

A PATTERN LANGUAGE FOR SACRED SECULAR PLACES

A Thesis

by

MELANIE RACHEL JOSEPH

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of
MASTER OF SCIENCE

May 2006

Major Subject: Architecture

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Approved by:

Chair of Committee,	Phillip Tabb
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ABSTRACT

A Pattern Language for Sacred Secular Places. (May 2006)

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“Pattern Language” is a term popularized by Christopher Alexander and his co-authors of the book *A Pattern Language: Towns, Buildings, Construction*, Sara Ishikawa, and Murray Silverstein in the late 1970’s. Though intended to enable every citizen to design and construct their own home, pattern language never quite caught up with those in the field of architecture, mostly because of its lack of flexibility. The core idea of Alexander’s pattern language was to arm architects, designers, and the common people with a tool that would empower them to make informed decisions related to designing places that would comply with their needs and wants.

What architecture needs the most today is the ability to heal and invigorate. I believe that contemporary architecture lacks such places that enable occupants to connect and communicate with what is within and what is without. A number of studies have proven that universally sacred (a majority of which are religious in function) places are charged with energies that could contribute towards this process. The energies, also referred to as “patterns,” are the energies unique to a place that make it special and sacred (not just in the religious context but also in the secular context). This thesis is an attempt to derive a new pattern language for the creation of sacred “secular” places like our homes and work places which draw from the pattern lists that have been proposed in four separate instances by authors including Christopher Alexander and Phillip Tabb. This new pattern list is aimed at providing architects and designers with a tool for creating secular places with an element of sacrality without having to taking on a religious meaning.

*I dedicate this thesis to the spirit of creation and
the future of destiny.*

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I would like to thank my committee chair, Dr. Phillip Tabb for first inspiring me, and then constantly nudging me on to write this thesis. I am glad to have chosen the perfect committee members in Dr. Gregor Kalas and Prof. Jody Naderi without whose support and encouragement I would have remained in school for a long time to come.

My friends have always been a constant source of relief in times of stress and this time they surpassed their abilities by graciously letting me vent my steam and holding my hand in the most stressful situations. Eric, who is probably the reason I am one semester late to graduate has had to bear the brunt of my hectic schedule, and my constant irritability at not having things go my way. But, through all this he has held fast and not let go, of his own annoyance or me and I am grateful to him for that immense strength.

I am indebted to my parents, brother, and sisters who held on to the hope of my graduation and will soon be able to experience the fruits of their efforts. I ask forgiveness of my pet bettas, Yoda (who has since then been replaced by Thor) and Gimli for bearing with my terrible feeding habits and not once complaining.

Finally, I am glad that Texas A&M gave me an opportunity to be a part of it and I enjoyed and cherish every moment of it. I would not want to do this over again but am sure that I shall be singing a different tune in a few years.

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CHAPTER I

INTRODUCTION: THE THESIS IN A NUTSHELL

BACKGROUND

The great philosophical and metaphysical split of the mind and the body dates back to the Greeks, in the teachings of Plato and, to a lesser degree in those of Aristotle. The first systematic account of this relationship however is credited to the French mathematician, philosopher and physiologist René Descartes. Cartesian dualism (“I think, therefore I am”) came into being in the 17th century and was to influence the course of philosophy, metaphysics, science and a number of related fields for centuries to come. Today, in the 21st century, this dualistic outlook is being reanalyzed and studied within the context of its contribution towards humanistic well being and spiritualistic health. It is important to understand the implication of dualism, not only in the separation of the consciousness from the body (or the mental from the physical), but also of the sacred from the profane. This duality between the sacred and the profane is explored in detail by Mircea Eliade in his book on the nature of religion. *Hierophany* a term coined by Eliade, is the act of manifestation of the sacred. This term reveals the inherent duality present in “the real unveiling itself,” where Eliade believes that by revealing itself in the vast homogeneity of profane space, the sacred space creates heterogeneity and therefore a polarity which was previously absent.¹ To re-unify the parts and eliminate this polarity would signify the inclusion of the sacred in the profane.

Ironically, the connection with that which transcends the material world is established through this very material world, which on large part is occupied by “secular architecture.” Secular architecture includes our homes, streets, work spaces, recreational areas and designed landscapes, places that are not usually associated with the sacred. This ability to initiate these connections that transcend the material world is important because they enable people to deal with facets of their lives with equanimity. In the absence of a stimulation of this experience which includes the presence of places that can aid in such an endeavor, and in the presence of increasing “temporal density,” a term

This thesis follows the style of *Journal of the American Planning Association*.

¹ Mircea Eliade, *The Sacred and the Profane: The Nature of Religion* (New York: Harcourt, 1987), 11.

coined by John Steele, it becomes increasingly difficult to maintain the calmness and composure necessary for functioning with efficiency.²

It is essential that architects and planners today possess a “tool,” which would enable them to design places of secular use that enhance the sacred experience of everyday life. The thesis proposes the use of patterns proposed by various authors in the development of a new list. The patterns of the new list are then analyzed for their presence and application in selected test studies towards the compilation of a pattern list that would serve as the aforementioned tool for architects and planners.

Before describing the patterns proposed by seven authors in four separate instances, it is imperative to define the term “archetype,” which has been utilized by at least one author and its relation to the “collective unconscious.”. Over the years, a number of historians and architects have developed their own sets of patterns, some of which have been described as “archetypal” in nature. The word “archetype” was coined by Carl Jung, who theorized that humans have a collective unconscious; he argued that archetypes are “deposits of the constantly repeated experiences of humanity, a kind of readiness to reproduce over and over again the same or similar mythical ideas.”³ This shared memory of experiences has resulted in a resonance of the concepts of hero and heroine that transcends time, place and culture.⁴ Jung called these recurring personalities “archetypes,” from the Greek word *archetypos*, meaning “first of its kind.” In this context, archetypes are innate prototypes for ideas, which may subsequently become involved in the interpretation of observed phenomena.⁵

² James Steele, “The Nectar of Gaia,” *John Steele Articles*, <http://www.aromabeautiful.com/johnsteele.html> (accessed 20 February 2006). Steele defines “temporal density” as the events per unit of time in daily life.

³ Carl Gustav Jung, *The Archetypes and the Collective Unconscious: Collected works of C.G Jung, Vol.9, Part ii* (Princeton NJ: Princeton University Press, 1981), 89.

⁴ *Ibid*, 128. In many myths and folk tales, a hero is a man or woman (then often called a heroine), traditionally the protagonist of a story, legend or saga, commonly possessed of powers far beyond that of a standard human, which enable him or her to perform some truly extraordinary, beneficial deed (a “heroic deed”) for which he or she is famous.

⁵ Elizabeth J. Jewell and Frank R. Abate, “Archetype,” *The New Oxford American Dictionary* (Oxford UK: Oxford University Press, 2001), 25.

While Carl Jung proposed the archetypes to be a basis for defining psychological aspects of the human self, Plato's philosophy implied that archetypes might exist in the phenomena that occur in the physical world, which he called "forms." Phillip Tabb describes his patterns as archetypal in nature; Christopher Alexander who wrote his book on pattern language with Sara Ishikawa and Murray Silverstein, Michael Brille, and Charles Moore who wrote his book titled *Chambers for a Memory Palace* with Donlyn Lyndon describe theirs in terms of patterns, design guidelines, and themes of composition respectively. The thesis will refrain from ascribing the adjective of archetypal to patterns since, such a presumption would require a detailed historical and contemporary study of archetypes and their influence on the human mind. Instead it will refer to the patterns as simply "patterns."

Alexander et al. (from here forth mentioned as only Alexander) categorize their patterns in terms of town and country, buildings and construction, each of which has further subdivisions.⁶ Alexander's patterns are oriented towards planning and organization of a space to make it an identifiable "place." Alexander's book *A Pattern Language: Towns, Buildings, Construction* was intended to enable every citizen to design and construct their own house. The hypothesis is that these patterns would enable a community to put together a language using the 253 patterns mentioned in his book in a manner similar to the little neurons that make a neural network. Phillip Tabb who is involved with the character and experiences associated with sacred places, in his paper titled *Sacred Place: The Presence of Archetypal Patterns in Place Creation*, categorizes his archetypal patterns in terms of the center, inner gesture, bounding, finding direction, ascent, descent, anthropomorphism, sacred geometry, significant number, materiality,

⁶ Christopher Alexander, Sara Ishikawa and Murray Silverstein, *A Pattern Language: Towns, Buildings, Construction* (Oxford UK: Oxford University Press, 1977). Christopher Alexander classifies the subdivisions of the patterns as independent regions, regional policies, major structures, self governing communities, development of networks, local environments, local centers, housing clusters, work communities, local networks, public open spaces, family needs, common land, workgroup needs, gathering places and shops, group configuration, site selection and layout, volume and space, interconnecting paths, gradients of space and movement, important area or rooms in the house, important area or rooms in the office, independent areas, internal-external connections, arrangement of the garden, minor rooms and alcoves, tuning and precision, give depth to the walls, structural philosophy, structural layout, structural frame, doors and windows, subsidiary details, surface details, outdoor details and ornamentation.

the elements, internal order, passage, sky vault references, and the nature within and ceremonial order.⁷ Michael Brill in his paper, *Using the Place-Creation Myth to develop Design Guidelines for Sacred Space*, classifies his patterns in terms of center, orientation, order, visual symmetry, direction, differentiating boundaries, reaching upwards, triumph over the underworld, passage, views of other places, light, materials for making, nature and finishing the place.⁸ Charles Moore and Donlyn Lyndon in their book *Chambers for a Memory Palace*, refer to their patterns as the “chambers of a palace” alluding to Cicero’s strategy of remembering his speeches by associating specific sections to the chambers in a palace and its furnishings. Moore and Lyndon’s patterns combine active verbs with nouns like in the case of “Axes that Reach,” or “Shapes that Remind.”⁹ While four out of the seven authors mentioned above have studied the patterns in relation to sacred, charged or special places around the world, there have been a few studies on patterns that can enable the creation of secular places which the element of sacred in them.

Anthony Lawlor in his book *The Temple in the House: Finding the Sacred in Everyday Architecture*, describes the sacred in everyday architecture in terms of the patterns like, the steeple and the sanctuary, the eight elemental forms (floor, wall, pillar, roof, space, doors and windows, ornament and rooms), the five elements (measurement, proportion, gravity, and action), sunlight and renewal and establishing a ritual.¹⁰

Though quite a few architects and designers have dealt with the topic of patterns, and patterns in secular places, currently there does not exist one comprehensive and categorized list of the patterns that would aid designers, landscape architects, and

⁷ Phillip Tabb, “Sacred Place: The Presence of Archetypal Patterns in Place Creation.” Prepared for the Architecture in the City Program through the University of Dallas, Rome, Italy, 1996.

⁸ Michael Brill, “Using the Place-Creation Myth to develop Design Guidelines for Sacred Space (A peculiar Method).” Presented at the Annual Conference of the Council of Educators in Landscape Architecture (CELA), University of Illinois, Urbana, September 20, 1985.

⁹ Donlyn Lyndon and Charles W. Moore, *Chambers for a Memory Palace* (Cambridge MA: The MIT Press, 1994).

¹⁰ Anthony Lawlor, *The Temple in the House: Finding the Sacred in Everyday Architecture* (New York: G.P.Putnam’s Sons, 1994).

planners in the creation of secular places that I term “sacred” in nature. The term “sacred” as defined by the Oxford English Dictionary derives from the Latin word *sacrare*, to consecrate and *sacre*, to make holy respectively, and in the traditional sense are associated with deities, veneration of these deities and the embodiment of doctrines of a religious rather than secular nature.¹¹ Such places are varied and include those marked by continuous change, activity, intensity, vigor, in some cases calm, serenity, and tranquility. These places are an interface for the interactive process that brings the person experiencing these qualities to a higher realization of the self that they are, and that of the world around them.

OBJECTIVE

The term “sacred” has been defined in a number of varied ways by different authors. Krupp in his book on ancient civilizations describes sacred space as a “realm” where the basic organization and meaning of the universe is experienced and celebrated. He goes on to say that the human brain is able to perceive in such placed the order and structure underlying the chaos of the world.¹² Joseph Campbell, famous for his writings on mythology and comparative religion believes that a sacred space is where you can find yourself again and again, i.e. a repeated discovery of the self and of the personal consciousness.¹³

To reduce the ambiguity that exists in the meaning of the term “sacred,” and to enable the selection of the test studies for the patterns I have defined the nature of sacred place for the purposes of this thesis: a sacred place is a place which allows for, initiates, and enhances the communication with something transcendental and separate from the mundane activities of daily life.

¹¹ Jewell and Abate, “Sacred,” *The New Oxford American Dictionary*, 254.

¹² E.C.Krupp, *Echoes of the Ancient Skies: The Astronomy of Lost Civilizations* (London UK: HarperCollins, 2004), 56.

¹³ Joseph Campbell, *Sacred Quotes: Quotations to inspire and challenge*, http://www.wisdomquotes.com/cat_sacred.html (accessed 22 January 2005).

1. Sacred place in its form, character, content and energy reflects a memory unique to the place contributing to the experiential nature of the specific space and evoking in the human brain a sensual and an individualized memory pantomime (the telling of a story without the use of words).
2. This process is aided by the presence of the patterns present in these places and the ability of these patterns in preserving and communicating the essence of a place through the energy patterns that the human mind has been subconsciously conditioned to accept and recognize as sensual stimuli.
3. A sacred place through its patterns conveys a story unique to the place, and incites a response in the senses that enables the person experiencing the space in connecting with that which goes beyond the physical world.

This thesis aims at the derivation and compilation of the patterns informing the creation, design and growth of a sacred place in everyday architecture the term “sacred” having been redefined to include secular places. The study focuses on an analysis of the sacred within the profane (the word “profane” is used in this context to represent subject matter that is non-religious or secular in nature). This is based on the assumption that the religious nature of a place like a temple, church, mosque or synagogue covertly bestows it with a sacrality that is unchallenged. But, in the case of secular places, this sacrality is determined by factors other than religious: one of which might be the patterns that are present in these places.

The four lists that have been selected for analysis and cross-comparison have been chosen because of their varied qualities. Alexander’s patterns are more functional in nature and with a proper cross comparison with Tabb’s and Brill’s patterns which deal with the more esoteric nature of the place, it is possible to come up with a new list that conveys not only the functional aspect of the pattern but also the energy that it embodies.

In this manner, it will enable designers to understand the archetype and bring it into fruition at the typal level (the level of physical manifestation). The new pattern list aims at providing informative rather than prescriptive guidelines for the design of sacred secular places.

METHODOLOGY

The study as already mentioned will involve a cross comparison of the patterns developed by Christopher Alexander, Michael Brill, Phillip Tabb, Charles Moore and Donlyn Lyndon and an analysis of the presence and effect of the new derived pattern list in contributing to a sacred experience in three test studies. The methodology used in this study comprises of five stages. The first stage is necessarily a stage of data collection and would include a study on patterns as proposed by various authors like Kevin Lynch, Christian Norberg-Schulz, Thomas Thiis-Evensen, Thomas Barrie, Palladio, Vitruvius and Martin Heidegger and a more detailed study of those by Alexander, Brill, Tabb, and Moore and Lyndon. This study on patterns would call on the use and significance of patterns in both recent and primitive history. The concept of the presence of the sacred in secular places will also be explored.

In the second stage patterns that are common to all four pattern lists will be recognized and included in the new pattern list. This stage is therefore the compilation of the four lists into one comprehensive and logical formatted list which would form the basis the pattern language for contemporary and future designers, planners and landscape architects.

In the third stage each of the patterns from the new pattern lists are analyzed and interpreted historically. The historic interpretation would involve a study of the evolution and manifestation of patterns in different contexts through time and the change in meaning and recognition of these patterns. Examples of architecture from antiquity to the contemporary will be used to illustrate the presence of patterns and their function.

In the fourth stage the new patterns would be tested against three places selected for the reasons explained in the next section. For this, it would be important to study the history of the three places, an Italian village, a seat of the government, and an apartment

complex. The development of medieval Italian villages, government, and apartment buildings would play an important role in an understanding of the changing nature of the pattern language employed in their design of these very different building types. A Likert's scale is utilized in this stage so as to measure the absence, presence or intensity of presence of a particular pattern in the case study. The measurement of the strength of a particular pattern is based on my personal experience, and observation of the places. This would enable me to understand the manner in which the patterns manifest themselves in these places and the strength with which they do so.

The fifth stage involves the inferences and conclusions derived from the testing of the new pattern list on the chosen case studies, a re-evaluation of the new pattern list based on the results of the test studies, the proposal of a final pattern list, and suggestions on further research that can be conducted in this area.

THE TEST STUDIES

Three test studies have been selected to test the validity of the new pattern list. The places include the seat of a nation's government, an apartment complex, and a village community. They have been selected from among a number of other everyday places because they confirm to the definition of the "sacred" as defined earlier in this thesis. They have also been selected because of the relative cultural and historical significance of these places which have proven to be successful secular places over time. The three cases of Castello di Gargonza in Monte San Savino, Italy; The Reichstag Dome in Berlin, Germany; and the Casa Mila in Barcelona, Spain are all special places in their own ways. They are noteworthy in terms of the context, their importance to the people who occupied the place, and all of them central to national pride, culture, or identity of the people.

The Reichstag Dome, Berlin, Germany

The Reichstag Dome was designed by Norman Foster and opened to the public in 1999 as a part of the complete transformation of the Reichstag building. The Reichstag had been previously gutted by fire and further damaged during Allied

bombing of Berlin in World War II.¹⁴ One of the most identifiable features of this renovation was the new glass and metal dome designed to top the existing and renovated building.

Foster's intention when designing the dome was to make the working of the government transparent to the citizens of Germany and the rest of the world and in doing so establish the much needed trust in a nation's government.¹⁵ Visitors are allowed to visit the dome free of charge on most days of the week. A spiral ramp leads from the base of the dome to the top from where visitors have a 360-degree view of the city of Berlin. An inverted mirrored cone in the center reflects light into the plenary chamber below. The dome serves as a symbol of the nation's progress, and hope in the future. The Reichstag is an example of a unique secular place: the seat of a government selected by the people of a nation and representative of their return from the vagaries of two wars, Nazi rule, and the start and end of the East/West divide.

The Casa Mila, Barcelona, Spain

The second place, the Casa Mila in Barcelona, Spain was designed by the eccentric and individualistic Art Nouveau architect Antoni Gaudí i Cornet and constructed between 1906 and 1910. Casa Mila, an apartment building, affectionately called the "La Pedrera," or the quarry by Catalonians was declared a World Heritage site by the UNESCO in 1984. It was the first building of the 20th century to be included in the list of World Heritage sites. Though Gaudí was ridiculed by his contemporaries and by the citizens for his unusual designs, today he is accepted and loved by the Catalonians as one of the most influential architects of the last century. Today, the Casa Mila, is owned by the Caixa de Catalunya, a savings bank and is partly a tourist attraction open to visitors and partly apartments owned by private owners.¹⁶ Casa Mila is also an example of what used to be an everyday place to the occupants of its private residences and still remains so to a few. It is the legacy of a great architect and the pride of a city.

¹⁴ Bernhard Schulz, *The Reichstag: The Parliamentary Building by Norman Foster* (Munich, Germany: Prestel Verlag, 2000).

¹⁵ Norman Foster, *Rebuilding the Reichstag* (New York: The Overlook Press, 1999).

¹⁶ Antonietta Lima and Annalaura Pistarino, *Antoni Gaudí: Casa Mila, Barcellona* (Barcelona, Spain: Testo and Immagine, 2002).

Castello di Gargonza, Monte San Savino, Italy

Castello di Gargonza or literally translated, the Castle of Gargonza is a small medieval egg-shaped village surrounded by massive walls and set on top of a rocky bluff. It lies in the beautiful Tuscany region of Italy between the towns of Arezzo and Siena in a community identified by the name of Monte San Savino. Formerly an agricultural village, with a defense gateway and a tower that overlooks its main square, somewhat eccentrically placed towards one side and the twelfth century Romanesque church, the village was almost completely abandoned after the World War II with the end of the practice of share-cropping.¹⁷ In the 1960s its population was an all time low of 300 consisting mostly of farmers and a few workers. By the mid-1960s a massive exodus resulted in the village being left largely abandoned and its buildings dilapidating rapidly. In the 1970s, a restoration effort that aimed at maintaining all the original architectural and symbolic values of Gargonza was begun.

The Guicciardini Corsi Salviati family, owner of almost all the buildings and of a large surrounding estate, concluded the acquisition of the remaining houses and immediately began a general survey that documented the decay of the village. Scattered in the surrounding 600-hectare estate are some beautiful farm houses, now under restoration and being used as a part of the conference center.¹⁸

Part of the allure of this village is its history and the memory that it has imbibed in the past 900 years as a living and functioning place serving to the needs of its people and in turn being tended by the very same inhabitants. Castello di Gargonza has been used by Moore and Lyndon in their book as a canvas for the template of their “memory chambers”: as a test of their patterns.¹⁹

¹⁷ D.E. Conrad, *The Forgotten Farmers: The Story of Sharecroppers in the New Deal* (Oxford UK: Greenwood Press, 1965). Sharecropping is a system of farming in which the tenant farmer provides the labor for a share of the income, usually about half, and the owner of the land supplies the land, housing, and expenses for food, clothing, and supplies.

¹⁸ Count Roberto Guicciardini C.S, *Castello di Gargonza*, Monte San Savino, Arezzo, Italy, <http://www.gargonza.it/eng/storia.html> (accessed 21 January 2005).

¹⁹ Lyndon and Moore, *Chambers for a Memory Palace*.

SCOPE AND LIMITATIONS

The study will take into account only three very unique secular places from among the numerous others in the world and therefore has a limited scope in terms of the everydayness, character and history associated with each of these sites. In the case of Castello di Gargonza there is no way of knowing for a fact the intentions with which the patterns were incorporated since the original builders are no longer living and neither were their intentions recorded. There also exists a marked difference between the pattern list developed by Alexander in comparison to those of Tabb, Brill, Moore and Lyndon. Alexander's list is more pragmatic or operational in nature and does not seem to dwell much on the sacred nature of a place. The selection of the places is also limited by my definition of the "sacred," even though this was a necessary step towards defining the scope of the thesis.

The everydayness of all of the cases has been compromised because of their changing functions and the special and unique character of both the Reichstag and the Casa Mila. Though initially used as secular and everyday places by the occupants of the two buildings, the buildings have imbibed more meaning with time, and therefore might pose difficulties in the interpretation of the patterns present. The findings and conclusions of the thesis will be limited to the four selected pattern lists and the testing of the patterns on the three specific places and therefore will only pertain to these studies.

EXPECTED RESULTS

I hope that the thesis would enable an architect, landscape architect or a planner to have access to an inclusive catalog of patterns that have been tested on three test places in terms of their functionality and magnitude of presence in both historic and contemporary settings. I look forward to the possibility of the discovery of new patterns and a better understanding of existing ones during the course of this study. It also forms a platform for further detailed quantitative or qualitative studies in this field on the credible effect of the patterns in bringing the sacred to the places that we use in secular life.

CHAPTER II

PATTERNS

*To see the world in a grain of sand
And heaven in a wild flower,
Hold infinity in the palm of your hand
And eternity in an hour.*
- William Blake²⁰

It is said that towards the end of his life, Buddha gave his disciples a sermon without saying a word. In his famous “Flower Sermon,” he gathered his disciples around him and merely held up a single lotus flower, mud and water still dripping from its roots. The only disciple who understood the sermon was the one who could decipher the meaning of the geometry of the lotus flower. The apparent casual beauty we see in the nature around us, in the sunflower in the field, the seashell on the beach, and the butterfly in the garden belies an order that is an essential component of the formational patterns.

Patterns are an integral part of our life. Despite the fact that these patterns are present in everything around us and within us, they have the elusive quality of being tangible and intangible as convenient. In general terms a pattern is defined as a model or an original used as an archetype. Computer programmers define patterns as a recurring solution to a standard problem. In the context of architecture, patterns are “design ideas,” that develop through practical testing in the real world, and precedent success. A pattern language is a collection of interrelated patterns intended to do the following:

1. Capture knowledge and ideas of what makes for successful architectural design, with special consideration to the context.
2. Organize that information in a way to make it most useful for someone designing a building or other type of inhabited environment.

Pattern languages have been used, both in the field of architecture and computer programming with relatively different degrees of success: more so in the former than the

²⁰ William Blake, *Auguries of Innocence* (New York: Grossman Publishers, 1968), 3.

latter. Design patterns are intended to provide designers with a selection of ideas that are flexible but logical tools of design development (functional and aesthetic) that is sensitive to the context. As already mentioned, the use of patterns in architecture is an extension of the patterns in nature. The beauty that we see embedded within the macrocosm of nature, and in what is man-made, i.e. the buildings we design, the gardens we lay, and the sculptures we sculpt is a fundamental function of patterns and our ability to recognize these patterns.

Pattern recognition as a science has a history dating back to the Pythagoreans of ancient Greece, who are credited with having discovered the infinite nature of irrational numbers in the sixth century B.C. But, before the 1960's it was mostly the output of theoretical research in the area of statistics. Today, pattern recognition is defined as recognition of stimuli by seeking similarities and regularities present in the data. It forms an essential part of a number of areas that include robotics, artificial intelligence, computer vision, and image analysis. One of the areas that has been relatively unexplored in terms of patterns and pattern recognition is architecture. Pattern recognition is introduced at this point as a background for the data on cognition and different types of consciousness which are mentioned and elaborated on later in the thesis.

Christopher Alexander put patterns on the map with his treatises titled *A Pattern Language: Towns, Buildings, Construction* and *The Timeless Way of Building*, two halves of a single work and the *Nature of Order*, his most recent in the series. Alexander's *Pattern Language* (which is one of the sources for the pattern lists used in the thesis) describes a highly structured collection of patterns (elements of the language), intended as a practical guide for architectural designers. The language described contains 253 patterns split into three broad categories, towns, buildings and construction. These patterns are ordered to range from the largest scale to the smallest. Each pattern is connected by the sequence it follows to certain larger patterns that it follows and certain smaller ones that follow it. In maintaining a symbiotic relationship between the patterns at different levels the language assumes the complexity and completeness of a language.

Alexander tries to define a complete philosophy of architectural development from its position within a global context to the basic construction of the final design. In attempting such an ambitious project, Alexander highlights the many levels on which any designer must consider a project.

There are of course a number of facets of Alexander's pattern language that are criticized on the basis of being too prescriptive in nature and therefore limiting the creative ability of the architect. An example of this are the patterns numbered 89 and 167 in the book. Pattern No. 89, the Corner Grocery, is considered to be an "invariant" or constant pattern that could be treated with a certain amount of disrespect and is open to possibility of new solutions that could replace it.²¹ Alexander in this specific case says, "Give every neighborhood at least one corner grocery, somewhere near his heart. Place these corner groceries every 200 to 800 yards, according to the density, so that each one serves about 1000 people. Place them on corners, where a large number of people are going past. And combine them with houses, so that the people who run them can live over them or next to them."²² Pattern No. 167, Six-Foot Balcony unlike the last pattern falls within a category of patterns that without doubt is a true invariant, i.e. the solution specified in the book in relation to this pattern summarizes a property that is common to all possible ways of solving the stated problem and therefore is not open to any new creative solutions. According to Alexander here, "Whenever you build a balcony, a porch, a gallery, or a terrace always make it at least six feet deep. If possible, recess at least a part of it into the building so that it is not cantilevered out and separated from the building by a simple line, and enclose it partially."²³

Needless to say, even though Alexander claims that the patterns mentioned in his book are context based and flexible to the needs of the community and the people it does tend towards a certain utopianism and a certain idealistic view of a town and its character. First published in 1977, Alexander's structuralist outlook in an era of the post structuralists was criticized and mostly ignored by prominent architects and universities

²¹ Alexander, Ishikawa and Silverstein, *A Pattern Language*, 101.

²² Ibid, 102.

²³ Ibid, 197.

of the time as inconsequential and outdated. Following in the footsteps of Claude Lévi-Strauss in Anthropology, and Ferdinand de Saussure, Alexander leaned towards studying his systems synchronically (as a static set of relationships independent of any changes that take place over time) rather than diachronically (as a dynamic system which changes over time) which later led to the criticism of his theory. The patterns were also condemned and might be considered politically incorrect today in suggesting subculture boundaries for the separation of neighboring subcultures, identifiable neighborhoods, and neighborhood boundaries similar to gated communities.

Alexander's patterns eventually became more popular in the community of computer programmers than in the field of architecture and planning itself. Programmers were able to appreciate the sequential language of the patterns and its similarity to algorithms already used for programming. It is ironic that the structure of Alexander's patterns that lead to its condemnation is also its biggest strength. In addition to the sequential nature of the ordering of the patterns based on the scale of the pattern, each pattern in being described in the text also has a specific format. First, there is a figure that shows the archetypal example of the pattern, which is followed by an introductory paragraph that sets the context. Next, is the problem composed of the headline, and the body followed by the solution. After the solution is a diagrammatic representation of the solution and finally, a paragraph that ties together the specific pattern to all the other smaller patterns in the language which are needed to complete the pattern. The organization of Alexander's patterns along with its comprehensive nature is a quality that could greatly alleviate the difficulties in the use of patterns by designers and planners.

A number of researchers have proposed different lists of patterns since then, but none have been as controversial as Alexander's, mostly because of the seminal quality of his language. Kevin Lynch, in his influential analysis of urban environments, *The Image of a City*, established the terms "path," "edge," "district," "node," and "landmark" as principal components of the urban landscape and important characteristics in analyzing

movement and orientation within a city.²⁴ He emphasizes the importance of “clarity and legibility” in the urban environment and puts forth the components that aid the process of mental mapping of a city and orientation. Michael Brill proposed a list of patterns which are design guidelines for the creation of “charged” places. He believes that there must be a set of common and fundamental characteristics by which the charged places reveal themselves to us as sacred. Brill’s patterns are oriented more towards the energies present in sacred places and the manner in which they are manifest in the material world. Brill very much like Alexander is a structuralist and describes the notion of the Jungian archetypes in our “collective unconscious.”²⁵ He uses the hypothesis that all humans share in an archetype of a sacred place and without any previous training or experience with sacred places can experience the sensations typical to a charged place. Brill also believes that since archetypes are the basis of myths, sacred places must therefore in embodying an archetype, characterize a myth (the myth of place-creation).

Brill in proposing his patterns imagines himself to be an ancient place maker and looks deep into the myths for his design inspiration. His goal as he says it “is to make a place which is the myth of creation, and not one which merely symbolizes it.” In doing so, Brill develops a set of design guidelines for sacred space, presented in an order that reduces in scale in a hierarchical cascade.²⁶ The format progresses categorically from the myth to the meaning of the place and then the suggestion of the physical implication of the myth and its meaning. This transition is symbolic of the natural order of every process in the universe that evolves from the archetypal (the idea), to the ectypal (the reproduction) to the typal (the manifestation) realm. Very similar to Brill’s patterns are

²⁴ Kevin Lynch, *The Image of the City* (Cambridge MA: The MIT Press, 1960).

²⁵ Jung, *The Archetypes and the Collective Unconscious*, 42. The “Collective Unconscious” is a part of the psyche which can be negatively distinguished from a personal unconscious by the fact that it does not, like the latter owe its existence to personal experience and consequently is not a personal acquisition. While the personal unconscious is made up of components which were at one time conscious but were forgotten or repressed, the collective unconscious is made of those components which never existed in the conscious, and therefore owe its existence to heredity.

²⁶ Brill, “Using the Place-Creation Myth to develop Design Guidelines for Sacred Space.”

Brill’s patterns include: Making a location and a center, Making orientation and direction, Order, Visual Symmetry, Directionality, Differentiating Boundaries, Reaching Upwards, Triumph over the Underworld, Bounding, Passage, Views of other Places, Light, Materials for Making, Nature in our places, Finishing a Place through Ritual or Consecration.

those proposed by Phillip Tabb²⁷, both in the nature and in the energies represented by the patterns. Tabb presents his patterns like Brill, in their three realms and describes the transformation process from one to the other. There exist patterns that are common to both these lists representative of the formative archetype²⁸ (primordial images) that the authors believe are present in sacred sites around the world. Though both Brill and Tabb's patterns are lesser known than those of Alexander, and Moore and Lyndon, they are more representative of the spirit of place-making. Neither Brill nor Tabb's patterns have been tested for validity on any place and therefore their existence is only a matter of speculation.

Charles Moore and Donlyn Lyndon's book is a collection of a set of observations on the composition of places. The elements included are exemplified in the authors' study of architecture from all around the world and the actions mentioned describe how these elements shape the experience of the place. Each of the chambers has a diagram and a descriptive statement. The main content of the book is made up of a conversation in letters exchanged in regard to the topic between the authors Moore and Lyndon. Moore and Lyndon defer from calling their chambers, patterns, and refer to them as "elements" and "actions" that give meaning to these elements. Each chapter or as the authors call it, chamber²⁹, focuses on one theme or composition, jumping between the past and the present, from the Taj Mahal in Agra, the Vaux-le-Vicomte in France to the Kimbell Art Museum in Texas.

²⁷ Tabb, "Sacred Place: The Presence of Archetypal Patterns in Place Creation."

Tabb's patterns include: The Center, Inner Gesture, Directionality, Bounding, Reaching Upward, Descent, Sky-vault References, Internal Order, Passage, Anthropomorphism, The Nature Within, Materiality, The Elements, Ceremony and Consecration.

²⁸ Jung, *The Archetypes and the Collective Unconscious*, 5.

The contents of the collective unconscious are known as archetypes. The term "representative collectives" used by Levy-Bruhl to denote symbolic figures in the primitive view of the world, refer to practically the same thing as archetypes. One of the well known expressions of the archetype is myths and fairytales.

²⁹ Lyndon and Moore, *Chambers for a Memory Palace*. Moore and Lyndon's patterns include: Axes that Reach/Paths that Wander, Orchards that Measure/Pilasters that Temper, Platforms that Separate/Slopes that Join/Stairs that Climb and Pause, Borders that Control/Walls that Layer/Pockets that Offer Choice and Change, Openings that Frame/Portals that Bespeak, Roofs that Encompass/Canopies that Center, Markers that Command/Allies that Inhibit, Light that Plays/Shadow that Haunts/Shade that Lulls, Rooms that Define/Space that Leaks Up into the Light, Types that Recur/Order that Comes and Goes, Shapes that Remind/Ornament that Transmits, Transforms, and Encodes, Gardens that Civilize, Water that Pools and Connects, Images that Motivate.

Like Alexander, Moore and Lyndon specifically mention the informative nature of the chambers rather than the prescriptive, and succeed in this task to a greater degree than Alexander. To test their assembled observations in the final section of their book, Moore and Lyndon selected a small town called Castello di Gargonza in the Tuscany region of Italy. This town because of its manageable scale and precedent study will be used later in the thesis as one of the test studies for the new pattern language.

Francis Ching in his book on form, space, and order focuses on the arrangement and ordering of forms and spaces that in his words, “promote endeavors, elicit responses, and communicate meaning.”³⁰ Ching organizes his book into sections that cover, primary elements, form, form and space, organization, circulation, proportion and scale, and principles. Sub-sections of these topics discuss issues similar to those studied by Alexander, Brill, Moore and Lyndon, and Tabb. Spatial relationships, movement through space, approach and entrance, proportioning systems, axis, anthropometry, and articulation of form are just some of the sub-topics which Ching deals with, and expresses with the help of numerous illustrations. His intention here is not just to provide a treatise on formal and spatial ideas but to educate architects and designers with a vocabulary that would influence the manner in which they would shape their design problems thus affecting the solution to the problem. The illustrations which include graphic representations of the ideas that Ching is trying to express are the strongest aspects of the book. Neither Alexander, nor Brill, Moore, Lyndon, or Tabb express their patterns in a graphic format with such clarity as Ching. Ching’s book on form, space, and order has been widely accepted by the student community and architects alike for its informative, orderly, comprehensive, and visual approach to problem-formulation and problem-solving.

While a number of architects and historians have analyzed patterns and developed pattern languages, lists, and guidelines for design based on their analysis, the use of these patterns in architecture has been restricted because of their limitations. But patterns cannot be ignored because they give us an idea of what has already transpired

³⁰ Francis Ching, *Architecture: Form, Space, and Order* (New York: John Wiley & Sons, Inc., 1996), 9.

and what is to come. Like history, they are the precursors of the future, affecting everything they come into contact with, and being affected by that which they come in contact with. Patterns are all around us, and though consciously unaware of their existence, sub-consciously our mind and our body responds to these patterns in varying ways. The fractals in ice crystals, the veining of a leaf, the complex honey-combing of a bee's hive, and the geometry of a termite hill are probably not obvious but definitely felt and responded to. It is my opinion that there exists an order inherent to nature and the world that we occupy, and this thesis is an interesting quest to understand the influence of this natural intrinsic order (represented by the patterns) in creating man-made secular places that are sacred.

CHAPTER III

FROM THE RELIGIOUS TO THE SECULAR

The Great Spirit is in all things, he is in the air we breathe.

The Great Spirit is our Father, but the Earth is our Mother.

She nourishes us.

That which we put into the ground she returns to us....

- Big Thunder (Bedagi) Wabanaki Algonquin³¹

“Mana,” a concept prevalent in a number of ancient religions and present day aboriginal people is a mostly forgotten notion in today’s world. It is defined as the life energy inherent in all things and people, transmissible in nature from objects in nature to human beings, from one person to another or again from persons to things. In a majority of ancient religions, all objects- animate and inanimate, and all places are believed to be infused with this life energy and therefore considered sacred. To the believers of these religions, the promise of every place to become sacred is an accepted truth.³²

In today’s world every aspect of our life is beset by duality. Our body exists and identifies itself with the physical realm. Our consciousness identifies itself with the spiritual or metaphysical realm. This separation of the consciousness and the body championed by René Descartes still exists within our everyday lives in the form of a sub-consciously inculcated linking of the “sacred” with the “religious.” Christians believe that God created matter from nothing and order from chaos.³³ A place represents the order that arises from chaos in space. It is the creation of matter and as such signifies an important beginning to the process that involves the formation of the character and identity of a place. He also created the duality of separation in separating the light from the dark. Separation, one of the most primordial and archetypal acts of creation is identifiable with the much later separation of the mind and the body. Division enables a

³¹ Bedagi Wabanaki, *Quotes from our Native Past*, Stone E Produktions, <http://www.bigisland.com/~stony/quotes.html> (accessed 9 October 2005).

³² Edward E. Evans-Pritchard, *Theories of Primitive Religion* (Oxford UK: Oxford University Press, 1968).

³³ Genesis. *The King James Study Bible* (Nashville TN: Thomas Nelson, Inc.), 3. “In the beginning God created the heaven and the earth.”

consciousness of the divided that could not exist to such a degree in its absence. As an example is the division of the earth from the sky or heaven from hell. Each in being different from the other and having certain physical and metal boundaries embellishes the character of the other in the process of creating an identity of its own. The agony of Hell is complemented and contrasted at the same time by the pleasures of Heaven.

In the secular world, this separation is represented by polarities in boundaries, directions, scale and materiality. Places that we occupy everyday are vessels for these polarities and the manner in which they are present in the place and interact with the other existing characteristics define the nature of the place. The house is a mythic archetype, “a secret opening,” as Joseph Campbell writes, “through which the inexhaustible energies of the cosmos pour into human existence.”³⁴ And, in our everyday world it is important that the separate realms of the consciousness and the body be combined so as to attain that confluence of the physical and the spiritual. This would help achieve a transcendental state necessary to an existence represented by mental and physical well being, especially when applied to the places that we occupy in our daily lives.

We spend more time at home, work, and streets than in the so called “religious” buildings. It is only obvious that these secular places would be the mediums to re-establish the connection between the mind and the body. The design of secular places can be made conducive to this process and one of the steps towards this would be the identification of the patterns present in sacred places and their application in today’s successful non-religious places.

Anthony Lawlor believes that people want to extend their search for the sacred from the traditional religious places into their homes and workplaces, and want their buildings to reflect the transformations in their consciousness on experiencing the place.³⁵ In Gyorgi Doczi’s book *The Power of Limits*, he writes about the greatness of little things. The Japanese tea ceremony which is a celebration of the simple joys of life is held within the teahouses and teagardens that are designed with the explicit purpose of

³⁴ Joseph Campbell, *Hero with a Thousand Faces*, (Princeton NJ: Princeton University Press, 1972).

³⁵ Lawlor, *The Temple in the House*.

creating the sacred within the profane. All the tea houses are laid out by the revered tea masters who pay immaculate attention to the union of the inside and the outside and proportions that are conducive to harmony. In realizing the importance of finding the sacred in a place that is used in everyday life, the tea masters simultaneously understood the necessity of connecting with that transcendent energy in one of the most mundane gestures in life: that of drinking tea.³⁶

Whether it be the cars we drive, the dormitories we live in, the houses we occupy, the office spaces we work in, or the parks we jog in, everyday secular places form the stage for a considerably larger range of human experiences than religious places. Existing literature in terms of guidelines that would contribute towards a design of secular places that facilitate our physical and mental well-being is scarce. Anthony Lawlor's book *Finding the Sacred in Everyday Architecture: The Temple in the House*, is one such study that deals with the subject of finding sacredness in common places and offers a guide to dwelling in the sacred everyday architecture that forms our homes and community.

To a certain extent, good architecture contributes towards the sacred nature of the place. Good architecture though, is debatable in terms of what makes it so. There exist certain basic conditions when fulfilled and problems when solved that lay the foundation for a successful design. Architects approach the creation of places with methodologies that are varied and unique. The following are a few examples.

1. Alexander, Hirshen, Ishikawa, Coffin and Angel in their book *Houses Generated by Patterns*, describe the patterns that led to the design of a competition entry for a community of 1500 houses in Lima, Peru called "The Proyecto Experimental de Vivienda" (PREVI).³⁷ Alexander and

³⁶ Gyorgy Doczi, *The Power of Limits: Proportional Harmonies in Nature, Art, and Architecture* (Boston MA: Shambhala Publications, 1994).

³⁷ Christopher Alexander, Sanford Hirshen, Sara Ishikawa, Christie Coffin, and Shlomo Angel, *Houses Generated by Patterns*, (Berkeley CA: Center for Environmental Structure, 1969). In January 1969 the United Nations, working with the Banco de le Vivienda of Peru, asked thirteen architects (which included Christopher Alexander, Aldo Van Eyck, Charles Correa, James Stirling and Kisho Kurokawa) from various countries to submit their competition entries. Only 502 units out of the initial target of 1500 units were built, and almost 60% of the units were altered by the occupants in the years since then.

his colleagues used 67 patterns or principles in their design of the housing units and the combination process of the specific elements in forming the unit. Through the use of these 67 patterns Alexander and his colleagues believed that they had solved the problems identified in creating a housing community and designed one that promoted an increase in the quality of life.

2. Some designers like Tabb and Brill believe that one step towards successful design would be through the inclusion of those qualities of the cosmos that form the underlying principle behind all that exists. Hence the patterns like, sacred geometry, sky-vault references, and triumph over the underworld.

Christopher Day in his book *Places of the Soul* talks about the ability of our unconscious to experience places without any resistance from the conscious when we experience the surroundings that we occupy everyday. As these surroundings are mostly “built environment,” architecture can significantly affect us.³⁸ This is more so in the case of the environments that we occupy and experience on a more frequent basis, unlike places of worship, memorials, or other special places which are visited less frequently and demand more conscious experiencing. Since the unconscious is affected by the ability of our senses in experiencing places, architecture that affects us the most appeals to not just our visual senses but to all our senses including that of smell, touch, hearing, and taste. It is easier to comprehend the visual, and maybe even the tactile aspect of architecture, but that of the olfactory, auditory, and hypoglossal aspects are slightly more difficult to comprehend. But the smells of a bakery, of a barn, of home-cooked food, of flower blossoms; the sounds of vehicles on the street, wind chimes on the porch, or even sound insulation; and the tastes associated with various smells and sounds, play an important role in creating an “impression” of the place in our minds, eliciting specific reactions.

³⁸ Christopher Day, *Places of the Soul: Architecture and Environmental Design as a Healing Art*, (Oxford UK: Elsevier Architectural Press, 2004), 4.

A documented phenomenon called “synaesthesia,” enables those experiencing it to neurologically mix the senses. People with this condition (a synaesthete) may “hear colors,” “see sounds,” and “taste tactile sensations.” The perception of one stimulus evokes a second perception, and synaesthetes very often experience correspondences between shades of color, tones of sounds, and varieties of taste. Usually synaesthesia occurs when one of the senses is no longer functioning properly.³⁹ While in such people the correlation between the senses is greatly heightened, a certain level of synaesthesia is existent in all people. We are all able to some extent relate sounds to taste, taste to smell, smell to colors and so on.

3. Juhani Pallasmaa in his book on the relation between architecture and the senses takes a multi-sensory approach to architecture and analyzes the importance of creating places that appeal to all the senses.⁴⁰ Therefore, in designing places, patterns thus don’t just play a part in visual stimulation, but in doing so stimulate every other sense. Patterns here are intended towards creating such an experience.

While patterns have already been dealt with in detail in this thesis, the places that contain these patterns are equally important.

Those ancient sages....they perceived that, though the Soul is everywhere traceable, its presence will be secured all the more readily when an appropriate receptacle is elaborated, a place especially capable of receiving some portion or phase of it, something reproducing it, or representing it and serving like a mirror to catch an image of it.

- Plotinus⁴¹ (205-270 CE), *Enneads*, 1V, 3.11

³⁹ Vilayanur S. Ramachandran and Edward M. Hubbard, “Hearing Colors, Tasting Shapes,” in *Scientific American*, (May 2003), 53-59.

⁴⁰ Juhani Pallasmaa, *The Eyes of the Skin: Architecture and the Senses* (New York: John Wiley & Sons, Inc., 1996).

⁴¹ Stephen MacKenna, *Plotinus: The Enneads* (Burdett NY: Larson Publications, 1992), 305. Plotinus was a Neo-Platonist of the 12th to 14th generation. He wrote the six *Enneads*, now abridged into one single book. The *Enneads* are the nine great Osirian gods and goddesses in Egyptian mythology. Each *Ennead* (a chapter) is divided into nine sub-tracts. The *Enneads* are an extended investigation of the nature of the Soul, and of the relation of the Soul to divine Intellect and to divine Unity.

In describing the manner in which the ancient sages realized and utilized the importance of creating receptacles for the soul or anima, the philosopher Plotinus refers to the word “receptacle.” This seemingly innocent word signifies the nature and power of a place. Receptacle originates from the Latin word “receptaculum,” which means “to receive again.” This definition is reminiscent of what James Steele refers to as the phenomena of “double remembering” which is to help us “to remember to remember.”⁴² And it is only reasonable that something that would help us to “re-remember” would be capable of reproducing or representing an image of that which we are trying to remember.

Symbolic design and patterns according to Lawlor work on at least three levels: cultural, personal, and universal. While the cross is viewed by Christians as a symbol of redemption at a more personal level it could symbolize the connection with the divine. While universal pattern recognition is related to the collective unconscious of all of humanity, cultural and personal pattern recognition involve smaller groups of people, and personal experiences which differ from individual to individual. Both religious and secular places can appeal to the human consciousness at one, two, or all three levels. Similar to religious places, secular places are a compilation of architectural elements that are porous to the subtle workings of the psyche.⁴³

An understanding of the manner in which the symbolism in patterns is recognized is important to the understanding of the functioning of the patterns. Having said this, places that people occupy everyday form a consequential part of this projected reality, and in the same way as people can affect these environments the opposite is also true. The connections to the inner self and the higher consciousness is an integral part of experiencing the sacred. Both phenomenal consciousnesses (P-consciousnesses) and access consciousness⁴⁴ (A-consciousnesses) play a part in the way a place is

⁴² James Steele, “The Nectar of Gaia.”

⁴³ Anthony Lawlor, “House: Symbol of the Soul,” in *Dialogues with the Living Earth: New Ideas on the Spirit of Place from Designers, Architects, & Innovators*, Compiled by James Swan and Roberta Swan, (Wheaton IL: Theosophical Publishing House, 1996).

⁴⁴ Ned Block, “Philosophical Issues about Consciousness,” in *The Encyclopedia of Cognitive Science*, (New York: Nature Publishing Group, 2003). Philosophers divide consciousness into phenomenal consciousness which is experience itself and access consciousness.

experienced. While, P-consciousnesses deals with sensual stimuli, which are visible, can be heard or felt, access consciousness is the type of consciousness which deals with the perception and cognition of patterns. A representation is accessed and experienced through the A-consciousnesses.

The place sets the stage for the nature of this A-consciousness and therefore acts as the mirror for the image. An “appropriate receptacle,” as described by Plotinus would be a place that can most effectively “catch the image.” It would be the ideal mirror. Patterns and the recognition of patterns together form the stimuli that enable communication between the place and the person experiencing the place. To achieve enhanced levels of communication through patterns it is therefore important to appeal to the A-consciousness of the person.

Healing is a process that can take place from within ourselves, but this process can be catalyzed and assisted by forces outside of our bodies, i.e. through the physical environment around us. While the quality of patterns is subjective (and probably the matter of another thesis altogether), the presence of some patterns can aid in the healing process by heightening the senses, and as a result sensitizing the human consciousness. Later in the thesis, it would be possible to observe how these patterns have functioned in the places of antiquity and in contemporary architecture. The architectural skyline of most towns in America today is dominated by the box-like Wal-Mart’s, Targets, Albertsons, strip malls (all of which look alike), and houses which look like they belong to a Lego suburban sprawl. Our individual and unique personalities are lost in the monotony of the places we live in and work at. And, our spirits are slowly and unconsciously crushed as we are forced to live and interact in places with no character of their own.

It is pertinent today that we break the cycle of mindlessly creating places that are lost in the meaningless tedium of life, and design places which appeal to the human consciousness, heal the human body and mind, and invigorate the human spirit.

CHAPTER IV
THE SELECTION OF TEST STUDIES

*Certain thoughts of the Universe were expressed in the structure,
Thus set apart as a little world for the house of God- A Temple.*
-William Lethaby⁴⁵

Three places have been selected to test the validity of the new pattern list. They have been selected from among a number of other everyday places because they confirm to the definition of the “sacred” as defined earlier in the thesis. These places have also proven to be successful “secular” places in terms of their function, sensitivity to the context, expression of the spirit of the times, and importance within the nation they exist in, or to the people who occupy them. Jackson Pollock the archetypal action painter once contended of his painting technique, “I can control the flow of paint. There is no accident.”⁴⁶ The three test studies of Castello di Gargonza in Italy, The Reichstag dome in Berlin, and the Casa Mila in Barcelona are just that- unique, spontaneous, and unrepeatable “events” which were subject to artistic will.

The first place, the Italian hill town of Castello di Gargonza (Castle of Gargonza), as mentioned earlier, has been used by Moore and Lyndon in their book as a case study. Lyndon said of Gargonza as he ended the final chapter, “the Castello di Gargonza is a repository for the recollection of pleasant thought-filled, sunny, and quiet days as well as a humble handy Palace for the Mind-itself an ‘Image that Motivates’ (the last chamber).”⁴⁷ This medieval Italian walled village in the Tuscan region has transitioned in the recent decades from an agricultural village inhabited by the usual blend of farmers and workers, to a resort and conference center owned by a single Italian noble family. I am interested in its significance as a testing ground for the new pattern list and in its character as an secular place that unlike the other two test studies selected is an example of “organic” medieval architecture and thus developed unpremeditated into what it is today.

⁴⁵ William Lethaby, *Architecture, Mysticism, and Myth* (Philadelphia PA: Dover Publishers, 2004), 102.

⁴⁶ Steven Naifeh and Gregory White Smith, *Jackson Pollock: An American Saga* (New York: Woodward/White, Inc., 1998), 43.

⁴⁷ Lyndon and Moore, *Chambers for a Memory Palace*, 310.

The second place, the Casa Mila in Barcelona, Spain was designed by the eccentric and individualistic Art Nouveau architect Antoni Gaudí i Cornet. Casa Mila was declared a World Heritage site by the UNESCO in 1984. UNESCO in its advisory body evaluation of 2005 said, “Three works by Antoni Gaudí (1852–1926) were inscribed on the World Heritage List in 1984: *Park Güell*(1904-16), Barcelona; *Palau Güell* (1886-90), Barcelona; *Casa Milá* (1906-10), Barcelona. They were considered as “truly universal in view of the diverse cultural sources that inspired them. They represent an eclectic as well as a very personal style which was given free reign not only in the field of architecture but also in gardens, sculpture and all forms of decorative art.”⁴⁸ Criterion vi used to nominate the properties goes on to say, “In fact, Gaudí’s work is specially associated with the Modernism movement that developed in Catalonia, this movement was distinguished by its patriotic and traditional leaning, as well as promoting the most update use of techniques and of social and economic developments. In this regard, it can be considered a more representative and outstanding example than the works by the other Catalonian architects.”⁴⁹ A symbol of the Modernist movement in Catalonia and synonymous with a city like no other architect of his time, Gaudí’s beatification is being promoted by a secular organization since 1992.

Gaudí conceived the *Pedrera* like a great pedestal, which would sustain a sculptural group, of the Virgin Mary (the patron of one of the proprietors), with Jesus in her arms, flanked by two Archangels. Even though it was not eventually crowned with this sculptural group due to various speculated reasons, La Pedrera still conserves some religious inscriptions. This place has been chosen as an investigation into the sacred nature of a secular space that had been originally intended as a monument to the Virgin Mary. It has also been chosen because of its importance to the identity of a city and its people. It has been chosen because of its unique character, and as an attempt in understanding the patterns that might be present in a building which was partly designed with a “religious intention” by a deeply religious man for a “secular function.”

⁴⁸ ICOMOS (International Council of Monuments and Sites), “Advisory Body Evaluation in 2005,” UNESCO, http://whc.unesco.org/archive/advisory_body_evaluation/320bis.pdf (accessed 12 December 2005), 169.

⁴⁹ Ibid, 171.

Judith Carmel-Arthur says of his architecture, that the Casa Mila is imbued with dynamism, pushing the tensile strength of the materials to the very limit. By this time in his career, Gaudí had come to approach architecture-both religious and secular-as the incarnation of evolutionary theory, dependent upon laws of nature which dictate that all life, all structure, is in constant transition. With the design of the Casa Mila his last secular work he had found a means of reconciling religion with science, the sacred with the profane.⁵⁰

The third place, the Reichstag Dome, in Berlin, Germany was designed by Sir Norman Foster as a part of the alteration of the old Reichstag to accommodate the new German parliament. Norman Foster unlike Gaudí is an architect who has received much acclaim. The original neo-Baroque building was erected from 1884-94 according to the designs made by Paul Wallot. The dome was seriously damaged during the Second World War and the remains were blown up in 1954. On the transfer of the government from Bonn to Berlin the Bundestag decided to use the old building as its new meeting place.

Germany and Berlin have a past and a history more turbulent than any other nation and capital city. Its people and its government have experienced extreme economic inflation, the Nazi regime and allied occupation, all within 25 years, and come out of it stronger but not unscathed. The Reichstag is a symbol of change, democracy and the accessibility of the representatives of the people to the very same who appointed them. Topped by a glass dome with an internal spiral ramp, the people of Berlin and the visitors to Berlin can watch the members of the parliament debate in the plenary chamber below in the main body of the building.

Berlin is a city of constant transformation, a process that is indistinguishable from progress in the world today. It is also a city with a past and a memory of the past. The architecture of the city reflects this in more ways than one. Peter Eisenman's, "The Memorial for the killed Jews of Europe," Daniel Libeskind's, "Jewish Museum," Renzo Piano's, "Sony Center," Axel Schultes's "Federal Chancellery," Hans Hollein's,

⁵⁰ Judith Carmel-Arthur, *Antoni Gaudi: Visionary Architect of the Sacred and the Profane*, (Cairns, Australia: Periplus Editions, 1999), 5.

“Austrian Embassy,” and Helmut Jahn’s, “Ku’ 70” are just a few of the buildings designed by architects in response to the new and progressive Germany.

Michael Wise, in his book entitled “Capital Dilemma” examines the quest to develop buildings which are fitting to the new united Germany’s new status in Europe, while stressing a break with its turbulent history. Of all the buildings of artistic and architectural merit in Berlin, the Reichstag has been selected because critics believe that this dilemma has been most successfully resolved in the alteration of the Reichstag by Sir Norman Foster.⁵¹ It is a unique building in its sensitivity to the events of the past and in being a symbol of the hope for the events of the future.

All the places chosen have certain differences and commonalities. They are different in their scale and in the manner in which they came into being. Gargonza is an example of a typical medieval fortified village with its organic growth, while Casa Mila and the dome at the Reichstag were designed to specifications from the architects. Though the three test studies were inaccessible to the public when initially built, today all three of them are open to the public and this substantially decrease the difficulties in the validation of the results of this thesis. All three buildings though stand today as a testimony of the creative design and special, successful secular places.

⁵¹ Michael Z. Wise, *Capital Dilemma: Germany’s search for a New Architecture of Democracy* (Princeton NJ: Princeton Architectural Press, 1998).

CHAPTER V

THE NEW PATTERN LIST

Over the years, a number of architects, designers, and planners have dealt with the topic of patterns and their contribution to architecture, in their own different ways. I have already mentioned Alexander, Brill, Ching, Lynch, Moore and Lyndon, and Tabb's attempts at describing the nature of architecture and the presence of patterns in architecture. Not all the authors mentioned here refer to their vocabulary of design as patterns but the underlying intention of all of these endeavors is to define the fundamental doctrine of architectural design, and to use this knowledge to provide architects with a tool for better design.

The study of space and form in relation to architecture is not a new phenomenon. In fact, one of the earliest treatises on architecture, which is still widely read and respected was *De Architectura* now known as The Ten Books of Architecture written in the 1st century BC by Marcus Vitruvius Pollio. It is the only surviving major book on architecture from classical antiquity and perhaps the first complete work about architecture. In his book Vitruvius asserts that a structure must exhibit the three qualities of *firmitas, utilitas, venustas* – i.e it must be strong or durable, useful, and beautiful. According to Vitruvius, architecture is an imitation of nature. One of the books of the ten illustrates and studies in detail the architectural orders: Doric, Ionic, and Corinthian. Vitruvius believed that when humans observed nature and built themselves shelters against the forces of nature and developed the orders, it gave them a sense of proportion, culminating in understanding the proportions of the greatest work of art : the human body. This is what led to Vitruvius defining the “Vitruvian Man,” which was later drawn by Leonardo da Vinci and is one of the most famous illustrations of the human body in relation to the circle and the square, the fundamental geometric patterns of the cosmic order (the square which represents the material and the circle the non-material world).⁵²

⁵² Vitruvius, *Ten Books on Architecture*, Translated by Morris Hicky Morgan (Mineola NY: Dover Publications, 1960). This book was rediscovered in 1414, and first published in 1486. Originally written in Latin, translations in a number of languages including Spanish and English followed after the release of the first edition.

Andrea Palladio published his *I Quattro Libri dell'Architettura*, The Four Books of Architecture in 1570. The four volumes are illustrated by Palladio, and contain a study of his own designs which emphasize the purity of classical architecture. The volumes also provided two kinds of systematic rules and plans for buildings: one based on appearance or aesthetics, and the other set which was based on construction or structure. A precedent and probably an inspiration to Alexander's pattern language, Palladio's rules were intended to yield a shape grammar composition based on the two aspects mentioned above.⁵³

In *Genius Loci: Towards a Phenomenology of Architecture*, Christian Norberg-Schulz as a sequel to his other theoretical works *Intentions in Architecture*, and *Existence, Space, and Architecture*, investigates the psychic implications of architecture rather than the practical implications. He discusses the concepts of "perception" and "symbolism." His book deals with a concrete, qualitative, and what he refers to as a "phenomenological" understanding of architecture. He introduces the term "existential," which in the context of space comprises of the relationship between the environment and man. In his attempt at defining the complimentary character and structure of a place and the connections between the two, he studies thousands of places across the world, old and new, and comes across patterns which are present both in man-made and natural places. Schulz's analysis of the Prague, Khartoum, and Rome are divided into sections that cover image, space, character, and genius loci of the cities and aims at understanding the "meaning" of the architecture of these cities.⁵⁴

A large portion of Schulz's work is inspired by the works of Kevin Lynch and Martin Heidegger. Heidegger's "Building Dwelling Thinking," is an essay on the answer to two questions. What is it to dwell and how does building belong to dwelling? Heidegger tries to answer these questions through discovering the origins of the word, "dwell" and "building" and analyzes their meaning in the Old English and High German languages. The analysis reveals three things:

⁵³ Andrea Palladio, *The Four Books on Architecture*, Translated by Robert Tavernor and Richard Schofield (Cambridge MA: The MIT Press, 1997).

⁵⁴ Christian Norberg-Schulz, *Genius Loci: Towards a Phenomenology of Architecture* (New York: Rizzoli International Publications, 1984).

1. Building is really dwelling.
2. Dwelling is the manner in which mortals are on earth.
3. Building as dwelling unfolds into the building that cultivates growing things and the building that erects buildings.

Therefore, building is the manner in which mortals are on earth, and therefore the physical structures we erect are an image of our own life on this planet. Heidegger also argues that, in practical terms, dwelling involves the gathering of the fourfold—the coming together of earth, sky, people, and a sense of spiritual reverence, or “the gods,” as he signifies higher realities.⁵⁵

The goal of Norwegian architect Thomas Thiis Evensen’s “*Archetypes in Architecture*,” was to transform the schematic architecture of the time without having to copy blindly from the past. He proposes a set of archetypes that form the various possibilities which when given to a designer would “give the art of building a more humane countenance.” His book studies the three components of a room (the floor, the wall, and the roof) in detail, and the relationship between the exterior and interior spaces within the context they appear in. In the broadest terms, the central question Thiis-Evensen asks in *Archetypes* is, “How do floor, wall, and roof express “insideness” and “outsideness” through motion, weight, and substance?” Thiis-Evensen emphasizes that different architectural styles and cultural traditions may interpret the inside-outside dialectic through different degrees of openness and closure (for example, the medieval fortress’s impenetrable walls versus the Renaissance palace’s walls of many windows). He believes that archetypes elicit specific meanings based on human perception and they also influence one’s experience of the relationship between the interior and exterior.⁵⁶ Regardless of the particular stylistic or cultural expression however, floors, walls, and roofs provide related results in that they shape the space in which humans gather and dwell. In addition, the varying physical qualities or materiality of floors, walls, and roofs lead to different experiences of motion, weight, and substance.

⁵⁵ Martin Heidegger, “Building Dwelling Thinking,” *Poetry, Language, Thought* (New York: Harper Collins Publishers, Inc., 2001), 141-161.

⁵⁶ Thomas Thiis-Evensen, *Archetypes in Architecture* (Oslo, Norway: Scandinavian University Press, 1997).

The result is an intricate set of tensions between architectural elements and architectural experience based on the expression of the archetypes.⁵⁷

As demonstrated above, archetypes, patterns, and the meaning of these patterns in terms of its affect on the humans occupying the spaces containing these patterns is not a new field of research. The psychological implications of space on the human mind and the manner in which built space can manipulate and mould human reactions, and vice versa has for some time been the topic of much study and speculation. But, the study of patterns as contributing towards the making of a place which allows for the transcending connection between all aspects of the earthly material life and that which is beyond is a relatively new topic of research. The healing properties of many places around the world have been acknowledged as being a result of their sacrality. Authors like Christopher Day, Carol Venolia, Gaston Bachelard, and Yi-Fu Tuan have written books on healing environments and places of spirit.⁵⁸ All of these books stress on the importance of place-making and the healing properties of well-designed places.

The importance of our secular places in contributing towards this aspect of human well-being has been grossly undermined. With the advent of the Industrial Revolution the need for functional as well as worker-friendly environments was realized as men and women started spending more and more time at their places of work. Work efficiency and consequently the quantity and quality of the final product is linked to the workers satisfaction with the working environment. Various measures have been taken over time to assure the quality of the work environment. Noise control, air quality control, ergonomic furniture, the inclusion of places of relaxation, and improved lighting are some of the strategies which constitute a worker-friendly place. The very same strategies are equally effective inside our homes where most of us spend more time than at work.

⁵⁷ David Seamon, "Concretizing Heidegger's Notion of Dwelling: The Contributions of Thomas Thiis-Evensen and Christopher Alexander." http://www.tu-cottbus.de/BTU/Fak2/TheoArch/Wolke/eng/Subjects/982/Seamon/seamon_t.html (accessed 19 February 2006).

⁵⁸ See *Places of the Soul: Architecture and Environmental Design as a Healing Art*; *Healing Environments: Your Guide to Indoor Well Being*; *The Poetics of Space*; and *Space and Place: The Perspective of Experience* respectively.

While a number of cosmetic effects can improve the quality of a place considerably, what this thesis deals with is an improvement in the design of the place itself and its contribution towards the well-being of the people occupying it. This study tries to achieve a tool for the design of places that communicate their essence, and through this build a dialogue with those occupying the place and engage in a dynamic interchange of ideas and emotions.

A cross-comparative analysis of four pattern lists and the selection of the patterns common to all four led to the conception of a new list. The four lists chosen for this are the following:

1. Christopher Alexander, Sara Ishikawa, and Murray Silverstein's Pattern Language with 253 patterns, published in 1977.
2. Michael Brill's 13 patterns and design guidelines presented at the conference of the Council of Educators in Landscape Architecture in 1985.
3. Donlyn Lyndon and Charles Moore's Chambers for a Memory Palace with eight themes and six compositions, published in 1994.
4. Phillip Tabb's 16 Archetypal Patterns in Place Creation presented in Rome, Italy and self published in 1996.

The contents and nature of these four lists has been dwelt on in the past few chapters. Patterns which occurred in three or more lists became a part of the new list, and patterns which were strongly connected in their functions were put together in new categories leading to the creation of new patterns. Table 1, illustrates the derivation of the patterns in the new list from the existing ones.

	The Center	Axes & Directionality	Boundaries & Edges	Gravity	Levity	Forms as Memory Stimuli
Alexander et al.	Eccentric Nucleus Activity Centers		Neighborhood boundaries, Realm	Connection to the earth	High Places	Structure follows social spaces
Michael Brill	Making a location and a center	Making orientation and direction	Differentiating Boundaries	Triumph over the underworld	Reaching Upwards	
Moore & Lyndon	Markers that command	Axes that Reach	Borders that control	Water that pools and connects	Space that leaks up into the light	Shapes that remind, Images that motivate
Phillip Tabb	Acknowledging a center	Finding Direction	Bounding	The Descent	Reaching Upward	Sky-vault references, significant number
	The Nature Within	Materiality	Transitions & Thresholds	Spatial Hierarchy & Intimacy	Anthropomorphism	Ceremony & Acts of Personalization
Alexander et al.	Tree places Access to water Indoor sunlight	Soft tile and brick Canvas roof Warm colors	Main Entrance Entrance Transition	Intimacy Gradient Flow through rooms	Short Passages Alcoves Ornament	Things from your life
Michael Brill	Nature in our places, Light	Materials for Making	Passage	Order		Finishing a place
Moore & Lyndon	Gardens that civilize Light that plays		Openings that frame, Portals that bespeak	Rooms that define Order that comes and goes	Allies that inhabit Shapes that Remind	
Phillip Tabb	Nature Within Sacred Geometry	Materiality	Passage	Internal Order	Anthropomorphism	Ceremonial Order

Table 1. The derivation of the patterns for the new list from the existing lists.

The new list which includes 12 patterns is a combination of the strengths of the four existing pattern lists, and probably also the defects. For this very purpose the list is later tested for validity on three places and ultimately modified based on the results of the tests. On testing my new pattern list on the three special places chosen for this very purpose it would be possible to weed out any redundant patterns and lead to the discovery of new ones which can be added to the list.

THE NEW PATTERN LIST

The list is consists of the following patterns:

1. Center
2. Axes and Directionality
3. Bounding and Edges
4. Gravity
5. Levity
6. Forms as Memory Stimuli
7. The Nature Within
8. Materiality
9. Transitions and Thresholds
10. Spatial Hierarchy and Intimacy Gradient
11. Anthropomorphism
12. Ceremony and Acts of Personalization

The patterns are ordered to reflect the natural progression of growth that transpires during the transformation of a space into a place. It is the quintessential process by which the universe was created and matter, from the nothing and chaos of space.

THE PATTERNS AS ARCHETYPES

The 12 patterns contribute to the place in different ways, and embody energies that vary in nature and in effect. The most rudimentary and raw energy of the pattern is defined as the archetypal energy. It is this energy in conjunction with the context that moulds and directs the manifestation of the patterns.

1. Center: The center is the first step in marking space and creating a place. Imagine the vast, chaotic expanse of space, and then imagine a point in this vastness. Marking the point is the act of claiming a part of the space. Like a dot on two-dimensional paper, it is the reference point for all that is to come next. It is the navel of an embryo, the center of the human body and the source of nutrition and therefore, growth and sustenance. The center is not necessarily a “center” in the true geometric sense. It could be an activity center or an eccentric center, like exhibited in two of the three places the patterns are tested on later in the thesis. The eccentric centers are spatial centers which through their intent and function perform the duties of the center. The archetypal energies of the center are “**growth**” and “**unity**,” and the center as a pattern preserves its identity as long as it is the generator of growth. The center represents the beginning of all that is new.

2. Axes and Directionality: The point marks a place in the space but two points when joined create a line, therefore marking the axis of growth.

1. The axis defines the direction of the growth perpetuated by the center and by doing so begins to bring a modicum of order into the chaos of space.
2. It indicates the importance of specific spaces within the place.
3. It suggests a direction of movement, both physical and visual.

The archetypal energy of the axis is “**direction**.” The second step towards creating a place is an awareness of direction. An axis when connected to another or when stretched across space forms a plane. Up, down, top, bottom, left and right, vocabulary even a child in elementary school is familiar with are words that enable the fixing of a position, and the description of a place in space. They are the co-ordinates that like the address for a home, offer a special and unique address for the points that lie at their extremities. Axes mark the change of the one-dimensionality of point in space to two-dimensionality of a plane.

3. Bounding and Edges: Separation of what is new from what is existing, and the sacred from the profane is achieved through boundaries and edges. Separation of the

place from the immense space it was created in gives it identity, and a status different from that which lies around.

1. Boundaries and edges separate spaces thus creating what Alexander refers to as “realms,”⁵⁹ spatial hierarchy and changing intimacy levels.
2. They direct movement and enable the manipulation of scale.
3. They contain and control the extent activities, functions, and energies.
4. Boundaries and edges can be used to manipulate visual access.

The archetypal energy of boundaries and edges is “**containment**.” Boundaries and edges define the place by defining what lies within and what lies beyond. They mark the transformation of a place from two-dimensionality to three-dimensionality, the dimension of contained space.

4. Gravity: Gravitational force is one of the most omni-present forces on the earth. The pull of the earth is related to our connection with the mother earth or Gaia. The manifestation of gravity in a place is the link between what lies on the surface of the earth and what lies below. Brill also relates the pattern of gravity as a reference to, or access to, the chaos underground, which though revealed by the presence of the pattern will be controlled.⁶⁰

1. Gravity enhances the connection with the earth.
2. It performs the function of grounding the place.

The archetypal energies of gravity are therefore “**control**,” and “**grounding**.” It enables a strong connection with Gaia, and grounds the energies of the place for balance and harmony.

5. Levity: Levity is the balancing force of gravity. While gravity helps ground the energies of the place the function of levity is to enhance the connection with the sky, and the celestial bodies in an attempt to enhance the energies of the place. Similar to a lighting conductor, the vertical element attracts the lighting, and then transfers this energy into the ground, thus negating any excess harmful forces.

1. Levity enhances the connection with the sky or the heavens above.

⁵⁹ Alexander, Ishikawa and Silverstein, *A Pattern Language*.

⁶⁰ Brill, “Using the Place-Creation Myth to develop Design Guidelines for Sacred Space.”

2. The opposite of gravity, it gives inspiration and thus vertical thrust to the well grounded place.

The archetypal energies of levity are, “**inspiration**,” and “**lightness**.” While gravity is the anchor, levity is the mast of a ship. Gravity stabilizes and levity forges ahead into uncharted territories in search of an adventure.

6. Forms as Memory Stimuli: Through the first five patterns, the place has achieved three-dimensionality, has a reference point, direction of growth, is contained, and connected to the earth and the sky. The first five patterns are what I call the “germinal patterns.” The patterns which follow including that of Forms as Memory Stimuli are “developmental patterns.” These are the patterns that give character to the place. A form as memory stimuli is also referred to as “form language.” One of the most complex patterns, it can function in a number of different ways as perceived by the person experiencing the place. Forms in a place have the ability to stimulate emotions through remembrances and inspired creative thought. Memory and the ability to rekindle memories is one of the most important characteristics of a place. To be able to relate the place experienced with one’s own past, the knowledge of the history of the place or even just vivid imagination enhances the meaning of a place.

1. Forms can stimulate emotions through symbolism that is recognized by the collective unconscious (significant numbers, and resemblances like the connection of the form of a dome to the celestial sky).⁶¹

2. Form language can also stimulate memories based on recognition and connection with the personal unconscious or individual past memories.

Memorials as a place type have the ability to use this pattern to the maximum effect. The archetypal energies of this pattern are, “**suggestion**,” “**recognition**,” “**imagination**,” and “**recollection**.”

7. The Nature Within: Nature within as a pattern includes the presence of flora, fauna and the elements of air, water, fire, and earth. While gravity connects us to the

⁶¹ Tabb, “Sacred Place: The Presence of Archetypal Patterns in Place Creation.”

earth and levity to the sky, nature within connects the place to what is contained between the earth and the sky. This pattern can express itself in a number of different ways.

1. In the form of flora and fauna- vegetation inside the place, or visually accessible (order and use of geometry in design like the Mughal gardens, or controlled disorder like in the English gardens), and the presence of animals and birds.
2. In the form of the elements- air, water, earth, and fire (natural ventilation, water bodies, earthen bricks and rock outcroppings, and sunlight are some examples).
3. In the form of the geometry exhibited in nature.

The archetypal energy of the pattern is, “**encapsulation.**” The nature within a place in the form of the vegetation, fauna, and the elements is a microcosmic representation (encapsulation) of the rest of the world. It brings to the interior of a building, and inside the boundaries a form of the world that exists beyond.

8. Materiality: Materiality is what gives visual, textural, and tactile qualities to the forms of a place. Materials may vary in color, mass, density, feel, and function. Ceramic, wood, brick, concrete, bamboo, mud, and titanium, all differ from each other, and are therefore put to different uses. Traditionally, the more expensive and scarce materials were reserved for use in religious and ritualistic buildings. The Golden Temple in Amritsar, India is completely gilded in gold, while the Stonehenge in England is composed of stones that weighed up to 45 tones were bought to the site from its source about 18 miles away. Today, materiality has more to do with the expression of the material, the purity of this expression, and craftsmanship. The mosques in Djenne, Mali which are still in use are constructed with mud and wood framework. These materials are neither rare nor scarce in Djenne, but every year the people of this town get together for the arduous task of re-plastering the mud walls of these immense mosques after the rains. The materiality in this case exemplified in the purity of the representation of the material and the difficulty in maintenance. The archetypal energies of materiality are,

“**expression,**” “**manifestation,**” and “**indulgence**” (in the expense, difficulty of obtaining the material, craftsmanship, or maintenance).

9. Transitions and Thresholds: Transitions and thresholds perform the same function in a place as the amniotic fluid for the embryo in a womb. The amniotic fluid is contained in a protective sac around the embryo and is the medium that holds the embryo before the baby is born. It is a transitory fluid that allows for the smooth passage of the baby from the womb to the exterior world. In architecture transitions and thresholds in the form of passages, foyers, and doorways elevate the sense of entering a place thus emphasizing the special nature of the space to be encountered. Thresholds are the openings in the boundaries, which while allowing the boundary to contain the space also provide for access into the place. Transitory features set the stage for the spaces to be encountered by allowing for changes in scale, function, character, and cleansing before entering the sacred space from the profane. The archetypal energies represented by transitions and thresholds are “**metamorphosis,**” and “**renewal.**”

10. Spatial Hierarchy and Intimacy Gradient: Sequencing of spaces in terms of function and intent results in spatial hierarchy and intimacy gradient. Spaces when ordered to produce certain effects on experience differ in intimacy and their place in the spatial hierarchy. Varying spatial hierarchy and intimacy gradient are necessary for the provision of spaces that cater to a variety of functions. Public spaces for gathering with a large group, semi-public spaces for a smaller and probably more intimate group of people, and private spaces for an individual or two. This pattern is assisted by transitions and thresholds in maintaining the continuity of spaces, while allowing for a variety of spaces to co-exist thus avoiding monotony. The archetypal energies of this pattern are “**diversification,**” and “**ordering.**”

11. Anthropomorphism: The pattern which attributes human characteristics to inanimate objects is anthropomorphism. In architecture humanizing places through reference to the human body is referred to as anthropomorphism. Anthropomorphism like The Nature Within can be expressed in a number of ways:

1. The use of scales close to that of the scale of the human body.

2. Forms that resemble the human body or parts of the body (such as using windows and doors in the façade to resemble a face, or symmetry in form).
3. Symbolic representation of other facets of the body: the skeletal frame, tendons, muscles, cartilage, and ligaments in the structure or as ornamentation.
4. Theoretical translations like that of Filarete, who stated that buildings are like human beings: the mother being the architect, the father, the client and the final design, the child. He goes on to say that if the mother and the father do not know one another then it is impossible to deliver a completed design. Filarete here emphasizes the connection between the architect and the client for the completion of any design work by referring to the design as a child.⁶²

Often anthropomorphism is expressed to literal translation of the human body features into building plan or elevation or in the use of proportions like the Golden Mean. Moore and Lyndon call this pattern “allies that inhabit,” and include in its manifestation objects the size of people- furniture, statues, columns, and even chimneys- that become fellow occupants on a more intimate scale.⁶³ This pattern allows for the inclusion of the human element into the grand scheme of designing and making a place. The archetypal energy of anthropomorphism is, “**humanization.**”

12. Ceremony and Acts of Personalization: The culminating pattern of the set, ceremony and acts of personalization consecrate the place and make it one’s own. The ceremony is the event through which the consciousness becomes one with the spirit of the place, and the connection between the person and place is the strongest. Ceremony enables us to experience each of the patterns of the place and their energies simultaneously. Acts of personalization give the place the unique character that in part is a function of the people who occupy the place. Together ceremony and acts of personalization complete the transformation of a space into a sacred place. The archetypal energies manifested through this pattern are, “**sanctification,**” and “**kinship.**”

⁶² Todd G. Christopher, *Zoomorphic Architecture: The Carolina Coastal Museum*, http://scholar.lib.vt.edu/theses/available/etd-08272002-142617/unrestricted/zoomorphic_architecture.pdf (accessed 17 February 2006).

⁶³ Lyndon and Moore, *Chambers for a Memory Palace*.

CHAPTER VI
THE CENTER

I am at the Center of the World...

I am at the Post of the World...

- Kwakiutl Indians⁶⁴

Every culture in the world has some form of folklore or legend that alludes to finding a center: the selection of a point in space which in itself is an act of creation from the homogenous chaos. The purpose of the center is fulfilled through its inherent ability to bring into manifestation a reference point from which unfolds *orientation*. From the center originates the rest. It is symbolic of marking a place in the immense expanse of space. It is also symbolic of the beginning and of the first steps towards the act of “being” and constructing an identity.

In different parts of the world, the center has played a significant role in religious architecture. Two important concepts that emerge from the significance of the connection between the sacred and the center are (a) the *imago mundi*, and (b) the *axis mundi*. *Imago mundi* is the “image of the world” and *axis mundi* the “axis of the world,” a place where the three regions of the world- heaven, earth, and the underworld-were joined. The representation of the cosmos on the earth and the creation of the axis that connects this image to that which is real are themes prevalent in almost all cultures of the world though it plays a more explicit role among the indigenous peoples. The first logical step towards understanding the universe and what is beyond is establishing a connection. The *imago mundi* and the *axis mundi* provided the early man with a method to do so and in doing so sanctified the place that had been chosen as such.

Many cultures consider a hill or a mountain to be the *axis mundi*. Angkor Wat (12th century) in Cambodia was designed to embody the Mount Meru, the mountains encircling it and the cosmic seas that surrounded it (see Figure 1). Meru, in Hindu

⁶⁴ Eliade, *The Sacred and the Profane*, 36.

The Kwakiutl Indians were once, one of the major tribes of Northwest Coast and today occupy small parts of N. Vancouver Island and the adjacent mainland of British Columbia, Canada. Eliade in his book mentions one of their initiation chants as a method of representing their awareness and need for the creation and connection of the human body with the transcendental.

(which was the adopted religion of the Khmer civilization) and Buddhist mythology is a golden mountain which stands in the center of the universe and is the axis of the world and the abode of the gods. The *sikharas*,⁶⁵ rising towers which crown the most sacred part of Hindu temples, the “sanctum sanctorum” represent Meru, in form and symbology. Mount Olympus for the Greeks, Mount Gerizim for the Samaritans, and Mount Fuji for the Japanese are a few other examples of mountains playing a significant role in being and defining the world axis. The “act of manifestation of the sacred,” called *hierophany* by Eliade is apparent in the examples above where the sacred manifests itself in the mountain or the hill in the form of a vertical element which symbolically connects the earth below to the heaven above.

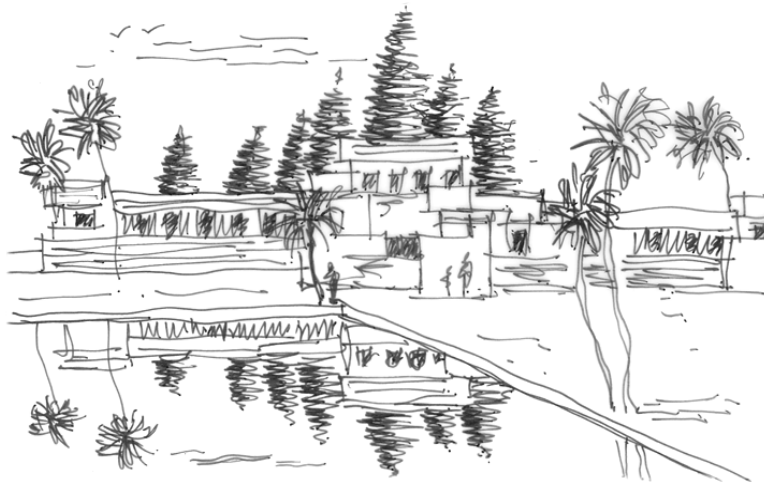


Figure 1. Angkor Wat in Cambodia and its spires. The tallest one represents Mount Meru (sketch by the author).

Eliade in his book describes the first of three most important cosmological images and religious beliefs as: (a) holy sites and sanctuaries are believed to be situated at the center of the world. The other two images and beliefs are dealt with in later

⁶⁵ In North India where the Indo-Aryan style of temple design dominates, the *sikharas* are the most prominent and visible part of the temple. In South India where the Dravidian (pre Indo-Aryan) style of temple design dominates, the *gopuram* (gateways to the temple precinct) is the most prominent part of the temple.

chapters. In a more secular context, Kevin Lynch calls his center a “node,” which is a point or strategic spot with extra focus, or extra concentration of city features.⁶⁶ Both, in the need to place their sacred places at the center of the world and in the need to include the pattern of center in their secular places, humans are fixing a point or a place from where all other things originate and unfold.

The Muslims believe that the most sacred place on earth is the Ka’abah at Mecca because the “pole star bears witness that it faces the center of the earth.” The Iranians believe that their land (*Airyana Vaejah*)⁶⁷ is the center and the heart of the world. Judaism held that Jerusalem was at the center of the world. While references to special places as being at the heart (a major functional center of the body) of the world are common, references to places being at the navel (the geometric center of the body) of the earth are also equally prevalent. The rock on which the Temple of Jerusalem was built is held to be the “navel of the earth.” The ancient Greeks had several sites that were considered places of the omphalos stone, the most famous of which is the oracle at Delphi, while also maintaining a belief in Mount Olympus as the abode of the gods.



Figure 2. The Piazza in front of St. Peter's in Vatican City (photograph by the author).

⁶⁶ Lynch, *The Image of the City*.

⁶⁷ The land of the Airyas is placed in the Avesta in eastern Iran, somewhere between Sogdia and Khwarezmia. Based on the Pahlavi text of the scripture in the Zend Avesta Zarathustra (Zoroaster) was born in this land.

The center as a design pattern could be physical or perceived, geometric or functional. A place with a strong spatial center and geometric sub-centers is the Piazza San Pietro. The spatial center of the Piazza San Pietro in Rome is marked by an obelisk from Egypt that is almost 84 feet tall. Its geometric foci are marked by two fountains designed by Carlo Maderno and Carlo Fontana and placed in the piazza in the 17th century (see Figure 2). Not only does the obelisk form an important component of the axis that originates from St.Peter’s Basilica, it also marks the center of the catholic world and the power that it wields.

An example of a center that is both physical and perceived in secular architecture is the “hearth” in the residences designed by Frank Lloyd Wright. Wright borrowed the concept of the *tokonama*, a permanent element in the home and the focus of contemplation and ceremony from Japan. The tokonama manifests itself in his designs as the hearth. It is physical in its presence, and perceived in the light and the warmth and maybe even the aroma that it spreads around the house. The design of the house is arranged around this hearth, which serves a unifying feature, bringing together the family in an act of ceremony.



Figure 3. People gathered around the Bethesda fountain in Central Park (photograph courtesy chessninja.com).

An example of a center at a much larger scale is that of Central Park in New York: a green expanse of land in the middle of high rise buildings, streets on a grid and the hustle and bustle of daily life. Stretching fifty one blocks and covering an area of about 840 acres, Central park, according to the Central Park Conservancy is “a place where all of us can alter the frenetic rhythms that make New York the most exciting city in the world. We can sit on a bench and read the paper, toss a ball with friends, jog, cycle, or play with our children.”⁶⁸ The park is a place associated with a number of activities like relaxation, family bonding, exercising, meditation, and recreation. Central Park has a very special place in the hearts of the people of New York and the hearts of those who visit it. The presence of the park is both physical and perceived as in the case of Wright’s hearth. It is perceived in the changing colors of foliage with the seasons, the sound of the horse drawn carriage against the tarred street, the street artists selling their wares, the laughter of kids and the sound of their parents calling after them (see Figure 3).⁶⁹

In all of the examples above, the center (spatial or perceived, geometric or functional) as a pattern plays an important role in place-making and in giving meaning to the place. Though it performs different functions, its archetypal energies of unity (gathering people together and promoting interaction), and of growth (in acting a reference point) are exemplified through its manifestation in the place.

⁶⁸ Central Park Conservancy, “The Official Website for Central Park,” *City of New York Parks and Recreation*, <http://www.centralparknyc.org/centralparkhistory/cp-history-150yrs> (accessed 11 November 2005).

⁶⁹ People gathered around the Bethesda fountain in Central Park [online image], *ChessNinja.com*, <http://www.chessninja.com/images/paper04-cpark01-800x600.jpg> (accessed 28 December 2005).

CHAPTER VII
AXES AND DIRECTIONALITY

*The lord brought into being the beginnings splendidly,
The lord, whose decisions cannot be changed,
Enlil, to make the seed of the kalam (Sumer) sprout from the earth/the netherworld,
To separate earth from heaven he hastened,
To make light shine in Uzunua,
He bound the pillar (of Heaven and earth) in Duranki.*

- The Song of the Pickaxe, Babylonian Manuscript (ca. 2500B.C)⁷⁰

Duranki, the “link between Heaven and Earth,” the name applied to a number of Babylonian sanctuaries, is a Sumerian word symbolic of directionality. In forming a “link” and therefore an axis, the Babylonian sanctuaries represent in the physicality of their temples on earth, the spirituality of the cosmos. The separation of the earth from the heaven by God himself (as told in a number of creation myths), ironically, is an action that man had been trying to mitigate since the beginning of any kind of cosmogenic perception. One way in which this mitigation has been achieved is through the connection of the earth with the sky with a vertical axis.

Eliade describes the latter two of three most important cosmological images and religious beliefs as: (b) temples are replicas of the cosmic mountain and hence constitute the pre-eminent “link” between earth and heaven; (c) the foundations of temples descend deep into the lower regions. Eliade here illustrates the significance of the axis and that of direction through two simple words- “link” and “descend.” While the religious man sought to live as near as possible to the center of the world he also tried through his physical world to metaphorically live as near as possible to the Heavens above.

Most ancient religions are in agreement on the belief that the axis of the earth lies at the center of the earth. While the axis is the archetype of a number of ectypal forms like the bridge, rope, tree, vine, ladder, pillar or pole, it is thought that the concept of the

⁷⁰ Richard J. Clifford, “Creation Accounts in the Ancient Near East and in the Bible,” in the *Catholic Biblical Quarterly Monograph Series* (Washington D.C: Catholic Biblical Association of America, 1994), 34-35.

axis mundi spread throughout Eurasia, most commonly in the form of the “world tree.” The *Yggdrasil* in Norse mythology and the Tree of Knowledge in the Garden of Eden are examples of the axis mundi being represented in the form of trees. The ladder between Heaven and Earth set up at the center of the world – like the ladder seen by Jacob in his dream, which reached from the Earth to the Heaven above, to his God. “And Behold! The angels of God were ascending and descending on it.”⁷¹ The pillar, as the axis is one of the other common forms of reference to the axis mundi. The purpose of axes, be it in the form of a tree, or a pillar, or a pole, is not just to link the earth to the heavens, but they also function as important elements that enable orientation and provide direction of growth and movement.

Alignment and orientation are extremely significant parts of human life and are unconsciously present in all aspects of everyday living. The human body in standing at a point aligns the rest of the world around it. The human brain in doing so spontaneously recognizes a “front,” a “back,” a “top,” a “bottom,” and two or more “sides.” Since birth a child is taught to see objects in the world as “planes,” “surfaces,” and “edges.” When babies are brought into this world, they come out of their mothers womb, head first (the “right” way), or feet first (the “wrong” way).

In trying to create a sacred place, the religious man sought the power of celestial orientation, be it the directions of east, west, north and south (which evolved from the path of the Sun through the sky), and stars and constellations or that of celestial phenomenon like solstices, equinoxes and the precession of equinox.⁷² Our places of worship especially are designed to be aligned in very specific ways depending on the pertinent religious beliefs. Churches are traditionally aligned with their longer side East-West, where the altar always falls on the East end. The *mihrab*⁷³ in a mosque faces Mecca, and therefore changes orientation based on their geographic positioning on the

⁷¹ Mircea Eliade, *Images and Symbols: Studies in Religious Symbolism* (London UK: Harvill Press, 1969).

⁷² Precession of equinoxes is the motion of the equinoxes along the ecliptic (the plane of the Earth's orbit) caused by the cyclic wobbling of the Earth's axis of rotation. This occurs due to the torque applied on it by a combination of the gravitational tidal forces and the Earth's non-spherical shape.

⁷³ A *mihrab* is usually a niche set into the middle of the *qibla* wall of a building in order to indicate the direction of Mecca.

earth. A number of the megalithic monuments like the Stonehenge and Avebury stone circle were constructed so as to predict major celestial events like solstices and equinoxes. It is believed that the Great Pyramids of Giza are aligned exactly in the same alignment as that of the three belt stars of the constellation Orion.

Direction in all dimensions, even time is an attribute of orientation, while orientation is an attribute of feeling one with the world. Establishing one's place in the world requires an origin, to begin from and a direction or axes, a path to follow. Moore and Lyndon believe that while axes are mental constructs, paths are the physical constructs, places which your feet actually true, and believe that in the most "interesting" places, axes and paths interweave, with the axis allowing the mind to connect and the paths allowing the feet to explore. I believe that paths are but one and the most often used manifestation of axes, and that axes can be both, mental and physical constructs that enable us to connect with buildings, spaces, and most importantly places. An axis enables the separation of space, and therefore breaks the homogeneity of space. This break in the homogeneity of space is a primordial experience that allows man to experience the "really existing," and "real" space in the formless expanse surrounding it.⁷⁴

Axes and directionality at the typical level have been used in architecture with the maximum effect, both in the past and in the present. Paths are transitional features that allow us to move from the homogeneity to the heterogeneity while experiencing the space as a place. Paths can be direct or meandering, and closed or open, stopping with a period at the end of a sentence, or a comma in between segments of a sentence. The Taj Mahal in Agra, India is an example of a closed and direct path. A straight path flanked by the Mughal gardens and water bodies leads the visitor from the entrance gateway to the marble platform of the Taj Mahal. A direct sightline and a direct course of motion towards the building are established, which allows the visitor to view the perfectly symmetrical building from the center, thus maintaining the equilibrium of the perspective. The beauty of the Taj Mahal is experienced in the very Islamic geometrical

⁷⁴ Eliade, *The Sacred and the Profane*.

terms of its design and construction. The Salk Institute designed by Louis Kahn is an example of an open and direct path. The wide space between two rows of the Institute building is spatially divided into two halves by the narrow stream of water running down the middle. This stream of water which just drops off at the edge connects the Institute to the blue sea and the sky beyond.

Since, one of the main functions of an axis is to provide orientation, the geometry of a space and its elements can manifest itself as axes. The hemispherical stupas in Sanchi, India, and the Jewish Museum in Berlin are examples of geometry of the space dictating the axes and therefore the direction of movement both visual and physical. The stupa which was originally a mound of earth, later faced with brick or stone for permanence, derives its directionality from the circle and the vertical axis passing through the center of this circle. Visitors to this sacred structure must circumscribe the perimeter of the stupa, which in Hindu and Buddhist religion is symbolic of the circle of life.



Figure 4. The Jewish Museum in Berlin. Note the zig-zagging geometry of the spaces (photographs by the author).

The Jewish Museum designed by Daniel Libeskind, is a zigzagging structure laid along three main axes. The three axes represent three different wings of the museum and provide spaces for three separate groups of exhibits pertaining to the life of Jews in Germany, Austria, Poland, and Czechoslovakia, during World War II (see Figure 4). The zigzagging geometry thus allows for the division of space into three axes, the *axis of continuity*, the *axis of exile*, and the *axis of holocaust* all of which lead to a different conclusion, both physically and metaphorically. While axes are a tool for orientation and in providing direction, they have to be designed and implemented appropriately to serve this function. The Jewish Museum though abounding in meaning and emotionally charged history has been criticized as being confusing to traverse because of the three intersecting axes and the absence of any reference points for wayfinding.

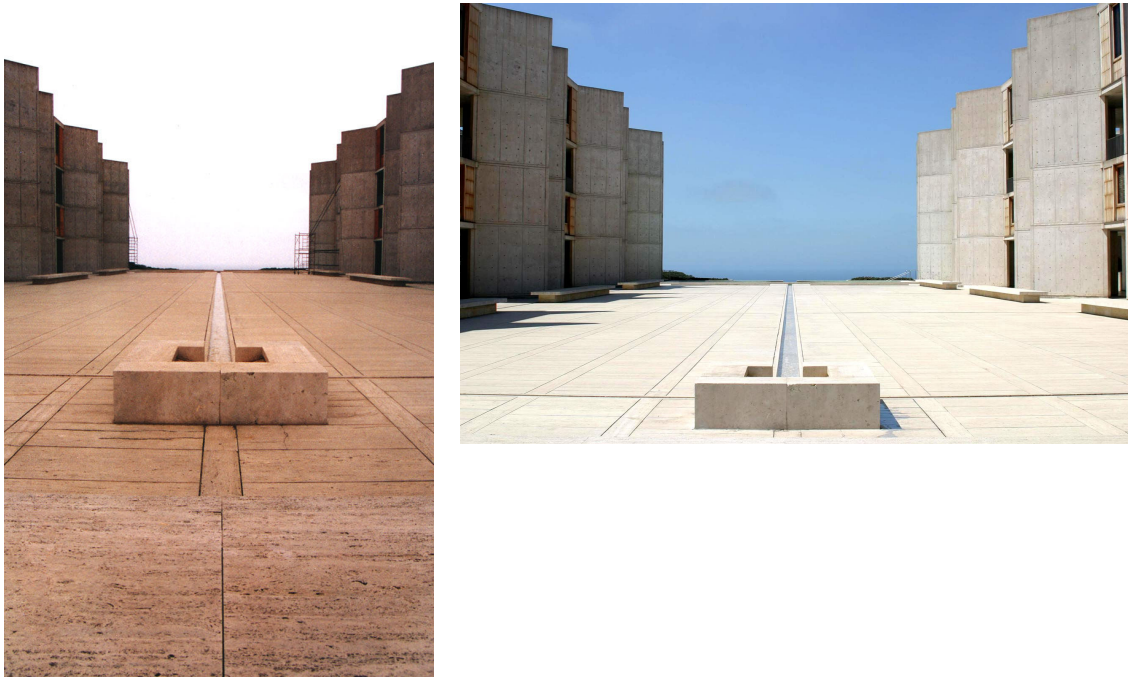


Figure 5. The Salk Institute designed by Louis Kahn (photographs courtesy Perch).

Similar to the center, the axis can be spatial or perceived. A powerful example of an axis that is both spatial and perceived is seen in the Salk Institute designed by Louis Kahn in La Jolla, California. One of the most photographed views of Kahn's buildings, the image shows a series of interconnected buildings running parallel to each other and enclosing a linear plaza in the middle. A thin water channel runs in the middle of this plaza and runs all the way to the end where it drops from view to reveal the blue sea beyond. Axis here is molded by the two sets of buildings that lie parallel to each other, while a very strong but subtle and perceived axis is created by the water channel that seems to connect the space to the blue sea and the sky at the horizon. Both these elements direct you from one end of the plaza towards the other end, which without the strong pull of the axes would have remained unexplored, and untread (see Figure 5).⁷⁵

Sequence of framed views, lighting patterns, landscape layout, water bodies, and celestial mapping are all different ways of creating axes and therefore expressing the directionality of a space. Axes create polarity from the unity of center, and therefore represent the integral dualism that is present in all that exists in this world. But they also provide order by suggesting a direction of growth once the point of reference has been established.

⁷⁵ The Salk Institute designed by Louis Kahn [online image], *Perch*, <http://www.perch.com/images/salk.jpg> (accessed 06 January 2006).

CHAPTER VIII

BOUNDING AND EDGES

*The distinctive quality of any man-made place is enclosure,
And its character and spatial properties are determined by how it is enclosed.*
- Christian Norberg-Schulz⁷⁶

An enclosure is a distinct area separated from the surroundings by means of a boundary or an edge. A boundary or an edge serves the purpose of defining an area in a heterogeneity that is qualitatively different from the rest. Kevin Lynch defines edges as one of the unique elements that enable people to create mental maps of a city: an aspect of “place legibility.”⁷⁷ Brill in describing bounding as one of his design guidelines believes that boundaries separate the domains of the cosmos from the chaos outside.⁷⁸ According to Tabb, bounding defines extent, and therefore it defines the limitations on movement across the space—the archetypal energy of bounding being *containment*.⁷⁹

Boundaries and edges are different from paths which are a device of providing direction and creating an axis. A boundary helps delineate a meaningful space, a type of which could be a path. In ancient Greek, *temenos* meant “a sacred precinct.” Jung noted that when the patients he was studying were in great distress, the most common imagery that emerged from their dreams and in their artwork was circular in nature. Typically, this imagery had a center, orientation in four directions and most pertinently a circumference that formed an enclosed space. He also recognized that this imagery reflected the Greek *temenos*. This sacred precinct contained the temple with a monumental cult image of the deity, an outdoor altar, statues and votive offerings to the gods, and often features of landscape such as sacred trees or springs. The Greek *temenos* like the Mesopotamian *temenos*, a raised rectangular platform in the center of the city

⁷⁶ Norberg-Schulz, *Genius Loci: Towards a Phenomenology of Architecture*.

⁷⁷ Lynch, *The Image of the City*.

⁷⁸ Brill, “Using the Place-Creation Myth to develop Design Guidelines for Sacred Space.”

⁷⁹ Tabb, “Sacred Place: The Presence of Archetypal Patterns in Place Creation.”

that held the most important buildings, functions by sanctifying the area contained within it (see Figure 6).⁸⁰

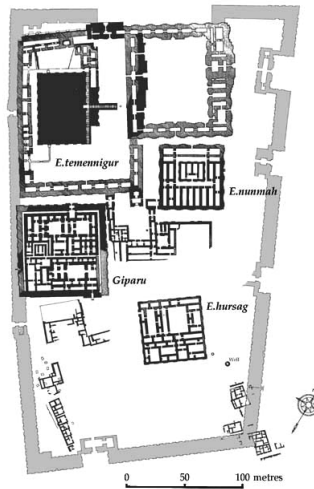


Figure 6. The Mesopotamian Temenos (image courtesy Odyssey Adventures).

Marjorie Shostak in her ethnographic studies of the !Kung (! Represents a clicking sound in the San language) San Women in the Kalahari describes her experience of one of a number of trance dances. “In the center of the circle, a fire flames as it is stoked and whipped by human breath, soon to ebb again into glowing coals....So forcefully do they dance that a deep circle forms in the sand beneath them, enclosing us, separating us from the profane, protecting us from the unknown.”⁸¹ While in everyday places boundaries and edges help protect from the unknown, in places of religious nature these very same patterns help exalt the unknown.

Architects, designers, and authors have interpreted this pattern in a number of different ways. Moore and Lyndon describe borders as that which distinguish the inside from the outside.⁸² Boundaries and edges can manifest themselves in a number of ways

⁸⁰ The Mesopotamian Temenos [online image], *Odyssey Adventures*, http://www.odysseyadventures.ca/articles/ur%20of%20the%20chaldees/temenos_groundplan.jpg (accessed 06 January 2006).

⁸¹ Marjorie Shostak, *Return to Nisa* (Cambridge MA: Harvard University Press, 2000).

⁸² Lyndon and Moore, *Chambers for a Memory Palace*.

and the act of containment can take various forms. They can be simple or complex, tangible or intangible. The degree of enclosure can be defined by bounding on any and many planes. The floor, the walls, the roof, quantitatively and qualitatively, also determines the spatial direction and “domain” or territory. Norberg-Schulz in analyzing the meaning and origin of words like “dwelling,” “gathering,” “building,” and “habitat,” comes to the conclusion that dwelling means to gather the world as a concrete building or “thing,” and that the archetypal act of building is the *Umfriedung* or enclosure.⁸³ Similarly, Heidegger uses linguistic relationships to show that dwelling means to be “at peace” in a protected place, which is assisted by an enclosure in the form of boundaries and edges. Guenther Nitschke in his book *Japanese Gardens* says that the square enclosed as a garden derived from the Avestan word “pairi-daeza,” literally meaning an enclosure surrounded by walls.⁸⁴ In the Achaemenian times, a garden, orchard or park was referred to as a “pairi-daeza.” Priceless ancient Iranian paintings depict closely the Avestan word, later corrupted to the word “paradise.” Therefore the environment encapsulated by the early Persian gardens was later synonymous with the word “paradise,” associated today with delight, rapture, and heaven. And, one important aspect of this paradise on earth was “enclosure.”

Boundaries and edges manifest themselves in a number of ways depending on the context and are based on factors like the compositional whole they belong to, the age of their creation, the constraints, the purpose, and the designer. As in the case of any other pattern, boundaries might vary in scale from that of a curb, to that of a hedge, to that of the Great Wall of China. Even though varied in scale, boundaries make important distinctions between territory, meaning, responsibility, and value. While a six-inch curb can exert control over vehicles, pedestrians and surface drainage, the Great Wall of China, not only exerts control over the citizens of its empire, but is also a symbol of its power and wealth against those outside its empire. Both these boundaries though are important to the functioning of their specific micro and macrocosms.

⁸³ Norberg-Schulz, *Genius Loci*.

⁸⁴ Guenther Nitschke, *Japanese Gardens* (Los Angeles CA: Taschen Publications, 2002).

The edge of a sidewalk demarcates the border between public and private realms, and in doing so assigns responsibility and access to specific organizations, institutions, and individuals. Property lines, on paper, and very often physically separated by compound walls or picket fences attribute value and extent of possession. Even though walls are the most common method of enclosing, especially where a visible boundary is required, series of pillars or trees could provide a similar effect. In most churches and cathedrals, the aisles and the naves are divided by the rhythmic composition of pillars, separate at the lower levels but unified above by beams, arches, and the roof.

Platforms and stairs form very strong boundaries and edges. An example is the Metropolitan Museum in New York opened to the public in 1818. This classical building, originally designed by Calvert Vaux and Jacob Wrey Mould was later expanded upon by a number of architects including Richard Morris Hunt and McKim, Mead, and White. The building is raised above the ground, set back from the busy Fifth Avenue, and the hustle and bustle of the pedestrians and hawkers on the sidewalk by a series of stairs. These stairs run almost the whole length of the museum building which occupies a whole city block. Not only do the flights of stairs create a boundary between the routine activities of the street, and the unique collection on the inside, but they also

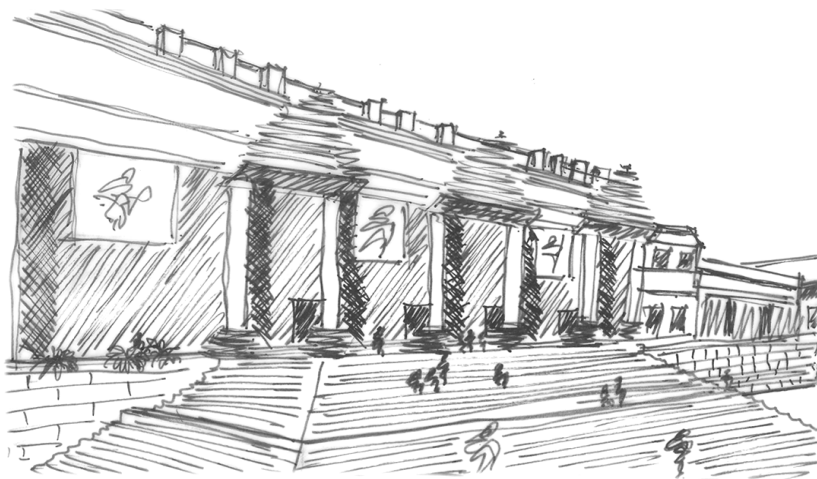


Figure 7. The stairs leading up to the raised platform of the Metropolitan Museum in New York (sketch by the author).

prominently raise the building on a pedestal, making it a landmark feature in this large city. The stairs serve as a seating area for those resting, and those waiting. It projects itself as a marker and therefore as a meeting place from where individuals and groups of people can proceed to enjoy the museum or the other sights and activities the city has to offer (see Figure 7).

The Vietnam War Memorial in Washington D.C designed by Maya Lin is another articulate example of edge control. The black granite wall engraved with the names of the 57,000 soldiers who died in the Vietnam War forms one edge of the path. The other edge is formed by the earth itself which has been cut into, forming an angled path that slopes down to the middle, changes direction and then slopes back up to ground level. A visitor to the memorial walks along the grass towards the path, and is slowly immersed into the bowels of the earth. After gradually taking in the names of those who lost their lives in the war, the visitor is then deposited back up onto the surface in one fluid act of ceremony and respect. The edge formed by the earth and the granite walls are therefore secondary edges that prevent the diversion of the mind away from the intention of the memorial to what lies around it. At the same time it reminds the sub-conscious of the never healing scar in the earth, metaphoric of the lives lost in the war and the pain caused. The simplicity of this monument is ironically a contrast to the complexity of the ideas, and emotions it expresses.

Boundaries and edges contain the space and the energies of the place. They allow the place to be charged with a force that separates it from what lies around it. In religious architecture boundaries and edges performed the function of separating the sacred from the profane, and in secular sacred architecture they separate what is special from that which is mundane.

CHAPTER IX

GRAVITY

*Look at the earth crowded with growth, new and old bursting from their strong roots
Hidden in the silent, live ground, each seed according to its own kind,
Each one knowing what to do, each one demanding its own rights on the earth,
So, artist, you too from the deeps of your soul, down among dark and silence,
Let your roots creep forth, gaining strength.*

- Emily Carr⁸⁵

Man reaches out to the heavens through his spires, sikharas, minarets, and domes. The earth reaches out to man through “gravity.” Isaac Newton in his masterwork *Philosophiae Naturalis Principia Mathematica* (1687) described gravity as an ever-present force, a tug that all objects exert on nearby objects of mass.⁸⁶ Phillip Tabb calls this pattern, “the descent.” He believes that the descent is related to the deep psyche, the instinctual, and the primitive. At the typical level the descent is expressed by a building foundation or a well.⁸⁷ Michael Brill at an address given at the University of Illinois in Urbana, referred to the very same concept as “triumph over the underworld.” Place-making, he says “conquers chaos,” and therefore the watery chaos of the underworld shall be controlled by the energy of this pattern. He cites examples in the typical realm like, water in a fountain, shallow still pool, or an ordered garden, bordered and controlled.⁸⁸ Gravity is the thrust against levity. The cosmic tree mentioned in an earlier chapter while symbolizing an axis also symbolizes duality and the opposing forces of gravity and levity, the pull of the earth and of the heavens, through the symbolism of its roots and branches.

While gravity is related to the earth, it is also strongly associated with fertility. It is the antithesis of the phallic symbol- that of the womb. It is the “receptacle” that receives. Gravity is the pull that emerges to balance levity- the thrust. This process is

⁸⁵ Emily Carr, *The Complete Writings of Emily Carr* (Seattle: University of Washington Press, 1997), 112.

⁸⁶ Isaac Newton, *Sir Isaac Newton's: Mathematical Principles of Natural Philosophy and his System of the World*, Translated by Andrew Motte, (Berkeley CA: University of California Press, 1962).

⁸⁷ Tabb, “Sacred Place: The Presence of Archetypal Patterns in Place Creation.”

⁸⁸ Brill, “Using the Place-Creation Myth to develop Design Guidelines for Sacred Space.”

demonstrated in the most simple and essential of phenomena- that of germination. Seed germination is defined as the emergence of the “radicle” through the seed coat. The radicle is the part of the embryo which emerges first. Once outside it develops into a main root, producing root hairs and secondary roots. The first step towards a new seedling is established on gaining a foothold in the earth. The significance of the umbilical cord which provides the fetus with oxygen and nourishment is exemplified in most cultures when referring to the most sacred places as the “navel of the Earth”, or the “omphalos.” The umbilical cord, similar to the roots provides the sustenance required for the creation and protection of a new life.

Alexander’s Pattern No.168, “connection to the earth” in an attempt to resolve the conflict of isolation from the nature says, “Connect the building to the earth around it by building a series of paths and terraces and steps around the edge. Place them deliberately to make the boundary ambiguous- so that it is impossible to say exactly where the building stops and earth begins.”⁸⁹ It is very obvious here that even though Brill and Alexander are referring to the same concept, the manner in which they deal with the issue is completely different. While, Brill emphasizes creating “order” to contain the inherent chaos, Alexander stresses a seamless transition between the structure and the nature, so as to “unify” the separate.

Moore, Lyndon and Tabb, adopt a solution that is somewhat of the median between that of Brill and Alexander. Moore and Lyndon refer to the typical manifestation of gravity as, “platforms that separate,” “slopes that join,” “stairs that climb and pause,” “borders that control,” and “water that pools and connects.” The first three themes belong to one single memory chamber and the latter two themes belong to two separate memory chambers. According to Moore and Lyndon, platforms and ramps make us more aware of our presence as we travel up or down, and pause for breath in between.⁹⁰

One of the most beautiful examples of gravity is the Campo (which literally means “field”) in the hill-town of Siena in Italy. The Campo is the main piazza of the medieval town, and tightly hugs to itself some of the most important buildings of the

⁸⁹ Alexander, Ishikawa and Silverstein, *A Pattern Language*, 201.

⁹⁰ Lyndon and Moore, *Chambers for a Memory Palace*, 53.

town. The campo is shaped like a gently sloping half bowl, dipping from a bevy of Italian restaurants at one end towards the Palazzo Pubblico and the Torre del Mangia at the other. On ordinary days this great bowl of sienna-toned brick is an informal amphitheatre and area of respite to the citizens of the town and the tourists. A casual observer would see a rich variety of ongoing activities crammed into this small open space surrounded by the medieval buildings-children playing, parents relaxing on the paved ground, restaurateurs trying to draw in customers, shoppers criss-crossing across the campo, lovers strolling in the afternoon sun, tourists sunbathing in their scanty suits, and pigeons drinking water from the fountain. Twice a year the tables spilling on to the campo are cleared and its outer ring layered with sand for the semi-annual *Palio*, a four minute horse race that attracts visitors from all over the world (see Figure 8).



Figure 8. The Campo in Siena and the Torre del Mangia (photographs by the author).

A modern day example is the Brion-Vega Family Cemetery on the outskirts of Vicenza in Italy, designed by Carlo Scarpa. Scarpa had the shorter end of an L shaped plot to begin with, the longer end being occupied by the community cemetery. He

designed a beautiful composition consisting of a closed meditation room, garden, open meditation pavilion, and pools of water. The tombs, also designed by Scarpa are built low in the ground roofed by an arched bridge in concrete. At the other end, separated by the green grass of the lawn is a still pool of water with a concrete horizontal cross in the centre. The two ends symbolize the “triumph over the underworld,” and death coexisting with life, by humans and by nature through a hidden reality that complements and completes our consciousness. A flowing channel of water that leads from the one end to the other into the pool further elevates the control of the flow by leading into a still rectangular pool. Scarpa himself describing his influences and motivation says, “I wanted to show some ways in which you could approach death in a social and civic way; and further what meaning there was in death, in the ephemerality of life.”⁹¹

As mentioned above, while gravity refers to order, it also refers to fertility, and the connection with the earth on which the building is built, and the gardens are laid. Transitory elements are therefore an important part of the descent into the earth. The practice of placing tombs of certain saints at the basement level below the altar in a cathedral or church is one such example. A believer has to descend a flight of stairs leading from the main level to the warmth of the earth’s womb below to be able to pay respect to the saint. The quality of the transitory elements is extremely important and very difficult to define. Terraces in designed gardens, and design of the building to compliment the site it is placed on can take a number of forms.

The Kauffman house popularly known as Falling Waters in Bear Run, Pennsylvania designed by Frank Lloyd Wright is a residence that holds within itself elements of gravity, both in its relation to its site, but also in its creation of order in nature, in a very subtle but at the same time striking manner. The residence originally built for the Kauffmans is located on a hill and is precariously poised over a waterfall. Its layout in various levels, enhanced by walkways, stairs, cantilevered rooflines, and

⁹¹ Thomas Barrie, *Spiritual Path, Sacred Place: Myth, Ritual, and Meaning in Architecture*, (Boston: Shambhala Publications, Inc., 1996), 233.

materials used provide for a union with the site, the nature, and the earth that is commendable.

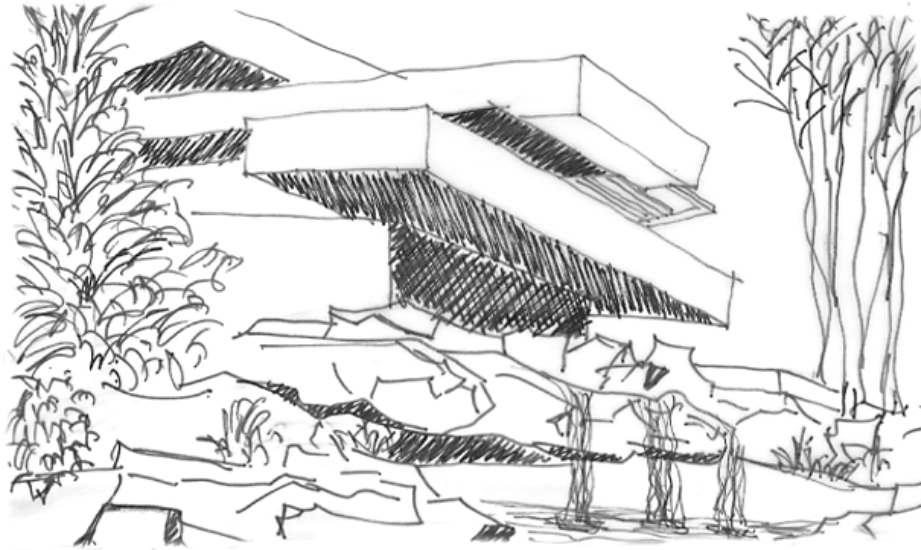


Figure 9. The Kauffman House designed by Frank Lloyd Wright, partly cantilevered over a waterfall (sketch by the author).

In relating the house to the site without overpowering the beauty of nature, and without allowing nature to underestimate the beauty of the house, Wright creates a beautiful and sublime balance between that which is man-made and that which is natural and wild (see Figure 9).

Gravity is a grounding energy. At an archetypal level it enables stability through the connection it maintains with the earth. In all of the examples above, through its manifestation it reminds us of our strong bond with the earth- the earth we were born from and the earth we meld into on dying (ashes to ashes, dust to dust). It also brings us closer to the most potent symbol of fertility-the mother earth, and through its manifestation expresses the significance of new life, and continuity of the cycle of life.

CHAPTER X

LEVITY

If the material world is essentially about “pulling down”,

Then the human world,

Particularly as understood in the inspiring philosophy and ideals of sacred tradition,

Is essentially about “lifting up.”

- Keith Critchlow⁹²

Phillip Tabb believes that verticality is a path from the world below to the world above.⁹³ And, from what we know of most important religions and cultures of the world, the people of these religions and cultures believe the same, and aspire towards this goal of getting closer to the heavens. This concept stems directly from that of the axes and directionality, and from the realization that while there exists gravity (the pull towards the earth), there also exists an equal and opposing force called “levity” (the pull towards the heavens).

Gravity and Levity form the opposite ends of the vertical axis and in their manifestation describe directionality. While, gravity is “grounding” energy, levity is representative of an aspiration and an “inspirational” energy. And, whereas gravity is symbolic of the female fertility (mother earth), levity, similar to a phallus is symbolic of the male virility. Moore and Lyndon cover this pattern in their memory chamber titled “Markers that Command/Allies that Inhabit”. In calling these vertical elements of levity, “markers”, they reveal their view of these elements as landmarks that advertise priorities and territorial claims by an institution, owner, or an idea in a larger geography. They lay claim to a space, and make it memorable.⁹⁴ Brill calls his pattern “Reaching Upwards,” and according to him, to reach higher and therefore to come closer to the divine required verticality in places. He believes that the sacred mountain (the pyramid and the ziggurat) is such a place, and its summit is the center of centers. He goes on to say that in the case of an inability to erect a sacred mountain (which in today’s contemporary society is not

⁹² Tabb, “Sacred Place: The Presence of Archetypal Patterns in Place Creation.”

⁹³ Ibid.

⁹⁴ Lyndon and Moore, *Chambers for a Memory Palace*.

feasible for most common people) we could still have verticality in our built places: through a place fully open to the sky; soaring walled space; and column(s) reaching for the sky.⁹⁵ The Stonehenge in Britain, San Pietro in the Vatican city, and the Sagrada Familia in Spain are places that exhibit verticality in such order. They belong to different times and exist in different parts of the world, but they all serve the purpose of bringing man closer to God in different ways.

Towers were an indispensable and essential part of medieval Italian towns, more for reasons of security and defense than anything else. One deviant from the rule is the town of San Gimignano. San Gimignano in the 13th century lay on a pilgrimage route and was greatly traversed through. Its powerful families as a symbol of their wealth and authority raised seventy two towers, each taller and larger than the last. Even though only fourteen of these magnificent towers survive today, it gives the town a unique character and skyline different from any other city in Italy (see Figure 10). New York, Chicago and all major cities of America are contemporary and larger counterparts of the little town of San Gimignano.

Organizations, institutions, owners and individuals race against each other to build faster, bigger, and taller. The Great Pyramid of Giza was the tallest structure in the world for approximately four thousand years before it was toppled from this position by the Eiffel Tower at the World Exhibition in 1867. Since then, taller buildings have been designed and built at an ever increasing frequency, and today a new skyscraper is already ready to be built even before the last slightly shorter one is complete. Even after considering the fact that modern materials and technology make such a race possible, it is ironic that in today's highly capitalist, materialistic and commercialized society, the symbol for power is the distance from God.

⁹⁵ Brill, "Using the Place-Creation Myth to develop Design Guidelines for Sacred Space."



Figure 10. The towers of San Gimignano in Italy (photographs by the author).

Mosques in Mali in West Africa are made of earth and timber. The timber forms the structural framework on which the mud is plastered. The timber formwork projects out from the surface of the earth, even after the construction is completed. Not only do the tall minarets and large structure exhibit verticality, but annually in the season after the rains, men and women of the community climb this framework to re-plaster the mosques worn surfaces.⁹⁶ This climb physically and symbolically is an act of moving closer to God, by working on His/Her house. Hopi *kivas* which are built into the earth have central openings on the roof, reached by a ladder, called “sky doors.” The ladder for climbing and the rising smoke from the hearth, like the human spirit ascended from the earthly realm towards the sky and the heavenly realm thus joining the two (see Figure 11).

⁹⁶ Bill Steen, Athena Steen, and Eiko Komatsu, *Built by Hand: Vernacular Buildings around the World* (Salt Lake City UT: Gibbs Smith Publisher, 2003).

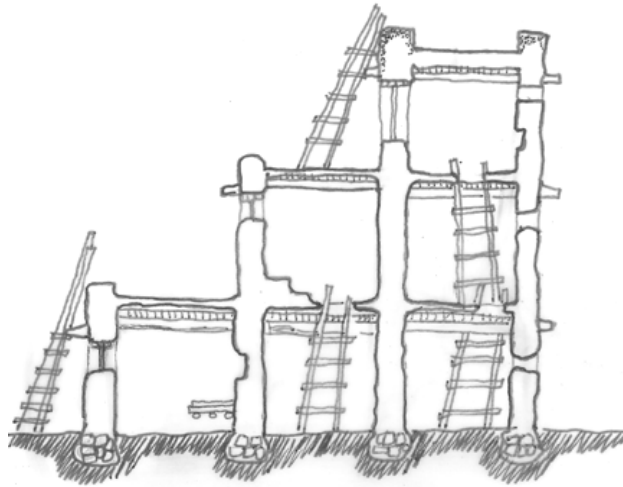


Figure 11. The sky doors of a Hopi Kiva (sketch by the author)

Another form of levity is expressed by the room at the end of the garden at the Nasher Sculpture Center in Fort Worth designed by the artist James Turrell which serves both as an installation and as a place for meditation. A square plain room, its ceiling is pierced by a square opening to the sky. The stark simplicity and clarity of this admittance of the blue of the sky into the grey of the room is striking, and in many ways calming. Sitting on a bench along one wall, with absolutely no distractions, it is easier to yield to the connection that can be achieved between the body, the mind, and the transcendental.

Levity as a pattern expresses inspiration, and lightness. As already mentioned it balances the force of gravity, just as gravity balances it. Where gravity provides stability, levity is in pursuit of excitement, adventure, and peril. Like a lightning conductor standing high it seeks out what is strong, potent, and dangerous. The headiness of adventure is the same as the headiness of flight in the sky. In the examples mentioned above the elements of levity successfully connect the people in the place to the sky above, spiritually in mind or physically in body. In our everyday lives, levity therefore in effect connects us to the sky and the heaven above, helping us to transcend the material world below.

CHAPTER XI
FORMS AS MEMORY STIMULI

*Cosmic symbolism is found in the very structure of habitation,
The house is the imago mundi,
The sky is conceived as a vast tent supported by a central pillar,
The tent pole of the house is assimilated to the Pillars of the World and is so named.*
- Mircea Eliade⁹⁷

“Shapes that Remind/Ornament that Transmits, Transforms, and Encodes,” is the title of Moore and Lyndon’s eleventh chamber of the memory palace. Shapes that remind are forms that function as memory stimuli. Similar to when the sight of a steeple signifies a church to a majority of people, especially Christians, and that of the large yellow double-arch signifies the quintessential American fast food joint, McDonald’s, shapes and forms have an odd way of symbolizing and reminding.

Memory is a significant component of human life, and it affects life in ways that are innumerable and in many cases incomprehensible. Why do we remember the past, and not have any imprint of the future? If Darwin was right and every part of the human body had evolved over years to what it is now in order to serve some specific purpose better, then what is the purpose of memory? Has the function of memory evolved over the years too? All these are questions far from answered yet. But, we do know and experience the effect of memory in our personal lives, and in how they affect our actions. Forms in architecture act as catalysts to past memories, and thus stimulate a rush of emotions and feelings associated with these memories. Like Moore and Lyndon explain, “Certain shapes have become so embedded in our culture that they carry with them recollections that bind us together.”⁹⁸

There exist two aspects of memory for an experience-knowledge that one has encountered a stimulus before and knowledge of the source or context of that

⁹⁷ Eliade, *The Sacred and the Profane*, 53.

⁹⁸ Lyndon and Moore, *Chambers for a Memory Palace*, 233.

experience.⁹⁹ Commercials and advertisements marketing various products are prime examples of maximizing the use of this knowledge of forms and their effect on people. Recreational Equipment, Inc. (REI) a popular supplier of specialty outdoor gear and clothing was established in 1938 by mountain climbers Lloyd and Mary Anderson. Today, REI sells its products through 78 retail stores around the U.S.A, and by direct sales via the internet. Its description of Item 727809, a GSI –Tent and Bag Party Lights says, “Whether you’re on your patio or in your cube, these glowing iconic outdoor shapes will remind you of where you’d rather be!”¹⁰⁰ In this specific case the company is stressing on the “nostalgic” value of party lights shaped like tents and sleeping bags, which would remind the user of the camping and the outdoors. Victoria Lansford in describing bracelets designed by her for the *Moroccan Series* says, “The *Moroccan Nights* are inspired by the Western Desert outside Luxor, Egypt, but those shapes always remind me of classic Moroccan architecture and silk route caravans.”¹⁰¹ Here the intention is to convey the source of “inspiration.”

In the first example, the sellers are making an attempt to appeal to those people who have had a past experience of camping in the outdoors before, and therefore would likely buy a product that would remind them of their experiences while sitting in the comfort of their homes. In the second example, seller is appealing to the segment of population who might have traveled to the Middle East, but also largely to those who are enchanted by the exotic nature of these places. Both the strategies utilize the power of forms, one obvious, and the other abstract in enticing the consumers.

Shapes that remind are an equally important part of the places we occupy in our lives. One of the most universal forms of memory stimuli is based on the exact science of geometry. Geometry has been such an integral component of religious architecture that the term “sacred geometry”, has taken root as an essential part of religious

⁹⁹ Anthony Wagner, Anat Maril, and Daniel Schacter, *Interactions between Forms of Memory: When Priming Hinders new Episodic Learning* (Cambridge MA: Massachusetts Institute of Technology, 2000).

¹⁰⁰ Recreational Equipment Inc., <http://www.rei.com/category/11470740.htm> (accessed 03 November 2005).

¹⁰¹ Victoria Lansford, *The Moroccan Nights*, <http://www.victorialansford.com/enlbracelets/moroccanpm2.html> (accessed 03 November 2005).

architectural terminology in recent times. The symbolism of the Euclidean, Platonic, and Archimedean geometry is expressed in the design and construction of numerous classical and renaissance architecture. In the “humanistic” view of man as the centre of the universe and the stress on beauty in relation to accuracy, mathematics, science, and rationalism were expressed in the physical world in the form of incorporation of these concepts into the architecture of the period.

As told by Vitruvius, the ancient Greeks laid out their temples according to human proportions. The distance between the columns and their height were expressed in terms of the column diameter, which was the “module”, a concept which would later play an important role in modern architecture. The length of the Parthenon to the width is the square root of five- the proportion of length to width in a rectangle formed by two reciprocal golden rectangles. The square root of five is a symbol of union of two realms, that of heaven and the earth. The Parthenon’s main façade fits into a single golden rectangle and the seven spaces between the eight front columns embody the 3:4 ratio of the Pythagorean triangle.¹⁰²

Each of these proportions and relationships are derived from the nature, and the harmony that makes it beautiful. In describing the lessons we could learn from nature H.E. Huntley says of science that it is nothing other than the search discover unity in the wild variety of nature, or more exactly in the variety of our experience.¹⁰³ As mentioned earlier, geometry and harmonic proportions are exhibited in almost all that has been observed and studied in nature – in apple blossoms, spider webs, winged maple seeds, proportions of a zebra butterfly, and in the human body. In an attempt to associate with the nature that surrounds us and the very nature that God created (according to most religious texts), the classical and renaissance architects, strove to incorporate the principles into that which was created by man, striving towards perfection.

The double-helix stairs of the Vatican Museum designed by Giuseppe Momo is a study in form that stimulates memory. Anyone who has ever seen a nautilus shell will

¹⁰² Doczi, *The Power of Limits*.

¹⁰³ H.E.Huntley, *The Divine Proportion*, (Mineola NY: Dover Publications, 1970), 43.

instantly recognize the form of the shell in the stairs of the museum. Visitors can ascend and descend these stairs without ever meeting visitors ascending and vice versa. The

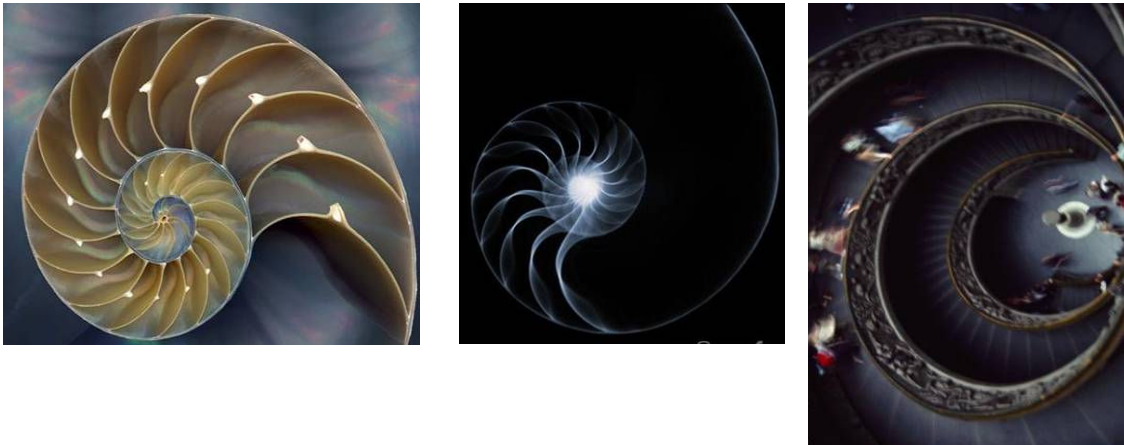


Figure 12. The Nautilus shell and the stairs of the Vatican Museum (images courtesy Getty images).

ramp/stair unfolds as it rises from the middle and curls out like the nautilus shell towards the top. While the concept of these stairs in itself was not a new or unique concept, it was the manner in which Momo handled the form and flow of the stairs that made them famous all around the world. In borrowing from a form found in nature, Momo gave the stairs a subtle but natural quality in a man-made environment (see Figure 12).¹⁰⁴

Geometry is the abstracted representation of nature. Sacred geometry deals with the awakening of the collective unconsciousness. More realistic depictions of nature, contextual history and any other forms that might be strongly connected with the place are also equally effective in stimulating memory. These representations might be more personal in nature when viewed with previous experience and memories associated with similar forms. The archetypal energies of suggestion, recognition, imagination, and recollection play an important role in the perception of places which possess this pattern and therefore makes it the pattern closest to personal memories.

¹⁰⁴ The Nautilus shell and the stairs of the Vatican Museum [online image], Getty Images, <http://creative.gettyimages.com/source/home/home.aspx> (accessed 23 September 2005).

CHAPTER XII
THE NATURE WITHIN

*To find the universal elements enough,
To find the air and the water exhilarating,
To be refreshed by a morning walk or an evening saunter,
To be thrilled by the stars at night,
To be elated over a bird's nest or a wildflower in spring,
These are some of the rewards of the simple life.*

- John Burroughs¹⁰⁵

To be able to appreciate and enjoy the beauty of nature is essential to leading a healthy life. A sacred place would ideally enable and promote this communion with nature and the landscape that surrounds us. Nature can be encapsulated in a garden, a courtyard, in interior spaces, and even in the very structure of the building.

While according to Brill, a measure of the potency of a sacred place is that they stand in contrast to unruly nature, and that they subdue nature, Tabb believes that some wild areas should be left unspoiled and intact. I feel that both the wild and the controlled forms of nature have a place of their own in the design of sacred places. While the Islamic Mughal gardens are controlled geometrically, the Chinese and 18th century English gardens are more informal with winding paths and irregular lines. Most often nature is fashioned by humans so as to represent the spirit of the times, while still functioning as places of relaxation, contemplation, and inspiration.

Sacred landscapes are a manifestation of world-views where each culture brings its own ideas to bear on the land it inhabits. Attitudes towards landscape and place therefore depend, in part, on culture specific perception of what constitutes the natural world.¹⁰⁶ Dorothea Theodoratus and Frank LaPena, in a study of the Wintu sacred geography of northern California recorded the places and regions of religious significance to the Wintu, a comparatively large and widespread Native American

¹⁰⁵ Edward Kanze, *The World of John Burroughs* (San Francisco: Sierra Club Books, 1999), 76.

¹⁰⁶ Nicholas Saunders, *Sacred Sites, Sacred Places- At the mouth of the obsidian cave: deity and place in the Aztec religion* (New York: Routledge, 1997).

group.¹⁰⁷ As their study on federal land management policies progressed it became clear that natural topography is essential for the maintenance of Wintu identity and cultural continuity. At the center of Native American and many other primitive religious systems is the belief that spiritual power is infused throughout the environment. Features like mountains, rock outcroppings, caves, and pools possess qualities which are venerated by the Wintu. Different places possess different degrees of sanctity. Some are used by shamans seeking transcendence, some for hunting, some for gambling, and some even for basket weaving. The Wintu thus recognize and use specific places for specific activities. It would be pertinent to note here that the relationship of the Wintu to the environment is one of symbiosis, where a mutual dependence, is beneficial to both parties. The Wintu have learned to respect and preserve the landscape that provides them with subsistence, and is therefore is sacred.

Saunders explores the importance of caves among the Aztecs in late Post-Classic Mexico. The valley of Mexico is a result of volcanic activity and therefore the mountain slopes and the flatter valley are composed of ancient lava flows that have created innumerable subterranean caves. In many areas of Mesoamerica caves afforded not just shelter and protection in the form of a dwelling, but were also seen as entrances to the underworld, and as places of origin of fertility spirits.¹⁰⁸ The Maori of New Zealand believe in a “kinship” link, an attitude that humans are not separate from the environment but are an intimate part of it. They recognize sacred sites within the landscape because of events that have taken place, or because they are resource sites. They include places like rivers, springs, lakes and mountains; *mauri* stones and trees; and *mahinga kai* (birding, cultivation, fishing, forest, and mineral resource sites).

In bringing elements of nature into places that we occupy everyday we strengthen the bond that gives us an inner standard of peace, connectedness and nurture. Gardens, as mentioned earlier are symbols of paradise: the primordial state of innocence, peace, and unity. They are places that provide sanctuary from the mundane activities of

¹⁰⁷ Dorothea Theodoratus and Frank LaPena, *Sacred Sites, Sacred Places: Wintu sacred geography of northern California* (New York: Routledge, 1997).

¹⁰⁸ Saunders, *Sacred Sites, Sacred Places: At the mouth of the obsidian cave: deity and place in the Aztec religion*.

everyday activities. They can be places of meditation, places that enhance the energy of the earth, and vehicles for expressing the beauty and power of Creation. According to Anthony Lawlor, the soul finds harmony in the garden: unity between the opposing forces of like- sun and water, earth and air, mineral and vegetable, male and female.¹⁰⁹ As in the Bible, expulsion of Adam and Eve from the Garden of Eden indicates a fall from grace, and exile to a realm of darkness, chaos, and hardship and in contrast to it re-entering signifies return to light, order, and harmony.



Figure 13. The Nasher Sculpture Center in Dallas (sketch by the author).

The Nasher Sculpture Center in Dallas, known for its building design by Renzo Piano is equally well known for its garden design by Peter Walker. The garden was conceived as a one and a half acre sculpture garden, an extension of the indoor galleries of the center. Set right in the middle of busy downtown Dallas, this backdrop for the sculptures is planted with 170 trees including elms, cedars, weeping willows, and myrtles. The trees and hedges follow the formal lines of the building, literally and metaphorically forming an extension to the building. Stone pathways lead through the grass to pools and fountains at the opposite end of the garden. The sound of the water in

¹⁰⁹ Anthony Lawlor, *A Home for the Soul: A Guide for dwelling with Spirit and Imagination* (New York: Clarkson Potter/Publishers, 1997).

the fountains masks the sound of the vehicles from the street behind the garden wall, while the pathways, encourage meditative walks along the garden. The strength of the garden lies in its ability to complement the building it abuts and the draw visitors from the gallery to the exterior by allowing for clear lines of sight, with glimpses of the sculpture partly hidden by the trees, and the water bodies. The garden and the building, unlike a number of other buildings are not two separate entities, but form a unified whole, protected by the surrounding walls from the city outside (see Figure 13).

The nature within helps encapsulate a microcosm of the world within a place. In bringing glimpses of nature and the natural world into what is man-made, it promotes the connection between humans and the elements of nature. It has been proven that nature has a curiously calming effect on the human mind. In a study conducted at the Ohio State University researchers discovered that highway vegetation could mitigate automobile frustration tolerance.¹¹⁰ A number of other studies relate reduction in stress and fatigue to the presence of nature in living and working environments. At a purely functional level vegetation, air, water, fire, and earth are related to air purification, ventilation, cooling, heating, and thermal insulation respectively. Comfort levels in the places we occupy everyday are thus regulated and kept in check by the nature within. While it allows for an enhanced communication with nature, the pattern also contributes towards reducing stress, fatigue, and increasing efficiency both at home and at work.

¹¹⁰ Jean Marie Cackowski and Jack L. Nasar, "The Restorative Effects of Roadside Vegetation," in *Environment and Behavior*, Vol. 35 (Baltimore MD: Sage Publications November, 2003), 736-751.

CHAPTER XIII

MATERIALITY

*Though emeralds, rubies, pearls are all,
But as the glitter of a rainbow trickling out empty air and must pass away,
Yet still one solitary tear would hang on the cheek of time,
In the form of this white and gleaming Taj Mahal.*

- Rabindranath Tagore¹¹¹

Materiality is the quality that gives substance and expression of form.¹¹² Michael Brill believes that for charged places, the choice of materials should suggest cosmos struggle and triumph over chaos, the imposing of order on formlessness.¹¹³ Brill goes on to say that the materials must be rare, difficult to work, and to move. I define materiality as the purest expression of a material appropriate to the context, deriving from and complimenting the site, the intent, and the users. In trying to create sacred spaces in everyday lives, it is not necessary for the material to be rare or difficult to manipulate. In fact indigenous materials found in plenty, with good craftsmanship, and suitable design and construction contribute strongly towards the feeling of sacrality. The relationship between the nature of material and its contribution towards the sacred nature of a place is similar to that between close friends or relatives, and gifts. Expensive gifts that are large and cumbersome are not required to express love, care, and friendship. A simple hand made card or gift could express much more, much better through the effort and thought that has gone into the making of this simple offering.

Through this criterion, materials used to form sacred places should express the identity of the place, and allow itself to change, transition, and trap memories and events. Like the stone steps leading up to a house, worn, smoothed, and scarred by the numerous feet that trod it, and furniture that scratched it, and the children who played on it, materials though retaining their beauty should be willing to attain an individuality and personality through time. A very interesting example of such a case is the Naiku Shrine

¹¹¹ Amina Okada, *Taj Mahal* (New Delhi, India: Prakash Books India, 2005), 24.

¹¹² Tabb, "Sacred Place: The Presence of Archetypal Patterns in Place Creation."

¹¹³ Brill, "Using the Place-Creation Myth to develop Design Guidelines for Sacred Space."

in Ise, Japan. The shrine has been worked on for over 1400 years. The Naiku shrine is rebuilt every 20 years according to the ancient Shinto tradition. This continuous sacred work has imbued every stone, column, and beam of the shrine with a purity, mindfulness of action, and understanding of worker, tool, material, and purpose. It is this very process that helps the progression of the work on the shrine.¹¹⁴ It is true that the materials used for structures like the Great Pyramids of Giza, and the Stonehenge in Britain, were rare or at least not locally available, and extremely difficult to move. This might be so in the case of monumental or religious architecture and in the case of places those unlike our homes, offices, and shopping malls that are not used frequently in daily lives. Monumental and religious architecture has a purpose different from everyday architecture. It seeks to inspire awe, exhibit power, and make a point. Secular architecture seeks to be functional, to heal, and to allow for more equality between humans, humans and place, humans and nature, and nature and the transcendental. The intention here is to enable man to live, work, study, and play in environments that not only effectively facilitate these specific activities but also promote physical and mental well being. And, therefore when considering the materiality of these secular places, we should take into consideration the practicality of acquiring and using these materials and the spiritual quality of the space formed.

Most traditional architecture around the world possesses these qualities. They use indigenous materials, labor, and construction techniques because this knowledge and wisdom has evolved over the years to provide for the most optimum solutions to the problems. Sustainability and energy conservation are terms which our ancestors have been dealing with, though unknowingly for thousands of years. The Inuits in Alaska, the Maori of Australia, the Bedouins of the Middle East, and the Rajhasthani's of India have all developed their vernacular architecture, suitable for the geography, climate, economy, and living and sustenance patterns. Diverse cultures in different parts of the world, have used materials that would keep them protected, cool, or warm; and

¹¹⁴ Tom Bender, *Silence Song and Shadows: Our Need for the Sacred in our Surroundings* (Oregon City OR: Fire River Press, 2000).

knowingly or unknowingly, these places have acquired a beauty and a charm that only accompanies the joy that comes from people working together, spirit, and passion.

Earth, the material we were born of, and the material we disintegrate into. Found underfoot, it is moldable and elastic when wet, fire resistant, and capable of absorbing excess humidity. It possesses good thermal properties, and also performs well in a much wider range of climates. It is ironic then that such a versatile and sustainable material has been unjustly viewed as a poor man's building material. The Tamberma of Togo build homes that are miniature castle fortresses. A typical Tamberma compound, called a *tata*, consists of a series of towers connected by a thick wall with only one doorway to the outside. The walls are built using large balls of earth stacked layers.¹¹⁵ Inside, there's a huge elevated terrace of clay-covered logs where the inhabitants cook, dry their millet and corn and spend most of their leisure time. They use the cone-topped towers for storing grains and other rooms for sleeping, bathing and, during the rainy season, cooking; animals are kept downstairs, also protected from the rain. Built of a combination of earth, wood and straw, the structures stay fairly cool all day long, unlike the modern cement dwellings in less traditional villages (see Figure 14).

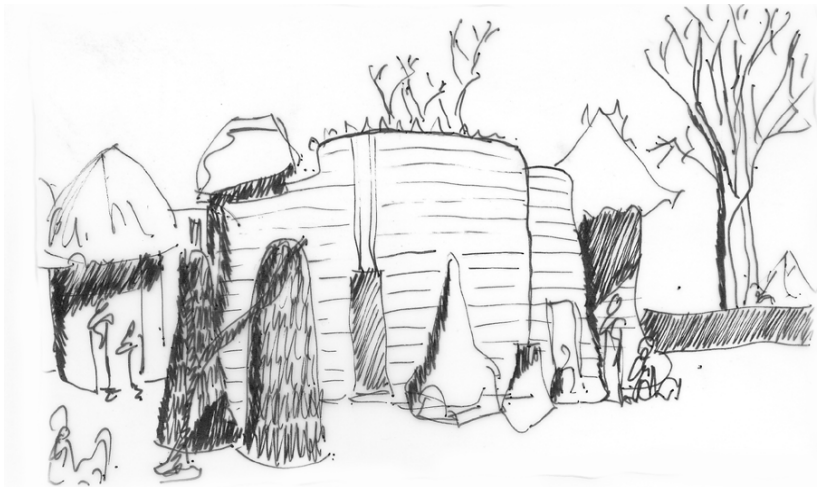


Figure 14. The Tamberma compound of the Togo (sketch by the author).

¹¹⁵ Steen, Steen, and Komatsu, *Built by Hand*.

In more recent times, the architecture of Hassan Fathy (1899-1989) in Egypt was aimed at providing an indigenous environment at a low cost. His designs for homes and whole villages strived towards utilizing traditional design methods and materials so as to create environments that are climatically adapted, aesthetically beautiful, and yet completely functionally. The vernacular architecture of the Nubians of southern Egypt influenced him greatly. The New Gurna Project was one of his most famous projects. Built during the 1940's, this village which was designed as a relocation project was never completed or fully occupied and for reasons not connected with the appropriateness of the dwellings. Fathy taught the locals to use adobe to construct walls, and domed and vaulted roofs. The structures were cheap, cool in the summer and the walls were heat-retaining in winter. Fathy's later buildings have received great acclaim for their suitability to the region and social aptness.

Stone is the material of permanency. It is what the Incans used at Machu Picchu in Peru, the Pueblo Indians at Chaco Canyon, and the Nabataean Arabs in Petra. Stonework is slow and tedious when worked by hand, but is strong, durable, and an excellent source of thermal mass. Stone is characteristic of a place, and different types of stone are found in different parts of the world. The city of Jaisalmer in India is sometimes referred to as the "golden city". Located in the heart of the western Indian desert, Jaisalmer was founded in 1156. Sharply etched against the sky, Jaisalmer is a splendid sight with its yellow sandstone walls and bastions that seem to rise from the golden sands. The *havelis* (houses of rich merchants) inside the fort town, also constructed of the very same yellow sandstone have intricate facades with latticed stone *jharokhas* (balconies) and *chhatries* (cenotaphs). These latticed balconies allow for light and air into the interiors while providing the privacy.

A contemporary example of the use of stone is the church of San Giovanni Battista in Mogno, a town in Switzerland designed by Mario Botta. Built to replace the old church destroyed by an avalanche in 1986, it has a striking exterior and interior with alternate layers of white Peccia marble and black Vallemaggia granite forming horizontal and vertical stripes. The marble and granite are from local quarries not more

than three miles away at the most. The building stands out in the bright Swiss sunlight and the sloping skylight (now a trademark of Botta's architecture), throws vertical shadows on the horizontal stripes on the interior.



Figure 15. The Querini-Stampalia in Venice designed by Carlo Scarpa (sketch by the author).

Carlo Scarpa in his later works shows greater concern for detail and the qualities of materials, combined with the identification of archetypal signs and arrangements that were continually being reworked and developed subsequently. The materials of Scarpa's compositions are composite. Among them, an important part is played by those which the "culture of the eye" draws out of the environment. Scarpa considered natural elements as materials of composition. This conviction is seen in his use of water in gardens coupled with labyrinthine forms and rare stone materials. The slender watercourse that wends its way through the garden of the Querini- Stampalia Foundation, for instance, spills over a block of white marble chased with a geometrical pattern. The combination of water and stone seems to revive one of the most important

symbolical associations in Buddhist gardens, where these elements are linked in evoking the mystery of life (see Figure 15).¹¹⁶

Architects, theorists, and historians for long have been fascinated with the origins of architecture. One of the most significant factors in the evolution of the architecture is materiality- the availability of materials, ease of use, and suitability to the function. The so called “primitive” men and women lived in caves and made stone one their most utilized materials. Soon they learnt to use wood and other materials, and in different parts of the world vernacular architecture slowly developed based on the presence of indigenous materials. Not only were materials chosen based on availability but on their climatic response, and properties like weight, color, texture, and cost. A form language enabled by the materiality was established- the earthen villages of Niofoin; the wooden boat houses in Kashmir, India; the cave houses of Spain; and the skin tents of the Mongols, are characterized by the materials they are built of and carved from. The archetypal energies of materiality “expression,” and “manifestation,” are in a sense what brings the plans of the planners, and the designs of the designers to fruition. It is the substance that architecture is made of and it is the ornament that it is decorated with.

Materiality is more than a technical property of a building: it is a precondition that promotes ideas, creativity, and pleasure in architecture and it guides us to loftiest aspirations...

- Jorge Silvetti¹¹⁷

¹¹⁶ Francesco Dal Co and Guiseppa Mazzariol, *Carlo Scarpa: The Complete Works* (New York: Rizzoli Publishers, 2002).

¹¹⁷ Sarah Drake, “Material, Architecture, Space,” *Architecture, Design, & Materials*, Carnegie Mellon University, <http://www.andrew.cmu.edu/course/48-205/archive/48205s05archive/documents/drakeproj01.pdf> (accessed 24 February 2006).

CHAPTER XIV
TRANSITIONS AND THRESHOLDS

*Making my way through,
Miyataki river's fast moving, waist high rapids,
There's sensation of being made pure to the base of the heart.*
- Monk Saigyô¹¹⁸

Alexander describing the conflict that appears in his Pattern No. 112 says, “Buildings, especially houses, with a graceful transition between the street and the inside, are more tranquil than those which open directly off the street.”¹¹⁹ He resolves this issue by providing for a “transition” space between the street and the front door. This space could be marked by the change of surface, change of level, gateways, and above all a change in view. The next step in the cycle of transition is the threshold, the point of change. Pattern No.130, the entrance room, deals with precisely this. Alexander believes that the entrance room should be a light-filled room that straddles the indoors and the outdoors, covering some spaces outdoors and some spaces indoors, like a porch.

A number of other patterns in the pattern language deal directly and indirectly with the issue of transitions and thresholds. Pattern No.100, Pedestrian Street says, “The simple social intercourse created when people rub shoulders in public is one of the most essential kinds of social ‘glue’ in society.”¹²⁰ His resolution for this conflict involves the arrangement of buildings so that they form pedestrian streets with many entrances and stairs that open directly onto this pedestrian street from the stories above. In this manner he hopes to achieve a pattern of traffic in which, even movement between rooms would include the outdoors and is not restricted to the indoors. Pattern No. 102 also puts forward the idea of entrances that are grouped together for visibility, and broadly similar in character for unity. Paths shape, Pattern No. 121, resolves the conflict involving the use of streets and paths as thoroughfares only. According to Alexander, these paths and

¹¹⁸ Saigyô, *Poems of a Mountain Home*, Translated by Burton Watson, (New York: Columbia University Press, 1991), 137.

¹¹⁹ Alexander, Ishikawa and Silverstein, *A Pattern Language*, 125.

¹²⁰ *Ibid*, 120.

streets though forms of transitions should be shaped so as to encourage pauses, and form enclosures that are places to stay.¹²¹

While Alexander deals exhaustively with the matter of transitions and thresholds in an urban setting, Brill and Tabb deal with this subject in terms of sacred places. Brill believes that the doorway provides a passage of continuity between two opposing worlds, and should therefore promote continuity and give an impression of a distinct space that can be occupied.¹²² Tabb says that the passage of transition must function to demarcate the point and place of actual entry or “dematerialization” in the boundary. He goes on to say that it should also function to scale ones initial approach from the larger outer world, to the human scale, providing the right kind of cleansing for eventual penetration into the realm of the sacred.¹²³ Moore and Lyndon describe transitions and thresholds in terms of “portals that bespeak.” They define portals as elements that cultivate expectations of the places that lie beyond, and perform the act of welcoming us into these places.

The archetypal energies of this pattern are movement, transformation, and preparation. They set the stage for what is to follow, and in doing so manipulate the effect produced by the space already traversed and spaces that lie beyond. In the typical realm this energy is manifested in doorways, entrances, gateways, foyers, porches, symbolic elements, paths and enclosed passages. Thresholds are the middle ground, parallel to “liminality” (in anthropological studies), the critically important marginal or in-between phase of a rite of passage.¹²⁴ A group experiencing liminality forms a community of equals, and social distinctions that have existed or will exist afterwards are forgotten in the moment. Similarly, a group of people experiencing the threshold or transition together are joined together in a solidarity and togetherness, which might or might not remain after the entrance into the place that follows.

¹²¹ See also, Alexander, Ishikawa and Silverstein, *A Pattern Language* for Pattern No.53, Main Gateways; Pattern No.150, Place to Wait; and Pattern No.242, Front Door Bench.

¹²² Brill, “Using the Place-Creation Myth to develop Design Guidelines for Sacred Space.”

¹²³ Tabb, “Sacred Place: The Presence of Archetypal Patterns in Place Creation.”

¹²⁴ Conrad Phillip Kottak, *Mirror for Humanity: A concise Introduction to Cultural Anthropology* (New York: McGraw-Hill Publications, 2005).

Thresholds can function to (a) frame, (b) inform, (c) pause and remind, (d) experience (f) reveal, (g) decompress, and (h) conceal. Let us consider examples of each of these instances where transitions and thresholds perform their various functions to yield different experiential results.

The Catselvechio Museum in Verona designed by Carlo Scarpa between 1958 and 1964 is a renovation and reinstallation of the 14th century della Scala castle. Scarpa has in this museum succeeded in blending the remains of the old with the new, “reminding” the viewer of the past on specific instances. In his museum interior, for instance, his design makes use of the historical items, themselves intended to become part of the composition, as with the elaborate placing of the statue of Cangrande della Scala in this museum. Scarpa sensitively sited and juxtaposed the statue of Cangrande against surrounding walkways and stairs, in a manner where it is visible from the exterior as well as from different points on the interior. While visiting the museum the viewer is forced to pause, and be reminded of the emblematic value of the statue and the past it belonged to (see Figure 16).



Figure 16. The sculpture of della Scala at the Castelvecchio Museum in Verona (photographs by the author).

When Frank Lloyd Wright designed Unity Temple in Oak Parks, Chicago in 1905, its revolutionary poured concrete structure, and unique blend of religious and secular form set a precedent for a new style. While the exterior of the church and community center is distinctive in its own way, the interior is equally beautiful, partly because of the sense of movement created by Wright through his layout of spaces. Wright makes the congregant walk through what he terms the “cloisters”, a long, narrow and dimly lit sunken space, before he reveals the raised, brightly lit main auditorium space. In doing so he symbolically expresses the ascent from the earthly and material plane into the spiritual plane. The cloisters here serve as an instrument of building anticipation and concealing the space that is to follow and thus enhance the effect of the space.

The gateway of the Taj Mahal is a perfect example of a threshold that conceals, frames, and then reveals. The main gateway to the Taj is made of red sandstone and is 150 feet wide and 100 feet high. The gateway is ornately decorated with white and black colored marble.¹²⁵ To a Muslim, an entranceway like this was thought of as “the gate to paradise.” It stood for the transition point between the outer world of the senses and the inner world of the spirit. The gateway and the wall that surrounds it completely conceal the Taj Mahal from the visitor till it is framed in all its pristine beauty on entering the portal of the gateway.

When Dante described the inscription on the gates of hell, “Abandon hope, all ye who enter here,” he was describing a method of conveying a message and of “informing” those who enter of what to expect. Ghiberti’s doors to the Baptistery in Florence are perhaps one of the most famous examples of thresholds that convey a message. His beautifully sculpted bronze panels depict scenes from the Old Testament with such clarity and spirit, that Michelangelo himself referred to the doors as the “Gates of Paradise.” They serve by preparing the supplicants for what they are about to experience, and by reminding them of the power and mercy of god.

¹²⁵ Saumya Lashkari, ARTSERVE, Australian National University, *Mughal Monarchs: An Introduction to Mughal dynasty and Mughal Agra*, <http://rubens.anu.edu.au/student.projects/tajmahal/mughal.html> (accessed 06 November 2005).

Pompidou center in Paris designed by Renzo Piano and Richard Rogers was completed in 1978. The structure forms a huge transparent box whose exposed frame of tubular steel columns carries trusses spanning the width of the building. External mechanical systems – elevators, escalators, and giant tubes for air – are all conspicuously placed outside the main columns. A part of the longer side of the center on the sixth floor is occupied by a glass tunnel with steel framing. The walk along this tunnel offering aerial views of the city is a very effective means of “decompressing” after the hectic museum experience. As the visitor walks along, stations with photographs and labeling, point out to the visible highlights of the city, and thus also geographically orient the visitor for further explorations.

One of the most perfect examples of transition and threshold is the pyramid designed by I.M.Pei at the Louvre in Paris. The glass pyramid sitting in the middle of the court surrounded by the Louvre forms the entrance and a beacon inviting visitors to the treasures of the Louvre. The Louvre takes on the symbolism of the riches reached through the pyramids, like in the pyramids of Giza. Visitors enter the glass pyramid of light and climb down a spiral stair to a spacious lobby where information booths and ticketing stations are located. The rest of the Louvre and its collection is reached from this lobby and extends to either side. The light-filled lobby contrasts with the spaces that are reached from it-the subdued lighting of the museum spaces- and intermittently mirrored in the spaces like the Marly courts filled with French sculpture. The beauty of this subliminal transition from the exterior, to the inside of a glass pyramid where the sky is still visible, to the bowels of the earth down a spiral stair, and outwards through changing levels is not lost on those visiting the Louvre (see Figure 17).



Figure 17. The Louvre in Paris (photographs by the author).

Three symbols that serve as links between consciousness and place are the perimeter, the gate, and the hub of nurturance. While the perimeter is the boundary and defines the edge of the shelter, the gate is what allows the energies of a place to enter the interior realm. Gates and doorways, he says are symbols of transition, transcendence, death and resurrection, and a transformation from the material to the spiritual. Doors are constructed of elements, each with special symbolic meaning. The two pillars on either side represent duality: light and darkness, yin and yang, male and female, and birth and death. The beam that connects the two pillars represents unity between the polar natures of the pillars. The threshold marks the entrance into a sanctuary from the chaos of the world outside.¹²⁶

We often hear people saying that it is not the destination that matters, but the journey. Transitions and thresholds are a part of this journey. Symbolic of metamorphosis and renewal thresholds and transitions can have a strong affect on the way places are experienced and perceived. Like the prologue to a chapter, transitions and thresholds set the stage for what is to come and just like the prologue they mark the entrance into a sacred world.

¹²⁶ Lawlor, "House: Symbol of the Soul," in *Dialogues with the Living Earth*.

CHAPTER XV
SPATIAL HIERARCHY AND INTIMACY GRADIENT

*The hierarchy of relations,
 From the molecular structure of carbon,
 To the equilibrium of the species and ecological whole,
 Will perhaps be the leading idea of the future.*

- Joseph Needham¹²⁷

Hierarchy is an important component of order, and order integral to creation. Alexander's Pattern No. 114, "hierarchy of open space," in resolution to its conflict of ideal open space design says that whatever space you are shaping should be based on two considerations: firstly make at least one smaller space which looks into the space you are creating, and secondly place the space created overlooking a space larger than itself.¹²⁸ Similarly Pattern No. 131, "the flow through rooms" directs the placing of rooms in the manner of a chain or a loop, making it possible to walk from one room to the other, and giving access to private rooms directly off public rooms. Pattern No. 66, "holy ground," goes on to emphasize the importance of sequence and hierarchy in the sacred sites of a community, which require a series of nested precincts each marked by a gateway, each one progressively more private and more sacred than the last, such that final sanctum can only be reached by passing through all of the outer ones.

Spatial hierarchy in sacred places of the religious context is often a volumetric experience used to underline the journey from the outside material world to the inner spiritual world. The passage through a series of spaces is the expression of a cleansing and preparatory process culminating in a religious expression. In secular places spatial hierarchy serves as a deterrent to monotony by providing sequential spaces and more importantly, allows for a symbolic expression of the function and intention of the space within the united whole.

¹²⁷ Joseph Needham, *Brainy Quote*, http://www.brainyquote.com/quotes/authors/j/joseph_needham.html (accessed 10 June 2005).

¹²⁸ Alexander, Ishikawa and Silverstein, *A Pattern Language*.

In architecture, an intimacy gradient exists when you start off in public areas and progress through semi-private to private and then intimate areas: consider a house with a porch, hallway, living room, bedroom, and increasing levels of privacy as you move through the building. This progression is something that we have all experienced and, on an unconscious level, we both understand and appreciate it. Removing it creates jarring and uncomfortable spaces that feel unnatural and disharmonious.

Privacy, or the ability to regulate social interaction, is a major contributor to a sense of control in interior settings.¹²⁹ One of the central design elements influencing privacy is intimacy gradient. The provision of spaces ranging from places that provide solitude and intimacy, through small group meetings, to those that foster contact with the public, constitute the major components of spatial hierarchy within buildings.¹³⁰ Size, location, and degree of stimulus isolation of interiors, influence the effectiveness of buildings to provide privacy (see Figure 18).

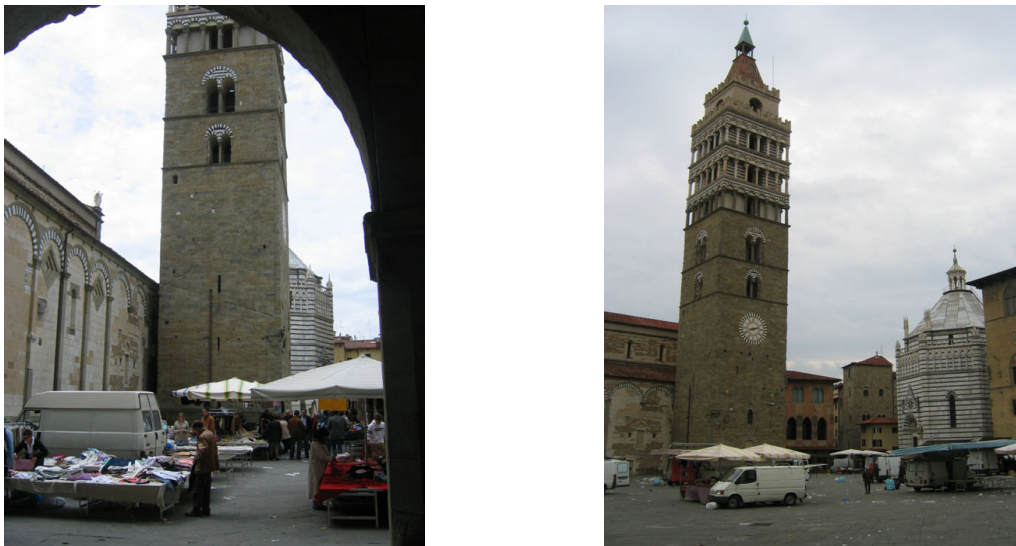


Figure 18. The Piazza in Pistoia which also doubles as a market place on Saturday mornings. Note the changes in intimacy levels as the market packs up (photographs by the author).

¹²⁹ Irwin Altman, *The Environment and Social Behavior: Privacy, Personal Space, Territory, Crowding* (Monterey CA: Brooks Cole Publishers, 1975).

¹³⁰ B. Greenbie, *Spaces* (New Haven CT: Yale University Press, 1981).

In architecture, depth refers to the number of spaces one must pass through to get from one point in a structure to another. Recent studies have proven that deeper spaces afford more privacy and enhance ability to regulate social interaction. They also affect visual access and visual exposure thus providing the possibility of space manipulation.¹³¹ Spatial hierarchy and intimacy gradient are closely related in their functions, and manifestation. Where intimacy gradient implies a gradation in the intimacy levels of a space, spatial hierarchy refers to the provision of spaces that allow for such a gradient.

Spatial hierarchy is strongly demonstrated in the layout of Hindu temples. The design of the ground plan is intended to lead symbolically from the temporal world to the eternal. The principal shrine faces the rising sun and so has its entrance to the east. Movement towards the sanctuary, along the east-west axis and through a series of increasingly sacred spaces is of great importance and is reflected in the architecture. A typical Hindu temple consists of the following major elements – an entrance, often with a porch; one or more attached or detached *mandapas* or halls; the inner sanctum called the *garbagriha*, literally “womb chamber”; and the *shikara* or tower build directly above the sanctum sanctuary.¹³² The sequential moving from the large, well-lit and public porches to the enclosed halls and finally into the small, dark, inner sanctum takes the worshipper through a journey, shared initially with a throng of people and finally with just God and oneself.

A similar spatial variation is seen in Egyptian temples. The Great Temple of Amun-Re in Luxor was built over many centuries and is unusually built along two axes running east-west and north-south. The plan of the temple consists of a coherent, highly rationalized scheme with a clear spatial hierarchy designed to yield a particular sequential experience. The Egyptians took maximum advantage of the river as a means of transportation and therefore most temples are located along the banks of a river or along canals that lead into the Nile. The landing quay built on the river was the means of initial encounter with the temple. The path leading from the quay to the temple was lined

¹³¹ John Archa, *The Place of Architectural Factors in Behavioral Theories of Privacy: Journal of Social Issues* 33 (Malden MA: Blackwell Publishers, 1977).

¹³² Sir Banister Fletcher, *Sir Banister Fletcher's, A History of Architecture* (Burlington MA: Architectural Press, 1996).

on either side by a row of statuary, in this case that of sphinxes that served as protective elements. A series of pylons runs east-west and includes the famous hypostyle hall with over one hundred columns shaped like the open or close buds of the papyrus and lotus. Pylons though when built acted as entranceways, they were very often enclosed within the temple itself, as successive rulers extended temple complexes. On passing through the pylons, hypostyle halls, and the open courtyards, one is led into the innermost sanctuary. Like in a Hindu temple the halls and courts are relatively well lit through clerestory windows while, the sanctuary was often a deep and narrow room, usually incorporated into the very rear of the temple. It was the most holy and restricted part of the temple complex and therefore removed from the arena of mundane activities and protected from desecration.

The Congress for New Urbanism in expressing the principles of New Urbanism said, “The built environment must be diverse in use and population; must be scaled for the pedestrian, yet capable of accommodating the auto and mass transitThese principles-diversity, human scale and a formative public realm-apply equally to physical design, economic policy and social form.”¹³³ The coastal town of Seaside, Florida is considered by many as one of the most successful examples of neo-traditional town planning in existence today.



Figure 19. The town of Seaside, Florida (photographs courtesy Getty Images).

¹³³ Congress of New Urbanism, *Charter of The New Urbanism* (Columbus OH: McGraw-Hill Professional Publishers, 1999).

Robert Davis the founder of Seaside inherited this tract of land near Seagrove beach on Florida's northwest coast from his grandfather J.S.Smolian. An award winning developer by the mid-70's, he asked Miami architects Andres Duany and Elizabeth Plater-Zyberk to help him plan a town with the intention of reviving Northwest Florida's building tradition.¹³⁴

The result of this endeavor was a town, about the quarter of size of an average city, cohesive in sharing a common vocabulary of building forms and materials, with a strong sense of place, but also with a great variety and heterogeneity within it. There exist private residences, public plazas, informal semi-enclosed market places, roofed loggias, and an open amphitheater, parks, tennis courts, art galleries, coffee shops, a medical arts building, and a chapel. The town is a pedestrian- friendly community and accessibility is restricted through the presence or absence of vehicular streets. The progression of spaces is such that it transitions from the most public spaces near the beach and the highway to private residences and towers interspersed with semi-public spaces along the major axes. Seaside is primarily a resort community, consisting of residents who live there for months at a time as well as vacationers renting cottages and houses. It has often been criticized for its lack of socio-economic diversity and its architectural standards as being rigid and therefore resulting in a manufactured fantasy, similar to disneyland.¹³⁵ But, it is important to realize here that at the planning level the diversity of the spaces, their gradient and hierarchial placing enable an interaction while retaining the boundaries of comfortable socializing (see Figure 19).¹³⁶

Not only does spatial hierarchy and intimacy gradient concern the provision for diversity in places, and the building of anticipation but it also concerns practical aspects like noise control, natural lighting and ventilation, and building layout based on the site gradient.

¹³⁴ Peter Katz, *The New Urbanism: Toward and Architecture of Community* (Columbus OH: McGraw-Hill Professional Publishers, 1993).

¹³⁵ Todd Bressi, *The Seaside Debates: A Critique of The New Urbanism* (New York: Rizzoli Publishers, 2002).

¹³⁶ The town of Seaside, Florida [online image], Getty Images, <http://creative.gettyimages.com/source/home/home.aspx> (accessed 25 September 2005).

CHAPTER XVI
ANTHROPOMORPHISM

*There is only one temple in
this world and
that is the human body.
Nothing is more sacred
than that noble form.*

-Novalis¹³⁷

Anthropomorphism is defined as the attribution of human characteristics and qualities to non-human beings, objects, or natural phenomena, including architecture. The word anthropomorphism comes from two Greek words, *anthrōpos*, meaning “human,” and *morphē*, meaning “shape” or “form.” Anthony Lawlor believes that architecture extends our human form into the physical structures we create.¹³⁸ The enclosing elements function in a manner similar to the skin that clothes the human body.

Connections between the human body and the environment around abound in creation myths around the world. While the Aztec myth describes how the gods Quetzalcoatl, and Tezcatlipoca fashioned the world from the body of the goddess Tlalteutli, one of the Indian creation stories describes how the gods created the world by performing a sacrifice with Purusha’s (universal spirit that took the form of the first person) body. Purusha’s body went on to form the rest of the known Universe in Hindu mythology. His mind was the moon, his eye was the sun, the storm and fire gods Indra and Agni were created from his mouth, his breath was the wind, his head was the sky, his feet were earth, and his navel became the atmosphere. Many rules of Vaastu Shastra (the traditional Indian system of architecture and design) are derived from the “Vaastu Purusha Mandala” which is depicted as a man lying with his head pointing north east, in a grid of usually 64 squares. The different directions and sectors are assigned to different Gods and Guardians. It aims at providing guidelines for proper design and construction.

¹³⁷ Novalis. *Pollen and Fragments: Selected Prose and Poetry of Novalis* (York Beach ME: Phanes Pr Publishers, 1989).

¹³⁸ Lawlor, *The Temple in the House*.

Vaastu orients, places and dictates the proportions of every detail in building lines, skylines, elongations, levels, slopes, water (underground and overhead), kitchen, bedrooms, toilets, staircase, heights of ceilings and roofs, entrances, centers of doors and windows, compound walls and so on.

Humanism is a broad category of active ethical philosophies that affirm the dignity and worth of all people, based on our ability to rationally determine what is right.¹³⁹ Human experience, man himself, tended to become the practical measure of all things. Classical and Renaissance art and architecture idealized the human body and realized the potential of the body and the person as an individual. On the authority of Vitruvius, the Renaissance architects found a harmony between the proportions of the human body and those of their architecture. There was even a relationship between proportions and the Renaissance pictorial device of perspective. The Italian painter Piero della Francesca said that perspective represented objects seen from afar “in proportion according to their respective distance.” In fact, it was an Italian Renaissance architect, Filippo Brunelleschi, who was the first to formulate perspective. The concern of these



Figure 20. The Modular Man and Notre Dame du Haut at Ronchamp designed by Corbusier (sketch by the author and photograph courtesy Getty Images).

¹³⁹ M. Petrosyan, *Humanism: Its Philosophical, Ethical, and Sociological Aspects* (Moscow, Russia: Progress Publishers, 1972).

architects for proportion caused that clear, measured expression and definition of architectural space and mass that encourages in the spectator an immediate and full comprehension of the building.

Not only was the human body a significant symbolic means of creating a link between mind, body, and architecture but it was also used as a means of physical measurement. Le Corbusier's *The Modular* represents a more recent study of the Golden Ratio in the human form. For example, the ratio of the distance of the head from the solar plexus to the distance of the solar plexus to the foot is the golden mean- a ratio used extensively by the Greeks in the design of their most sacred structures. Corbusier used the modular in a number of his designs including the Notre Dame du Haut at Ronchamp, France (see Figure 20).¹⁴⁰ The principal unit of measurement in ancient Egypt was the royal cubit, a length we know to have been 52.4 cm, approximating the length of a man's forearm. The royal cubit comprised seven palm widths each of four digits of thumb width, so that it could be divided into a total of 28 digits. The Mesopotamians used measurements which were equated to the lengths of a finger, palm, or hand, while the Romans used measurements that were derived from the length of a digit, palm, or step (foot). In using parts of the human body to invent units of measurements, various cultures knowingly or unknowingly incorporated human attributes to their art and architecture. The use of forms in architecture that resemble the human body or parts of the human body, and attributes like symmetry, and visible structure are means of inducing anthropomorphism into the design of a place.

According to the Sthapatya Ved of Indian origin,

"As is the human body, so is the cosmic body,

As is the human body, so is the body (structure) of the building.

As is the body of the building, so is the cosmic body

As is the building plan, so is the cosmic plan."¹⁴¹

¹⁴⁰ Notre Dame du Haut at Ronchamp [online image], Getty Images, <http://creative.gettyimages.com/source/home/home.aspx> (accessed 18 June 2005).

¹⁴¹ Deepak Bakshi, *Understanding of Sthapatya Ved Knowledge*, <http://www.greenbuilder.com/general/articles/Sthapatya1.html> (accessed 26 November 2005).

CHAPTER XVII

CEREMONY AND ACTS OF PERSONALIZATION

When humans participate in ceremony, they enter a sacred space.

Everything outside of that space shrivels in importance.

Time takes on a different dimension. Emotions flow more freely.

The bodies of participants become filled with the energy of life,

And this energy reaches out and blesses the creation around them.

All is made new; everything becomes sacred.

- Sun Bear (Vincent LaDuke)¹⁴²

Just as desacralizing a place divests it of its sacrality, ceremony, rituals, and acts of personalization rekindle and revitalize the sacredness of a place. Lawlor believes that “sacredness” is not a static thing, which is done once and for all, but that the process of making a sacred place continues to unfold over time.¹⁴³ According to Tabb, ceremony which he refers to as “ceremonial order,” can be temporal, celebrating the changing seasons and rhythms of the day and is a means of dissolving the human consciousness and physicality so as to feel at one with the place.¹⁴⁴ Ceremony and acts of personalization help make a place one’s own and create a feeling of oneness with the place occupied. They are acts that bring a community, a group of people, family, and friends together in acts of celebrating, remembering, and being. Celebrating birthdays and weddings, mourning death, worship in groups, processions, festivals and fairs are ways of creating a sense of community, family, and belonging. Brill calls this pattern, “finishing a place,” and parallels it to the creation of the world. Rituals he believes ensure the endurance of the sacred place through imitating the beginning of the world. Thus, the completion of construction must be accompanied by ceremony, consecration or ritual.¹⁴⁵

¹⁴² Sun Bear, *Walk in Balance: the path to healthy, happy, harmonious living* (New York: Simon and Schuster, Inc., 1992), 83.

¹⁴³ Lawlor, *The Temple in the House*.

¹⁴⁴ Tabb, “Sacred Place: The Presence of Archetypal Patterns in Place Creation.”

¹⁴⁵ Brill, “Using the Place-Creation Myth to develop Design Guidelines for Sacred Space.”

Acts of personalization also deals with the extent of the ability of occupants to personalize their places. Alexander's Pattern No. 79 "your own home" in referring to this need for flexibility requires every apartment to have a garden or a terrace where the family can grow plants, and each family has the ability to build, change, and add to their house as they wish. Another pattern, "things from your life," deals more directly with personalizing spaces through things from your life that come straight from your life, you care for, and which tell your story.¹⁴⁶

In most cultures ceremony is regarded as the final official and culminating act of placemaking. Similarly they have rituals to mark various important stages and events in life. Various cultures have ceremonies to acknowledge birth, puberty, friendship, marriage, and death. The 1500 years old Tibetan birth ceremony is called Pangsai, with "pan" meaning fowls and "sai" cleaning away. The Tibetans believe newborn babies come to the world alongside fowls, and a ceremony should be held to make the fowl leave so that the babies would be able to grow healthily and mothers recover soon. On the third day of the birth of boy (fourth day for a girl), households tied together through *gyido* (association for wedding and funeral ceremonies) association gather for the rituals, bringing such gifts as barley wine, buttered tea, meat, butter and clothing for the newborn. As soon as they enter the house, they present *hada* (a ceremonial scarf) scarves to the baby's parents and then the baby. This is followed by toasting, presenting gifts, and examining the baby while offering good wishes. Some families also hold a pancake feast to entertain the visitors.

A unique funeral tradition in the United States occurs in New Orleans, Louisiana. This tradition arises from African spiritual practices, French martial musical traditions and uniquely African-American cultural influences. A typical jazz funeral begins with a march by the family, friends, and a jazz band from the home, funeral home or church to the cemetery. Throughout the march, the band plays very somber compositions. Once the final ceremony has taken place, the march proceeds from the cemetery to a gathering

¹⁴⁶ Alexander, Ishikawa and Silverstein, *A Pattern Language*.

place, and the solemn music is replaced by loud, upbeat, raucous music and dancing where onlookers join in to celebrate the life of the deceased.

Having established the importance of ceremonies and rituals in marking events, it is pertinent to determine their importance in marking places. In the modern world we hold ceremonies to bless new houses, to celebrate old ones, and fill the places we live in, and work at with memories precious to us. Photographs, greeting cards, special gifts, and even decorating the interiors to personal tastes as ways in which people claim the place as their own and as different from others. Everyday rituals have the curious effect of calming, a feeling that is associated with familiarity, order, and ritual. The smell of the hot brewing french vanilla coffee in the morning, the sound of the water from the handheld massage showerhead hitting your body, the everyday noises of the workplace, the feel of plush carpet under your bare feet when you return home, and the touch of the egyptian cotton sheets you so carefully chose when in bed at night are healing instances which result from the personalization of places through personal preferences and familiarity.

The Rockefeller Plaza is not only famous for being a part of the Rockefeller complex in New York but also because of the annual lighting of the christmas tree in the plaza. It is an event that most New Yorkers and thousands of people from around the world gather to witness on christmas eve. It brings the community together on a day it is so important to do so, and in ceremonializing the lighting of something as simple and traditional as a christmas tree, it brings a certain element of sacredness to the place and the event. The tradition of the tree began in the Great Depression during the construction of the Rockefeller Center complex in 1931. The Rockefeller Center Christmas Tree tradition formally began in 1933 when a tree, strung with 700 lights, was placed in front of the old RCA Building, now the GE Building. A Rockefeller Plaza outdoor ice skating pond was added in 1936. To the people of New York visiting the plaza during the winter, especially on Christmas eve is a tradition that brings a feeling of warmth, belonging, and familiarity.

Most instances in our lives, however habitual involve ceremonies we conduct unawares of the very fact. Making our bed in the morning when we wake up, the routes we take to work each day, the restaurants we visit for lunch, the coffee we drink at home after work, and the special prayers we say before going to bed are all ceremonies in a way. Unlike the religious ceremonies we recognize, these acts are so mundane that we seldom recognize their significance in our lives. They weave their way effortlessly through the habits, actions and communications of our daily lives. Rituals of our daily lives are ceremonies that in their constancy and habitual nature sometimes get lost in the milieu of life.

Ceremonies are a celebration of life, and celebrating a place or celebrating “in” a place makes it a part of our lives. Clearing the path in the subconscious is helped by ceremony and ritual. They give us pathways, modalities through which we can reach into the subconscious in order to better communicate with the transcendent. They help us to work through our limitations, distortions, and blocks by helping us feel in tune and regenerated in a state where our vision is clear, and our minds open to communication.¹⁴⁷ Confucius believed that rituals helped “preserve the harmony” between heaven and earth. Ceremony and ritual help us to organize and crystallize our thoughts, intentions, which enable us to better draw them into the material world and to give them outward expression.

When we unite with one another in ceremony and ritual, the life force becomes greater than the individual, it becomes a part of the fabric in the great tapestry of life.

¹⁴⁷ Jane Hope, *Secret Language of the Soul: A Visual Exploration of the Spiritual World*, (San Francisco: Chronicle Books, 1997).

CHAPTER XVIII
THE THREE TEST STUDIES

THE REICHSTAG DOME, BERLIN, GERMANY

The Reichstag is the Mary Magdalene of Germany. However incongruous the comparison, the Reichstag in Berlin in many senses is a building that has been prosecuted for and prejudiced against for the injustices that it has been subjected to. Till recently it remained a symbol of the horrors of National Socialism, racial persecution, and war politics. It is a symbol of the ambiguity and potency of German history and one of power: power that can do immense good, and power that can bring great evil. The building has been for more than a 100 years the seat of the German government. Designed by Paul Wallot, and stylistically unique with a mixture of styles, its architecture represents the conflicts, the transformation of Germany and its people as it stands today.

The German Bundestag occupied the Reichstag again in 1999 after a 66-year-long interruption. Its past is as colorful as that of the country itself. Kaiser Wilhelm II laid the foundation stone for the Reichstag in 1884. It is said by many critics that the ceremony was attended by more military members than members of the parliament. This was the Imperial era. When the building was completed in the late 1890's the Kaiser disapproved of it and called it the "epitome of bad taste."¹⁴⁸ In November of 1918 Philipp Scheidemann proclaimed the first republic of Germany from one of the windows of the Reichstag. But this democracy was not to last long. The Great Depression in the 1920's marked the end of this extremely short democratic period. The building was set on fire in 1933. In 1945, the Russians regarded the capture of the building as the climactic moment of the whole titanic struggle, and the image of the heroic soldier planting the red flag on top of Wallot's shattered dome became one of the most potent icons of victory. Adolf Hitler never spoke in this building as a parliamentarian and it was not the scene where the Enabling Act, which facilitated the persecution of political adversaries was passed. Though gutted by fire, the Reichstag survived the war, and stood

¹⁴⁸ Schulz, *The Reichstag: The Parliament Building by Norman Foster*.

tall, reminding the people of the wall which separated it from the rest of the country and of the unresolved issues that faced both the government and the people.

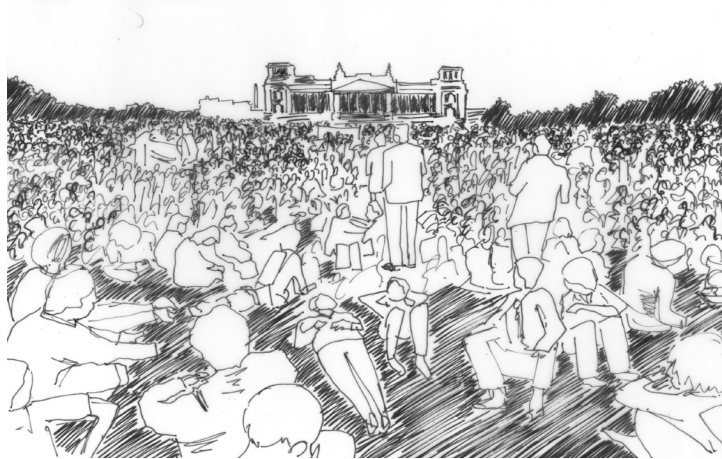


Figure 21. A gathering of people outside the Reichstag in its pre-dome period (sketch by the author).

The Reichstag was the backdrop for a number of major events in German history, from political gatherings to rock concerts (see Figure 21). In 1989, the Berlin wall was torn down and the Reichstag instead of being a building on the periphery of a nation became again the centre of Germany. It became once again, physically and symbolically the focus of a new nation and its peoples rejuvenation and healing. In 1992, Foster and Partners won a competition for the restoration of the building, a major part of which eventually became the design of the dome itself. The project that Foster and Partners initially submitted for the competition was very different from what it turned out to be. In the first design the Reichstag was sheltered under a large canopy umbrella that symbolically united the old and the new. But in 1993, with the adoption of the Spreebogen masterplan proposed by Axel Schultes for the area, the design had to be drastically changed allowing the old shell by Wallot to define the perimeter. Foster's new design was both radical, and unprecedented. According to Foster this design was rooted in four interconnected issues: the importance of the Bundestag as a great democratic forum; the accessibility of the government to the people of Germany; the

commitment towards producing an environment friendly building; and a respect for the past, both of the building and the country.

The result of the resolution of these issues led to the design of the dome as it exists today. The dome which sits atop the Reichstag forms the roof for the centrally located Bundestag chamber below. The solution to the issue of accessibility and transparency of the government is the core of the design. The dome is made entirely of glass set upon a framework of steel. Double-spiral ramps run along the interior of the dome conveying visitors to the platform on top from where the plenary chamber is visible and open for scrutiny. An inverted cone composed of mirrors beginning at the bottom of the platform pierces into the chamber below, bringing reflected light into the chamber (see Figure 22). The building itself was restored to a state where it functioned as a living museum. The restored Reichstag was officially opened to the public in a large ceremony on 19 April, 1999. Sections of the building that had been defaced by the red army, covered with graffiti and vandalized were left as they were: a testimony to the past. A highly compartmentalized and stratified building, the Reichstag was opened up, both laterally and vertically to allow for more views to the outside, let light in, and create a feeling of unified but flexible space. The building is new in spirit but still old at heart.

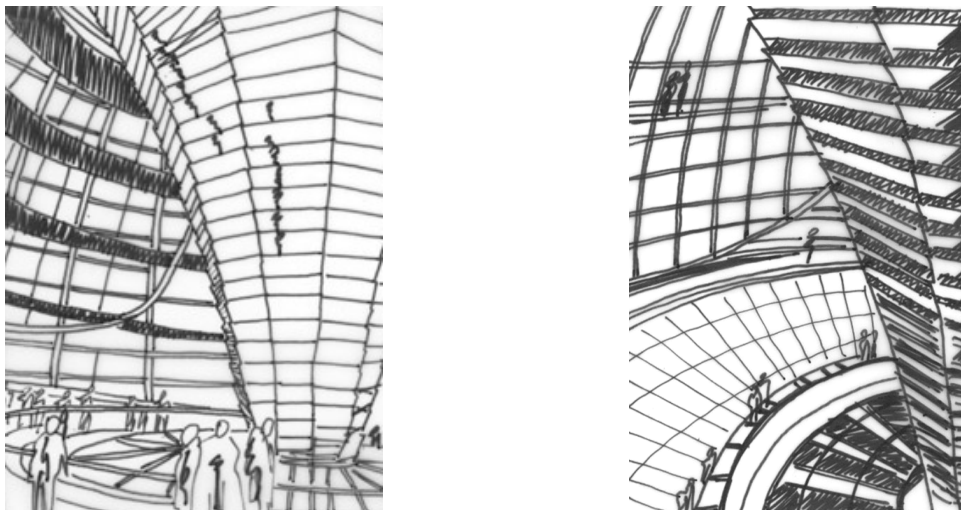


Figure 22. Sketches of the interior of the dome (sketches by the author).

THE CASA MILA, BARCELONA, SPAIN

Casa Mila is the pride of Barcelona, and of Catalonia. Designed by Antoni Gaudí, and constructed between 1906 and 1910, it is a turn of the century revolutionary building. Though Gaudí's previous designs were unique, unusual and fantastic, he surpassed himself in the design for the last secular building he ever worked on. Built as an apartment complex for the upper-middle class, the Casa Mila was imbued with religious and symbolic meaning, a lot of which were accepted and then later rejected by the owner because of the tensions created by the anarchic and anticlerical movements in Barcelona at that time. Where the Reichstag has been compared to Mary of Magdalene, the Casa Mila is more synonymous with the Virgin Mary herself. Gaudí a fervent catholic originally intended to set atop the roof of the Casa Mila a giant sculpture of the Virgin Mary and child flanked on either side by two angels.¹⁴⁹ Subsequent political upheaval in Barcelona led to the decision against installing this sculpture on the roof, but the traces of Gaudí's religious beliefs linger in every pore of the building. Pere Mila i Camps, a patron who had suggested Gaudí as the right architect for Casa Batllo, now commissioned a building for himself from Gaudí. Mila was a politician, property developer, publisher of *El Dia Grafico*, and an impresario. In 1903, he married a wealthy widow, Dona Rosario Segimon Artells. In June of 1905 she bought a prime corner site on the Passeig de Gracia and carrer Provenca. The existing building on the site was pulled down and the foundations for Casa Mila laid in 1906.¹⁵⁰

The site was and still is located in the *eixample* district of Barcelona. At the time Mila and Gaudí were working on the design of Casa Mila, the *eixample* district was in a state of constant flux. Previously open spaces, land was being developed at an astonishing rate, and grid-pattern streets were being paved to service what grew on these sites. Shanties were being razed to the ground as well as palaces only a few decades old. The city was lusting for fresh blood and a new body. It was during this time that Jujol, who had been forced to work as a student assistant while in college with Gallissa

¹⁴⁹ Maria Antonietta Crippa, *Antoni Gaudí (1852-1926) From Nature to Architecture* (Köln, Germany: Taschen, 2003).

¹⁵⁰ Gijs van Hensbergen, *Gaudi* (New York: Harper Collins Publishers, 2001).

and Font¹⁵¹ was introduced to Gaudí by a mutual friend. In a matter of time Jujol replaced Rubio as Gaudí's right hand man. On 2 February 1906, Gaudí submitted the initial plans of the Casa Mila to the city council. His intention was to design a building that displayed character and was squarely based in Catalan culture. He believed in architecture where form and function were in harmony, and derived from the spirit of the site.

The plan that evolved over a period of four years was the first of its kind, with its organic cluster of honeycomb rooms, each different from the other, and undulating on the interior as well as the exterior (see Figure 23). The facade of the first design that Gaudí submitted was very similar to the Casa Batlló, repeated four times and with a few additional flourishes. As Gaudí began understanding the site better and as his own life changed, the design of the building also transformed itself. He was in the habit of learning from everything he saw and observed. He argued, pointed out errors, and remembered everything useful. His designs were the result of this keen observation of the ways other architects worked added to his own skill and creativity.



Figure 23. A model of the plan of the Casa Mila (photograph by the author).

¹⁵¹ Antoni M. Gallissa and Josep Font i Gumà were architects in Barcelona during this period with whom Jujol apprenticed before working with Gaudí.

Gaudí once said, “The intelligence of man can only function on one plane, that is in two dimensions... But the intelligence of the angels is in three dimensions, they can work directly with space. Man can’t begin to understand space until he has seen the realized object in front of his eyes.”¹⁵² And, for this very reason Gaudí directed a lot of the work on site, constantly changing, adding, and removing. Like the creation of a sculpture, Gaudí the sculptor kept paring away at the piece till he was satisfied with the results. During this time the exotic and the primitive had become an inspiration for the contemporary artists of the time. Picasso was searching for inspiration in African masks and carving. The influence of Art Nouveau was also being felt and merging with the art of the so called “primitives” to bring forth a new kind of art and architecture- architecture with the fluidity, the flowing lines, and the expressive dynamism of art nouveau and the raw strength, the spirit, and the power of the exotic forms of art.

The Casa Mila is a result of a combination of these creative forces, and the political changes and upheaval that was occurring in Barcelona in this period of time.



Figure 24. The undulating façade and the elephant trunk like pillars of the Casa Mila (photograph by the author).

¹⁵² Juan Bergos Masso, *Gaudi: The Man and His Work* (New York: Bulfinch Press, 1999), 30.

The mass of the undulating stone exterior contrasts with the delicate tracery of the wrought iron balconies, and the enormity of the elephant trunk columns contrasts with the with the lightness of the window openings above them (see Figure 24).

Six stories high with eight apartments on each floor grouped around the internal patios, one circular and the other elliptical. The Casa Mila has a structure that supports a free plan on an iron skeleton. The freedom that this iron skeletal; structure provides to the planning of the interior and the exterior is evident in the design of the Casa Mila. The surface of the building is made from stone anchored to the internal brick wall with clamps. The stone blocks in the façade came from the mountains of El Garraf. The roof of the Casa Mila is dotted with stair exits, and elevator machinery rooms which are disguised by spiraling cones covered with ceramics and topped by pieces that look like warrior helmets, and three dimensional crosses. The roof is the most visited part of the Casa Mila because of its fantastic nature, and the dialogue the unusual forms create between the building, the people, and the environment.

When completed, the Casa Mila exploded into not just the Barcelona architecture scene but into the world architecture scene. Called *La Pedrera*, or the quarry by the people of the city, the Casa Mila has earned a number of names over the century it has been in existence. It echoed the presence of everything organic and natural: mountains, trees, oceans, rock formations, flora, and fauna. In its wavy ocean like exterior and the curving walls of the interior separated by the two open patios, the building was a statement of the one man's creativity, and the spirit of an age. It catalyzed an architectural revolution in Catalonia, and pushed architects to test their limits both aesthetically and structurally. Today, it stands as a symbolic and political statement in the center of the city, whole but still incomplete.

CASTELLO DI GARGONZA, MONTE SAN SAVINO, ITALY

Castello di Gargonza sits like a jewel atop a hill in the Monte San Savino, a comune¹⁵³ in the Tuscany region of Italy. It is a medieval village overlooking the valley between the towns of Arezzo and Siena. Shaped somewhat like an egg and surrounded by fort walls, it is the image of a typical Italian medieval village (see Figure 25).¹⁵⁴



Figure 25. Aerial views of Gargonza from two different angles (photographs by Marcel Erminy).

Mostly built during the 12th and the 13th centuries, the agricultural period of the village began in the 18th century and came to a halt with the start of World War II. Farms and agricultural land extends out of the reaches of the village and spills out onto the valley below. Immediately after World War II, that brought to a general exodus around 1950, Gargonza was almost completely abandoned and in danger of turning into a dilapidated decrepit old ghost of a village. The Salviati family acquired most of the village and some of the land around it. With the help of officials of the comune the Salviati family began restoring the buildings, the roads, and the agricultural buildings

¹⁵³ A comune in Italy is the equivalent of a township or a municipality. It is the basic administrative unit for a number of smaller villages and towns. It is referred to as a commune in France, a municipality in Denmark, and as a district in India.

¹⁵⁴ Marcel Erminy [photograph], Aerial views of Gargonza (acquired February 2005).

(including a winery, olive press, and stables) of the village one at a time in the 1970's. Slowly but steadily the village was restored to its former glory.

The family uses the village as a conference center and resort for people who want to enjoy the calm and tranquil beauty of Tuscany without the hustle and bustle of tourism. Some of the houses have been outfitted with modern conveniences without losing their character and serve as apartments, while some buildings have spaces that serve as the conference rooms. The Residence, as the management calls it offers 23 apartments with bathrooms, and a cooking area. Breakfast buffet is served in the cellar of the olive press. The center also has a restaurant called *La Torre di Gargonza* and an outdoor swimming pool outside of the village walls. Guests at the residence are encouraged to hike the botanic trails, bird watch, and ride horses to gain a better understanding and feel of the village and its surroundings.

Charles W. Moore and Donlyn Lyndon in their book *Chambers for a Memory Palace*, use this small village as a case study for the themes and compositions studied in the book. Lyndon as an introduction to Castello di Gargonza says, "My first reaction was to be surprised, again, at how small the place is. The second was to find, again, how full it is with the lessons we propose- acting, of course, in concert not solo."¹⁵⁵ To Moore and Lyndon Gargonza was a special place, a place where memories flitted by in the rough stone of the walls, the well worn paths, and the smoke from the chimneys (see Figure 26).¹⁵⁶ To the people who visit Gargonza today, it is still a special place. A secret hidden away in the rolling hills of Tuscany, Gargonza is a place of repose, and a place to get away from the mundane world. While the designed creativity of Reichstag and Casa Mila make them special, it is the innocent unplanned beauty of Gargonza which is its most charming feature. The changes that occur in the character of the village, with changing seasons, and changing times of the day are more obvious in Gargonza than in the Reichstag dome or the Casa Mila. This is more so because of the complexity of volumes and spaces that are present, and can be experienced in the village. Paths lead into gardens, gardens into courts, and courts into homes. The falling leaves of the trees

¹⁵⁵ Moore and Lyndon, *Chambers for a Memory Palace*.

¹⁵⁶ Marcel Erminy [photograph], Inside the village of Gargonza (acquired May 2005).

in fall, and the snow covered boughs of the very same trees in the winter are given new life and green sprigs in the spring.

Though the original inhabitants of the village no longer occupy it, their memories and the seeds of their effort are still visible around every corner in this village. Therein lies the charm and most significant facet of the village- the knowledge that real people had built the houses with their own hands for themselves, dug the well for the community, and planted the vines and trees that provided them with food and fruits. The personality of the inhabitants has embedded itself into the character of the place, and remains lingering as memories from the past.



Figure 26. Inside the village of Gargonza (Left: photograph by Marcel Erminy, Right: photograph by the author).

As a resort and conference center, it retains the charm of a fortified medieval village situated on the top of a hill in Tuscany. The charm remains but the vitality that comes out of watching the original occupants of village go about their daily lives and businesses, children playing on the streets, the noises of the cattle and poultry is absent. There are of course the visitors who stay in the apartments and the groups that gather for the conferences, but there is always the underlying knowledge that they do not belong to the place, and the place not to them.

This is true of the visitors to the Reichstag, but the Reichstag was never intended to be open to the public when designed. The Casa Mila though to a lesser extent also lacks because of the inability of the visitors to observe the people who actually occupy the apartments, but this is expected in lieu of their needs for privacy. But, in spite of this, the very fact that Gargonza has survived the travesties of about nine centuries and still retained the capability of an organic village to be flexible in its functions makes it a very special secular place.

Gargonza has a slight quality of a ghost town, where you expect a farmer to walk out of his house any minute with a hoe in his hand, and a basket of eggs in the other, and you are left with the haunting anticipation, never realized.

Probably this very ghostly quality of Gargonza is what makes it special to the visitors who come looking for something amiss in the large bustling cities like Florence, and Rome, and probably this is the very reason which inspired Lyndon and Moore to use this village as a case study for their patterns.

CHAPTER XIX

TEST 1. THE REICHSTAG DOME

There is a road to freedom.

*Its milestones are Obedience, Endeavor, Honesty, Order, Cleanliness, Sobriety,
Truthfulness, Sacrifice, and love of the Fatherland.*

- Signed Hitler, Painted on the walls of a concentration camp.

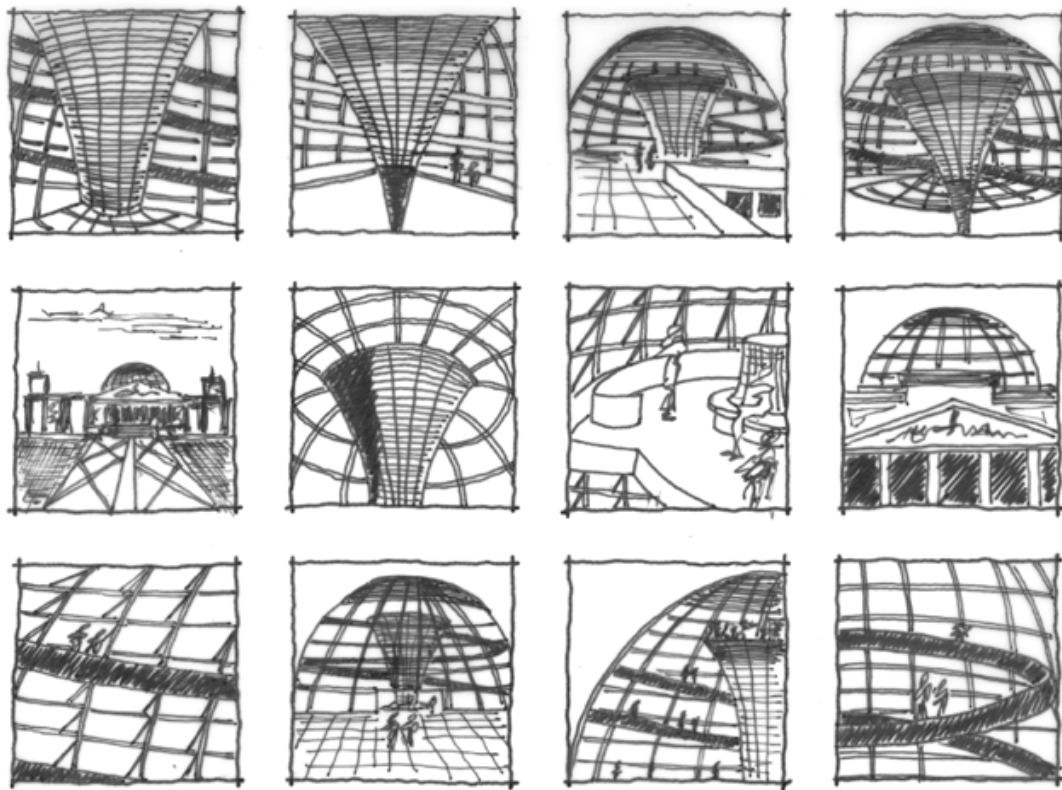


Figure 27. The patterns in the Reichstag Dome (sketch by the author).

The following is the summary of the 12 patterns of the Reichstag Dome (see Figure 27). The scales which follow each pattern indicate the magnitude of presence of the pattern in the particular test study.

THE CENTER

In designing the revised scheme for the Reichstag in the summer of 1993, Foster and his team of designers were inspired by Le Corbusier's emphasis on the significance of the "fifth elevation." What Le Corbusier identified as the "roof level" and as an often under-designed element of a building, urged the designers to explore ways in which a new raised element could be developed at rooftop level. The cupola or the "lighthouse" as it was called was strongly based in the thinking of Buckminster Fuller with whom the practice had collaborated on a number of early projects. Foster's design for the dome bears striking resemblances to the geodesic Solar House designed by Fuller. The reflective cone in the center provided the solution to lighting and ventilating the chamber and also created a vital connection between the chamber and the cupola.

The center of the Reichstag building is marked by the dome itself. The center of the glass and metal dome in turn is identified by the inverted mirrored cone that with its battery of 360 angled mirrors forms a giant Fresnel lens like that used in a lighthouse.¹⁵⁷ It works in a manner opposite to that of a lighthouse by directing the light from the horizon down into the plenary (debating) chamber. The original building designed by Paul Wallot placed the debating chamber in the center of the building because of the suitability of the size of the space and the intention to be seen as the heart of the parliamentary process.

The Reichstag and the dome are a center and a node in more than one sense. The Reichstag is the seat of the government and lies in the capital city of Germany. It is itself a landmark to the people of Berlin and directions are often given, and meeting places decided in reference to this building. The new development plan of the Spreebogen area around the Reichstag, proposed by Axel Schlutes revolves around the presence of the Reichstag, and the axis which extends east-west from this building towards the river Spree. The inverted cone which is the center of the dome is therefore the center of the center of a center.

¹⁵⁷ A Fresnel lens is a type of lens invented by Augustin-Jean Fresnel. It reduces the amount of material required compared to a conventional spherical lens by breaking the lens into a set of concentric annular sections known as *Fresnel zones*. The overall thickness of the lens is decreased, and composed with discontinuities between them.

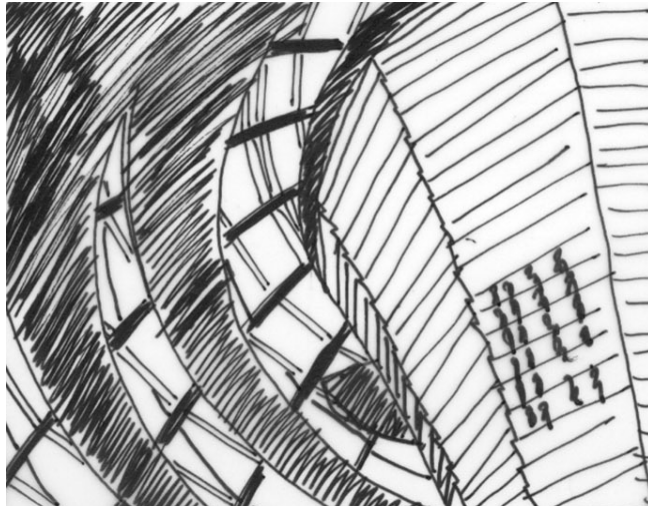


Figure 28. A sketch of the inverted cone (sketch by the author).

The dome is not only the geometric center of the plan, but is also the energy and activity center of the building. It crowns the most significant part of the building, and is itself traversed by thousands of Berliners and people from the world over everyday. The inverted cone which pierces through the center of the dome, extending into the chamber below is literally a conductor of light and symbolically that of hope and vitality (see Figures 28 and 29).

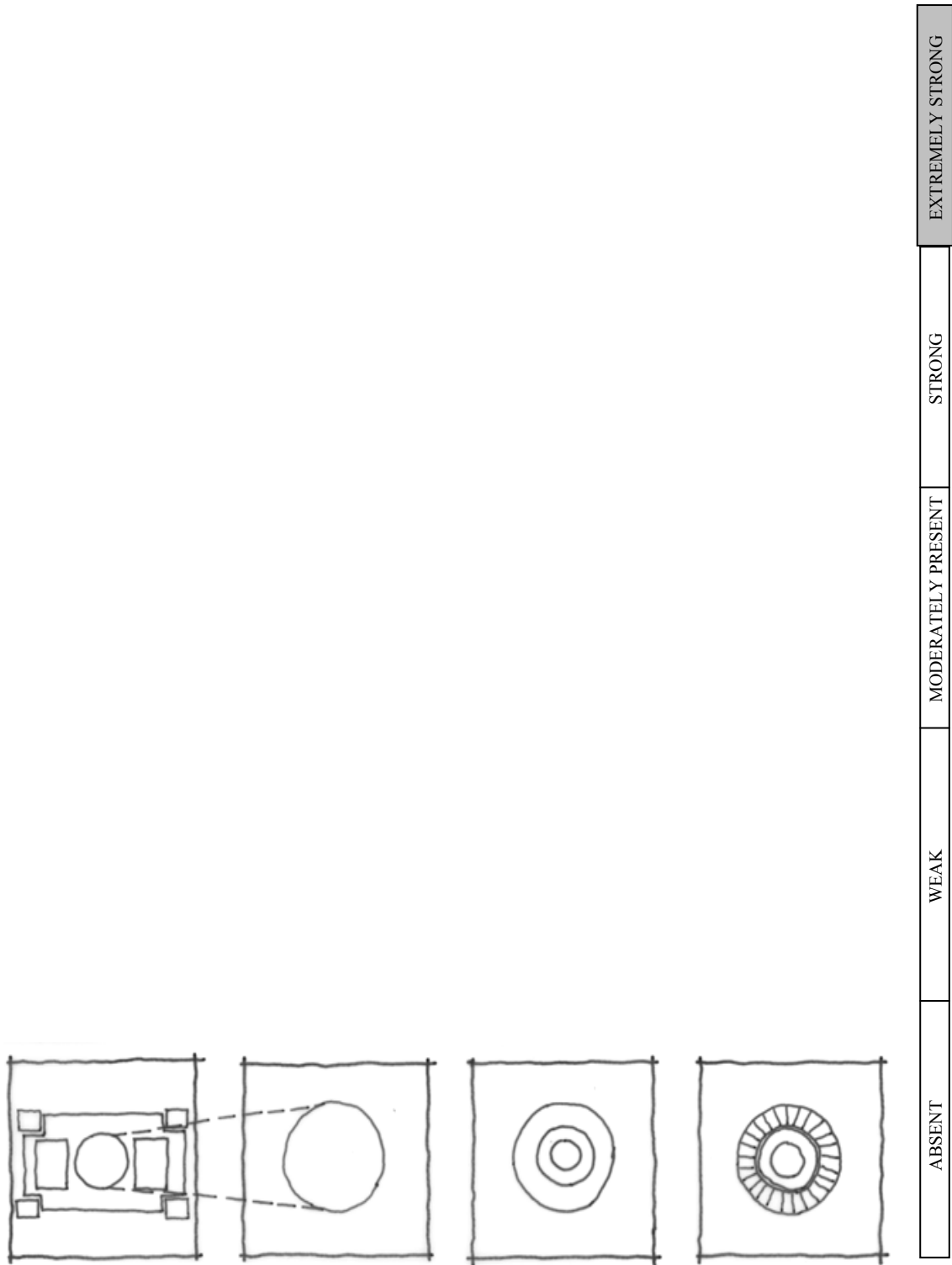


Figure 29. The development of the center (sketch by the author).

AXES AND DIRECTIONALITY

The dome, as in most historic examples representing the celestial sky connects the earthly materiality to the heavens above. The cupola has a diameter of 40 meters at its base and rises to a height of 23.5 meters. It intentionally rises far above the roofs of the surrounding buildings and in doing so demonstrates its importance in the past and present workings of a country. By using glass as the material for the dome, Foster enhances this feeling and at the same time creates a symbolic representation of the transparency of the system to the German citizens. The height and therefore verticality, in combination with the transparency express power, progress, and democracy simultaneously.

Directionality of the dome is defined by its symbolic reaching towards the sky. Through its height and its transparency it establishes a vertical connection between the solid mass of the building and the open skies above. The building is punctured by two rectangular courts and the horizontal axes lie along the shorter side of the courts and the longer side of the building. The horizontal axis of the building is stronger on the exterior when standing in close vicinity to the building therefore obscuring the view of the cupola. When viewed from the other end of the long expanse of lawn in front of the building this axis is balanced by that of the dome. The vertical axis is emphasized by the natural flow of air encouraged by the flue effect of the cone and the cupola, and by the dynamic movement of people along the double ramp (similar to that in the Vatican Museum) on the interior of the cupola shell (see Figure 30).

The vertical axis of the dome is highlighted not just by the flue effects of the inverted cone but by its physical form as well. In rising from the interior of the plenary chamber and opening out into the dome finally supporting the viewing platform at the top, the cone at the center of the dome reminds of the “axis mundi”- the axis of the world.

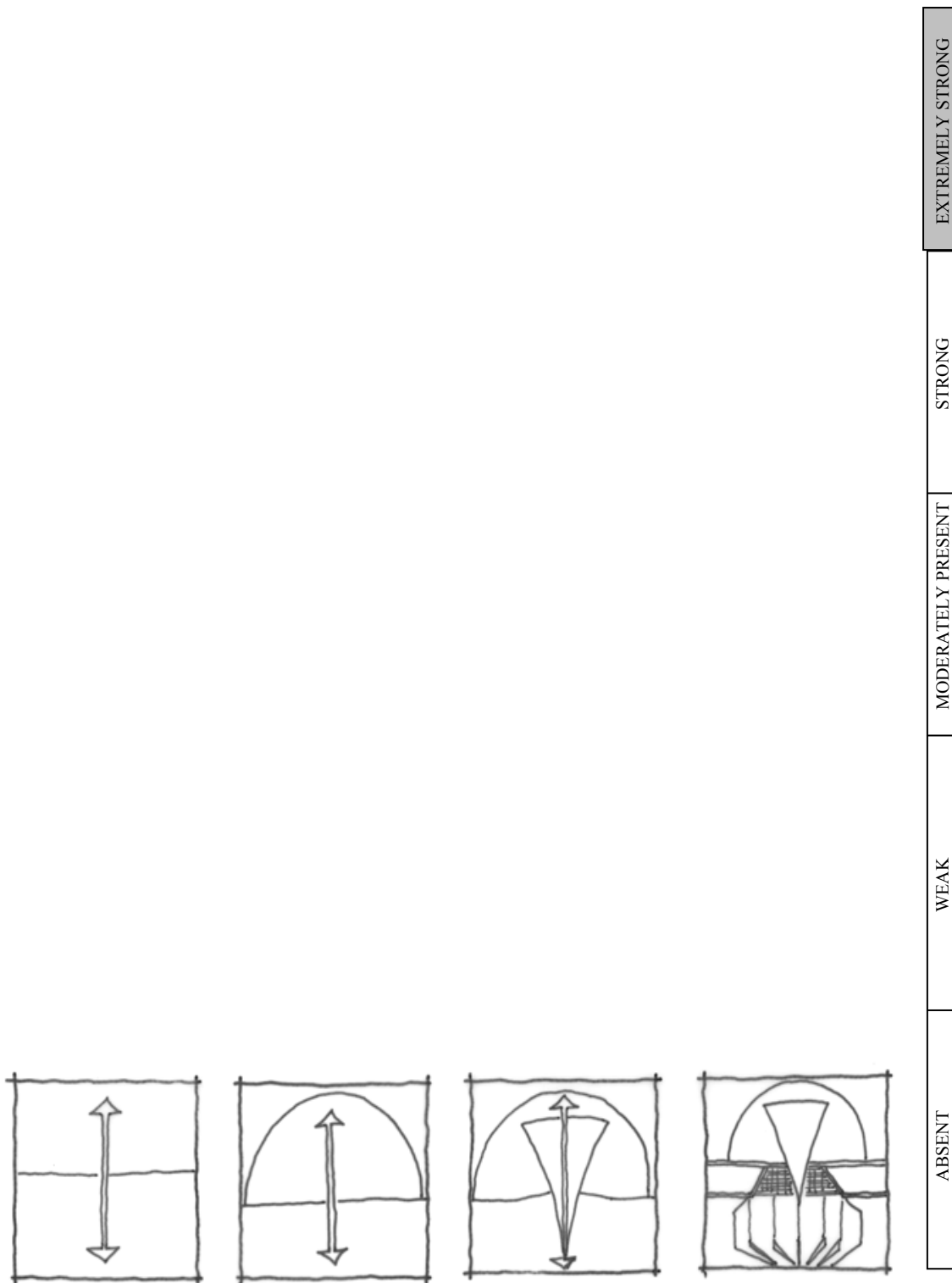


Figure 30. The development of the axis (sketch by the author).

BOUNDING AND EDGES

The physical boundaries of the dome are defined by its glass and steel shell. The visual boundaries are defined by the horizon and the edges of the city that can be seen from the dome. Construction of the cupola began in 1997 and on completion the structure looks more fragile than an 800 ton steel framework would. The framework is composed of 24 catenary shaped meridian ribs and horizontal ring beams, trapezoidal in cross-section, and placed 1.7 meters apart. The dome is glazed using 3000 square meters of laminated safety glass. The double ramp mentioned earlier acts like a binding that enhances the internal kinetic energy of the space by allowing for movement and containing at the same time. The suspended ramps apply vertical load on the cupola, but they also provide lateral stiffening, keeping the ribs from spreading, causing the collapse of the cupola (see Figure 31).

The cupola was foreseen to be a major public attraction, and it was important that without placing overbearing constraints on the public, a certain level of noise insulation be achieved. This is pertinent because it raises the question of “auditory bounding.” The ramps were soundproofed by isolating them on neoprene pads resulting in a noise-absorbing sandwich between the shell and the ramp. The sounds produced within the cupola, thus remain in the cupola and the members of the parliament can now see the constant stream of visitors but not hear them. This arrangement satisfies the needs of both the people visiting the Reichstag, and those using it, by creating group boundaries.

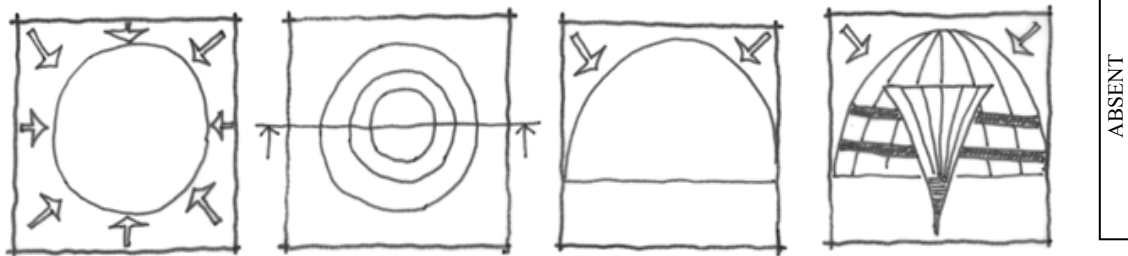


Figure 31. The development of bounding (sketch by the author).

GRAVITY

Gravity, one of the most omnipresent forces of nature as represented in architecture signifies the connection with the mother earth, Gaia. In the Reichstag Dome gravity is represented in the inverted cone that pierces the chamber below, in turn connecting the dome and sky above with the more grounded earth below (see Figure 32). There exists an interplay between the circular chamber and the continuing dome above with the rectilinear enclosure of the Reichstag. According to Foster there are two famous precedents to such an interaction – the assembly buildings of Chandigarh, India, and Dacca, Bangladesh designed by Le Corbusier and Louis Kahn respectively.¹⁵⁸

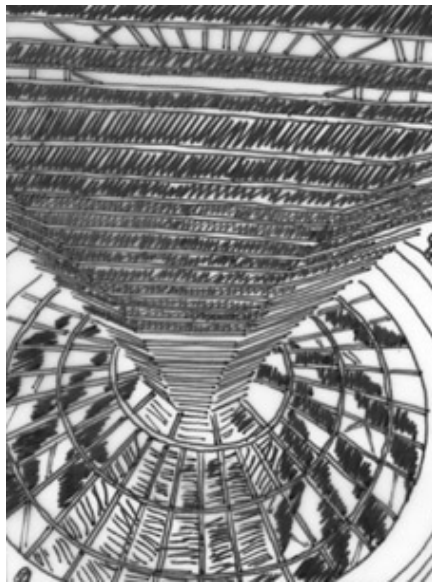


Figure 32. A sketch of the inverted cone piercing the roof of the chamber below (sketch by the author).

In both of these buildings a lantern announces externally the presence of a circular chamber buried within a rectangular surrounding space. While the dome marks a space within a place that is significant, the inverted cone directs the

¹⁵⁸ Foster, *Rebuilding the Reichstag*.

attention of the visitors from the views of the city when on the viewing platform, down the angled line of the cone and through the glass covering into the plenary chamber below. Like a telescope it focuses your attention on a single space when inside the dome, which itself functions in the form of a “placemark” (not unlike a landmark) from the exterior.

The rectangle is related to the cube, and to the Navajo it is related to the female form, or Gaia. Among the freemasons the rectangle defines the limited space of the terrestrial world.¹⁵⁹ The circle is the expression of perfection, and Buddhists marked circles around themselves as representations of their sacred space. Their location in the center of the circle was identified with the center of the world. The sky seemed to be a huge hemispherical tent with holes pierced in it. The symbolic relationship between a rectangle and circle is that of human and divine and of equilibrium between the two (see Figure 33).

The rectangular plan of the Reichstag when crowned by the circular plan of the dome is reminiscent of such a relationship. This strong relationship lends itself to the opposing forces of gravity and levity i.e. a strong connection to the earth and to the cosmos above.

¹⁵⁹ Rosicrucianism and Freemasonry, *Aiwaz Net Institute Encyclopedia*.
<http://www.aiwaz.net/modules.php?name=Content&pa=showpage&pi2&page=7> (accessed 29 November 2005).

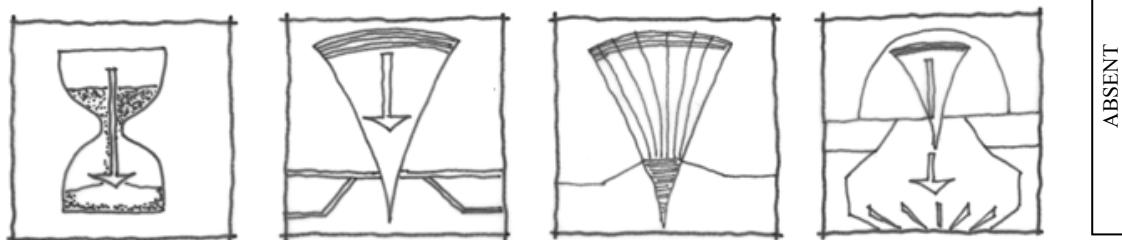


Figure 33. The development of the gravity (sketch by the author).

EXTREMELY STRONG
STRONG
MODERATELY PRESENT
WEAK
ABSENT

LEVITY

Levity, the counterpart to gravity according to Newton's Law of Motion, (which states that to every action there is opposed an equal reaction)¹⁶⁰ is in most cases inevitably present in confluence with the other. As an ectype it is represented by the shoots and the branches that rely on the roots for subsistence. The Dome, the inverted cone and the spiral ramp are upward reaching in character and play the role of energy diffusers and containers.

On the interior, the reflecting cone is a visible "type" of this pattern and the story of its design and development is very fascinating. In densely planned medieval cities, angled mirrors were traditionally hung below the windows of buildings on narrow streets to reflect light into their interiors. Following this idea David Nelson (Foster's partner) performed his own experiments using a flat mirror to throw light into a dark basement room, and proved to himself that daylight could certainly be redirected. The detailed development of the cone into a "sky-catcher" was the work of Claude Engle the American lighting

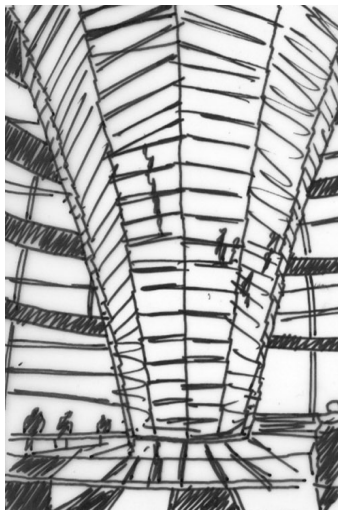


Figure 34. A sketch of the cone rising up to meet the dome (sketch by the author).

¹⁶⁰ Isaac Newton, Translated by Andrew Motte, *Sir Isaac Newton's: Mathematical Principles of Natural Philosophy and his System of the World* (Berkeley CA: University of California Press, 1962).

consultant who conducted numerous practical experiments using a small model constructed of metal foil.

On the exterior, the dome is the more visible “type” of the pattern. Historically the dome has been symbolic of the sky vault and used in reference to the movement of celestial objects and constellations. In the case of the Reichstag Dome, it is more a symbol of the new life, renewal, and progress, all of which have associations with levity. This directionality which tends towards the sky and the heavens is underlined by the lightness of the materials used in the construction of the dome (see Figure 34).

The dome is a dynamic structure, shifting appearance and changing moods as the day progresses, as seasons change, and as the people who walk the ramps and enjoy the beauty of Berlin move on. As a symbol of new Germany and the progress it has made in the years since its rule by the Weimar republic and the Nazi's, the dome and the elements of levity are representative of inspiration and hope. In stretching out towards the sky it transcends the mundane world that lies below and through the lightness of its flight separates itself from its past (see Figure 35).

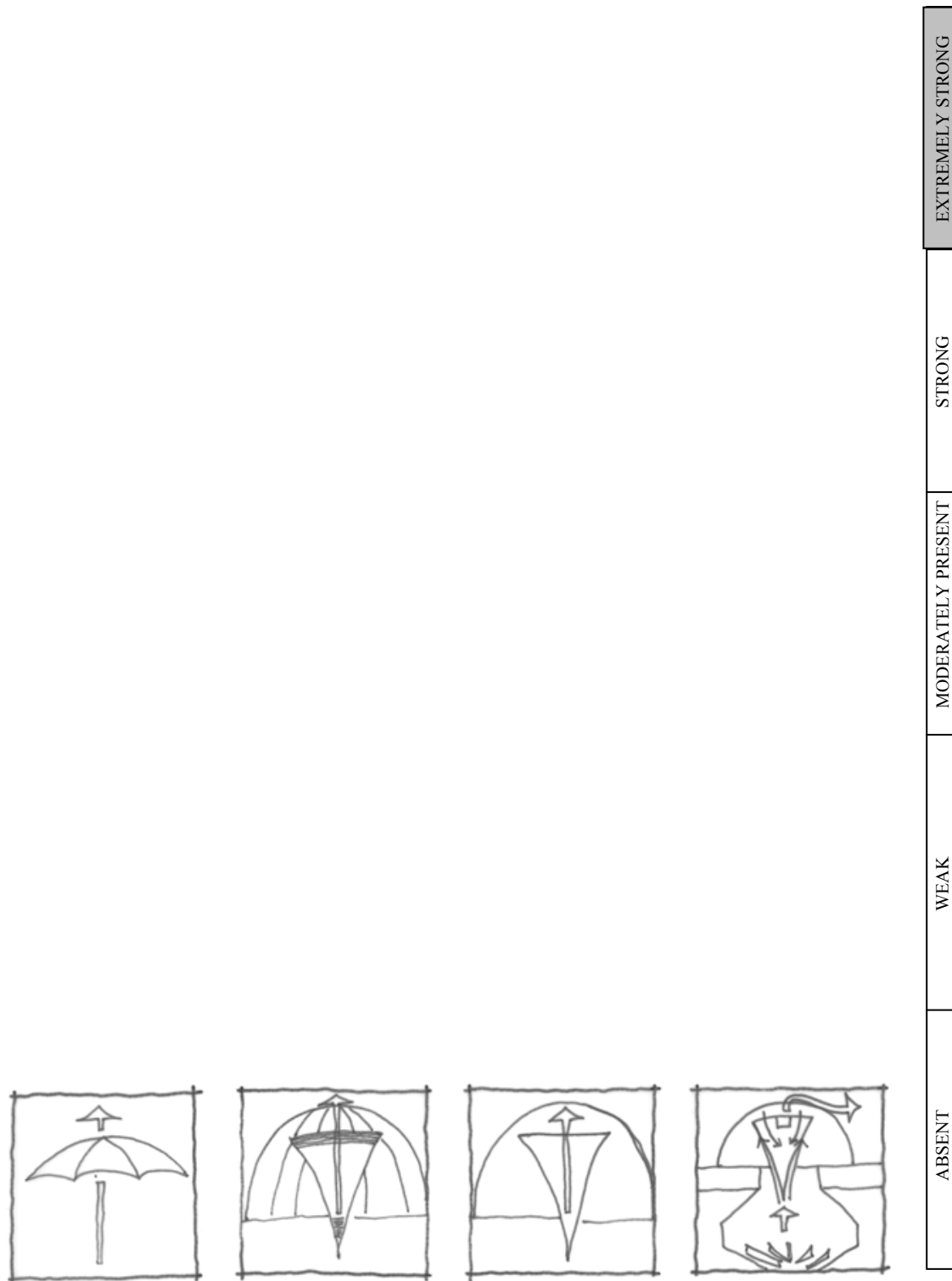


Figure 35. The development of levity (sketch by the author).

FORMS AS MEMORY STIMULI

The Dome in being a dome reminds the citizens of Berlin of the older dome that existed on the Reichstag, before it was gutted by fire in 1933 and bombed during the World War II. The foundation stone for the Reichstag was laid in 1884. Paul Wallot the designer of the Reichstag rejected the then popular Renaissance and High Baroque models, but employed various stylistic forms to create something entirely new and unique. Bernhard Schulz refers to this style as the “synthetic imperial style,” of which the Reichstag is considered to be the sole example.¹⁶¹ During this period of time, different architectural styles were associated with specific meanings: Romanesque with the Holy Roman Empire; Renaissance with the bourgeois; and Baroque was considered courtly. Wallot took on the responsibility of designing a building which would not alienate the advocates of any stylistic forms. The dome was considered vital as an aesthetic component and not in its function towards day lighting or ventilation into the debating chamber below. The dome which was finally constructed was far from



Figure 36. The Reichstag with the new dome (photograph by the author).

¹⁶¹ Schulz, *The Reichstag: The Parliament Building by Norman Foster*.

resembling the one designed by Wallot. It was a glass and steel structure and had a vaulted form called a polygonal cloister vault. After winning the competition for the redesign of the Reichstag one of the foremost problems Foster faced was that of the dome.

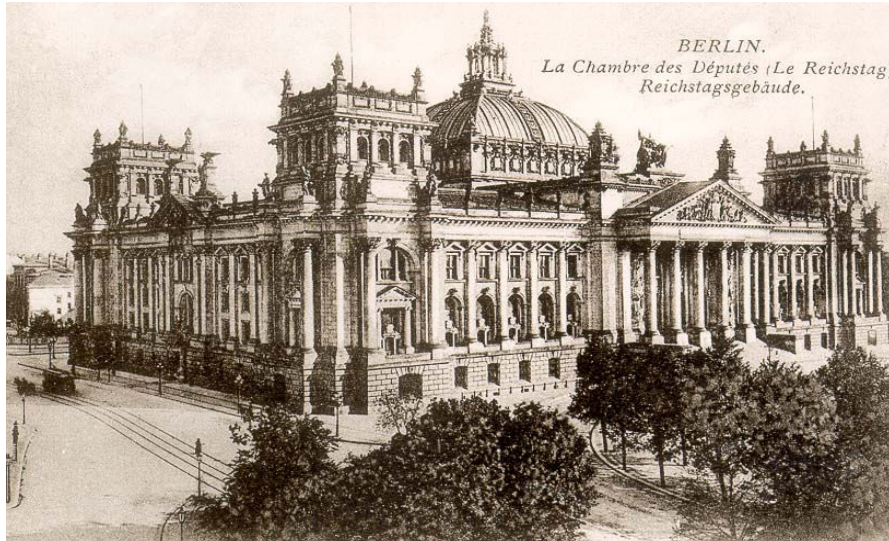


Figure 37. A drawing of the original Reichstag and dome.
Designed by Paul Wallot (image courtesy AGON).

Opponents of the dome saw it as an expression of the reactionary, arrogant past and supporters saw it as a symbol of former sovereignty. The form that Foster suggested and was finally constructed was seen as a fitting symbol for an open democracy and a forward-looking nation. The form of the dome today though reminiscent of the original dome, just by being a crown for the building achieves the aim of reminding the citizens of the past, but also holds the promise for a hopeful future (see Figures 36, 37 and 38).¹⁶²

¹⁶² A drawing of the original Reichstag and dome, AGON,
<http://www.bwbs.de/UserFiles/Image/1926-1930/Reichstag.jpg> (accessed 05 August 2005).

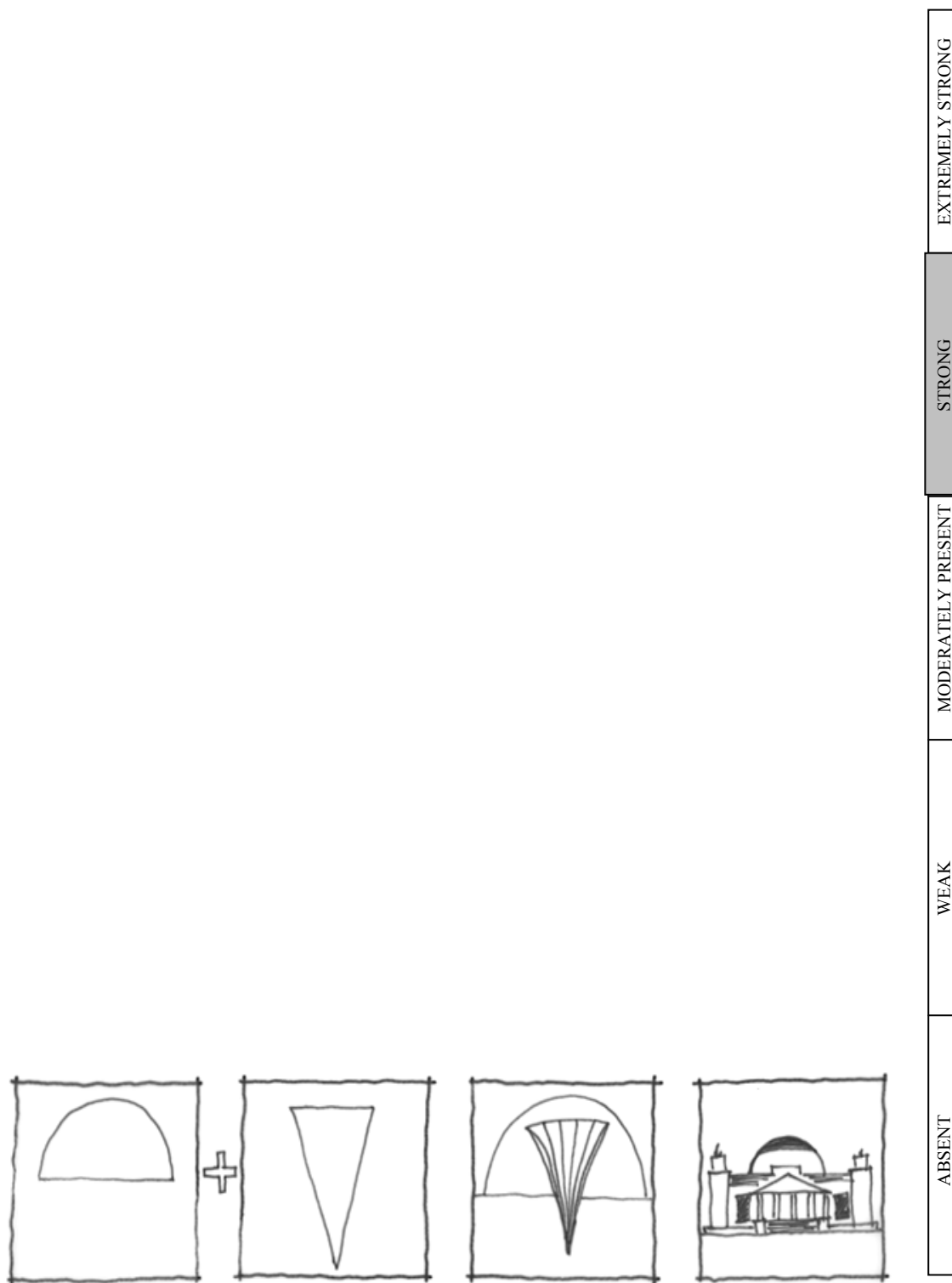


Figure 37. The development of the forms of memory stimuli (sketch by the author).

THE NATURE WITHIN

Nature within exists in the Reichstag Dome in the form of the light that enters the dome through its glass walls and is reflected off the mirrored surface of the inverted cone. The concave mirrored cone has been called a “light sculptor,” which with its 360 angled mirrors reflects daylight downwards into the chamber.

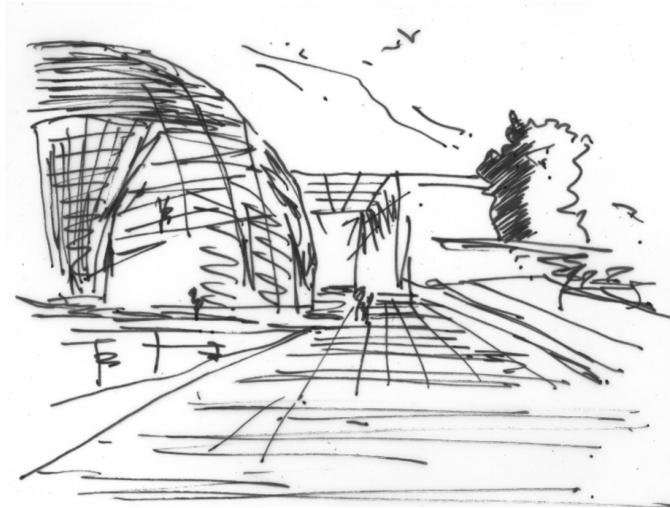


Figure 39. Sketch of the dome against the sky (sketch by the author).

The sun-shade that runs on a track inside the dome contributes to the manipulation of sunlight inside the dome. Powered by photovoltaic cells and controlled by sensors it moves on a track inside the dome, enabling the provision of optimum sunlight, heat and into the interior.

The visitors exit the elevator in an enclosed room and have to walk through an area exposed to the elements before entering the structure of the dome (see Figures 39 and 40). The contrast between the 19th century roof space, devoid of any artificial controls, and the technologically advanced interior of the dome from the 20th century is a fitting tribute to both the eras and the changing forms of the nature within.

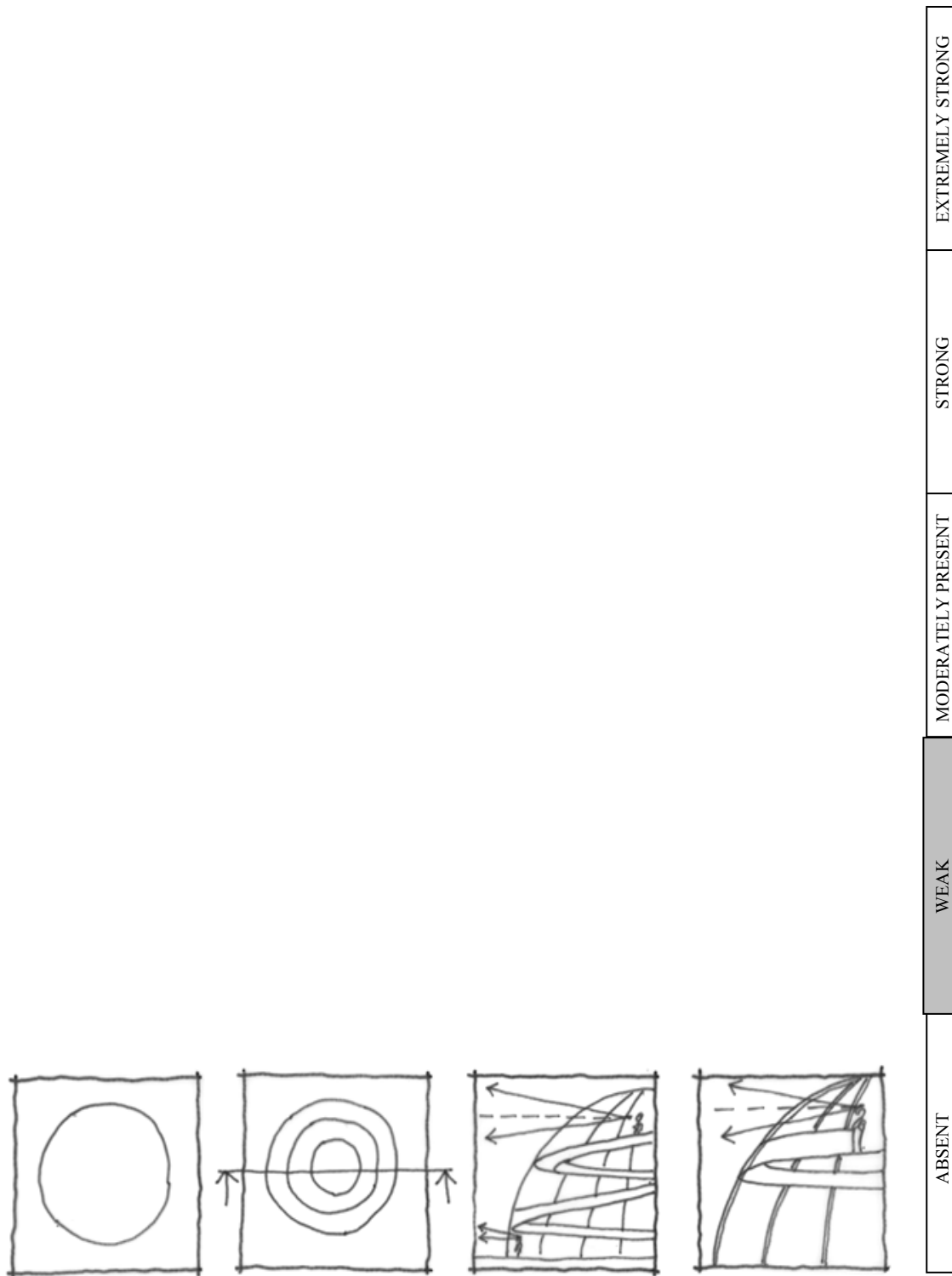


Figure 40. The development of the nature within (sketch by the author).

MATERIALITY

Glass and metal represent transparency, honesty, stability and the spirit of the times. Contrary to Wallot's original intentions for his own glass and steel dome, Foster's new dome unreservedly displays the relation between dome and building as a disjunctive one. Neither does Foster, like Wallot, aim at organic integration of old and new, nor does he, like Wallot's many critics, phobically reject any outward sign of stylistic discontinuity, multiplicity, or ambivalence. A futuristic shape, the dome's deliberate staging of discontinuity and suspension, it might be argued, reflects Foster's desire to interrupt any teleological view of history. It encodes in plastic form the many breaks and fissures of German twentieth-century politics, and historical memories (see Figure 41).

Like the historical materialist (Historical materialism shows that history, or social change, occurs via human forces, and not because of God, destiny, or some unknown non-human force that shapes events. Historical materialism is "materialist" because it is interested in how humans have created material culture, and in how this material culture has formed the basis for historical change.) in Walter Benjamin's view, Foster's dome, presents history as the "subject of a structure whose site is not homogenous, empty time, but time filled by the presence of the now," a now defined by the recollection of both the good and the disastrous chapters of German history.¹⁶³

An illuminated spacecraft sitting on top of an architectural fossil, Foster's new Reichstag, one might conclude, prevents any chauvinistic or revisionist narrative of German history; it envisions a German future neither overshadowed by nor willing to forget the national past.

¹⁶³ Walter Benjamin, Marcus Bullock, and Michael W. Jennings, *Walter Benjamin: Selected Writings, Volume 1, 1913-1926* (Cambridge UK: Belknap Press, 1996)



Figure 41. The magnitude of the pattern on a scale (drawn by the author).

TRANSITIONS AND THRESHOLDS

The spiraling ramp that leads visitors and the people of Germany to the top of the dome from where they can view the proceedings of the plenary chamber is a transition both in vertical and horizontal space. The ramp encompasses not only the three dimensions of space but also that of time, providing the people walking it a transition enhanced by the changing views.

The threshold to the dome is the open space on the roof of the Reichstag. Visitors are led from the lobby on the main floor level to elevators that rise to the roof of the building. On exiting the elevator visitors are greeted by a smaller lobby space opening out onto the roof top. The roof offers magnificent uninterrupted views of the city of Berlin and is remnant of the past and what remains of it.



Figure 42. The dome and the roof set against the evening sky (photograph by the author).

The glass and steel cupola forms a very physical but ephemeral and fluid boundary between the exterior and the interior of the dome. The perception of transition though strong is fleeting, like powerful but transitory flashes of the past (see Figures 42 and 43).

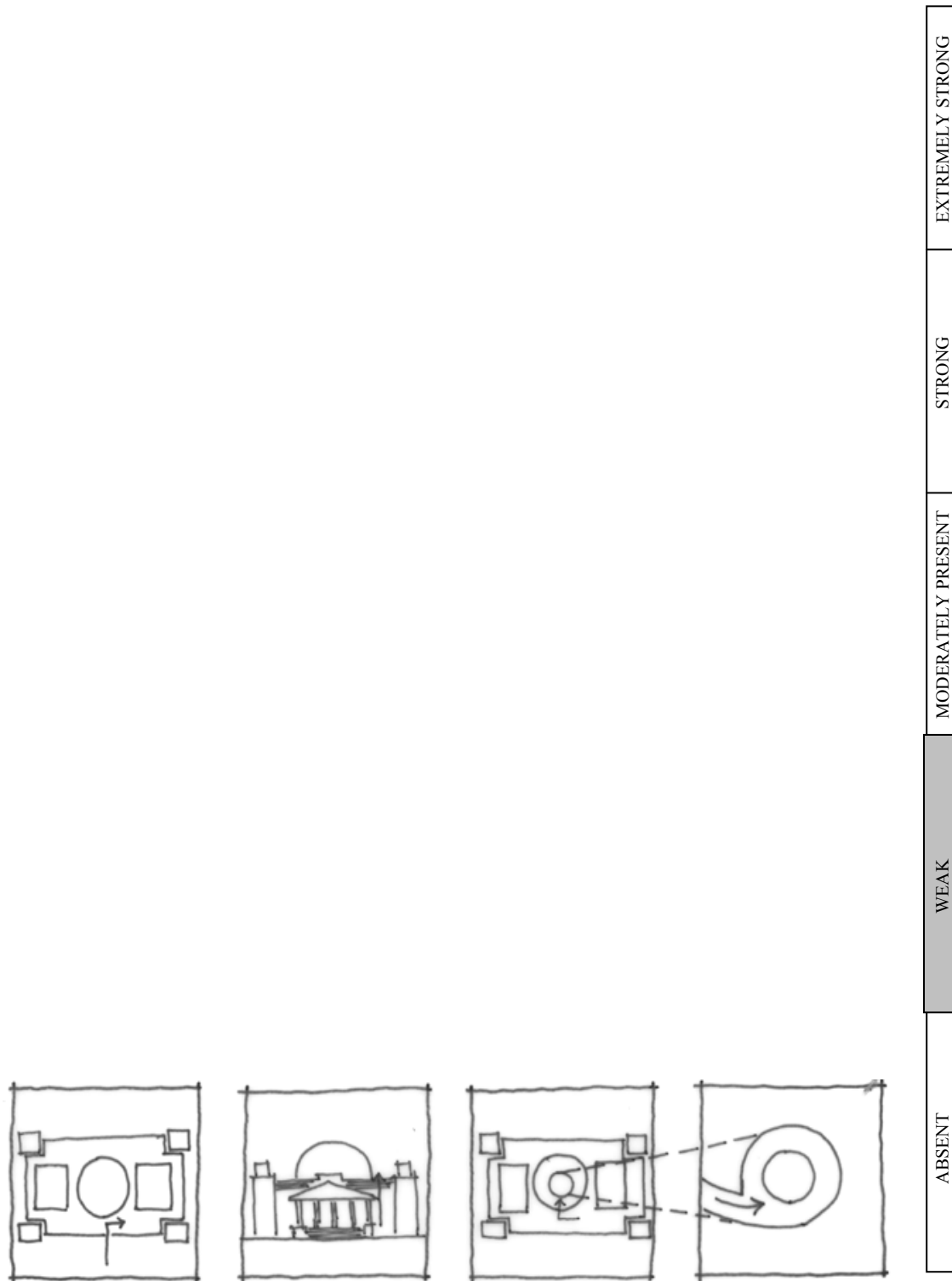


Figure 43. The development of transitions and thresholds (sketch by the author).

SPATIAL HIERARCHY AND INTIMACY GRADIENT

Spatial hierarchy, the sequential organization of space is an important component of the design and expression of the symbolism of the dome. It is seen in the acceptance of the citizens as the highest power, and as having influence over the government, by placing them in the dome which provides them a view over the entire plenary chamber. The feeling of control and free will in electing the representatives of the government, and their visibility when at work is enhanced by the designation of the dome as the most publicly accessible place in the Reichstag. As the visitors to the dome move from standing in a line right behind each other to the elevator (where they are in close proximity), to the lower part of the dome (experiencing the dome in its entirety), to the spiral ramp and finally to the platform at the top, which is much smaller in size than the lower

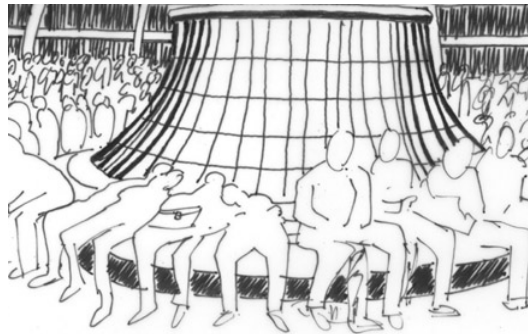


Figure 44. Intimacy gradient inside the dome (sketch by the author).

section, and strangers are thrown together in their admiration of the dome, their government, and their city (see Figures 44, 45, and 46).



Figure 45. Intimacy changes outside and inside the dome (photographs by the author).

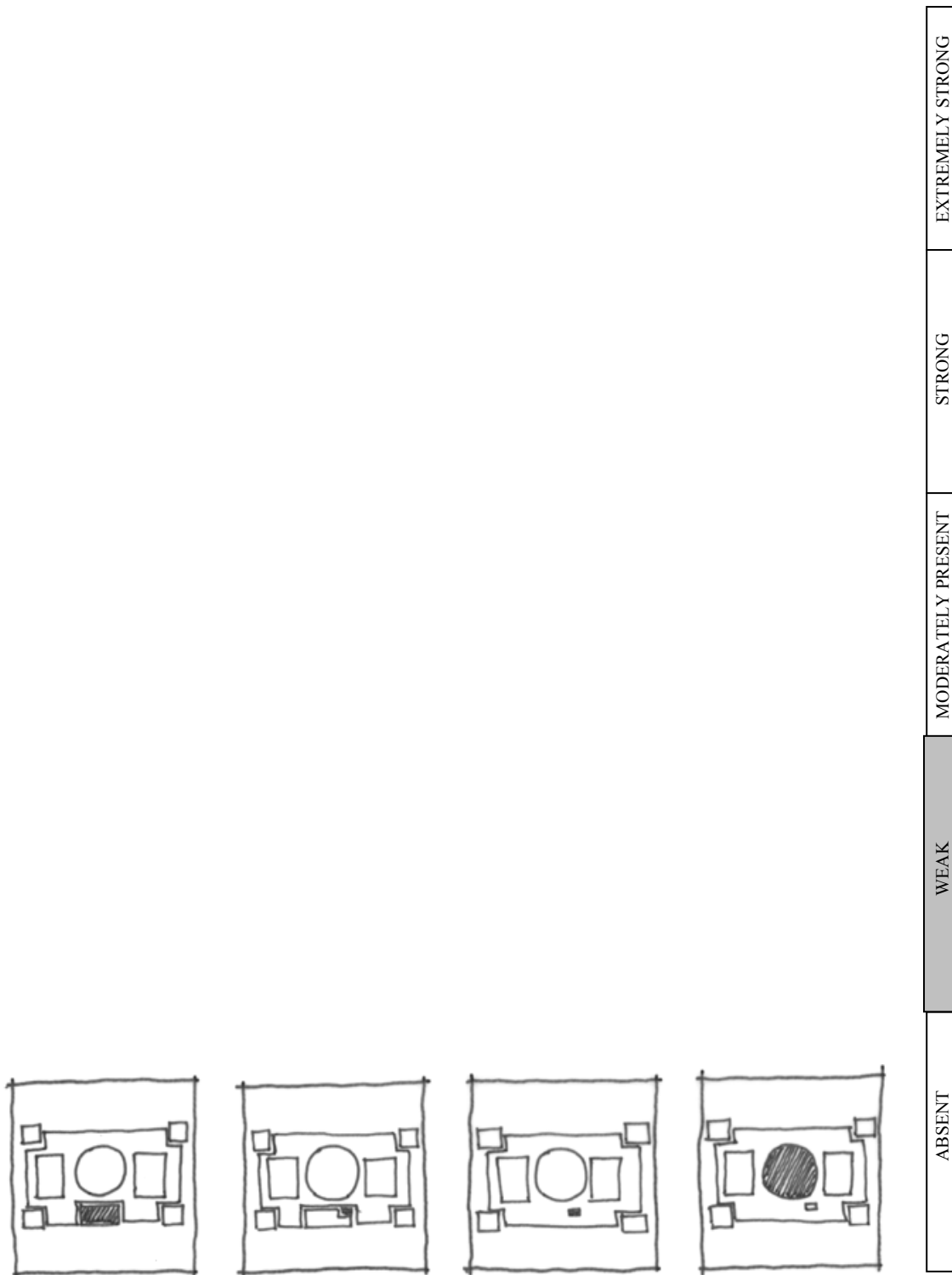


Figure 46. The development of spatial hierarchy (sketch by the author).

ANTHROPOMORPHISM

In the Reichstag, a building of monumental scale, the dome exhibits a varying degree of monumentality and intimacy. The dome itself is a large structure, towering over the puny human being, but the ramps are scaled to human scale. They are comfortably intimate to crowded depending on the number of visitors at a given time. As the visitor travels upward to the viewing platform at the top of the dome, the intimacy level increases, both because of the

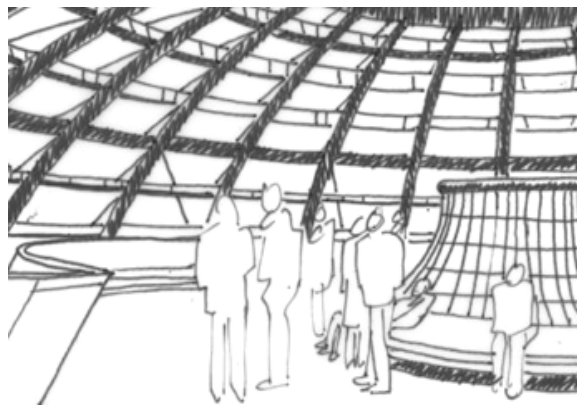


Figure 47. Anthropomorphic scale inside the dome and outside the building (sketch and photographs by the author).

decreasing space, and decreasing height of the dome above. The scale is therefore reduced to one at which human bonding is more possible (see Figures 47 and 48).

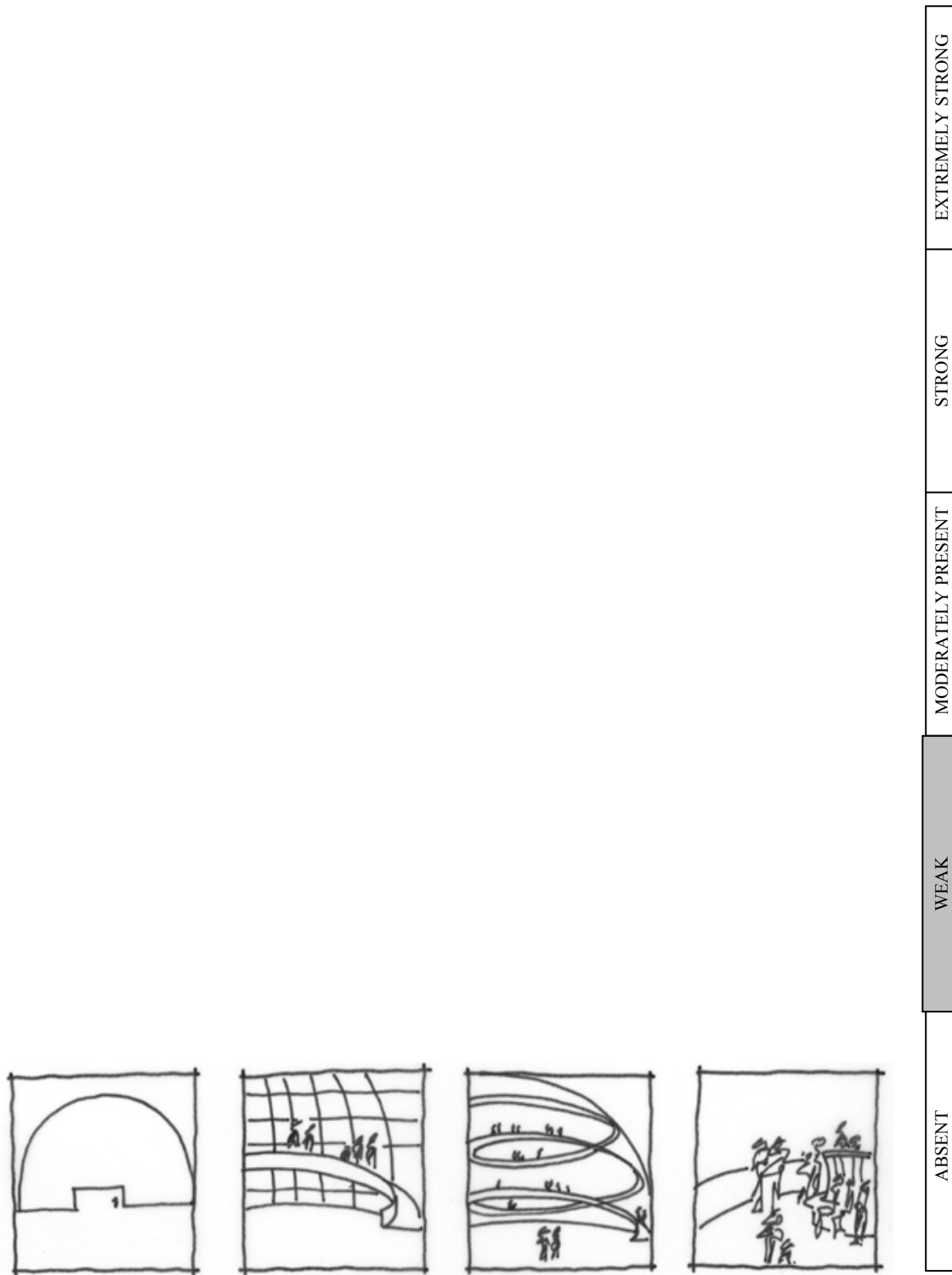


Figure 48. The development of anthropomorphism (sketch by the author).

CEREMONY AND ACTS OF PERSONALIZATION

Ceremony and acts of personalization are patterns which enable users to make a place their own. The Oxford English Dictionary defines ceremony as a formal occasion, typically celebrating a particular event or the ritual procedures observed at such occasions. Ceremony, which is also chronologically the final act of creation involves the perambulation on the interior of the dome and the ascent to the top from where visitors and the citizens can view both their government and their city. One of the most significant acts of personalizing the space is expressed through the personal preferences of the visitors in taking photographs. One of the most common sites when visiting places of national and historic importance is the hordes of people trying to get the most photographs of their visit. The choices people make in their background, foreground, angles, lighting, and content are ways in which they seek to preserve the memory of the place on two dimensional media. Each image is different from the other, and in some way expresses the personality of the person, and his or her perception of the place.

The acts of the members of the parliament in the plenary chamber or the Bundestag also represent ceremony: they are the formal procedures that the members conduct beneath the dome, which are visible to the visitors. It is a ceremony that both the officials and the people of the country can take part in (see Figure 49).



Figure 49. The magnitude of the pattern on a scale (drawn by the author).

CHAPTER XX

TEST 2. THE CASA MILA

Unfinished, a picture remains alive, dangerous.

To finish a work, to finish a picture?

What nonsense! To finish it means to be through with it, to kill it, to rid it of its soul, to give it its final blow the coup de grace for the painter as well as for the picture.

- Pablo Picasso¹⁶⁴

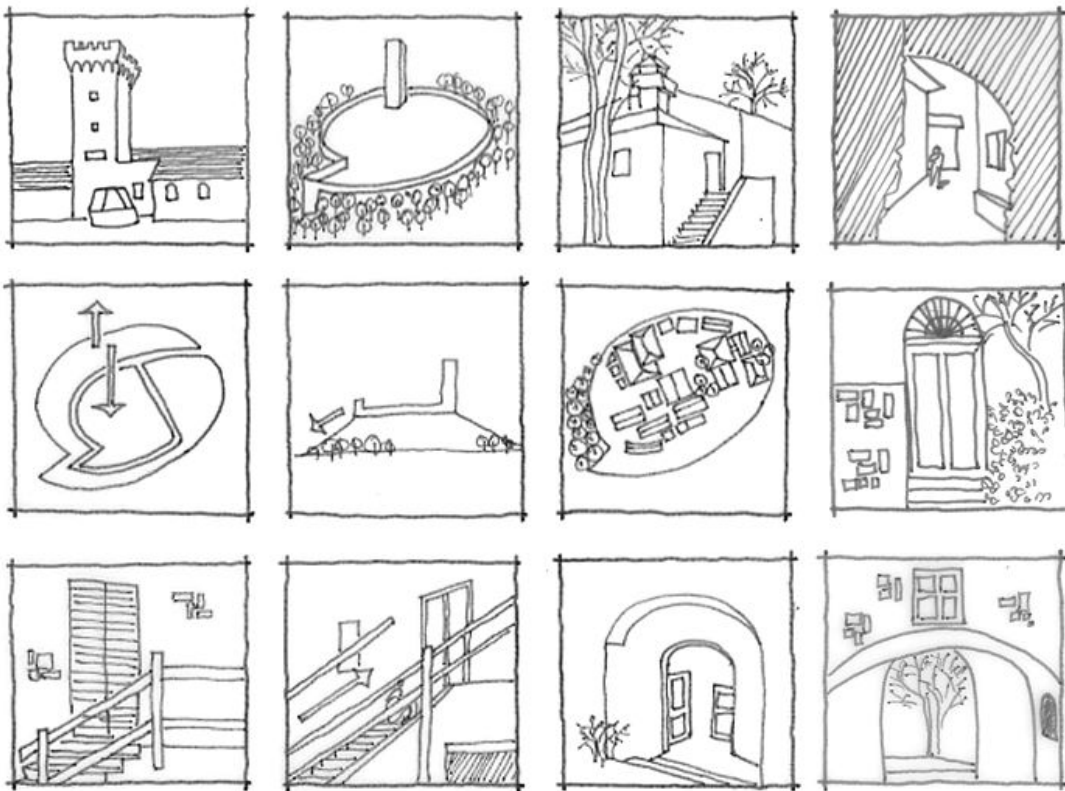


Figure 50. The patterns in Casa Mila (sketch by the author).

The following is the summary of the 12 patterns of the Casa Mila (see Figure 50).

¹⁶⁴ Pablo Picasso, *Brainy Quotes*,

<http://www.brainyquote.com/quotes/quotes/p/pablopicas159930.html>, (accessed 15 December 2005).

THE CENTER

An apartment building, Casa Mila, also called the La Pedrera (the quarry) was built between 1906 and 1910 for the Mila family. The site for the apartment complex was full of history. Surrounded by Roman roads, it was said that the plot was where the eleventh century shrine to the Virgin of Gràcia had once been.¹⁶⁵ Gaudí's plan for the Casa Mila was in a constant state of metamorphosis even as the contractor began pulling down the original house on the site.

A new building type, similar to that used by Louis Sullivan in the Carson, Pirie, Scott department store was adapted for the Casa Mila- the free plan structure. Gaudí was inspired by the light industrial structure of railway stations and used iron columns alternated with pillars of reclaimed brick for the framework. The undulating facade now recognized as an integral part of the building was hinged onto the front elevation of the iron skeleton.

Casa Mila has not just one but two centers. The plan of the Casa Mila reminds of an amoeba with 2 nuclei, supporting the rest of the form and structure. The core patios enable the iron skeleton to be structured in a way that provides an incredible amount of freedom in the design of the exterior as well as the interior. The spacious apartments are arranged along an undulating facade and the two patios on the interior, one circular and the other elliptical in shape. The patios were and still are a comfortable gathering space for residents and visitors before proceeding to their destinations. The two patios encapsulate the spirit of the building in every other pattern exhibited in this space. They truly are the nuclei.

The Casa Mila was a building that took a single dominant idea: the mountain. In the so called primitive cultures, mountains were venerated as the abode of Gods and the center of the world. In the medieval world, the mountain castle sat geographically and psychologically right at the center of the landscape where it functioned as symbol of authority and control. With its enormous rock like form, the Casa Mila symbolically expressed a sacrality which evolved from

¹⁶⁵ Hensbergen, *Gaudi*..

the enormity of this building and its insinuation of a “center,” both to the city and to Gaudí’s political abjuration (see Figures 51 and 52).



Figure 51. The interior patios of the Casa Mila (photographs by the author).

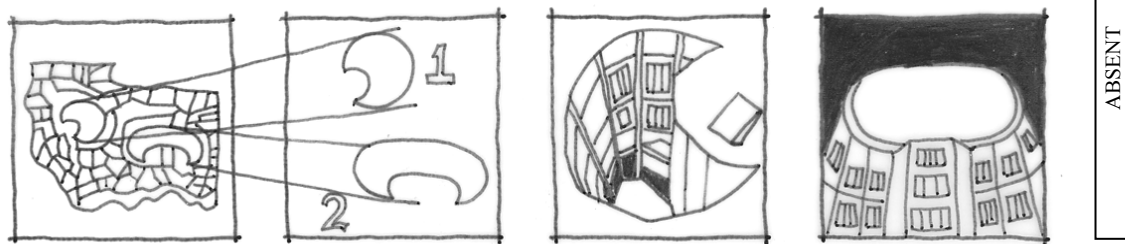


Figure 52. The development of the center (sketch by the author).

AXES AND DIRECTIONALITY

The undulating facade on the exterior instead of taking away from the horizontality of the building enhances it in a rather unusual manner. As the viewer's eye travels along the surface to grasp the building in its totality, the horizontal axes is emphasized in a manner similar to that of waves frozen in motion in the sea. On the interior the patios while defining the eccentric centers of the building also create the vertical axes for the building.

Gaudí once said, "The intelligence of man can only function on one plane, that is in two dimensions...But the intelligence of the angels is in three dimensions, they can work directly with space. Man can't begin to understand space until he has seen the realized object in front of his eyes."¹⁶⁶ The Casa Mila stands as a testimony of this statement. Every house in the *eixample*¹⁶⁷ district of Barcelona till that time had employed straight lines, rectilinear floor plans, and right angles.



Figure 53. The façade and the enclosing walls around the patio (photographs by the author).

In the Casa Mila, regularity and strict orthogonality lose their place to an organic fluidity that provides for complex and interesting axes and directionality.

¹⁶⁶ Ibid, 167.

¹⁶⁷ The new district, laid out in a perfect checkerboard pattern of square blocks (*manzanas*) when the city expanded beyond its medieval walls 150 years ago. Its main thoroughfare is the Passeig de Gràcia is one of the streets abutting the Casa Mila.

The interior of the apartments look like a cluster of bubbles arranged haphazardly, with movement and visual access from room to room defined by necessity and mutability. There is a naturalness about the apparently chaotic arrangement that defies the then traditionally accepted norms of design and planning (see Figures 53 and 54).



Figure 54. Looking up the patio (photograph by the author).

On the exterior the axes of the buildings facade are imposed by the confines of the streets on two sides, and are therefore aligned with them, including the corner of the block which was cut off diagonally. Even here Gaudí has managed to impart an element of surrealism to the facade amidst the hustle and bustle of life on the streets (see Figure 55).

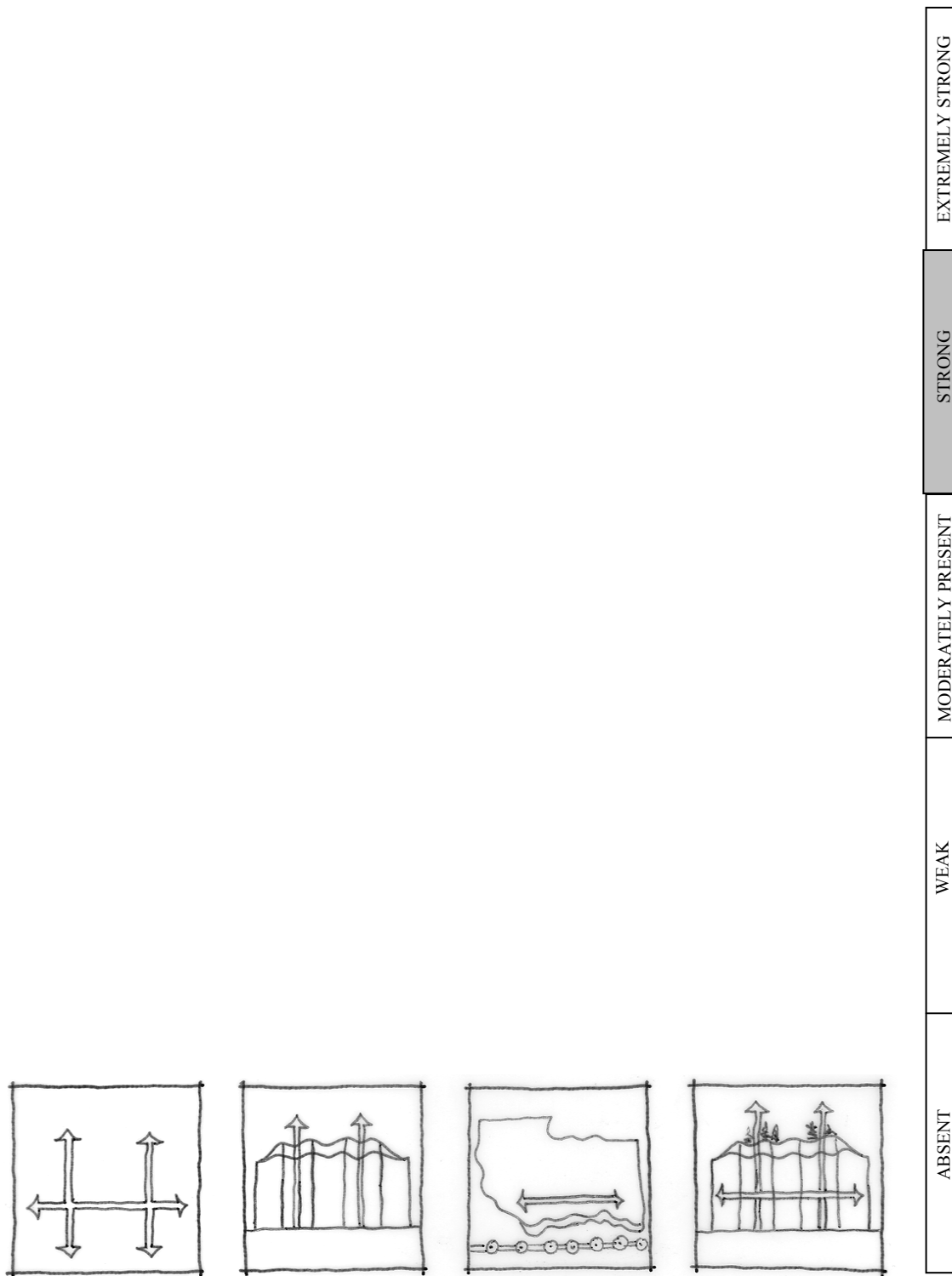


Figure 55. The development of the axes (sketch by the author).

BOUNDING EDGES

The boundaries are defined by the physical materiality of the walls, floor and the ceiling. Within the apartments, conversational boundaries are in some way demarcated by the presence of various articles like rugs, lights and visual filters. On the exterior of the house, the plot edges are defined by the streets on both sides and the pavement.

The bounding edges of the Casa Mila, or its façade is one of the most unusual, strange, and controversial exteriors, and remained so till the construction of Frank Gehry's Guggenheim Museum in Bilbao, Spain. The exterior wall is remarkable for its pock-marked creamy limestone curves, tangled wrought iron balconies, columns that look like elephant trunks, and a forest of shard-encrusted chimney-stacks on the roof. It is said that Jujol, Gaudí's protégé rolled out lengths of paper to scale 1:1 for each of the balconies. On these he sketched with charcoal to create the wrought iron balconies we see today on the facade, in



Figure 56. The bounding surfaces of the Casa Mila (photographs by the author).

keeping with the general theme of washed-up seaweed left hanging on the Casa Mila's rock-like ledges.

Unlike a lot of contemporary architecture where designers and architects only involve themselves with the drawing up of the plans, sections, and elevations, rarely visiting the site during construction, Gaudí personally supervised the construction of the Casa Mila, sometimes even changing the design for the façade on site. Gijs van Hensbergen in his book on Gaudí says, "The Casa Mila's gentle forms flowed from the roof like water over cataracts, leading the eye down through a series of whirlpools. As an architectural ensemble it managed to avoid ambiguity while leaving everything open to doubt."¹⁶⁸

On the inside of the apartments, the residents were free to choose their furnishings, but even these to a large extent were defined by the layout of the rooms, and the curvature of their bubble shaped walls. Residents personalized these spaces, and created boundaries through furniture layout, and lighting to provide for an individualized use of each of these spaces, and created the edges for various functions within (see Figures 56 and 57).

¹⁶⁸ Hensbergen, *Gaudi*, 174.

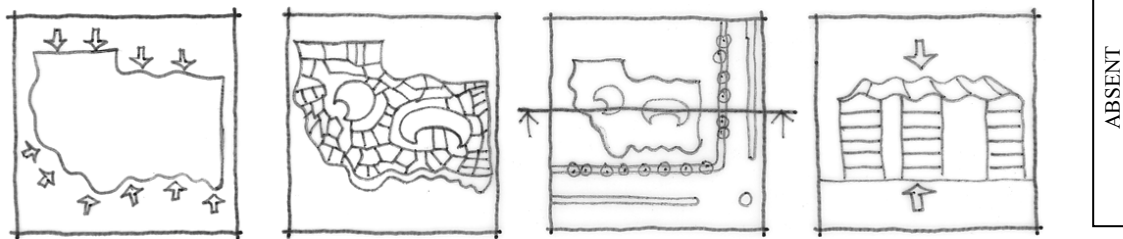


Figure 57. The development of bounding (sketch by the author).

ABSENT	WEAK	MODERATELY PRESENT	STRONG	EXTREMELY STRONG
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GRAVITY

Gravity, the connection with the earth is present in the foundations and in the transitory features that enable level changes. Hexagonal starfish ceramic tiles cover the pavement around the building indicative of Gaudí's preoccupation with the ocean. In connecting the waves above, to the ocean below, Gaudí creates the element of gravity in the design. As a tribute to Gaudí, the city laid paving stones based on his signature curves and swirls all along the Passeig de Gràcia.

Stairs used to climb down, an underground garage to house carriages and cars and ramps designed to allow horse-drawn carriages to enter the building are elements of design reinforce the illusion of earthly pull and therefore the gravity pattern (see Figure 58). Gaudí, the innovator of parabolic arches, designed many of his arches upside down by hanging various weights on interconnected strings, using gravity to calculate catenaries for a natural curved arch.

Casa Mila is a dynamic structure constantly in motion, but it also a mountain held down by its own weight. The contrast of lightness and gravity in the Casa Mila is exceptionally strong, and the continuous flux between the polarities contributes to the ethereal quality of the building (see Figure 59).

At a different level gravity has haunted this building since its conception in the mind of its creator to its construction, and throughout its life- the gravity of its past. The Tragic Week, also known as the Glorious Week, the Red Week, and the *Semana Viril* occurred in July of 1909. It was the trauma the city of Barcelona suffered and eventually led towards the Spanish Civil War. In one night twenty-three churches and convents had been gutted in the city center. Much of Catalonia's unique architectural heritage had been destroyed.



Figure 58. Elements of gravity: the descending step and ramp (photographs by the author).

Casa Mila was unfinished at this time. The roof which was intended to carry a large sculpture of the Virgin Mary was left without it, so as to prevent inciting the wrath of the anarchists who ran amuck the city then. Casa Mila has since then been eternally unfinished. According to Gijs van Hensbergen, Casa Mila remains one of the greatest monuments in the “architecture of grief.”

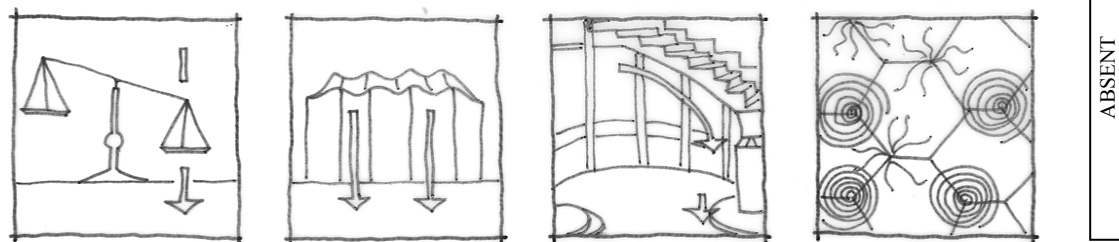


Figure 59. The development of gravity (sketch by the author).

EXTREMELY STRONG

STRONG

MODERATELY PRESENT

WEAK

ABSENT

LEVITY

Casa Mila has a component of levity which is as strong as that of gravity therefore creating that necessary balance required for harmony. The patios on the interior and the unusual chimneys that rise up on the roof draw the eye upward towards the top of the building and the sky beyond. Pillars that rise from the ground level, forming the structure on the first floor and look like giant elephant trunks work to enhance the pattern of levity in the design (see Figure 60).

Levity is synonymous with lightness, flight, fantasy, and surrealism. The Casa Mila exhibits all of these, and more. The windows and doors of the building seem to be dug out of this stone mass and are trimmed in exquisitely crafted wrought iron work with vegetal forms on the balconies and refined grilles on the doors. Its roofscape which is reached by a spiral staircase from the loft has been called an absolute “wonderland.” Chimney stacks said to have been inspired by the incredible churches of Cappadocia, the rock-carved temples of Petra, and the

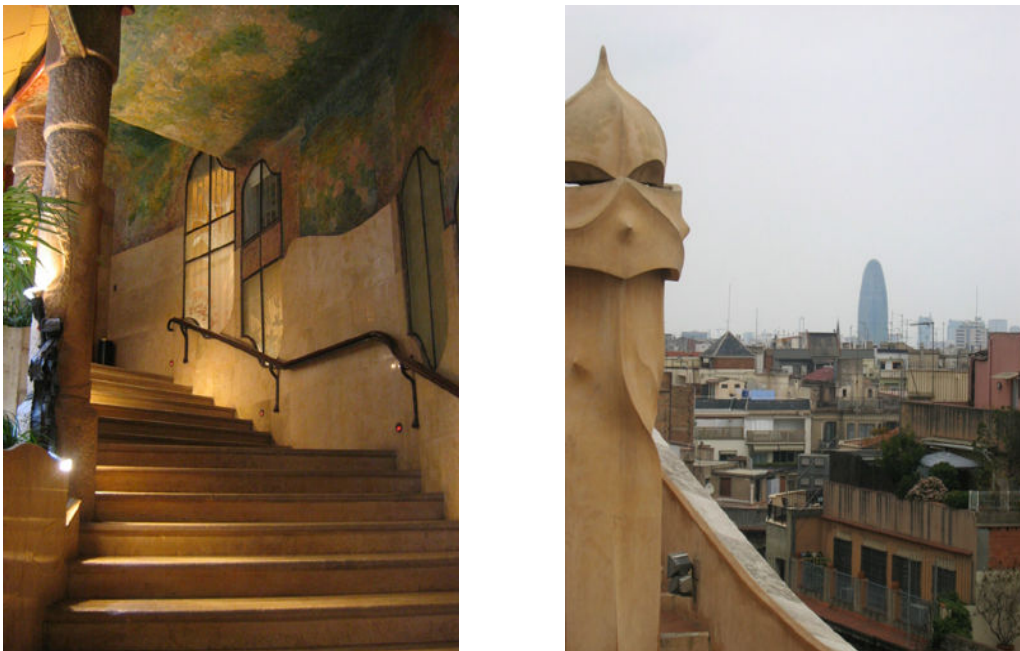


Figure 60. Elements of levity (photographs by the author).

sandstone grain towers in southern Sudan, are sprinkled across the terrace, connected by walkways and stairs forming bridges.

The loft, which forms the roof of the Casa Mila, consists of a frame composed of a series of parabolic arches of varying height with a marble mansard broken only by small windows. The parabolic arch studied in detail and innovated upon by Gaudí is an expression of flight, and has since then been used by a number of prominent architects like Eero Saarinen for the St. Louis Gateway Arch in Missouri and Matthew Nowicki's Dorton sports arena in Raleigh, North Carolina. In the Casa Mila, the loft with its low ceiling manages to achieve a lightness and feeling of spaciousness through Gaudí's use of the repeating parabolic arches of brick (see Figure 61).

Like Milan Kundera's book, *The Unbearable Lightness of Being*, which at its most fundamental level is about the ambiguity and paradoxes of human existence, as each person teeters between lightness and weight and between dream and reality in all the details, and the building as a whole, Gaudí has infused Casa Mila with "the unbearable lightness of being."¹⁶⁹

¹⁶⁹ Milan Kundera, *The Unbearable Lightness of Being* (New York: Harper Perennial Publishers, 1999).

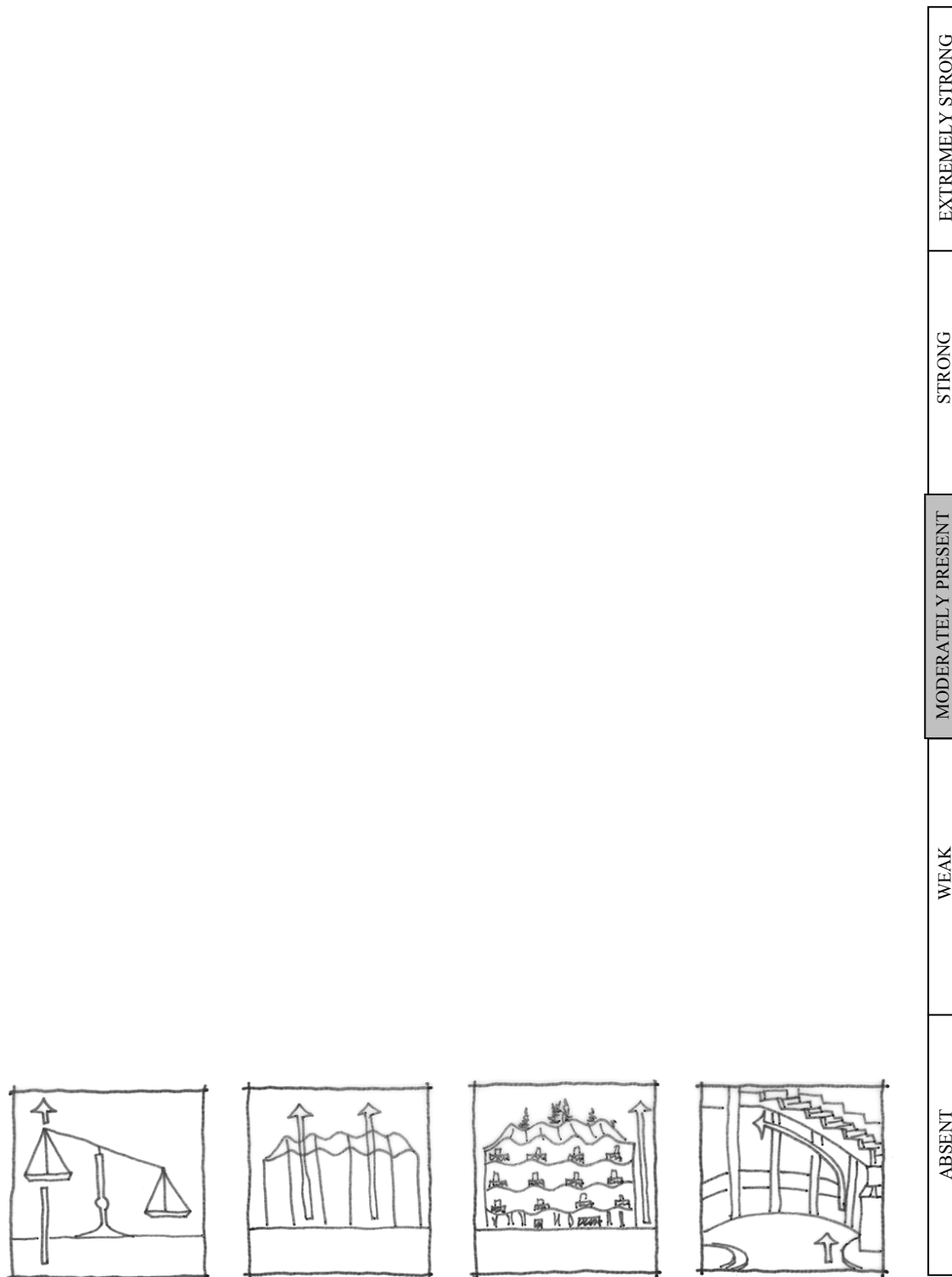


Figure 61. The development of levity (sketch by the author).

FORMS AS MEMORY STIMULI

Forms as memory stimuli enable humans to recognize and associate present stimuli with past experiences. Casa Mila is replete with forms that remind, of the ocean, trees, plants and vines, knights and even Christianity (maybe unintentionally so). Colors and materials add to the effect of these forms and provide character to the memories.

Forms are one of the strongest components of the Casa Mila. Gaudí has filled every inch of this building with symbolic meaning through his understanding and use of forms to express personal and national struggles. One of the most striking examples of the strength of forms in the Casa Mila, is the number of nicknames it gained through the years, all of which varied according the perception of the person viewing the building, and experiencing the spaces formed by the building. The Hornet's Nest and *La Pedrera* were the most common of all. The Casa Mila according to Hensbergen echoed the

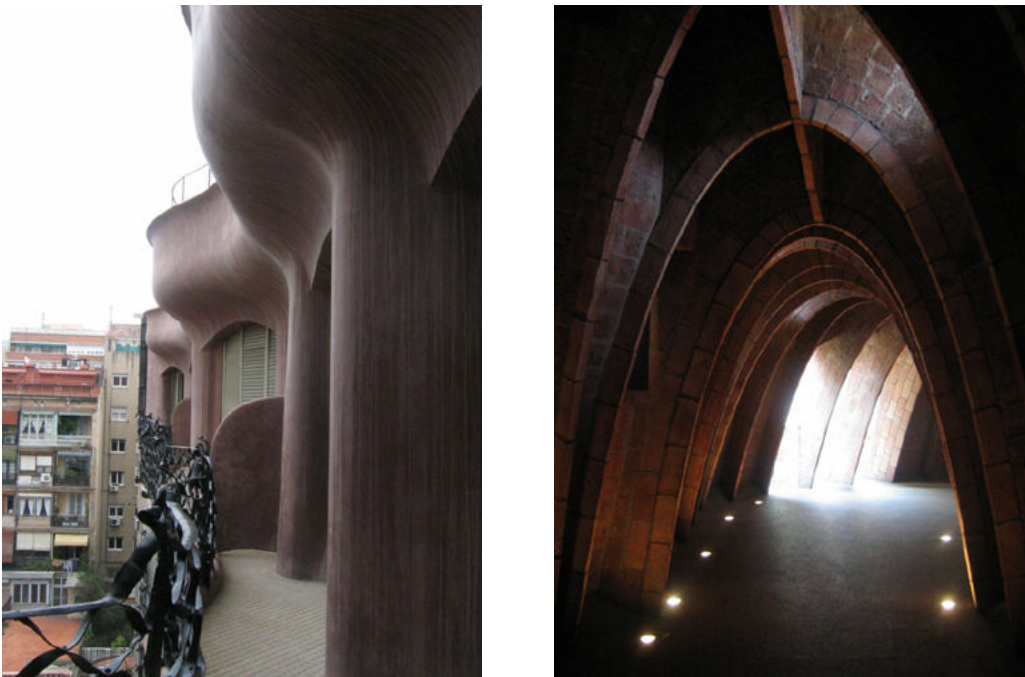


Figure 62. Elephant trunk like columns and parabolic arches (photographs by the author).

mountains behind it, and Catalonia's sacred mountain, the Montserrat. He also goes on to say that in Casa Mila Gaudí wanted to petrify the spirit of Catalonia in stone and this is exactly what he achieved through his design.

Frozen waves of the sea, cliffs covered with weed, elephant trunks, shells, oysters, mute knights in armor, clover leaved crosses, and even a "sparrow pecked," carved into the folds of the surface is reminiscent of events, occasions, vacations from personal life, nature, and a childlike and witty quality of the fantasy that Gaudí created (see Figure 62).

Gaudí had initially intended an enormous statue of the Virgin to sit atop the roof. Carles Mani's sculptural group of the Virgin Mary flanked by angels was never realized as a result of the events of the Tragic Week. For Gaudí, whose mother dies when he was only a child the Virgin's idealized image was a surrogate for every woman he had become close to. Mani's Virgin was an archetype of enthroned catholic majesty as well as something more primitive and primeval like, and ironically pagan- Gaia, the earth mother. Though never realized the sculpture would have encapsulated the very nature of the building- that of encapsulating nature itself (see Figure 63).

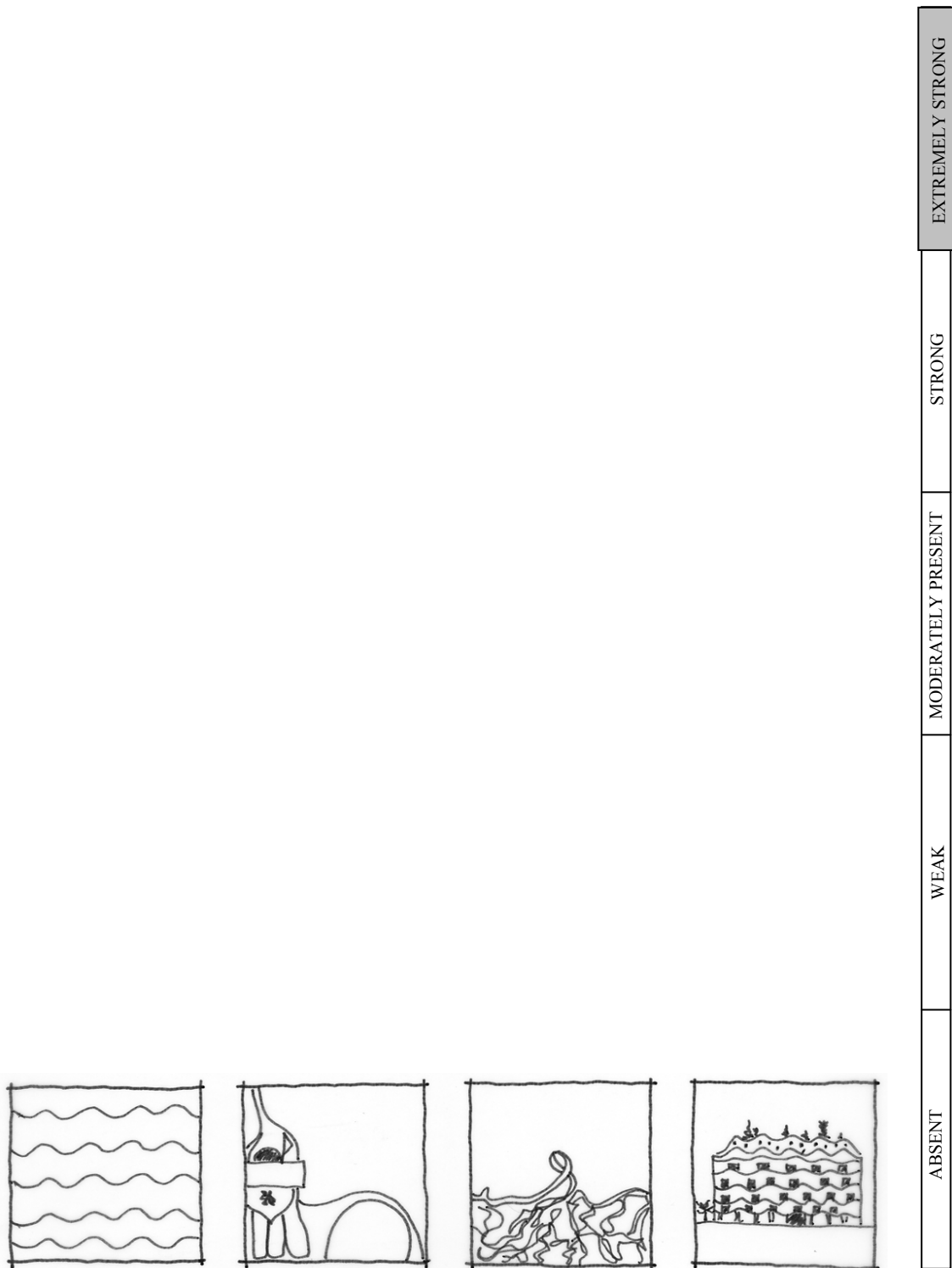


Figure 63. The development of the forms of memory stimuli (sketch by the author).

THE NATURE WITHIN

The apartment building is collection of symbolic and figurative representation. Both on the exterior façade and the interior elements, Gaudí has imbued the building with a life that as mentioned above includes pillars that look like elephant trunks, the pavement decorated with starfish ceramic tiles, wrought iron balconies that resemble vines, and colors that signify the ocean, the earth and the sky.

The nature within, includes the presence of flora, fauna, and the elements-air, water, earth, and fire in the place. Gaudí's was a noted Art Nouveau architect and his designs followed the elementary principles of this style of art and design. Dynamic, undulating and flowing, curved "whiplash" lines of syncopated rhythm characterize much of Art Nouveau. Another feature is usage of hyperbolas and parabolas. Conventional moldings seem to spring to life and "grow" into plant-derived forms. The Casa Mila in its design and details uses exhibits all of these characteristics necessarily derived from nature (see Figure 64).

"Originality," Gaudí had often repeated, "means going back to our origins." The nature within enables this returning to our origins by employing elements that are universal and primeval. As mentioned before, Gaudí was an experimenter, and this is most evident in his design process for the Sagrada Familia in a religious context where he experimented with human skeletons, and made casts of innumerable flora and fauna and the Casa Mila in a secular context. He was the master of organic but structurally accurate design and his design for the Casa Mila reflects these qualities to the fullest.

Casa Mila is nature encapsulated in a building. Every element of the building, both on the outside and the inside are reminiscent of objects from the nature, and flexible enough to mould itself to individual imagination. Gaudí once said that there are no straight lines in nature, and the Casa Mila's undulating form is inspired by this belief. The two patios function as sun catchers, and



Figure 64. Natural forms and nature inside the Casa Mila (photographs by the author).

enable all the apartments in the building to obtain ample daylight, and ventilation (see Figure 65).

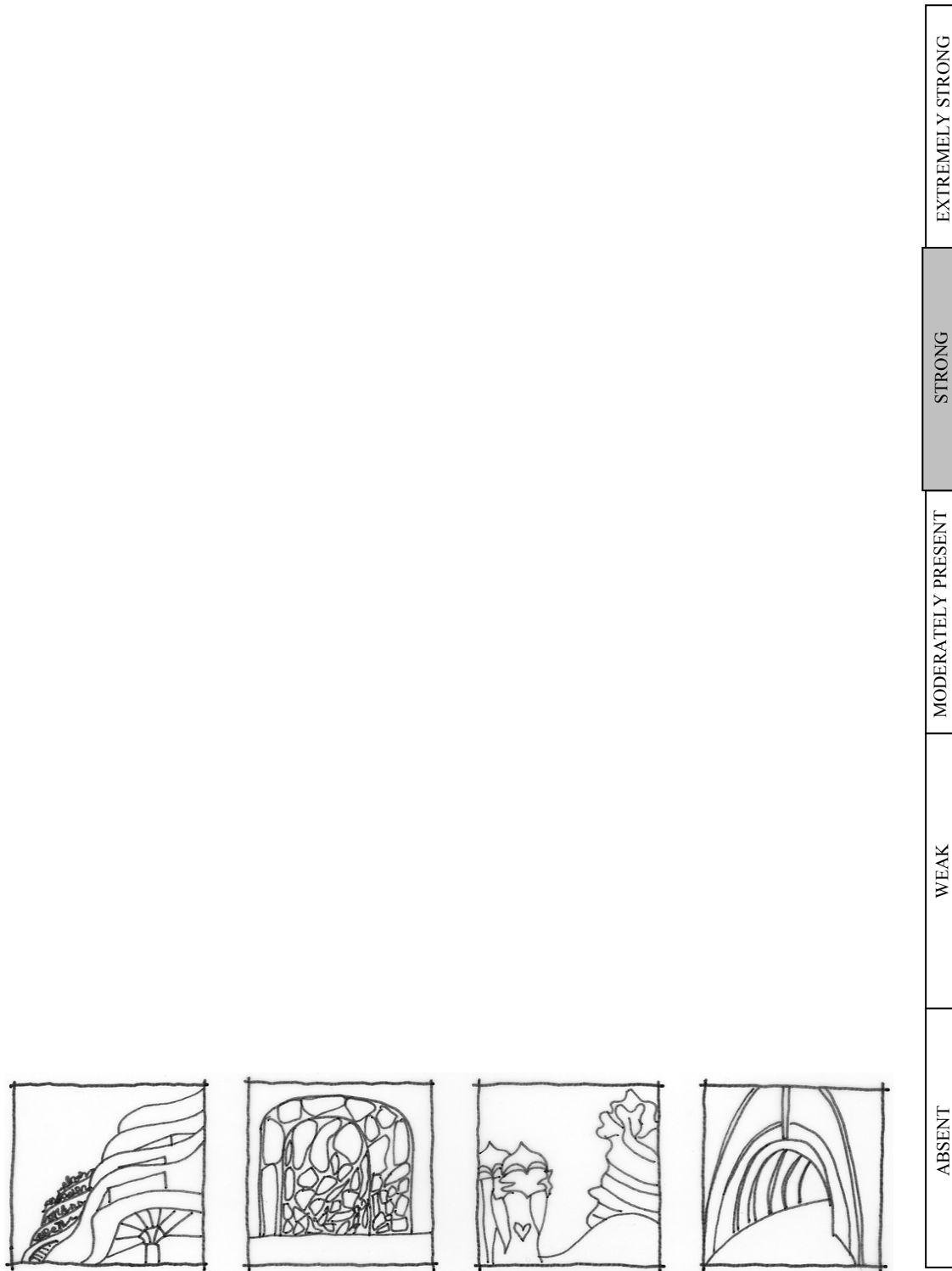


Figure 65. The development of the nature within (sketch by the author).

MATERIALITY

Gaudí's creation of a mountain, symbolic in both the religious and political sense laid him open to criticism and accusations of creating a gigantic folly to assuage his own arrogant lust for supremacy. He drew from a number of sources like Batlle's nearby Casa Antonia Bures, Falques's Casa Bonaventura Ferrer, and Sagnier's Casa Fargas.

The development of Casa Mila was more of a gradual emergence as Gaudí incessantly changed the initial designs as the work progressed. Being a man of experimentation, he chose to mould the materials as they appeared on the site and were held against the framework, rather than abandon them to a predestined life. In the honey-colored Montjuic stone of the Casa Mila, he had found a material that was infinitely flexible, and close to the heart of the Catalan soil (see Figure 66).

Gaudí's work has often been compared to the sculptural works of Henry Moore and Michelangelo. The feeling of inwardness, and figures that seem to have grown into stone on the roof of the Casa Mila, remind of a number of Moore's pieces, and Michelangelo's slaves trapped in stone that were primitive forms, and complete antithesis of the modern man.

On the roof of the Casa Mila, the spiraling, knight-like statues though said to function as disguise for the chimney stacks, and elevator shafts and the rest of the roof clutter suggest anguish, despair, struggle, and a cry for freedom. It in some ways might represent a phase in Gaudí's personal life of isolation and death of some of the people he held closest to his heart.

While Gaudí, a true catholic, and Catalonian struggled to escape the world of materialism, he was at the same time working for people who promoted materialism. This polarity and tension is visible in the materiality of Casa Mila, especially on the façade. The surface of the Casa Mila pulled into a gentle sweep was praised for its economic design till the fantastic, twisted and



Figure 66. Materials used in the Casa Mila (photograph by the author).

expensive wrought iron balconies were added to in a sense complete the picture (see Figures 66 and 67).



Figure 67. The magnitude of the pattern on a scale (drawn by the author).

TRANSITIONS AND THRESHOLDS

Transitions and thresholds are analogous to the synapses in a nervous system. A synapse is a junction or a small gap through which a nerve impulse passes from one neuron to the other. Transitions and thresholds are spaces which transfer people from one place to the next, with varying effects. Some are meant to elicit a response of awe, some familiarity, some of surprise, and yet others are meant to generate pure pleasure. In the *Divine Comedy* by Dante, Virgil is said to have traveled through a rocky isle, terraces and cornices of Mount Purgatory before reaching Earthly Paradise where sins are pardoned and innocence restored.¹⁷⁰ The Casa Mila resembles this journey in the sequential movement from the rock faced exterior, to the undulating cave-like interior, up the flights of stairs to the roof above. The chimneys, ventilators, and elevator shafts disguised in various fantastic forms on the roof provide the semblance of an earthly paradise (see Figures 68 and 69).



Figure 68. The entrance and roof of the Casa Mila (photographs by the author).

¹⁷⁰ Dante Alighieri and Allen Mandelbaum, *The Divine Comedy: Inferno; Purgatorio; Paradiso*, (New York: Everyman's Library, 1995).

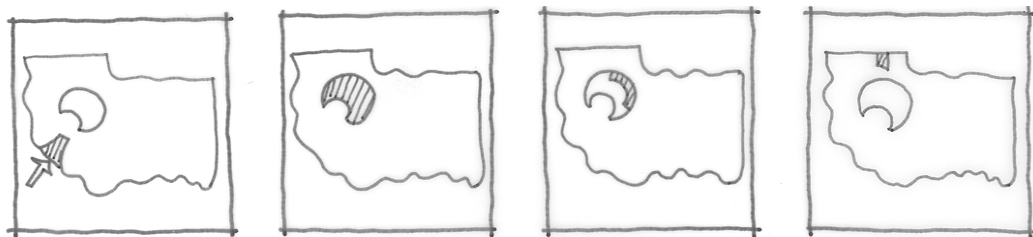


Figure 69. The development of transitions and thresholds (sketch by the author).

ABSENT	WEAK	MODERATELY PRESENT	STRONG	EXTREMELY STRONG
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SPATIAL HIERARCHY AND INTIMACY GRADIENT

The building progressed from the public space right outside (easing the transition and personalized by the paving designed by Gaudí), through a dark foyer with a low ceiling, to the light filled atrium inside (semi-private). Stairs and an elevator, from the atrium lead to various levels of private residences in the floors above.

The Casa Mila was designed as a luxury condominium built as a sanctuary for the rich and the privileged from the outer world of chaos, and ironically, reality. It was the home of fantasy, the true meaning underlying its essence only visible in glimpses through the sensuous, and at the same time tortured features.

The mountain that Gaudí designed also functioned as a castle, perched in the center of the city, a safe haven for the soon to be persecuted wealthy class of the society. It catered to the individuals who were to occupy the apartments, and Gaudí prided himself at being able to accommodate the needs of his clients however difficult. Late in the planning stages of the Casa Mila, Gaudí discovered that one of the owners, Senyor Feliu, had a Rolls Royce whose turning circle was too wide for the underground garage. Gaudí then set about calculations to resite a pillar, a process which took about the same time as the design of the building itself.

While the exterior of the building had a wholly forbidding appearance (Gaudí's initial plans meant for the owners to cover the balconies with vegetation of all forms to soften the façade), the interior is just the opposite. The beautiful earthly colors of the walls, the pulled and twisted plaster ceiling, the undulating interior walls, and the generous windows created an atmosphere which was welcoming and warm (see Figures 70 and 71).



Figure 70. Sequencing of spaces (photographs by the author).

The intimacy gradient changes from the public realm outside on the pedestrian pathway and the busy street, to semi-private in the patios, where residents could gather for various occasions, and the private residences themselves on the upper floors.

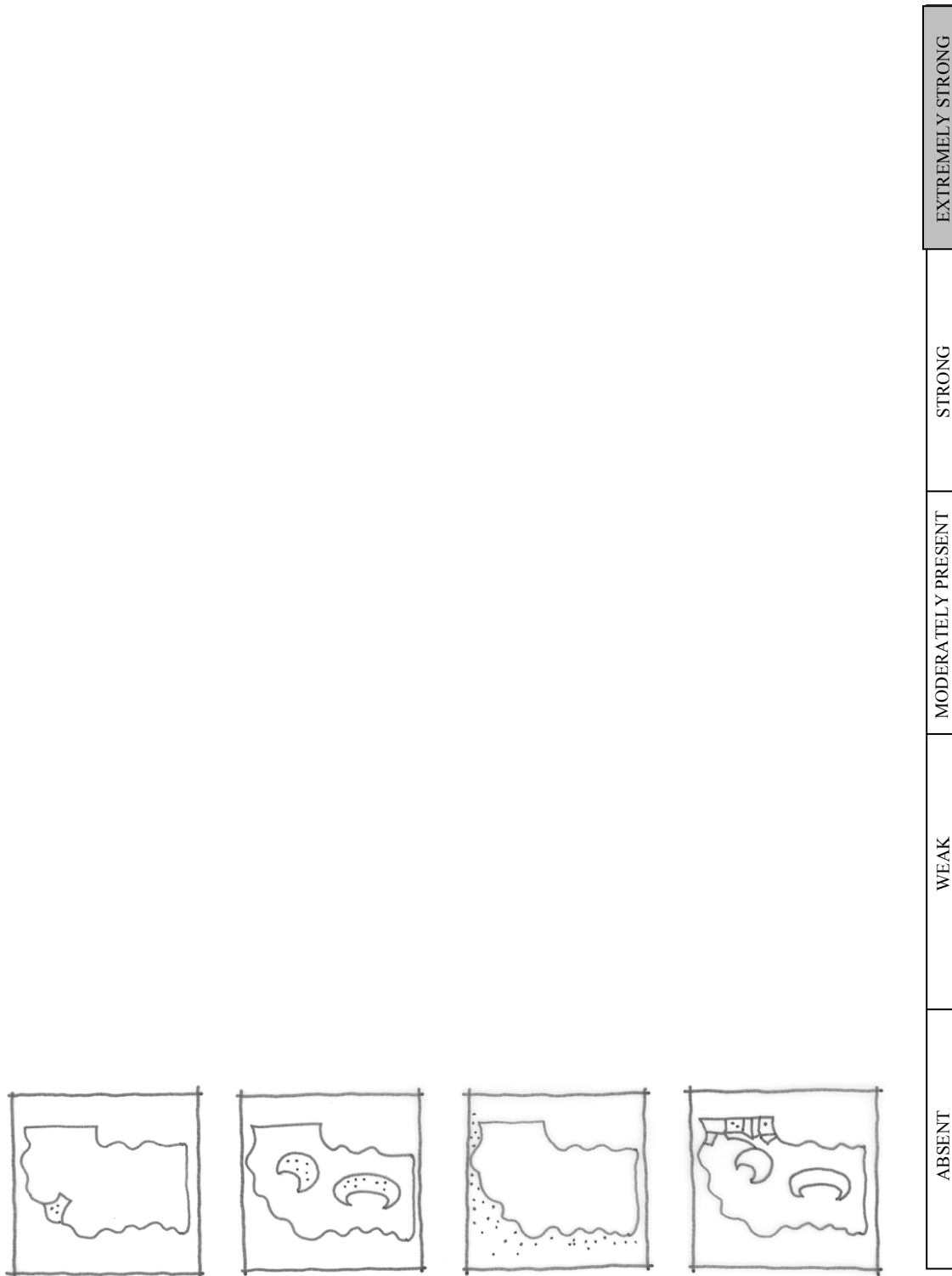


Figure 71. The development of spatial hierarchy (sketch by the author).

ANTHROPOMORPHISM

The scale of Casa Mila, which has been at times called, a quarry, a mountain, a volcano, a futuristic zeppelin garage, Noah's Ark, a war machine, and a scrap-iron yard was impressive in size, covering more than, 1,600 square meters. It was said to be a looming mountain in the Barcelona skyline of that time- a mountain as alien, and as disturbing as King Kong in New York. The building did not confirm to any existing traditional styles of design. It was neither Catalan, nor Spanish, neither Iberian, nor Mujedar. It wasn't even classical, Renaissance, Baroque, or Rococo. It was in a category of its own and set a precedent for Spanish and world architecture to follow.

It was seven stories high (not including the loft), well beyond what the city had allowed for and rested on a block that was larger than most other blocks in the Barcelona streetscape. It was meant to be a cave of sorts – a cave within a mountain, which to Gaudí has enormous significance as a devout catholic. The cave as associated with the revelatory mythology of St. Teresa of Avila, St. John of the Cross, and St. Ignatius Loyola who had all discovered these spiritual wombs.¹⁷¹

While on the outside, the Casa Mila appears monumental (the elephant trunk like columns emphasizing this feeling), the detailing both on the surface of the façade, and on the interior surfaces, and volumes of the building are much more intimate in scale, and allow for comfortable human occupancy. The colors used in the composition, and the ceiling and floor patterns contribute to this relaxed but luxurious atmosphere. Gaudí concerned himself with every detail, including the bronze door handles, which he designed to correspond perfectly to the grip and movement of the hand. The wooden fixtures on the lifts, the doors with their sculptural relief, the patterns on the ceiling, the pavement outside the building, and the railings of the staircase are all designed by Gaudí to

¹⁷¹ In *La Pedrera: Cosmos de Gaudi*, Josep M. Carandell, Fundacio Caixa de Catalunya, Bracelona 1992, the author points out the similarities between one of Mila's entrance doors and the form of the human fetus.

complement and complete the rest of the building. They are also designed to span the scale differences that exist and are formed with the need for different kinds of spaces in a building such as this (see Figures 72 and 73).



Figure 72. Scale inside the Casa Mila (photographs by the author).

The representation of the human body and its structure also contributes to the anthropomorphic qualities of the building. All over the roof of the Casa Mila are scattered forms that resemble the masked heads of knights, bringing a certain anthropomorphic character to the space. Individual elements like the wrought iron balconies, which remind of vegetation on the rock surface, the detailing on the walls, and over the door ways and windows were drawn to the millimeter by Gaudí and Jujol, and in turn express the beauty of art and craft transformed from a concept in the human mind to realization. Each of the apartments is different from the other and each space unlike the next. Owners of the apartments therefore relish in the individuality and customizability of their own space while still in the same building.

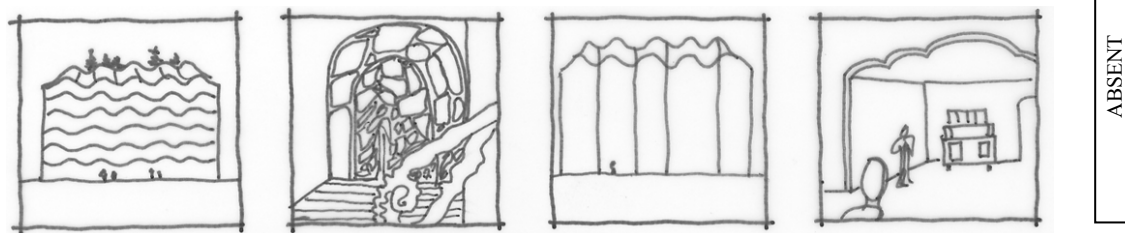


Figure 73. The development of anthropomorphism (sketch by the author).

CEREMONY AND ACTS OF PERSONALIZATION

Ceremony in the Casa Mila is intrinsic to every ritual followed by the residents of the building. From the habitual rituals of the morning to that before going to sleep at night is a series of ceremonies that unknowingly provide a sense of normalcy and regularity in life. Celebrations of life and death in birthdays, wedding anniversaries, and remembering those who have passed away are ceremonies that tie themselves to the places, and enhance the meaning and significance of these stages for the ceremonies.

The homes in Casa Mila are occupied by people with differing personalities, ideas, experiences, hopes, and ambitions. An expression of their individuality is manifested through the acts of personalization.

Acts of personalization was to some extent constrained because of the unusual shape of the rooms that required custom made furniture. Gaudí like Frank Lloyd Wright insisted on designing the furnishings for his buildings, and this insistence sometimes inconvenienced the home owners. But even with these restraints occupants added their own personal touches to these spaces, making them their own. Pictures of loved ones on their wall, souvenirs from family vacations, family heirlooms and many other such objects adorned the surfaces of these homes.

Personalization of a place caught in the public eye since conception is a difficult task, but the residents and the management of the Casa Mila has managed to achieve a sense of privacy and home, even with a part of the building being open to visitors as a museum of Gaudí's work (see Figure 74).

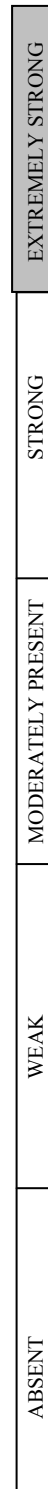


Figure 74. The magnitude of the pattern on a scale (drawn by the author).

CHAPTER XXI

TEST 3. CASTELLO DE GARGONZA

Ye are the light of the world. A city that is set on a hill cannot be hid.

- **Matthew v. 14., The New Testament**¹⁷²

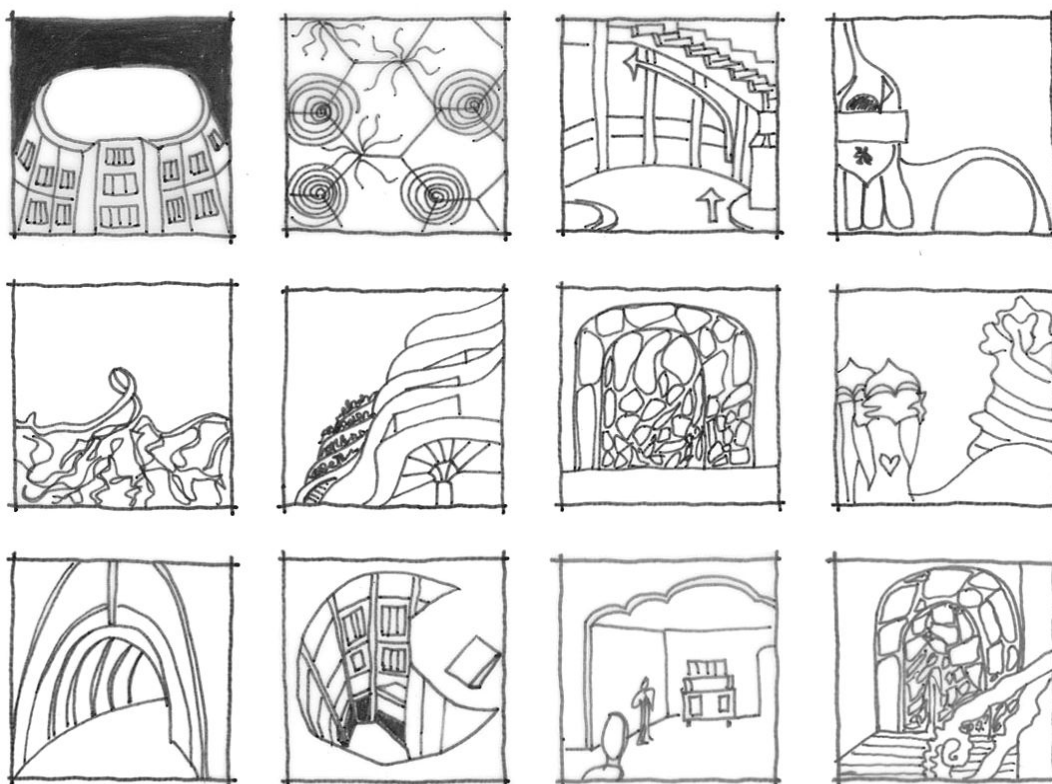


Figure 75. The patterns in Castello di Gargonza (sketch by the author).

The following is the summary of the 12 patterns of Castello di Gargonza (see Figure 75).

¹⁷² Matthew. *The King James Study Bible*, 1415.

THE CENTER

The Castle of Gargonza is a medieval hilltop village overlooking the valley between Arezzo and Siena in the Commune of Monte San Savino. It is a former agricultural egg-shaped village surrounded by massive walls set on top of a rocky area, with defense gateway and tower that overlook its main square and Romanesque 13th century church.

Its geographic placement atop a hill insinuates the universal metaphor of the centrality of the city on the hill. The perception of this city as the center of the world in being perched on the mythic sacred mountain is emphasized by its fortified character, which only allows limited access.

A typical example of most medieval Italian towns, the center of Gargonza is its most public space- a piazza which concentrates administrative, civic and religious functions. The open square as you enter the village is flanked by the city hall with its tall tower, the church and a well. Though functioning as a conference center and resort and catering to visitors wanting to enjoy the beauty of the Tuscan hill town while conducting business or relaxing, the town has retained much of its original charm. The center is an eccentric and microcosmic nutshell of the whole village and its past in the patterns that it exhibits.

The tower, unlike a *campanile* which holds a clock and bells is necessarily a defensive structure, and part of the original fort wall. The saw tooth pattern on the roof of the tower is made up of merlons and crenels which provide protection against enemy fire and also spaces to fire at the enemy from.

In Gargonza the church holds the bells that serve as a town crier, announcing public events such as church functions, processions, secular events organized by the townspeople, as well as marriages and deaths. The well is the soul and gathering place of any community. While it dispenses a commodity as valuable as water, it provides for an informal gathering place for meeting people, and exchanging news and gossip (see Figures 76 and 77).



Figure 76. The tower and the well of Gargonza (photographs by the author).

The three elements of the piazza together form a triangle of energy representing all of the facets of life of the community, and in doing so physically and symbolically form the center of the village.

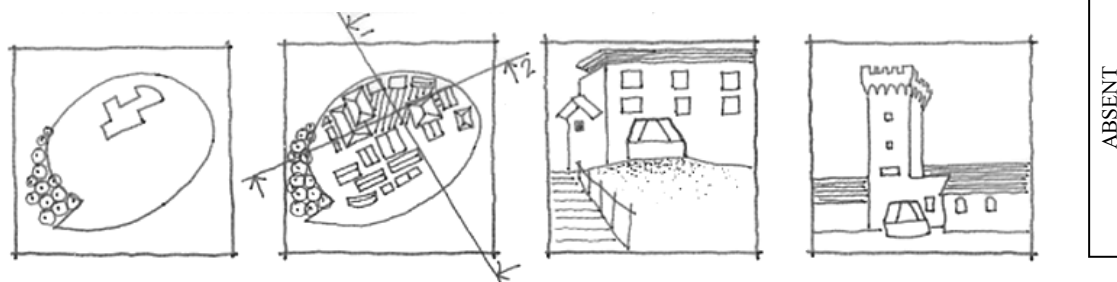


Figure 77. The development of the center (sketch by the author).

EXTREMELY STRONG

STRONG

MODERATELY PRESENT

WEAK

ABSENT

AXES AND DIRECTIONALITY

Gargonza grew spontaneously and in an organic manner, as is the nature of medieval Italian towns. Though it lacks a designed axis, it is an example of axes growing out of necessity: axes marked by paths, which in turn allowed for processions and acted as thoroughfare for pedestrians, carts, and animals, and axes marked by the physical structures which acted as landmarks.

Axes can exist in a number of planes. After all that is what axes are meant to do- define planes of existence, and through this enable a system of referencing and gauging ones place in the space. Gargonza exhibits a number of axes in different planes which function to achieve different results. One of the most distinctive axis and the first one a visitor would notice is that of the path that leads from the entrance of the village, through the piazza, passing the church and beyond to individual houses, now used as apartments. A path about 10 feet wide, it includes the piazza in its *blitzkrieg* towards the other end of the village where it is met by the path that runs perpendicular to it from the piazza. The two paths curve around following the contours of the village fort wall, and meet at the SW corner of the village to completely circumscribe a segment two thirds the area of the village (see Figure 78).

Its vertical axis is defined by the tower overlooking the square, and the well that reaches into the earth. The tower is not unusual or unique in its form; it is in reality a nineteenth century reconstruction of what a medieval tower should look like. But it rears its head, rising above the walls of the village on the hill, and makes known to the world the existence of this little village in Tuscany. Though a defensive element at one time, today it serves the purpose of a landmark, a locus to approximate one's position within and without the village, and according to Lyndon, a means of gauging time by the thrust of its shadow (see Figure 79).¹⁷³

¹⁷³ Lyndon and Moore, *Chambers for a Memory Palace*.



Figure 78. The tower, the well, and the streets forming the axes (photographs by the author).

The well is the counterpart of the tower and its opposite in nature and function. Subdued and gaining its energy from the earth, it reflects the verticality of the tower in itself, thus balancing the inherent energies of the axis.

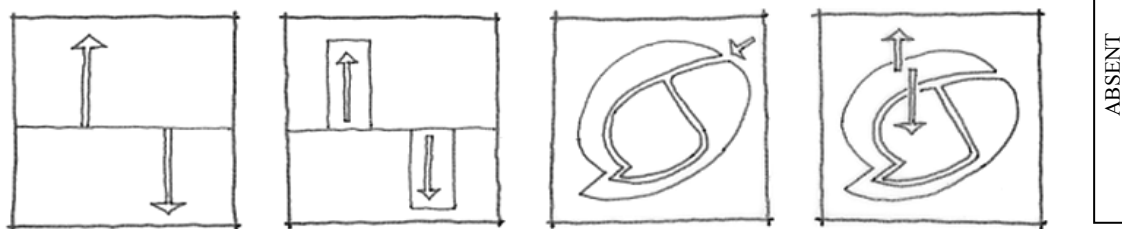


Figure 79. The development of the axes (sketch by the author).

EXTREMELY STRONG
STRONG
MODERATELY PRESENT
WEAK
ABSENT

BOUNDING EDGES

Boundaries and edges in the village are simple and complex, and natural and man-made. Its geographic positioning atop a hill provides for a natural boundary, while walls, railings, grass along the bottom edges of walls, changing shadows that fall on horizontal and vertical surfaces provide for the man-made boundaries. Gargonza is unique in the qualitative aspect of its patterns. There is a certain charm about the fading walls, rough hewn stone, and the well trodden paths (see Figure 80).¹⁷⁴

Ramparts of Castello di Gargonza, like the tower, at one time served defensive purposes, when the threats to security were closer to home than they are now. Today, the very same ramparts enclose the village and remind of the castle on the hill- the focal point of many a fairy tales. They separate the realm the village exists in from the realm of everything around it and in doing so provides the place with an identity that is unique, separate and sacred.

Inside the village itself a number of simple, everyday elements act as bounding structures in keeping with the character of a medieval village. Vines that run along walls, traversing trellises, and clay roofs connect parts of the community together, and separate them from the rest. An example is in the S-W corner of the village where a wooden trellis covers the terrace of a home, is continued in essence in the wooden railing of the stairs, and then resurfaces as a larger trellis, shady, and leafy covering an outdoor patio.

The streets of the village are bound by the walls of the buildings in the village. The texture of the rough hewn masonry softened by years and years of rain, wind, vines and the touch of human hands make for edges that have a memory ingrained in them and therefore serve as boundaries with an identity.

Boundaries can also be used to control visual access, and in a small village with residences laid out so close to each other, the manner in which windows, and doors provide for privacy is very interesting. The houses in

¹⁷⁴ Marcel Erminy [photograph], The bounding fort walls of Gargonza (acquired May 2005).

Gargonza have been placed so as to enable openings to face the open spaces around, and the valley beyond, letting in sunlight, and providing visual access to nature, but allowing for the privacy required.



Figure 80. Bounding on two different scales (Left: photograph by Marcel Erminy, Right: photograph by the author).

Within the individual residences, which are now used as cottages and apartments, boundaries and edges are defined by the people who own the place and occupy it. Boundaries are meant to maintain privacy, separate functions, and organize spaces. The interiors of residences are therefore organized using edges and boundaries similar to that in the Casa Mila. Layout of furniture, floor coverings and patterns, lighting-both natural and artificial, and walls create separations that create order and ease of use (see Figure 81).

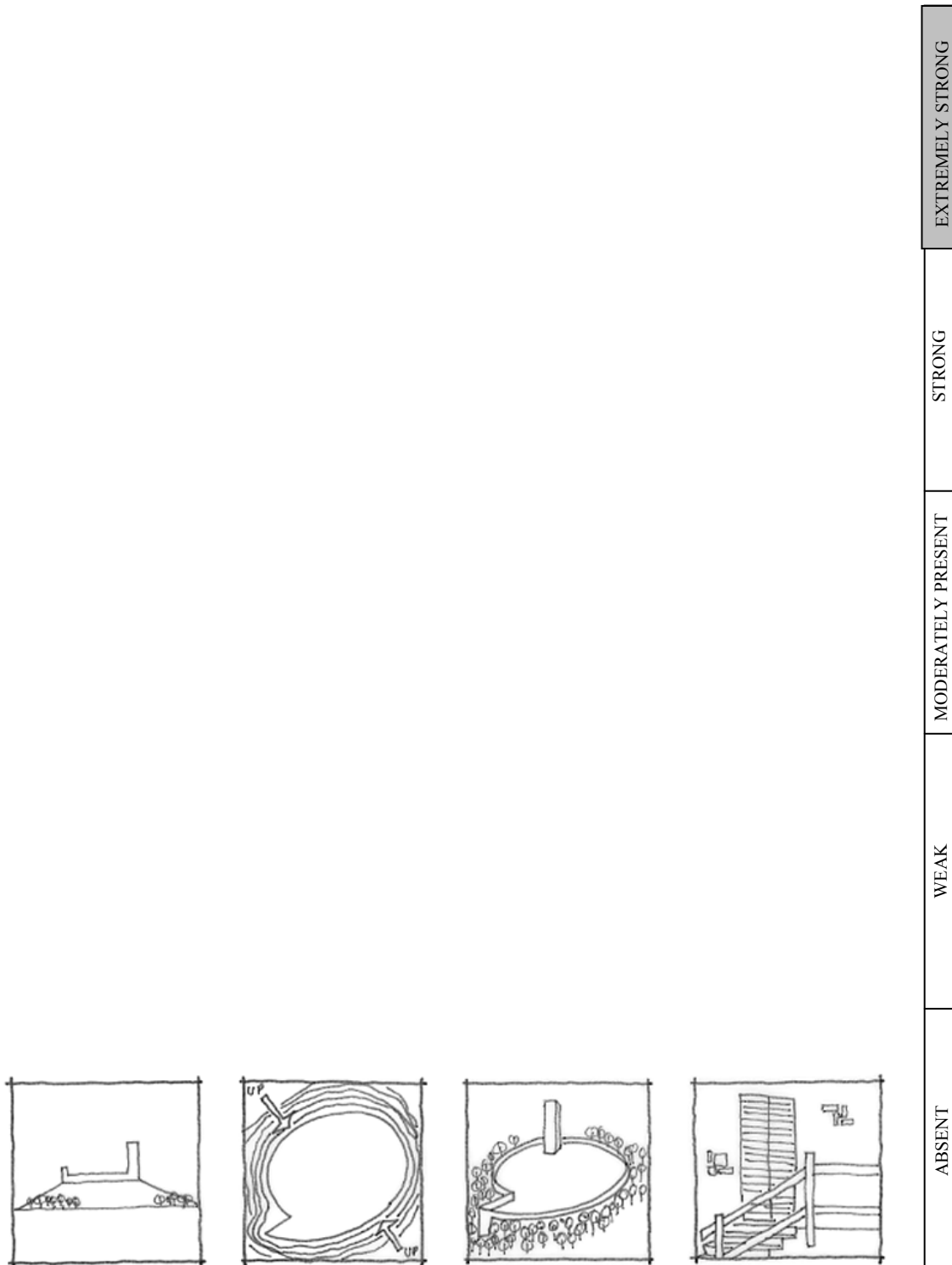


Figure 81. The development of the boundary (sketch by the author).

GRAVITY

Gravity as a pattern is closely bound the Gaia-the earth mother, and everything she holds within herself. Foundations, basements, and plinths-transitory elements between the earth and the superstructure- therefore exhibit this pattern. Though every building in Gargonza, and possibly everywhere else contains these elements, it is the quality of these elements that makes this village a unique example. Transitioning from the masonry walls to the stone paved paths of Gargonza is achieved with a sensitivity which is perceptible but only in the grand scheme of the village. In one of the buildings in Gargonza, now being used as a conference room, the edges formed by the meeting of two walls are faced with larger pockmarked stones while the rest of the wall is constructed of smaller rough hewn stone. To ease the transition between the two different kinds of masonry used, a single square stone about one foot by one foot, with openings the shape of a four petalled flower.

Still water, in the reflections that it produces, and flowing water in the being the very representation of gravity, are symbolic of the pattern of gravity. Water troughs and water channels used for irrigation in Gargonza represent the energy of the underworld and the triumph of order over chaos. The creation of order from chaos is an important concept in the development of an organic medieval town or village. The unbound and free energies harnessed along the process of the growth of a village exemplify this course.

Gravity in Gargonza is manifested most potently in the well at the center of the village. It penetrates into the earth, establishing a strong connection with the earth and the underworld. In holding the water for the villagers, it is also symbolic of roots that tap into the earth, thus balancing the vertical upward thrust of the tower. The well is the connection to the earth that is the strongest, and in holding water within it, it increases in strength manifold (see Figure 82).



Figure 82. Transition stone and the well as elements of gravity (photographs by the author).

Gravity, which is called “the descent” by Tabb is also expressed in the agricultural terraces that step down from the village on the top of the hill to the valley below. They provide for a transition on a much larger scale, where the transition from the built to the unbuilt, and controlled nature, to the uncontrolled nature is achieved through the presence of these terraces carved from the sloping surface of the hill (see Figure 83).

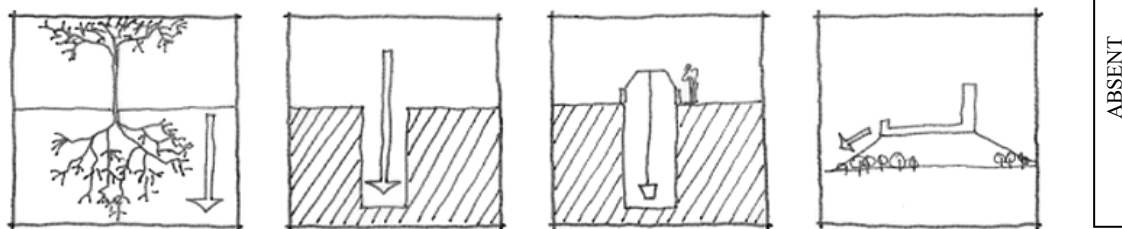


Figure 83. The development of gravity (sketch by the author).

LEVITY

Levity, which fights against gravity in a continuous struggle for power, is most visible in the tower in the square and in its upward reaching vertical lines. The tower can be seen for miles around in the region of Monte San Savino, and is a proclamation of the existence of the small village of Gargonza. The church bells and the cross sitting atop the pitched roof represent levity to some extent in their religious proclivity towards reaching out to God- the ruler of all things celestial.

Ascending stairs and chimneys that reach out to the sky are other examples of the types of the patterns. Stairs in Gargonza are modest-up a few steps to the landing if they are outside, and tight, steep, and twisted if they are inside. Unlike Moore, and Lyndon who believe that these stairs are “distinguished more by how they are made rather than how you move along them,” I believe that both these components play an equally important role. In one dramatic case a long stone stairway leads from the ground to the spacious landing above from where one enters a residence. The stairway follows the line of the wall against which it is constructed. It intersects the landing at an angle which lies perpendicular to the other enclosing wall. Built of stone, the wide steps lead you up to the home in a manner which is more welcoming and inviting than stairs that lead directly to the front door.

Chimney stacks made of brick sit atop most homes, spewing smoke into the winter air of Gargonza. They stretch up to the sky together with the tall thin trees of Gargonza in a unified movement towards the sky and what lies beyond, in an effort to defeat gravity (see Figure 84).

On a much larger scale, the village itself sits atop the hill, and in doing so strengthens the vertical axis, and the archetypal energy of levity. It is clearly visible from the valley around, and though originally located in a geographically higher position for defensive purposes, it still proclaims the need to be closer to the sky.

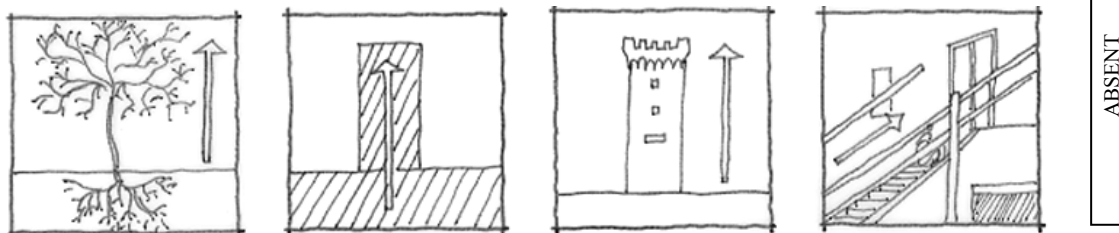


Figure 84. The development of levity (sketch by the author).

ABSENT	WEAK	MODERATELY PRESENT	STRONG	EXTREMELY STRONG
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FORMS AS MEMORY STIMULI

Gargonza is replete with forms that remind, and stimulate the memory. The tower of the castle, the bells of the church, pitched tiled roofs, poplar trees in the background are all elements that give the form of the village its character. Gargonza is a medieval hilltop village, and the forms that it exhibits are reminiscent of its past. Walls of stone, interspersed with bricks; sloping roofs covered with red tiles; garden walls covered with vines; the tower with its merlons and crenels; an old well; terraced orchards and gardens that provide visitors with the true charm of being in a small medieval Italian village (see Figures 85 and 86).



Figure 85. The forms of a medieval village (photographs by the author).

It is significant that in a period as permeated by symbolism as were the Middle Ages not much thought was given to the symbolism of the city plan, as far as actual cities are concerned. The organization of the town as a whole was, as a rule, neither understood nor desired by medieval builders. This lack of interest led to the well-known irregular shapes of medieval towns. This lack of formal planning is visible in the “organic” growth of Gargonza, where spaces were

formed, and masses created based on need and function rather than forethought and planning. The original Roman layout of grid cities was foregone for the functional but need based growth of the village. This gave the occupants a major say in the development of the village, and the design of their own residences. The community was more involved with the design of their village, and this close connection is apparent even to a visitor to Gargonza.

During the middle ages, it was important for villages like Gargonza (which traded their agricultural and other domestic products), with other villages or larger towns to protect their assets from invaders. The positioning of the village on a hill, the fort walls, and the tower are all decisions and elements that evolve from this need for defense. The forms that exist today are therefore reminiscent of a past that no longer exists, but through its clarity of forms is still very vivid.

But the true beauty of Gargonza lies not just in its medieval forms, but the character and the memory they imbibe through years of use. The quality and materiality of what the village of Gargonza is composed of contains a collective memory that captures the essence of the village.

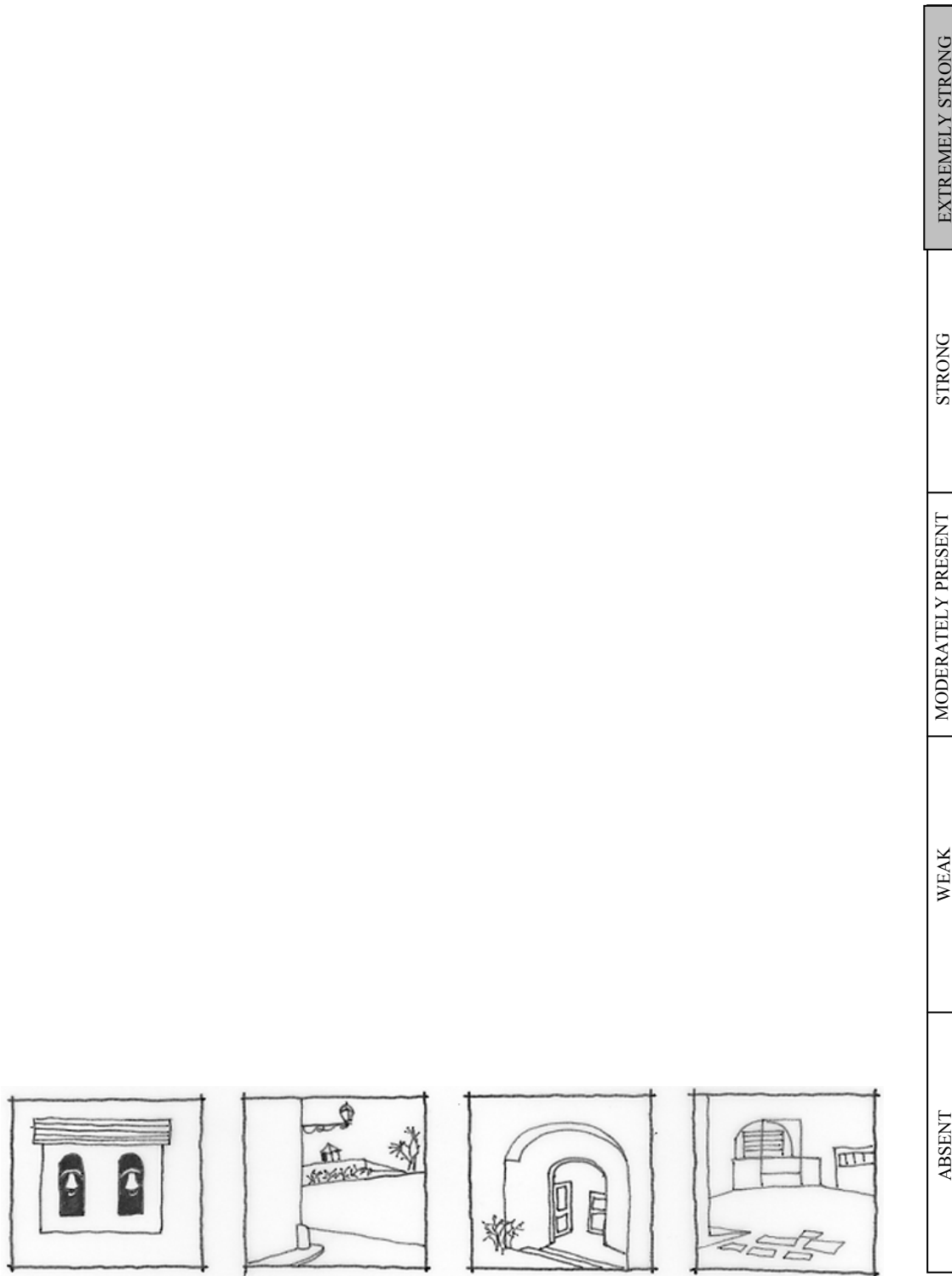


Figure 86. The development of the forms of memory stimuli (sketch by the author).

THE NATURE WITHIN

The Nature Within, not only includes the lush vegetation in the village, but also the elements: water, earth, fire, and air. And therefore, they include windows that let light and air into the interior, drain pipes that drain water from the roofs, and the dust that flies up the path as you walk it.

Nature in Gargonza is present both in the wild, untamed natural flora and in the agricultural fields sown by the very hands of the villagers. It is present in the vines that creep their way across walls, roofs and trellises; potted plants leaning over window sills; small backyard vegetable gardens; and in the tall trees that grow as they will across the village. It is present in the stones the houses, the church, the tower, and the well is made of. Stones which were produced in the local quarry, and come from the very earth, the village stands on.



Figure 87. Trees and rock outcropping in Gargonza (Left: photograph by the author, Right: photograph by Phillip Tabb).

The well, water troughs for cattle and poultry, and irrigation channels represent the element of water. Louvered windows and doors with slit openings enable rays of light to enter the interior spaces without uncomfortably heating them up. These openings also allow for ventilation of these spaces, which unlike spaces we are used to are not air conditioned (see Figure 87).¹⁷⁵

Terraces slope with the hill in the pine plantation and the vineyards, hugging the curves of the earth, and in keeping with the character of the village on the hill. The only really flat places in the village are in the two walled gardens belonging to the manor and the commons house. A place for repose, seating areas and paths are laid out separate from platforms for planting. Bright white chairs laid out against the green lush vegetation of these gardens and the sun speckled ground covered by brown pine needles, overlook the valley below (see Figure 88).

The nature in Gargonza is the most natural of the three test studies, and is the only place which exhibits all forms of the nature within. The flora, fauna, and the elements of water (well, and irrigation channels), earth, air (natural ventilation), and fire (the hearth inside the home, and access to sunlight).

¹⁷⁵ Phillip Tabb [photograph], A rock outcropping surrounded by built spaces in Gargonza (acquired September 2005).

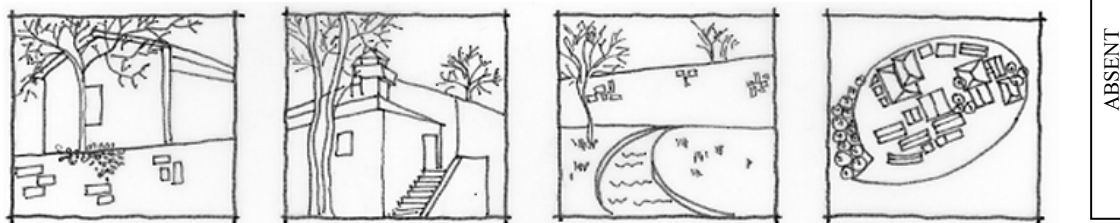


Figure 88. The development of the nature within (sketch by the author).

ABSENT	WEAK	MODERATELY PRESENT	STRONG	EXTREMELY STRONG
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MATERIALITY

There exists a beautiful and articulate blend of materials in Gargonza. Not only are these materials locally available, they are also appropriate for the character of the village. Grey stone, red brick, and painted or unpainted timber are used so as to maintain unity of the composition while at the same time retaining their individual material characteristics.

The essence of Gargonza lies in its materiality, the honest representation of the material and its function in the structure. John Ruskin once said, "Beauty deprived of its proper foils and adjuncts ceases to be enjoyed as beauty, just as light deprived of all shadows ceases to be enjoyed as light." In this one simple but profound statement lies the spirit of this little village. True beauty is realized in the acceptance of imperfections and quirks. The pockmarked stone of the buildings, the vine covered walls that surround the village, the cracked stone of the streets, the well worn treads of a stair, and the often used benches in the garden are the imperfections and quirks that make Gargonza unique, and impress upon it its individuality (see Figure 89).

The roofs of Gargonza provide it with its most uniform identity and though clearly obvious only when flying over it in a small biplane, this continuity of roof lines and extending eaves ties the village together even when walking the streets inside of it. A variety of accommodating shapes adjust to the lay of the land and the heights of the buildings, curving as they curve, falling as they fall, and stopping when they stop, all along covered by the soft red tiles of Tuscany.

An interesting symbolic relationship between forms is seen in the forms of the tower and the well in the central piazza. Probably unseen by those who built it, it reveals an attempt at a reunification of parts. The tower, an expression of levity is orthogonal in plan (the form related to the earth, and materiality), and the well, an expression of gravity is circular in plan (the form symbolic of the heaven and spirituality). This ironic contrast of form and expression represents

one of the most important functions of the sacred within the profane: that of bringing unity into the world.



Figure 89. Stone, wood, tiles, and iron: the materials of Gargonza (Left: photograph by Phillip Tabb, Right: photograph by the author).

Most of the materials used in Gargonza are reminiscent of a medieval town, but this centuries old materiality of the village is most obvious in its contrast with the interiors of the resort apartments, and conference centers. The apartments are equipped with modern comforts and furnishings, have been newly floored, and the walls painted to match the theme of the apartments. This contrast only enhances the apparent beauty of a medieval town materiality so filled with memories of the past and hope for the future (see Figure 90).



Figure 90. The development of materiality (sketch by the author).

TRANSITIONS AND THRESHOLDS

Gargonza is a repository of transitions and thresholds that vary in function and in effect. In a small but complex village, which contains spaces of a variety of nature – each functioning as a separate entity at one time and a part of the whole at others – the manner in which transitions and thresholds allow for this is an important aspect to be considered.

Narrow alleys that lead into wide open spaces and bright red doors that lead from the exterior to the interior are facets of an organically evolved town which never cease to amaze visitors with their dramatic outcome. As Moore and Lyndon discovered, Gargonza is an encyclopedia of elements that perform the functions of transitioning both outside and inside. These include platforms, slopes, stairs, doorways, patios, foyers, and gardens. The slope of the ground allows for the use of a number of level changing elements including stairs in the apartments, and other buildings of the village, and platforms in the agricultural fields and gardens belonging to the homes. Both these elements function in different ways. On the interior and immediate exterior of houses where space is more constrained, stairs are means of achieving grade changes more rapidly than in the open spaces around where platforms provide for a means of more gradual grade changes (see Figures 91 and 92).

Doorways and the approach to the doorway is another means of achieving transitional effects through being thresholds to new spaces and new experiences. Most of the doors and windows in Gargonza are painted red. These red doors are reached by means like stairs, ramps, and stone archways. Thresholds are therefore combined with transitions which ease or increase the anticipation of what awaits.

Transitions are not just meant for passage between parts of a whole, they also allow for uninterrupted transepts in the usage of land. In Gargonza, this is achieved through the fluid transition between the built spaces inside the fort walls, the agricultural lands around the village on terraces, and the natural

vegetation of the valley below, which then slowly moves into other villages or the larger cities in the same manner.



Figure 91. The main entrance to Gargonza and a ramp leading to a door (photographs by the author).

The village of Gargonza is chock full of twists and turns; paths that lead into gardens and orchards-giving you a gentle push to walk in the shade of green bowed trees and the sound of the branches swaying in the wind- before you reach our destination; and places of cleansing and detoxification which are soothing to the mind, and calming to the soul. Every turn in every walk reveals something new and enchanting, and the elements that enable the transitions enhance the feelings elicited by these places.

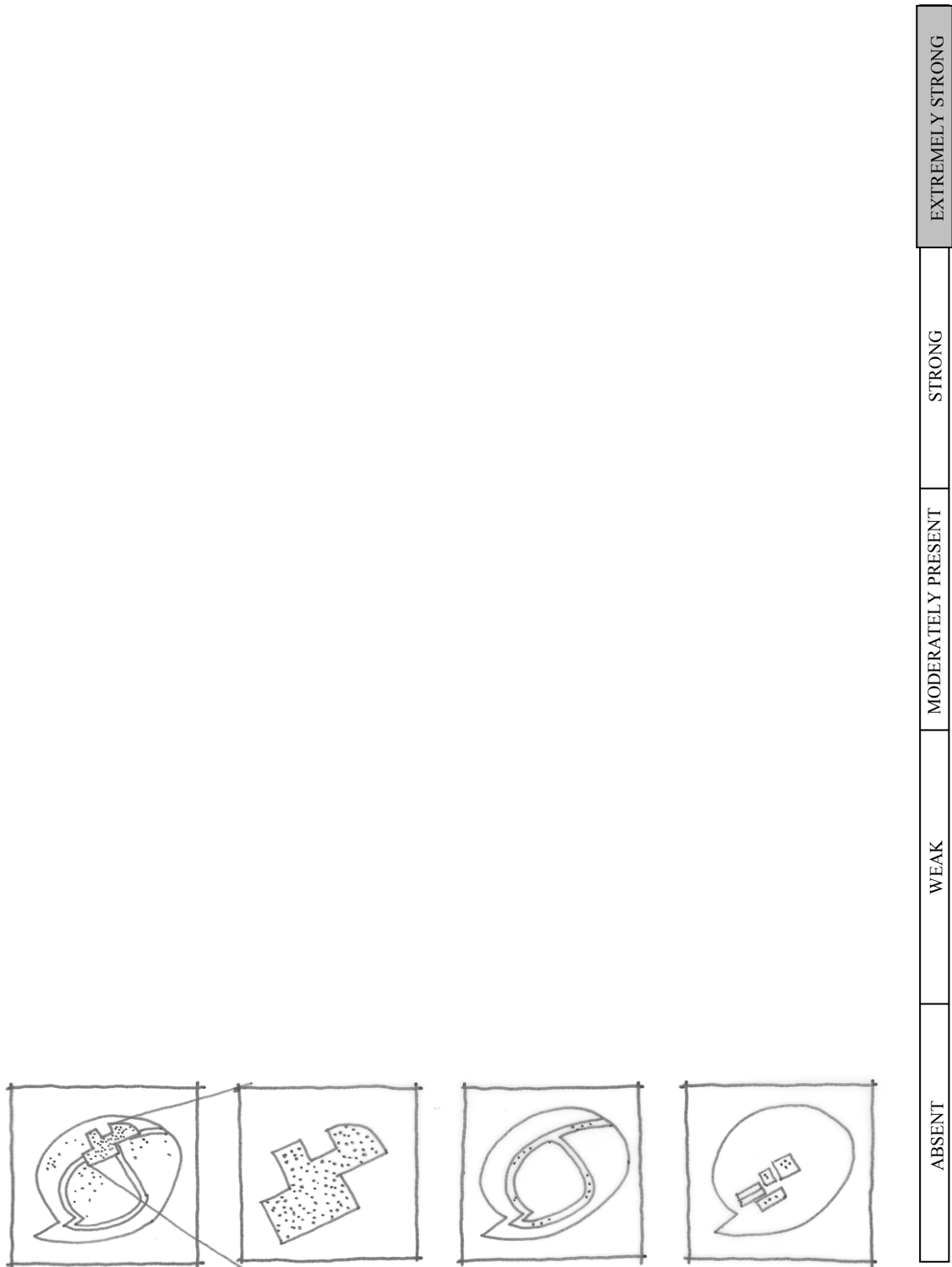


Figure 92. The development of transitions and thresholds (sketch by the author).

SPATIAL HIERARCHY AND INTIMACY GRADIENT

The spatial hierarchy of Gargonza follows a density gradient that changes from high to low as one moves away from the center to the outskirts of the village. Visitors and occupants move from the outside of the fort village to the large central public space. From here 2 paths, perpendicular to each other, lead to the edges of the village. As they move further away, they curve to circumscribe the fringes of the village. Narrow alleys from the paths lead to residences and work places (see Figure 93).

Density changes are based on the spatial hierarchy. Built density is the greatest in and around the center. The further you move from the center, the density of built space decreases, while that of open/un-built spaces increases. The village then fades into back yard gardens, agricultural plots, areas for cattle grazing, and the natural vegetation.

Spatial hierarchy and intimacy gradient in a simple organically evolved village like Gargonza is ironically developed from the complexity of the character of spaces that come into contact with each other through this process. In a village so small in area, spatial hierarchy is highly evolved to allow for public spaces for gathering, semi-public spaces for specific groups of people, and private spaces for families with the need for privacy.

As already explained the most public space in the village is the piazza holding the tower, the well, and the church directly visible on entering the village. A grass covered lawn forms the gathering space for community meetings, church processions, and other occasions that require the presence of a number of the village people.

From this piazza, two main paths lead in different directions towards the rest of the spaces of the village. One of them is met by a walled garden on one side overlooking the valley and a conference room on the other. Smaller paths lead to the apartments and residences, some reached by stairs and ramps.



Figure 93. Changing spatial hierarchy in Gargonza (photographs by the author).

Spatial hierarchy also allows for noise control in the case of gatherings. All the homes close to the central piazzas are buffered from the noise by open patios, and terraces. Potted plants and vines in these spaces further provide sound insulation, and some measure of privacy from the large group gathered outside. Gargonza therefore exhibits a spatial hierarchy that provides for an intimacy gradient that enables the villagers to use spaces with a comfort level required for various different kinds of activities (see Figure 94).

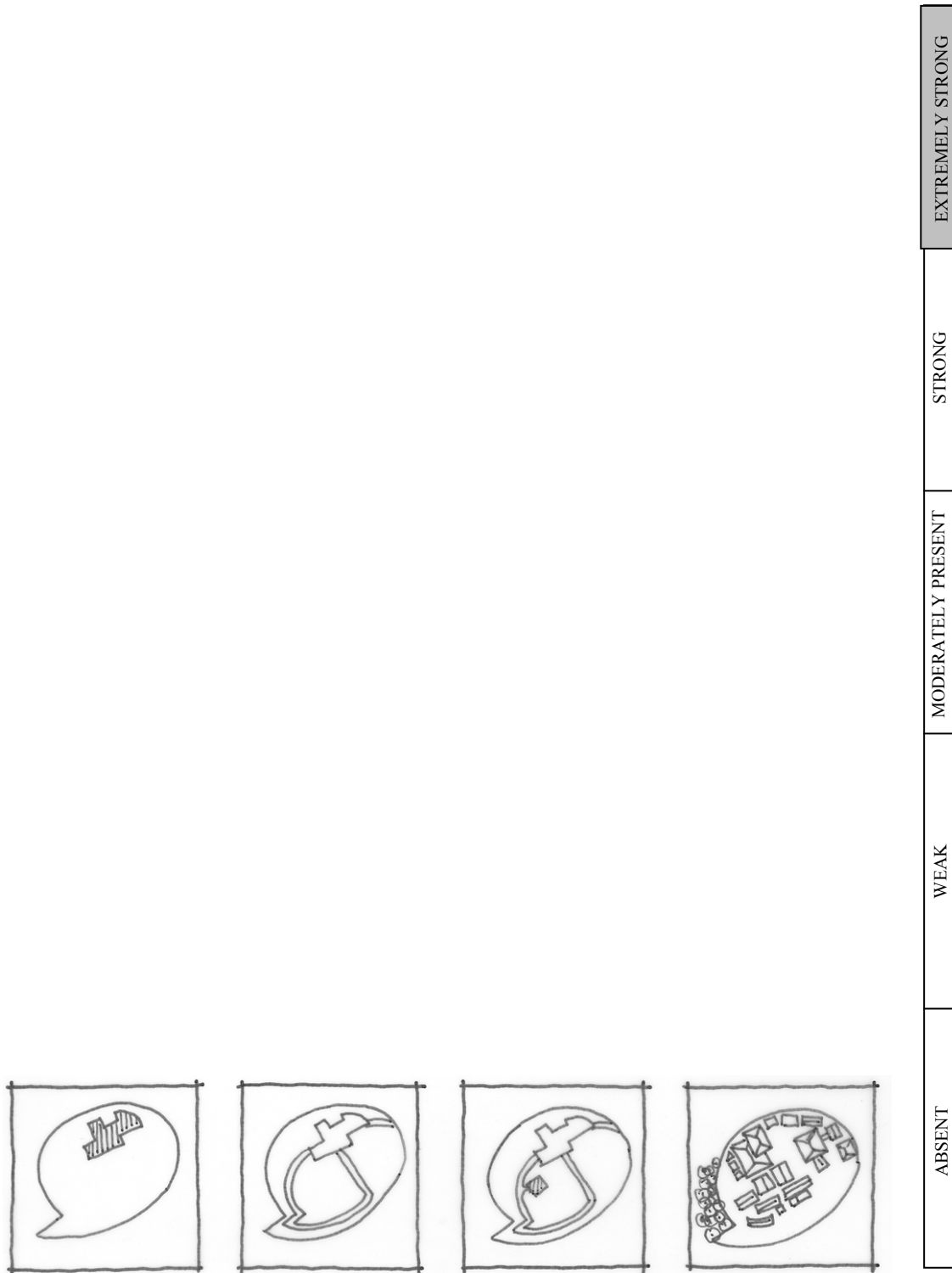


Figure 94. The development of spatial hierarchy (sketch by the author).

ANTHROPOMORPHISM

Anthropomorphism is the application of animal or human characteristics to inanimate objects. Anthropomorphism is also seen in the application of human proportions to architecture. The tradition of architecture from the Greeks onwards can be said to have based systems of measurement on the scale of human proportions. In Gargonza this system of proportions is used to create differences between public architecture and private architecture. The tower and the church are large buildings by ways of function of course, one being a defensive structure, and the other a gathering place, but they are also representative of the civic and religious life of a village and therefore assume a scale more monumental than others. Whereas the private residences, now used as apartments are more intimate and humanized as intended for daily human occupation and living.

In contemporary architecture Coop Himmelblau uses a radically divergent measure of man: that of his deficiencies. Because the range of human faults is far greater even than the scope of differing physiques, Coop Himmelblau's architecture must resist any codified or normative style, attempting, instead, to allow the idiosyncrasies of each potential inhabitant to recover themselves in relation to the experience of the building. Gargonza is a good example of this belief, where the occupants themselves conceive and build their homes, and the homes are therefore exposed to faults, and quirks of those who would live in it. Each of the residences is therefore an individualized entity expressing the will and the personality of those who occupy them through their form and character. The interiors do so to a higher degree in the furnishings and articles of personal use that the owners choose to use and display. Even today each of the apartments that are used as a part of the resort is furnished differently from the others and exhibits a character that is unique to them (see Figure 95).



Figure 95. The magnitude of anthropomorphism on a scale (drawn by the author).

CEREMONY AND ACTS OF PERSONALIZATION

Ceremony in Gargonza when still occupied by its original inhabitants involved the gathering of the community, usually in the village piazza. The piazza was used by the congregation for collecting together at the start of church processions, village festivals, and other occasions which required large spaces for a group of relatively large size.

Acts of personalization make a house, a home. In Gargonza the future home owners themselves designed and built their homes. They laid the first stone and the last tile of the home. They decorated the interiors according to their taste, and their needs, making a place comfortable and filling it with the warmth of their contributions. As the couple had children, they adored their walls with their childish drawings, and accepted the changes that come with time. They placed potted plants outside their homes, and grew vegetables, herbs and fruits in their backyard. They bought cattle which grazed in the fields nearby and poultry that cackled and waddled around in the front yard.

Today, as a part of the conference center and resort, ceremony and acts of personalization and relatively less frequent, but still as potent. Visitors reside in the resort only for a few weeks at a time and therefore do not have much of an opportunity for ceremony or personalization. Even with these constraints, the present owners of the village have gone to considerable lengths to give each apartment, conference room, and the restaurant a character unique to itself. One of the ceremonies which occurs more often than others is the ceremony of the proceedings of a conference itself. Those who visit Gargonza are also welcome to take part in the ceremonies of the church which are both moving and revealing of some of the lost memories of the village (see Figure 96).



Figure 96. The magnitude of ceremony and acts of personalization on a scale (drawn by the author).

CHAPTER XXII

SUMMARY

“To understand is to perceive patterns.”

-Isaiah Berlin¹⁷⁶



Figure 97. The 12 patterns (Images courtesy Getty Images, Edited and compiled by the author).

The following is a summary of the tests on the three places (See Figure 97, and Tables 2, and 3).

¹⁷⁶ Isaiah Berlin, *The Power of Ideas*, Edited by Henry Hardy, (Princeton NJ: Princeton University Press 2001), 211.

	CENTER	DIRECTIONALITY & AXES	BOUNDING	GRAVITY	LEVITY	THE NATURE WITHIN
THE REICHSTAG DOME	Extremely strong presence intensified by circular form and symmetric composition. The center also influences the nature of the next four patterns- axes, bounding, levity, and gravity.	Very strong horizontal axis on the exterior contributed by the large hulking stone mass of the Reichstag building. The dome opposes the horizontal with its vertical thrust and symbolism both on the outside & inside.	Extremely strong physical boundaries formed by contemporary materials like steel and glass. Helical ramps contain movement and energy boundaries. Horizon limits the visual boundary.	Strongly manifested in the inverted cone at the center of the dome which pierces the chamber below. In extending into the debating chamber of the Reichstag it emphasizes the gravity of Berlin's and Germany's past.	Extremely strong in both the physical and symbolic aspect of the glass dome. A representation of transparency, freedom, and connection with the sky above, the dome of glass magically levitates above Berlin	Weak and expressed in the sunlight that the glass dome lets in during the day and the moonlight it lets in during the night. Lacks the presence of the other manifestations of the pattern.
CASA MILA	Moderately strong presence. The building holds two eccentric centers in the form of patios- one circular and the other elliptical. The center influences to a slightly lesser degree the nature of the next four patterns.	Strong when experienced from the open spaces. The horizontal axis is stronger on the outside while the vertical axes dominate when in the two patios. Not influential when inside the residences.	Extremely strong physical and visual boundaries defined by walls, floors, ceilings and designed placement of openings. Unusual curved, bubble like walls are unique. The two patios act like energy wells.	Moderately present in transitory elements like stairs and the underground parking space which brings the building into connection with the earth. The local stone used for the façade reiterates this closeness to earth.	Moderately present on the exterior and within the patios. Symbolic of a mountain in the center of the city, the Casa Mila is the quarry above the ground that represents levity.	The Casa Mila is strongly riddled with expressions of nature in the undulating wave like walls, the weed like wrought iron balconies, and the starfish patterned pavement on the outside.
CASTELLO DI GARGONZA	Extremely strong presence. The most public space in the village, the piazza acts an eccentric center concentrating around it some of the most important village buildings. It influences the next three patterns excluding bounding.	Axes extremely strong, both intentional and unintentional. Vertical axes in the most public space and horizontal developed through necessity and functionality in the form of paths in the less public spaces.	Extremely strong boundaries, characteristic of a fortified village requiring defense against enemies. Geographic bounding provided by the hill, and physical boundaries by the outer and inner walls; roofs, and floors.	Extremely strong in the piazza. The well is one of the most perfect examples of a strong gravitational pattern. Other examples are stairs, foundations, wall transition elements, and the stones used in the construction of Gargonza.	Extremely strong in the piazza where the tower stands like a beacon declaring the presence of the village to the world. Present in the form of trees, chimneys, and stairs that lead into the houses in the other parts of Gargonza.	Extremely strong presence of the pattern- both natural and agricultural, rock outcroppings that rise up from the earth to become a part of the buildings surrounding it, and in the well that holds water.

Table 2. A summary of the findings on the patterns from the tests on the three places.

	FORMS AS MEMORY STIMULI	MATERIALITY	TRANSITIONS & THRESHOLDS	SPATIAL HIRCHY. & INTIMACY GRAD.	ANTHROPO-MORPHISM	CEREMONY & ACTS OF PERSN
THE REICHSTAG DOME	Strongly present in the Reichstag dome which is reminiscent of the original vaulted dome that stood in its place. It is a contemporary, light, and hopeful replacement to the structure that existed.	Built in the 90's the materiality of the dome which contrasts with the 19 th century building is extremely strong. Glass and steel dominate and allow for a transparency in the government not possible before.	Transition and thresholds in the Reichstag are weak within the dome itself, but stronger in the spaces that the visitors have to pass through to reach the dome. Transitions and thresholds seem rather disconnected.	Weak presence because of the simple, and smaller nature of the space compared to the two other places studied. The space does not leave much room for changing hierarchies or intimacy gradients.	Anthropomorphism is influenced by spatial hierarchy and intimacy gradient in the dome. While visitors feel very small when outside the building, this feeling is reduced a little inside the dome.	The Reichstag dome exhibits moderately strong ceremonial aspects, through the ceremony performed by the members of the government and personalization by visitors through a recording of memories.
CASA MILA	Extremely strong, the Casa Mila is a repository of forms that stimulate the memory and remind. The wave like walls reminiscent of the ocean; the pillars reminiscent of elephant trunks; balconies of weed.	The materiality of Casa Mila is extremely strong, and has led to its comparison to a number of natural formations like mountains, wind blown rocks of the desert, and cliffs by the sea.	Extremely strong and dramatic transitions in the public and semi-public spaces of the Casa Mila. Thresholds and transitions inside the residences are less dramatic but more detailed and scaled down.	Both hierarchy and intimacy are strong based on both functionality and the need for privacy in certain areas. Gaudi has managed to provide a variety of spaces within this one building to serve the required functions.	In the Casa Mila anthropomorphism is very strong and like in the Reichstag influenced by spatial hierarchy and intimacy gradient. While monumental on the outside, the interiors of homes are of human scale.	Casa Mila expresses ceremony in a manner similar to that of Gargonza. In the celebration of birthdays, weddings, and mourning of death, in the hanging of pictures of loved ones on the wall and many similar acts.
CASTELLO DI GARGONZA	Forms of memory stimuli are extremely strong in Gargonza. It reminds visitors of what it used to be-a medieval fort village-in its defensive tower, buildings of stone weathered by centuries of rain and wind, and covered by red tiled roofs.	The materiality of Gargonza is one of the strongest memories of the place. Every material used in the making of the village is a testimony of the past and the events that Gargonza has experienced.	Transitions and thresholds in the complexity of a village are used to achieve smooth movement from the most public spaces to the private spaces. Achieved through insets, level changes, arched and recessed doorways etc.	Gargonza exhibits an extremely strong hierarchy and intimacy gradient. It holds its most public and important buildings at the center from where the density gradually decreases as public spaces merge into private & cultivation.	The same trend continues in Gargonza. Here also anthropomorphism is extremely strong and can be seen in the change of scale from the piazza, to the streets, into the residences.	Ceremony in Gargonza is much more personal than in the Reichstag. It is a form of family and community bonding through gathering for common religious events and purposes. Very strong presence.

Table 2. Continued.

<p>The center is one of the most pivotal patterns in all of these cases for plan development. It influences the manifestation of other patterns. Can be spatial or symbolic, and geometrically central or eccentric.</p>	<p>All the cases exhibit a strong directionality, interestingly both vertical and horizontal. Balance between the vertical and horizontal axes leads to a harmony that seems to add to the strength of this pattern collectively.</p>	<p>Strong boundaries exist in all the cases studied. Boundaries are defined by both physical and visual limits. Boundaries and edges set apart all of the cases studied from what lies around. They exist on all scales- from the town fort to the room walls.</p>	<p>Gravity is strong in two of the cases while only moderately present in the Casa Mila. Elements associated with the vertical axis are often also those associated with gravity. Gravity is one of the sub-consciously recognized patterns..</p>	<p>Levity is strong in 2 of the cases tested, with the exception of the Casa Mila. The element of verticality seems to balance the pattern of gravity in magnitude in all the three places, and is also closely related to the center in all three.</p>	<p>The Nature Within is a strong pattern with the exception of the Reichstag dome. Nature within in contemporary designs leans more towards symbolic representation than literal expression.</p>	<p>Forms which stimulate memory or form language is extremely strong in all the cases. Mental stimulation is a significant part of sacred architecture and all the cases tested do so in various ways.</p>
<p>CENTER</p>	<p>AXES & DIRECTIONALITY</p>	<p>BOUNDING</p>	<p>GRAVITY</p>	<p>LEVITY</p>	<p>THE NATURE WITHIN</p>	<p>FORMS AS MEMORY STIMULI</p>

Table 3. A summary of the pattern specific findings.

<p>Most patterns, except that of “the nature within,” “transitions and thresholds,” “spatial hierarchy and intimacy gradient,” “anthropomorphism,” and “ceremony and acts of personalization” are strongly present. Center as a geometrical center strongest among all tests.</p>
<p>Every pattern except that of “center,” and “gravity” are strong in the Casa Mila. Probably because, Gaudí did not intend the building to represent “triumph over the underworld.” It was intended to represent the underworld itself in its dynamism and fluidity. Also the underground garage is for vehicles.</p>
<p>Every pattern is extremely strong in Castello di Gargonza. Organic growth supports the presence of patterns, and enhances the intensity of some by providing an element of history and imbibed memory. The center like in the other two cases influences the next four patterns.</p>

<p>Materiality is expressed strongly but in a number of varied ways in each of the cases. The materials used in the construction of the three cases are unique and representative of the spirit of the times, the context, and the symbolism.</p>	<p>Transitions and thresholds are very strong in all but the Reichstag. The pattern seems disconnected in the Reichstag, but is very strongly expressed in enabling changes in spatial hierarchy in Casa Mila & Gargonza.</p>	<p>Moderate in the Reichstag. Very strong in Casa Mila and Gargonza: in the hierarchy between public, semi-public, and private spaces and the manner in which this is achieved as well as in the changes of intimacy</p>	<p>Anthropomorphism is strongly present in the Casa Mila and Gargonza , while it is weak in the Reichstag. Expressed in the symmetry and visible structure of Reichstag, and the scale, and forms in Casa Mila and Gargonza.</p>	<p>Ceremony, the culminating pattern is moderately present in the Reichstag and very strong in the Casa Mila, and Gargonza. It is the pattern that brings together families, communities, and people of different nations.</p>
<p>MATERIALITY</p>	<p>TRANSITIONS & THRESHOLDS</p>	<p>SPATIAL HIERARCHY & INTIMACY GRAD.</p>	<p>ANTHROPO-MORPHISM</p>	<p>CEREMONY & ACTS OF PERSONALIZATION</p>

Table 3. Continued.

CHAPTER XXIII

CONCLUSIONS TO THE THESIS

THE JOURNEY

This thesis has been a quest to understand the essence of secular places, the sacred in these places, and the patterns that make them so. It has been an endeavor to understand and then try to use this knowledge to enable the creation of secular places that are special, unique, and have the power to heal the human body, mind, and soul. During the course of this journey I have learnt and discovered aspects of my thesis that I had never before considered, or even realized existed. Like Odysseus in Homer's *Odyssey*, I came across people who enhanced my understanding and surprised me with new ideas; and obstacles which forced me to carve new and innovative paths towards my goal.

I first came across the idea of patterns in Dr. Phillip Tabb's class on the "Theory of Place-making." Place-making is a relatively new term in the extensive literature that exists on architecture, design and planning. To make a place, is to give space character, and memory. It is to provide it with a sense of belonging and being owned, but always with the knowledge of unbound freedom. How does space become a place? A space becomes a place first and foremost through the presence of people. After all, who would deem a space a place if there was no one present? People, in occupying a space begin a process of understanding and responsive exchange which leads to a symbiotic relationship between people and places. People impress their individuality on the places they occupy and places in turn affect people through their energies. Architecture is a significant part of any place. Architecture unlike popular belief is not necessarily initiated by humans, but is present in nature to varying degrees and in a myriad of forms. What stands out, both in nature and in architecture developed by humans is recurring "patterns"-patterns that inform the character of the place and direct its energies towards a range of effects.

This thesis began with a study of these patterns and a detailed study of four pattern lists proposed by seven authors. The four lists have personalities and intentions

very different from each other. I believed that a cross-comparison of these lists and a selection of the patterns common to three or all of these lists will result in a new comprehensive list containing the strengths of all four. The new list of patterns was then tested for validity on three places which were chosen based on my definition of “sacred,” and because of their proven success and popularity as secular places. During this process certain foreseen and unforeseen qualities and effects of the patterns came to light and led to a better understanding of their contribution towards enhancing the quality of the places we use in our everyday lives.

“Sacred” is a concept which has been used largely in the religious context. Churches, temples, mosques, and synagogues are considered to be the houses of the Gods of different religions and thus sacred. Houses of worship are sacred in the traditional sense of the word. I believe that sacred is in fact a state of mind where consciousness is enhanced and transcended to a degree where the body, the mind, and the soul are one. While the connection between the mind and the body is a more tangible connection involving the communication between neurons and skeletal muscles, the connection between the mind, body and the soul (for those who believe in its existence) is a much more intangible connection that cannot be subjected to experimentation.

In very fascinating experiment researchers at the Cleveland Clinic foundation discovered that a muscle can be strengthened just by thinking about exercising it. For twelve weeks (five minutes a day, five days per week) a team of 30 healthy young adults imagined either using the muscle of their little finger or of their elbow flexor. Dr. Vinoth Ranganathan and his team asked the participants to think as strongly as they could about moving the muscle being tested, to make the imaginary movement as real as they could. Compared to a control group – that did no imaginary exercises and showed no strength gains – the little-finger group increased their pinky muscle strength by 35%. The other group increased elbow strength by 13.4%.¹⁷⁷ There have been other experiments similar to the one described above conducted all around the world with concurring results.

¹⁷⁷ V.K.Ranganathan, V. Siemionow, Z.L.Liu, V.Sahgal, and G.H.Yue, “From mental power to muscle power:- gaining strength by using the mind,” *Neuropsychologia*, 42, 944-56.

Therefore, there exists a very high possibility that places which stimulate the brain would simultaneously stimulate and invigorate the body.

A number of places in the ancient world exhibit this sacrality without serving any religious function. The Stonehenge though not an secular place, is believed to have been used for pagan rituals and as a celestial observatory. While the pyramids of Egypt were used as burial tombs for the pharaohs of the civilization, the Nazca lines of Peru were purported to mark the path of travel towards the mountains worshipped by the nature worshipping Nazcans or as astronomical sightlines that helped mark the agricultural year. In most parts of the world, places where important events which have affected a number of people have taken place are considered sacred. Battle grounds, places where treaties were signed, and places where important and influential people were born are a part of the nation's history and thus take on a special meaning. It is safe to assume that places where the dead were buried, places that had a strong connection with celestial phenomena, and important events attain a sacrality which is associated with reverence for the dead, for the forces of nature and the past respectively. This reverence for the *deceased*, for the *forces of nature*, and the *past* are exhibited in the place, and the architecture of the place through the patterns that express the connections with what is beyond the earthly realm and the grasp of humans.

“A Pattern Language for Sacred Secular Places,” is a process of discovering the patterns that make universally sacred sites potent, and the application of these patterns to places used in secular lives-our homes, work places, and places of recreation and relaxation. On testing the new pattern list on the three cases which are places used by real people everyday but also unique and special in a number of ways, I hoped to find a middle ground between the sacred and the profane. I also hoped to discover new patterns and find ones that were either strong or absent and weak in presence. Though the cases were tested for the presence of the patterns and for the magnitude of expression based on my personal observations, the “quality” of expression is the topic of a whole new research and has not been delved into here.

TEST STUDY SPECIFIC FINDINGS

The following are the findings of my thesis:

1. Not all the patterns of the new list were exhibited strongly in the three cases- The Reichstag Dome, Berlin; The Casa Mila, Barcelona; and The Castello di Gargonza, Monte San Savino. When manifested, they emerged with varied expressions. They are responsive to the context which included the site they were placed on, the history of the place, and the period of their design and construction.
2. The center plays a pivotal role in all of the three cases and is strong enough to influence the manifestation of the four patterns that follow it. It is safe to hypothesize here that, the natural process of the growth and evolution of a place follows a direct path leading from finding or acknowledging the center, establishing the axes, bounding the space, and creating or enhancing the connection of this space to the earth below and the sky above. These are the patterns that effectively “ground the space,” and lay the foundation for its transformation into a “place.”
3. The Reichstag is symmetric of plan, and therefore finds its center in its geometric center. An extremely strong center, it is felt both outside and within the dome. The Casa Mila is asymmetric and has an undulating plan that bends to form a loose L, and thus finds two centers in either section of the L. The experience of the center in the Casa Mila is weak, and is felt by the residents only through the knowledge and visibility of the patios into which some apartments overlook. Its presence does influence the development of the plan around it and has therefore been assigned a magnitude of moderate presence. Castello di Gargonza is an organically evolved village, with emphasis on functionality, and therefore finds its center at the center of its religious, civil, and administrative functions: the first space you experience on entering the

village. The center here also probably evolved as a result of the defensive requirements, and the need for maximum visibility of the valley below being an important criteria influencing the positioning of defensive tower.

4. From the centers of each of these cases evolve the other patterns, taking their cue from the first point marked in space. This is the beginning of the transition from a singular dimension to two-dimensionality. The Reichstag and the Casa Mila seek a vertical counterpart to their horizontal masses. Gargonza seeks to emphasize its position on the top of a hill and balance it with the horizontal axis. The vertical reach of the dome and the interior patios of the Reichstag and the Casa Mila respectively and the thrust of Gargonza's tower and well along with the horizontal reach of its pathways, fort wall, and terraces satisfy these requirements.
5. The containment of space provided it with volume, the quintessential character of three-dimensionality. In creating boundaries and edges a separate space is created. The boundary of the Reichstag's central element manifests itself as a dome. The edges of the Casa Mila express themselves in the form of undulating waves that are carved out of formless space. Gargonza is bound by its fort walls, defensive in nature, and by its position on the top of the hill, separate from what lies below in the valley. All the three places express strong bounding patterns.
6. The ability to tap into the energies of the earth and the sky is similar to the ability of a lightning conductor. It attracts towards it the force of lightning, conducts it through its body and therefore provides a path for this energy into the earth. The patterns of gravity and levity do exactly this. They represent the last stage in achieving complete three-dimensionality. The glass dome of the Reichstag as a form is

historically connected with upward thrust and the celestial ceiling (which is both symbolic and visual because of the transparency of the dome). The inverted cone at the center of the dome in piercing into the plenary chamber below directs this upward energy towards the ground thus representing gravity. The patios of the Casa Mila, rise up and open to the sky and are firmly grounded in the earth by the subterranean parking garage. While the element of gravity in the Reichstag is instantly evident on entering the dome or the plenary chamber and in Gargonza on entering the main piazza, gravity in Casa Mila is discernible to only those who know of its existence. The garage is intended for vehicles and not people, and therefore its presence is only moderately felt.

7. The patterns which follow the first five are the ones that fill in the details and give the cases their distinctive character, quirks, and uniqueness. It is to be noted here that the first five patterns lay the foundation for the patterns that follow, like in a coloring book, where the outlines create different forms and the colors make these forms special and unique to the person coloring them. The nature within includes the presence of flora, fauna, and the four elements of fire, water, air, and earth. It is also possible to represent this pattern through the use of geometries that exist in nature. The inverted cone of the Reichstag dome is a light catcher for the chamber below. It harnesses the power of sunlight equivalent to the element fire, not just through the cone but through the transparent glass dome and the large sunshade which is designed to move in accordance with the movement of the sun. It also resembles in form and geometry the form and geometry of a jelly fish, especially at night when the light inside shines through, illuminating the area around the dome. The Casa Mila is a repository of forms that represent objects from nature and the interior patios bring in

natural light to the apartments facing the inside. Nature in Gargonza is the most literal of all in the vegetation within and surrounding the village, the water in its irrigation channels, and the garden courts that reap the rewards of the sun on a cold day. The differences in the application of a pattern are the most obvious here. It underlines the changing face of architecture from the medieval times to the contemporary and the use of technology to achieve the same results.

8. Form language is an extremely important method of memory stimulation. Associations are most easily made through form recognition. A very generic example of this process would be the instant association of a steeple with a church, or a minaret with a mosque. Certain forms stimulate our memories by reminding us of previous contact with or knowledge concerning a similar form. The dome of the Reichstag is a memorial to the original one that existed in its place. The undulating surface of the Casa Mila reminds of the ocean, the twisted wrought iron balconies of weeds, and the pillars on the ground floor of elephant trunks. Casa Mila is a collection of forms that could trigger in the visitor any number of memories and emotions attached to these memories. Gargonza represents a slightly different assortment of forms that encapsulate the essence of a 13th century village. Its forms and materials combine to enhance this effect.
9. Materiality gives reality and substance to forms. All the three cases have very distinct and different materiality. The materials used are fitting with the context, and the spirit of the time. The Reichstag dome is the most contemporary structure out of the three having been completed in 1999. It used glass and steel to achieve the transparency, lightness, and strength required for the dome. Foster designed the transparent dome to represent the approachability of the new German government to the citizens of a country whose trust in the officials of

their country had been broken on numerous occasions in history. The Casa Mila beset by a number of administrative troubles and political unrest rose like a mountain in the center of the city faced with the local sandstone commonly referred to as the Montjuic stone of Catalonia. It was a Catalonian statement of hope in freedom and justice. For a single building the materiality of Casa Mila is sometimes overwhelming and complex. Gaudí used a number of materials that were moldable, and malleable enough to form the curving forms of the building. The materiality of Casa Mila expresses its fluidity and dynamic movement even when tied to the ground. The materiality of Gargonza is the one that has been subjected to the most vagaries of time. More than 800 years old, the stones, timber, and tiles of Gargonza contain a memory of the past and the people of the village.

10. Transitions, thresholds, spatial hierarchy and intimacy gradient are closely related. Spatial hierarchy and intimacy gradients are functions of the purpose of the space and thresholds allow for transitions between these spaces. Spatial hierarchy at one level prevents monotony and at the other provides for spaces that can provide different levels of intimacy. Even inside a home we design for spaces that can be used for entertaining visitors, family rooms for the sole use by family members, dining areas that could be used both by guests and family members, and bedrooms which are considerably more private and usually only occupied by one or two people at a time. These patterns provide for a variety in the spaces, in the “arrangement” of these spaces, and the transitions and thresholds that lead to them with the result of creating places that are pleasing to the eye and stimulating (calming or exciting) to the mind. All of the three cases contain a variety of spaces of differing hierarchy and are reached by transitions and thresholds that enhance the effect of these places. These two patterns are weak in the

Reichstag dome. While the visitors are ushered in through spaces of varying hierarchy, the hierarchy and intimacy gradient within the dome itself is pretty much unchanging, except for a few small differences. This is probably because compared to the two other places studied the dome in terms of spatial variation is the simplest and smallest. The changing hierarchy in Casa Mila is like an adventure, where you are exposed to a replica of nature, the cliff like walls, the vibrant colors, curved hallways, and the twisting stairways lead gradually from the public realm to the private. Gargonza is a larger and more organic form of the Casa Mila where you venture through small piazza's partly paved and partly covered with grass, through narrow alleys warmed by the morning sun, outdoor patios lush with vegetation in the summer, and covered with snow in the winter, up wide stone stairs leaning against a wall, to houses built by the very people who occupied them.

11. I have discovered from my tests on the three cases that the scale related aspect of pattern of anthropomorphism is to some extent affected by the manner in which spatial hierarchy and intimacy gradient are expressed. Spaces that are meant for more intimate private uses require a scale closer to the human scale than any other kind of space. Human scale exudes warmth and provides a sense of comfort, control, belonging, and possession. In the Reichstag the scale used reduces as the visitor travels from the exterior of the building, to the lobby, and the crowded elevator. It increases again on the rooftop and the lower level of the dome but progressively decreases again as the visitors traverse the helical ramp to the viewing platform above (but never to a degree where the scale is reduced to the human scale). The intention is to inspire awe, anticipation, awe again, and then comfort and trust in the company of fellow citizens or visitors. The dome itself is not anthropomorphic in terms of the scale, but expresses a weak

anthropomorphism in the symmetry of form and exposed structural framework. The Casa Mila employs the human scale to manifest the pattern of anthropomorphism. La Pedrera, or the quarry as it is called sits like a mountain on its large block in Barcelona. Though large and forbidding on the exterior, the homes inside the building are scaled down and allow for a more personal feel. The knight-like forms on the roof are an interesting example of the representation of the human face as an expression of this pattern. Gargonza was built by the people who occupied it and as such anthropomorphism is an integral part of this village. The users and occupants had the opportunity, which is lost in most design and construction today where they could measure every part of what was being constructed against their own bodies and customize it for individual use. The tread and rise of the stairs, the furniture, the heights of kitchen counters, the doorways, the roof heights, the width of streets and paths, and the size of the rooms were custom made to fit the occupants and the community.

12. Ceremony and acts of personalization are probably my favorite patterns after the center. The first and the last patterns represent the beginning (marking of the space), and the symbolic consecration of the place. Ceremony and acts of personalization are not the end of the making of a place. The making of a place is a continuous and unpredictable process that continues for eternity and is in a constant state of flux. But, this pattern does mark an important stage in place-making by bringing together the people of a community, an organization, and institution, or a family. It marks a stage where the place truly belongs and is owned by the people who occupy it. In the Reichstag dome, the people make the place their own through their own perceptions and memories of the place (one of which is the manner in which they record their memory-cameras, video cameras, sketches and paintings, poetry and prose etc.).

The dome also takes part in the important ceremony that is performed by the members of the government in the debating chamber it roofs. Celebrating birthdays, weddings, and marriage anniversaries that bring people together represent ceremony in the Casa Mila. Small personal touches to the houses- photographs of family members on the walls, souvenirs from family vacations, furnishings hand picked by the owners (though this is greatly limited by Gaudí's insistence on designing all the furniture in the apartments) are acts of personalization which make the house a home. In Gargonza, a small community some of the strongest ceremonies involve the church, Processions on days important to the village and the community, and functions marking days of civil and social importance bring the villagers together in a common celebration, thus catalyzing the conjoining of brotherly/sisterly spirits and goodwill. Today the visitors can still personalize the residences that they occupy and attend the religious ceremonies of the church, while also taking part in the secular ceremonies involved with the participation in a conference.

The intention of the tests on the three places was to eliminate patterns which were absent or not significantly present in magnitude in these places. It was also open to the discovery of any new patterns which though not present in the new list seemed to influence the design and character of these places to a high degree. From the findings mentioned above and an analysis of the Reichstag Dome, the Casa Mila, and Castello di Gargonza, a final list was developed. All the patterns tested we found to be present in the three places, and while some were extremely strong, some were just moderately present, while still others were weak.

Table 4 illustrates the magnitudes of the patterns in each of the three places in a form where they are easily comparable. The numbers represent the three places in the following order:

1. The Reichstag Dome
2. The Casa Mila
3. Castello di Gargonza

	EXTREMELY STRONG			STRONG			MODERATELY PRESENT			WEAK			ABSENT		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
THE CENTER	1		3					2							
AXES & DIRECTIONALITY	1		3		2										
BOUNDING & EDGES	1	2	3												
GRAVITY	1		3							2					
LEVITY	1		3							2					
FORMS AS MEMORY STIMULI		2	3	1											
THE NATURE WITHIN			3		2								1		
MATERIALITY	1	2	3												
TRANSITIONS & THRESHOLDS		2	3										1		
SPATIAL HRCHY. & INTIMACY GRAD.		2	3										1		
ANTHROPO-MORPHISM		2	3										1		
CEREMONY & ACTS OF PERSN.		2	3	1											

Table 4. A comparative table of the pattern magnitudes in the three places.

MAGNITUDE RELATED FINDINGS

When I initially began this research, and selected the three places to be tested, I expected to find all the patterns that appeared to be extremely strong or at least strong in presence. Now that I have reached the end of this journey, I have discovered that there are patterns, which in two out of the three places are only moderately present and sometimes even weak. As is seen in the table on the last page, the only place which exhibits all the 12 patterns with a magnitude that is extremely strong is Castello di Gargonza, while both the Reichstag Dome and the Casa Mila contain some patterns which are just moderately present or even weak. The patterns which are extremely strong or strong in presence are the following:

1. Directionality and Axes
2. Bounding and Edges
3. Forms as Memory Stimuli
4. Materiality
5. Ceremony and Acts of Personalization

The patterns which are moderately present or stronger in one or more places are as follows:

1. The Center
2. Gravity
3. Levity

Patterns which are weak in presence or stronger in one or more places are the following:

1. The Nature Within
2. Transitions and Thresholds
3. Spatial Hierarchy and Intimacy Gradient
4. Anthropomorphism

An interesting trend that emerges here is the realization that all the patterns that are moderately present in magnitude belong to the Casa Mila, while all those which are weak belong to the Reichstag Dome. Also, the patterns which are moderately present in the Casa Mila are either strong or extremely strong in the two other places. The patterns

which are weak in the Reichstag Dome are patterns which are extremely strong in magnitude, both in the Casa Mila, and in Gargonza.

Castello di Gargonza

At this point, it might be reasonable to speculate on the variation in the presence of the 12 patterns in each of the three places. Gargonza is the largest of the test studies, in terms of area covered, and also the oldest. It had the opportunity to grow organically according to the needs of the community, and in time was able to achieve a complexity in masses and spaces which lend itself to the expression of the patterns. It was a village catering to a community of people, who each had their own needs, occupations, and beliefs. The need for a variety of spaces serving secular and defensive functions led to the creation of buildings and places that knowingly or unknowingly manifested the archetypal energies of the patterns. The center which grew more out of functional and defensive needs, and the then popular practice of segregating the most important buildings of the community in one place influenced the four patterns that followed. With its strength it provided strength to the rest.

The pattern of nature within was greatly assisted by the fact that the village grew as an agricultural community dedicated to the occupational control of nature, while the materiality of the town gained considerable strength with the days of constant human use and natural wear for hundreds of years. The complexity in the built and un-built spaces required for a group of people which at its least numbered about 300, lead to the need for effective spatial hierarchy, intimacy gradients, transitions, and thresholds.

The Casa Mila

The Casa Mila is much smaller in area than the village of Gargonza, and separated in time from the village by about 800 years. Unlike Gargonza, it was planned and designed by one of the most unique and eccentric architects of the time. In an attempt to free the space from large structural members to support the undulating walls of the building, Gaudí designed into the plan the two patios which would form the support for the rest of the structure. They were also a necessary for allowing natural ventilation and sunlight into the apartments on the interior of the building. The two

centers formed by the patio are therefore more functional than felt. Their presence is only sensed through the functions they serve rather than experiencing the space itself.

Casa Mila abounds in forms of memory stimuli, and it is through these forms that Gaudí achieves the intention of gravity and levity. The connection with the earth and the sky is expressed by elements like the starfish patterned ceramic tiles on the exterior, and the rising chimney like forms on the roof. Though the underground garage could have been a strong connection with the earth, it is meant for vehicles rather than human occupation and therefore loses a lot of its power. Also, its presence is unrealized when on the exterior of the building.

The Reichstag Dome

A third of the patterns from the new list are weak in presence in the Reichstag Dome. The dome is the most recent of the three places having been completed only in 1999 and the smallest in area. It is also the most simplistic in spatial quality but still very strong in symbolic content. The lack of complexity in the types of spaces to be included within it, is probably one of the reasons the patterns of spatial hierarchy and the related transitions and thresholds are weak. The dome is also intended as a monumental piece of secular architecture, impressing upon the visitors the power of the new democratic government of Germany. It is not the intention to make the visitor comfortable through changing intimacy levels (even though there is a slight variance as the visitor walks from the front of the building, travels to the roof where the dome sits, and walks up the ramp to the viewing platform) or anthropomorphic references which would encourage familiarity. The feeling of accessibility of the representatives of the members of the bundestag is achieved more through the materiality rather than designing for forced intimacy. Through this approach Foster, manages to retain the impression of power that the seat of the government of a nation wishes to express, and fuses to this the visitor's need for trust in their elected representatives.

Foster intended the dome to express the spirit of the times, and the design evolved to include the clean, minimalistic lines of articulate and visionary architecture. The clean and minimalistic character of the dome led to the exclusion of certain forms of

the nature within, like vegetation, fauna, water, and earth. The nature within the dome is therefore greatly limited, but in keeping with the character of the design.

THE FINAL PATTERN LIST

After careful consideration, and based on the results of the pattern tests on the three places a final pattern list has been developed. Since none of the 12 patterns tested were weak or absent in more than one instance, all the patterns from the list have been retained. The final pattern list has been ordered in a manner of the natural growth of a place and consists of the following patterns:

1. Center
2. Axes and Directionality
3. Bounding and Edges
4. Gravity
5. Levity
6. The Nature Within
7. Materiality
8. Forms as Memory Stimuli
9. Spatial Hierarchy and Intimacy Gradient
10. Transitions and Thresholds
11. Anthropomorphism
12. Ceremony and Acts of Personalization

SIGNIFICANCE OF THE FINAL PATTERN LIST

The final pattern list consisting of 13 patterns forms a pattern language that embodies the strengths of four existing pattern lists. It is a result of intensive testing of these patterns on three successful secular places, each different in character and context from the other, and the review of data related to patterns, pattern recognition, pattern languages, secular places, and the three places tested.

While the final list includes the patterns from the original new list, it was given the opportunity to weed out any patterns that might not be present in a real secular example of a successful and special place. It was also given the opportunity to add to

itself any new patterns that seemed to emerge as an important component of the three places. The process ran the patterns through two sieves for validation:

1. Only the patterns which occurred in three or all the pattern lists were selected for the “**new list.**”
2. The patterns in the new list was tested on three places, and based on their presence or absence included or removed from the “**final list.**” The magnitudes of the patterns were assessed on a scale based on literature studies and logical deductions based on the expression of the pattern in the place. Patterns which were weak in magnitude in only one place out of the three (majority presence) were kept in the list.

The significance of the final list lies in the fact that it consists of patterns considered important by popular architects like Alexander, Lyndon, and Moore, and by educators and practitioners in the field of landscape architecture and architecture like Brill and Tabb. The lists developed by Brill, Lyndon, Moore, Tabb are also special because of their references to place-making, archetypes, and sacred, and charged places in relation to these patterns. These patterns were then run through tests on places that have proven themselves to be successful examples of secular architecture in their respective contexts. The final list that is derived thus has the distinction of being composed of patterns proposed by authorities in the field of “architectural theory,” and tested for validity on places that are unique in the field of “architectural practice.” It is the product of the confluence of two parts of the field of architecture, thus combining the muscle of the two in search of a new pattern language for the design of secular places that are sacred.

USE OF THE FINAL PATTERN LIST AND FURTHER RESEARCH SUGGESTIONS

In spite of the fact that I began my research with the intention of developing a pattern language for the creation of sacred everyday places, it came to realize during the course of the research that the jump from religious to everyday architecture cannot be made without the step in between: the creation of sacred secular places. The decision to

limit the study to secular places was also influenced by the selection of the test places, which in their true sense are not everyday places, but special secular places. The patterns in the final list are patterns which have been proven to be present in three sacred (see chapter I) and unique places (see chapter IV) of secular nature.

Hence, I believe that the use of these patterns in the design of a secular place would be the first step towards making it sacred. It is important to emphasize here the informative nature of the patterns, which will be, and have to be altered to suit the context, giving it the flexibility of varied manifestation. I also refrain from limiting the patterns in the list to those mentioned in this thesis or from suggesting the need to apply all the 13 patterns to design. The list will always remain a work in progress and the main intention here is to get the process started: the process of investigating and understanding patterns, and their use in the design of sacred secular places.

An interesting pattern which came to light during the research was one which concerned the relationship between the spaces created and the structural systems used to do so. I would recommend a further study into the significance of this pattern in addition those already mentioned in this thesis.

Structural Compatibility: After extensive study of the three places used to test the patterns, I realized the importance of structural compatibility to the spaces that it helps form. Alexander in his pattern language and calls this pattern “Structure follows Social Spaces.”¹⁷⁸ Pattern no.205 in his list of 253 patterns, this pattern is the first of the 49 patterns that deal specifically with structure and construction. No building can feel right unless its physical spaces (defined by the structure) are congruent with its social spaces. In all the three places analyzed the structure was a function of the character of the space and not the other way around. Though the size of the dome was limited by the chamber it roofed and the roof space it used as a platform, Foster did not make any concessions in his design in lieu of structural limitations. In the Casa Mila Gaudi experimented with various new and innovative structural frameworks to support the unique form of his building while providing maximum flexibility in the interior spaces.

¹⁷⁸ Alexander, Ishikawa and Silverstein, *A Pattern Language*, 300.

In Gargonza, social spaces were the larger concern, the use of stone masonry having already been perfected through years of use.

The main intention of this pattern is prevent the nature of spaces from being dictated by structural limitations. Forcing social spaces into the framework of a building whose shape is defined by engineering considerations destroys the beauty of spaces that have evolved as a result of their function and creative design. While the marking of a center, presence of axes, boundaries, connection to the earth and the sky, and ceremony are all important patterns that make a place, equally important is a structure that can complement and support the manifestations of these other patterns. Though this pattern has been excluded from the pattern lists developed by Brill, Moore and Lyndon, and Tabb, its exclusion will only undermine the strength of the new pattern list.

While structural innovations have most often developed in relation to the design of religious and monumental architecture in the past, the secular architecture used in everyday life has been overlooked. The Egyptian pyramids, the Greek temples, the Roman coliseum, and the Gothic cathedrals all required structural originality to accommodate the purposes they were intended to serve. It is important that the design of the secular places of today not be dictated by the use of (a) structural framework so complicated that the social spaces are forced to follow the shape of construction, or by the use of (b) a framework which is overly simplistic because of its ease of construction and inexpensive nature. The archetypal energies of this pattern are “**harmony**” and “**cohesion.**”

The next step towards the progress of this process would be test the final list on secular places around the world (so as to increase the scope of the results), and with these results in hand, continue to testing on everyday places like our homes, work places, parks, and schools. This research is also limited by my inability to experience the test places for a more prolonged period of time, resulting in which my interpretation of the patterns might have been different from what is expressed in this thesis.

THE END OF THE BEGINNING

I conducted this research in the hopes of laying the foundation for further studies into the use of patterns for creating everyday sacred places: places which through their design and resulting quality of place would have the ability to heal, invigorate, and calm the human body, and mind. At this stage, as I end this thesis, I conclude with a list of 13 patterns: a pattern language that through the testing conducted was proven to be functional in thriving and unique secular places of three different kinds (the dome of a governmental building, an apartment complex, and a small medieval village). The final list is a collection which for the first time combines the sacred and secular aspects of place and provides for a language that promotes the union of these two separate realms. I hope that this pattern language when subject to further testing on both secular and secular everyday places would evolve into a more comprehensive and structured list, which can be applied to the design of places of a sacred nature.

“Looking upward the sage contemplated the images in the Heavens;

Looking downward he observed the patterns on Earth.”

- Fu Hsi, First Emperor of China¹⁷⁹

¹⁷⁹ A.T. Mann, *Sacred Architecture* (London UK: Vega Books, 2002), 77.

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