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Representing Occulted Projections:
Cultivating Anamorphic Visions in the Paradise Garden

by

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ABSTRACT

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Our conception of Paradise is derived from the Old Persian word pairidaeza, referring directly to a hidden, walled garden. Such a mythical garden protects its occupant from the extrinsic gaze of those less fortunate.

Taqiyah involves the precautionary dissimulation of faith in a hostile environment. For persecuted developing sects in medieval Persian Islam, taqiyah became an important cultural practice. Such persecution gave rise to a production of artifacts whose significant meanings were disguised within complex compositions.

Understanding the nature of these compositions provides insight into the nature of perception and its role in architectural experience. These artifacts contain projective anamorphic devices that distort vision and obscure interpretation. They demonstrate taqiyah through visual estrangement and temporal defamiliarization. The isolation and architectural deployment of these dissimulative devices can create a dynamic interactive environment that initiates the occupant with a continually changing understanding of the architecture through time.
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INTRODUCTION
Representing Occulted Projections: Cultivating Anamorphic Visions in the Paradise Garden

The nostalgia for Paradise, the archetypal desire to return to an eternally perfect garden is found depicted in some of the earliest known artifacts. This idea of Paradise is derived from the Old Persian word *pairidaeza*, referring directly to a hidden, walled garden. Such a mythical garden serves to remove the occupant from a bleak existence with walls that obscure the extrinsic gaze of those less fortunate.

The practice of *taqiya* involves the precautionary dissimulation of faith in a hostile environment, a fundamental tenet of Islamic thought as revealed by the Prophet Mohammed. For Shi’ism, a dissenting minority sect heavily persecuted during its emergence in medieval Islam, *taqiya* became an important cultural practice. The result of such persecution gave rise to a production of artifacts whose culturally significant meanings were disguised obliquely within layered compositions to mask those esoteric truths intended only for eyes of the initiated.

By understanding the dissimulative nature of these compositions as found within certain late medieval and early Renaissance Persian artifacts, revelation can occur regarding the nature of perception and its role in architectural experience. Paradisical artifacts such as *mihrab*, formal garden rugs, and secular manuscript illuminations contain projective anamorphic devices that distort vision and subsequently obscure interpretation. These devices demonstrate *taqiya* through visual estrangement and temporal defamiliarization in both their conceptual reality and formal manifestation. The isolation and deployment of these dissimulative devices can create a dynamic interactive environment that initiates the occupant with a continually changing understanding of the architecture through time.
This project began in an attempt to reconcile two interests: 1) phenomenological architectural explorations and 2) the occult. By occult I mean the study of hidden knowledge and the interests of secret societies. The society I most examined was that of the medieval Shi’ite sect, the Nizari Ismailis, popularly known as the Assassins. They were led by Hasan-i Sabbah, Old Man on the Mountain, from a remote mountain fortress. The myth of the Assassins as perpetuated by Western chroniclers, goes like this: Hasan-i Sabbah had built in a valley, a beautiful, hidden garden scattered with fountains and pavilions, inhabited by lovely houris, playing harps and singing beautiful songs, in a manner like that of Paradise as described in the Qur’an. He then lured youths from nearby villages, plied them with hashish (hence the term hashishen: assassin), and put them in the garden. They would remain until completely seduced by their surroundings, entirely convinced that they had died and gone to Paradise. Then, when the Old Man wanted a political adversary killed, he would pluck some youths from the garden for this mission. When removed they were in such shock, they would beg the Old Man to return them. Hasan-i Sabbah told them to go and kill a certain person and he would honor their request. If they completed their mission and returned, they could once again enter Paradise. If they were killed in the attempt, they were martyrs and would return to Paradise as well. A win-win situation. Or least this is how the story goes, considered by historians to be a fabrication constructed to justify the absolute devotion of the Assassins to their venerable leader.

The central character in this story is the Paradise garden, frequently represented in Persian artifacts. The Paradisical artifacts I chose to examine were 1) secular manuscript illuminations of gardens and pavilions, 2) formal garden rugs, 3) mihrab, and 4) Paradise gardens themselves. These representations seemed to have the greatest spatial ambiguities, due to collapsed orthographic representation, with a complexity necessary to possibly contain hidden meanings. So I began my investigation by performing phenomenological variations and reductions to discover/invent those characteristics particular to dissimulation as found in Paradisical artifacts.

The question then became: how does one examine artifacts with ostensibly hidden meanings, within architectural and phenomenological constraints, where meaning is conveyed primarily through pre-linguistic means and is grounded in the immediacy of experience? After much speculation I concluded that perhaps the hidden symbolism in Paradisical artifacts would temper the subjectivity of phenomenological reduction by providing an external reference, that of their hidden “truths.” This in turn would allow their dissimulative nature to be employed in an architectural vocabulary without having to address the specific meanings themselves or how exactly they are communicated. In other words, the formal devices can be isolated and deployed, with the form and content remaining united. The meaning is transferred from analysis of artifact to architectural composition without having to identify what those meanings are, only what they do. And of course the goal is to create an architecture that employs these devices in a manner as meaningful and rich as the artifacts themselves.
SADI PROJECTED

Here Sadi consults with his opponent in a space where perspective is flattened into its axonometric counterpart, abstracting the space so as to create multiple narratives within one image. Through a process of de-collapation one can begin to examine the spatial possibilities contained within these "non-figural" illustrations.
Analysis of the possible spatial projections of Sadi and his opponent.
Plan view. The painting de-collapsed, rendered without *chiaroscuro* effect.

Axonometric view. Note the apparent perspectival distortion in various parts of the composition.
Initial study models intended to describe the projective methods employed in the de-collapsing of the illumination, as well as to demonstrate the visual ambiguities resulting in such methods.
Study intended to further describe the projective methods employed in the de-collapsing of the Sadi and his Opponent, as well as to demonstrate the perspectival foreshortening that can occur when one expands the geometry of a "flattened" space.
Yusuf and Zulayka. This painting is not only a master work by Bihzad, but a masterful demonstration of spatial ambiguity using perspectival and axonometric devices employed to demonstrate seduction, entrapment, and escape.
The story of Yusuf and Zulayka was elaborated most thoroughly by the poet Jami: One day Zulayka saw Yusuf, a slave of her husband, Potiphar. She realized this was the man she had been dreaming about all her life. She attempted to seduce him but he spurned her advances because she was married. She then built a pavilion with 7 rooms, with the first room being the entrance to the seventh being the innermost room. Each room was covered in paintings of Yusuf and Zulayka in various states of ecstacy, with each room becoming more erotic as one proceeded inward. Zulayka lured Yusuf into this pavilion and locked the door behind him and attempted to seduce him. He fled to the next room, she followed and locked the door. He continued to retreat and she continued to lock him in until they reached the final room. She attempted to seduce him once again and he almost succumbed to the temptation. At the last moment Yusuf prayed to God, who flung all the doors open and Yusuf was able to escape.

The process of de-collaption was a more in-depth exploration using the devices discovered in the Sadi image. In this case, not only was the composition more complex, but the story seems more crucial to the arrangement of things. In a flat image, the artist manages to convey the concepts of seduction, entrapment and escape. Even though the painting is a combination of plan, elevation, and perspective flattened together, it still communicates depth in relation to the spaces of the pavilion. This is type of representation was considered necessary by Islamic artists to avoid betraying the edict against naturalistic representation.

In fact one might argue that these “collapsed” axonometric representations convey more depth than if they had been represented perspectivaly. Another strength of this particular painting style is that there can be multiple events occurring within the painting that appear to be different moments in time. Regardless of the specifics, the collapsed, projective geometries, and their ambiguous or illusory nature can convey a story more effectively than just a plan or a perspective might.
Plan View. The painting de-collapsed, rendered without *chiaroscuro* effect.
Perspectival Views

Through continued variation and reduction one can isolate and identify the particular ambiguities and their constraints that may lead one to an anamorphic geometry of projection.
CHAHAR BAGH FOUR PART GARDEN

Formal Persian Garden Rug. School of Shah Abbas.
Turkhan, Kudreth H. Islamic Rugs. New York: Frederick A. Praeger, 1969. p. 120
Studies attempting to reconcile the ambiguous spatial characteristics of Yusuf and Zulayka with the formal four-part garden rugs. Like the previous illuminations, these rugs convey a simultaneity of plan and elevation, effectively communicating a garden space, rather than just a diagram. This exercise was attempting to discover if their were any new devices that are not present in the illuminations, or that I had not discovered earlier. It was with these studies that I realized the ambiguous spatial conditions I was dealing with were actually anamorphic in nature.
MIHRAB ANAMORPHY

An arcaded view within a hypostyle hall within a mosque. Source: Internet, site unknown.

Mihrab. Note the representation of the arcade with "incorrect" perspectival projection. Source: Internet, site unknown.

A curved perspectively collapsed arcaded view in the form of a mihrab in a contemporary mosque. Source: Unknown
An arcade consists of evenly spaced columns that when viewed from within converge upon a central vanishing point.

(Imagine the middle diagram to be as tall as the image above and 14 inches long...)

A mihrab is typically comprised of a bas-relief representation of an arcaded corridor except that the columns appear equally spaced when viewed in perspective.

If this projected mihrab space, as shown in the middle diagram, is collapsed into the corresponding arcaded space it becomes curved, warped.
Note that while the mihrab view apparently recedes infinitely to a vanishing point, the spacing of the columns in perspective are the same, meaning that the recession is actually finite. This "incorrect" or unnatural perspective may serve to emphasize the nature of the mihrab as an unearthly doorway to Paradise.
The curve manifest in the collapse of the projected mihrab space preceding can be expressed in this simple formula indicating that Persian architects were aware of the mathematics of perspectival projection at a very early date.

\[ p(x) = 1 + \frac{7}{6}x - \frac{5}{4}x^2 + \frac{7}{12}x^3 \]

\[
p(0) = 1
\]
\[
p(1) = 1.5
\]
\[
p(2) = 3
\]
\[
p(3) = 9
\]
AXONOMETRIC VISION
These axonometric renderings (preceding and below) reveal a simultaneity and ambiguity of plan and elevation occurring when representing this anamorphosis.

These interior views demonstrate the visual instabilities inherent in this type of dissimulation.
This side elevation helps to reveal the actual configuration of the abstracted garden/seed space.

This exercise began with an abstraction of a garden pavilion typically found in Paradise gardens. This abstraction was based on the reduction of the garden pavilion to its essential parts. The walls, or spaces of enclosure, and the four part garden, with water dividing the parts, contained within. This seed space was necessary to begin to experiment with spatial anamorphoses in an architectural context. I previously discovered that by shifting the vertices of a rectilinear volume in such a way that you see 3 sides of the object in two views simultaneously, such as plan and one elevation, then one created an apparent visual instability, what I later decided was axonometric anomorph, or spatial warp. This procedure was repeated on more complex compositions, and finally on this abstracted garden space.
This series of perspectives demonstrates the shifting realities possible in this spatial anamorphosis, differing from those of a perspectival origin in that they do not have a single vantage point where the space is reconstituted into an image of normalcy.
A similar illusion can be created when negotiating between the horizontal and vertical plane with a curved surface.
GARDEN VARIETY

This exercise involved a straightforward look at different types of Paradise gardens and how they are arranged. In particularly I was looking at the assymetrical anomalies in different systems: the perimeter, the grid, the pavilions, and the water.

Bagh-i-Gulshan, Shiraz
Shah Gol Garden, Tabriz
YUSUF AND ZULAYKA REUNITED

12 SEDUCTIONS
7 DOORS
7 ROOMS
4 SPACES
1 ESCAPE...

Reunited and it feels so good... Peaches and Herb
This physical model (android space cougar) was conceived of as a scope that would allow exploration not only of perspectival spatial anamorphoses, but also of their relation to a narrative, in this case the story of Yusuf and Zulayka. The proportions are loosely based on those of a collapsed mihrab space 1:1.5:3:9.

It is further an attempt to spatialize the traditional perspectival anamorphosis. Starting with the same criteria of a distended image that appears “normal” when viewed at a particular angle and vantage point, it takes this a step further by providing several distended images distributed through a space that when viewed correctly appear collapsed or projected onto a single plane of vision. Additionally, the scope was designed to suggest visual seduction (engagement), entrapment (blocked views) and escape (one view back out).

The dissimulation necessary to create this illusion is both hidden and revealed by the scope itself. Both correct and incorrect views are provided at one end of the scope, while additional, partially obstructed views are provided at various points in the skin of the model. The simultaneity of revelation and obfuscation are critical to the fabrication of a distended narrative that provides a multiplicity of readings.
Section Diagram showing the scope interior as originally conceived.

Elevation Diagram showing the relation between the interior and exterior, how one informed the other.
Photograph of the "front" side of the physical scope model.

Rendered elevation of the scope computer model without the skin. It reveals the actual placement of elements within the interior.
Photograph of "other" side of physical model.

Interior View rendering of computer model. Compare with same view on page 31, from the physical model.
Yusuf and Zulayka Reunited. Physical view.

Offset view revealing the anamorphic dissimulation shown on page 35.

Lower scope view showing the illusory spatial possibilities in this type of 3d anamorphosis.
Detail of physical model revealing the actual extents of distention in the figure of Zulayka.

View into model from the "front" side. Views such as this allow understanding of the actual layout of the interior without revealing it all at once.
PARADISE GARDEN PAVILION

The final exercise, an attempt to create architecture using perspectival and axonometric anamorphoses, began with the abstract garden shown previously. The program includes a 4 part garden, a garden pavilion and a mosque.

One side of the pavilion includes an obscured arcade space with an entry ramp from the outside and contains subtle axonometric anamorphoses. See R-series. Its arcade is also perspectivally foreshortened appearing longer than it really is, and would cause temporal defamiliarization if traversed.

The mosque works much like the scope, except it is distended perspectively in its entirety so that it appears to be a mosque only from one vantage point. It is partially enclosed and allows directed views into the mihrab from the exterior, but from these perspectives it doesn’t appear to be a mihrab. See M-series.

Another corner of the pavilion includes an enclosed chamber for privacy and has an extreme axonometric anamorphosis that makes it appear to actually move as one approaches it. See W-series. The cover over the ablutions area appears to move in a similar manner. See F-series.

Each programmatic area is demonstrating some sort of spatial illusion not only to enhance its functional requirements but to get at the real nature of the thing, to provide alternative possibilities as to how a Paradise garden, a garden pavilion and mosque might look and work.
Axonometric view.

View of mosque ablutions area and its cover.
View of mosque from ideal perspectival position. At this point the mihrab and minbar are reconstituted and appear "correct."

View of one side of pavilion. This facade contains several subtle axonometric anamorphic devices that can discernable in animation. See perspective F series on page 44.
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Islamic Art, Architecture, Persian Gardens and Representations of Paradise


Islamic Art, Architecture, Persian Gardens and Representations of Paradise, cont...


**Paradise Myth and Dissimulation**

