SACRED AND TRADITION
SPACES FOR INTERNAL AND EXTERNAL REFLECTION

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REFLECTION

By

Tahmina Orfan

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Tahmina Orfan

*I wish I could show you when you are lonely or in
darkness the astonishing light of your own being.*
- Hafiz Shirazi

ABSTRACT

We have an unquenchable thirst to explore — to go beyond the known and to expand our knowledge of the unknown. In Sufism, this knowledge is comprised of the intelligible and the sensible. This can be understood as infinite knowledge of the cosmos and finite knowledge of the corporeal world. These two types of knowledge are linked in that the sensible is understood as a symbol of the intelligible. This thesis investigates sacred architecture as a setting that inspires reflection and contemplation, connecting humans to the understanding that they seek. The design proposal that forms the basis for this investigation consists of an observatory tower and underground chapels. The tower makes palpable the motion of the sun and the unchanging nature of the cosmos, while the underground chapels are designed as places for hermetic reflection and the cultivation of a sense of presence through meditation, prayer or simple solitude. The project is a balance between traditional values and the essence of modern life. Today, tradition is either marginalized as outmoded technology or fetishized as 'heritage'. In order to maintain tradition, it needs to be nurtured, defended and explained. It also needs to live. The design proposal that is presented herein does this by exploring the relationship between a human being and the universe — mediated by architecture, connected by light.

*Externally the branch is the origin of the fruit;
intrinsically the branch came into existence for the
sake of the fruit. Had there been no hope of the
fruit would the gardener have planted the tree?*

- Rumi, Masnavi

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Through technology, the human conditions have evolved significantly. As humans, we have accomplished tremendous progress oriented towards human rights and human comfort. As individuals, we have lost awareness of who we are intrinsically, and therefore, we feel disconnected from the natural world. In a digital era, art has shifted from imitating to dissecting nature, 'capturing' a landscape excites us more than mere observation and contemplation of it.

INTRODUCTION

“Every kind of activity, even the process of mere thought, must cultivate in the absolute quiet of contemplation... Truth, be it the ancient truth of Being or the Christian truth of the living God, can reveal itself only in complete human stillness.”¹

Following Hannah Arendt, to understand ourselves and to feel connected with the world around us, it is essential to step outside the tempest of post-industrial life that revolves around the ticking of a clock and to find a private place that brings us peace and clarity of mind. Personal reflection necessitates the quiet of the private realm, where individuals can reconnect with themselves. Meditation and self-reflection cannot occur in the ever changing and intimidating public realm. Traditionally, within certain cultures, houses were completely private and separated from everyday tasks. In the 17th and 18th centuries, the process of bringing housing into public realm was normalized, housing entered the realm of business but they could also be gated into private areas. Arendt introduces a third realm that appeared at the start of modern age, the social realm - which lies between the public and private realm. Arendt argues that the gap between the domestic and the public is completely blurred because we see people in the image of a family whose daily affairs must be looked after by a giant nationwide administration of housekeeping. Modernity is the age of mass society and the rise of the social realm, which was previously separated by the public and private realm.² To attain balance between boundless everyday tasks and personal interest, a separation between public and private spaces is necessary.

1. Hannah Arendt, *The Human Condition* (Chicago: University of Chicago Press, 2013), 15.

2. Ibid., 28.

For Persian scholar Seyyed Hossein Nasr, modernity began in the West after the transitional period of the Renaissance and the shift from a theocentric to a ratiocentric culture. For Nasr, modern art expresses individual interest rather than the universal order.³ He argues that this shift is, in part, the result of a conceptual separation between the individual consciousness (“I”-ness or ego) and the cosmos.⁴ Consequently, a modern condition is created in which the individual is completely disconnected from both the inside and the outside — unaware of a comprehensive internal reality and of a supernal external reality. The separation between inner reality and the cosmos is further problematized by a veil of perceptual forms and representations that make it difficult for the self to recognize the true external order. Nasr asserts that despite the gap that separates us from the cosmos or the ‘other’, we are compelled by our nature to bridge it. We are born contemplative and that, man “...has felt the inner pull of the sacred at the center of his own being, the center which he carries with him wherever he may be.” Nasr sees “...the revival of tradition...” as essential if we are to find an authentic sacred in the modern world.⁵

The design research undertaken for this thesis embraces a traditional position, which perceives sacred architecture as a manifold vehicle for the expression of the Sacred, fulfilling the crucial functions of transfiguration, manifestation, meditation, and interiorization. This project uses the ‘act’ of pilgrimage as narrative to explore a spiritual journey within the Island Park landscape. It proposes an observatory tower within the Ottawa River and private meditation chapels within the Island Park topography. Ottawa is a Capital city and the decisions made in this city have global ramifications. Individuals mired in everyday routine can benefit from design projects that inspire meditation and anchor the wandering mind.

3. Seyyed Hossein Nasr, “Religious Art, Traditional Art, Sacred Art,” *The Essential Sophia*. Seyyed Hossein Nasr & Katherine O’Brian (Bloomington: World Wisdom, 2005), 181.

4. Seyyed Hossein Nasr, *Knowledge and the Sacred* (New York: Cross Road, 1981), 162.

5. *Ibid.*, 94.

1. SUFISM

Islamist scholar Annemarie Schimmel refers to Sufism as “the mystical dimension of Islam,” characterizing the phenomenon of Sufism as so broad and protean that it is almost impossible to define. For Schimmel, the Sufi is concerned with “... the consciousness of the One Reality — be it called Wisdom, Light, Love, or Nothing.”⁶ The distinction between the profane and the sacred is transcended and all parts of life are brought together into a sacred unity. In the book, *The Sense of Unity: The Sufi Tradition In Persian Architecture*, Nader Ardalan and Laleh Bakhtiar explain that the concept of unity within multiplicity is the fundamental principle of Sufism.⁷

Sufism emphasizes the “essential over the accidental, stresses the kernel over the shell, the meaning over the letter, the spirit over the body and the subtle over the dense.” Sufism reconciles the metaphysical world with the physical world. Wherever Sufis live, whether it’s the East or the West, they tend to adapt to diverse cultural contexts.⁸

6. Annemarie Schimmel, *Mystical Dimensions of Islam* (Univ of North Carolina Press, 1975), 4.

7. Nader Ardalan and Laleh Bakhtiar, *The Sense of Unity: the Sufi Tradition in Persian Architecture* (University of Chicago press, 1973), 9.

8. Sachiko Murata, “Chinese Gleams of Sufi Light,” (New York: State University of New York Press, 2000), 16.

“Sufism has attracted many in the West because of its psychological, spiritual and physical transformation of the self. Secularization in the Western world has made it implausible to believe in God and in the truth of sacred texts. However, the experience of the body is perceived to carry truth more directly”⁹ With the growing skepticism towards the religious written text, it is more practical for most people to practice spirituality rooted in Sufism. Indian religions also echo the importance of body techniques, the teachings of Gurus such as chanting, dancing and meditating generate a new “pragmatic” truth, which is more bodily marked and instantly plausible.¹⁰

9. Markus Dressler, Ron Geaves and Gritt Klinkhammer, *Sufis in Western Society: Global Networking & Locality* (Routledge, 2009), 5.

10. Ibid.

SUFI MEDITATION

Sufism is a quest for knowledge, the journey starts with the sensible knowledge and carries itself to the highest form of knowledge, which is knowledge of “Self”. At the end of the journey, it attains the station of the “soul at peace”- referring to individuals at one with nature. The goal of the quest is for an individual to know themselves through focused mediation. This way, one will know oneself through themselves, it is a journey from the body to the soul and through meditation one can discover this journey. Since the reality is hidden, and humans are the externalization of this reality, the hidden knowledge will be revealed through meditation, contemplation and observation.¹¹

11. William C Chittick, “The Perfect Man as the Prototype of the Self in the Sufism of Jami.” *Studia Islamica* (1979), 135-141.

Fig. 1.0

RESACRALIZATION

The spread of Sufism in the West was popularized through migration, however, the secular movement of the 1960s created rising interest in the process of “resacralization”. The spirituality embedded in the Sufism of the East, was perceived as a new alternative to the growing secular movement of the West. “At a time when secularization was widely taken for granted as an irreversible process, many of the younger generations of the apparently secularized Western World showed an increasing interest in the spiritual traditions of non-Christian traditions.” Today, the belief and practice of Sufism is perceived as bridging the gap between Western and Eastern mystical or spiritual philosophy. Sufi music and poetry is manifested in everyday life, and Sufi meditation and rituals are regarded as a therapy.¹²

¹². Geaves et al., *Sufis in Western Society: Global Networking and Locality*, 2.

2.

SACRED & TRADITION

Persian scholar Seyyed Hossein Nasr argues that, in traditional societies, what modern culture calls 'art' is in fact life. Art is not an attribute of objects nor can it be segregated into the spaces of museums or galleries.¹³

For Nasr, primitive and indigenous cultures as well as civilizations such as the Chinese, Indian, medieval Western or Islamic are traditional. The meaning of the word tradition is related to "the idea of the transmission of knowledge, practice, techniques, laws, forms and other elements of oral and written culture."¹⁴

According to Nasr, in traditional culture all activities are based on the principle of divine origins, therefore all art is traditional, connected to the necessities of survival and spiritual needs of the individual. In traditional civilizations, there is distinction between beauty and utility, as every art has spiritual and symbolic significance; "Art is not for art's sake but for the sake of life itself. Art is none other than life, integrated into the very rhythm of the daily existence and not confined to the segregated space of museums or rare moments of the annual calendar... There is no distinction between the sacred and the profane both of which are embraced in the unifying principles and share the symbols of the tradition in question."¹⁵

¹³. Nasr, "Religious Art, Traditional Art, Sacred Art," 177.

¹⁴. Ibid.

¹⁵. Ibid., 178.

Anti-traditional is the notion of modernity that was created during the Renaissance on the basis of the residue of ancient Greek and Roman civilizations. In a modern society, traditional art needs to be preserved, defended and explained in order to continue its life. In this way traditional art will not be completely blurred or marginalized in the name of modernism and now to some extent what is called postmodernism.¹⁶

There is a metaphysical relationship between tradition and the sacred, “the sacred is the source of tradition and what is traditional is inseparable from the sacred.”¹⁷ In other words, the sacred “resides in the nature of reality of itself”¹⁸ and tradition forms a structure for its continued transmission. Therefore, the traditional view of art and architecture must concern itself with the sacred, just as it must be “concerned with knowledge in as much as man must know the operational manner of nature before being able to imitate it.”¹⁹ Sacred architecture in the traditional world is not defined predominantly by its aesthetics; it is expressed through anagogical utility.²⁰

16. Ibid., 176.

17. Nasr, *Knowledge and the Sacred*, 76.

18. Ibid., 75.

19. Ibid., 229.

20. Ibid.

SACRED ARCHITECTURE

Architect and university professor Thomas Barrie, describes sacred architecture as “...an intermediate zone believed to have the ability to connect religious aspirants to what they seek... sacred spaces are conceptualized and created as a physical and symbolic mediator.”²¹

From tradition, sacred architecture utilizes material means to express non-material contents and this non-materiality cannot be measured through empirical sciences. The art of the sacred has non-linear and multidimensional qualities, which are a foundation that can be fostered into multiple levels of perception, providing universal language that connects humans to the higher knowledge they seek.

21. Thomas Barrie, *The Sacred In-between: The Mediating Roles of Architecture* (Routledge, 2013), 4.

LIGHT AND SHADOW

Darkness - the absence of light - is part of our experience of light. Just as white is essential to complete the definition of black, so darkness is significant to complete the experience of light. Light can reveal or suppress. In most cultures, darkness, in suppressing visual perception, represents the unknown, provoking many responses.²² Both light and shadow have the ability to move us, whether it's the colourful mosaic of light traveling across the walls of a Gothic cathedral or the darkness of a Nordic stave church - both qualities carry meaning to us which may vary according to our transient state of being. If light or darkness can transform our momentary state, one's awareness can be extended beyond the corporeal realm into the dimension of the unknown, the immeasurable.²³ Traditional cultures seek beauty not in the object itself but in the characteristic of shadows, the darkness and the light, and the overall effect that is created with one thing against another. An object in the obscurity of the darkness can form an inexpressible aura of depth and mystery.²⁴ "A phosphorescent jewel gives off its glow and colors in the dark, and loses its beauty in the light of day. Were it not for shadows, there would be no beauty."²⁵

22. Marietta Millet and Catherine Jean Barrett, *Light Revealing Architecture* (John Wiley & Sons, 1996), 136.

23. Ibid.

24. Junichiro Tanizaki, *In Praise of Shadows*, (Random House, 2001), 30.

25. Ibid.

SACRED LIGHT

Light exhibits meaning in a space whether mundane or abstract. The meaning of light can be beyond our ordinary comprehension. This symbolic role of light is universal and timeless. The meaning may differ from culture to culture, however, a commonly used phrase is, “the light at the end of the tunnel,” this is associated with revelation. “Let there be light,” is linked to creation.²⁶ Sacred light unites us with a higher order of things, with the absolute truth. Not to be confused with religious symbolism, sacred light is rather the illumination of truth within a higher order. “Sacred light is not tied to revelation of a particular deity, or to a particular religion, or even to a typical religious place, such as a church. Rather sacred light reminds one, that higher order exists, whatever it may be called.”²⁷

26. Millet and Barrett, *Light Revealing Architecture*, 135.

27. Ibid.

"Inspiration is the feeling of beginning at the threshold where silence and light meet. Silence, the unmeasurable, desire to be, desire to express, the source of new need, meets Light, the measurable, giver of all presence, by will, by law, the measure of things already made, at a threshold which is inspiration, the sanctuary of art, the Treasury of Shadow."^{27a} Louis Kahn.

Fig. 1.1

27a. John Lobell and Louis I. Kahn, "Between Silence and Light Spirit in the Architecture of Louis I. Kahn." (1979), 20.

EXPERIENCE OF LIGHT

The experience of light can take us on a journey beyond the finite plane, and beyond our familiar experiences in space and time. An effective way to encourage reflection and contemplation is through the removal of materials in the interiors of spaces that are reminiscent of the mundane everyday tasks. The interior space can represent another world, symbolically set apart from the material existence of strong colours and textures that may distract one from “myth of eternality and transcendence of pure form.”²⁸ Although every individual’s experience of light may vary, its rays can lead us to wonder about the vast sky and the mysteriousness of our universe. Millet Marietta, in her book, *Light Revealing Architecture*, talks about the sky providing connection to sacred light, “Even before any religious values have been set upon the sky it reveals its transcendence. The sky symbolizes transcendence, power and changelessness simply by being there. It exists because it is high, infinite, immovable, and powerful.”²⁹

In Western countries, our most dominant instrument is light, though we appreciate the blessings of scientific advancements, architecture is designed to create minimum shadows and maximum exposure of light in the interior, making sure rooms are brightly lit at all times- naturally and artificially. We are so familiar with gleaming electric light that to gaze upon the lonely light of a bulb shining dimly can seem completely enigmatic.³⁰

28. Brian O’Doherty, “Inside the White Cube. Berkeley,” (1986), 12.

29. Millet and Barrett, *Light Revealing Architecture*, 148.

30. Tanizaki, *In Praise of Shadows*, 17.

“I marvel at our comprehension of the secret of shadows, our sensitive use of shadow and light...the mysterious Orient of which Westerners speak probably refers to the uncanny silence of these dark spaces. And even we as children would feel an inexpressible chill as we peered into the depths of an alcove to which sunlight had never penetrated.”³¹

31. Tanizaki, *In Praise of Shadows*, 19.

FILTERED LIGHT

In many traditional cultures, filtered light expresses tranquility and peacefulness.³² The landscaping around a building adds to this effect, the bright sunlight can be muted through the use of exterior planting. Growing plants near the parameter of windows can filter the light before it reaches the interior space. There are practical benefits to filtered light, especially on hot and bright summer days, the relief from the intensity of the sun is ideal. “For the twelfth and thirteenth centuries light was the source and essence of all visual beauty...to the medieval thinker beauty was not a value independent of others, but rather the radiance of truth, the splendor of ontological perfection, and that quality of things which reflects their origin in God. Light and luminous objects, no less than musical consonance, conveyed an insight into the perfection of the cosmos, and a divination of the creator.”³³

32. Ibid.

33. Millet and Barrett, *Light Revealing Architecture*, 152.

TRADITIONAL MASHRABIYA

“To Western eyes there was always a magic to the mashrabiya... Delicate and beautiful, like silken masks drawn discreetly across the faces of comely maidens, they came to symbolize the legendary mystery of the Orient... Mashrabiya were veils drawn against the outside world and behind their cool shield of latticework those inside did recline in shaded privacy while gazing out at the tumult of the streets below.”³⁴

In Egypt and especially in Cairo, mashrabiya designs started in the 14th century. The word “mashrabiya” originates from Arabic, “place of drinking,” which accommodated the first function of the screen – “the place to cool the drinking water.”³⁵ The mashrabiya is designed for practical and symbolic purposes. The screen is normally found facing the street to allow discretion and bring in cool air to the interior space. The latticework acts like a veil, one can see outward yet remain unseen from the outside world, since the exterior is brighter than the dimly lit interior. In a practical sense, the traditional open structure allows continuous flow of fresh air to cool the interior spaces, and it filters the intensity of the sun as it enters the rooms, offering protection against strong sunlight in the Middle East. Today, traditional mashrabiya is used to cover openings, this oriental ornament gives the structure a local character and provides shade and protection from the intense sunlight.³⁶

34. John Feeney, “The Magic of The Mashrabiya,” *Aramco World*, 1974, <http://archive.aramcoworld.com/issue/197404/the.magic.of.the.mashrabiya.htm>.

35. Ibid.

36. Thomas Schielke, “Light Matters: Mashrabiya - Translating Tradition into Dynamic Facades,” *ArchDaily*, 2014, <http://www.archdaily.com/510226/light-matters-mashrabiya-translating-tradition-into-dynamic-facades>.

CONTEMPLATIVE LIGHT

Similar to the concept of light, darkness conveys symbolic meanings and associations. The impact of darkness can provoke a certain mood, a feeling, or a state of mind. Appreciation of the dark can lead to contemplative light or half-light. Mexican architect Luis Barragan explains the concept of half light: “Architects are forgetting the need of human beings for half light, the sort of light that imposes a tranquility, in their living rooms as well as in their bedrooms...we should try to recover mental and spiritual ease and to alleviate anxiety, the salient characteristic of these agitated times, and the pleasures of thinking, working, conversing are heightened by the absence of glaring light.”³⁷ Half light is sensitive to the need for liberation from excessive illumination that describes most of our built contemporary settings.

In his book, *In Praise of Shadows*, Tanizaki explains silence of shadows as it refers to “...a degree of dimness, absolute cleanliness, and quiet so complete one can hear the hum of a mosquito.” Like in literature that balances good and bad, light and dark, pain and pleasure, sadness and happiness, in life we must find this balance in times of happiness and sunshine, verses other times of sadness, failures and shadow. Tanizaki, states that Japanese culture realizes the beauty of things as they are naturally.³⁸

37. Bamford Smith, *Builders in the Sun: Five Mexican Architects*, (Architectural Book Publishing Company, 1967), 74.

38. Tanizaki, *In Praise of Shadows*, 31.

*"We Orientals tend to seek our satisfactions in whatever surroundings we happen to find ourselves, to content ourselves with things as they are; and so darkness causes us no discontent, we resign ourselves to it as inevitable. If light is scarce then light is scarce; we will immerse ourselves in the darkness and there discover its own particular beauty. But the progressive Westerner is determined always to better his lot. From candle to oil lamp, oil lamp to gaslight, gaslight to electric light- his quest for brighter light never ceases, he spares no pains to eradicate even the minutest shadow."*³⁹

39. Ibid.

OBSERVATORY: LIGHT AND TIME

Since antiquity, light has always been connected to spiritual aspects of life. All around the world, the sacred aspect of temporal change is expressed in extraordinary observatories of the past, such as Stonehenge in Wiltshire, England and Nabta Playa in Nubian Desert of Egypt and Jantar Mantar, in Jaipur, India. Natural Light marks our experience of time. These ancient observatories show how all human cultures have built ways of marking time on earth in relation to our galaxy. Today in the Western cultures, most of us seem to be unaware of those large units of time. Whether we are aware of it or not, humans are still biologically attuned to the change of light that occurs through seasons.

fig. 1.2

3.

CASE STUDY

SACRED ARCHITECTURE:

RONCHAMP CHAPEL

“Some things are sacred, others are not, whether they are religious or not.” Le Corbusier

Today, the connection between the individual and the universe is approached in a way more open to an individual’s understanding. Religious architecture of this modern era, concentrates more on the personal vision of the architect as the source of symbolism. Le Corbusier uses his personal vision to shape the symbolic expressions of the Chapel at Ronchamp.

The chapel of Notre Dame du Haut (Le Corbusier, 1950-55) at Ronchamp, France is a great example of sacred architecture. The structure is radically different on all sides, its remarkable shapes and presence shock many visitors. Yet, here is a sculptural architecture that employs lyricism and poetry in the service of the church, revealing a potential for spirituality associated with this chapel.⁴⁰ The walls thicken as it reaches the ground, which enables the small openings to act as loud speakers for the light. Traditional elements of colour and light that characterize Christian typologies are revealed through modern form. The sacred is expressed by means of radical simplicity and austerity; this concept is carried to the altar, seating, railing and the structure. The absence of ornamentation can enhance the sacred experience and allow for an uninterrupted time of silence, reflection and prayer. “Whether we are aware of it or not religious spaces are embedded with layers of symbolism and meaning underneath its façade; one can find healing and liberation upon entering such spaces.”⁴¹ The lighting of the chapel is dim, creating a sense of mystery since it is impossible to see everything from one vantage point. No images, no colours, intervene between believers and the light. The light reveals, yet in gentle and subtle forms.⁴²

40. Deborah Gans and Le Corbusier, *The Le Corbusier Guide* (Princeton Architectural Press, 2006), 93-97.

41. Ibid.

42. Ibid.

Fig. 1.3

Fig. 1.4

Fig. 1.5

SACRED LIGHT

THE KIMBELL ART MUSEUM, WORTH, TEXAS, 1972.

The concept of the sacred is manifested in Louis Khan's Kimbell Art Museum. His vision is strongly linked to higher aspirations and to revealing the unknown.

In outlining the Kimbell Art Museum, Louis Kahn began with a vision of "the silence"- the unmeasured that would reveal the measurable light. The Kimbell Art Museum acquaints us with the phenomenon of the unmeasured silence through its convergence of structure, material, space and light.⁴³ Sacred light is evident in all aspects of the design, from the entry through the forests of trees, through the patio and hall, and through the display galleries with slight glimpses of the enclosed courtyards. The encounters and expressions of light imply that this is a unique place. Through the use of sacred light, the museum implies a feeling of timelessness and inspires one to reflect and contemplate about the nature of light and beyond.⁴⁴

43. Millet and Barrett, *Light Revealing Architecture*, 160.

44. *Ibid.*, 161.

Fig. 1.6

Fig. 1.7

Fig. 1.8

EXPERIENCE OF LIGHT

CHURCH OF LIGHT, 1989, OSAKA, JAPAN.

The Church of Light is located in Osaka, Japan. The church is strategically oriented towards the sun. The church contains a rectangular mass that is sliced at a fifteen-degree angle by a freestanding concrete wall, which creates a separation between the entrance and the chapel. This separation forms a threshold between the interior and the exterior of the church. The seats and floor are made of irregular scaffolding planks, which underline the humble character of the space. Light enters the darkness of the interior through a cross cut out of the altar wall. This vision of the architecture is to represent the purity that exists in the relationship between humans and nature. The only element of nature in the interior of the church is the light that penetrates through the narrow slit and brings the space into life.⁴⁵

Japanese architect, Tadao Ando's work adapts to a modern approach, however, equally important to him is tradition. In Church of light, his design is modern in style, yet rooted in tradition. Most modern buildings are brightly lit- both naturally and artificially. The Church of Lights is constructed of dimly lit interiors, a method common to traditional Japanese architecture. Allowing minimal light into a dark space expresses a feeling tranquility and peacefulness.

“Even the greatest masterpiece will lose its worth as a scroll if it fails to blend with the alcove, while a work of no particular distinction may blend beautifully with the room and set off to unexpected advantage both itself and its surroundings.”⁴⁶

45. Tadao Ando, *Tadao Ando: Light and Water* (New York: Monacelli Press, 2003), 64.

46. Tanizaki, *In Praise of Shadows*, 19.

Fig. 1.9

DEMATERIALIZATION OF FORM

Concrete is a heavy material and very commonly used, in fact, it is difficult to imagine anything more materialistic in its construction than a solid concrete wall. The beauty of concrete is its ability to transform into an illusory surface through the effect of light, as it is susceptible to dematerialization. In Ando's work, the roughness of the cast concrete is positioned against the light, making the wall seem weightless- as though it were a light fabric hung against an invisible plane. In the Church of light, the road from materiality to immateriality is inseparable from the motion of the sun. This dematerialization of form through the perceivable passage of time is unique in Ando's projects. This temporal phenomenon develops from his belief that the possibility of the existence of the unknown is uncovered through the inexpressible presence of light.⁴⁷

47. Tadao Ando, *Tadao Ando: Light and Water*, 64.

Fig. 2.0

MASHRABIYA: HOUSE OF AL-SUHAYMI

Earlier use of traditional mashrabiya is skillfully rendered in the house of Al-Suhaymi. The house of al-Suhaymi, built in 1648 is a Cairene house from the Ottoman period. The design of this traditional structure has created a clear separation between public and private spaces. The public spaces include a courtyard, a reception area, and open spaces.⁴⁸ The courtyard contains a large benched area where business transactions were performed in the morning. The reception area or the second-story loggia is typically used in the evenings. Activities are moved from one room to the other according to the time of the day and the seasons. The private sections include a bath and apartments, located above the ground level and are accessed by a separate flight of stairs in the courtyard. The private spaces overlook the courtyard through openings veiled by mashrabiya, the screens are made from turned wood. These screens allow women to enjoy the views of the courtyard without being seen by the visitors. The spatial layout of these traditional spaces is adaptive to climate changes. The mashrabiya screens keep the interiors cool in the summer and the cold air is regulated by the inner parts of the house through a wind catcher.⁴⁹

48. "Bayt al-Suhaymi," ArchNet, 1982, <http://archnet.org/sites/2195>.

49. Ibid.

Fig. 2.1 Images show the exterior and interior of the Al- Suhaymi's guest room. The mashraybiya screens create a veil of privacy.

Fig. 2.2

OBSERVATORY

THE STONEHENGE, WILTSHIRE, UNITED KINGDOM, 2600 BC.

The Stonehenge marks the solar and lunar alignments, especially the rising of the sun on summer solstices over the heel stone. The intention is to capture certain key moments through time, such as the rising of the sun on the summer solstice, the longest day of the year- this day was considered an auspicious occasion, since the balance of the cosmos shifts, the days that were growing longer, now get shorter. The rising of the sun on solstices and equinoxes was considered important for determining an agricultural calendar; however, much evidence indicated that astronomical observations performed as part of an intricate ceremonial ritual involving mythology and deities.⁵⁰

50. Baity et al., "Archaeoastronomy and Ethnoastronomy So Far [and Comments and Reply]," (Current anthropology, 1973), 391.

Fig. 2.3

NABTA PLAYA

NUBIAN DESERT, CAIRO, (CA. 11,000 - 5500 CALIBRATED RADIOCARBON YEARS AGO)

Nabta Playa is the oldest observatory known to us. According to Thomas Brophy, extremely sophisticated astronomy was coded into this ancient structure. This observatory marks the alignment of summer solstice sunrise and stellar alignments. The Constellation of Orion's belt, head and shoulder precisely match the six stones in the center according to precession of the stars.⁵¹

PRECESSION OF THE STARS

"Precession, a conical motion of the earth's axis around the pole of the ecliptic, approximately every 25,800 years, is caused by the gravitational pull of the sun and the moon on the earth's equatorial bulge. It causes a westward displacement of vernal equinox along the ecliptic."⁵² The precession causes the height of stars change with time. According to hypothesis presented by astrophysicist Thomas Brophy, "the southerly line of three stones inside the calendar circle represents the three stars of Orion's Belt and the other three stones inside the calendar circle represented the shoulders and head stars of Orion as they appeared in the sky."⁵³

51. Thomas Brophy and Paul Rosen, "Satellite Imagery Measures of the Astronomically Aligned Megaliths at Nabta Playa," *Mediterranean Archaeology and Archaeometry* 5 (2005), 15-24.

52. Baity et al., "Archaeoastronomy and Ethnoastronomy So Far [and Comments and Reply]", 390.

53. Brophy and Rosen, "Satellite Imagery Measures of the Astronomically Aligned Megaliths at Nabta Playa," 15-24.

Fig. 2.4

4. DESIGN PROPOSAL

This design project is steeped in tradition and culture, inspired by a Sufi's pilgrimage from "body to Self". A pilgrim sees life as a sacred journey, where the earth is home and the universe is a process. The act of walking is essential in pilgrimage, as it connects the travelers with the earth, and walking the land becomes a way of engaging in the journey. The design proposal is integrated with the landscape allowing for an improved connection with the land. The journey converges man with water, earth and the light. This journey of connecting man with nature is sacred, which does not have any religious connotation in the context of this thesis.

Sacred architecture inspires us to look inward to our center and to seek for personal connection with the light. Darkness, the absence of light is part of our experience of light. The light is made apparent in the darkness; its existence reveals the unknown, the sacred. The design proposal consists of sacred architectural settings that inspire reflection, meditation and observation, bridging humans to the knowledge they seek. The project has three parts: a courtyard, meditation chapels and an observatory tower. The courtyard acts as a threshold between the outside world and meditations spaces, the chapels are private spaces for meditation and self-reflection and the observatory tower is a place for cosmological reflections.

SITE

ISLAND PARK, OTTAWA, ONTARIO, CANADA

Choosing the appropriate site for a place of meditation and reflection is more challenging in a city landscape. It is hard to find a location that is distanced from the busy traffic of the city. The chosen area of the Island Park allows individuals to interact with nature without the noise related to distractions of everyday life. This particular location separates itself from the highway, the site is peaceful, surrounded by trees and the Ottawa River. Walking along the river feels like an escape within the city. The experience at night is memorable as one can see stars on a clear night.

PUBLIC
WASHROOM

PARKING LOT

100 m

NATURE WITHIN THE CITY

THE IMAGES ILLUSTRATE THE SERENITY THAT RESIDES IN THE NATURAL LANDSCAPE OF ISLAND PARK AND OTTAWA RIVER.

OTTAWA RIVER

THE OTTAWA RIVER IS THE CULTURAL AND NATURAL HEART OF EASTERN ONTARIO AND WESTERN QUEBEC. FOR 6,000 YEARS, CANADA'S ABORIGINAL PEOPLES HAVE BEEN LIVING ALONG THE OTTAWA RIVER. THE OTTAWA RIVER PLAYS AN IMPORTANT ROLE IN MANY STORIES THAT CONSTITUTE CANADA'S HISTORY. IT WAS THE PATH FOR MOST OF THE EARLY EUROPEAN EXPLORATION OF NORTH AMERICA.

RIVER OF TRADE

17TH CENTURY THE OTTAWA RIVER IS ALSO KNOWN FOR ITS HISTORY OF TRADING- PARTICULARLY, WHEN THE EUROPEAN SETTLERS ARRIVED, THE DEMAND FOR FUR WAS HIGH- ESPECIALLY BEAVER PELT.

19TH CENTURY- EARLY INDUSTRIALIZATION IN EUROPE CREATED A NEED FOR TIMBER. THIS IS HOW THE LOGGING INDUSTRY EMERGED, THE OTTAWA RIVER MEN TRANSFERRED LOGS FROM THE LUSH FOREST ALONG THE RIVER TO OTHER CITIES IN CANADA.

20TH CENTURY- DEMAND FOR PULP AND PAPER WAS HIGH

Information above is obtained from: <http://www.ottawariver.org/pdf/02-ch1.pdf>.

ISLAND PARK

THE BUNKER WAS USED TO TRANSFER COOL WATER FROM THE OTTAWA RIVER TO THE COMPLEXES IN TUNNEYS PASTURE, WHICH IS LOCATED FOUR KILOMETERS WEST OF OTTAWA'S DOWNTOWN CORE. THE UNDERGROUND PIPELINE IS 3000 FT LONG AND THE RIVER WATER WAS USED FOR COOLING PURPOSES.

REMIC RAPID SCULPTURE

RAPIDS SCENIC LOOKOUT AREA IS APPROXIMATELY 1 KM FROM THE START OF THE OTTAWA RIVER PARKWAY. DRIVEWAYS CONNECT THE TWO DIRECTIONS OF THE PARKWAY TO THE AREA, WHICH HAS A SMALL PARKING LOT AND PICNIC AREAS. PARKWAY GOES ALL THE WAY TO WESTBORO BEACH AND ISLAND PARK.

AN EXTRA TURNING LANE IS PROVIDED TO ACCESS THE LARGE PARKING LOT OF THE CAMPUS. FURTHER EAST, THE PARKWAY PASSES OVER PARKDALE AVENUE, PROVIDING ACCESS TO THE

THE PRINCE OF WALES BRIDGE IS A RAIL BRIDGE ACROSS THE OTTAWA RIVER JOINING OTTAWA, ONTARIO TO GATINEAU, QUEBEC. IT CONNECTED WITH THE CANADIAN PACIFIC RAILWAY LINE JUST WEST OF LEBRETON FLATS, AND CROSSES THE SOUTH CHANNEL OF THE RIVER TO LEMIEUX ISLAND; IT THEN CONTINUES ACROSS THE NORTHERN CHANNEL INTO QUEBEC. THE PRINCE OF WALES BRIDGE SERVED WELL INTO THE 20TH CENTURY, BUT AS RAIL TRANSPORT DIMINISHED AND MORE EFFICIENT ROUTES BECAME MORE COMMON, THE LINE WAS ABANDONED

CANADA GOOSE IS A COMMON BIRD FOUND ALONG THE OTTAWA RIVER PATHWAY. OTHER BIRDS AND ANIMALS FOUND ALONG THE OTTAWA RIVER: BARROW'S GOLDENEYE, BATS, BEAVERS, AND GROUPS OF PIGEONS RESIDE IN THE SURROUNDING ISLANDS, ESPECIALLY IN BATE ISLAND.

CIRCULATION

PATHWAY

THE PATHWAY RUNS ALONG THE SHORE OF OTTAWA RIVER. IT IS SURROUNDED BY VARIOUS TREES, OFFERING SCENIC VIEWS OF THE RIVER, AND THE LANDSCAPE OF GATINEAU CAN BE SEEN IN THE HORIZON. THE PATHWAY IS SHARED BETWEEN PEDESTRIANS, CYCLERS AND ROLLERBLADERS.

THE PATHWAYS ALSO OFFERS BENCHES FOR SEATING AND REMIC RAPID SCULPTURES FURTHER ENHANCE THE EXPERIENCE OF THE JOURNEY ALONG THE PATHWAY.

SIR JOHN A. MACDONALD PARKWAY IS A FOUR-LANE ROADWAY ALONG THE OTTAWA RIVER. THE PARKWAY FOLLOWS THE SHORE, WITH BOTH DIRECTIONS SEPARATED BY A GRASS MEDIAN. IT RUNS FROM CARLING AVENUE TO BOOTH STREET, BY THE CANADIAN WAR MUSEUM AND NATIONAL HOLOCAUST MONUMENT. THE PARKWAY WAS PART OF THE GREBER PLANS FOR OTTAWA IN 1940S. THE PARKWAYS PROVIDED A SCENIC DRIVE TO THE PARLIAMENT HILL. IT IS MAINTAINED BY THE NATIONAL CAPITAL COMMISSION(NCC). THE SPEED LIMIT IS 60 KM/H. FROM THIS POINT EAST, THE ROADWAY IS USED FOR NON-COMMERCIAL VEHICLES AND BICYCLES. BICYCLES ARE ALLOWED ON THE ROAD AND ON A PARALLEL PEDESTRIAN PATHWAY ALONG THE PARKWAY. ALSO, USED FOR COMMUTING TO DOWNTOWN AND FOR GOVERNMENT EMPLOYEES WHO WORK AT THE TUNNEY'S PASTURE OFFICE COMPLEX.

IT IS CLOSED TO COMMERCIAL TRAFFIC, SO THE MAJORITY OF VEHICLES ARE PRIVATE CARS.

SUMMER SUNDAY CLOSURES

ON SUNDAYS DURING SUMMER MONTHS, THE PARKWAY'S WESTBOUND LANES ARE CLOSED TO MOTOR VEHICLES AND OPENED TO PEDESTRIAN AND BICYCLE TRAFFIC FROM 9 AM UNTIL 1 PM.

GREEN SPACE

THE DIAGRAM ILLUSTRATES THE SEPARATION OF THE SITE FROM THE CITY'S INFRASTRUCTURE, THE TREES ACT AS A BARRIER BETWEEN THE MAN-MADE AND NATURAL WORLD. THE AREA ALONG THE RIVER IS MOSTLY CLEARED OF TREES, ALLOWING FOR SCENIC VIEWS OF THE OTTAWA RIVER. THE AREA TO THE SOUTH IS FORESTED.

CENTRE FOR KNOWLEDGE

PROGRAMS

OBSERVATORY | CHAPELS | COURTYARD

OBSERVATORY TOWER: LEARNING THROUGH OBSERVATION
MEDITATION CHAPELS: LEARNING THROUGH SELF REFLECTION

SITE: OTTAWA RIVER | ISLAND PARK

The meditation chapels are completely private. All chapels are hidden along the topography of the site and can only be accessed through underground tunnels. The Observatory tower is public, the tower emerges out of the water and can be seen from far away.

1:75

DIRECT AND INDIRECT LIGHT
FRAMING THE SUN

Summer Solstice- 8:00 AM

Summer solstice- 10 AM

Summer solstice- 11 AM

Summer Solstice

Autumnal Equinox

Vernal equinox

Summer solstice- 1:00 PM

Equinox Sunset

Winter Solstice

Winter Solstice 1:00 PM

THE COURTYARD

THE COURTYARD

The Courtyard is the threshold, between the outside world and meditation spaces.

EAST FACADE: FRAMING THE SUN

The East facade is created of heavy concrete construction with one opening that frames the observatory tower, leading visitors into the space. The opening of the courtyard acts as a threshold between the outside world and meditation spaces.

WEST FACADE:

The West facade appears weightless as the sun pierces through the entire structure. The mashrabiya screens filter the harsh light, allowing soft light to interact with the interior spaces of the courtyard.

WATER:

Water has many symbolic meanings and when light interacts with it, the effect can be intensified. A strip of water extends down the middle of the courtyard seemingly merging with the Ottawa River in the distance to the west, creating a continuity with the river and the sun that is reflected.

FILTERED LIGHT

The impact of filtered light can provoke a certain mood, a feeling, or a state of mind. Contemplative light is appreciation for darkness and liberation from excessive illumination that describes most of our built contemporary settings. There are practical benefits to filtered light, especially on hot and bright summer days, the relief from the intensity of the sun is ideal.

Summer solstice- 1:00 PM

Equinox Sunset

MASHRABIYA

The mashrabiya is a traditional element that is brought to contemporary setting. The screens act as a veil for courtyard, creating privacy for the users. Screens are created from pieces of turned wood. These screens allow users to meditate without being seen from the outside. The spatial layout of the courtyard is adaptive to climate changes, the exterior sliding screen, can open in the summer to let cool and fresh air in.

MASHRABIYA SLIDING WINDOW

INVISIBLE CHAPELS

INVISIBLE CHAPELS

The Invisible Chapels are places where individuals can cultivate a sense of presence, either through meditation, prayer or just taking time to be at peace and solitude. Having no windows to the outside worlds, this architecture blocks everyday distractions completely, thus creating a peaceful atmosphere for self-reflection. The Chapels are located along the shore of the Ottawa River. The invisible chapels are underground, buried in deep soil, away from the sight of any physical distraction and far from noises of the city streets- a place of utter silence. The tranquility of shadows leads to an unclouded, rich experience of lucid and fresh senses open to learning the deepest resource and value from self-reflection. The chapels aim to create an atmosphere that evoke thought and awareness - to detach ourselves from everyday tasks and perceive oneself as an observer instead of a product of the world.

TECHNIQUES

The plans, sections and elevations are created in Autodesk Revit. The images are rendered through Autodesk Revit and transferred into Adobe Photoshop. The images are edited and completed in Photoshop. The diagrams are created in Adobe Illustrator. The illustration of the tunnel (page 67) is hand-drawn with black and white filter added in Photoshop.

The dimension of the chapels are 17 x 8 x 10 (L x W x H). The construction material is poured reinforced concrete and rammed earth is used to create a warm and earthy atmosphere to the interior spaces. The windows are triple glazed, offering protection and insulation. Roxul insulation is used for fire and sound proofing and special drainage techniques are implemented around the site, particularly along the roof areas.

Underground chapels are energy efficiency and minimal electric heating is required in the winter seasons. The earth's subsurface temperature remains stable, so underground dwellings benefit from geothermal mass and heat exchange, staying cool in the summer and warm in the winter. Underground chapels are remarkably quiet and peaceful as the surrounding earth provides noise insulation, allowing the visitor to be in peace and solitude. Additionally, rammed earth provides sound insulation on the interior spaces. Rammed earth has excellent sound reverberation characteristics and does not generate the harsh echoes characteristic of many conventional wall materials.

NO WINDOWS TO THE OUTSIDE WORLD!

The sky symbolizes transcendence, power and changelessness simply by being there. It exists because it is high, infinite, immovable, and powerful. The sun is part of the mysteries of the sky, its rays can lead us to wonder about the vast sky

BRINGING IN THE OTTAWA RIVER

The Ottawa River is significant to Canadian culture and tradition. Through bringing in the river into meditation chapels, the river becomes a unifying part of the design. Revitalizing the connection between humans and nature is sacred and the source of tradition.

The sound of moving water is soothing to the mind and tranquil to all senses. The endlessly flowing water is symbolic of intelligible knowledge. The subtle interaction between the movement of the water and light is reminiscent of thousands of soft, flickering, candlewicks hovering and refracting at its surface.

OBSERVATORY TOWER

The Observatory tower is designed for external reflection. The tower is intended to connect observers to a cosmic level of awareness, as it frames the temporal phenomenon of the sun and other planets. The tower houses two permanent telescopes and is designed to suit amateurs and professional astronomers alike. During the day, the tower serves as a belvedere, offering natural views of both Island Park in Ottawa, and Gatineau in Quebec. The triangular opening, frames the sun every equinox, marking the arrival of spring and fall. The experience of sacred light takes us on a journey beyond the finite plane. The source of this sacred light is the sun. For this thesis, the observatory tower becomes the palpable experience of the sun's motion, as it captures the temporal phenomenon of the sun through the course of the day and the seasons. Although every individual's experience of the light may vary, its rays can lead us to reflect about the vast sky and the mysteries of our universe. The sky symbolizes transcendence, power and changelessness simply by being there.

OBSERVATORY TOWER

THE CARTESIAN COORDINATES

The tower reflects the vertical and transcendental dimension of man's otherwise two dimension material existence.

ALIGNMENTS OF THE EQUINOXES & SOLSTICES

TOWER FRAMES VIEWS OF OTTAWA & GATINEAU

The structure on the left of the image is an astronomical device that measures the zenith distance and the altitude of the sun. The device is educational and interactive, inspiring the visitors to connect with the temporal phenomena of the sun.

JOURNEY FROM SUNRISE TO SUNSET

FRAMING THE TEMPORAL PHENOMENON OF THE SUN

Temporal change is expressed in the courtyard, chapels and the observatory tower. The main transformation of the sunlight occurs as day turns to night. Nowadays, the difference between day and night is blurred because we highly depend on electric light and most of us take for granted the beauty of sunrise and sunset.

The East windows allows for light to pour into the space throughout the early morning and into the day. This dematerializes the interior concrete walls, transforming the dark volume into an illuminated box. This effect changes material into immaterial, dark into light, light into space.

UNDERGROUND CHAPELS ARE ACCESSED THROUGH TUNNELS

'One Light'

*What are "I" and "You"?
Just lattices
In the niches of a lamp
Through which the One Light radiates.
"I" and "You" are the veil
Between heaven and earth;
Lift this veil and you will see
How all sects and religions are one.*

-Mahmud Shabistari

CONCLUSION

The design undertaken for this thesis is intended to establish a foundation for future research — a preliminary study into the discourse between modernity and tradition. While this discourse necessarily touches on questions of the sacred, it does not represent an affiliation with any specific dogma. The ethical function of the design proposal is education; building bridges between cultures and traditions through art and engagement in contemplation. The design proposal consists of spaces for internal and external reflection, serving as a prototype for a reconciliation of modernity and tradition through the practices of observation, reflection, and contemplation. The courtyard, the meditation chapels and the observatory tower symbolize unity between natural, spiritual and artistic realms. The proposed artistic spaces interact with the natural world; the observatory interacts with the sun, and the chapels interact with the landscape of Island Park and the Ottawa River.

This design thesis proposes a threshold into a new way of inhabiting the modern city. It engages the traditional knowledge of the past while acknowledging our modern condition. The intention is to create an experience of the sacred that connects individuals to the 'other'. The vision is to encourage deeper self-awareness, cosmological awareness and, to strengthen cultural pluralism that is vital peace in the world.

From tradition, we argue that meditation awakens our senses to the possibility that emanates from reflecting on the manifold of our own experience. The design proposal is a thoughtful blend of the past and present, referencing traditional architectural elements of the past to create experiences of light and shadow in a contemporary setting. While recognizing that there are philosophical and political differences between tradition and modernity both ways of being can benefit from an opening to the other.

Traditional societies created a separation between public and private realms. The arrival of modernity rang the death knell for a classical private realm. It is difficult for reflection and meditation to occur in the fast moving public realm. Meditation requires the quiet of the private realm. Ottawa is a capital city and the decisions made in this city shape the future of an entire nation and, in many cases, the world. The city can benefit from contemplative spaces that inspire meditation and calm the wandering mind.

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APPENDIX

IMAGES

- Fig 1.0 <https://archipelagobooks.org/wp-content/uploads/turkishdervish.jpg>.
- Fig. 1.1 <http://www.stylepark.com/en/news/the-allure-of-uncompleted-architecture/335699>
- Fig 1.2 <http://imgarcade.com/1/jantar-mantar-delhi-inside/>.
- Fig 1.3 <http://www.archdaily.com/84988/ad-classics-ronchamp-le-corbusier/>.
- Fig 1.4 <http://www.archdaily.com/84988/ad-classics-ronchamp-le-corbusier/>.
- Fig 1.5 http://www.siggraph.org/education/materials/HyperGraph/radiosity/overview_4.htm.
- Fig 1.6 <http://archtalks.com/archtalks-home/tag/louis-kahn>.
- Fig 1.7 http://www.archlighting.com/cultural-projects/structural-light_o.aspx.
- Fig 1.8 http://www.archlighting.com/cultural-projects/structural-light_o.aspx.
- Fig 1.9 <http://www.archdaily.com/101260/ad-classics-church-of-the-light-tadao-ando/>.
- Fig 2.0 <http://www.archdaily.com/101260/ad-classics-church-of-the-light-tadao-ando/>.
- Fig 2.1 <https://www.pinterest.com/pin/485192559830949417/>.
- Fig 2.2 <http://www.touregypt.net/featurestories/baytsuhaymi.htm>.
- Fig 2.3 http://www.huffingtonpost.com/2013/04/20/stonehenge-general-manager-druid-leaders_n_3122669.html.
- Fig 2.4 <http://blog.world-mysteries.com/mystic-places/the-descending-corridors-of-pyramids-and-the-narmer-stone-an-archaeoastronomical-and-theological-perspective/>.