Darkness with Shards of Light

by

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A thesis
presented to the University of Waterloo
in fullfillment of the
thesis requirement for the degree of
Master of Architecture

AUTHOR'S DECLARATION

I hereby declare that I am the sole author of this thesis. This is a true copy of this thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

THESIS ABSTRACT

Realities of the world are often difficult to face. We dream of a world devoid of social ills. In the notion of 'utopia' we imagine such an environment – sparkling and full of light, but this perfect world is a delusion. It fails to address the darker, more unpredictable reality – one of imperfections, transitions, and moments of enlightenment, an existence constantly becoming. Architecture can frame this side of existence.

Architectural space can find its origin in the creation of experience, focusing to engage the senses and create experience. In this thesis, the experience is developed in the intertwined refrains of art, architecture and sculpture. It frames through architecture, an affect drawn from the interplay of light, matter and space. It is drawn from experiments, the works of Louis Kahn and Tadao Ando, from the paintings of Caravaggio and the sculptures of Henry Moore, telling the story of life, the story of darkness, of shadows, of flesh and hope.

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Thanks to my family and friends specially to my parents, with whom I shared this journey.

CONTENTS

Authors Declaration	ii
Abstract	iii
Acknowledgement	iv
List of Figures	vi
Part 01	02
Light PaintingsGestures in Clay	14
- Gestures in Clay and Mesh	72
Part 02	
- National Assembly Building, Bangladesh	114
- The Chapel on Mount Rocco, Japan	165
Part 03 Reflection	180
Bibliography	204

List of Figures

Figure 1.01	3	Light Painting . Medium: Single Light Source Projected on Canvas, Convex Lens, Prism Image by Author
Figure 1.02	5	Light Painting. Medium: Multiple Light Source Projected on Canvas, Convex Lenses Image by Author
Figure 1.03	7	Light Painting. Medium: Multiple Light Source Projected on Canvas, Convex Lenses, Prism Image by Author
Figure 1.04	9	Light Painting. Medium: Multiple Light Source Projected on Canvas, Convex Lenses, Prism Image by Author
Figure 1.05	11	Shadow Maker. Shadow Projections on Canvas Image by Author
Figure 1.06	18	Clay Model a. Gesture of Transience Image by Author
Figure 1.07	22	Clay Model b. Paradox of Perception Image by Author
Figure 1.08	26	Clay Model c. Gesture of Repose Image by Author
Figure 1.09	30	Clay Model d. Gesture of Respite Image by Author
Figure 1.10	34	Clay Model e. Gesture of Transition Image by Author
Figure 1.11	38	Clay Model f. Gesture of Transformation Image by Author
Figure 1.12	42	Clay Model g. Path of Intrigue Image by Author
Figure 1.13	44	Clay Model h. Rhythm of Universality Image by Author
Figure 1.14	48	Clay Model i. Intrigue of the Unknown Image by Author
Figure 1.15	50	Clay Model j. Between the Motion and the Act Image by Author
Figure 1.16	54	Clay Model k. Between the Idea and the Reality Image by Author
Figure 1.17	58	Clay Model 1. Light Through Rupture Image by Author
Figure 1.18	60	Clay Model m. Light Through Rupture Image by Author

Figure 1.19	62	Clay Model n. New Door Image by Author
Figure 1.20	64	Clay Model o. New Door Image by Author
Figure 1.21	68	Clay Model p. Moment of Enlightenment Image by Author
Figure 1.22	70	Figure q. Light Filter Image by Author
Figure 1.23	74	Clay and Mesh Model a. Dissolution of the Organism Image by Author
Figure 1.24	76	Clay and Mesh Model a. Dissolution of the Organism Image by Author
Figure 1.25	78	Clay and Mesh Model c. Dissolution of the Organism Image by Author
Figure 1.26	80	Clay and Mesh Model d. Embodiment of Chaos Image by Author
Figure 1.27	82	Clay and Mesh Model d Close up of Turbulance Image by Author
Figure 1.28	84	Clay and Mesh Model d Rupture Image by Author
Figure 1.29	86	Clay and Mesh Model d Light Enters the Interior Image by Author
Figure 1.30	88	Clay and Mesh Model e Xray View Image by Author
Figure 1.31	90	Clay and Mesh Model e Plan View Image by Author
Figure 1.32	94	Montage. Dark Solitary Passages with Shards of Light Image by Author
Figure 1.33	98	Montage. Moments of Confrontation Image by Author
Figure 1.34	101	Montage. Moments of Abrupt Transition Image by Author
Figure 1.35	104	Montage. Moments of Pause and Contemplation Image by Author
Figure 1.36	107	Montage. Moment of Enlightenment Image by Author
Figure 1.37	110	Montage. Synthesis Image by Author

Figure 2.01 117 Site Plan, National Assembly Building, Dhaka Archnet, B&W drawing, site plan, 1989, Digital Image, Available from https://archnet.org/sites/70/publications/151 Figure 2.02 118 Aerial View, National Assembly Building, Dhaka "National Assembly Building of Bangladesh," YouTube video, 1:10/2:57, "Design Home", January 11, 2017, https://www.youtube.com/watch? v=iGQQRejyk0s&list=PLdKxxYCOpGEWuKC4BFuJ6Ve5qA64Eqpde&in dex=3Figure 2.03 120 Ganga-Brahmaputra Delta Jesse Allen, Landsat 7 image of Sundarbans, January 28, 2008, Wikipedia, Digital Image, Available from https://en.wikipedia.org/wiki/Sundarbans#/media/ File:Sundarbans.jpg Figure 2.04 121 Nagaphone Gorge Zohann Zoffany, Nagaphon Ghat, Narinda, Dhaka, 1787, Oil on canvas, 66 x 76 cm, collection: Charles Greig, UK, September 17, 2019, Daily star, Digital Image, Available from https://www.thedailystar.net/in-focus/thedhaka-masterpiece-paintings-1285165 Figure 2.05 122 The South Gate of the Lalbagh Zohann Zoffany, The South Gate of the Lalbagh, Narinda, Dhaka, 1787, Oil on canvas, 66 x 76 cm, collection: Charles Greig, UK, September 17, 2019, Daily star, Digital Image, Available from https://www.thedailystar.net/in-focus/the-dhakamasterpiecepaintings-1285165 Figure 2.06 124 **Drive Way** Archbengali, National Parliament of Bangladesh, November 29, 2018, Digital Image, Available from http://archbengali.blogspot.com Figure 2.07 125 Louis I Kahn, Plan Drawing at Level1, 1969, Collected from Public Works Department, Dhaka, Bangladesh. Modified by Author Figure 2.08 127 Photograph by Author Figure 2.09 128 Photograph by Author Figure 2.10 129 Photograph by Author Figure 2.11 130 Photograph by Author Figure 2.12 131 Photograph by Author

Figure 2.13	132	Photograph by Author
Figure2.14	133	Photograph by Author
Figure 2.15	134	Photograph by Author
Figure2.16	135	Photograph by Author
Figure2.17	136	Photograph by Author
Figure 2.18	137	Photograph by Author
Figure 2.19	138	Photograph by Author
Figure 2.20	139	Photograph by Author
Figure2.21	140	Photograph by Author
Figure2.22	141	Photograph by Author
Figure2.23	142	Photograph by Author
Figure2.24	143	Photograph by Author
Figure 2.25	144	Photograph by Author
Figure 2.26	145	Photograph by Author
Figure2.27	146	Photograph by Author
Figure 2.28	147	Photograph by Author

Figure 2.29 149 Ondrej Plestil, National Parliament of Bangladesh, 2012, Digital Image, Available from https://www.archiweb.cz/en/b/budova-narodniho-shromazdeni-jatiyo-sangshad-bhaban

Figure 2.30 150 Archbengali, National Parliament of Bangladesh, November 29, 2018, Digital Image, Available from http://archbengali.blogspot.com

Figure 2.30 151 Louis I Kahn, *Plan Drawing at Level 3*,1969, Collected from Public Works Department, Dhaka, Bangladesh Modified by Author

- Figure 2.31 151 Giovanni Battista Piranesi(Italian, 1720–1778), *The Drawbridge, plate VII* from the series 1745 (printed later), etching on white laid paper; 55.7 x 41.3 cm (21 15/16 x 16 1/4 in.); Gift of Gertrude W. Lewis; 1959-182-6
- Digital Image available, https://collection.cooperhewitt.org/objects/18425245/#image-rights
- Figure 2.32 153 Sketch by Author
- Figure 2.33 154 Sketch by Author
- Figure 2.34 155 Louis I Kahn, *National Assembly Building, abstraction of the theme light and space*. In *Louis I. Kahn: Light and Space* by Urs Buttiker (Newyork: Whiney Library of Design, 1994), 175
- Figure 2.35 155 National Assembly Building, Play of Light in Ambulatory, In Louis I Kahn: Light and Space by Urs Buttiker (Newyork: Whitney Library of Design, 1994), 175
- Figure 2.36 156 Louis I Kahn, Plan Drawing at Level 3,1969, Collected from Public Works Department, Dhaka, Bangladesh . Modified by Author
- Figure 2.37 157 National Assembly Building, Ambulatory In Louis I Kahn: Light and Space by Urs Buttiker (Newyork: Whitney Library of Design, 1994), 171
- Figure 2.38 159 Ondrej Plestil, National Parliament of Bangladesh, 2012, Digital Image, Available from https://www.archiweb.cz/en/b/budova-narodniho-shromazdeni-jatiyo-sangshad-bhaban
- Figure 2.39 160 Sketch by Author
- Figure 2.40 161 National Assembly Building, Prayer room, In Louis I Kahn: Light and Space by Urs Buttiker (Newyork: Whitney Library of Design, 1994), 179
- Figure 2.41 161 Louis I Kahn, *National Assembly Building, abstraction of the theme light and space*. In *Louis I. Kahn: Light and Space* by Urs Buttiler (Newyork: Whiney Library of Design, 1994), 179
- Figure 2.42 161 Louis I Kahn, Plan Drawing at Level 3,1969, Collected from Public Works Department, Dhaka, Bangladesh . Modified by Author
- Figure 2.43. 162 Louis I Kahn, Plan Drawing at Level 3,1969, Collected from Public Works Department, Dhaka, Bangladesh . Modified by Author
- Figure 2.44 163 National Assembly Building, Paraboloid Roof, In Louis I Kahn: Light and Space by Urs Buttiker (Newyork: Whitney Library of Design, 1994), 185
- Figure 2.45 163 Louis I Kahn, *National Assembly Building, abstraction of the theme light and space*. In *Louis I. Kahn: Light and Space* by Urs Buttiler (NewYork: Whiney Library of Design, 1994), 185

- Figure 2.46 167 Tadao Ando, *Chapel at Mount Rocco*. In *Light in Japanese Architecture* by Henry Plummer. Architecture+Urbanism Extra Edition (Tokyo: E and Yu, June 1995), 128
- Figure 2.47 168 Tadao Ando, *Chapel at Mount Rocco*. In *Light in Japanese Architecture* by Henry Plummer. Architecture+Urbanism Extra Edition (Tokyo: E and Yu, June 1995), 126
- Figure 2.48 170 Tadao Ando, *Chapel at Mount Rocco*. In *Light in Japanese Architecture* by Henry Plummer. Architecture+Urbanism Extra Edition (Tokyo: E and Yu, June 1995), 126-129.
- Figure 2.49 170 Kaz Chiba, Shadows of leaves & trees with sunlight casting on Shoji Screen, Komyou-In, Tofukuji Temple, Digital Image, Available from https://www.gettyimages.ca/detail/photo/shadows-on-shoji-screen-royalty-free-image/137058478
- Figure 2.50 172 Tadao Ando, *Chapel at Mount Rocco*. In *Light in Japanese Architecture* by Henry Plummer. Architecture+Urbanism Extra Edition (Tokyo: E and Yu, June 1995), 126-129.
- Figure 2.51 174 Tadao Ando, *Chapel at Mount Rocco*. In *Light in Japanese Architecture* by Henry Plummer. Architecture+Urbanism Extra Edition (Tokyo: E and Yu, June 1995), 126-129.
- Figure 2.52 174 Tadao Ando, *Chapel at Mount Rocco*. In *Light in Japanese Architecture* by Henry Plummer. Architecture+Urbanism Extra Edition (Tokyo: E and Yu, June 1995), 126-129.
- Figure 2.53 176 Tadao Ando, *Chapel at Mount Rocco*. In *Light in Japanese Architecture* by Henry Plummer. Architecture+Urbanism Extra Edition (Tokyo: E and Yu, June 1995), 126-129.
- Figure 2.54 176 Tadao Ando, *Chapel at Mount Rocco*. In *Light in Japanese Architecture* by Henry Plummer. Architecture+Urbanism Extra Edition (Tokyo: E and Yu, June 1995), 126-129.
- Figure 2.55 178 Tadao Ando, *Chapel at Mount Rocco*. In *Light in Japanese Architecture* by Henry Plummer. Architecture+Urbanism Extra Edition (Tokyo: E and Yu, June 1995), 126-129.
- Figure 2.56 178 Tadao Ando, Chapel at Mount Rocco. In Light in Japanese Architecture by Henry Plummer. Architecture+Urbanism Extra Edition (Tokyo: E and Yu, June 1995), 126-129.
- Figure 3.01 182 Ibid. (172,174,176,129,131,130,136,135,133,139,147)
- Figure 3.02. 184 Ibid. (178,163)
- Figure 3.03 188 Diagram by Author

Figure 3.04 190 Louis I Kahn, First Unitarian Church and School, abstraction of the theme light and space. In Louis I. Kahn: Light and Space by Urs Buttiler (Newyork: Whiney Library of Design, 1994), 107

Figure 3.05 190 National Assembly Building, abstraction of the theme light and space. In Louis I. Kahn: Light and Space by Urs Buttiler (Newyork: Whiney Library of Design, 1994), 185

Figure 3.06 191 Image by Author

Figure 3.07 192 Caravaggio, Christ at the Column, 1607, 134.5 cm × 175.4 cm (53.0 in × 69.1 in), Musée des Beaux Arts, Rouen, Digital Image available from https://www.caravaggio.org/christ-at-the-column.jsp

Figure 3.08 192 Henry Moore, *Drawings on the Underground*, charcoal, wax crayon, ballpoint pen and a watercolour wash. Digital Image, Available from, https://susanaskew.wordpress.com/research-for-evercises/part-three/

Figure 3.09 193 Image by Author

Figure 3.10 194 Louis Kahn, *National Assembly Building*, Digital Image available from http://www.greenholidaysbd.com/parliament-house/

Figure 3.11 194 Ibid.

Figure 3. 12 195 Photograph by Author

Figure 3. 13 196 Photograph by Author

Figure 3. 14 197 Photograph by Author

Figure 3.15 198 Photograph by Author

Figure 3. 16 199 Image by Author

Figure 3. 17 200 Image by Author

Figure 3. 18 200 Claude Monet (1840-1926), Autumn Effect at Argenteuil, 1873, @The Samuel Courtauld Trust, The Courtauld Gallery, London.

I am the wanderer In the path of darkness And intrigue lies along the way.

PART 01: Light Paintings

I began by creating light and shadow paintings, projecting light through lenses and prisms on canvas.

Figure 1.01
Light Painting
Medium: Single Light
Source Projected on Canvas,
Convex Lens, Prism

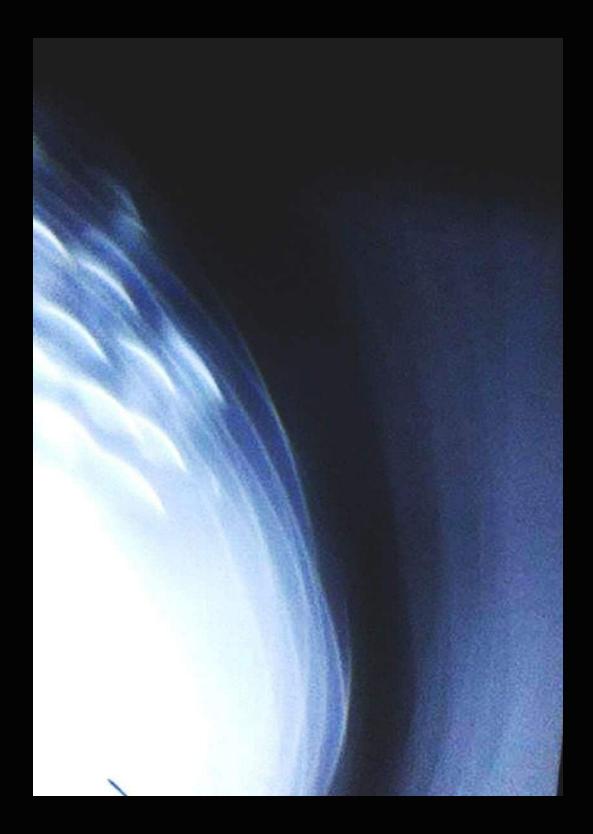


Figure 1.02
Light Painting
Medium: Multiple Light
Source Projected on Canvas,
Convex Lenses



Figure 1.03
Light Painting
Medium: Multiple Light
Source Projected on Canvas,
Convex Lenses, Prism

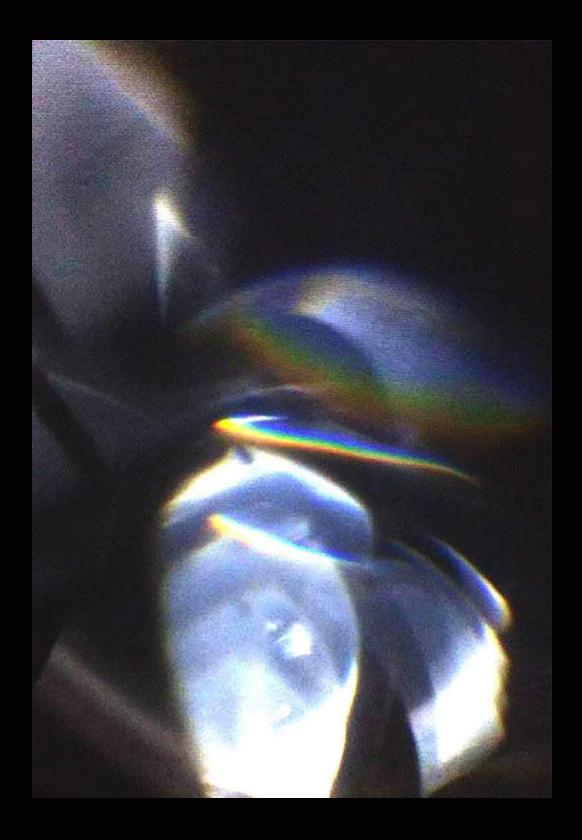


Figure 1.04
Light Painting Medium:
Multiple Light Source
Projected on Canvas,
Convex Lenses, Prism

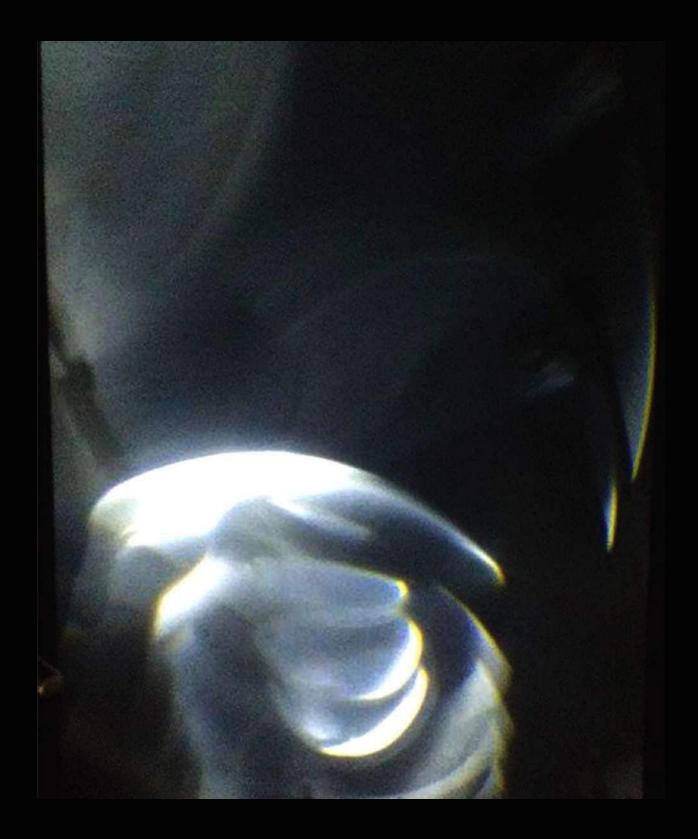
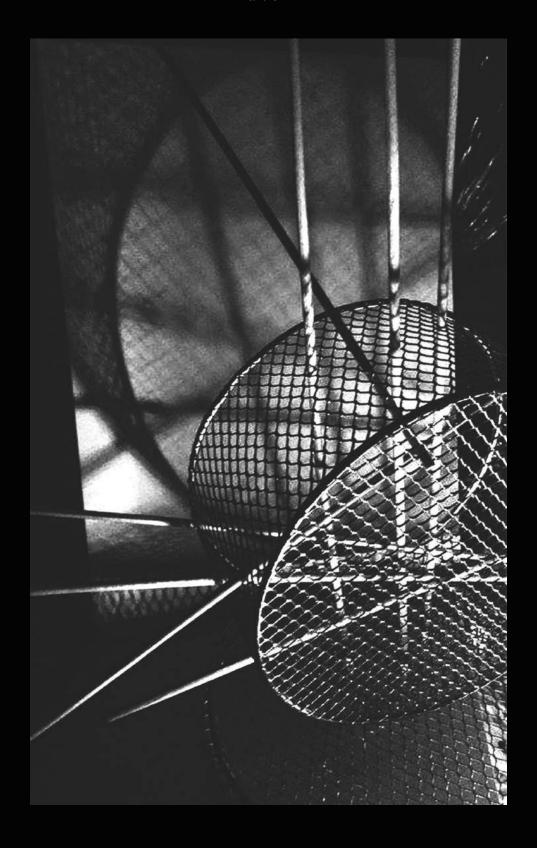


Figure 1.05 Shadow Maker Shadow Projections on Canvas



Finding inspiration in the poetry of Tagore and writings of Gilles Deleuze, I made sculptures with clay, plaster and mesh and introduced light through apertures in the sculptures.

Gestures in Clay

With both hands I hold a single lump of clay. As I feel the coolness and texture of the clay, I start squeezing parts from it. Then I slowly tear away some clay to make way for light. The light 'corrodes' the clay and shadows appear, the play continues.

"Sing the song of the moment in careless carols, in the transient light of the day; Sing of the fleeting smiles that vanish and never look back; Sing of the flowers that bloom and fade without regret." ¹

- Rabindranath Tagore

Figure 1.06 Clay Model b Gesture of Transience



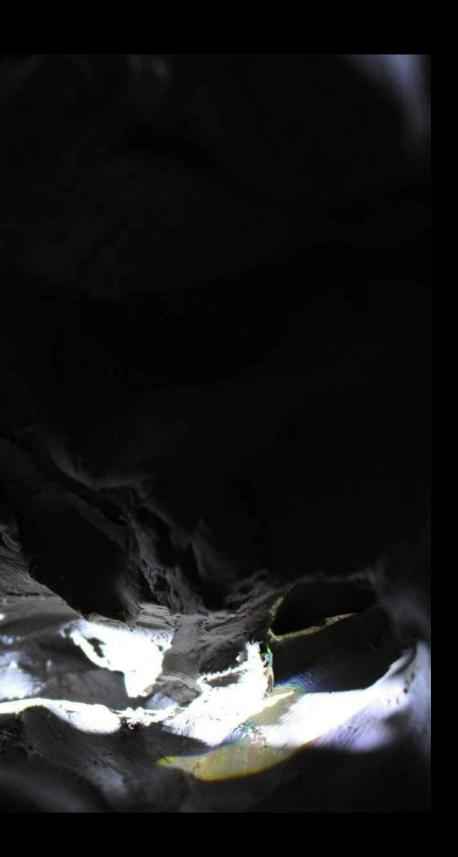


Figure 1.06 Clay Model b

"In darkness the One appears as uniform; in the light the One appears as manifold." ² - Rabindranath Tagore





Figure 1.07 Clay Model a Paradox of Perception

Gestures of respite...

""Death is not extinguishing the light; it is only putting out the lamp because the dawn has come"³

- Rabindranath Tagore





Figure 1.08 Clay Model e Gesture of Repose

"From the traveler, whose sack of provisions is empty before the voyage is ended, whose garment is torn and dust-laden, whose strength is exhausted, remove shame and poverty, and renew his life like a flower under the cover of thy kindly night." ⁴

- Rabindranath Tagore





Figure 1.09 Clay Model f
Gesture of Respite

"I thought that my voyage had come to its end at the last limit of my power, ---that the path before me was closed, that provisions were exhausted and the time come to take shelter in a silent obscurity.

But I find that thy will knows no end in me. And when old words die out on the tongue, new melodies break forth from the heart; and where the old tracks are lost, new country is revealed with its wonders." ⁵

Rabindranath Tagore

Space of Transition..





Figure 1.10 Clay Model d Gesture of Transition

"Clouds Come floating into my life, no longer to carry rain or to usher storm, but to add color to my sunset sky." ⁶
- Rabindranath Tagore





Figure 1.11 Clay Model j Gesture of Transformation

Path of Intrigue...

"The same stream of life that runs through my veins night and day runs through the world and dances in rhythmic measures." 7

- Rabindranath Tagore

Part 01





Figure 1.12 Clay Model g
Path of Intrigue

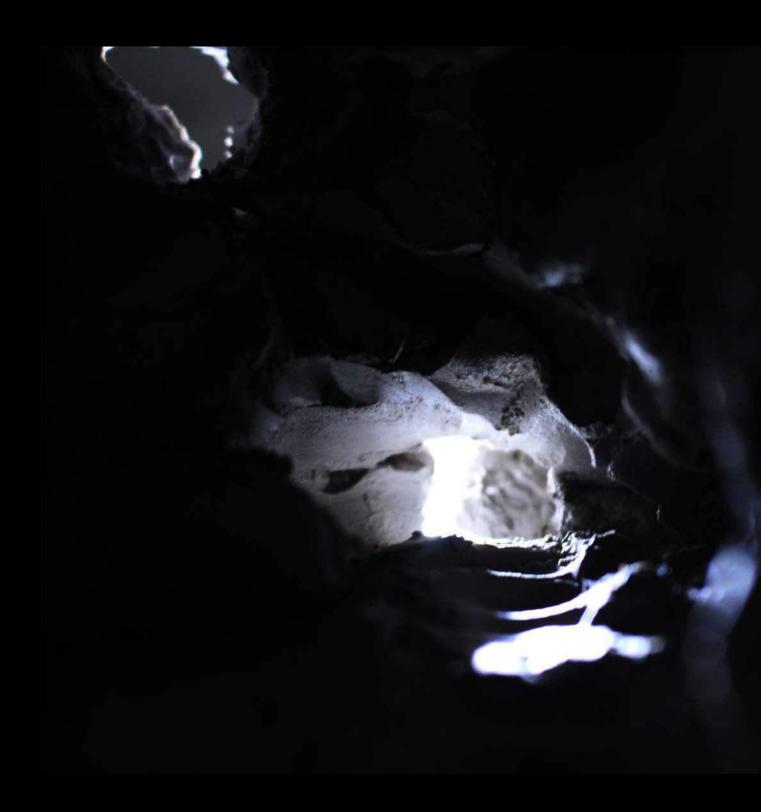




Figure 1.13 Clay Model h
Rhythm of Universality

"Something perceptually incomplete is brought into being, for which never quite destroying form, the shadows weaken and wear it away, dissolving objects sufficiently to divorce them from purely visual or intellectual conceptions, and covert them to a brooding subject for the sensibility." 8

Intrigue of the unknown..

Figure 1.14 Clay Model I Intrigue of the Unknown







Figure 1.15 Clay Model m Between the Motion and the Act

"Between the idea And the reality Between the motion And the Act Falls the Shadow" ⁹

T.S.Eliot





Figure 1.16 Clay Model n
Between Idea and the Reality

Light through rupture...moments of enlightenment.





Figure 1.17 Clay Model c Light Through Rupture





Figure 1.18 Clay Model i Light Through Rupture

Part 02

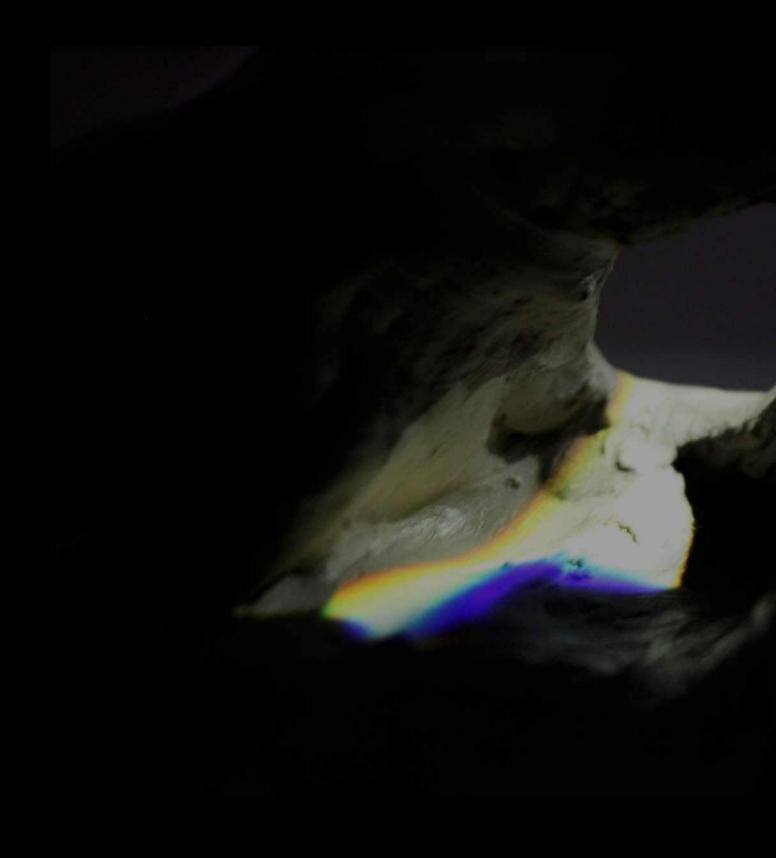




Figure 1.19 Clay Model k New Door





Figure 1.20 Clay Model o New Door

"If I can't make it through one door , I'll go through another door - or I'll make a door. Something terrific will come no matter how dark the present." 10

- Rabin dranath Tagore





Figure 1.21 Clay Model p Enlightenment



Figure 1.22 Light Filter

Part 01

Gestures in Clay and Mesh

"One side of the machine assemblage faces the strata, which doubles makes it a kind of organism, or a signifying totality, or determination attributable to a subject: it also has a side facing a body without organs, which is continually dismantling the organism, causing asignifying particles or pure intensities to pass or circulate, and attributing to itself subjects that it leaves with nothing more than a name as the trace of an intensity" ¹¹

part 01



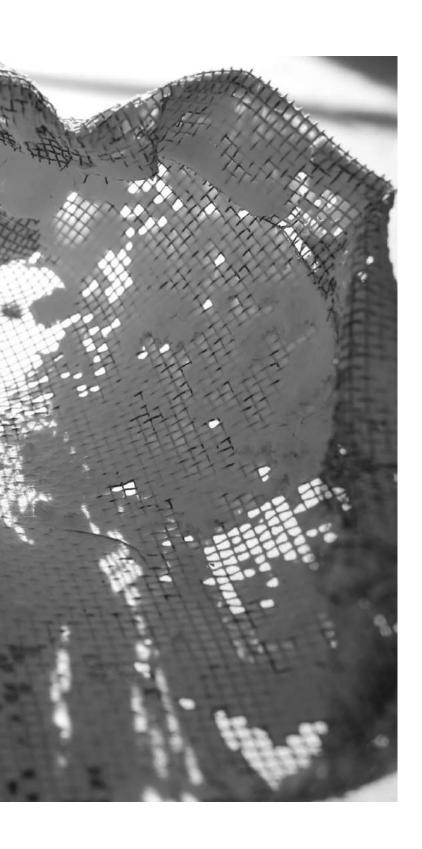


Figure 1.23
Clay and Mesh Model a
Dissolution of the Organism

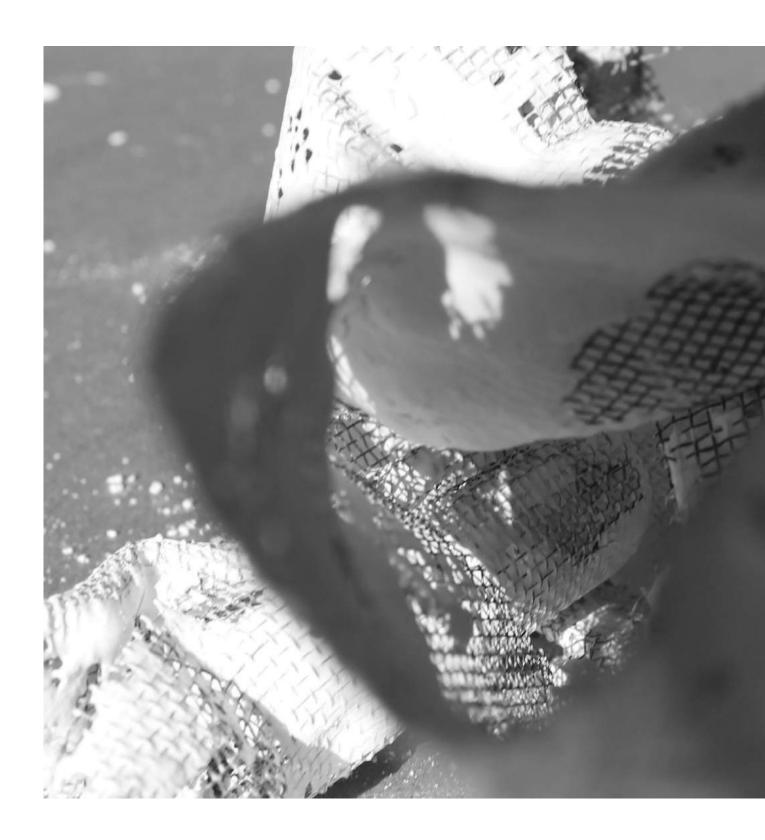




Figure 1.24
Clay and Mesh Model a
Dissolution of the Organism

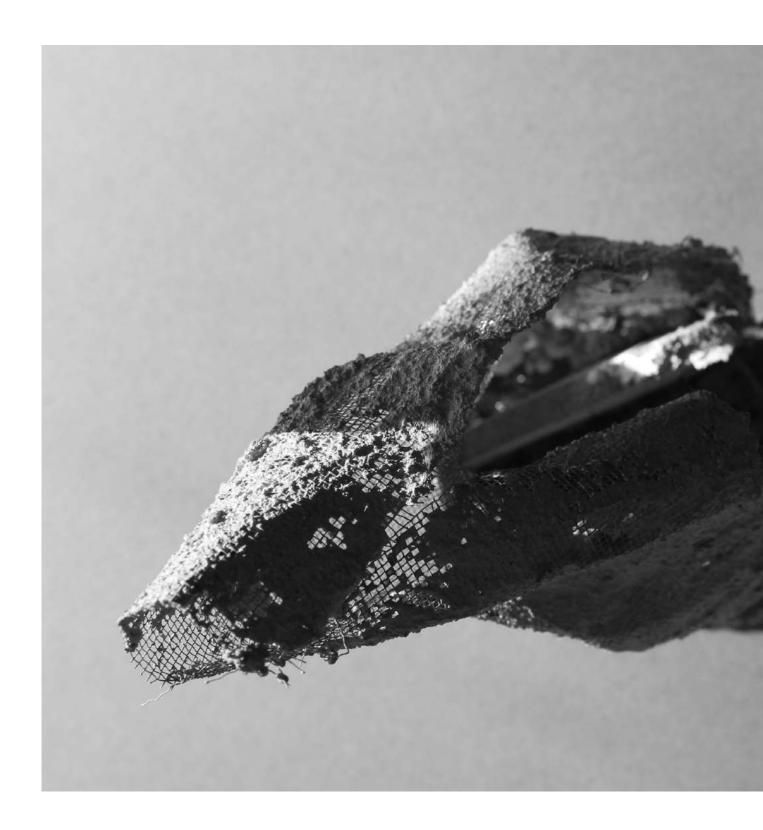




Figure 1.25
Clay and Mesh Model b
Dissolution of the Organism





Figure 1.26 Clay and Mesh Model c Embodiment of Chaos



Figure 1.27 Clay and Mesh Model c Closeup of Turbulance

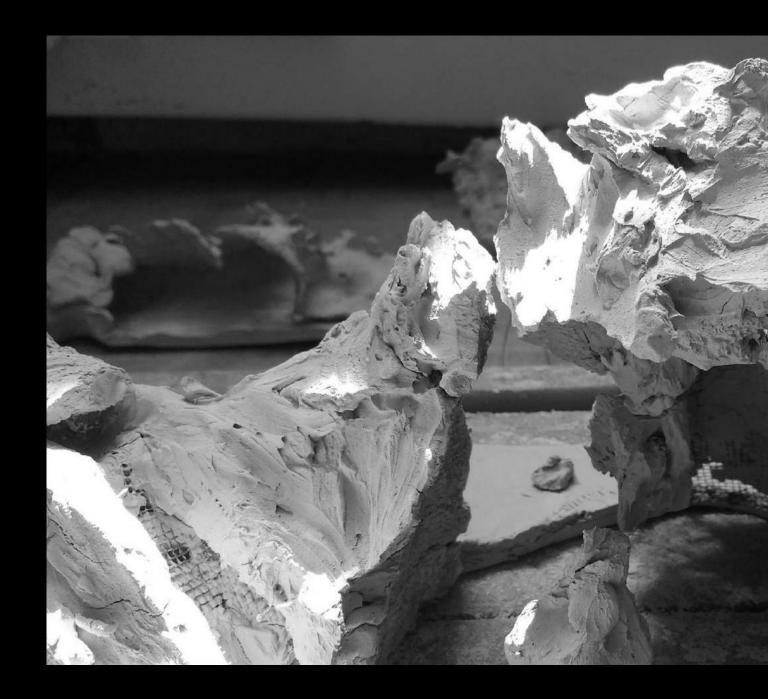




Figure 1.28 Clay and Mesh Model c Rupture





Figure 1.29
Clay and Mesh Model c
Light Enters the Interior





Figure 1.30 Clay and Mesh Model e Xray view

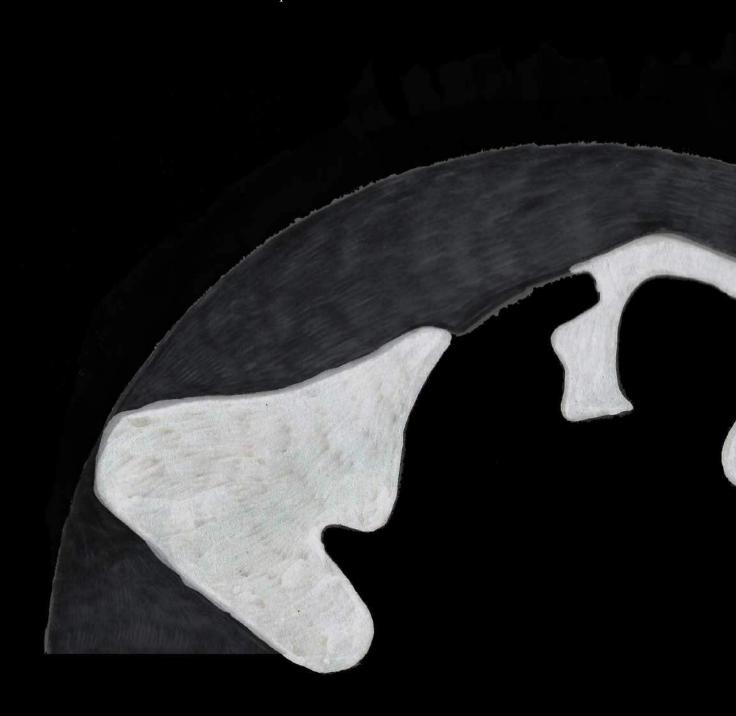




Figure 1.31 Clay and mesh Model e planview

I chose chiaroscuro to tell the story, because it creates focus by revealing and concealing, by strong contrast between light and dark. I intended to light each element separately, keeping the rest in darkness.

These spaces are cave-like dark solitary passages with shards of I depicted the human experience in the sculpture by creating montages as a sequence of spaces.

Synthesis

The territorry of the cave is fabricated with series of spaces that frame sensations and optical experiences. These are thresholds that define each segment of the journey. In each segment, a chaos is framed, which becomes sensory, extracting qualities of the materials or objects that become expressive. It brings into itself the chaotic rhythmic patterns of the materials, light, shadow, void and different pieces of the world. The affect is of mysterious qualities of moments in the world. It is mystic, dark, warm, tactile and sensual.





Figure 1.32
Dark solitary passages with glean of light..

As a visitor walks down though the cave like long tunnel, one becomes a part of a journey away from the everyday. Its a passage that takes them to some place they have never been.

It is a passage framed with obscurity, a dark entry of uncertainty. One feels nothing but silence and disorientation. It is a darkness of the womb. Absorbed in a world of shadows, one would only see only a faint light of mystical intensity. The darkness all around makes one more sensitive to light, making the trickle of light more significant.

"Envisage a self that can in certain situations observe itself in the very act of confronting a fearfull inner abyss and attain a certain dark grandeur" 12





Figure 1.33 Confrontation

The spaces are composed through its use of material and the play of light and dark. Tactility of the surfaces are highlighted through chiaroscuro. It is a combination of open and closed spaces. A modelled cave like path of circulation with controlled perspectives. It is a passage that leads to destination but also allows meandering and exploration. The passage is composed of varying rhythm. At certain intervals it consists of moments of pause and contemplation at others, there are sudden transitions and breakthroughs. There are melodies of passing light and space. Moments of mounting and depleting energy.

Figure 1.34
Moments of sudden transition





Figure 1.34





Figure 1.35
It is a dark solitary passage with moments of pause and contemplation.

Moments of the journey is marked by a ritardando caused by light entering from above. It causes stagnation and overwhelming silence. It marks moments of spiritual enlightenment.

Figure 1.36 moment of enlightenment















Figure 1.37 Synthesis

Endnotes

- 1. Rabindranath Tagore, "Sing the Song of the Moment" (Poetry magazine, 1913)
- 2. Rabindranath Tagore, "Stray Birds" trans. Rabindranath Tagore (New York: The Macmillan Company, 1916)
- 3. Rabindranath Tagore,"Rabindranath Tagore Quotes." Quotes.net. STANDS4 LLC, 2019. Web. 16 Jun 2019. https://www.quotes.net/quote/39281. accessed June 16, 2019
- 4. Rabindranath Tagore, "Nightfall When Day is Done", in Gitanjali Trans. Rabindranath Tagore, 1910
- 5. Rabindranath Tagore, "Closed Path" in Gitanjali, Trans. Rabindranath Tagore, 1910
- 6. Rabindranath Tagore, "Stray Birds" Trans. Rabindranath Tagore , New York: The Macmillan Company, 1916
- 7. Rabindranath Tagore "Stream of Life" From Gitanjali, Trans. Rabindranath Tagore , 1910
- 8. Henry plummer, Light in Japanese Architecture, (a+u Publishing Co.Ltd,1995) 104-106
- 9. T.S. Eliot, "The Hollow Men", (Dial,1909-1925)
- 10. Rabindranath Tagore, Rabindranath Tagore Quotes. BrainyQuote.com, BrainyMedia Inc, 2019. https://www.brainyquote.com/quotes/rabindranath_tagore_162956, accessed June 16, 2019.
- 11. Gilles Deleuze and Felix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia*, Trans. Brian Massumi, (Minnesotta: University of Minnesotta Press, 1987) 4
- 12. Arthur Schopenhauer, The world as Will and Representation (1819), vol. III; trans. Jill Berman (London: Everyman, 1995), quoted in Simon morley, The sublime

I searched for works of architecture that captured analogous sensations in space, matter and light.

NATIONAL ASSEMBLY BUILDING, DHAKA

I visited the National Assembly building in Dhaka, Bangladesh, to experience Louis Kahn's mastery in light and form with a hope of documenting the changing light, the atmosphere in both inside and exterior of the building. Bangladesh is my birthplace. I am aware of the strong light most of the year and the strong chiaroscuro in buildings. Due to restrictions from authority, I could not document the interior. Nevertheless, I experienced the building in its changing light from day to evening. I discovered and documented series of spaces in the exterior that frame views and optical experiences.

Louis Kahn treated assembly as a transcendental nature. This is manifest in the National assembly building of Bangladesh, the icon of democracy in the country. The decision to build the national parliament there was taken in 1959, not out of reverence for democratic institutions, but to pacify the growing resentment among the Bengalis against the authoritarian motives of western Pakistan. Long before its vocation as a democratic 'emblem' and a political 'citadel' it became fused in the collective mindset, through its image, as an emblem of things to come. "A hope'. Afterwards, in it's essence, it revealed the sacredness in the fundamental nature of the human. Perhaps an indiscernible mix of Zoe and Bios¹³ combining nature, spirituality and politics.

In the assembly of the concrete, the perforations and space of shadow, Louis Kahn landscaped the building in a phe- nomenal sense, incorporating the milieu of nature, the sun, wind and air, and the concept of erosion creates a rhythm, a vibrancy that expresses the idea of 'delta', the incredible land-water mesh of Bangladesh. The spaces of the building are folded into different layers. Each layer of space has its unique cavernous darkness, and shadows erupt with different qualities of light. Some light fragile and some intense and lofty, all cutting in the refrain of concrete walls, deforming, destabilizing, and dissolving it. The functions of the building as an assembly, and its spirituality, are indistinguishable, both are omnipresent.

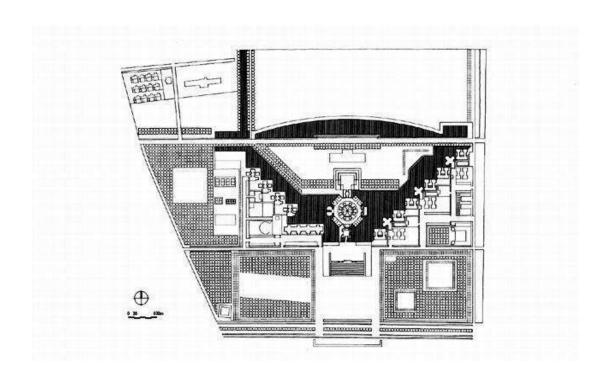


Figure 2.01
Site Plan, National Assembly Building,
Dhaka



Figure 2.02
Aerial View,
National Assembly Building, Dhaka

National Assembly Building

This building is a semblance of the delta, labyrinth of channels, swamps, lakes, and flood plain sediments. It is a semblance of lives of people living in the delta, of their aspirations and struggles.



Figure 2.03 Ganga-Brahmaputra Delta

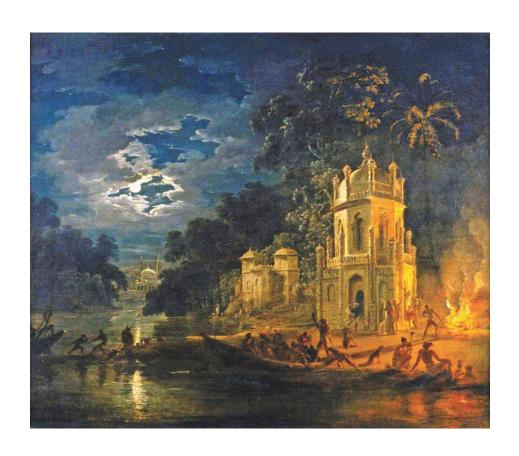


Figure 2.04
Nagafon Ghat by Zohan Zoffany

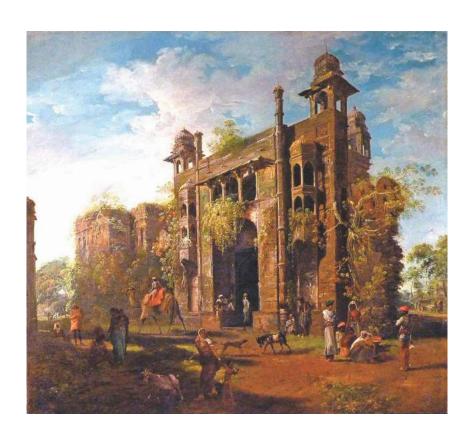


Figure 2.05
The South Gate of the Lalbagh
by Zohan Zoffany

National Assembly Building

The building is like a fort. It is heavy, sombre, dark, shadowy with mystic, spiritual components. Spaces transform with change in light. In this building, brick has more personality and concrete is more transformable.

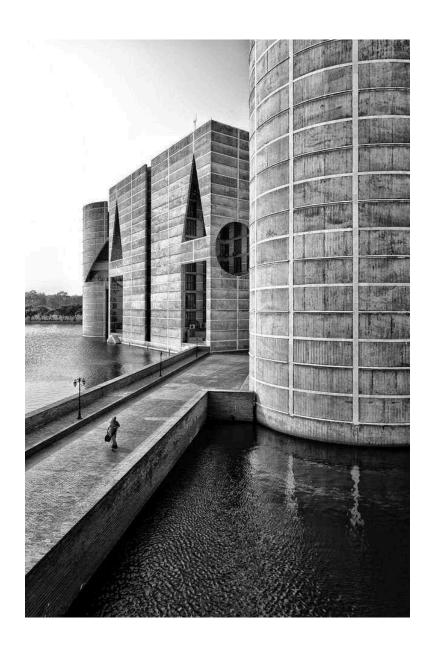


Figure 2.06 View of Driveway toNational Assembly Building, Dhaka

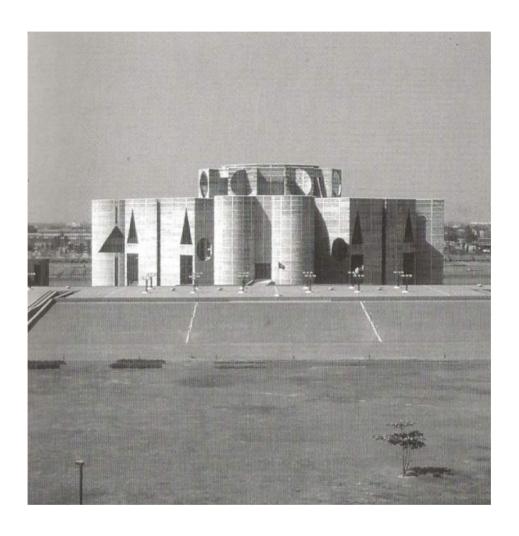


Figure 2.07 View of South Plaza, National Assembly Building, Dhaka

During my visit to the building, I discovered a series of spaces that frame views and optical experiences. The following are those frames in the passage under the south plaza that leads to the building in chronological order.

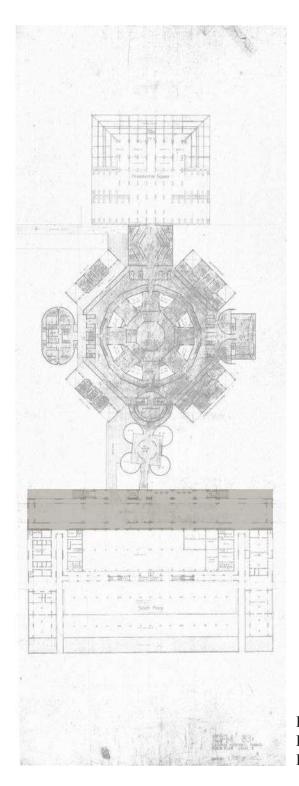


Figure 2.08
Passage Under South
Plaza



Figure 2.09
Passage to Entrance at Level 1,
National Assembly Building, Dhaka



Figure 2.10
Passage to Entrance at Level 1,
National Assembly Building, Dhaka



Figure 2.11
Passage to Entrance at Level 1,
National Assembly Building, Dhaka



Figure 2.12 Passage to Entrance at Level 1, National Assembly Building, Dhaka



Figure 2.13
Passage to Entrance at Level 1,
National Assembly Building, Dhaka

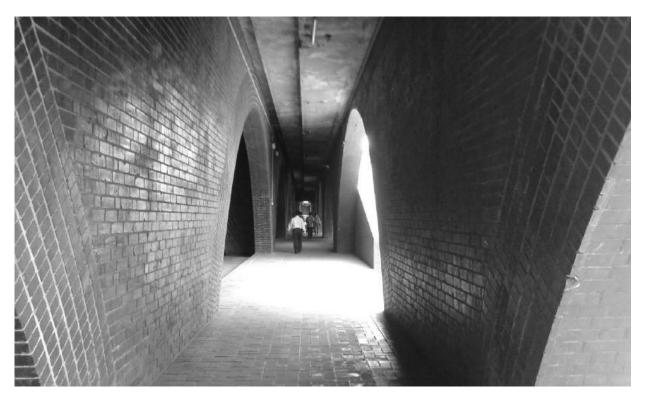


Figure 2.14
Passage to Entrance at Level 1, National
Assembly Building, Dhaka



Figure 2.15
Passage to Entrance at Level 1,
National Assembly Building, Dhaka



Figure 2.16 Passage to Entrance at Level 1, National Assembly Building, Dhaka



Figure 2.17
Passage to Entrance at Level 1, National Assembly Building, Dhaka



Figure 2.18
Passage to Entrance at Level 1,
National Assembly Building, Dhaka



Figure 2.19
Passage to Entrance at Level 1,
National Assembly Building, Dhaka



Figure 2.20 Passage to Entrance at Level 1, National Assembly Building, Dhaka



Figure 2.21
Passage to Entrance at Level 1,
National Assembly Building, Dhaka



Figure 2.22 Passage to Entrance at Level 1, National Assembly Building, Dhaka



Figure 2.23
Passage to Entrance at Level 1,
National Assembly Building, Dhaka



Figure 2.24
Passage to Entrance at Level 1,
National Assembly Building, Dhaka



Figure 2.25
Passage to Entrance at Level 1,
National Assembly Building, Dhaka



Figure 2.26
Passage to Entrance at Level 1, National
Assembly Building, Dhaka



Figure 2.27 Passage to Entrance at Level 1, National Assembly Building, Dhaka



Figure 2.28
Passage to Entrance at Level 1, National Assembly Building, Dhaka

The ambulatory space - the seven storied void, the circulation ring inside the building - gives it its temperament. Streets connect the outer offices and assembly chamber. It is like that of the painting 'Carceri' by Piranezi which has bridges, staircases, chambers and human figures that create rhythm with repetition and play of light and shadow. Here different qualities of light materialize from various sources and fill the void. One can see the different layers of space: outer ring, inner ring and the void in-between.

Stairs, walkways and openings create experiences similar to that of pradakshina circumambulation in Buddhist stupas.



Figure 2.29 Ambulatory Space, National Assembly Building, Dhaka, Bangladesh

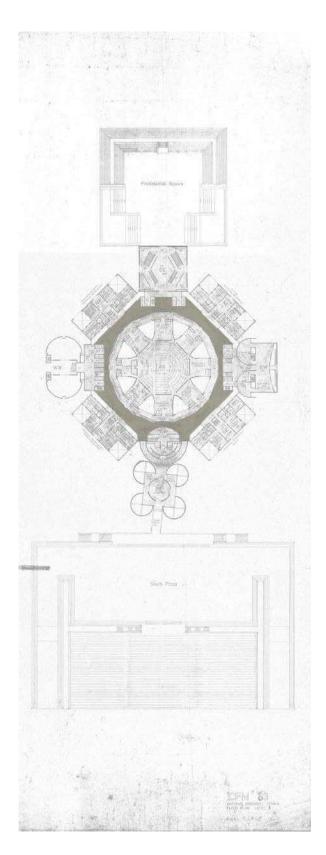


Figure 2.30 Level 3

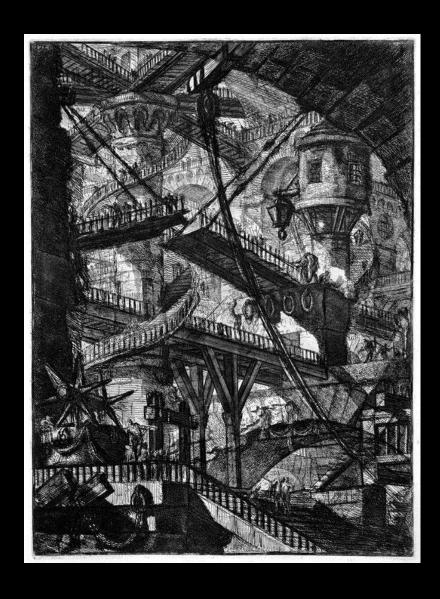


Figure 2.31 Carceri Piranesi

The openings in the ambulatory space bring pieces of the outside world into the space. The mood of the space is dependent on the weather outside. Slight variations change the color of the concrete walls drastically. The strip windows on the roof arranged perpendicularly to each other create caustic light, accompanied by the shadows of the ribbed roof which are always in flux. This play between light and shadow varies with the progression of the sun.



Figure 2.32 Sketch of the ambulatory



Figure 2.33 Sketch of the ambulatory



Figure 2.34 Ribbed Roof in ambulatory

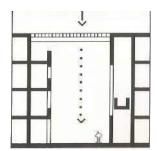


Figure 2.35 Section Illustrating the Entry of Light

The rhythm created by the fragile light and shadow of the strip windows are interrupted by monolithic lights at transitional points in the octagonal plan. These are rectangular windows placed on the corners of the outer office ring .

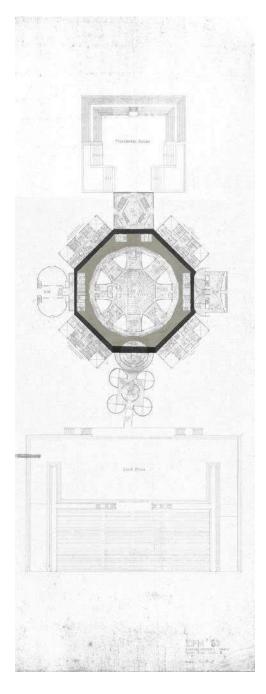


Figure 2.36 Corridor in the Outer Office Ring



Figure 2.37 Light Through Layers in National Assembly Building, Dhaka

The perforations on the inner walls which are circular, semicircular or triangular also provides light into the space. They also light the staircases and corridors. This light comes mainly from the 'hollow columns' or the light wells placed outside the assembly hall.

The loftiest light comes from the circular opening in front of the prayer space. This opening is wrapped by a light well. It is an invitation to the mosque. It is a source of lofty and monolithic diffused light that induces the feeling of enlightenment.



Figure 2.38

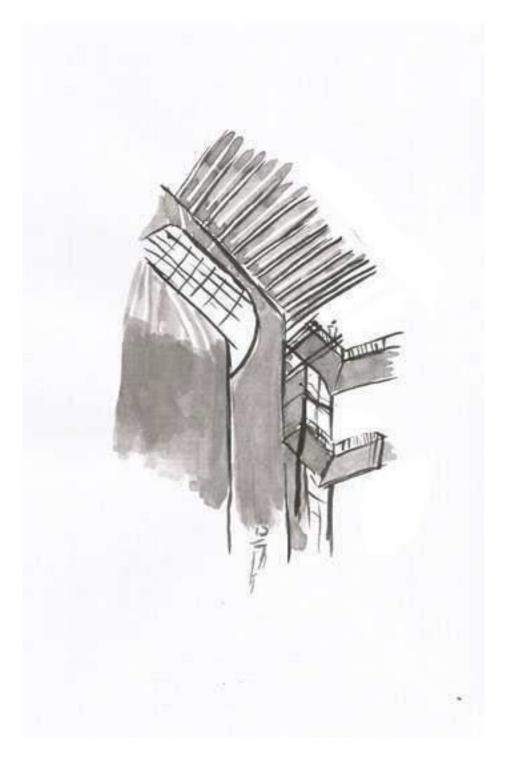


Figure 2.39 Sketch: An Invitation

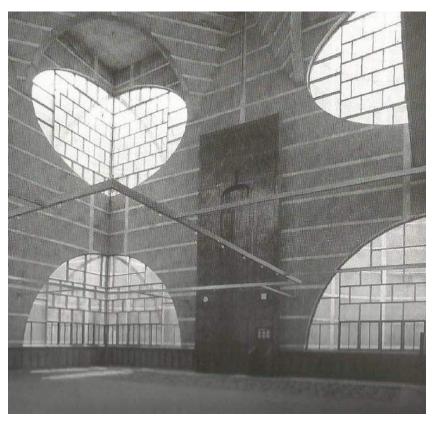


Figure 2.40 Openings in the Mosque

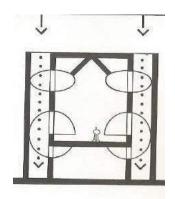


Figure 2.41
Section Illustrating
the Entry of Light

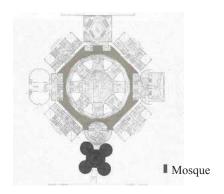


Figure 2.42
Plan View Illustrating Entry to
Mosque Ablution area at Level3

The assembly hall is lit through a hyperbolic paraboloid roof which spans the octagon of the assembly hall. Light enters through the parabola openings into the interior.

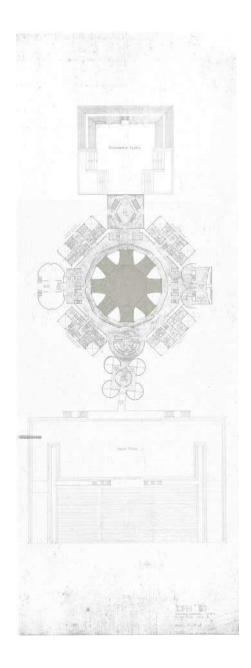


Figure 2.43 Plan View Illustrating the Assembly hall

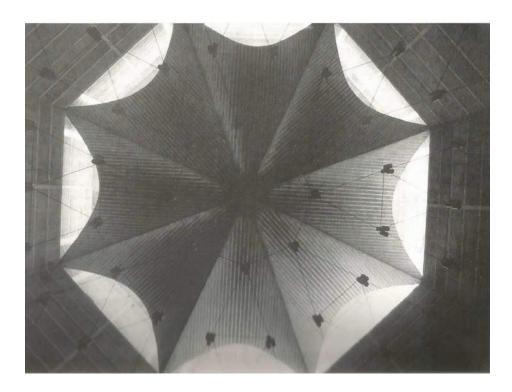


Figure 2.44 Paraboloid Roof

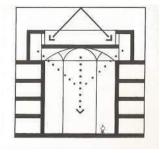


Figure 2.45
Section Illustrating the Entry of Light.

I have spent my early years in Kyoto, Japan and I experienced the seasonal light variations.

The chapel at Mount Rocco in Kobe, Japan by Tadao Ando is fabricated with series of spaces that frame sensations and optical experiences using various light qualities.

CHAPEL AT MOUNT ROCCO, KOBE, JAPAN

Chapel at Mount Rocco

The chapel on Mt Rocco by Tadao Ando is in Kobe, Japan amidst an array of greenery with a daunting view of the sea. The territory of the chapel is a series of spaces that frame sensations and optical experiences. There are thresholds that define each segment of the journey as one moves through the building. Each of these segments is a block of sensations, a combination of percepts and affects that induce bodily becomings that co-evolve with the becoming of matter or event. It is a link between the sacred and the profane, between conscious and subconscious. One that can induce complete state of contemplation.

Chapel at Mount Rocco

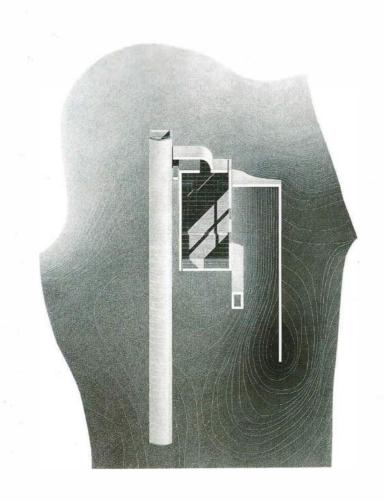


Figure 2.46
Plan, Chapel at Mount
Rocco, Kobe, Japan

Chapel at Mount Rocco



Figure 2.47
Entrance Tunnel at
Chapel at Mount Rocco

walking down to the long tunnel, visitors become a part of a journey away from the everyday. It is a passage framed in obscurity. The walls are frosted glass. The translucency of the glass reminds us of 'shoji', capturing the refrain of shadows and the tinge of light from outside and brings it inside.

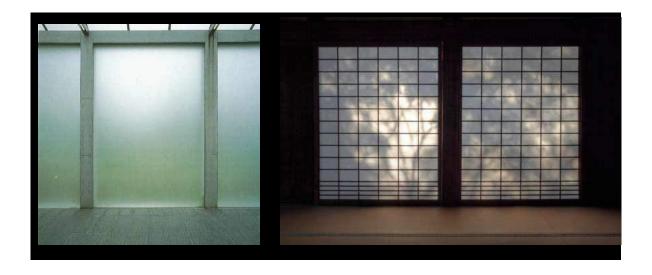


Figure 2.48
Translucence of glass in the Tunnel

Figure 2.49 Shoji Screen

At the end of this tunnel is a choice between the profane and the sacred, One leads to the outside world, framing a beautiful piece of landscape, perhaps a seductive world, the other leading to the chapel, a dark entry, of uncertainty. As one enters the vestibule, one feels nothing but silence and disorientation. It is the darkness of the womb. Absorbed in a world of shadows one sees only a faint light of mystical intensity.



Figure 2.50 Choice

A dark curving entrance with a guiding light directs one to the chapel. Here the refrain of light cuts through the refrain of volume, through the arborescent, giving rise to the sacred, spiritual energy.



Figure 2.51
Entry of
Uncertainty

Figure 2.52 Guiding Light

The light takes the role of a corroding agent, a refrain that cuts in to the refrain of the concrete walls, deforming and destabilizing it, it flows, becoming an autonomous entity enhancing its spirituality.

Chapel at Mount Rocco

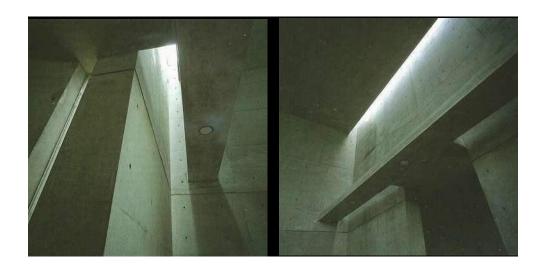


Figure 2.53 Corrosion of Concrete by Light

Figure 2.54
Corrosion of
Concrete by
Light

The chapel is naturally illuminated through a window with glimpses of the natural world. The play between the refrains, of light and concrete wall is everchanging, varying from day to day and season to season.

The end of the journey is marked by a floating cross illuminated from above, behind the altar. The darkness all around makes one more sensitive to light. Floating in the shadows, the cross marks the ultimate moment of spiritual enlightenment.



Figure 2.55
Glimpse of
Garden

Figure 2.56
Illuminated Cross

Endnote

13. Giorgio Agamben, *Homo Sacer:Sovereign Power and Bare Life*, trans. Daniel Heller- Roazen(Stanford, California: Stanford University Press, 1998)

PART 03 REFLECTION

Reflection

Following are the thresholds and transition points in the passage to both the buildings.

Reflection

Chapel at Mount Rocco



National Assembly Building



Figure 3.01
Thresholds and Transition











Final Moment



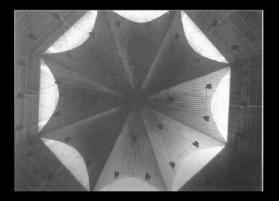


Figure 3.02 Final Moment

Reflection

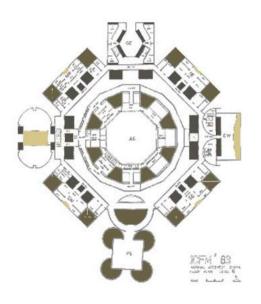
Unlike Chapel at Mount Rocco, the concrete in national Assembly feels heavy. The commonality of National Assembly building and Chapel at Mount Rocco is the interaction of light, matter and space to create experience of austerity and silence.

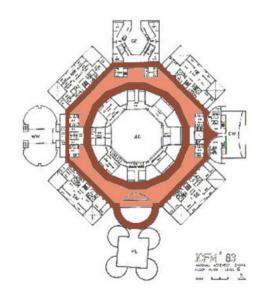
Hollow Columns

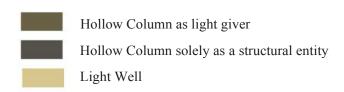
Reflection

"In the assembly I have introduced a light-giving element to the interior of the plan If you see a series of columns, you can say that the choice of columns is a choice in light. The columns as solids frame the spaces of light. Now think of it just in reverse and think that the columns are hollow and much bigger and that their walls can themselves give light, then the voids are rooms and the column is the maker of light and can take on complex shapes and be the supporter of spaces and give light to spaces. I am working to develop the element to such an extent that it becomes a poetic entity which has its own beauty outside of its place in the composition. In this way it becomes analogous to the solid column I mentioned above as a giver of light." 14

- Louis Kahn







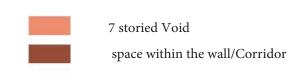
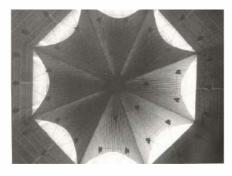


Figure 3.03
Analysis of Hollow Columns and Wall in National Assembly Building

Synthesis

Impression of a building



National Assembly Building, Dhaka, Bangladesh

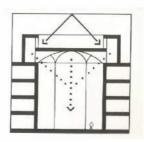


Figure 3.04



First Unitarian Chruch, Rochester

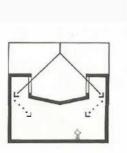
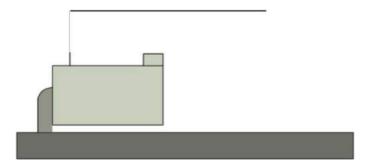
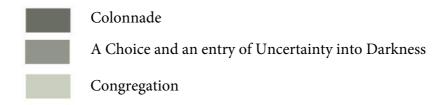


Figure 3.05
Similar section and light quality in a smaller scale.





191

Figure 3.06



Caravaggio Lighting Strategy

Figure 3.07

Light comes from the top left corner, brushing the surface of the flesh, highlighting three dimensionality. Human flesh acts as a secondary source of light for the viewer.



Henry Moore Formal Strategy

Figure 3.08

Depicts frames within the corporeal forms, fleshy walls with hollow interior space.

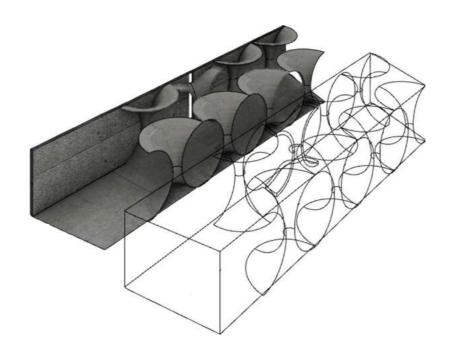


Figure 3.09
Conceptual Form



Figure 3.10

Entrance Colonnade at National Assembly Building, Dhaka



Figure 3.11

Entrance Colonnade at Chapel at Mount Rocco, Kobe

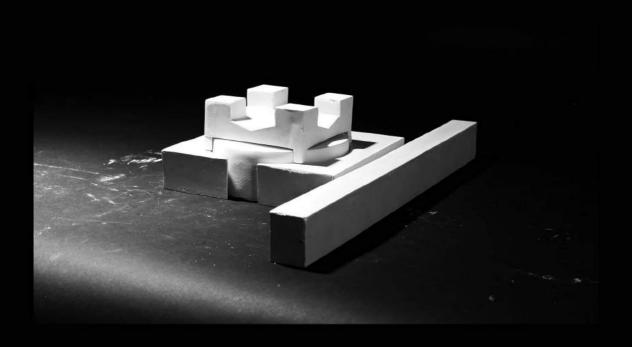


Figure 3.12 Conceptual Mass Model in Hydrostone Plaster

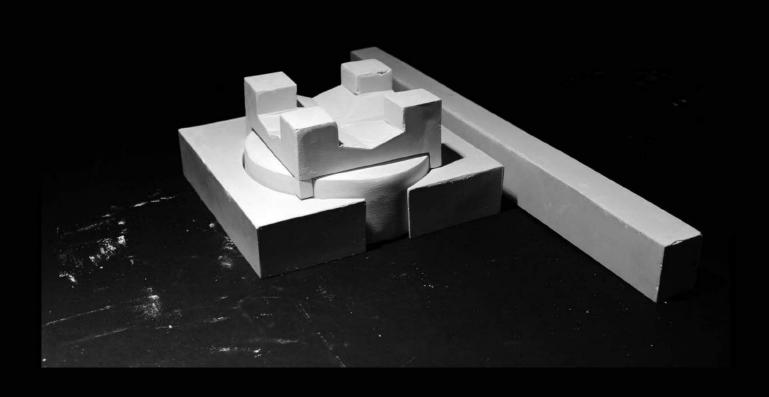


Figure 3.13 Conceptual Mass Model in Hydro stone Plaster

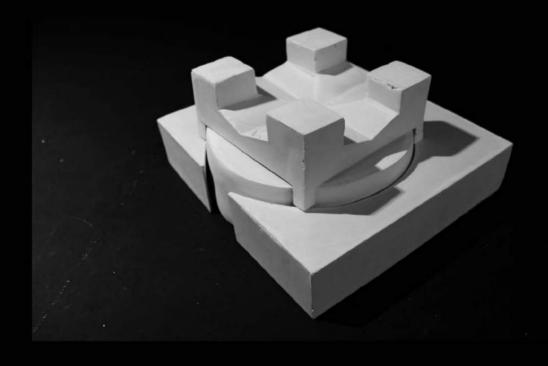


Figure 3.14
Conceptual
Mass Model in
Hydrostone
plaster



Figure 3.15 Sectional Model In Hydrostone Plaster



Figure 3.16

Section

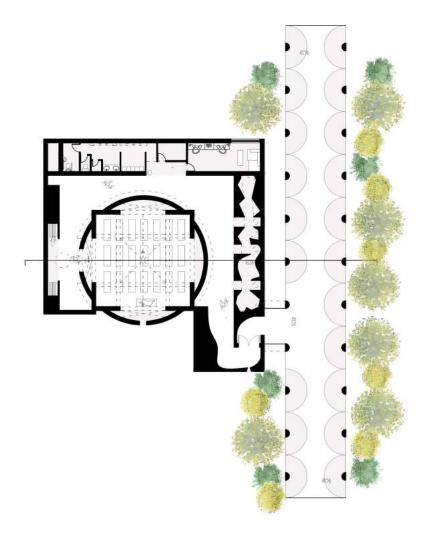


Figure 3.17

Plan



Autumn Effect at Argenteuil, 1873 by Claude Monet

Figure 3.18

A site overlooking a river framinig the profane.

The territory of the building is fabricated with series of spaces that induce sensations and optical experiences. As one moves through through the building, thresholds define each segment of the journey.

The journey begins in a fleshy colonnade surrounded by trees. It is a Cave like long tunnel, placed amidst an array of greenery with a view of a river. This is a journey away from everyday, a passage that would take the visitor to a place that they have never been. Like Chapel at Mount Rocco by Tadao Ando, the end of the tunnel offers a choice between the profane and the sacred. One leads to the outside world, framing a beautiful piece of landscape towards the river. Perhaps a seductive world, the other leads to the building, a dark, uncertain entry. A winding dark entrance with a guiding light directs one to the building. Narrow slits in the concrete wall guide the movement. Here, the light cuts through the wall as a spiritual entity.

Absorbed in a world of shadows, one feels nothing but silence and disorientation, with only faint light of mystical intensity. In the dark, trickle of light is more significant.

Entering the building, one finds a passage that allows meandering and exploration. The passage is composed in varying rhythms. At certain intervals, there are moments of pause and contemplation and at others, transitions. In the course of this journey, one would find light in spaces inside the thick wall. These spaces are comparable to the spaces within the hollow corporeal forms of Henry Moore, framed by the flesh, occupiable and meandering. Contrasting to the overall form of the building, these spaces are haphazard, inducing feelings of dissolution and unpredictability, like the forms in clay and mesh, echoing the poetry of Tagore and the mysteries of existence. Saturated in shadows, with faint light from above brushing the surface, the wall is like the flesh in paintings of Caravaggio.

This Space allows for moments of pause and contemplation.

One continues through the journey, finding functional spaces within the thick wall. Dividing the congregation hall and the outer corridor, a faint light washes the circular congregation hall, guiding visitors into the collective space.

Moments of this journey are framed by ritardando of movement caused by light entering from above. It marks an end to a segment of the journey and an invitation to the next. It causes momentary stagnation and overwhelming silence. It is a moment of enlightenment. This is like the invitation to the mosque at National assembly building, where the lofty light from the monumental circular window wrapped by hollow column is at the same time an invitation to the mosque and a source of feeling of enlightenment.

On all sides, the congregation hall is wrapped by hollow columns. It receives reflected light from the hollow column that is formed through an intersection of a cube and a cylinder. It also receives reflected light from windows above eye level like that of light reflected and projected through the paraboloid roof in National assembly hall in Dhaka and at a smaller scale in first unitarian church in Rochester.

The windows cannot be directly seen in any space. One can only see reflected light from surfaces of the building.

Endnotes

14 .Louis Kahn, quoted in Francesco Cacciatore, *The wall as living place: Hollow forms in Louis Kahn's Work, 2016*

Bibliography

- 1. Tagore, Rabindranath. "Sing the Song of the Moment" Poetry magazine, 1913.
- 2. Tagore, Rabindranath. "Stray Birds" translated from Bengali to English by the author, New York: The Macmillan Company,1916.
- 3. Tagore, Rabindranath ."Rabindranath Tagore Quotes." Quotes.net. STANDS4 LLC, 2019. Web. 16 Jun 2019. https://www.quotes.net/quote/39281.
- 4. Tagore, Rabindranath. "Nightfall When Day is Done", In Gitanjali A Collection of Prose Translations Made by the Author from the Original Bengali by Rabindranath Tagore, 1910.
- 5. Tagore, Rabindranath. "Closed Path" From Gitanjali: A Collection of Prose Translations Made by the Author from the Original Bengali" by Rabindranath Tagore, 1910.
- 6. Tagore, Rabindranath . "Stray Birds" translated from Bengali to English by the author, New York: The Macmillan Company, 1916.
- 7. Tagore, Rabindranath . "Stream of Life" From Gitanjali: A Collection of Prose Translations Made by the Author from the Original Bengali by Rabindranath Tagore, 1910.
- 8. Plummer, Henry. Light in Japanese Architecture: Tokyo: a+u Publishing Co.Ltd, ,1995.
- 9. Eliot, T.S. "The Hollow Men", Dial, 1925

- 10. Tagore, Rabindranath. Rabindranath Tagore Quotes. BrainyQuote.com, BrainyMedia Inc, 2019. https://www.brainyquote.com/quotes/rabindranath_tagore_162956, accessed June 16, 2019.
- 11. Deleuze, Gilles and Guattari, Felix. A Thousand Plateaus: Capitalism and Schizophrenia: trans.Brian Massumi, Minnesotta: University of Minnesotta Press, 1987
- 12 Morley, Simon. The Sublime: London: MIT Press, 2010
- 13. Agamben Giorgio. *Homo Sacer:Sovereign Power and Bare Life:* trans. Daniel Heller-Roazen, Stanford: California: Stanford University Press, 1998
- 14. Cacciatore, Francesco . *The wall as living place: Hollow forms in Louis Kahn's Work*, Siracusa, Italy: LetteraVentidue Edizioni, 2016