by

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Submitted to the Department of Architecture

in Partial Fulfillment of the Requirements for the Degree of

Master of Architecture in the Department of Architecture

June 1998

at the

Massachusetts Institute of Technology

June 1998

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Peace

by

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Submitted to the Department of Architecture in Partial Fulfillment of the Requirements for the Degree of Master of Architecture in the Department of Architecture June 1998

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Peace

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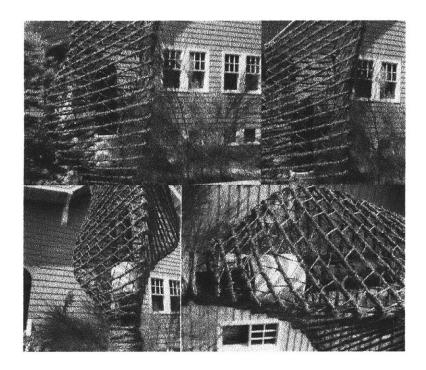
ABSTRACT

This thesis is to design a house. The house intends to create quiet space as it relates to the body and its nervous system. This home is safe from surveillance and unwanted interference. Time of the semester dictated the focus of quietness on the eye, color and the space it sees. The watercolor sequence tries to expose the landscape quality of space as it relates to the Tao and Jen-wu. The space, structure, furniture, program and figures reflect my reading of the book of trees, book of rocks, and the book of Jen-wu and the Tao.

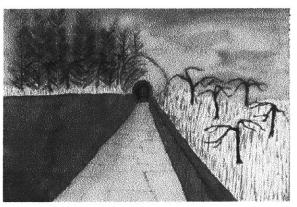
William J. Mitchell, Dean of the School of Architecture

Thesis Advisor

## Space

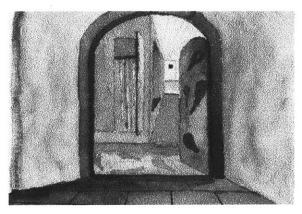


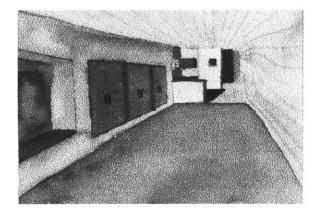


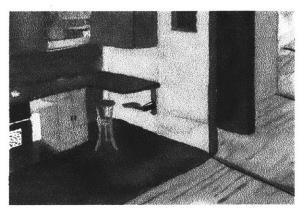


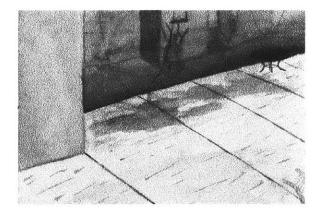
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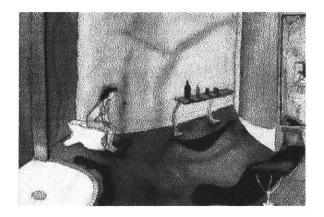


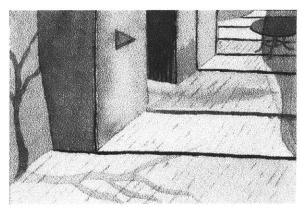


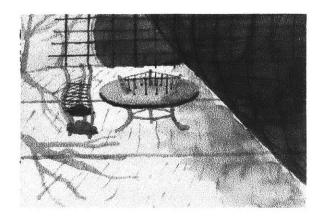


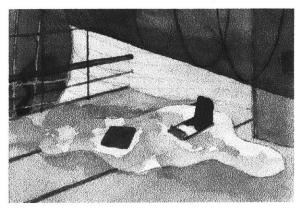


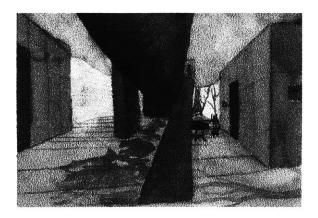
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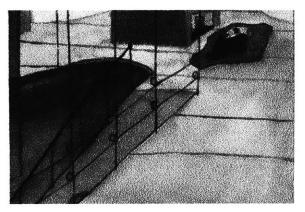


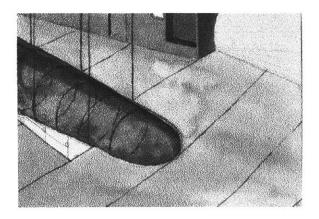


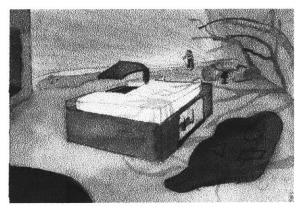




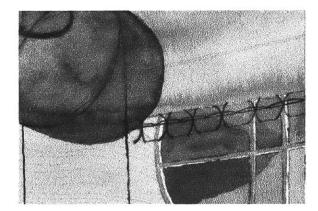


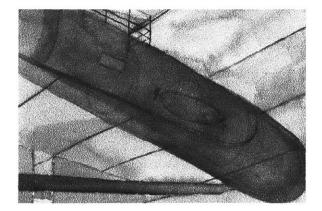


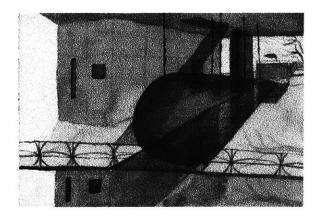


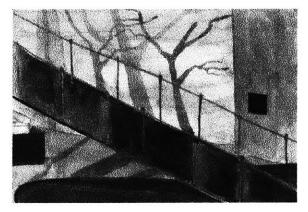


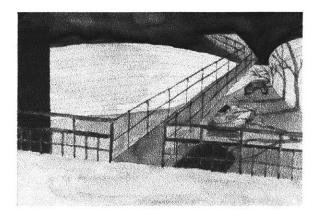
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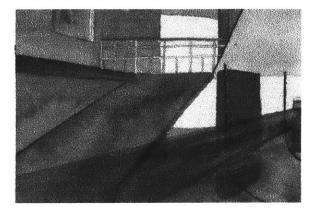


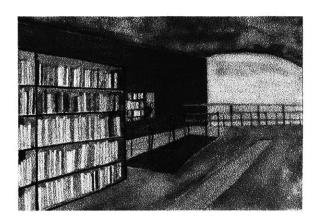




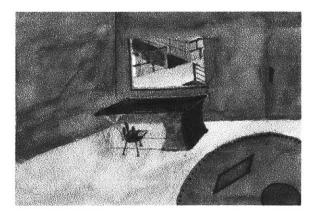


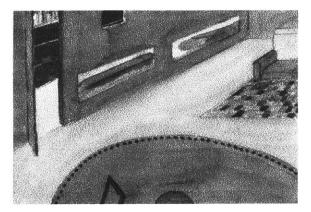


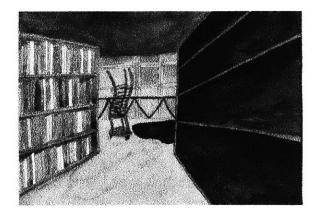


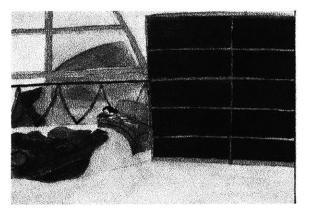


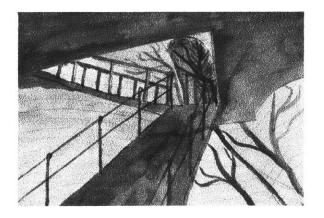




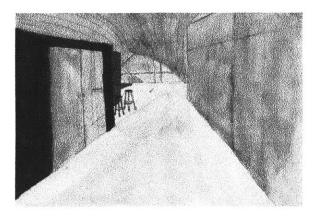


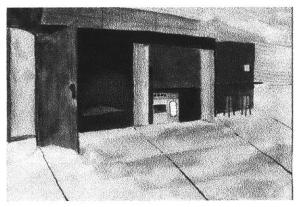


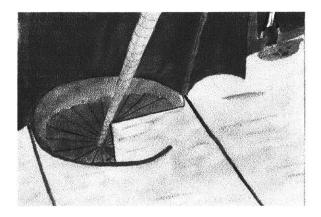


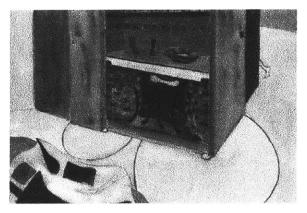


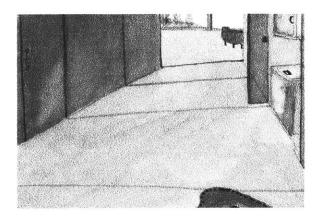


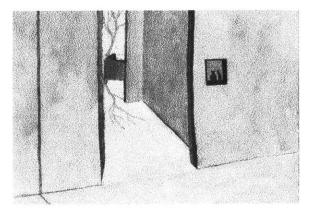


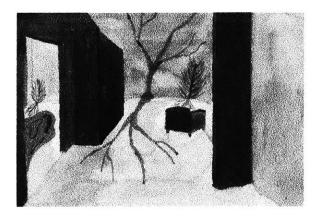


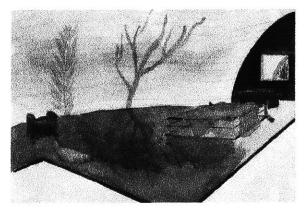


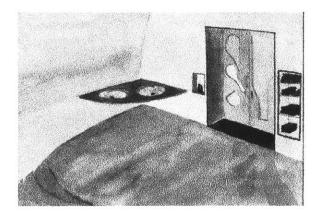


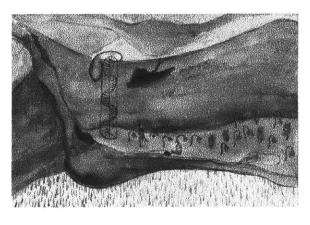












The Tao is a way of living first established in China. Briefly, let me explain how it relates to a world view, local communities and the human body. The interest for this thesis is that it is my point of view on life and thus penetrates into my work. Rather than foisting my personal definition of how the Tao penetrates society, I will use the definition of the Tao and the above three components of life outlined by <u>The New Encyclopedia Britannica, Macropedia, Knowledge in Depth</u>, 15th Edition, 1974, University of Chicago, Chicago. Architecturally, the Tao of Painting, utilizes a particular convention of drawing that differs from the current American convention.<sup>1</sup> I have utilized this style as a foundation for my design of a house of Peace. The paper foot-noted above makes reference to <u>The Mustard Seed Garden Manual of Painting</u>. In this project I explore the qualities of the book of Trees, book of Rocks and the book of Jenwu. The above paper discusses the relation between the book of Trees and book of Rocks. Below I will reference the relationship to Jen-wu.

The Tao is not an object, but rather an imperceptible, indiscernible state of being: "Tao is the "imperceptible, indiscernible,..."(p396) The Tao finds itself outside categorization: "The name(ming) in ancient Chinese thought implied an evaluation assigning an object its place in a hierarchical universe. The Tao is outside these categories."(p. 396) This quality is refered to as Not-Being: "Not-Being does not mean Nothingness, but rather the absence of perceptible qualities; in Lao-tzu's view it is superior to Being." (Lao-tzu's is the author of the Tao te Ching--the text of the way(Tao) ). The wholistic view of the Tao is a relationship between humanity and the natural landscape: "This originally magical feeling of the integral unity of mankind and the natural order has always characterized the Chinese mentality and the Tao is especially have elaborated upon it." (p. 397) Within this notion there is a connectiveness to natural order that everything returns: "The law of the Tao as natural order refers to the continuous reversion of everything to its starting point."...."All parts of the Universe are attuned in a rhythmical pulsation. Nothing is static;" (p 397) Yet, the Tao is considered to be a way of life that is unchanging as a condition of reference: "An unchanging unity(the permanent Tao) was seen as underlying the kaleido-scopic plurality." (p. 397) This way resonates in the Mustard Seed paintings in the relationships of space between the trees and rocks. It is this resonance that I have tried to capture in the space of peace.

The way of the Tao is a humble, private, and procreative way of life. That is, interaction between people of the Tao is individualistic at the level of privacy. Social interaction is centered around a virtuous way of life celebrating natural order:

The universe has its Tao; there is a Tao of the sovereign, his royal mode of being, while the Tao of man comprises continuity through procreation.(p. 396)

Whereas the Tao-te-Ching is addressed to the sage-king, the Chuang-teu is the earliest surviving Chinese text to present a philosophy for private life, a wisdom for the individual.(p. 396)

Humble artisians are depicted, who, through the perfect mastery of their craft, exemplify for their social superiors the art of mastering life."(p. 396)

An essential characteristic that governs the Tao is spontaneity(tzu-jan)...(p 397)

The people of the Tao believe its continuation is through children and their children. Within the humble private lives of families there remains a spontaneity that keeps the Tao active and vibrant. This vibration is in the transformation of the Yin and Yang. Chuang-tzu believed this transformation could be seen in the transformation of material:

Chuang-tzu's image for creation was of the activity of the pattern and bronze caster: "to shape and tp transform" (tsao-hua)(p. 397)

Tao shapes the universe...out of primordial chaos; the perpetual transformation of the universe by the alternations of Yin and Yang.(p. 397)

There is a belief that the least intrusive interventions into the landscape is in keeping with the Taoists ideal of society:

Any willful human intervention is believed to be able to ruin the harmony of the natural transformation process. The spontaneous rhythm of the primitive agrarian community and its un-self-conscious symbiosis with nature's cycles is thus the Taoist ideal of society. (p 398)

Interaction between Taoists also tends to be a peaceful symbiosis. When it is not, it is said that a person steps outside of the Tao:

Because, in the Taoist view, all beings and everything are fundementally one, opposing opinions can arise only when people lose sight of the whole and regard their partial truths as absolute.(p 398)

These ways of life are presented in pictorial form in Chinese landscape and scroll painting(see above referenced paper):

Taoists prefer to convey their ecstatic insights in images and parables. The tao is low and receiving as a valley, soft and life-giving as water, and it is the "mysterious female," the source of all life, the Mother of the Ten Thousand Beings.(p. 398)

Water and femininity are considered part of the life giving forces of the way. Many of the landscape paintings take place around a water source. These points of view at world and society level resonate with the individual body.

The Taoist's body is a sacred vessel that is kept in tune. Tai chi, a form of exercise, is developed around keeping the neurological pathways in sync with nature. The exercises completed at dawn capture the different electro-magnetic waves of the sun and there-by recharging the body. The goal is to free the body into emptiness:

Emptiness realized in the mind of the Taoist who has freed himself from all obstructing notions and distracting passions makes the Tao act through him without obstacle.(p 396)

The body is a mirror of the universe: "Man is a microcosm (small universe) corresponding rigorously to this macrocosm(large universe); his body reproduces the plan of the cosmos." (p. 397)

Whoever understands man thus understands the structure of the universe. The physiologist knows that blood circulates because rivers carry water and that the body has 360 articulations because there are 360 days.(p 397)

The mind of this body is highly virtuous:

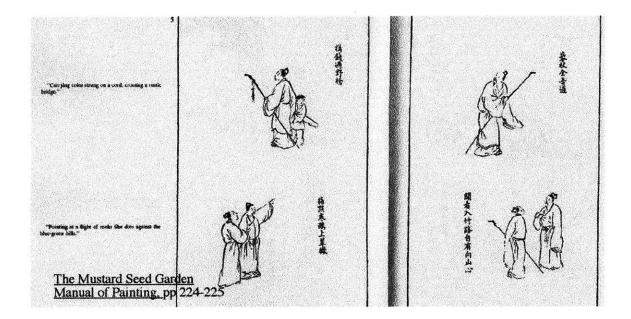
The power acquired by the Taoist is <u>te</u>, the efficacy of the Tao in the realm of Being, which is translated as "virtue".(p. 397)

This state of emptiness is when the mind and body are within the "Chi", the breath of the Tao:

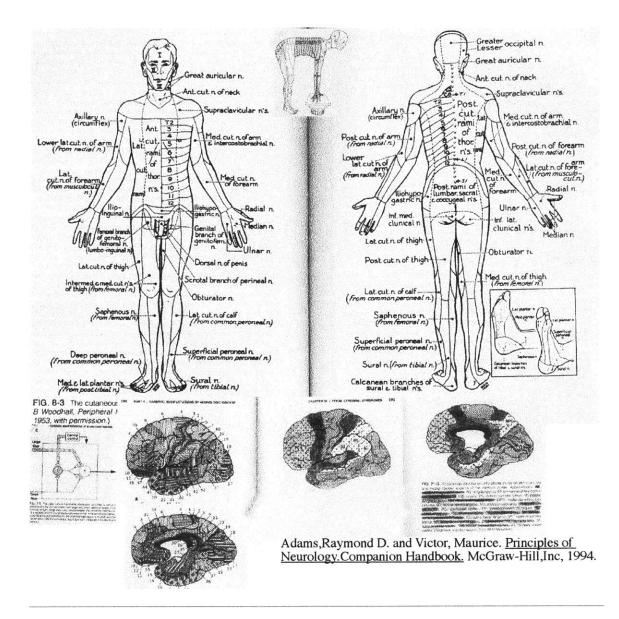
The skilled artisian does not ponder on his action, but, in union with the Tao of his subject, he does his work reflexively and without conscious intent.(p. 398)

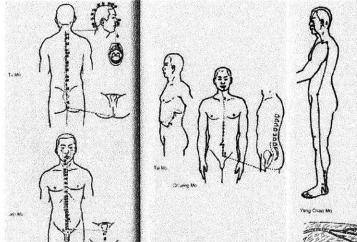
Yin and Yang are often refered to as two "breaths" (Chi). Ch'i means air, breath, or vapour----originally the vapour arising from cooking cereals. (p. 398)

It is the Ch'i that flows through the body, arm, hand and brush when a landscape is painted. The most beautiful paintings are flowing with Ch'i. Ch'i is identified by the confidence and strength of the brush strokes and the lucidity of the composition. Jen-wu is the human content of landscape paintings. It deals with the relationship between the humans presented in the composition and their orientation to the sky or earth, Yin and Yang:

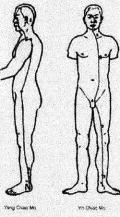


The gestures and relationships show interest in the Yin(above,sky) and Yang(below,earth). The relationships show levels of proximity, contact, and interaction.

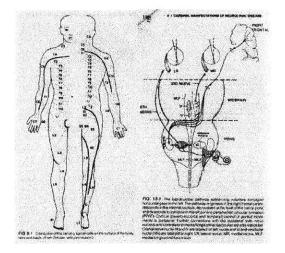




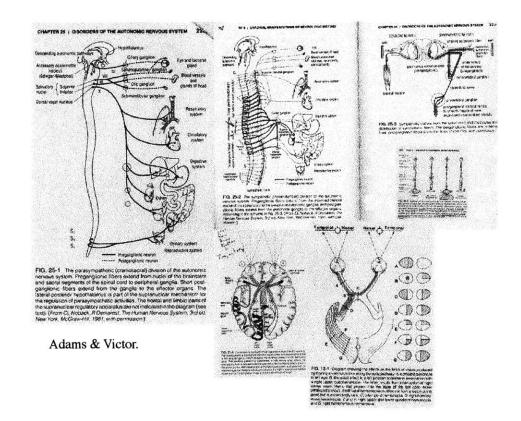
Liu, Da. <u>Tai Chi Ch'uan & Meditation</u>. Schocken Books, New York, 1986.







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Why is peace at the scale of the body important? Identity is composed of proper and adequate flow of energy throughout the body. Proper is when the neurological pathways maintain adequate capacitance to effect the processing of a signal from one point in the body to the other, unpolluted or effected, intended location in the body. Organs of the body function with the constant flowing of charge and

capacitance. Architecture in the past has safeguarded against the commonly known elements of water, wind, cold in privacy. Today, safeguarding the body involves more than in the past. In this thesis, I have begun to examine how to contain spatial conditions of privacy and body signals so that only the intended points of the will sending the signal receive it. As an architect and not an engineer there are limitations to the exploration. Those limitations are essentially confined to the education of an architect and technology taught. Historically, this is a common goal of architects, to design fortresses, military machines and implements with the information at hand. Both Michelangelo and DaVinci explored the possibilities for safeguarding cities and homes. During the Renaissance these works were commissioned by the authorities and the work reflected the scale of the commissioning bodies. At that time the church paid for many of these drawings and the drawings reflected the scale of the city that the church defined as its community. Even further the types of drawings reflected the scale of the city that the church defined as the community. Even further, the types of drawings reflected the commission. Perspective was designed as a methodology of calculating distance and the trajectory for offensive military machines and defensive ramparts. Here in this thesis and in the 21st Century the architect is confronted with both intentional and unintentional surveilance, intentional and unintentional technological interference, and intentional and unintentional communities of power dictating everyday life. As a student in the United States where the right to freedom of religion and expression and pursuit of happiness is guaranteed by the Bill of Rights and the United States Constitution: I am drawn to a condition that safeguards this condition: the home. Cities guarantedd collective freedoms. Homes define the particular freedoms of individual citizens of the United States. Defining home though is a difficult task. In an eclectic community the architect is left to sift through the collective memories and deal with the personal memories and baggage of the client. The home in and of itself is a special place for the occupant. Individually, each person has their own image of what a house might be and an idea of how it ought to function. As an architect, I find it my responsibility to design a home that functions in such a way that it safeguards the freedom of the mind and the body in the fashion that suits the client. In the abstract, there are common factors that safeguard this condition. However, the implementation of these factors requires the filter of a point of view. In a thesis, this filter could be a number of sources: the author, a friend, a lover, an advisor or a reader. For me it, it is myself. This makes this project more difficult for me. It is easier to dialogue with another. However, I lost my lover and deepest friends at MIT, so I am left with myself to execute this task. Within these confines, I hesitatingly propose a condition of family in keeping with my Taoist point of view. It is hesitant because family requires a lover and I am left absent by my experience at MIT. So, for the sake of the potential pursuit of happiness, guaranteed by the Constitution, but not well safeguarded, I have designed a home for two people and a family. At this point I wish to reference a paper I wrote on space and its relation to communitues of power.<sup>1</sup> The paper was interested in how space can be defined by both political and personal points of view. Further, it explores how the image of architecture can influence both its occupants and visitors. This paper was submitted for the

course listed under my concentration. The other courses of concentration were sculpture. In these courses I explored three-dimensionally the qualities of inter-personal relationships, and the senses and how material can eschew these qualities. The paper explores the relationship of the dwelling to its communities. Peace is often considered a status of being between communities and people. Here peace is considered a quality of self. In other words, how can an architect design a place where the occupant is at home with themselves, at peace at the scale of the body.

In order for the architect to understand this peace, she or he must begin to understand the body.<sup>1</sup> In the time available I have explored the eye, parts of the heart, some relations to the hand and feet neurologically. The pulminary functions of the body are addressed cursively in relation to natural capacitance of a body. The paper will address only the eye in depth. In order to understand the value of this study I read about the relationships of capacitance, behavior, and neurology with available information. The available information dealt with insects. I will draw some parallels between insects and humans which have suggested to me how to design a home of peace. This research can be generally considered signal processing. It is the relationship of the signals, time, and memory that evolve an identity and meaning. Memory involves the compaction of signals in relation to the time and place of origin. An architect deals with identity of person and place. In a paper written on identity and difference<sup>2</sup>, I explored how this relates to preservation, nostalgia and an object itself. Understanding the tools of sig-

<sup>1.</sup> Three Homes: see paper in references, 1995.

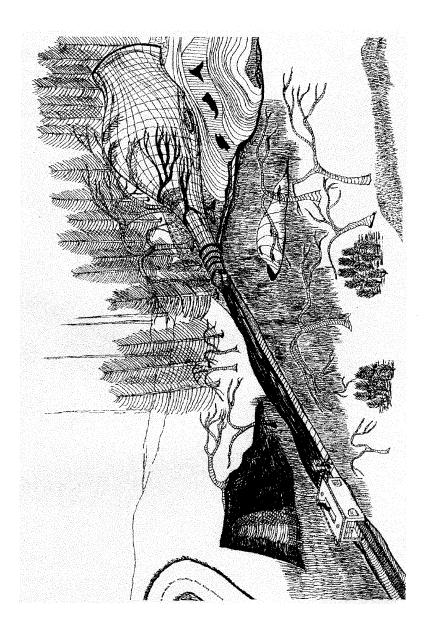
<sup>1.</sup> Originally I had planned to study Anatomy at Harvard Medical School in the Fall of 1997. Current events disallowed this schedule.

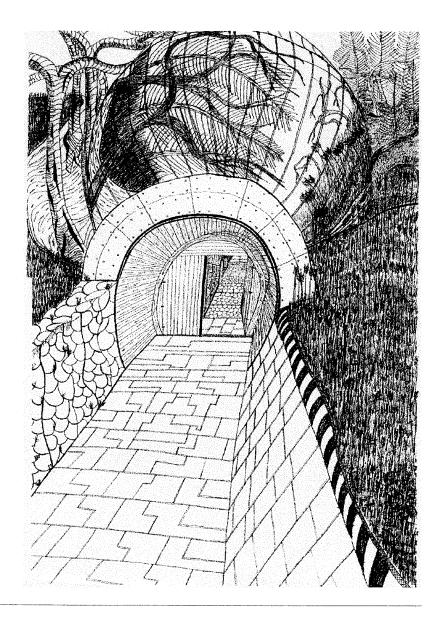
<sup>2.</sup> Identity and Difference: see paper in references, 1996.

nal processing, sensory parts of the body, the architect can design a space that will provide peace for its occupants.

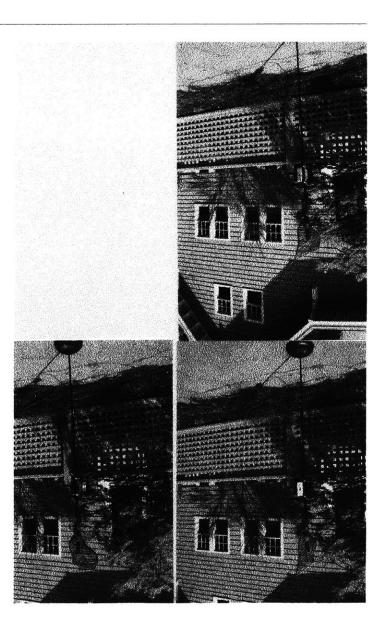


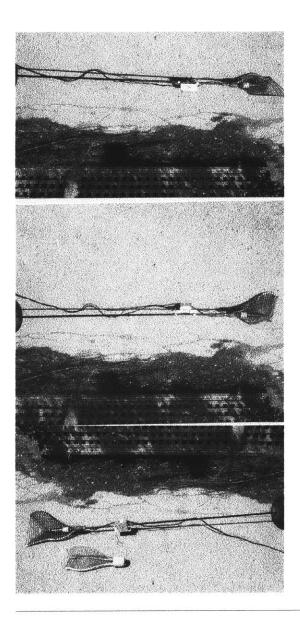
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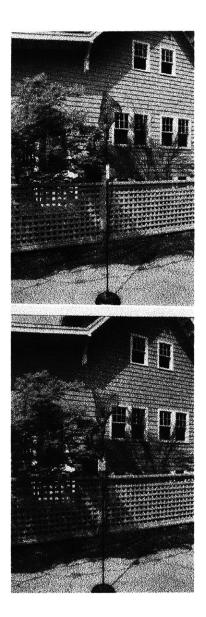




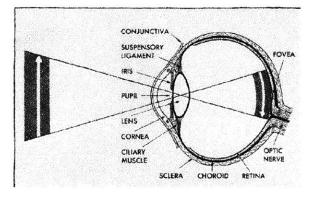
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## Direction



Scientific America, p1.

The eye sees the image that falls on the retina. This image is seen via the refraction of light through the iris and cornea(lens) on the retina. The iris acts as a light limiter and filter. The lens is also a filter for the upper regions of the spectrum, but primarily focuses the image on the retina. Focus is also regulated by the number of cones and rods responding to the light available. Here lets examine the nature of color vision as it relates to the cornea, rods, and cones.

The cornea acts as a lens and high spectrum reducer:

The cornea, which is the principal refracting surface of the eye, has a flatter curvature at its margin than at its center. This compensates in part for the tendency of a spherical surface to refract light more strongly at its margin. More important still, the lens is denser and hence refracts light more strongly at its core than its outer layer.(p 6, Scientific America, The Eye and the Camera, 1950.)

All single lenses made of one material refract rays of short wavelength more strongly than those of longer wavelength and so bring blue to shorter focus than red. (p 6)

After refracting through the cornea and lens vision is dependent upon the excitation of the rods and cones. Color has three components to its correction by the eye: a yellow lens; the shift from rods to cones; and the macula pigment. The lens gets yellower over time and filters out the violet in light:

...it passes visible spectrum, but cuts off the far edge of violet, in the region of wavelength 400 millimicrons.

As one goes from dim to bright light, from rod to cone vision, the sensitivity of the eye shifts towards the red end of the spectrum. At first light, blue objects look brighter than red. (p 6)

Rods maximum sensitivity lies in Blue-Green about 500 millimicrons.(p 6)

...the cones act individually while the rods act in large clumps. Each cone is ussually connected with the Brain by a single fiber of the optic nerve. In contrast, large clusters of rods are connected by single optic nerve fibers. (p. 4)

Vision in very dim light, such as starlight or most moonlight, involves only the rods...,but as brightness increases, the cones come to dominate vision. (p 4)....the entire spectrum is shifted to red, the maximum lying in the yellow-green at about 562 millimicrons.( p 4)

This shifting of sensitivity with brightness changes the color sensitivity of the cones and eyes themselves from a blue sensitivity to a light green sensitivity in bright light. In bright light vision is concentrated in the center of the retina around the fovea. In progressively dimmer light it is concentrated towards the periphery where the rods dominate. Night vision relies on seeing things askance because the fovea is blind at night:

...in the human retina there is a small, shallow depression called the fovea, which contains only cones. The retina sweeps through a visual angle of 240 degrees while the fovea subtends an angle of only 1.7 degrees. The fovea is considered smaller than a pin's head. It is here that the retina achieves all of its detailed vision....To look directly at something is to turn one's eye so that its image falls upon the fovea. (p 7)

This small patch and a surrounding area is covered by a yellow screen that extracts the upper spectrum of violet and blue that the lens allows to pass through. This patch covers a diameter subtending an angle of 5 to 10 degrees. Essentially the eye discards all information in the upper spectrum of violet and blue. Vision of objects in the landscape is dictated by the color coordination and color juxtaposition of the objects. Initially I had planned to complete a thorough analysis of these relations, but time changed this direction and accelerated my work on a house plan. In this regard it is worth mentioning that the signals received by the eye are understood by patterns of relationships experienced over time:

In other words, apparently we make use of a weighted average of our past experiences in interpreting what we see. It seems that the subject relates to the stimulus pattern, a complex probability-like integration of his past experience with such patterns...the resulting perceptions are not absolute revelations of what is out there but are in the nature of probabilities or predictions based upon experience. (p 5)

Scale of objects is then understood by experience and patterns of relationships; it is not an innate understanding. Here is a good point to turn to a study made in Japan of how the eyes recognize faces and objects and how the mind discerns difference.

The article is entitled information and viewpoint dependence in face recognition, Cognition, 62, pp 201-223, 1997, presupposes some inherent bigotry and reveals others. It premises its inquiry on facial recognition upon an exploration of shape, view and color and texture. The article suggests that parts of the face can elicit identity, but it does not explore the possibilities. Its focus on color and texture as conditions of culture rather than suggesting all the possibilities of shape suggest that color is more important than shape. However, any such inquiry would find it difficult to release itself from a partial point of view.

The article identified three common views: 3/4; full; profile. Difference is explained by the particular relationship of the profile to axis of symmetry. There were 3 experiments: first, tested the strength of recognition of each view; second, the dependence on single view was tested; third, single view with added color and texture was tested. An experiment generated statistic suggested probabilities of recognition.

Some general remarks by the experimenters that seemed coherent and in parallel to how the eye sees were that faces were more holistic in recognition while objects are more detailed, part-based processing.(p 205) The experimenters found that already known information privileged recognition by class.(p 206) They also found that faces provide early recognition better than objects.

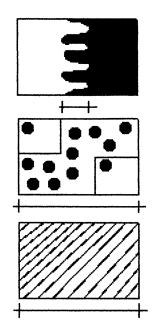
The first experiment found that recognition was view dependent and that speed of recognition was enhanced by animated sequences. Upside down faces reduced recognition substantially. The second experiment, using view dependence as a premise found that 3/4 view was the most important for shape recognition while the profile did not fare well. This experiment reinforced the conclusion that learned views dominated recognition. Difference in the experiments was defined by rotation along the axis of symmetry. the third experiment added additional information with color and texture. This enhanced the speed and accuracy of recognition, but did not substantially change the conclusions. 3/4 view remains the most dominant remembered view. Color and texture seemed to enhance object recognition. This suggests that the brain recognizes and finds appealing images from familiar experiences. The next question in recognition of objects is how distance can begin to effect recognition. The next section analyzing three types of landscapes suggests two conclusions. First, that objects are dependent upon surround as suggested by article above, and second that a landscape itself can be considered an object and its recognition or camoflage is dependent upon distance and texture.

## Distance

Michelangelo exercised the unique relationship between an object and the groundplane that touches it. Michelangelo brought the landscape up to meet the object.<sup>1</sup> Similarly, his architecture is met by the rising landscape(see reference above to the relationship of the Porta Pia and Nomantian way. Here the rising of the landscape effects the shadow-play of the gate.) There is a relationship between the natural landscape and its objects and artificial objects placed on and in it. Examining the natural landscape as a condition in which to explore placement three conditions present themselves: stitch fields, separate elements, and integration textures. Examining an imaginary landscape, condensed in scale, allows the opportunity to see these conditions. These conditions laid bare, it is clearer how to place architecture in the landscape parallel to the natural environment.

1. Excavation, Kiernan Quinn, 1998.

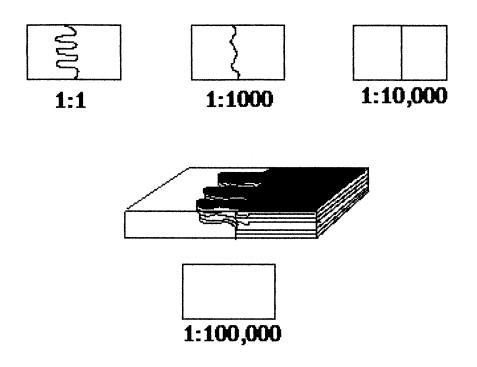
A stitch-field is the overlapping and slippage of more than one ground cover type. Overlapping is when two ground covers occupy the same field simultaneously. Integration textures meld their constituent parts together. Below are three diagrams of the conditions.



The stitch-field's overlap space implies that there is a seam in the landscape. This seam is a soft boundary between one type of ground cover and another. Soft boundaries evolve from the slippage of ground beneath the ground-cover allowing for rooted penetration. This penetration is traceable in its minimum back to its deep field (deep field is defined as an area dominated by one type of ground cover and corresponding ground beneath. The space of inter-connection between the two fields creates a boundary or edge. This edge is soft in its flowing stitch. However, because the edge delineates the rooted ground beneath, it has a hardness that reveals its place continuously. The ground-cover is honest about the location of its rooted ground beneath. The benefit of this type of landscape is the ability of two ecological conditions to live juxtaposed without

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damaging each another. This juxtaposition is one of the means of creating an integrated texture. It can be considered an initial step towards a slippage of space/ground work. In stitch-fields, the soft edge maintains a constant distance of slippage. At proximity it is visible, but as distance increases this soft edge gets harder and harder till it eventually appears like a hard edge:

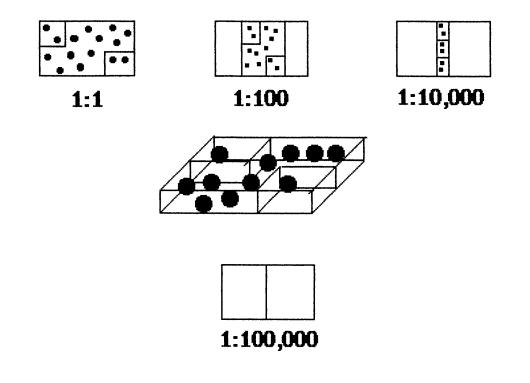


Heidegger speaks of the notion of distance. In order, to be able to make judgement one must maintain a critical distance. The difficulty in this process is that the original softness is lost. With ever further distance the

line in the fabric is lost: 1:100,000. A good understanding of this process allows for a manipulation of the landscape that can alter the quality of these views and thereby enhancing or decreasing the soft edge.

Overlap space is when a minimum of two ground conditions inter-mingle in a defined distance of space. Overlap space does not leave a trail/trace of its original field. It simply exists in its proximity. In general, the overlap is more of a joint then a seam initially. At greater distances, this joint appears like a seam connecting two deep fields. The inter-mingled conditions are rooted locally to the ground beneath. Each patch in the intermingled field is isolated and exists for itself. In time, the two conditions grow larger in area into integration texture. In other circumstances the two conditions remain peacefully side-by-side. The difference between stitch fields(space) and overlap is that stitch fields(space) expose only three sides, while overlap space exposes all four sides of itself to the other condition. In overlap space the ground beneath follows the cover above. At times, the ground beneath is altered to accomodate a new overlapping ground cover. The joinery of overlap space allows for deeper penetration into the respective deep fields. However, the two fields remain clear and distinct like points in space:

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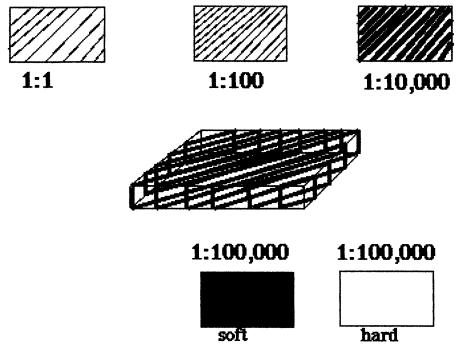
At a distance the overlapping retains its quality of space longer than stitch space. At great distances, both stitch space and overlap space become a hard edge/boundary. Overlap's softness is more of a texture than an edge in the beginning. As a result it is less recognizable when occupied as a boundary. But, with distance its boundary line becomes self-evident. Rather than a fabric, overlap space appears as an interwoven field.

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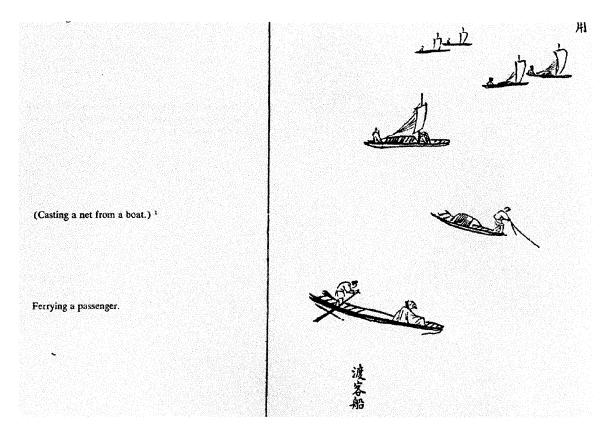
Integration space is the actual melding of a minimum of two ground-cover conditions. When two ground-cover conditions/space integrate their respective deep fields loose their separate identities. The occupation of this field/space is fluid and lacks distinct boundaries. The ground beneath the integrated ground-cover is similarly integrated and lacks traceable signs to the two respective deep fields. Here, the conditions of soft and hard edge boundary is lost--there is no edge or boundary. The integrated space acts as a texture(a texture is defined as at least two conditions slipping together to create one field. A hard texture is one that has two separate conditions of different kind and scale. A soft texture is one that originally had two separate conditions of the same kind and/or a similar scale.

Distance does not alter an integration texture into a boundary, but rather transforms the scale of the field. Eventually, the integrated texture becomes one solid field loosing its textured quality, but retains a quality of softness and hardness.

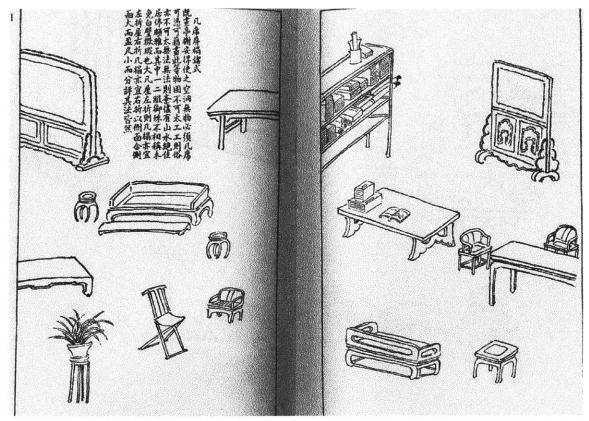
The interesting quality of these three landscape conditions falls within difference and identity.<sup>3</sup> The first two conditions maintain levels of difference that define levels of mixture which always retain boundaries of identity. The last condition transforms the two conditions into a new identity without a marked boundary and without a clear and distinct difference within the field/space.



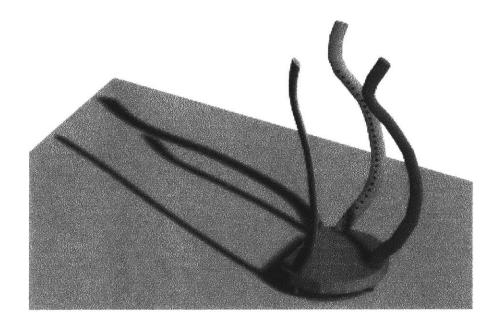
The project that follows is an object/landscape for living. It is intended to blend into the actual landscape and disappear from view by satelite, infared, and vision. Its placement's attitude is based upon the Tao of painting landscapes and the Book of Jen-wu.

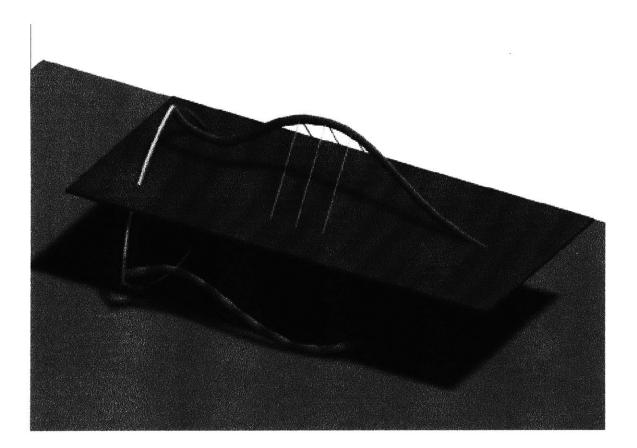


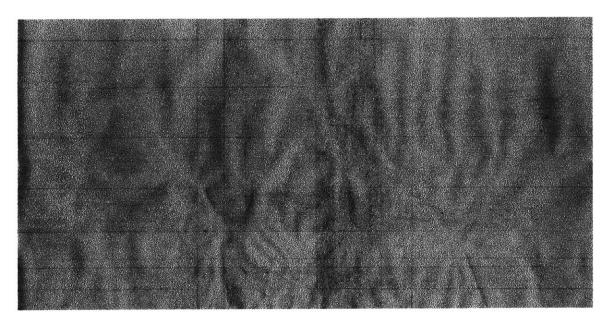
Sze, Mai-mai. <u>The Mustard Seed Garden Manual of Painting</u>. Bollingen Series. Princeton University Press, New York, 1956.



The Mustard Seed Garden Manual of Painting.



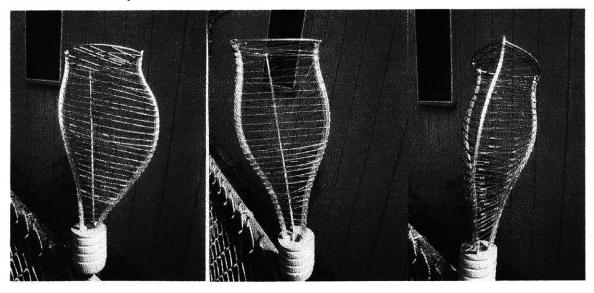




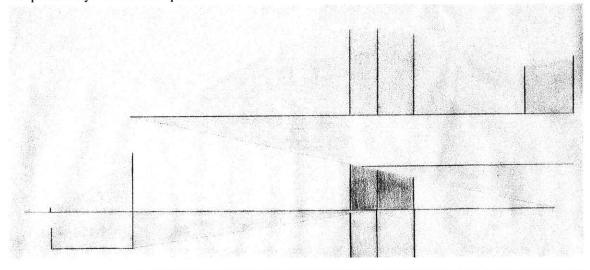
Primary colours at inflection points of structure.

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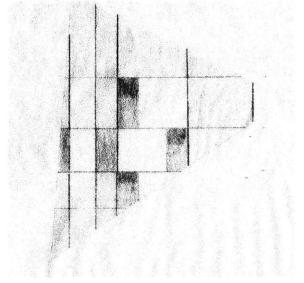
color intersects at the points of inflection of the frame:

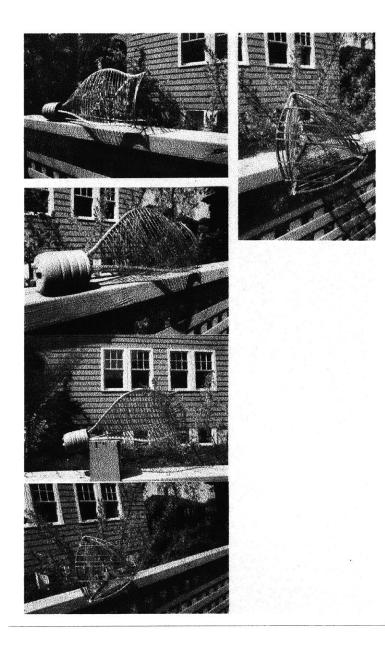


complementary colors create space:

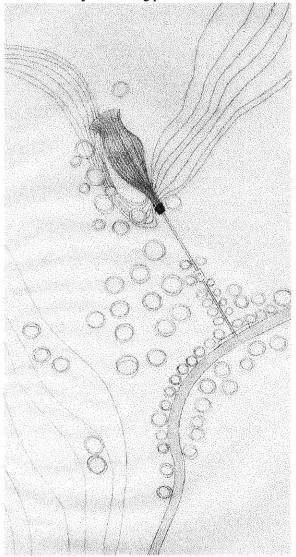


front view of complementary colors creating space:

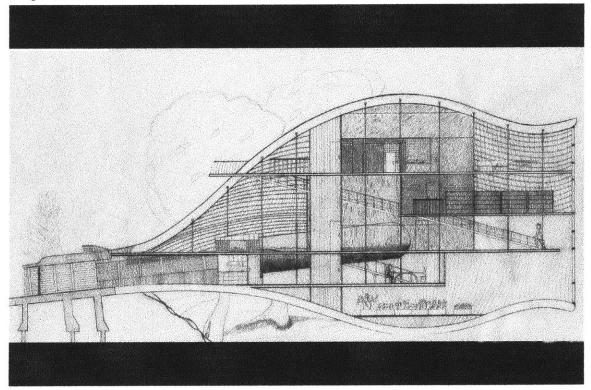




Site Plan of object/building placement in stitch field where the house becomes the integrated texture:

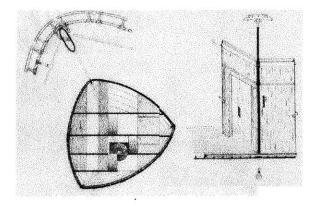


Longitudinal Section:

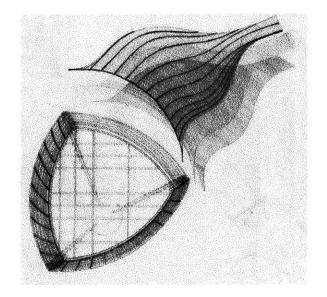


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Lateral section and structure:

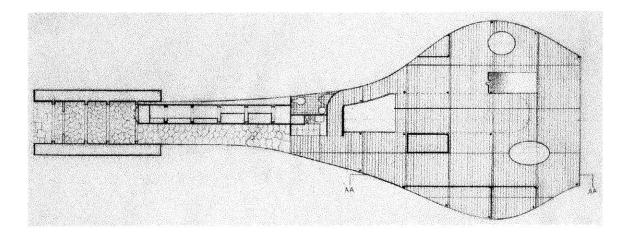


Lateral view and skin:

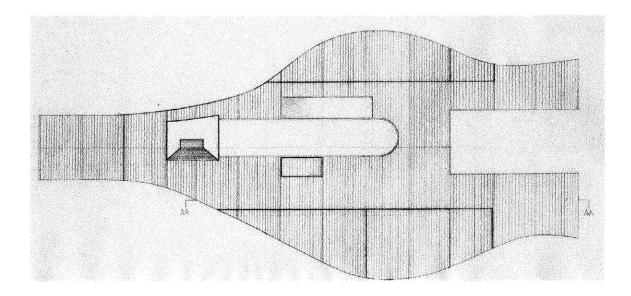


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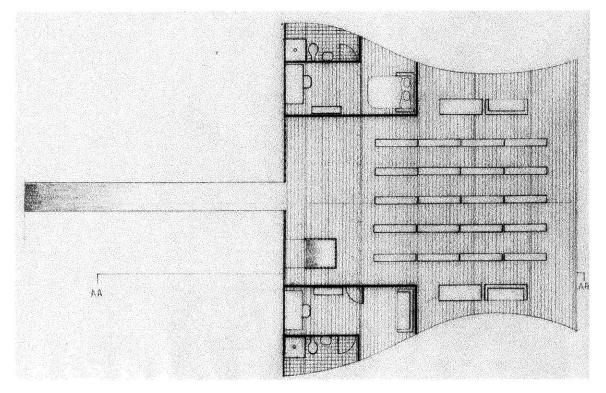
Level 1:



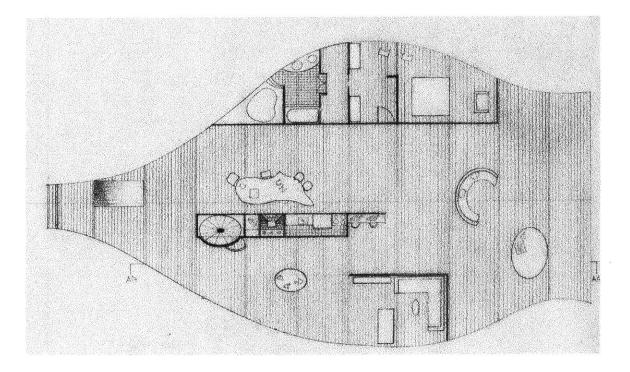
Level 2:



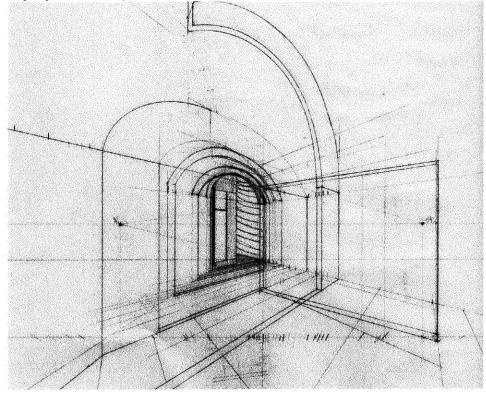
Level 3:



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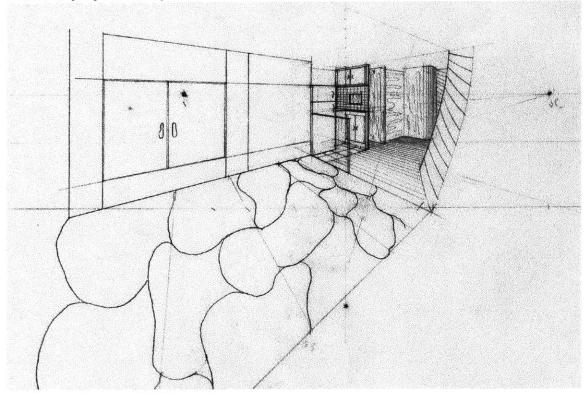


Mechanical perspective of entry:



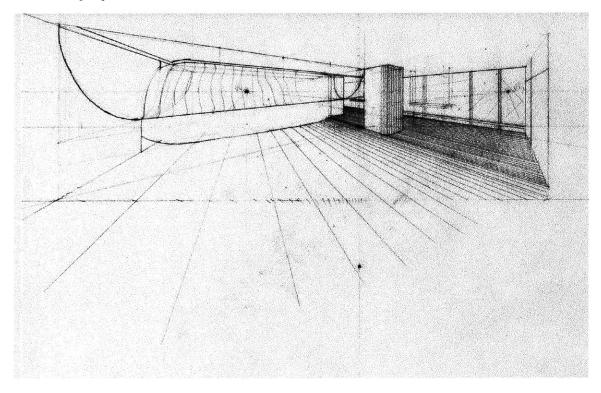
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Mechanical perspective of foyer and kitchen:



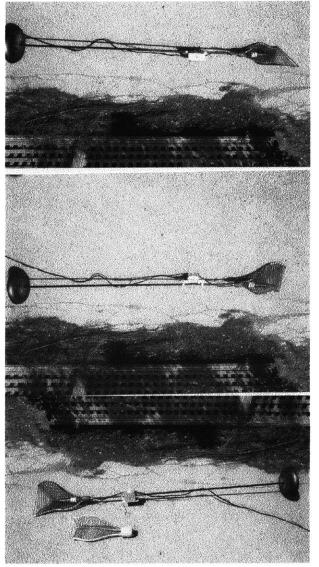
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Mechanical perspective of water vessel:



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Lamp and Structure model:



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Landscape and object at urban scale:



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