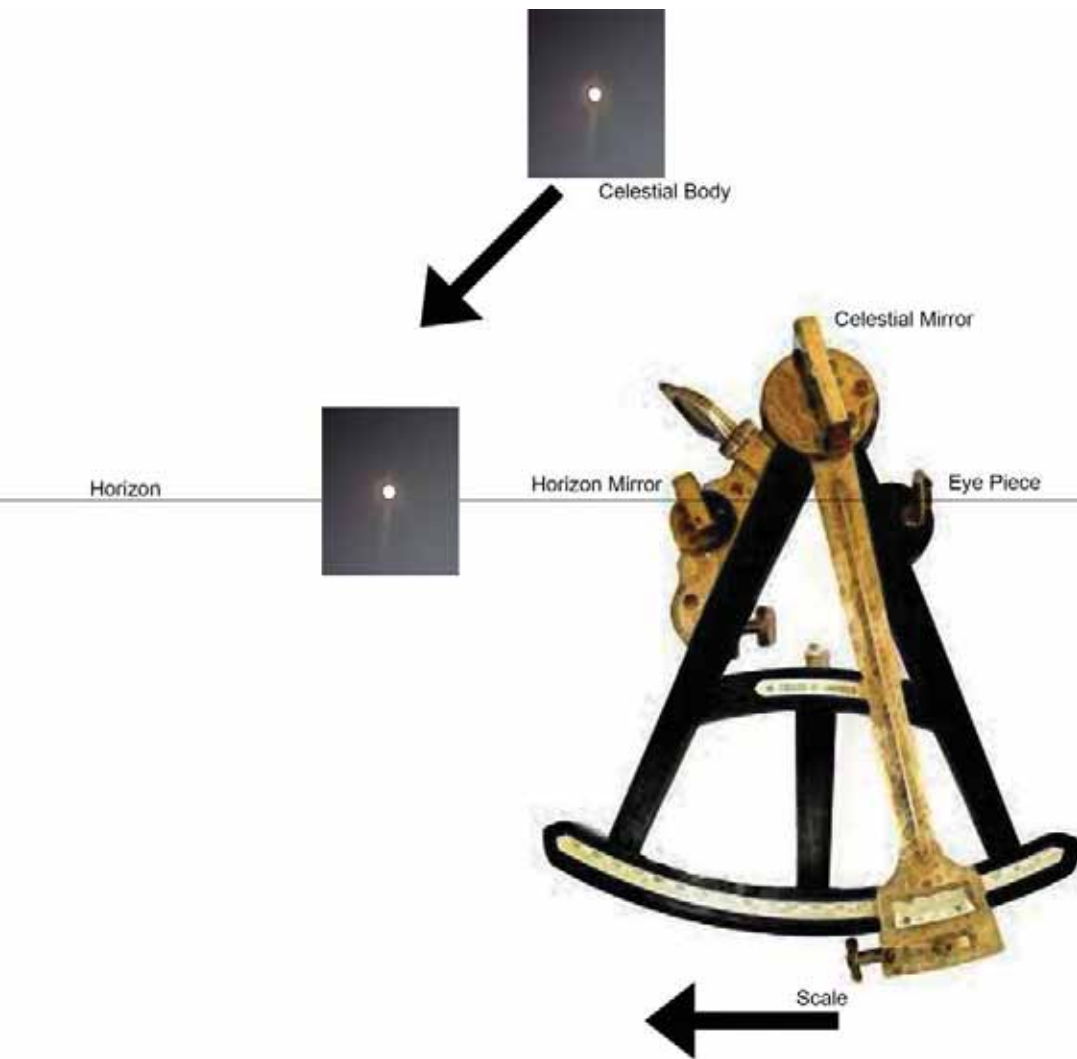
**Group-** 3-12 individuals

**Storage-** A place to store ground lenses

**Lens Lift-** A method for Galileo to lift and place his ground lenses into the optical device

## Process

Even a small piece of architecture requires an enormous amount of work. This is a small sampling of the iterations Galileo's house went through as more research was uncovered. Design is a method of discovery and each of these images taught me something new about myself as well as architecture.

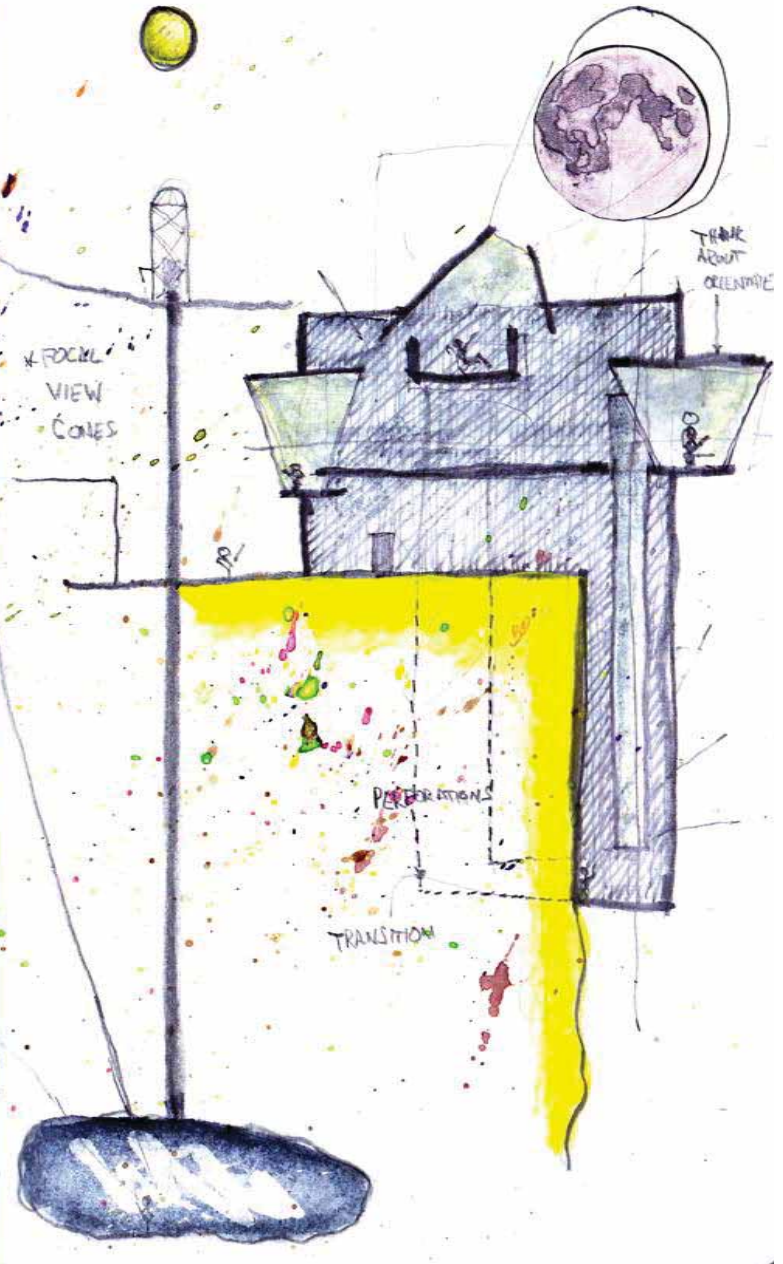
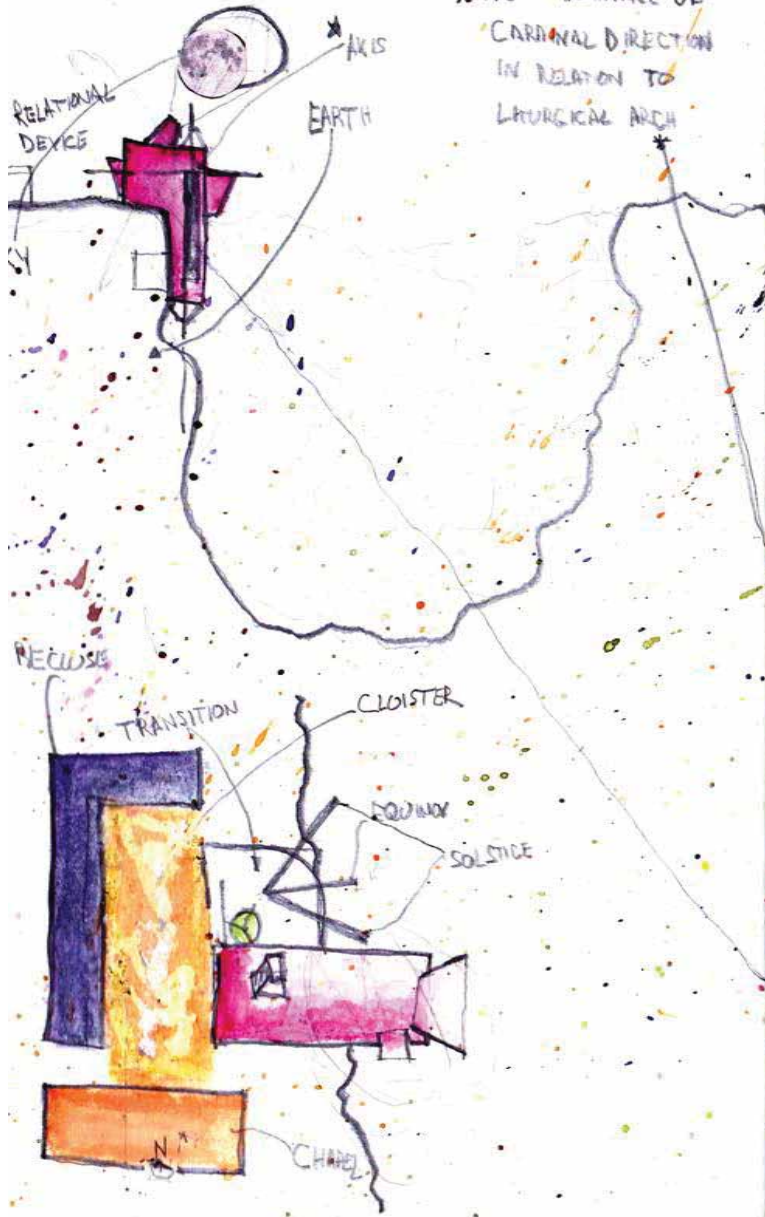


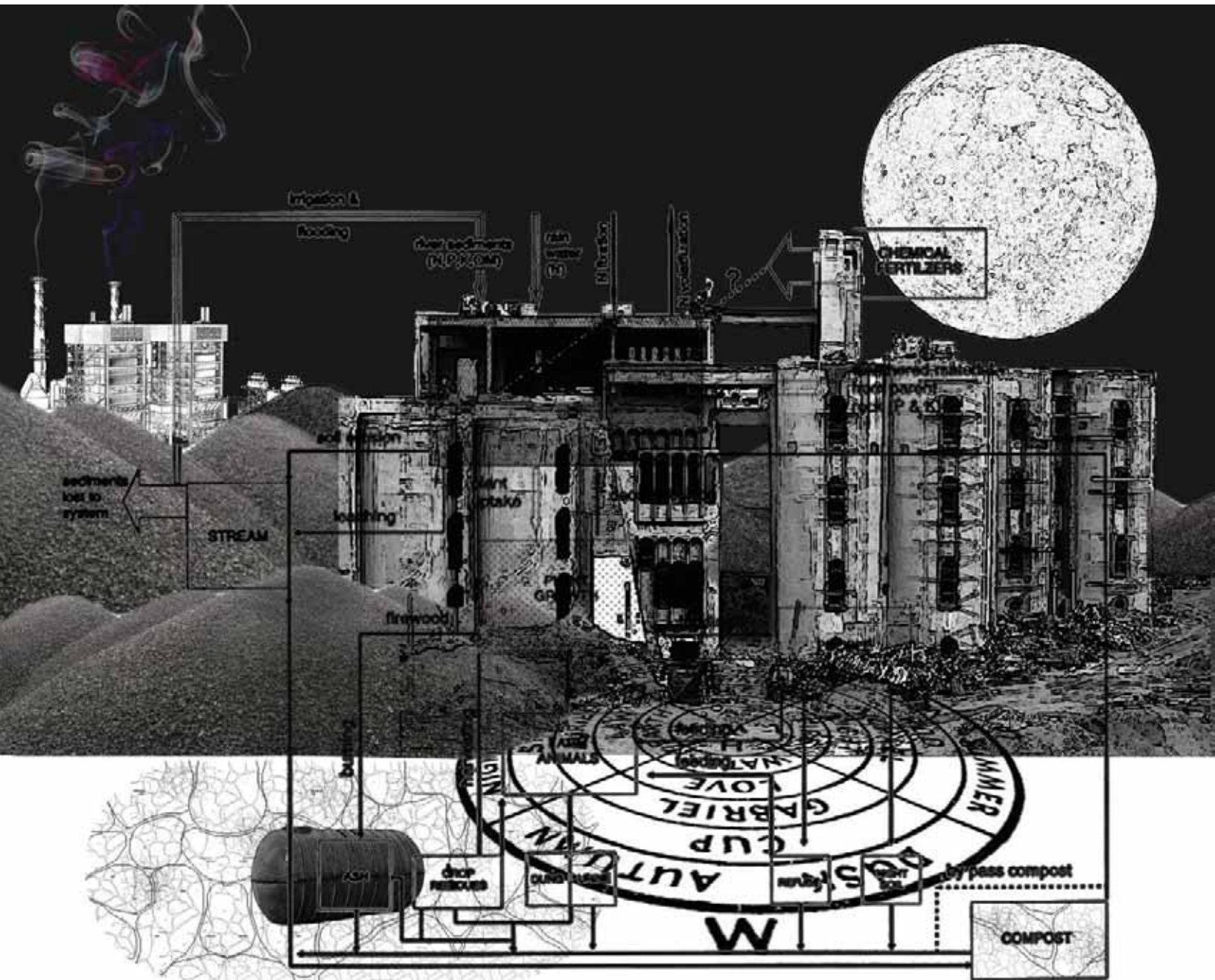
Horizon  
 Known Celestial object  
 Zenith angle  
 Azimuth Angle  
 Date  
 Time

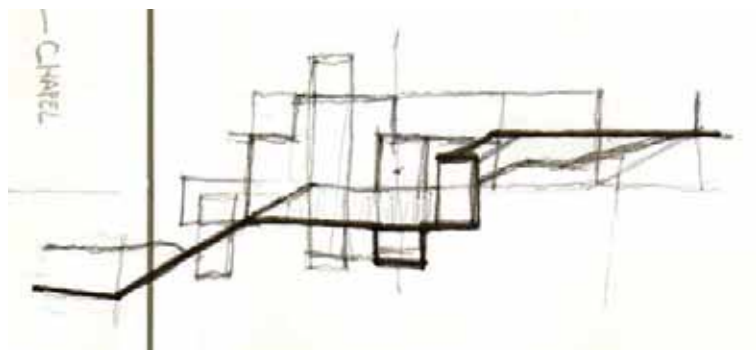
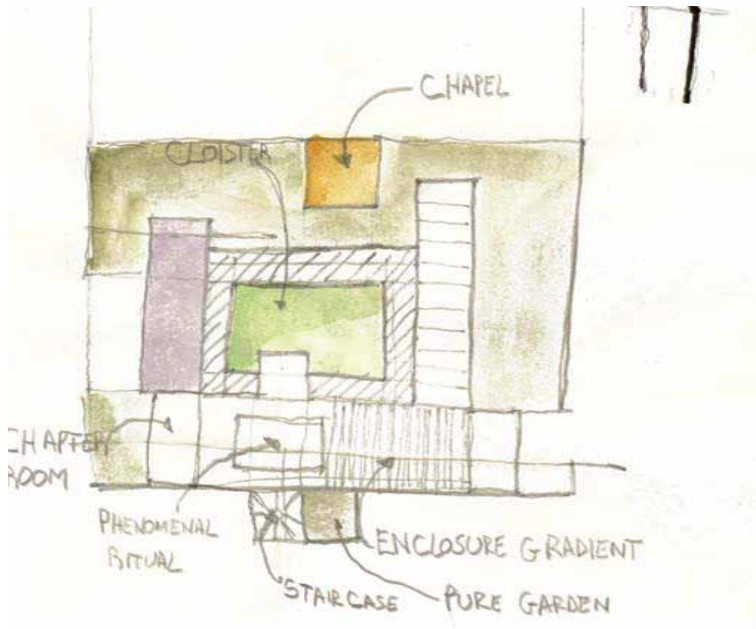
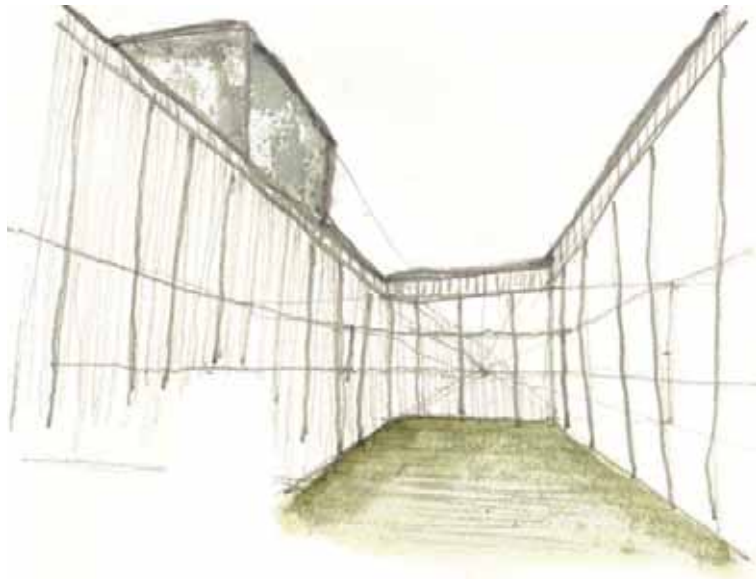
What if Architecture did this?  
 Issues of scale  
 Why does the moon look larger by the horizon?

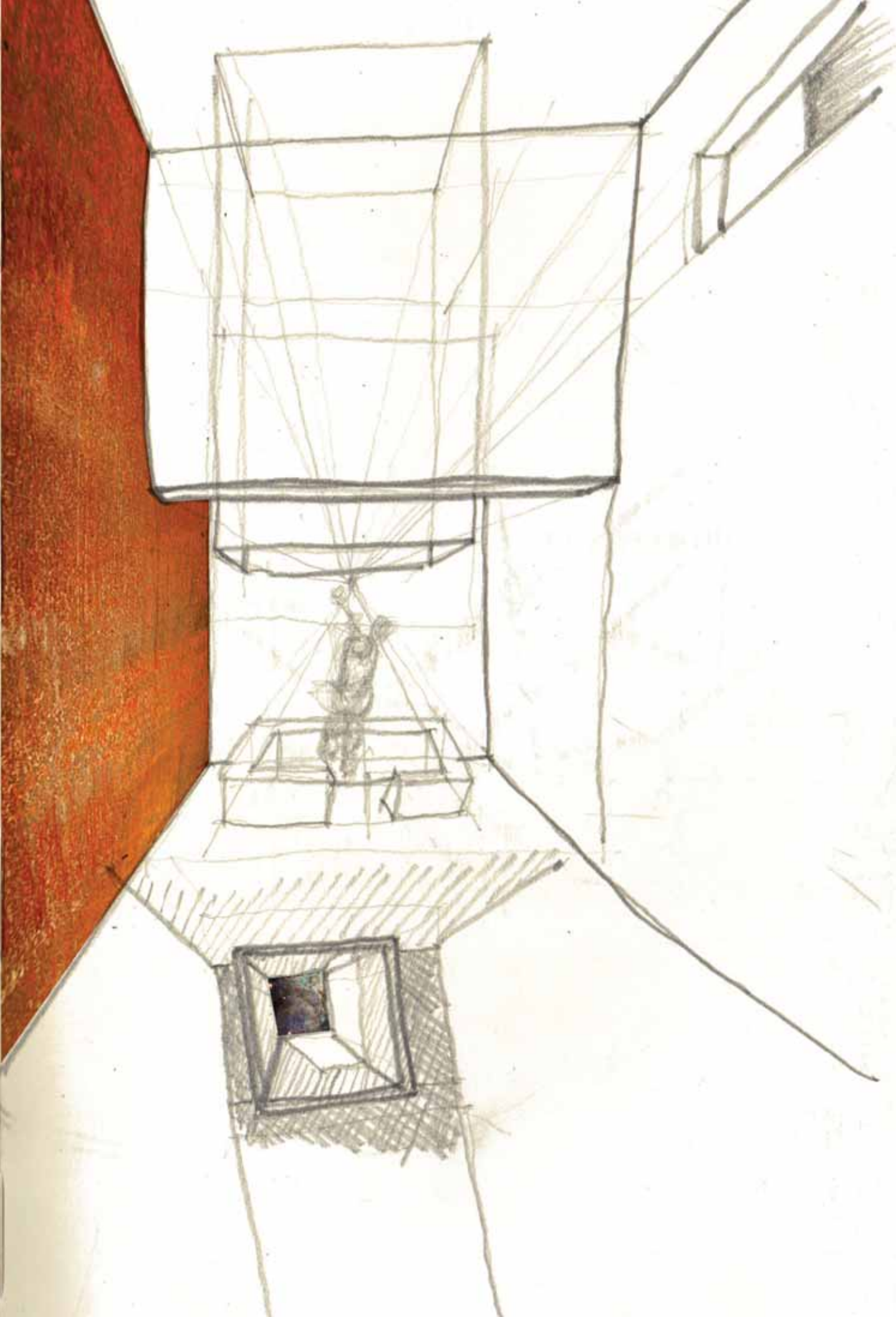
FACONITE MINE SOUDAN MN

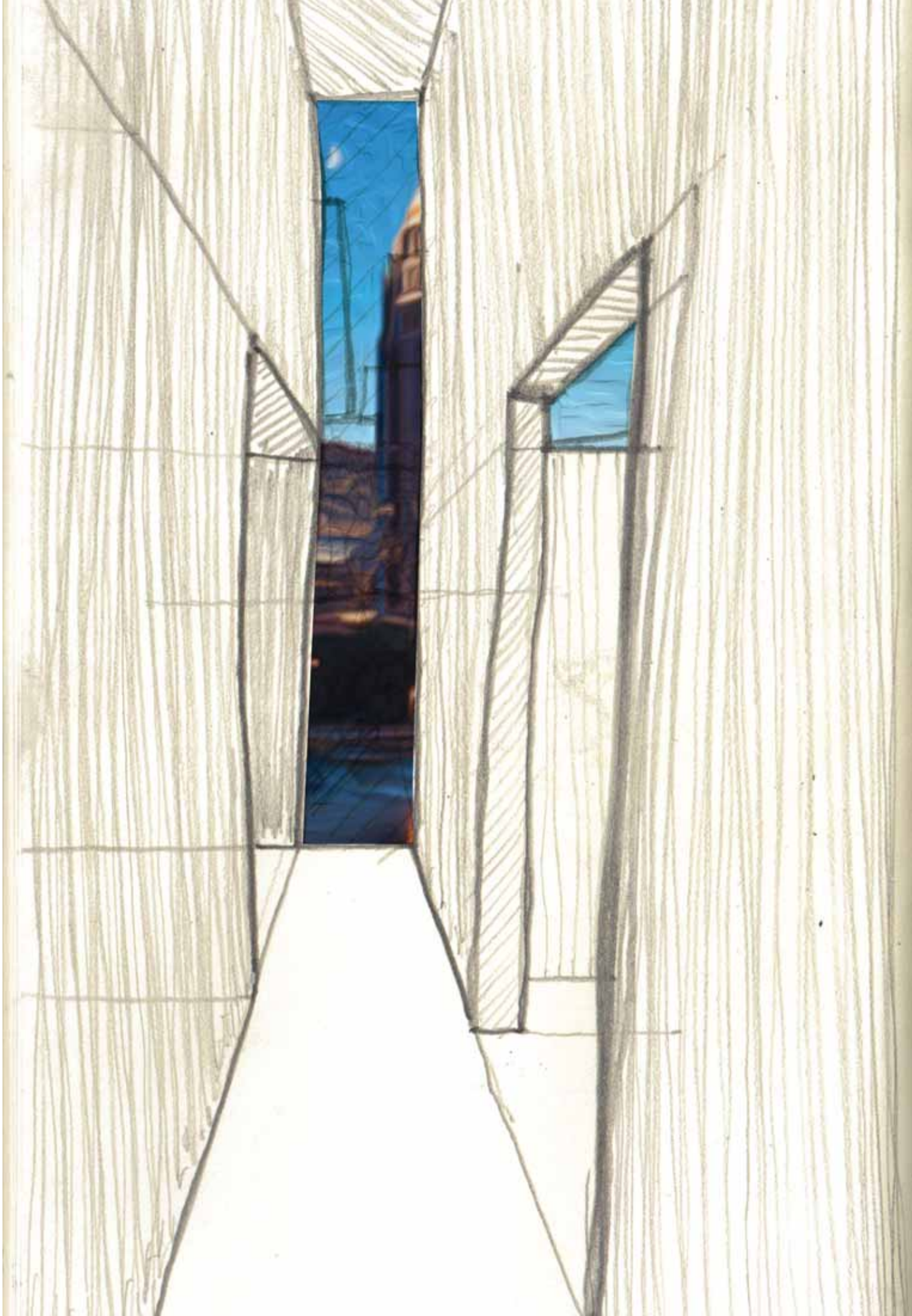
\*THE IMPORTANCE OF  
CARDINAL DIRECTION  
IN RELATION TO  
LITURGICAL ARCH

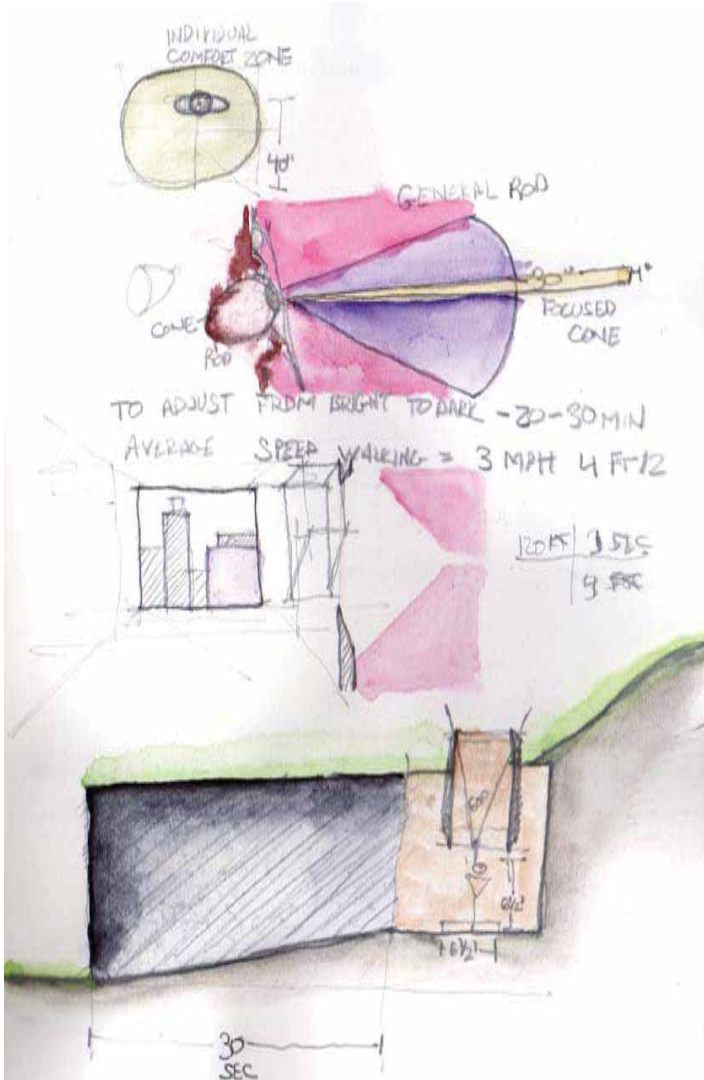
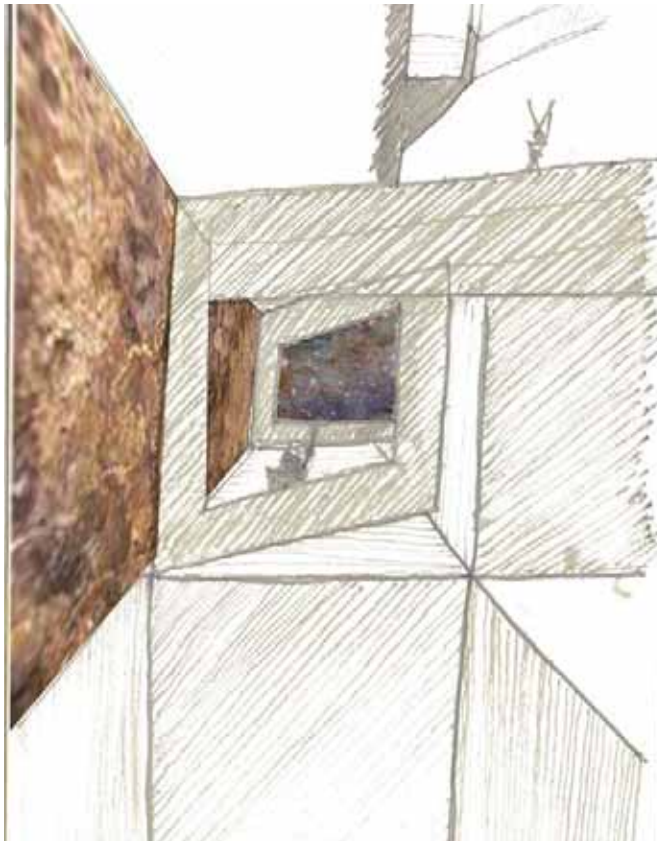


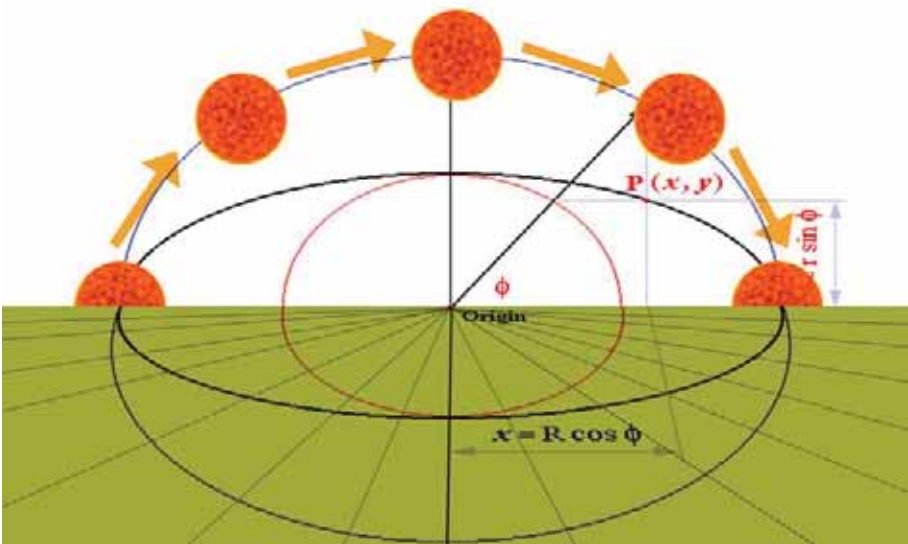
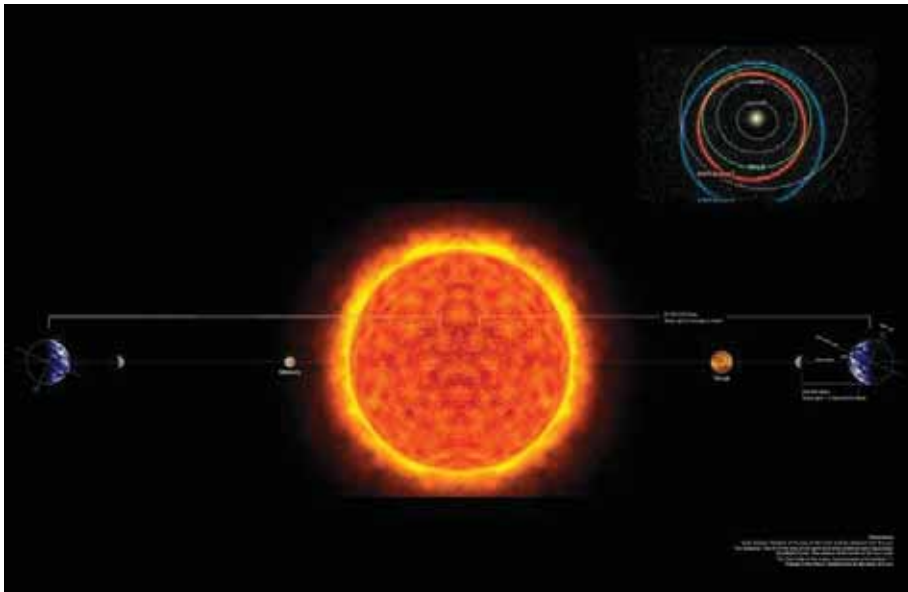




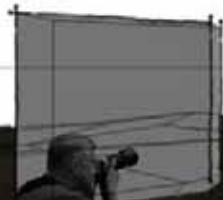


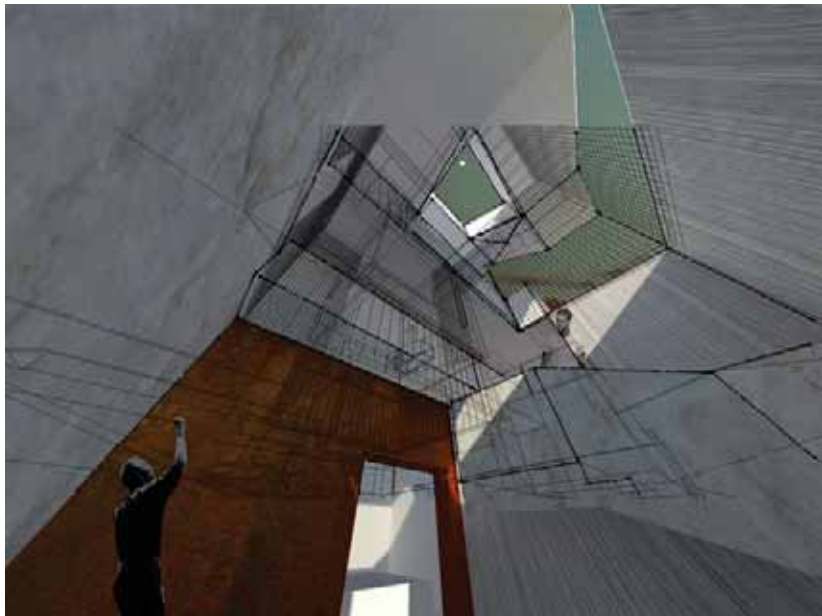












## Conclusion

Scientifically, the telescope allows us to look upon the cosmos with increasing clarity, giving humanity a richer understanding of scale and our place in the cosmos. The relational qualities of the telescope make it an appropriate place to begin this architectural supposition. Like the telescope, this type of architecture needs to explain to inhabitants the purpose it has through formal cues and physical interaction, then disappear once the function is understood, leaving the occupant with nothing but a breathtaking view of the stars. The result of this entire process is an architecture that does not rely on inhabitants to be interested in architecture to draw them to the building. It allows architecture to explain the function through a formal language, then it disappears to leave the user with the experience of looking into the heavens.

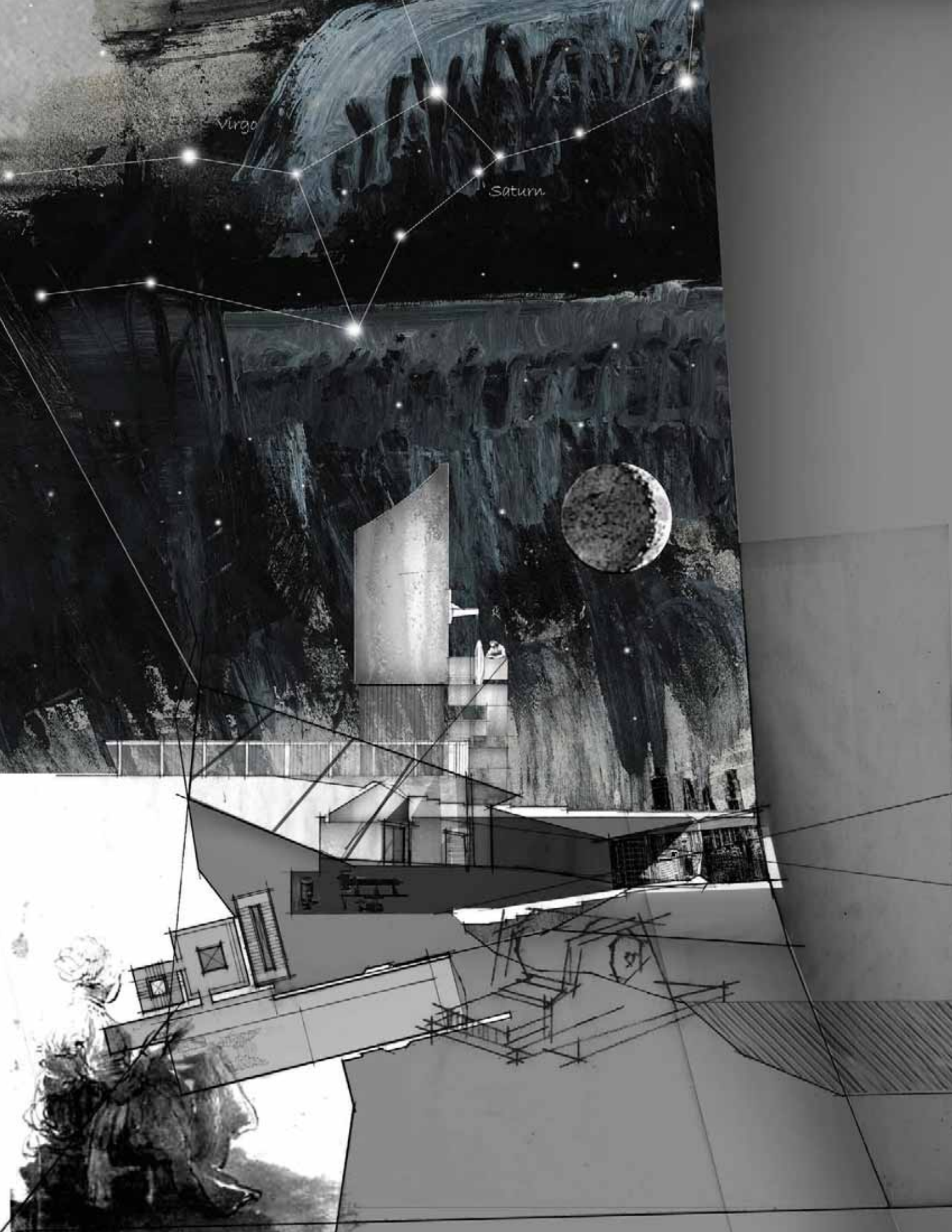
Betelgeuse

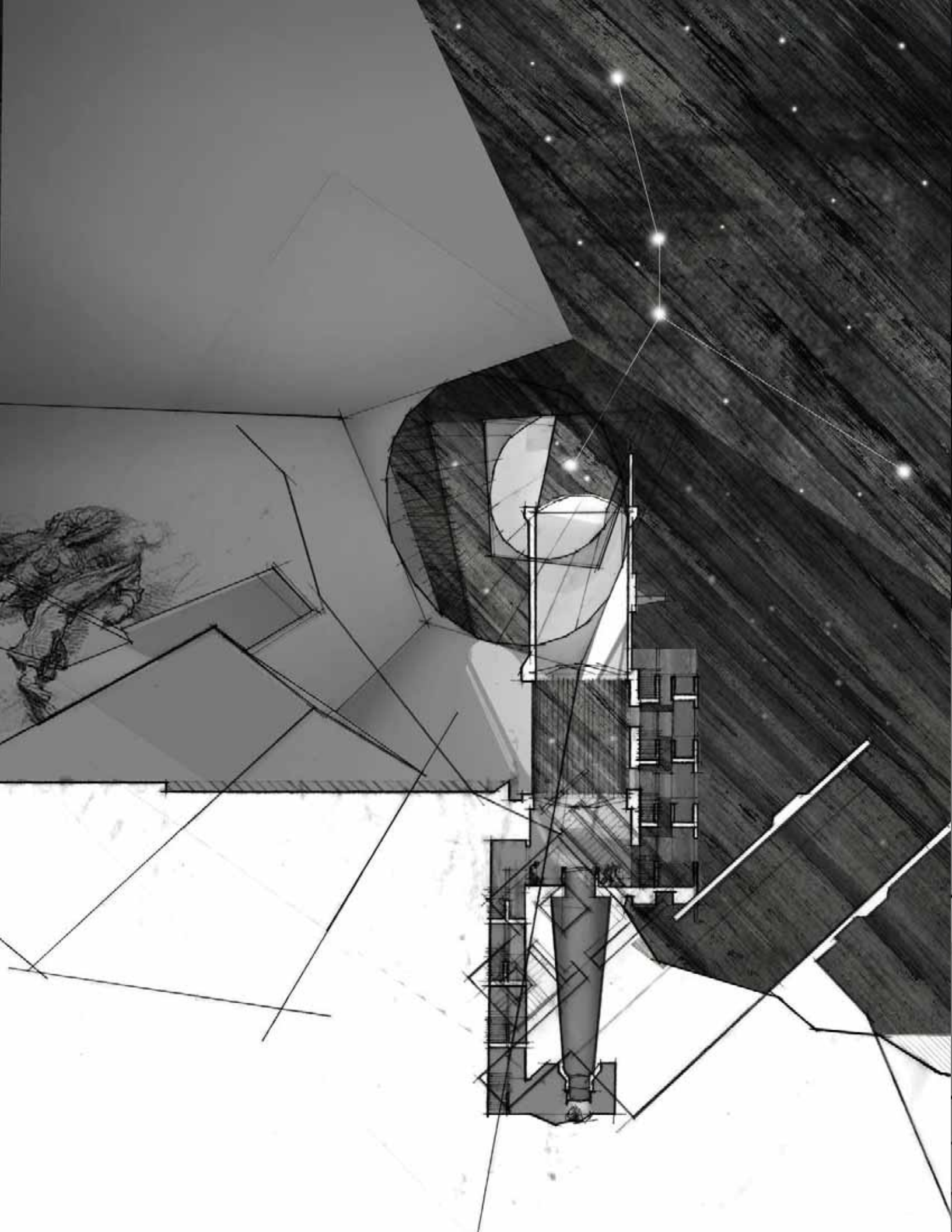
Bellatrix

Orion's Belt











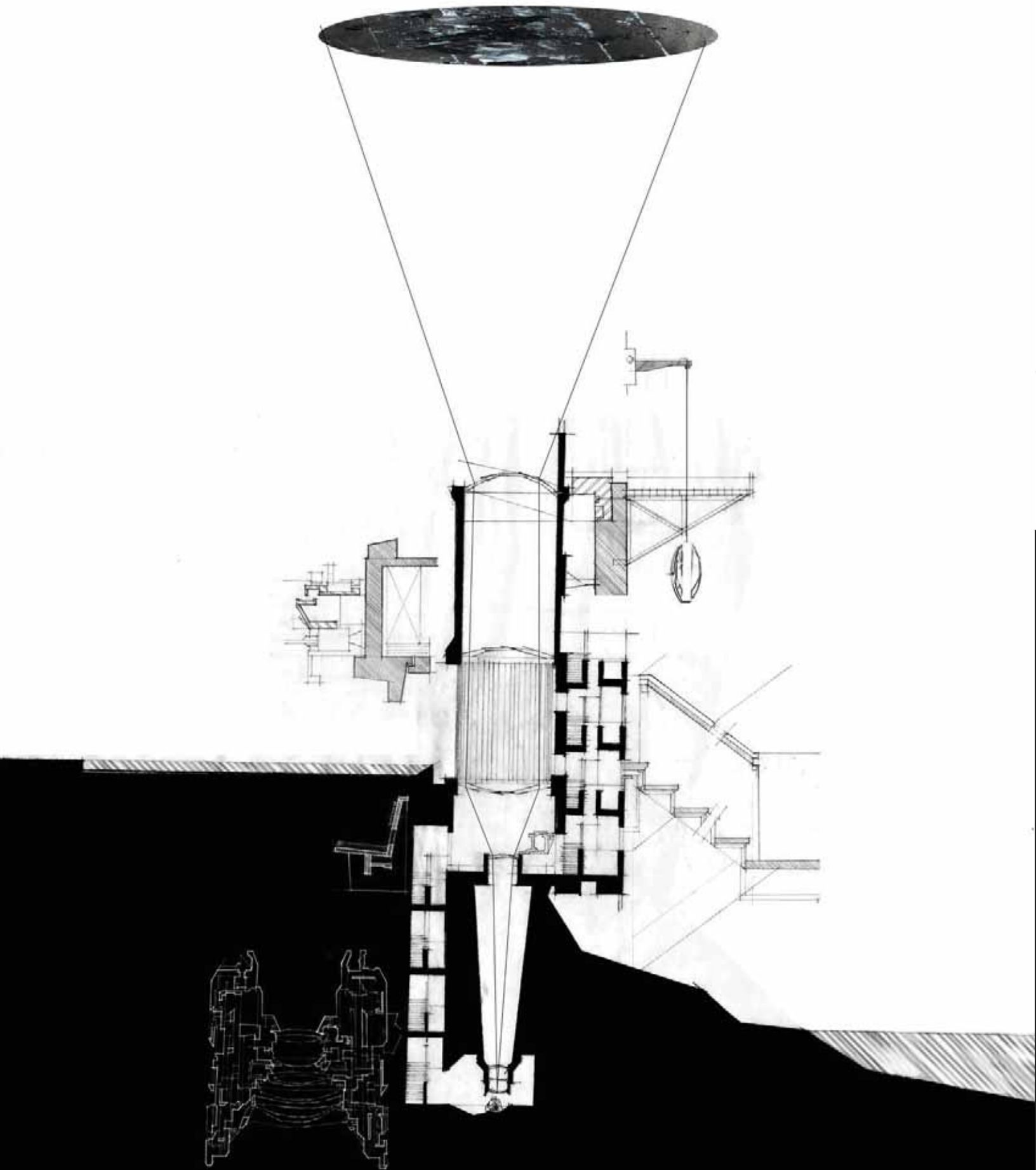
Aroturus

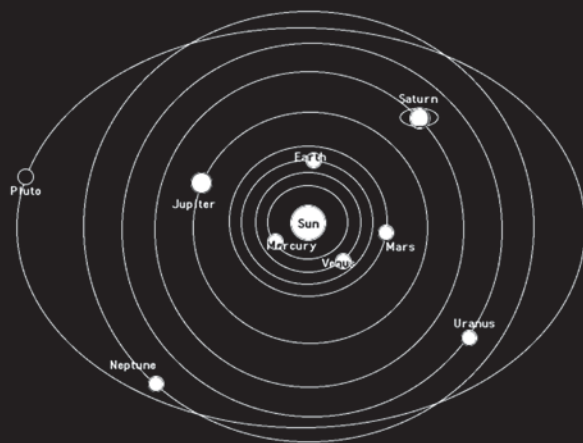
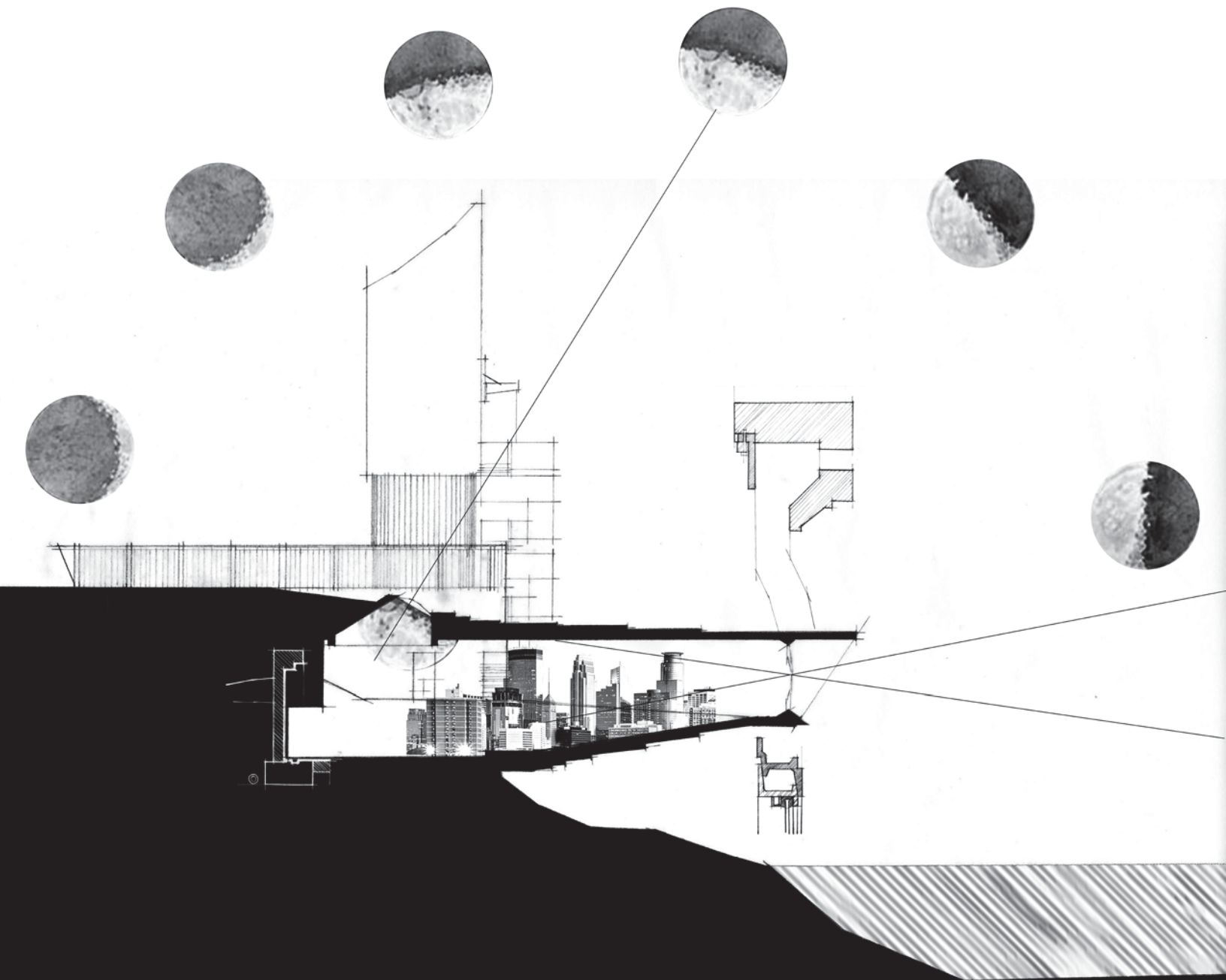
Betelgeuse

Bellatrix

Orion's Belt

Rigel





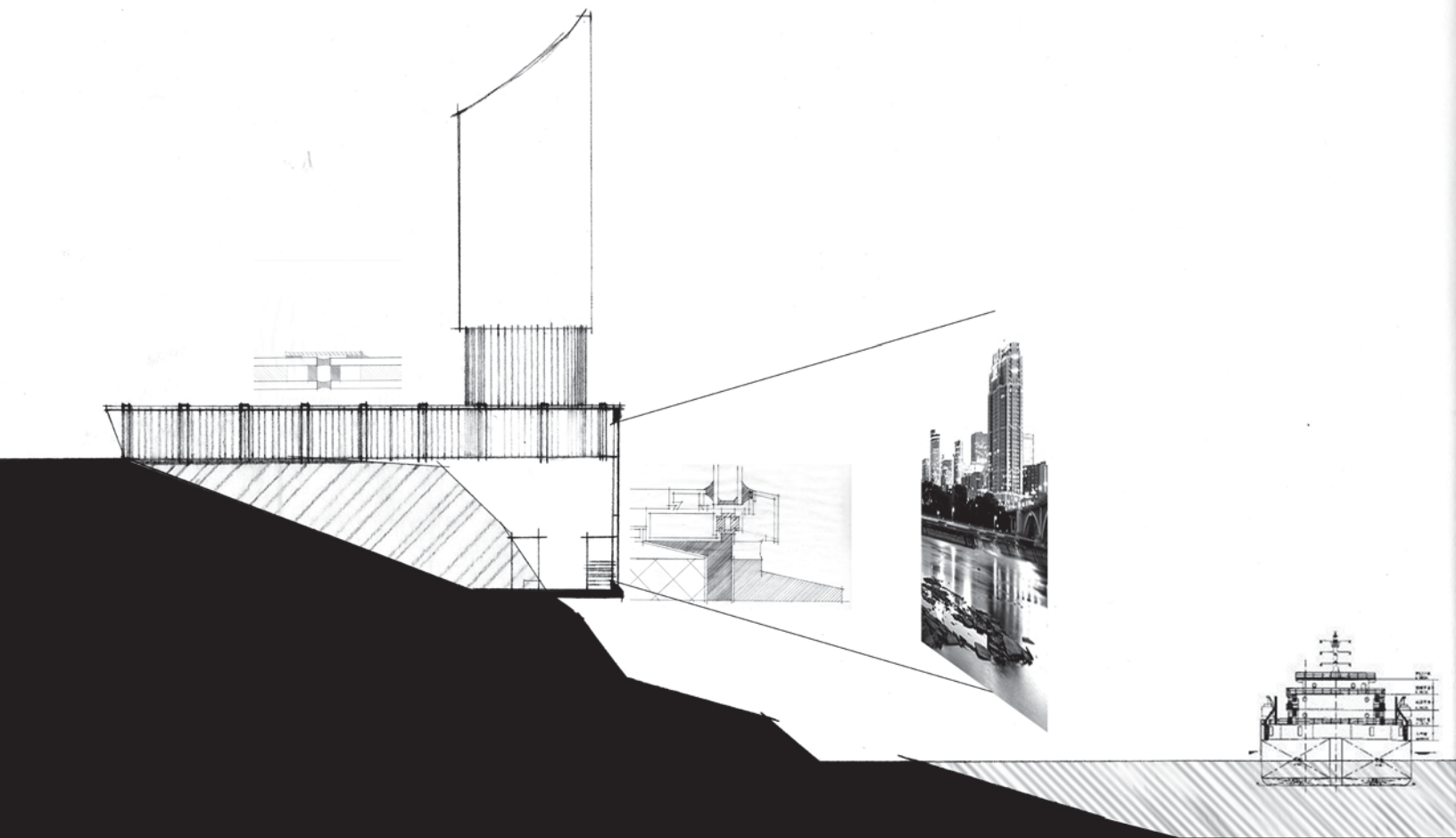
Dinosaurs

Pyramids

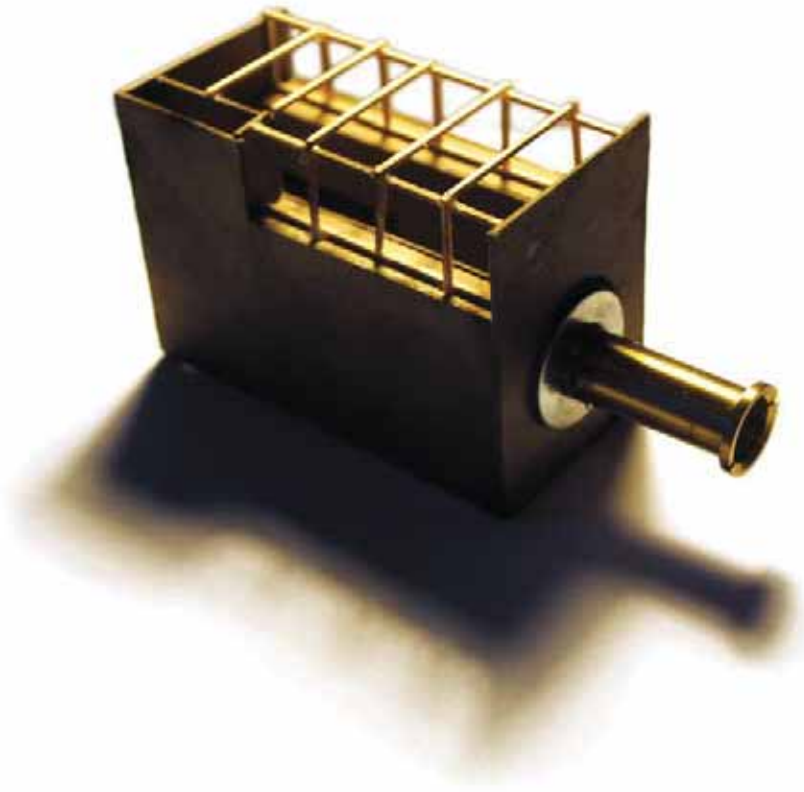
WW 1

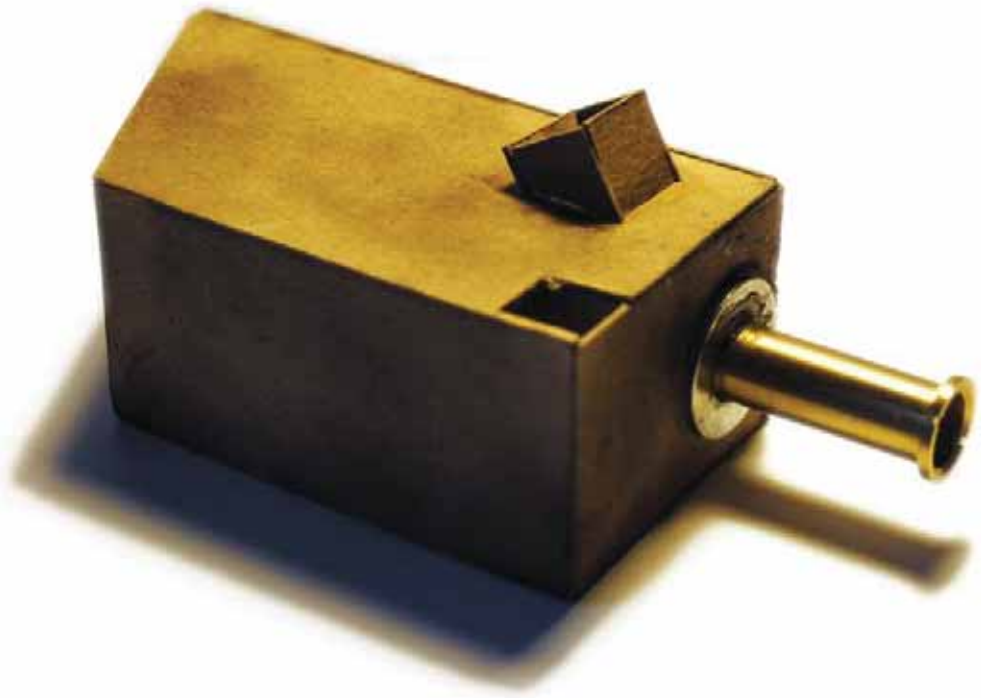
Big Bang

Present Day

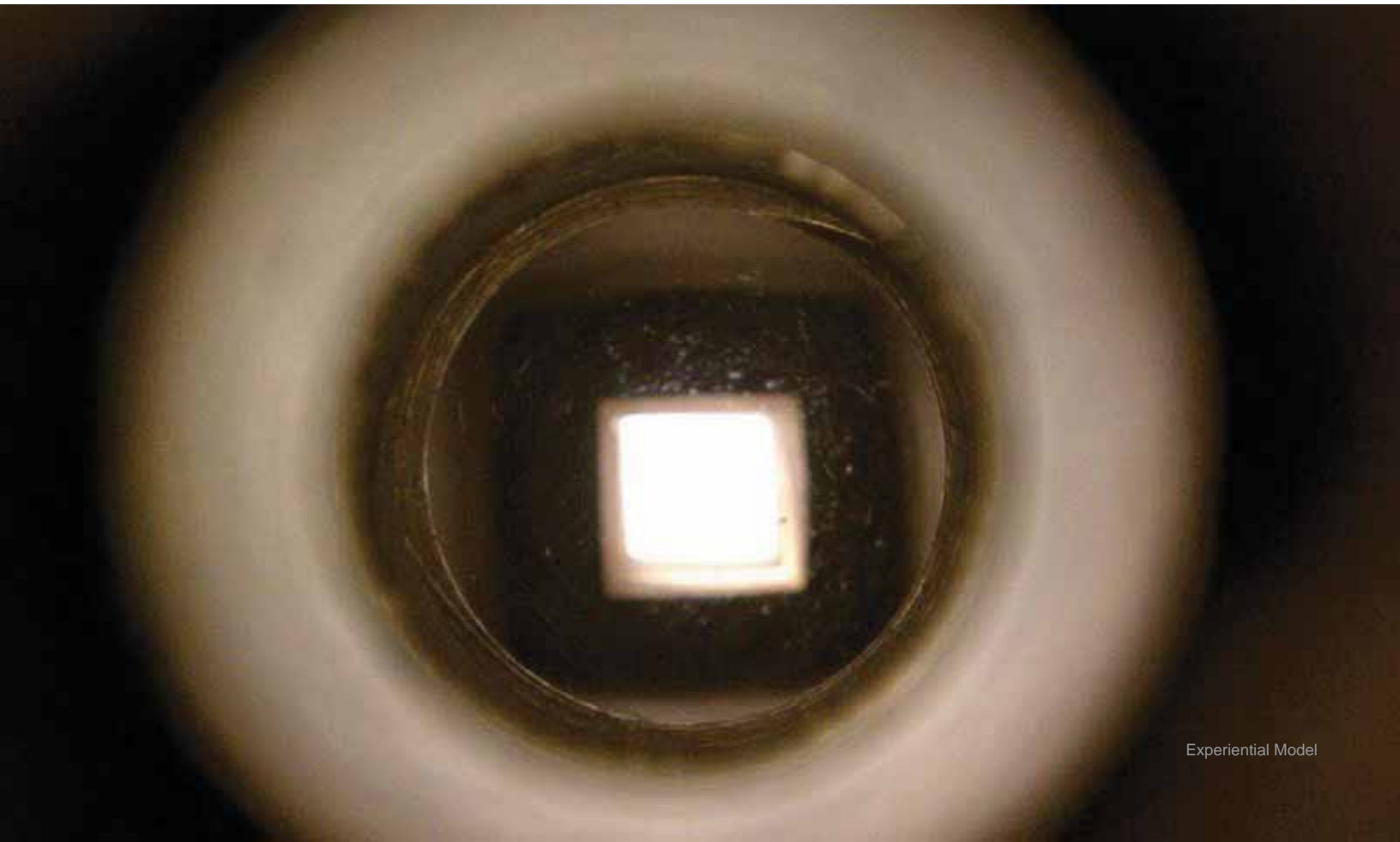
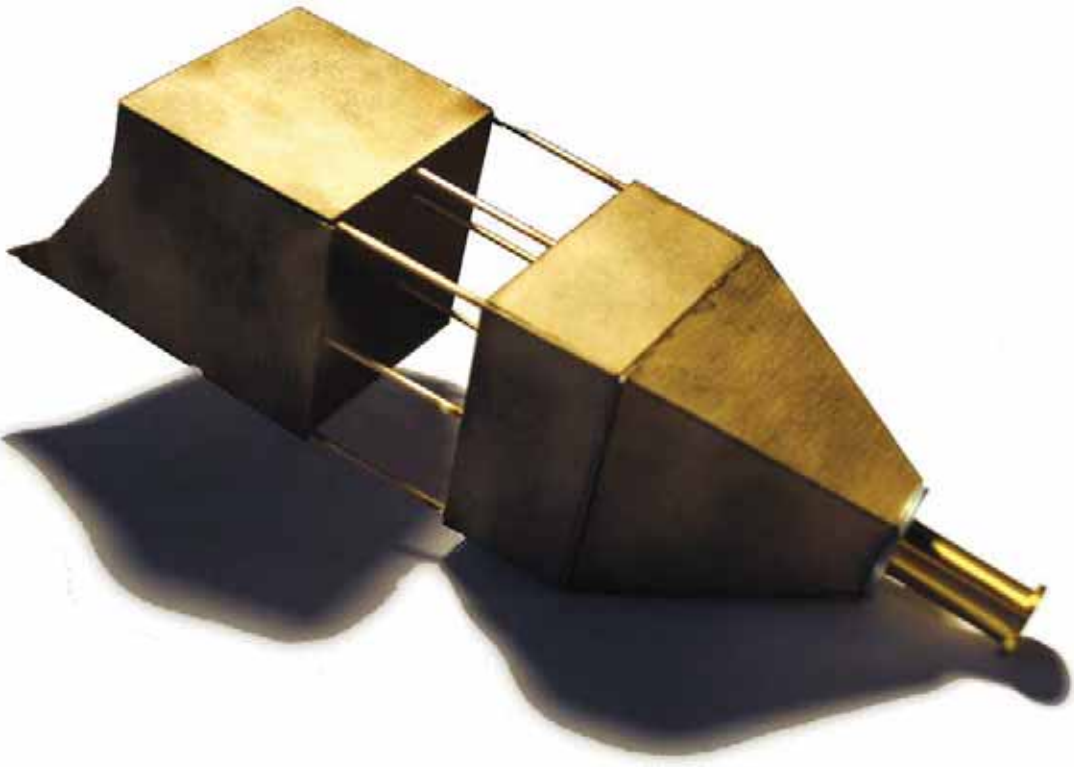








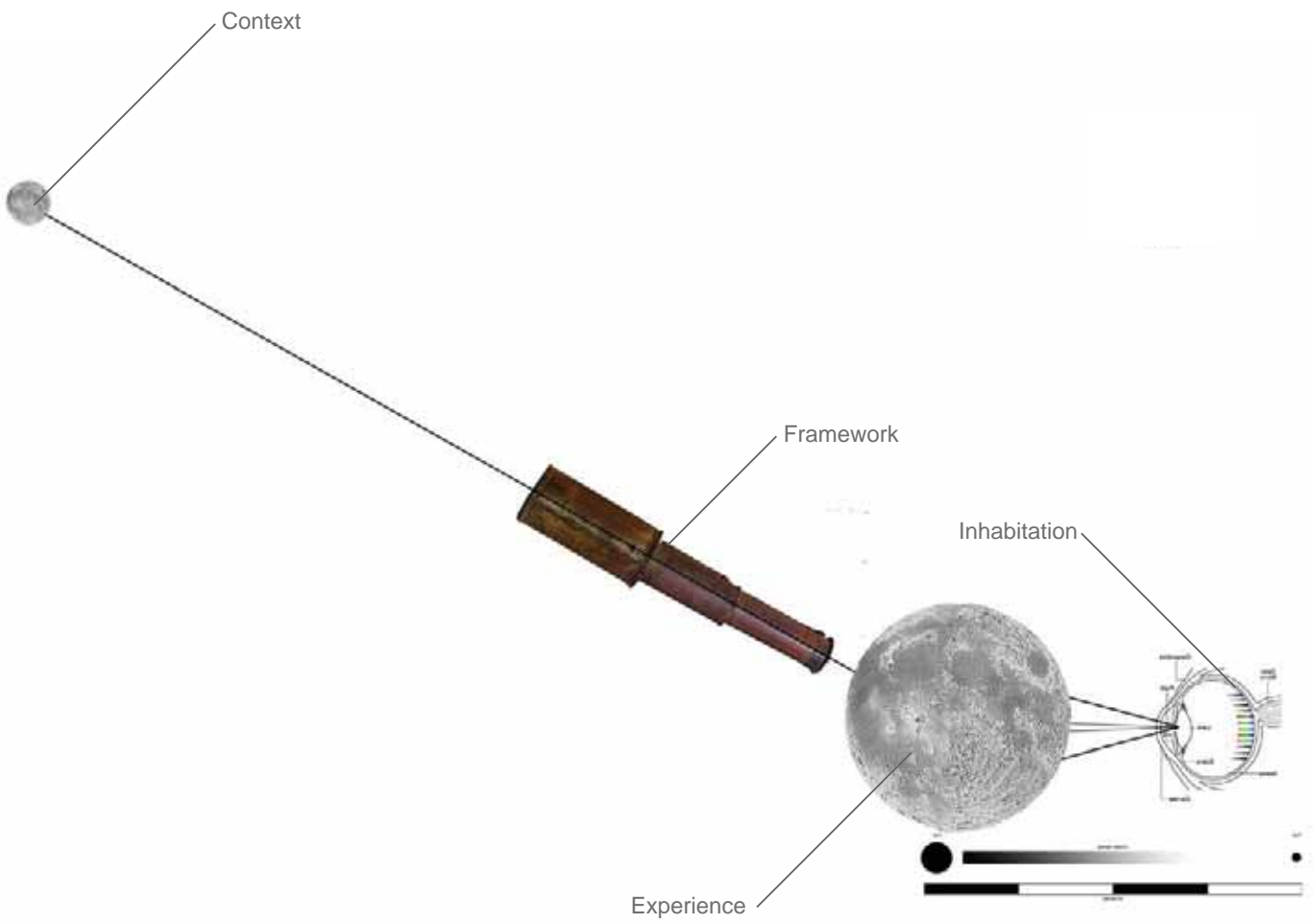




## Explanation

The imagery in this project works as a relational device. The images overlay plan, section and perspective in a single field that when observed intently, each image works together to give the observer a greater understanding place and scale. The images also give a sense of anticipation for the final viewing experience by eroding surfaces to reveal other parts of the building, enticing inhabitants of what is still to come. The drawings also draw the user into the present moment with tone and contrast. The five images together work in a similar way, giving viewers a clear understanding of the building as a whole when seen simultaneously.

The models are also relational devices in that they juxtapose the scale from an object that fits in your hand to something that is inhabitable through the use of lenses. The project has become an intuitive method of understanding the influence of architecture as an experience as opposed to architecture as an object. The intention of this type of architecture is to draw the conversation to a universally understood experience, where detail, material, and sequence all reinforce the practice of realizing the universe instead of creating self-important architecture. This type of architecture understands a details as being revelatory not to the architecture or the architect, but to the experience of the inhabitant to something greater than the architecture, or to the inhabitant itself.



# Precedents

No idea comes out of nowhere. These are the main projects and readings that helped to influence my thesis throughout the entire process.

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## Oxygen House

Douglas Darden

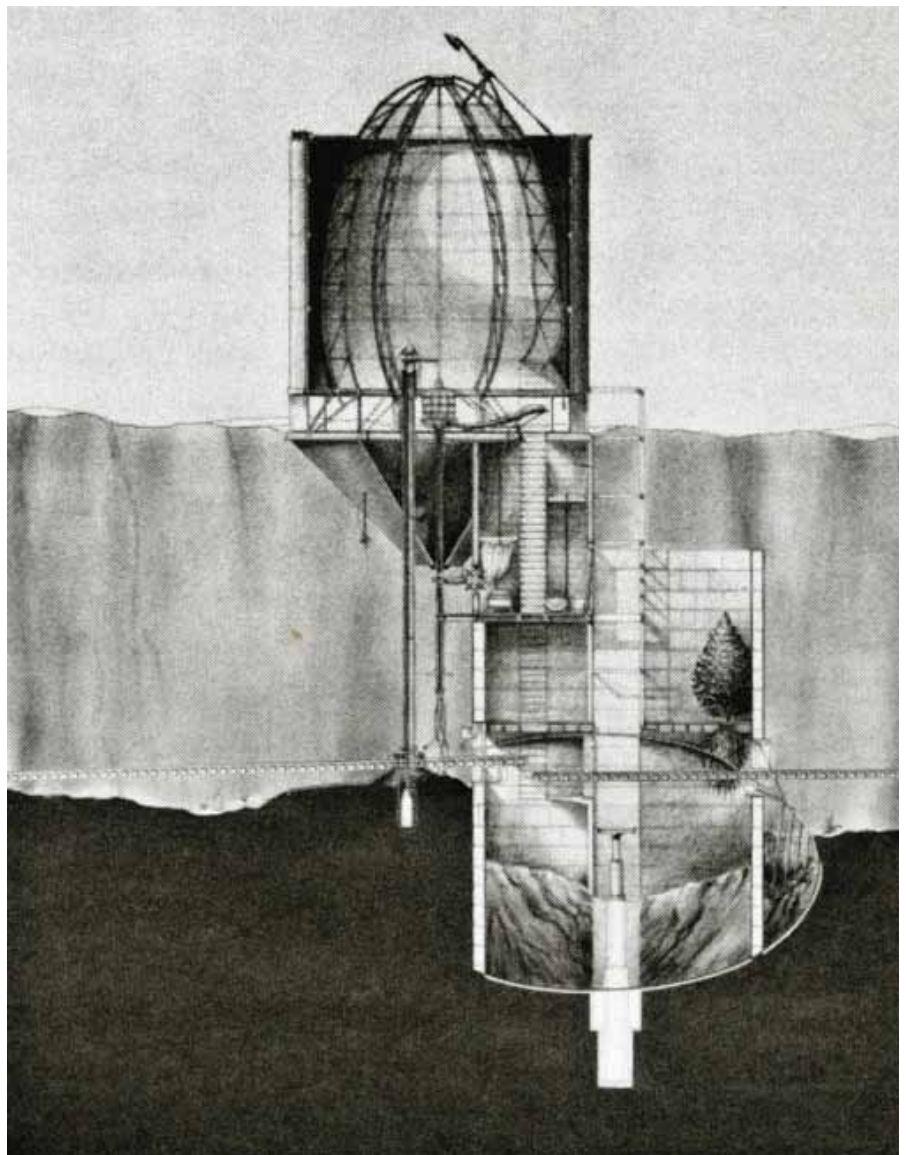
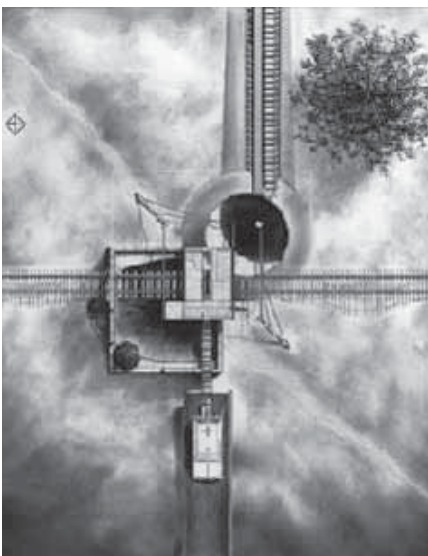
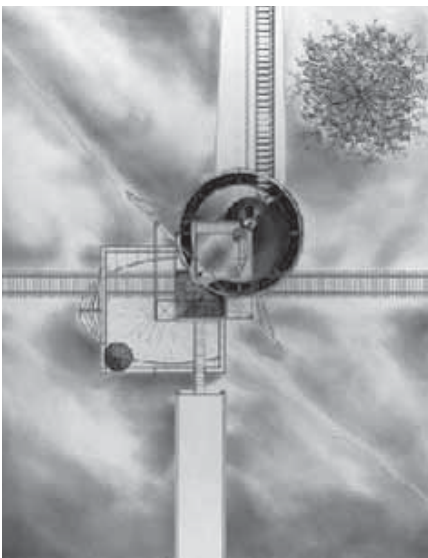
Frenchman's Bend, Mississippi

Condemned Building

Darden, designed the house for Burden Abraham, a disabled signalman for the Southern Pacific railroad, on a site near Frenchman's Bend in rural northern Mississippi. The drawings were completed in 1998. Abraham died shortly after the footings for the house were poured. The construction of the house was abandoned."

But his drawings were always more than just beautiful- they were a way for him to explore and convey his ideas, and they somehow managed to combine aspects of fairy tales and nightmares.

-Former student



## James Turrell

Roden Crater  
Arizona

Roden Crater is an extinct volcanic cinder cone, situated at an elevation of approximately 5,400 feet in the San Francisco Volcanic Field near Arizona's Painted Desert and the Grand Canyon. The roughly 400,000 year old, 600 foot tall red and black cinder cone is being turned into a monumental work of art and naked eye observatory by the artist James Turrell. Working with visual phenomena that have interested man since the dawn of civilization, the Roden Crater project will bring the light of the heavens down to earth, linking visitors with the celestial movements of planets, stars and distant galaxies. In addition to exploring the interplay of light and space in his art, Turrell has looked closely at the design of ancient observatories as places for visual perception:

I admire Borobudur, Angkor Wat, Pagan, Machu Picchu, the Mayan pyramids, the Egyptian pyramids, Herodium, Old Sarum, Newgrange and the Maes Howe. These places and structures have certainly influenced my thinking. These thoughts will find concurrence in Roden Crater.

(James Turrell, Fundacion NMAC).

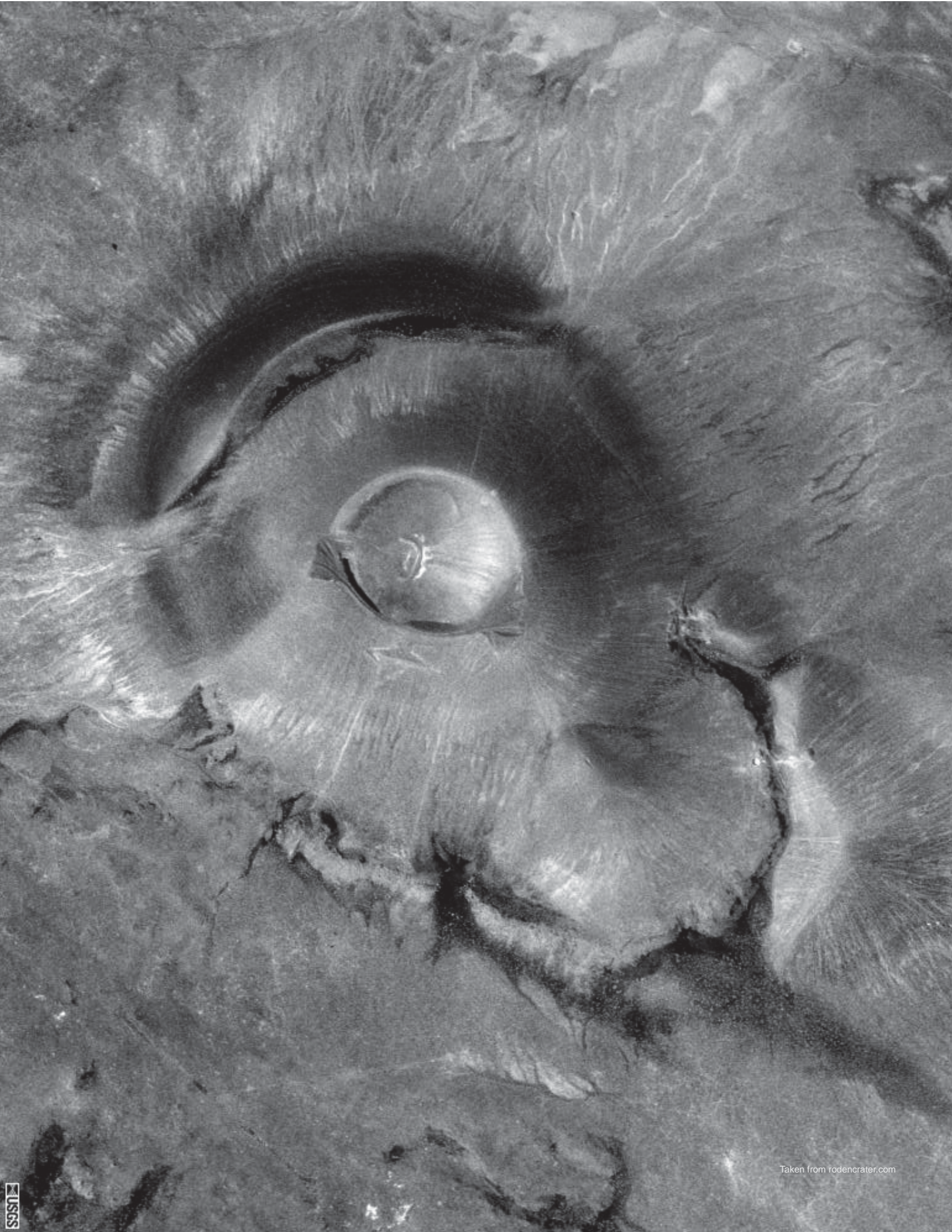
In 1974, James Turrell conceived of a project for a natural setting that would extend his explorations of light and space from the studio into the western landscape. After an extensive search, Turrell was able to arrange the purchase of Roden Crater in 1977, with funding provided by the Dia Art Foundation, and construction began in 1979.

At Roden Crater I was interested in taking the cultural artifice of art out into the natural surround. I did not want the work to be a mark upon nature, but I wanted the work to be enfolded in nature in such a way that light from the sun, moon and stars empowered the spaces ... I wanted an area where you had a sense of standing on the planet. I wanted an area of exposed geology like the Grand Canyon or the Painted Desert, where you could feel geologic time. Then in this stage set of geologic time, I wanted to make spaces that engaged celestial events in light so that the spaces performed a "music of the spheres" in light. The sequence of spaces, leading up to the final large space at the top of the crater, magnifies events. The work I do intensifies the experience of light by isolating it and occluding light from events not looked at. I have selected different portions of the sky and a limited number of events for each of the spaces. This is a reason for the large number of spaces.

(Air Mass, The South Bank Centre).

His vision for the project has changed somewhat over the years, as spaces were added or altered based on experience he gained in working with light, but remains consistent with the original plan for the site. When complete, the project will contain 20 spaces (some with more than one viewing space). The light within the spaces will come from many sources, and some effects will be familiar to those who have seen the artist's installations and Skyspaces over the years. The relative remoteness of Roden Crater will require a journey and a commitment of time on the part of visitors, deepening the experience of discovery.

My work is more about your seeing than it is about my seeing, although it is a product of my seeing. I'm also interested in the sense of presence of space; that is space where you feel a presence, almost an entity — that physical feeling and power that space can give.



Taken from [rodenrater.com](http://rodenrater.com)

# Monastery

Neil Denari

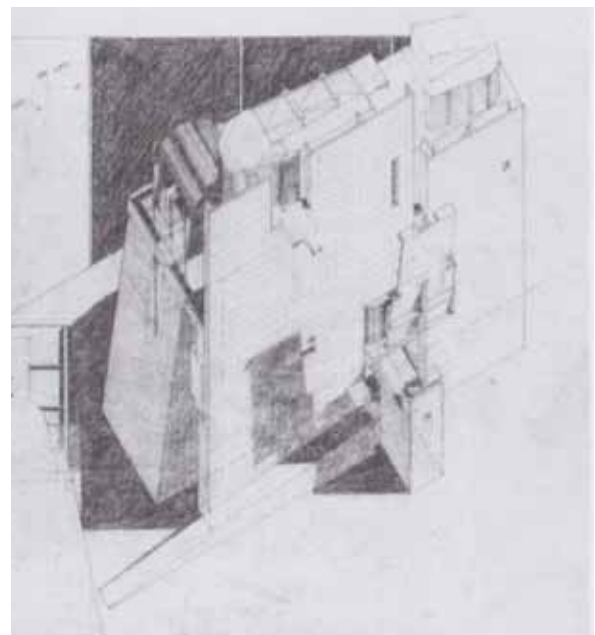
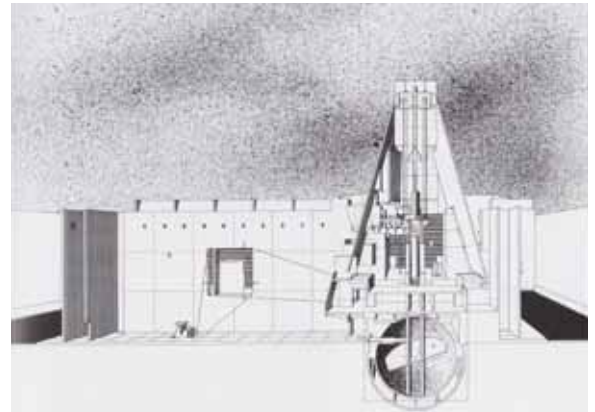
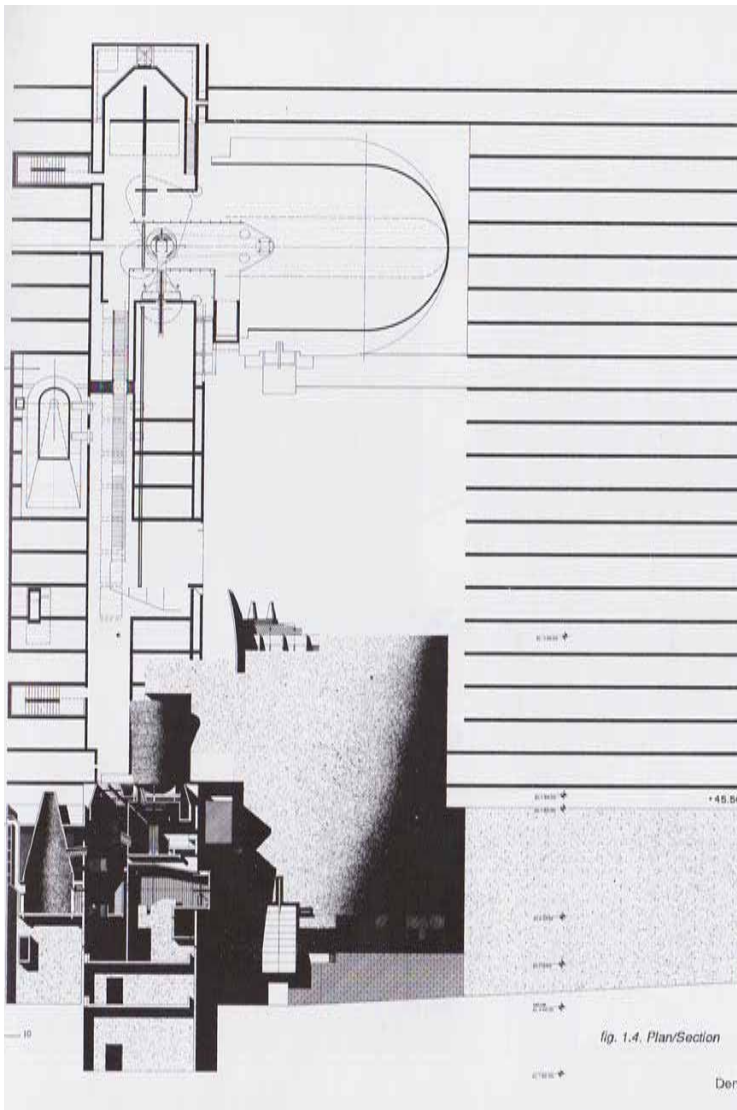
New York, New York

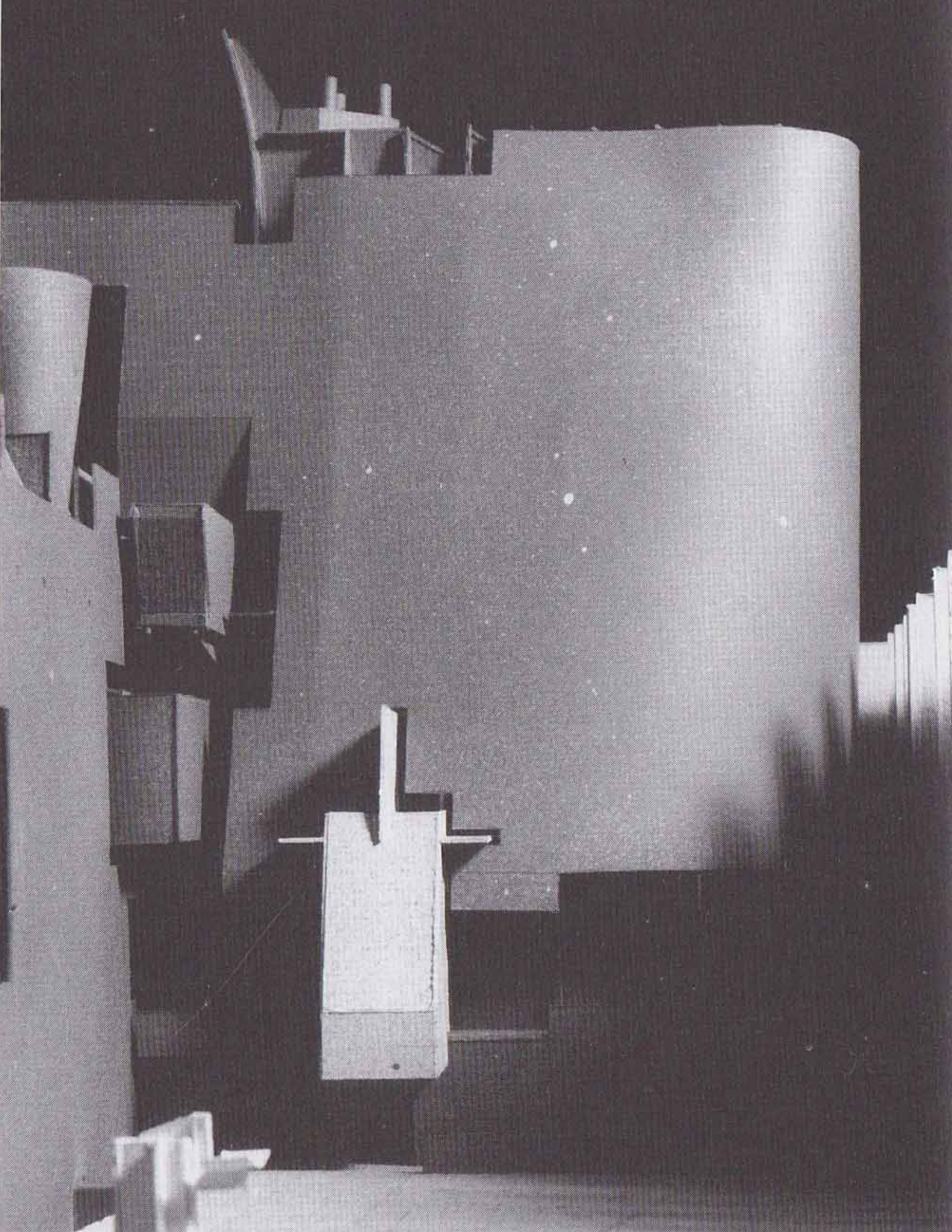
Pamphlet Architecture 12

The Monastery, as a valuable contemporary program, is a refuge for the progressive exhaustion of the metropolis, a place where spirit and thinking are separated from but reflective of the city itself. As a collapsible set of realities, described in a process of scalar reductionism- from the infinite, Cartesian world of the city to the smallest cell the intention is to relinquish our usual mental habitat to suspend for any length of time the normal processes in favor of a more contemplative one. The monastery is a machine as it mediates the energy between man and deity, thus claiming its mechanistic quality by converting energy not into work but into being.

The site, in the Chelsea section of New York City, is 210 square feet; with 15-foot setbacks from the curb lines. The vertical density of the city rises to a height of 60 feet, a point which the parallel concrete walls (10 ft. on center in plan) align with in elevation. These walls are an abstract form of poche, like a three-dimensional rendition of building solid. The northern and southernmost walls are virtually blank, with few perforations, while the end grain of all the walls creates a diaphanous, somewhat film like reading of the monastery object situated at the western end of the square.

The machine is an instrument for describing things. At the same time, it expresses its own state. Inherent in the mechanism-that is, the operability of the machine- is an aspect of function that is conjunctive with its self-descriptive function. This is the argumentative function, which, according to Karl Popper, is distinguishable from say, programmatic function. Within the building there exists a proposition about itself which is communicated externally in the form (or function) of an argument. This argument serves as an expression of the internal mechanism of the building insofar as we accept the challenge of response to this argument- to agree, disagree, or propose an alternative. It is only in this acceptance and human interaction that the argument may find its most useful and powerful state.







# Convent of La Tourette

LeCorbusier  
Lyon, France

"Create a silent dwelling for one hundred bodies and  
one hundred hearts."

-Father Marie-Alain Couturier

