

BODY, SOUL, AND ARCHITECTURE

A Study of the Premodern Islamic and Western Traditions

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ABSTRACT

Throughout history, the conception of architecture has, in one form or another, always been related to the human body. In the Western tradition, this can be traced back to the writings of Vitruvius as well as a chain of thinkers who followed in his footsteps. In several non-Western traditions, however, the relationship is not as clearly traceable. The Islamic tradition is one conspicuous example. Although Muslim scholars seem to have been familiar with Vitruvius' representation of the human body as a measure for architecture, the developments of their thought on the topic have remained rather ambiguous. This thesis aims to investigate these developments and to explore new terrains of Islamic thought on this topic in parallel with those of the Western tradition.

The thesis presents a fresh reading of the intertwined history of body and architecture based on a selected range of philosophical, mystical, and historical texts of key Western and Muslim figures, such as Plato, Vitruvius, St. Augustine, Alberti, al-Fārābī, Ibn Sīna, al-Ghazālī, al-Suhrawardī, and Ibn 'Arabī. It shows how the enduring idea of body and building was conceived, detailed, and developed consistently in both traditions, and how the lack of canonical architectural sources in the Islamic tradition does not mean an absence of sustained thinking on the topic, which can be found richly illustrated in non-architectural sources.

The thesis focuses on the concept of "measure," that is, the way in which the human body was conceived to be a reference point for the act of making. In the Western traditions, the foundations of this conception reach back to Pythagoras, who reduced the body to a set of mathematical ratios to be used in the act of building. In being a reflection of a cosmic model, these mathematical ratios of the body became the *measure* through which both the body and its constructed images (a building, a settlement, or a city) became microcosms. This conception extends to the Islamic tradition, which laid an additional emphasis on the role of the soul as an intangible ruler of the body.

The study shows how in the premodern world man was seen to represent, in an abbreviated fashion, the measure of the entire cosmos, how this human measure, in turn, played a central role in informing the theories and practices of architecture, how the human body became a divine model for the architecture of both the cosmos and built environment, and how the macrocosmic-microcosmic relationship that once bound the body to both architecture and the universe has been irrecoverably lost in modern times.

CONTENTS

ABSTRACT

CONTENTS

ACKNOWLEDGEMENT

ILLUSTRATIONS

NOTE TO THE READER

INTRODUCTION: AIMS AND METHOD

Aims and Significance

Scope, Parameters, and Approach

Sources: Critical Review

Limitations, Contributions, and Thesis Layout

PART I ESTABLISHMENT

CHAPTER 1: THE VITRUVIAN BODY

1.1 Measure in the *De Architectura*

1.2 The Vitruvian Man

Cosmology and Human Measure in Timaeus

Tracing the Cosmos onto the Earth

1.3 The Origin of Building

1.4 Body and the Origin of Columnar Orders

CHAPTER 2: IN THE IMAGE OF GOD

2.1 The Measure of Adam

Adam the First Temple on Earth

The Two Dimensions of Adam

2.2 The Body of Christ as the Church

Christ as the Vessel of Salvation

The Body of Christ as Architectural Metaphors

CHAPTER 3: THE BODY AND THE MOSQUE

3.1 The Model of Muḥammad

3.2 The Body as a Mosque

The Body's Time and Orientation in Prayer

The Body's Unfolding of Directions in Prayer

3.3 The Mosque and the Three-Dimensional Cross

The Spatial Structure of the Congregation Prayer

PART II PHILOSOPHICAL AND MYSTICAL DEVELOPMENTS

CHAPTER 4: EARLY ISLAMIC PHILOSOPHY

4.1 Greek Philosophy and Islam

4.2 *Ikhwān al-Ṣafā'*: Body, Soul, and Geometry

The Body as a Similitude of the City

4.3 Al-Fārābī: Virtuous Bodies in Virtuous Cities

Cosmic Model: The Philosopher-King and the Perfect City

The Body and City Planning

Individual Body, City Planning, and Social Order

4.4 Avicenna: The Body and the Soul's Orientation

The Soul Seeking its Home

The Cosmic Geography of the Soul

Siting the Body and Building

CHAPTER 5: MEDIEVAL ISLAMIC THEOLOGY AND MYSTICISM

5.1 Al-Ghazālī: The Light of the Heart

The Dual Dimensions of the Heart

The Body as a Fortress City

Gateways of Illumination

The Body as an Illuminated Niche

The Body as a Luminous Column

5.2 Al-Suhrawardī: The Temples of Light

Hayākil al-Nūr and the Ancient Temples of Fire

The Body as the Temple

The Body and the Illumination of the Cosmos
The Body Oscillating Between Light and Darkness
The Microcosm: Elevated Dwellings and Polychromatic Surfaces
Contemplating the Illuminated Body

5.3 Ibn ‘Arabī: The Geometry of Being

Muḥammad: The Tree of Being
The Alphabetic Geometry of Muḥammad
Geometric Mappings of the Human Structure
The Ka ‘ba as the Human Body
The Pole and the Four Columns of the Universe

CHAPTER 6: MEDIEVAL CHRISTIAN THEOLOGY AND MYSTICISM

6.1 Building the Body of Christ

Christ as the Cornerstone and Pillar
The Material Church Resembles Christ

6.2 Divine Body and Divine Light

Christ the Lux Nova

6.3 Divine Number and Geometry

St. Augustine and the Symbolism of Numbers
The Geometry of Christ

PART III RE-ESTABLISHMENT: THE RENAISSANCE

CHAPTER 7: THE RENAISSANCE OF VITRUVIAN MAN

7.1 The Synthesis of Ideas

Emergence of Architectural Theory in the Renaissance
Alberti: The Humanist Architect

7.2 Proportion and the Human Body

Exempeda: Measuring Buildings by the Body
The Finitorium Ruler
Body, Proportions, and the Beautiful Building
Perfect Geometries and the Body

7.3 Filarete and the *Trattato Di Architettura*

7.4 The Measure of Adam

The Face and Architectural Expressions

Social and Architectural Status

7.5 Caring for the Architectural Body

7.6 Architecture as a Memory Machine

CHAPTER 8: OTTOMAN RENAISSANCE

8.1 Islam and the Renaissance

Sinan and the Education of the Architect

The Pavilion and Temple of Adam

Muḥammad: the Dome of Faith

8.2 Building as a Mirror for the Architect

The Pavilion of the Architect's Body

8.3 Mehmed Aga's *Risāle-i Mi'māriyye*

CONCLUSION: THE BODY'S DISINTEGRATION

The Body Disembodied

Descartes: The Body as a Machine

Man: Not a Model or Measure

Return to the Body?

BIBLIOGRAPHY

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The enthusiasm to take on a study on the body and its relationship to architecture started years ago in the seminar rooms of McGill University under the supervision of Alberto Pérez-Gómez. The meditative readings of primary sources, especially the *De Architectura*, guided by Alberto left a deep impression upon me to continue on with a doctoral dissertation. I thank Alberto for teaching me how to read carefully, deeply and more importantly on how to question the text. That journey of enthusiasm was given definition and direction under my current thesis supervisor Samer Akkach. Samer taught me how to take step back and survey with consideration. I thank him for teaching me on how to articulate what has been questioned with care.

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ILLUSTRATIONS

PHOTOS

Title	Caption	Page number
Photo 1	Position of <i>sutra</i> in relation of worshipper who is about to start his prayer	77
Photo 2	The <i>mihrāb</i> at the centre of the <i>qibla</i> wall, Masjid Al-Falah, Singapore	84
Photo 3	Photographs taken from the centre of Masjid Sultan, Singapore.	85
Photo 4	Formation of the congregational row behind the <i>imām</i> .	87
Photo 5	Worshipper made alert to his position in all six directions.	88

FIGURES

Figure 1.1	Vitruvian Man by Cesariano (Source: Pérez-Gómez and Parcell, 1994, 5.)	46
Figure 1.2	Wind Directional Diagram (Source: Vitruvius 1960, 30.)	50
Figure 1.3	The Roman <i>agrimensor</i> at work (Source: Rykwert 1995, 51.)	52
Figure 1.4	The <i>templum</i> of the Sky (Source: Rykwert 1995, 48.)	53
Figure 1.5	Origins of Architecture by Cesariano (Source: Pérez-Gómez and Parcell 1994, 3.)	56
Figure 1.6	Dinocrates using his body as a site to demonstrate city planning to Alexander (Source: http://pendientedemigracion.ucm.es/info/angulo/volumen/Volume n03-2/textos02.htm . Accessed on 2/9/2013)	57
Figure 1.7	<i>Caryatides</i> (Source: Vitruvius 1960, 30.)	58
Figure 2.1	Benito Arias Montano's illustration of the dead body of Christ fitted into Noah's Ark (Source: Pérez-Gómez and Parcell (eds.) 1999, 148.)	70
Figure 3.1	The <i>Ka'ba</i> , the House of God, in Mecca being circumambulated by pilgrims (Source: Nasr 1987, 43.)	75
Figure 3.2	A map by al-Jilahi, 10th c with the <i>Ka'ba</i> at the centre of the world. (Source: Al-Qu'āitī, 2007, pg. vi)	76
Figure 3.3	The boundary and orientation of a person performing prayer. (Source: Author)	78
Figure 3.4	Spatial coding of the body in prayer (Source: Chisti 1985.)	81
Figure 3.5	The six-sided unfolding of the human spatiality being re-enacted in the prayer (Source: Akkach 2005, 203.)	81

Figure 3.6	The three-dimensional cross as a shared spatial configuration between the human body and the <i>Ka 'ba</i> (Source: Akkach 2005, 180.)	81
Figure 3.7	The Prophet's Mosque, the colonnaded end marks the <i>qibla</i> wall facing Mecca (Source: Hillenbrand 1994, 39.)	82
Figure 3.8	Schematic diagram of the Prophet's Mosque (Source: Author.)	82
Figure 3.9	Plans of mosques that tend to be largely reflecting the emphasis of the quadrature. (Source: Michell (ed.) 2000)	83
Figure 4.1	The proportional ratios of the body according to the <i>Ikhwan al-Ṣafā'</i> (Source: <i>On Music</i>)	97
Figure 4.2	The body as a fortress city (Source: Rykwert 1996, 67.)	101
Figure 5.1	The construction of man as composed of two columns.	133
Figure 5.2	Nineteenth-century engraving of a Zoroastrian Astehgah fire temple in Baku, Azerbaijan. (Source: http://www.virtualani.org/firetemple/ . Accessed on 16/08/2013)	137
Figure 5.3	Main dome and minarets of the Shah Mosque (Source: Steirlin 2012, 211)	147
Figure 5.4	Vault over the entry portal to the Shah Mosque (Source: Steirlin 2012, 214)	147
Figure 5.5	Dome of the western hall, Shah Mosque (Source: Steirlin 2012, 216)	148
Figure 5.6	Geometric diagram, which manifests the relation between God, the Real and beings (Source: Chittick 1998, 228.)	150
Figure 5.7	"Symbolism of <i>nun</i> and the secret of its eternity." (Source: Ibn 'Arabī 2002, 148.)	155
Figure 5.8	The <i>markaz</i> formed by the intersection of the two <i>alifs</i>	156
Figure 5.9	The proportioning of the Arabic alphabets based on the vertical and horizontal lengths of <i>alif</i> (Source: Burckhardt 2009, 57.)	157
Figure 5.10	Diagram of Transcendence (Source: Hirtenstein and Tiernan (eds.) 1993, 30)	159
Figure 5.11	"Diagrammatic representation of the geometry of being" (Source: Akkach 2005, 111)	161
Figure 5.12	Relationship between the Real, God, and existents illustrated by intersecting circles and repeated quadrature by Ibn 'Arabī (Source: Chittick 1998, 230.)	162
Figure 5.13	"The cube of the <i>Ka 'ba</i> crystallizing the spatiality of the human presence." (Source: Akkach 2005, 180.)	166
Figure 5.14	"To each Pillar belongs one corner of the House." (Source: Akkach 2005, 186.)	167

Figure 5.15	The Pole and <i>awtad</i> as a form and function of the <i>Ka 'ba</i> (Source: Author.)	168
Figure 6.1	Isometric view of <i>Domus Ecclesiae</i> at Dura-Europos (Source: Kilde 2008, 25.)	172
Figure 6.2	Middle pier representing Christ flanked on both sides by apostle columns at St. Wigbert, Quedlingburg, crypt circa 930 (Source: Onians 1988, 82.)	174
Figure 6.3	Middle pier representing Christ flanked on both sides by apostle columns at St. Pantaleon, Cologne cloister, circa 930 (Source: Onians 1988, 83.)	174
Figure 6.4	Middle pier representing Christ flanked on both sides by apostle columns at St. Michael's Abbey, Hildesheim, 1003 (Source: Onians 1988, 83.)	175
Figure 6.5	Plan of the Abbey Church of St. Denis. The plan illustrates the twelve columns St. Denis mentions at the apse and also the twelve pairs of columns that mark the nave (Source: Panofsky 1979.)	176
Figure 6.6	Plan of the Old St. Peter's Cathedral (Source: Doig 2010, 29.)	178
Figure 6.7	Nave of the Abbey of St. Denis (Source: Pérez-Gómez and Parcell (eds.) 2011, 59.)	181
Figure 6.8	The Ezekiel windows, Abbey of St. Denis (Source: http://www.medart.pitt.edu/image/France/St-denis/windows/Ezekiel/Sdenwind-Ezek.html . Accessed on 17/05/2013.)	183
Figure 6.9	The Prophet's illumination depicted with a flaming crown. (Source: Gruber 2009, 230.)	184
Figure 6.10	The Ebstorf Map of the World, circa 13th c (Source: Hiscock 2007, 139.)	187
Figure 6.11	Cosmic Man fresco circa 1300 (Source: Rykwert 1996, 81.)	188
Figure 6.12	The New Jerusalem, Beatus of St Sever (Source: Hiscock 2007, 192.)	191
Figure 6.13	'God designing the World', 13th c (Source: Hannam 2010, 67)	193
Figure 6.14	Consideration of the equilateral triangle or the square as the basis of the Milan Cathedral (Source: Ackerman 1949, 89.)	194
Figure 6.15	Matthew Roriczer, plan and elevation of pinnacle using the square (Source: von Simson 1988, 17.)	195
Figure 6.16	Laon Tower, Plan, Villard de Honnecourt (Source: Hiscock 2007, 188.)	196
Figure 6.17	Elevation of Laon Tower, with the insert of hand holding a quatrefoil, Villard de Honnecourt (Source: Hiscock 2007, 182.)	196
Figure 7.1	Alberti's <i>exempeda</i> rule of measure based on the foot length that	208

	is further divided by ten degrees (Source: Aiken 1980, Plate 15.)	
Figure 7.2	Illustration depicting Alberti's use of two set squares, <i>normae</i> , which was used to measure both the length, width and breadth in the <i>exempeda</i> system (Source: Gadol 1969, 77.)	209
Figure 7.3	Illustration depicting Alberti's <i>finitorium</i> and <i>radium</i> and how it is made to measure the movement and extensions of the human body (Source: Gadol 1969, 79.)	210
Figure 7.4	"Construction of square and polygons from the Bartoli edition of Alberti's <i>De Re Aedificatoria</i> " (Source: Wittkower 1971, 4.)	216
Figure 7.5	Cusanus' geometric diagram illustrating the relationship of a human being to God (Source: http://www.schillerinstitute.org/fid_97-01/012_Cusa_quad_circ.html . Accessed 03/04/2012)	217
Figure 7.6	Sketches of San Sebastiano made by Antonio Lobacco based as he claims on the instructions of Alberti (Source: Tavernor 1998, 128.)	218
Figure 7.7	Digital modelling of plan and section of San Sebastiano (Source: Tavernor 1998, 131.)	219
Figure 7.8	Timber model showing oblique elevation and section of San Sebastiano (Source: Tavernor 1998, 129.)	219
Figure 7.9	Plan view of San Sebastiano after Antonio Lobacco (left); Plan of San Sebastiano overlaid with Brunelleschi's design for Santa Maria deli Agneli (Source: Tavernor 1998, 158.)	220
Figure 7.10	Francesco di Giorio's illustration of man as a measure of circle, square and thus the building (Source: Wittkower 1971, Pl 1a.)	221
Figure 7.11	Adam shelters himself using his hands after being expelled from Heaven (Source: <i>Trattato Di Architettura</i> fol. 4v.)	225
Figure 7.12	Adam builds the first House (Source: <i>Trattato Di Architettura</i> fol. 5r.)	226
Figure 7.13	Columnar Orders according to Filarete (Source: <i>Trattato Di Architettura</i> fol. 57v.)	227
Figure 7.14	Plan of Sforzinda (Source: <i>Trattato Di Architettura</i> fol. 43r.)	233
Figure 7.15	Dedication page of the Vienna <i>Dioscorides</i> (Source: http://www.unesco-ci.org/photos/showphoto.php/photo/4824/title/vienna-dioscurides-2c-ms/cat/939 . Accessed 4/4/2012.)	234
Figure 7.16	Giotto's depiction of Charity (Source: Yates 1974, pl. 3A.)	238
Figure 7.17	House of Virtue and Vice (Source: <i>Trattato Di Architettura</i> fol.144r.)	239
Figure 7.18	Figure of Virtue (Source: <i>Trattato Di Architettura</i> fol.143r.)	240
Figure 8.1	Polyphilo in front of "the three brazen portals, crudely hacked	245

	into the living rock: an ancient work of incredible antiquity.” (Source: Colonna 1999, 138.)	
Figure 8.2	Title page of the Latin translation of Alhazen’s Book on Optics. (Source: Belting 2011, 93.)	246
Figure 8.3	Filarete’s use of “minarets” in his proposals such as the Cathedral of Sforzinda and the Temple of Plusiapolis. (Source: Hub 2011, 28)	249
Figure 8.4	Exterior view of the Hagia Sophia with the addition of the four minarets (Source: Ousterhout 1995, 48)	252
Figure 8.5	Interior of the Hagia Sophia (Source: Necipoğlu 2011, 82)	253
Figure 8.6	Interior view of the main dome supported by four columns and arches, in the Süleymaniye Mosque. (Source: Necipoğlu 2011, 214)	256
Figure 8.7	Interior view of the main dome supported by four columns and arches. (Source: Necipoğlu 2011, 215)	257
Figure 8.8	The Selimiye Mosque with its large central dome flanked by four minarets. (Source: Kuban 2010, 296)	258
Figure 9.1	An illustration of the animistic, symbolic and hierarchically structured Aristotelian cosmos in Cesariano’s edition of Vitruvius’ <i>De Architectura</i> (1521) (Source: Pérez-Gómez 1996, 21.)	269
Figure 9.2	The Five Orders after Perrault.	278

NOTE TO THE READER

For Arabic, Persian, and Turkish transliterations, I have used diacritical marks following the *IJMES* wherever appropriate.

Unless otherwise stated I have used Abdullah Yusuf Ali's translation of the *Qur'ān* and *The New Oxford Annotated Bible: New Revised Standard Version with the Apocrypha* for Biblical references.

I have used the author-date system for referencing throughout except for a selection of well-known primary texts where I have retained the original title in its transliterated form and the numbering following the original text.

INTRODUCTION

AIMS AND METHOD

For if a man lies on his back with his hands and feet outspread, and the centre of a circle is placed on his navel, his fingers and toes will be touched by the circumference. Also a square will be found described within the figure in the same way as round figure is produced.¹ (Vitruvius, circa 20 BC.)

When [the human body] reaches its hand above its head, and a pair of compasses with one point on its navel is extended to its fingertips, and a circle is described to the tips of its toes, the distance between them will be equal to ten hand-spans—a quarter more than its height.² (Ikhwān al-Ṣafā', 10th c.)

Throughout history, the measure of architecture has, in one form or another, always been related to the human body. In the Western tradition, this can be traced back to the writings of the Roman architect Marco Polio Vitruvius (d. 13 BC) and to the subsequent contributions of a chain of well-identified thinkers.³ In several non-Western traditions, however, the relationship is not as clearly traceable. The Islamic tradition is one conspicuous example. Although Muslims scholars seem to have been familiar with Vitruvius' representation of the human body as a measure for architecture, as the above quote by the Ikhwān al-Ṣafā' indicates, the developments of their thoughts on this topic have remained rather ambiguous. While both the Western and Islamic traditions share Greek intellectual heritage, surviving historical records indicate that Muslims showed little interest in Vitruvian ideas. No record has reached us to indicate that they translated his canonical text, although they translated a large amount of Greek literature in all sciences. Also, the reference to the geometrical proportions of the human body by the tenth-century group of anonymous thinkers, the Ikhwān al-Ṣafā', appeared in their tract on music and not architecture. What is offered

¹ Vitruvius 2002, 3.1.3 (henceforth *De Architectura*).

² Ikhwān al-Ṣafā' 2010, 5:11 (henceforth *On Music*).

³ On the transmission of Vitruvius in the Middle Ages see Krinsky 1967, 36–70. See also Rykwert 1996, 95. For the influence of the *De Architectura* in the Renaissance up to the beginning of modernity see Hart and Hicks, eds. 1998.

by the above comparison, though, is that both these authors—separated by time, geography, and tradition—thought of and read the body in a similar manner, seeking geometrical relations. This interrogation of the body, which yields numbers and geometrical shapes in the premodern world, was drawn from a transcendental projection that situated the body as a vital divine construct for contemplation, realization, and action. This derived from seeing the body as a privileged microcosm that alone shares the measure and qualities of macrocosm. Knowledge of the body and its measure, it was believed, allows one to act in accordance with the ways of heavens, be it in music, medicine or, as shown in this thesis, architecture.

The Vitruvian tradition that flourished in the West from the fifteenth century onwards, with the onset of the Renaissance, has popularised the relationship between the body and building until the onset of modernity in the eighteenth century. Vitruvius' evocative idea of the body as a measure for building proposed the body to be read as a building and the building as a body. This relationship underpinned many approaches to understanding both the nature of architecture and the nature of being. This understanding of Vitruvius, as we read in his treatise, was in itself derived from Greco-Roman philosophy, culture and religious sensibility. As Dalibor Vesely has explained, it is difficult to understand Vitruvius' architectural claim to the body without understanding its literary and philosophical references.⁴ Vitruvius' theory was not singular and exclusive, and in fact in the Middle Ages several other reflections on the relationship the body shared with building were developed. The growth of both Christianity and Islam brought about significant philosophical and spiritual traditions, offering creative ideas about the body as building.

Aims and Significance

The main aim of this thesis is to present a reading of the intertwined history of the body and architecture in both the premodern Islamic and Western traditions. It does so by examining a wide range of philosophical, mystical and historical sources of this

⁴ Vesely 2002, 29–31. Reflecting on Vitruvius' lack of acknowledgement of his key sources, especially in relation to his study on numbers, proportions, and ratios found in the human body, Rykwert writes: "Like many of his contemporaries, Vitruvius was familiar with [...] Pythagorean speculations about number: in the canonic passages [*De Architectura* 3.1.1 and 3.1.5–7] he glosses over them so nonchalantly that the great cosmic themes are not immediately recognizable, even if he does make a reference to Plato and talks to Pythagoras and Pythagoreans elsewhere in the book." Rykwert 1996, 101.

period in order to show how the enduring idea of body and building was conceived, detailed, and developed in both traditions. As the topic was explored less on the Islamic side than in the West, more attention is devoted to the Muslim thinkers and their writings. The Islamic sources that are interrogated in this text have rarely been consulted for architectural insights. This is understandable as these sources are non-architectural. No specific architectural treatises are known in the Islamic tradition until the sixteenth century. Philosophical and mystical texts are thus our best sources on the main topic of this study.

The thesis thus lays out two pathways. In one, the aim is to investigate how the Vitruvian idea of body is made to relate to the work of architecture in the Western tradition, beginning with the *De Architectura* (*On Architecture*) and concluding with Claude Perrault's treatise *Ordonnance des cinq espèces de colonnes selon la méthode des Anciens* (*Ordonnance for the Five Kinds of Columns after the Method of the Ancients*), which ushered in the changes brought by modern thought. While negotiating architectural treatises and built works, the thesis engages the various references drawn from theological, mystical, scientific, and philosophical sources that shaped the ideas in architecture. Given that the thesis is laid out in a chronological fashion, it allows for a presentation of ideas that remained durable throughout and others that were completely novel.

The Western section of the thesis, which would be familiar to most readers, sets the backdrop of the second pathway of the study. Here, the aim is to study how the notion of body and building in Islam was considered and articulated by turning to the writings of selected major thinkers in the Islamic world. Though their works are not directly concerned with architecture, the aim is to reveal how these works can be made to relate to the study of body and building. This offers new perspectives on the ways in which the human body can be appraised as an architectural agency in conceptualizing spatiality, structure, and ornamentation. Essentially, the aim is to test out the effects of Vitruvius' famous claim in the context of the Islamic tradition, and along with that to recover how it overlaps and contrasts with the reflections on the topic, which was developed as an integral aspect of Western architectural theory and practice.

The thesis seeks to introduce into the architectural discourse unfamiliar Muslim authors, some of whom for the first time, and to show how in their reflections on body

and spatial structures we may discover new means of evaluating the much familiar terrain of body and building relationships as drawn from the lineage of Vitruvius.

The Islamic argument in this field is generally limited. For example, in the text *Body and Building: Essays on the Changing Relation of Body and Architecture* there was only a single representation from the non-Western field and it was the essay by Kenneth Frampton on the Japanese architect Tadao Ando.⁵ Given the fact that Islamic philosophy shared lineage with the Greek tradition, it is rather surprising that Islamic sources have rarely been consulted as a resource to expand ideas in this field of research.

The body has always been an important consideration in theorizing the experience of architecture. The ways it has been imagined, mapped and measured allowed architects to draw inspiration and conclusion in how a building should be conceived, composed, and completed. The body has underpinned architectural thinking with regards to the functional structure as well as ornamentation of buildings. The thesis seeks to accentuate this importance, and with this to offer new interpretations and methodologies concerning the ways in which the body can continue to inspire architectural reflections, eventuating in meaningful experiences in the built environment.

One important aspect that needs to be clarified before proceeding further is the usage of the terms “West” and “Islam” throughout this study in comparative modes as it does involve unavoidable conceptual problems. To start with, “West” is a place while “Islam” is a religion. The conceptual delineation of the terms as I have used them in the thesis, however, is not as precise in terms of place and religion as it is in terms of cultural cohesion, civilizational development, and intellectual lineages. On this front, I consider what I present as the “West” as referring to a civilization, which drew its influence from the Greco-Roman heritage and then, from the fifth century onwards, Christianity. Bertrand Russell in his classic text *History of Western Philosophy* describes this civilization as one that drew its philosophical vitality from Greece and its political governance from the Romans.⁶ Geographically, this can be identified with the western half of the Roman Empire from the fourth century onwards, with Latin as its main language and Rome as its capital. By the sixth century,

⁵ See Frampton in Dodds and Tavernor (eds.) 2002, 304–319.

⁶ Russell 1996, 277–288.

Christianity became the dominant faith of the entire Roman Empire.⁷ With these features the West distinguishes itself from the Greek tradition of the Byzantine East and, from the seventh century onwards, the Arabic tradition of Islam.⁸

With the usage of the term “Islamic,” I likewise refer to a civilization that has agreed upon Muḥammad as its Prophet and Islam as its main religion. This civilization included, and has continued to include, many groups of non-Muslim religions. Here I follow closely the definition used by Seyyed Hossein Nasr, Majid Fakhry, and Roy Jackson.⁹ I do agree with Jackson that, given the geographical spread of Islam, beyond the fundamental agreement amongst the majority of Muslims on the Prophethood of Muhammad, the Qur’ān as a divinely revealed scripture, and the basic religious tenets (daily ritual prayers, fasting, and so forth), it is rather difficult to pinpoint what are the specifically shared features of the Islamic civilization or culture.¹⁰

Given the course of time and expanse of space discussed in the thesis, terms such as “West” and “Islamic” will fail to do justice to the overlaps and entanglements that occurred between these two cultures. One key difficulty, for example concerns the importance of Plato and Aristotle as key figures in Islamic thought throughout the Middle Ages. Likewise one can also cite the important role Islamic philosophers, such as Averroes and Avicenna, played in the western philosophical revival during the Renaissance in Europe. But despite this, Averroes, who wrote and taught in Cordova of Spain, is rarely identified as a Western philosopher. For example, Russell identifies him as a “Mohammadan philosopher.”¹¹ Despite being acknowledged in the Middle Ages and the Renaissance as the greatest commentator on Aristotle, Averroes has been almost unanimously regarded as a Muslim thinker. The truth is that while the works of Plato and Aristotle were of great interest to Muslim philosophers, such as al-Fārābī, Avicenna, and Averroes, the Greek masters have remained foreign to the Islamic culture and mainstream Islam. Lerner in his introduction to the English translation of Averroes commentary on Plato’s *Republic* explains this contradiction well by asking: “Why a Muslim like Averroes should choose to write on Plato’s *Republic* is not immediately self-evident. Of what use is this pagan closet philosophy

⁷ Wickham 2010, 50-75.

⁸ Russell 1996, 417.

⁹ Nasr 2003, 21–40 and 1993, 6; Jackson 2014, 1–6; Fakhry 2004, xvii–xviii.

¹⁰ Jackson 2014, 2.

¹¹ Russell 1996, 417. See also Fakhry 2001, xvi and 1–11.

to men who already hold what they believe to be the inestimable gift of a divinely revealed Law, a *sharī‘a*.”¹² This tension, Lerner writes, eventually results in the Islamization of Plato’s *Republic* to suit a Muslim audience.¹³ Despite the important contribution by Islamic philosophers such as Averroes, Avicenna and al-Fārābī in developing Platonic and Aristotelian thought, Muslims in general never accepted Plato and Aristotle as being anything other than being foreign to their culture and faith.¹⁴

Scope, Parameters, and Approach

Given the wide historical scope of the study and the large body of literature available, it is necessary to define the thesis’ focus and research parameters. The temporal and conceptual scope of the research extends from Vitruvius in the first century BC to Descartes in the seventeenth century. Vitruvius is considered to be the starting point as he establishes the relationship between architecture and the body—the core theme of the thesis. The concluding point is considered to be Descartes, as he radically changed the conception of the nature of the body and the autonomy of human consciousness, signalling a remarkable rupture with the traditional concept of the bodily measure of space, and thereby marking the beginning of modernity. This temporal span corresponds to what is known as the Medieval and Renaissance periods in world history. In the space defined by these two historical markers, the thesis studies chronologically key figures and texts from both the Western and Islamic traditions, presenting the conceptual developments in relation to the trinity of body, soul, and architecture.

Though the Middle Ages and the Renaissance offer a treasure trove of reflections on this subject, the thesis can only be selective. The selection is limited to key and influential figures within the said periods, and is centred on the works that shed significant light on the subject matter. The thesis reveals that the premodern Islamic and Western traditions were not mutually exclusive, but rather intertwined, actively

¹² Lerner 1974, xiii.

¹³ Ibid xiv.

¹⁴ My usage of the terms “West” and “Islamic” and its treatment is quite common. For example see the chapter “Averroes and the Latin West” in Fakhry 2001 129-138 and Seyyed Hossein Nasr: Nasr 1997a, 51–80; 2001, 41–68; 2003, 21–40. Hans Belting in his *Florence & Baghdad: Renaissance Art and Arab Science* a study which attempts to prove the influence of Islamic science on Renaissance perspective also uses the terms “West” and “Islam” throughout his text in a broad sense while referring to developments in Florence and Baghdad mainly, see 2011, 1.

sharing a common horizon in understanding concerning the agency of the body and the soul in architectural conceptions.

The chronological structure of the thesis is divided into four periods:

- 1) Vitruvius to Early Christianity (5th c)
- 2) The Middle Ages (7th–13th c), which includes studies in:
 - a. Founding of Islam (7th c)
 - b. Developments in Islamic philosophy and mysticism (9th–13th c)
 - c. Philosophical and theological developments in medieval Christianity (6th–13th c)
- 3) The Renaissance and the Ottomans (15th–16th c)
- 4) Early modernity (17th–18th c)

The chronological chart adopted for exploring how the human body has been a feature in Western architectural history would be familiar to many architectural scholars. This familiarity includes the demarcation of historical periods, key events, and influential personalities, such as Vitruvius, St. Augustine and Alberti. But when the thesis shifts from the West to study the body in the Islamic thought, it invariably unsettles this chronology, introducing many unfamiliar elements. At this point the meeting between the two traditions also becomes, quite naturally, incongruent and awkward. Despite this, I believe this curious entanglement actually offers real possibilities for the thesis to uncover new issues and territories.

One the most challenging aspects of the thesis lies in the fact that the Islamic tradition does not have an architectural theory equivalent to that of the Western tradition. To compound this, Islam also lacks a central and unifying architectural integer, which Vitruvius' *De Architectura* provides in the Western tradition. In fact texts specifically written about architecture are not to be found in the Muslim world until the sixteenth century. Therefore, to recover the Islamic perspectives on how the body was related to the building, the study turns to the primary traditions of theology, philosophy, and spiritual mysticism. The reason for this is somewhat simple. It is based on the premise that all such works offer—as in the Western tradition—considerable insight into cosmology.

The primacy of cosmology was most important in premodern thought across cultures. This not only informed the hierarchical arrangement of all beings, but also

provided symbolic meanings to measurement, matter, and orientation, aspects important to the understanding of spatial negotiations of the human body. This knowledge of cosmology was fundamentally important to architecture. For example Alberto Pérez-Gómez in his essay “Chora: The Space of Architectural Representation,” articulates how the intentions of the *De Architectura* can only be properly understood by acknowledging its debt to the primary cosmology of Plato’s *Timaeus*. He also explains the need to study the human body in the performance of rituals to better grasp the role of cosmology played in Western architectural theories. Similarly, Samer Akkach has also turned to the primary cosmological traditions to uncover fundamental structures of architecture, such as orientation, time, ritual, and geometry, to postulate Islamic architectural ideas.¹⁵

Conceptually, the study investigates both the Western and Islamic traditions as inheritors of Greco-Roman ideas. I have chosen this approach for two separate but inter-related reasons. The first reason is that both traditions share the same foundational philosophical and religious sources. Muslims, like Vitruvius and the Christian thinkers after him, also studied Greek philosophy. In fact Islamic philosophy can be considered as an extended commentary on and interpretation of Neoplatonism, synthesizing Plato with Aristotle.¹⁶ Both Christianity and Islam also share the religious ideas and traditions associated with Adam, as the first human being created by God, and both also equally revere Abraham as the patriarch of their religions. We also find in both communities Neoplatonism being influential in the development of their gnostic traditions, dealing with spiritual elevation and illumination.¹⁷

The second reason for attempting to draw both these traditions into a singular study is to add a new and unfamiliar historical lineage to the Vitruvian tradition, with which the idea of body and building is commonly and rightly identified. This insertion of Islamic chapters into Western architectural history can offer new ways of reflecting on ideas concerning the body and the soul, and their relationship to architecture. Focusing on non-architectural sources in the Islamic tradition can provoke a rethinking of the Islamic sources that can be considered appropriate for theoretical understanding of architecture. While architectural theories in the West

¹⁵ Pérez-Gómez 1994; Akkach 2005.

¹⁶ O’Leary 2013, 113–117.

¹⁷ See Morewedge (ed.) 1992, 51–76, 179–257.

impacted upon built works, the works I have studied in the Islamic tradition offer mainly only potentialities, speculations, and hypothesis. Direct connections, if there has been any, can be found only late into the thesis with the Ottomans and the architect Sinan in the sixteenth century.

As the study moves from chapter to chapter, back and forth between Islam and the West, it seeks to present the intellectual background of the milieu and with it the lenses it can offer to study the relationship between body and building. Despite setting up a historical relationship between the Western and Islamic cultures, I have not undertaken to do a comparative study. Instead, I am seeking to study both cultures in parallel. Therefore, I am not actively seeking conclusions based on similarities and differences, but rather to introduce an intellectual space that allows for an organic unfolding of theoretical reflections on the body in relation to building in both traditions. This traces a rather loose trajectory of ideas, along which deflections, convergences, and overlaps occur to offer new stations for reflections.

The approach adopted in this study offer a reading that has been described as “entangled histories.” Stephen Weber defines the concept of entangled histories as one that studies “multilayered, interconnected transnational developments” allowing for the emergence of “new views from and on peripheries.”¹⁸ This together with the architectural examples he provides are pertinent and useful for understanding the construct of my thesis: “Sure the Taj Mahal, the Cathedral of Cologne, Versailles and the Süleymaniye Mosque are congenial constructions of cultures of differing geographical settings and historical experiences. But in our need for the other we lose sight of joint features and parallel developments occurring in different cultures or common experiences.”¹⁹ Similarly, this thesis seeks to reveal parallel and divergent experiences. It does so by acknowledging that the Islamic content is the view from the Other. This is the case because it lacks the tradition and history of architectural theory. Even if dialogues between both cultures may be presented as parallels, in the manner the thesis is set up, as Bayly has described, eventually such interactions form up energetically as a “complex parallelogram of forces,” intersecting “and [influencing] each other to different degrees and at different times.”²⁰ Thus at various junctures the thesis offers points of connection and also differentiation across parallel timelines as

¹⁸ Weber 2009, 143.

¹⁹ Ibid.

²⁰ Bayly 2004, 7.

well as points that can be interpreted completely differently when shifting from one tradition to another.

In articulating this approach, I have benefited from the works of the French Sinologist, François Jullien, and especially from his attempts to learn from the parallels, connections, and tensions between Greek and Chinese philosophies. Jullien seeks in his works to inform his readers, who are far more accustomed to the Western epistemological traditions, of how ideas in Chinese thought can bridge gaps and extend potentialities in reading Western philosophy.²¹ In the dialogue between the two traditions emerge coincidences, differences, overlaps, and interactions. Herein lies the potential developments of such an approach, as Jullien writes in *Silent Transformations*: “the slightest perceived divergence (*écart*) between cultures, which can be worked upon, however prospectively, opens the compasses more widely, or unfolds the fan. It causes a lack to appear, digs a corner into what is unsuspected.”²²

Accordingly, the thesis does not delve into a single thematic to draw in the views of the Western tradition and the Islamic perspectives, comparing and sifting through their convergences and divergences, and thus arriving at forming conclusions and opinions. Rather, the aim is to layer the Islamic perspective over the well-established Western architectural narrative, and for the two to be read alongside one another. At this point it maybe contended that the approach used involve some contradictions, for on the one hand it arranges its arguments in a parallel system, yet on the other speaks of historical of intersections and entanglements. True, the view of intertwined history adopted by this study offers the possibility of tracing the paths of intellectual intersection and entanglement between Islam and the West, however, this possibility is not pursued in this study. The main reasons for not pursuing this aspect are the limited space available and the different line of research required. Thus by presenting the two traditions in parallel should not be taken as suggesting intellectual autonomy and isolation of the two intellectual traditions from one another. It should be taken as an issue of limitation of scope, which at this stage can only suggest the

²¹ See Jullien 2004, 1–31. Jullien here begins by questioning and challenging his readers who are knowledgeable in Western philosophy to pose questions upon it by using unfamiliar categories issued by Chinese philosophy. In this challenging work, Jullien discusses the idea of “propensity”, a category Greek philosophy has difficulty articulating. This is mainly because of the epistemological differentiation between the two cultures. The West founded its philosophy on ideal transcendence while Chinese philosophy formulates itself negotiating the ever-evolving “propensity” described by the immanent.

²² Jullien 2011, 26. Therbon names this as the processes and effects of entanglements. Therborn 2003, 300–301.

presence of intersection and entanglement without documenting it. The Western and Islamic intellectual pathways, however, do coincide over the theme of the human body and its relationship to the act of building. Thus even though the thesis does not engage directly in a comparative study of the two traditions, it nonetheless seeks to provoke reflections upon the similarities and differences of ideas concerning the body, soul, and architecture within the two neighbouring traditions.

Sources: Critical Review

The literature review of the primary sources in the Western tradition can be divided into three parts.

- 1) Greco-Roman
- 2) The Middle Ages
- 3) The Renaissance and modernity

Greco-Roman Texts

The philosophical writings of both Plato and Aristotle are considered foundational resources of Western thought. Their articulation of ideas in cosmology, natural, and human sciences played an important role not only in philosophy but also in architecture. Plato's use of geometry and mathematics in this aspect was especially influential. Aristotle's influence on architecture comes from his studies of the nature of things, both in composition and appearance. Specific to this thesis, which is concerned with the relationship of the human body to building, both authors form an important intellectual background in two areas:

- 1) The mathematical and geometric binding of body, building, and cosmos.
- 2) The nature, composition, and appearance of body and building. This is especially so in relation to appropriateness of decoration.

Vitruvius' *De Architectura* avails to us how these ideas were initially formed as key considerations in developing a theory of architecture.

Plato's *Timaeus* is a key text, whose influence is continual throughout the historical periods investigated by this thesis. Plato's description of the composition of the world and its relation to the human body, and his explanation of this order in numerical terms, were critical in developing an understanding of both body and building measures in premodernity. In the absence of any known texts that has

reached us from Pythagoras, it is to *Timaeus* the research is indebted to understand the Pythagorean symbolism of number relations that was adopted later into both Christianity and Islam.²³ Though Plato does not allude specifically to architecture in this work, he asserts the priority of the cosmic order, its mathematical harmonics and geometry, as a tool to contemplate and act in the world. These fundamental Platonic concepts represented the idea of beauty in the premodern age.²⁴ *Timaeus* also includes a thorough and elaborate explanation of the composition of the human body, in which Plato distinguishes the material body from the soul. Both these elements, though, and despite their distinct nature, share in their own ways a relation to the cosmic order. Plato's other key works that were referred to here include *Phaedo*, *Phaedrus*, *Critias*, and *Republic*. Readings in the *Phaedo*, *Symposium*, and *Phaedrus* complement ideas in *Timaeus* in understanding the nature and potential of the human soul. This includes how the soul should be trained and oriented so that it can achieve its true felicity. The *Critias* and *Republic* can be described, amongst all of Plato's works, as those that were most closely related to architecture.

While Aristotle dominated Western philosophy from the tenth to the fourteenth century, his impact on ideas related to the measures of the body that inform architecture were not as influential compared to Pythagoras and Plato. But Aristotle's *De Caelo* (*On the Heavens*), in which he describes his cosmological scheme comprehensively, was important for this thesis, as this primary cosmological framework was the one that was later modified and developed in both the Christian and Islamic traditions.

Vitruvius' *De Architectura* can be described as the key text for the thesis as it provides the key conceptual tools to define how architecture can be made to relate to the human body. We find this idea slowly unfolded in the first three books of the *De Architectura*. In Book One, Vitruvius presents what constitutes the education of the architect. Here he explains the interconnected nature of the sciences and how it forms the necessary intellectual framework for the practice of architecture. We soon discover that the binding force of all these sciences is mathematical, which thereafter appears in architecture as order, proportion, symmetry, arrangement, and eurhythmy. In Book Two, Vitruvius relates a story of the origins of architecture, which describes

²³ On a comprehensive study of the influence of Pythagoras on classical and medieval art and architecture see Joost-Gaugier 2007.

²⁴ See Gadamer and Bernasconi 1998, 101–4

how the act of building by the very first human community reveals that the human being was distinguished from animals. It is in Book Two that man discovers the extent of his vertical privilege and capabilities of his hands to craft; both realizations being related to his body. These first two books appropriately preface Vitruvius' Book Three, in which he elaborates quite extensively the mathematical and geometrical measures shared by both body and building. The ratios and geometrical forms—circle and square—that Vitruvius draws from the body also trace back to references made by Plato in his *Timaeus* and *Republic*.

One key text I have heavily relied upon to engage primary resources such as Plato, Aristotle, and Pythagoras is McEwan's work *Vitruvius: Writing the Body of Architecture*. Here, as in her earlier work *Socrates' Ancestor: An Essay on Architectural Beginnings*, McEwan's hermeneutical and etymological studies both conditioned my reading of Vitruvius and allowed me to draw relationship between the *De Architectura* and primary texts, especially that of Plato's *Timaeus* and *Republic*.²⁵ Pérez-Gómez's essay "Chora: The Space of Architectural Representation," is another work that draws Vitruvius to the cosmological arguments of Plato's *Timaeus*. This reading helps ground the cosmological framework within which the *De Architectura* operates, thus allowing a better understanding of how the microcosm can be made to relate to building.²⁶

Important also to my research on Vitruvius were the studies made by Rykwert and Pérez-Gómez on the founding rituals of ancient Etruscan and Roman cities. Vitruvius pays close attention to the siting of cities in *De Architectura*, as it has a direct impact on health and mortality, which are two important bodily issues in the premodern world that inevitably linked the body and architecture to the gods and astrology.²⁷ Along the same vein I have also consulted George Hersey's *The Lost Meaning of Classical Architecture: Speculations on Ornament from Vitruvius to Venturi* to better understand the human and ritualistic origins of columnar orders.²⁸

²⁵ In connection to this see also McEwan's essay "Instrumentality and the Organic Assistance of Looms". Here too we find attempts to clarify Vitruvius by way of Greek mythology and Platonic philosophy especially the *Timaeus*. McEwan 1994.

²⁶ Pérez-Gómez 1994.

²⁷ The founding of ancient Roman cities as studied by Rykwert helps clarify the site founding recommendation in the *De Architectura* and how this interconnects geometry, astrology, haruspicy and medicine. Rykwert 1995, 41–58. For a related discussion see Pérez-Gómez 2006, 150–151.

²⁸ On ritualistic origins of the Doric, Ionic, and Corinthian orders, and also the Caryatids as mentioned in *De Architectura* see 1995, 53–75.

Medieval Christianity

St. Augustine, whose authority was immense throughout the Middle Ages in his writings such as *De doctrina Christiana* (*On Christian Teachings*) and *De Civitate Dei* (*The City of God*), draws attention to the bodily proportion of Christ in relation to architecture.²⁹ His proposition is that all sacred structures mentioned in the Bible, beginning with Noah's Ark, were fashioned out of Christ's bodily measure.³⁰ Otto von Simson, in his *The Gothic Cathedral: Origins of Gothic Architecture & Medieval Concepts of Order*, identifies the impact of St. Augustine as having played a vital role in symbolic geometry, assuming a primary role in designing medieval cathedrals.³¹ In the absence of architectural treatises, several scholars have turned to late medieval sketchbooks of master masons such as Mathias Roriczer and Villard de Honnecourt that reveal an obsession with geometry.³² Von Simson, Ackerman, and Rykwert amongst others have argued that mathematics and geometry, informed by Christian sensibilities, were primary motives in the way these medieval masons fashioned art and architecture.³³

The other important measure of Christ this study considers is one that dominates medieval Christian art and architecture: divine luminosity. Abbot Suger's record of the restorative work to the Abbey Church of St. Denis not only explains the mystical underpinnings of this thought, inspired by the second-century writings of Pseudo-Dionysius, but also importantly shows how it can be interpreted architecturally.³⁴ Pseudo-Dionysius' treatise *De Coelesti Hierarchia* (*Celestial Hierarchy*) is studied to better understand the anagogical technique, which Suger subscribed to.³⁵ Similar anagogical processes are also found in the writings of Hugh of St. Victor's *Speculum de mysteriis ecclesiae* (*Mystical Mirror of the Church*) and Gulielmus Durandus' *Rationale Divinorum Officiorum* (*Rationale of the Divine*

²⁹ St. Augustine 1999, 2.144 (henceforth *On Christian Teaching*) and St. Augustine 1993, 11.32 (henceforth *City of God*). "Augustine's authority shaped the Middle Ages. The passage from the Wisdom of Solomon [...] and the interpretation given to it became, as has rightly been observed, the keyword of the Medieval view." von Simson 1988, 25. See also reference to this verse made by Abbot Suger in his consecration of the St. Denis church in Panofsky 1979, 97. *City of God* 11.30. On the importance of this verse by way of St. Augustine that was studied in the School of Chartres alongside Plato's *Timaeus* see Eco 2002, 33–35.

³⁰ Rykwert 1996, 77; Hiscock 2007, 134–135.

³¹ von Simson 1988, 22–25

³² See for example von Simson 1988, 13–20, Shelby 1972, 395–421, and Hiscock 2007, 41–45.

³³ von Simson 1988, 24–50; Ackerman 1949; Rykwert 1984; Hiscock 2007; Shelby 1972.

³⁴ Panofsky 1979, 1–37; See also Krufit 1994, 34.

³⁵ Pseudo-Dionysius 1987, 142–191.

Offices), in which one finds the physical Church being imagined as a translation of the nature and measure of Christ.³⁶

For a detailed study of how the ideas of Pseudo-Dionysius may have been influential in medieval architecture, we need to turn to Erwin Panofsky and his introduction to his translation of Abbot Suger's writings on the Abbey of St. Denis.³⁷ Panofsky details the confluences between Suger's ecstatic poems celebrating divine luminosity and Pseudo-Dionysius' writings. He explains the anagogic process here in some detail, revealing how Suger interpreted Pseudo-Dionysius' writings in the planning of his architectural program. Jason Crow, in his recent essay titled "The Sacred Stones of St. Denis," has also contributed to this research, explaining how light is the primary representation of the essence of Christ.³⁸

Renaissance and Early Modernity

To discuss the role of the measure of the body in architecture in the Renaissance, the two selected treatises were: Leon Battista Alberti's *De Re Aedificatoria* (*The Art of Building in Ten Books*) and Filarete's *Trattato di Architettura* (*Treatise on Architecture*).

Alberti's *De Re Aedificatoria* is a humanist text that copiously references ancient text in an attempt to revive the Vitruvian ideal of situating the architect as a scholar. Written as a response, update, and extension to Vitruvius' treatise, it covers a wide range of ideas from urban planning to interior decoration. Alberti in this text returns to the Vitruvian premise of proportion as the basis of architecture.

Despite the comprehensiveness of the *De Re Aedificatoria*, Alberti does not detail the proportional relations between the different body parts as it was in Vitruvius. Such ideas are in fact quite thoroughly investigated in his earlier treatises *Della Pittura* (*On Painting*) and *De Statua* (*On Sculpture*).³⁹ The most detailed study is

³⁶ See Hugh of Saint Victor in Durandus, Guiliemus. 2007 xxvi–xxx and Chapter 1 (henceforth *Rationale*). On the reading of the body of Christ as the physical church also see *City of God* xxii.18; Doig 2010, 27 and Onians 1988, 70.

³⁷ Panofsky 1979, 22–24. On the anagogical process and its relation to Gothic architecture see Pérez-Gómez 2006, 154–155; Pérez-Gómez 2006, 15–16; Crow 2011, 56–74; von Simson 1988, 52–53. On the influence of Pseudo-Dionysius upon Medieval Christian thinkers see Eco 2002, 18–21.

³⁸ Crow has likened the anagogical process to the Christian ritual of Eucharist recommending the idea that the material light within the cathedral is akin to the physical Christ who was transcendental God in material form. Crow 2011, 56–74. Of this experience with light in the Gothic cathedral Pérez-Gómez writes: "This is embodied in all Christian rituals and reinforced by the experience of the building." Pérez-Gómez 2006, 155.

³⁹ see Alberti, 1991, 1.19 and 2.36 (henceforth *Della Pittura*).

found in *On Sculpture*, where the breakdown of body measurements is presented in a meticulous manner following Platonic–Pythagorean numerical symbolisms. Robert Tavernor’s *On Alberti and the Art of Building* is the one text that converges all these varying reflections cogently in conveying the role of the human body in Alberti’s theory of architecture.⁴⁰

Filarete’s *Treatise on Architecture*, a lengthy and at times unwieldy treatise, written in a narrative dialogical form, repeatedly affirms that the building is just like the body.⁴¹ One unique aspect of *Treatise on Architecture* is in its creative adaptation of the Biblical narrative of Adam as the origin of architectural measure.⁴² Filarete goes on to identify Adam as the first architect and his body as the basis of all architectural measurements that came after, beginning with the Doric order. Following this, Onians has studied *Trattato di Architettura* to reveal that Filarete equates size, starting with the Doric of Adam, with beauty, privilege, wealth, and social standing of both the building and its residents, yet again distinguishing him from Vitruvius and Alberti.⁴³

The writings on the intellectual history of the Renaissance by Paul Oskar Kristellar and Ernst Cassirer allowed for the thesis to better grasp the complexion of the humanist tradition and its intellectual moorings.⁴⁴ Humanism, as Kristellar has explained in several of his writings, brought to the forefront the study of human dignity with the revival of the classical liberal arts curriculum.⁴⁵ The references made to Pythagoras, Plato, Aristotle, Cicero, and Galen, amongst others, in both the treatises of Alberti and Filarete indicates the sources with which architects of the Renaissance were both familiar and comfortable with. This in turn availed them to appraise the human body in relation to architecture.⁴⁶

⁴⁰ Tavernor 1998, 39–43. Jane Aiken in her “Leon Battista Alberti’s System of Human Proportions” has provided an ample commentary on how Pythagorean, Platonic, and Vitruvian numerological influences can also be found in Alberti’s design of the *exempeda* ruler. Aiken 1980, 68–96. Aiken and Gadol (1969) are important resources to study the *exempeda* ruler that was invented by Alberti to proportionally measure the human body.

⁴¹ Kruft writes “in Filarete’s work, the proportions of the human figure become the decisive scale of reference. He is the first representative of pure anthropometry.” Kruft also calls Filarete’s approach of reading the architecture through the human body being so comprehensive he terms it “total anthropomorphism.” Kruft 1994, 52–53.

⁴² Kruft 1994, 52–53. Giordano 1998, 57. Filarete, 1965, fol. 2v (henceforth *Trattato Di Architettura*).

⁴³ Onians 1971, 116–128; Onians 1988, 162–170; Giordano 1998, 68; Kruft 1994, 53.

⁴⁴ Kristellar, 1979 and 1980. Cassirer 2000.

⁴⁵ Kristellar, 1980, 1–19; 1979, 21–32.

⁴⁶ Wittkower has presented the influence of Plato and Neoplatonism (Nicolas of Cusa) as having shaped the way in which Renaissance architects such as Alberti understood the relationship between body, cosmos, and architecture. Wittkower 1971, 3–32. See also Cassirer 2000, 46–55. Mitrović (2006)

As the thesis concludes with the impact of modernity on the relationship of body to building, I have turned to Pérez-Gómez who has identified the critical role played by Claude Perrault and his treatise *Ordonnance des cinq espèces de colonnes selon la méthode des Anciens* (*Ordonnance for the Five Kinds of Columns after the Method of the Ancients*), in which architectural theory transitioned from its premodern state in which it was informed by rituals, symbolism, magic, and myth to one that tried to formulate a theory to fit the “framework of the new scientific mentality inaugurated by Galileo and René Descartes.”⁴⁷ Pérez-Gómez, in his earlier and probably most famous work *Architecture and Crisis of Modern Science*, has thoroughly explored the shifts in this terrain, tracing, from Perrault, how parallel developments in Western philosophy, which had turned increasingly positivistic, had a direct impact on architectural thought. The latter became increasingly functional and utilitarian, divorcing itself from Pythagorean numerical symbolism, which, in Western architectural theory, had been the indelible glue that bound cosmos, body, and building.⁴⁸

Islamic Tradition: Key Sources

I have divided the study of the Islamic intellectual tradition into three main parts. The first part focuses on the assimilation of Greek philosophy into Islam through figures such as al-Fārābī, the Ikhwān al-Ṣafāʾ, and Ibn Sīnā (Avicenna). The second part studies medieval Islamic theology and mysticism represented by figures such as al-Ghazālī, al-Suhrawardī, and Ibn ʿArabī. The third part, though much shorter compared to the previous two, presents for the first time an intriguing entanglement with the West by way of the appearance—coinciding with the Renaissance—of architectural writing in Islam by the Ottoman chief architect Sinan.

has averred that Alberti was more Aristotelian and takes his position opposed to Wittkower. Filarete is not known to be a humanist but he kept company with the humanist scholar-poet Fielso. Spencer, Introduction in *Trattato Di Architettura*, xvii. For a study on the liberal arts education and its impact on architectural theory and practice in the Renaissance see Parcell 2012, 105–177.

⁴⁷ Pérez-Gómez 1993, 1. I suggest four key secondary texts to understand the important role played by Perrault and his *Ordonnance* marking a real shift from the premodern architectural sensibilities. First two would be by Pérez-Gómez in *Architecture and the Crisis of Modern Science* (Pérez-Gómez 1996, 18–47). This work is expanded in his “Introduction” to McEwan’s translation of the *Ordonnance* (Pérez-Gómez 1993, 1–44). Also important would be Vesely 2004, 230–240. Vesely’s reading posits Perrault in the context of Baroque tradition. McEwan’s essay introducing the *Ordonnance* discusses Perrault’s own French translation of the *De Architectura* and how this operates in the background of the *Ordonnance* and clarifies Perrault’s theory of Positive and Arbitrary beauty. McEwan 1998, 321–337.

⁴⁸ Pérez-Gómez 1996, 8–11.

Greek Philosophy and Islam

The tenth-century philosopher al-Fārābī provides an insight into the early stages of Islamic philosophy. His most important work is *Ārāʾ Ahl al-Madīna al Fāḍila* (*The Views of the People of the Virtuous City*). Richard Walzer's English translation is the only one that is currently available, and one of its important features is the extensive commentary it provides.⁴⁹ This commentary, inter alia, explains the Platonic and Aristotelian influences on the text, clarifying some of the philosophical terms deployed by al-Fārābī in Arabic and how it correlates to Greek thought. The work itself can be generally classified as having three parts. In the first part, al-Fārābī describes the nature of God and explains how the cosmos was created. The emanation system that he adopts explains, in a step-by-step fashion, how the heavens were generated one layer at a time.

For further clarity and explanation of the emanation system, and its significant impact on premodern Islamic thought, I have made reference to Herbert Davidson's *Alfarabi, Avicenna and Averroes on Intellect: Their Cosmologies, Theories of Active Intellect, and Theories of Human Intellect*.⁵⁰ Davidson, expanding on al-Fārābī's ideas, explains how this cosmological structure also impacted the way he thought about the hierarchy of political governance and human nature. In the second part of his treatise, al-Fārābī discusses how the human body works, how the distribution and the activity assigned to each faculty are structured, and how they are hierarchically arranged. In the third part, he draws a correlation between this hierarchy and the structuring of the virtuous city he is proposing. Al-Fārābī's analogy of body organs and faculties as a way of reading architecture is in this sense unique, especially when compared to that of the Western tradition. In a shorter work of his, titled *Fuṣūl al-Madanī* (*Aphorisms of the Statement*), he re-iterates the nature and functioning of the human interior—brain, heart, liver, etc—and how it is a mirror of city planning.⁵¹

Al-Fārābī's work, *On the Perfect State* is in essence one of political philosophy, similar in many ways to Plato's *Republic*. But the key features of this text investigate how he defined the microcosm (the human body) in relation to the macrocosm. Al-Fārābī extends further this correlation of the body to the cosmos as a way to understand his proposal for a virtuous city. Muhsin Mahdi's *Alfarabi and the*

⁴⁹ While the more accurate translation of the title should read *The Views of the People of the Virtuous City*, I have used *On the Perfect State* (Al-Fārābī. 1998) following Walzer throughout thesis.

⁵⁰ Davidson 1992, 44–73.

⁵¹ Al-Fārābī, 2001, 11–67. I am here using the Butterworth's translation titled "Selected Aphorisms".

Foundations of Islamic Political Philosophy presents a considered analysis of al-Fārābī's political philosophy, in which he explains how the tripartite image of the structure of the cosmos, the structure of the human soul, and the structure of the city was invented by al-Fārābī, wherein metaphysics, psychology, spirituality and physiology become mirrors of one another in the search for the perfect city.⁵²

The *Rasā'il Ikhwān al-Ṣafā' wa Khillān al-Wafā'* (*Epistles of the Ikhwān al-Ṣafā'*) by the Ikhwān offers the most mathematical study of the body amongst the Islamic thinkers treated in the thesis. Fundamentally informed in mathematics and geometry by Pythagoras, Nicomachus, and Euclid, the Ikhwān consider arithmetic to be the foundation of knowledge. Its importance is affirmed when we find that the epistle on arithmetic is the first of their encyclopaedic collection of fifty-two epistles.⁵³ Despite this being the case, no epistle is dedicated to architecture. But following Pythagoras, in the epistle *On Music*, the Ikhwān demonstrate how the mathematical harmony that originates from the cosmos is abbreviated in the human body (microcosm), in both its manifest (physical body) and hidden (interior organs and the soul) forms.⁵⁴ It is in this text that the Ikhwān presents a thoroughly detailed mathematical breakdown of the human body, using ratios reminiscent of that found in Vitruvius. To make an architectural link to the body, we need to turn to the ninth epistle in Book 2 of the *Rasā'il* titled "On the Synthesis of the Body" where the Ikhwān states that when God made the human body it was fashioned as a city.⁵⁵ The body as a city is one arranged by God using a mathematical order which is shared between the body and the cosmos. In this manner, the Ikhwān's work comes very close in agreeing with Vitruvius in that the design of a building truly is dependent on the study of the proportional relationship of the body, which in turn is a mirror of the order of the cosmos.

Seyyed Hossein Nasr's *An Introduction to Islamic Cosmological Doctrines: Conceptions of Nature and Methods Used for its Study by the Ikhwān al-Ṣafā', al-*

⁵² See Mahdi 2001, 56–60.

⁵³ "[The Ikhwān] rely in demonstrating [the study of all sciences] on numerical analogies and geometric proofs, similar to what the Pythagoreans used to do. Therefore we had to situate [the epistle on arithmetic] before all our tracts, and to mention in it significant things that belong to the science of number and its properties, which is called 'arithmetic'." Ikhwān al-Ṣafā' 2012, 1:1 (henceforth *On Arithmetic*). See also El-Bizri's "Introduction", 14–17.

⁵⁴ *On Music* 5:10, 5:11 and 5:12.

⁵⁵ Ikhwān al-Ṣafā'. nd 2.9:2 (henceforth *Rasā'il*). On a comprehensive study in English about the Ikhwān, the *Rasā'il Ikhwān al-Ṣafā'*, and the symbolism of Pythagorean numerology in this work see Nasr 1993, 25–104.

Bīrūnī, and Ibn Sīnā is an important secondary text that not only introduces the key philosophical concepts of the Ikhwān but also the meanings behind the cosmological picture they described.⁵⁶ Nasr also draws attention in this important text to how the Ikhwān's cosmological ideas were tightly bound to realizing the meaning and potential of the human measure. Samer Akkach's exposition of the Ikhwān's ideas, in his *Cosmology and Architecture in Premodern Islam: An Architectural Reading of Mystical Ideas*, expands from the cosmological premise and architectural sensibilities the *Rasā'il* is able to offer. Akkach's analysis sheds light on, amongst other things, the geometric concerns of the Ikhwān and how that reveals spatial possibilities.⁵⁷

The eleventh-century philosopher Avicenna was a polymath and his writings range from medicine to Aristotelian metaphysics. Avicenna's works were consulted for three key aspects: cosmology, spiritual enlightenment, and the impact of environment on the body. Avicenna's cosmology is in many ways similar to al-Fārābī's, except that it introduces elements, such as the role and places of angels and prophets, into it. Again Nasr's *Islamic Cosmological Doctrines* was used as a secondary resource to help understand Avicenna's cosmological scheme. Nasr explains how Avicenna's spiritual and poetical works reveal the link between his metaphysical ideas and Islamic spirituality. This led me to study Avicenna's mystical work *Ḥayy ibn Yaḳẓān* (*Alive the Son of Awakening*), which, amongst other things, describes the features of the illuminated soul and its sojourn to its indigenous geography, which is the Orient. I used Henry Corbin's translation of this work and am also indebted to his commentary on how to read the symbolic meanings that underpin the landscape of the Orient, which Avicenna presents in this work.⁵⁸

For a better understanding of the structure and nature of the human soul and what it meant to Avicenna, reference was made to Peter Heath's *Allegory and Philosophy in Avicenna*.⁵⁹ Heath in this text examines Avicenna's theories of the soul and also the poetical metaphors he deploys that offer architectural translations.

⁵⁶ Nasr 1993, 44–104.

⁵⁷ Akkach 2005, 158–162.

⁵⁸ For the translation of the *Ḥayy ibn Yaḳẓān*, see Corbin, 1961, 123–150. Here read Corbin's chapter titled "Orientation" (151–164) for a discussion on the ontology and wisdom of the East in Avicennan mysticism.

⁵⁹ Heath 1992, 53–80. This should be read in conjunction with Heath's translation of Avicenna's *Mī'rāj Nāma* (*The Book of the Prophet Muḥammad's Ascent to Heaven*) for an understanding on the allegorical interpretation of the human soul. Heath 1992, 111–143.

Medieval Islamic Theology and Mysticism

The great Muslim scholar al-Ghazālī (d. 1111) is an influential figure in Islamic thought. One of the enduring aspects of al-Ghazālī's works is the explanation of the interior spiritual meanings of the external aspects of worship, a central theme of his most important work *Iḥyā' 'Ulūm al-Dīn* (*Reviving Religious Sciences*).⁶⁰

For al-Ghazālī this realization of the inner dimensions of worship was important because it gives meanings to actions, with which one can discover virtues and goodness that would draw the devotee closer to God. This knowledge, according to al-Ghazālī, is only available from established religious sources and not through philosophy. He describes the limits of philosophy in his other famous work the polemical *Tahāfut al-Falāsifa* (*The Incoherence of the Philosophers*).⁶¹ This text reveals al-Ghazālī's position with regards to philosophy, of which he is generally critical.

For al-Ghazālī, true knowledge arrives by the grace of the divine; and the soul has been created to be the vessel of spiritual illumination. To illustrate the nature and potential of the soul, al-Ghazālī turned to architectural metaphors, as in his *Mishkāt al-Anwār* (*The Niche of Lights*). This text, which is effectively a lengthy spiritual commentary on a single verse from the *Qur'ān*, emphasizes man's qualities as the microcosm and what is meant when it is said that man is made in the image of God. Al-Ghazālī here studies the layers of the soul and how it binds the terrestrial body to the heavens. Effectively, the body and the soul are made to share a similitude with a lit lantern. The core of this spiritual light, we are told, is in the heart whose transparency is dependent upon one's spiritual disposition. He discusses this important relation between the soul and body in one of the chapters in the *Iḥyā' 'Ulūm al-Dīn* titled the "Wonders of the Heart."⁶² Further to the idea of the lantern mentioned in the *Niche of Lights*, al-Ghazālī here draws upon an architectural analogy describing the heart as a symbolic fortress occupied by the subtle soul and how both the soul and the fortress signify the variations of the human measure, which is always in relation to God.

⁶⁰ A scholarly and critically annotated English translation of the Arabic text is currently not available, but sections of it has been translated and critically annotated upon by various scholars, such as T. J. Winter, Muhtar Holland and Nabih Amin Faris.

⁶¹ Al-Ghazālī 2000.

⁶² Al-Ghazālī 2007.

While al-Ghazālī's writings allude to the mystical symbolism of light, his near contemporary al-Suhrawardī (d. 1191) developed an entire mystical and philosophical system based solely on illumination. This system is fully presented in his most important work the *Ḥikmat al-Ishrāq* (*The Philosophy of Illumination*). In this text, al-Suhrawardī fully expresses his philosophical premise, which describes all existents to be but gradated light emanating from the luminosity of God. In the final section of this text, al-Suhrawardī describes the human being in architectural terms—as an idol in a temple and as a fortress. In both cases, he describes human bodies to be like vessels made up of varying mixtures of lights, each differing in its luminosities and differentiated according to one's spiritual disposition.

Al-Suhrawardī's other famed text, *Hayākil al-Nūr* (*Temples of Lights*) provides yet another dimension to consider the relation of the body to building. The work is made up of seven chapters, each described as a structure of light that forms the temple. Each structure contains a state of knowledge of a perfect human being. I referred to Bilal Kuşpınar's translation as it also contained the translation of the commentary on this text by Jalāl al-Dīn Dawwānī (d. 1502). Dawwānī's commentary extends and explains the range and meanings of key terms, such as *hayākil*, a term that has etymological links to both the body and architecture.⁶³

Two further important secondary sources were studied in attempting to understand al-Suhrawardī's philosophy. They were Mehdi Amin Razavi's *Suhrawardī and the School of Illumination* and Seyyed Hossein Nasr's essay "Suhrawardī and the School of Ishrāq".⁶⁴ Razavi's work is probably the most comprehensive secondary text available in English. It describes all the facets of Suhrawardī's philosophical system, such as his views on cosmology, ontology, and the nature of man. Nasr's essay, on the other hand, is a sustained study of the symbolic meanings of light and how this draws from earlier Islamic mystical traditions going back to Avicenna's mystical poems.

Ibn 'Arabī (d. 1240) is considered as one of the most influential thinkers in Islamic history. His ideas became a point of reference for almost all Islamic schools

⁶³ Kuşpınar 1996.

⁶⁴ Razavi 1997; Nasr in Nasr and Razavi (ed.) 1996, 125–174. Razavi's work is probably the most comprehensive secondary text available in English that details all the facets of Suhrawardī's philosophical system, such as his views on cosmology, ontology, and the nature of man. Nasr's essay on the other hand is a sustained study of the symbolic meanings of light and how this draws from earlier Islamic mystical traditions going back to Avicenna's mystical poems.

of philosophy and mysticism that succeeded him right up to the eighteenth century. Ibn ‘Arabī was also a prolific writer who authored many texts. His most important work, *Al-Futūḥāt al-Makkiyya* (*The Meccan Revelations*) runs up to twenty volumes.

The main works of Ibn ‘Arabī consulted in this study were *Shajarat al-kawm* (*The Tree of Being*), *Inshā’ al-Dawā’ir* (*The Construction of Circles*) and *Al-Tadbīrāt al-Ilāhiyya fī Iṣlāḥ al-Mamlaka al-Insāniyya* (*The Divine Governance in Edifying the Human Kingdom*). In all these works Ibn ‘Arabī demonstrated his singular concern: the relationship of the microcosm, the human being, to God. One of the interesting aspects about Ibn ‘Arabī is that he demonstrated this relationship by way of geometry. In the *Futūḥāt* and *Inshā’ al-Dawā’ir* he used illustration to present his geometrical propositions.

The key secondary text that has copiously and deeply analysed geometric ideas and articulated its architectural potentialities is Akkach’s *Cosmology and Architecture in Premodern Islam*.⁶⁵ Additionally, I have turned to William Chittick and both his *The Sufi Path of Knowledge* and *The Self-Disclosure of God* wherein he has translated many sections of the *Futūḥāt*.⁶⁶ Both of these works, together with his *Imaginal Worlds: Ibn al-‘Arabi and the Problem of Religious Diversity*, allows for the grasping of the spiritual and ontological queries Ibn ‘Arabī had set out to explore, thus allowing for a better understanding of the geometrical forms he, at times, chose to illustrate his ideas with.⁶⁷

Ottoman Renaissance

The biographies commissioned by Sinan (d. 1588), the chief architect of the mid-sixteenth-century Ottoman Empire, offers the first glimpse of the intentions and workings of an architect in the Muslim world.⁶⁸ Though it can in no way be compared to the scope, depth, and influence of the works of Vitruvius, Alberti or Palladio, it

⁶⁵ Akkach 2005, 108–111 and 113–147.

⁶⁶ Chittick has translated many sections of the *Futūḥāt* in both his *The Sufi Path of Knowledge* (Chittick 1989) and *The Self-Disclosure of God* (Chittick 1998) supplementing it with detailed commentary. Both works concentrates on Ibn ‘Arabī’s theories on the relationship between the human and the divine. Chittick has also provided Ibn ‘Arabī’s geometrical illustrations in *The Self-Disclosure of God* explaining how to interpret the illustrations with regards to microcosm and God.

⁶⁷ Chittick 1994. Important for the thesis here was Chittick’s explanation of Ibn ‘Arabī’s concept of the “Perfect Man.” This is an important secondary text as it helps clarify many of Ibn ‘Arabī’s rather complex doctrines concerning human ontology.

⁶⁸ The five biographies have been translated into English—*Sinan’s Autobiographies: Five Sixteenth Century Texts* by Crane and Askin and edited by Necipoğlu (2006). All references to Sinan’s autobiographies are made to this edition.

manages nevertheless for the first time to offer an Islamic parallel on what may come close to an architectural theory written by a Muslim architect. While the biographies tend to be largely hagiographic, celebrating the genius of Sinan, it does offer instances of how architecture can be imagined as a metaphor of the body and vice versa. Sinan's autobiographies inspired two other works, which offer windows into the Ottoman architectural reflections in both the seventeenth and eighteenth century. These would include the *Risāle-i Mi'māriyye (Treatise on Architecture)* by Ca'fer Efendi, being an account of Sinan's successor the imperial architect Mehmed Ağa (d. 1623), and Dayezāde Mustafa's *Selimiye Risālesi* (circa 1740). I have benefitted from Selen Morkoç's recent work *A Study of Ottoman Narratives on Architecture*, which discusses, amongst other things, how later works continue the legacy of Sinan right up to the eighteenth century.⁶⁹

The most important contribution to the study of Sinan in English, however, belongs to Gülru Necipoğlu. Her various writings on this topic, which was eventually consolidated into a major book on Sinan titled *The Age of Sinan: Architectural Culture in the Ottoman Empire*, provides important insights into the architectural "entanglements" between the Ottomans and the West which saw the appearance of Vitruvius' *De Architectura* for the first time in the Islamic world.⁷⁰ Her work also contrasts with the historical studies on the development of Ottoman architecture as those of Goodwin and Kuban. Both these works present a chronological trace of how the architectural manifestation of the Ottoman Empire evolved over the course of its establishment to its demise in the early nineteenth century under the weight of Western modernity.⁷¹

Limitations, Contributions, and Thesis Layout

The study relied heavily on English translations of primary sources. In most instances I have worked with critically annotated translations and secondary texts by established scholars. For Western architectural sources, written in mainly Latin and Greek, I have worked with texts that have been examined by major scholars in the field, such as Wittkower, Onians, Rykwert, and Pérez-Gómez. In their various works

⁶⁹ Morkoç 2010. Morkoç has translated in this text Dayezāde Mustafa's *Selimiye Risālesi* for the first time into English.

⁷⁰ Necipoğlu 2011, 82–103. See also Necipoğlu 1989, 401–427 and Necipoğlu 1993, 169–180.

⁷¹ Goodwin 2003 and Kuban 2010.

they have clarified original terms—Greek, Latin, Hebrew, and French—and their usages pertinent to their various contexts and hermeneutical frameworks. For Islamic sources, written mostly in classical Arabic, Persian, and Ottoman, I have relied on the works of expert scholars, such as Akkach, Nasr, Grabar, and Necipoğlu for architectural articulations.⁷²

In recent years, efforts have been made to refer to premodern, non-architectural Islamic sources to recover Islamic architectural theories that had remained obscured until now. Given the theoretical void in the field, such works grant an Islamic voice to a field saturated by Western architectural reflections. Alami and Akkach have in their own works demonstrated the possibilities of such efforts. Alami's work, which is the most recent, turns to Arab literature with special attention to the works of al-Jāhiz in an attempt to sieve out from "scattered references [...] explicit attitudes towards arts [that] exist[ed] in historical, poetical and other sources."⁷³ He attempts to draw conclusions of relationship between "Arabic poetics and theories of language from the eighth to the early tenth century, and the architecture of the same time."⁷⁴

Akkach's *Cosmology and Architecture in Premodern Islam* situates his negotiations in "mystical writings on cosmology with architectural preoccupations with *order* and *correspondence* forming the main lines of interdisciplinary crossing" to present his arguments for an Islamic architectural theory.⁷⁵ My own work seeks to continue from the efforts established by the abovementioned scholars as a contribution to not only seek out Islamic architectural ideas from non-architectural sources but specifically with the intent to draw out the Islamic position in interpreting the relationship between body and architecture, a field that has not been well-developed.

The idea that Islam can posit claims to a study of the relationship between body and building also seems initially to be problematic as the expression or representation of the body is generally seen to be an anathema in Islam. Alami noting

⁷² For Islamic philosophical and mystical sources I have used secondary sources written by translators of primary texts. For example Michael Marmura (Avicenna, al-Ghazālī), Hossein Ziai (al-Suhrawardī), William Chittick (Ibn 'Arabī), Fazlur Rahman (Avicenna) and Muhsin Mahdi (Al-Fārābī). The other important scholars of the field of Islamic philosophy and mysticism I constantly referred to would include Parvez Morewedge, Majid Fakhry, Seyyed Hossein Nasr and John Walbridge.

⁷³ Alami 2014, 24.

⁷⁴ Ibid., 27.

⁷⁵ Akkach 2005, xxi.

this fact warns that an attempt to study Islamic art and architecture becomes limited when visited through the “[Western] classical conception of art as a representation of the human body.” He therefore turns to literary sources, which he finds to be more representative of Islamic culture.⁷⁶ My thesis though, while acknowledging this issue, considers that despite the perceived bias against human representation of Muslim thinkers in the premodern age, they in fact did study the human body and found it to be a very important resource to construct ideas such as order, orientation, and beauty that offer means to reflect upon architecture. In fact it is by way of studying the human body that they themselves constructed imaginary cities and evocative landscapes, which acted as effective didactic tools to enhance their philosophical or mystical instructions. I hope the thesis, especially its sections on Islamic thought, offers new filters with which the human body can participate in architectural theories. For example, those who know of Plato’s proposals for city planning in the *Republic* or the *Critias* can now compare them to similar efforts of al-Fārābī and al-Ghazālī, thus appreciating how Islamic thinkers have made direct connections between the cities they envisioned and the human body.

This thesis also seeks to contribute to an important discourse in the architectural field that has attempted to situate the idea of embodiment as a central feature of architecture. The leading proponents of this field include Alberto Pérez-Gómez, Juhani Pallasmaa, Steven Holl, and Dalibor Vesely. The philosophies of Maurice Merleau-Ponty and Martin Heidegger have especially inspired the return to the body as the medium to interpret the world we live in for translation into architecture.⁷⁷ Identifying Descartes as the point of rupture, in which the primacy of the body was disconnected as an important ontological and experiential structure informing architecture, they, too, have turned to premodern sources such as Plato, Aristotle, and Vitruvius to reflect upon the role of the human body in architecture before the changes brought on by modern thought. It is into this dialogue that the Islamic thinkers I am reading in this thesis are able to offer points of departure in understanding how premodern Muslims thinkers, too, saw the human body as part of

⁷⁶ Alami 2014, 24.

⁷⁷ Pallasmaa 2005 (see Holl’s Introduction, 6–8); Pallasmaa 2009, 114–120; Holl, Pallasmaa, and Pérez-Gómez 2007. Vesely 2004, 44–107. Pérez-Gómez’s *Built Upon Love* (2006), in essence is an extended discussion of the embodied experience of architecture, which he traces from Plato’s *Phaedrus*.

an interconnected cosmic order, and how this relationship is able to offer architectural and spatial interpretations.

The thesis is divided into three parts: 1) Establishment, 2) Philosophical and Mystical Developments, and 3) Re-Establishment. In the first part, Establishment, I present foundational grounds that provide the vocabulary for the entire thesis. I then elaborate on the role played by Pythagoras and Plato in providing the context and meaning to the proportional ratios of the body found in the *De Architectura*. This is followed by a discussion on the origins of Christianity and Islam. Here we encounter how Christ and Muḥammad, whose very bodies were considered paradigms of perfection, are presented as alternatives to the Vitruvian man. I end this part showing how both traditions established architectural instructions in relation to the body.

In the second part, Philosophical and Mystical Developments, the bulk of the Islamic thinkers are presented. This was a most prolific age in Islamic history, one that coincides with the Western Middle Ages. Here I present a range of thinkers. In one group we find the philosophers al-Fārābī, Avicenna, and the Ikhwān with their Pythagorean-biased studies that intermingle philosophy with mysticism. In another group represented by al-Ghazālī, al-Suhrawardī, and Ibn ‘Arabī, I present the mystical tradition of Islam. This section is concluded by a lengthy study of the architectural developments in the Medieval West, which in itself was considered a by-product of Christian mysticism and Platonic-Pythagorean numerology. In this section one would find resonances between Islamic and Western traditions, in the negotiation of the idea of the relationship of body and building by way of light and geometry.

The dominant element of the third part, Re-Establishment, is a close reading of the first two treatises of the Renaissance. Here we find the return of Vitruvius and architectural treatises that emphasize the primacy of the human body to measure the building. I set up the study of the Western Renaissance with the transformations in the Ottoman Empire around the same period with regards to architecture. The architect Sinan’s biographies and the information it contains also provides contrasts between his Renaissance counterparts and himself on the role the body played in the architect’s conception of his designs. The thesis’ conclusion aims to point out how developments in science and philosophy impacted architectural theory, which sees the role of the human body minimized and diminished in importance.

PART I ESTABLISHMENT

CHAPTER 1

THE VITRUVIAN BODY

1.1 Measure in the *De Architectura*

Vitruvius' *On Architecture*, written around 20 BC, is the earliest known architectural treatise and has had an abiding influence over Western architecture. Its authority was called into question only from the eighteenth century onwards with the rise of positivism and the challenge modernity posed against traditional authority not informed by modern scientific rationality. Speaking of its remarkable durability, McEwan writes: "the only major work on architecture to survive from classical antiquity, and the first self-consciously comprehensive account of the subject, Vitruvius' *De Architectura* in time became *the* text on architecture to which until, at least the eighteenth century, all other texts referred."⁷⁸ Stating the aims of his treatise, Vitruvius writes in his introduction: "I have furnished a detailed treatise so that, by reference to it, you might inform yourself about the works already complete or about to be entered upon. In the following books I have expounded a complete system of architecture."⁷⁹ Thereafter follows ten sections or "books" of instructions on architectural theory and practice that may puzzle a modern architectural reader for the scope of topics Vitruvius considers primary for the architect's education were wide enough to include astrology and the building of war machines.

Vitruvius begins his treatise by surveying the education of an architect, which he describes to be extensive, demanding, and lengthy. This educational structure depicts the architect as an intellectual polymath, an idea that would be revived in the humanist tradition of the Renaissance in the fifteenth century. In the study of rhetoric, drawing, geometry, philosophy, *physiologia* (science of the natural world), music, medicine, optics, and astrology, Vitruvius expects the architect to discover a common underpinning order.⁸⁰ The language of this underpinning order is described to be arithmetical, which reveals to the architect the primacy of geometry, rhythm, proportion, and order.⁸¹ The fundamentals of architecture lie, according to Vitruvius, in their providing the architect with knowledge of appropriate measures. With regards to how one derives measures, Vitruvius refers to philosophers such as Pythagoras, Plato, Aristotle, and Democritus, whom he considers to have drawn their

⁷⁸ McEwan 2003, 1. Italics in original.

⁷⁹ *De Architectura* 1. Preface. 3.

⁸⁰ Ibid., 1.1.16.

⁸¹ See *ibid.*, 1. 1. 14–17.

mathematical knowledge from the heavens.⁸² In Book 3, dedicated to the planning and design of temples, Vitruvius unveils quite thoroughly where and how the architect can learn his measures from, before deploying it into the practice of building. It is here where we find his famous remark that the measure of the temple is to be studied from the measure of the human body.

1.2 The Vitruvian Man

In Book 3 Vitruvius writes: “for without symmetry and proportion no temple can have a regular plan; that is, it must have an exact proportion worked out after the fashion of a finely shaped human body.”⁸³ The terms “symmetry” and “proportion” are key for us to understand what underlies the premise for the body to be made the measure of a temple building. Vitruvius begins his explanation by stating that the “planning of temples depends upon symmetry [...] that arises from proportion (which in Greek is called *analogia*).”⁸⁴ McEwan, elaborating on these key architectural terms, traces their origin to Plato’s *Timaeus*. She explains that Vitruvius’ explanation is similar to that which Cicero gave when translating the *Timaeus*. For Plato proportion or *analogia* as it was known in Greek “is what binds the universe, the *kosmos*, together and enables the corporeal world to appear.” Explaining how the essence of architecture was in drawing a co-relation between the cosmos and building, McEwan writes: “That architecture, as the very art of proportion, is the analogue for this, is the overriding theme of Vitruvius’ *De Architectura*.”⁸⁵

For Plato, this *ana-logos*, or cosmic binding, was authored and maintained by its eternal God, *Demiurgoi*. The *Demiurgoi* with its divine reason utilizes harmonic arithmetical ratios as a basis for this design that was then geometrically manifested in the circular orbits we observe in the movements of the planets and stars. The bodies of the cosmos thereafter were composed by the use of proportion. In *Timaeus* we read that “God placed water and air in the mean between fire and earth, and made them to have the same proportion [...] and thus he bound and put together a visible and

⁸² Ibid., 9. Preface and 10.1.4.

⁸³ *De Architectura* 3.1.1.

⁸⁴ Ibid.

⁸⁵ McEwan 1994, 128.

tangible heaven.”⁸⁶ Once it had completed the creation of the cosmos, the *Demiurgoi* turned to the immortal gods and instructed them to follow the pattern it had used to make the cosmos and to create humans. There is implicit in this command the view that the human body inheres within itself the mathematical and geometrical principles of the cosmos and that man is a microcosm.⁸⁷ The harmony, or mathematical reasoning, that underpins this composition, Vitruvius writes, is known as symmetry. In the preface to Book 3 we read that

symmetry also is the appropriate harmony arising out of the details of the work itself; the correspondence of each given detail among the separate details to the form of the design as a whole. As in the human body, from cubit, foot, palm, inch and other small parts come the symmetric quality of eurhythmy; so is it in the completed building.⁸⁸

As the cosmos was assembled according to mathematical principles, likewise the body has a set of ratios in a similar fashion. Following this principle must also be a work of architecture. Vitruvius goes on to spell out in detail the harmonic ratios of the human body:

For Nature has so planned the human body that the face from the chin to the top of the forehead and the roots of the hair is a tenth part; also the palm of the hand from the wrist to the top of the middle finger is as much; the head from the chin to the crown, an eighth part; from the top of the breast with the bottom of the neck to the roots of the hair, a sixth part; from the middle of the breast to the crown, a fourth part; a third part of the height of the face is from the bottom of the chin to the bottom of the nostrils; the nose from the bottom of the nostrils to the line between the brows, as much; from that line to the roots of the hair, the forehead is given as the third part. The foot is a sixth of the height of the body; the cubit a quarter, the breast is also a quarter.⁸⁹

Nature, as a divine agency, has also deployed precise measures in designing the human body as it did with the cosmos. Vitruvius identified a set of numerical relations, which, as we shall see, has profound symbolic meanings. The other mathematical operation Vitruvius performs on the body is a geometric one.

⁸⁶ *Timaeus* 32b-c. I am using the Benjamin Jowett translation from Hamilton and Huntington's edited collection of Plato's dialogues.

⁸⁷ *Ibid.*, 41c.

⁸⁸ *De Architectura* 1.2.4.

⁸⁹ *Ibid.*, 3.1.2.

Positioning one arm of the compass on the navel, identified as the centre of a circle, a circumference can be drawn with the other arm, perfectly encompassing the body of a human figure with his arms outstretched. Following this, Vitruvius then rules the body orthogonally, quartering it. As a result, the body yields two primary geometric forms: a circle and a square (Fig. 1.1).⁹⁰ We see here now that the body is not only presented as a matrix of mathematical ratios but also a generator of highly symbolic geometrical forms. As we reflect upon Vitruvius' proportioning of the human body, we notice some key numerical relationships between the first four digits: the numbers one, two, three, and four. The meanings and operations of these numbers in the pre-modern world were highly symbolic and meaningful. They helped articulate how mathematical harmonies from the heavens can be made to manifest in human operations, such as architecture, thus analogically binding the cosmos with the corporeal world.

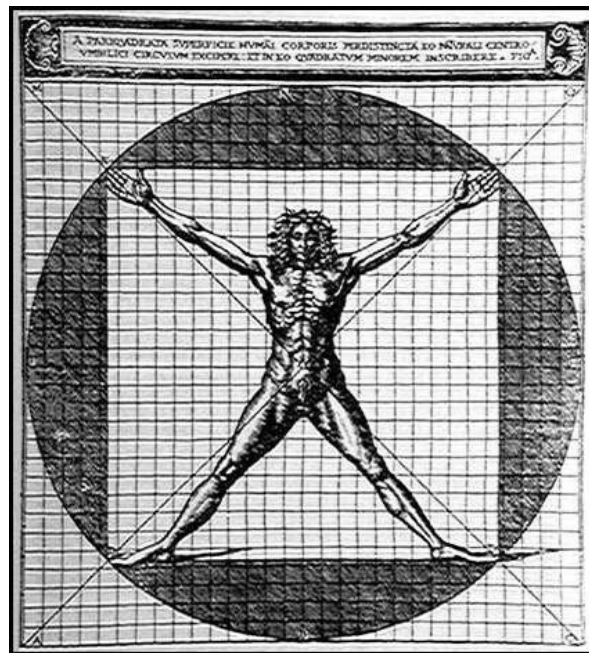


Fig. 1.1 Vitruvian Man by Cesariano (Source: Pérez-Gómez and Parcell, 1994, 5.)

Referring to Vitruvius' *On Architecture*, Pérez-Gómez writes that the “numerical proportions referred ultimately to the perceived order of the supra-lunar world, an immutable order that functioned as a paradigm for the human orders.”⁹¹ Vitruvius claims that those who preceded him also took these measures, as they found them

⁹⁰ Ibid., 3.1.3.

⁹¹ Pérez-Gómez 1994, 5.

manifested in the human body, as a basis to build. Regarding the numbers that are collected from the human body, he refers to them as the *teleon*, or the “perfect number,” as mentioned in Plato’s *Republic*.⁹² This perfect number is a derivative from Pythagoras’ arithmetical progression, the *tetractyes*—1:2:3:4. We are told that the *teleon* is either or both the number 10 (1+2+3+4), the *decad*, and the number 6 (1+2+3). Both of them were considered perfect because in the one, two, and three we encounter the first three prime numbers that are distinguished by their uniqueness.⁹³ On the other hand the combination of one, two, three, and four, results in the number ten. Ten was considered the matrix-womb for generating all other numbers.

The numbers of the *decad* in the Pythagorean system also represent the basis of geometry. One represents the point, two the line, three the surface, and four the solid.⁹⁴ The perfect number ten, which equals the fingers of the human body, in its composition (1+2+3+4), is also understood as the underpinning measure of the primary geometric figures of the circle and the square. According to early Pythagorean sources the circle is identified with the number ten as it represents the completion of a whole. As the circle is the generator of all forms, the number ten, too, contains within itself all numbers. Further to this, the number ten is also to be considered as a fourfold square due to the fact that it is made up of the first four numbers.⁹⁵

Vitruvius’ reference to the *teleon*, which we now understand to be the perfect numbers and related geometric models, while initially discussed in Plato’s *Republic*, is actually exhaustively investigated in the dialogue that followed it, the *Timaeus*. In the *Timaeus*, the first philosophical description of cosmology, we see demonstrated the use of *tetractyes* employed in the making not only of the perceptible universe but also in the distribution of the underpinning intelligences that were apportioned by the *Demiurgoi*.⁹⁶ In this dialogue, one of the key features is the use of the circle as a symbol of divine perfection. As will be discussed below, the circle forms the primary expression of divine creativity and is also intimately linked to the composition of the human body.

⁹² *Republic* 546b-c. I am using the Paul Shorey translation from Hamilton and Huntington’s edited collection of Plato’s dialogues.

⁹³ Rykwert 1996, 99–101.

⁹⁴ Theon cited in Cornford 1977, 70. See also Introduction to *De Architectura* Book 5 and Cornford 1977, 67–72.

⁹⁵ McEwan 2003, 161.

⁹⁶ See Voegelin 2000.

Cosmology and Human Measure in Timaeus

In *Timaeus* we are introduced to the philosophical creator of the Universe, the *Demiurgoi*. Eternal, immutable, imperceptible, and perfect, this Being creates a near perfect perceptible replica of its essence called the *kosmoi*, the cosmos.⁹⁷ The role of the cosmos, which includes the fixed stars, five primary planets, the sun, and the moon, was to serve as an exemplary and paradigmatic mirror that was to be regarded in the governance of all human creative activity set in place on earth. This would include days of festivals, harvest timings and also measures for human artefacts. The order of the Platonic cosmos is based on two diametrically distinct premises: 1) the immaterial eternal condition, and 2) its material and temporal mirror, the entire known Universe. Following this theory we are to understand that, while the bodies of the planets are visible, the intelligence that governs and guides them is invisible.⁹⁸

In proceeding to shape the cosmos, the *Demiurgoi* selects the circle as a most perfect manifestation of itself. Plato writes that the *Demiurgoi*, “made the world in the form of a globe, round as from a lathe, having its extremes in every direction equidistant from the center, the most perfect and the most like itself of all figures, for he considered that the like is infinitely fairer than the unlike.”⁹⁹ The guiding principle of all the planets is the soul, which motivates and moves it. Its self-regulated movement is circular, and the orbit it governs is circular as well:¹⁰⁰ “he made the universe a circle moving in a circle, one and solitary [...] Having these purposes in view he created the world a blessed god.”¹⁰¹

After selecting the circular figure to represent the perfection of the divine in framing the cosmos, the *Demiurgoi* turns to the immortal gods to instruct them to create mortal human beings. In its advice to the immortal gods tasked to create human beings, the *Demiurgoi* instructs them to use the model—the circular form—of the cosmos as a guide.¹⁰² In this Platonic genesis narrative the first act in creating the human body sees the immortal gods fashioning the human head following the orbital sphere, as a circle. Chronologically, too, the spherical head arrives first, and referred

⁹⁷ On the basis of the cosmos as the privileged order and guide to beauty see Gadamer and Bernasconi 1998, 101–4.

⁹⁸ “The body of the heaven is visible, but the soul is invisible and partakes of reason and harmony, and being made by the best of intellectual and everlasting natures, is the best of the things created.” *Timaeus* 37a.

⁹⁹ *Ibid.*, 33b.

¹⁰⁰ On the composition of the soul and its circular orbit see, *Timaeus* 34b–37b.

¹⁰¹ *Ibid.*, 34b.

¹⁰² *Ibid.*, 41c.

to differentially as being “the most divine” because it is made responsible to contain the divine soul.¹⁰³ In addition to this, the human face—its features and arrangement—belongs to the spherical head, further ennobling the role of the human head. First and foremost, the face defines human orientation, the front from its back, and it is to the head and the face that the wisdom of vision is given, which is then followed by the organs of all our five senses. In *Timaeus* we are told that sight is the first sense faculty created, and it is also identified as the most divine of all our senses as it shares its nature with the sun.¹⁰⁴

Through the reading of *Timaeus* we can understand the architect’s geometric act of scribing a circle as a mimesis and continuity of the first act of divine creativity that sets the cosmos alive. The circle is highly significant as it was the form selected to reveal the eternal and the most excellent cosmos. Vitruvius in *De Architectura* extends architecturally Plato’s reflection on the use of the circular template. By scribing the circle as a boundary of the human body Vitruvius is perhaps suggesting that the immortal gods continued to use the cosmic paradigm, even after creating the head, in their effort to compose the rest of the human body. Through this act, the extent of the human height and span, that is, the body’s vertical and horizontal limits, is determined. It would be these limits that reveal the other symbolic geometrical figure, the square, or more accurately the quadrature as observed in the diagram of the Vitruvian man.

To begin with, we can observe that the limits that are marked along the circumference of the cosmic orbit present the various measures of time, and along with it the cardinal orientations. In *Timaeus* Plato writes: “the sun and moon and five other stars, which are called the planets, were created by him [*Demiurgoi*] in order to distinguish and preserve the numbers of time, and when he had made several bodies, he placed them in the orbits.”¹⁰⁵ The cosmic bodies differentiate night from day, months from years, and the seasons of the year. The sun that dominates the measure of our time destines the four cardinal points. Immediately, we see with this how the circular cosmos reveals its fourfold sector. While the circle reveals the eternal perfection of the *Demiurgoi*, the square inscribed by the quartering of this circle

¹⁰³ Ibid., 44d.

¹⁰⁴ Coomaraswamy in Strom (ed.) 2004, 125.

¹⁰⁵ *Timaeus* 38c.

reveals the mathematical proportions that govern all aspects of the sub-lunar realm, thereby informing the temporal, material, and spatial relations of and amongst beings.

Tracing the Cosmos onto the Earth

The same quartering of the body expressed in Vitruvius allows us to understand how the body shares its measure with the temporal world. Vitruvius himself writes, it is only through “architectural calculations and the use of the compass, the action of the sun in the universe is discovered.”¹⁰⁶ Further to that, as we read below, the fourfold structure yielded from the body teaches how both the human body and its environment are bounded by these measures intertwined with one another.

The earliest operation of the compass in scribing a circle and having it quartered is found in Book 1 of the *De Architectura* in relation to the designing of a wind rose (Fig. 1.2).¹⁰⁷

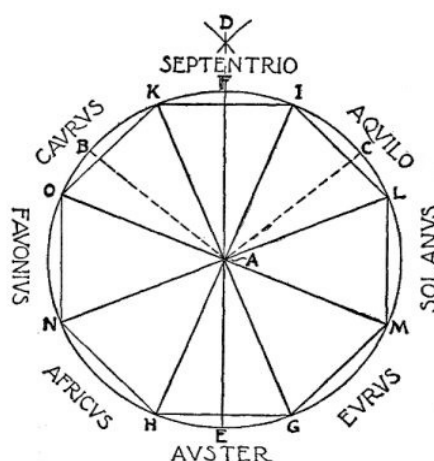


Fig. 1.2. Wind directional diagram (Source: Vitruvius 1960, 30.)

Using a gnomon, the sun’s path is tracked to mark out the four cardinal points, each one of them named according to Roman traditions.¹⁰⁸ Following that, the diagram is quartered further, revealing eight wind directions. In multiples of four the directions of the wind can be named up to thirty-two aspects. Wind directions and orientations of a site were important as they have a direct impact on the constitution of the body. Vitruvius addresses this very early in his text:

¹⁰⁶ *De Architectura* 9.1.1.

¹⁰⁷ *Ibid.*, 1.6. 9–11.

¹⁰⁸ *Ibid.*, 1.6.13.

For example in the island of Lesbos, the town of Mytilene is magnificently and elegantly built, but not situated with prudence. For in this city when the South wind blows men fall ill; when the North-West, they cough; when the North, they are restored to health; but they cannot stand in the alleys and the streets because of the vehemence of the cold.¹⁰⁹

Traditional medicine, too, understood the human body to be completely influenced by the environment. In the opening verses of Hippocrates' *Air, Waters and Places* we read how a physician upon his arrival to a new town has to consider these factors.

Therefore, on arrival at a town [...] a physician should examine its position with respect to the winds and to the risings of the sun. For a northern, southern, and eastern, and a western aspect has each its own individual property... For knowing the changes of the seasons, and the risings of the settings of the stars... he will know beforehand the nature of the year coming.

Through these considerations and by learning the times beforehand, he will have full knowledge of each particular case, will succeed best in securing health, and will achieve the greatest triumphs in the practice of his art. If it be thought that all this belongs to meteorology, he will find out, on second thoughts, that the contribution of astronomy to medicine is a not very small one but a very great one indeed.¹¹⁰

This is also similar in the case with architecture. For Vitruvius the architect, too, must be able to understand how the seasons and the site impact the health of the inhabitants. The four cardinal directions and the four seasons have a direct impact upon the fourfold elemental make-up of the body: earth, water, fire, and air.

For according as from the elements (which the Greeks call *stoecheia*) all bodies are composed, that is from heat and moisture and earth and air, just so by these mixtures, owing to natural temperament, the qualities of all animals are figured in the world according to their kind. Therefore in whatsoever bodies, one of their principles, heat, is predominant, it then kills them and by its fervency dissolves the rest. Now a hot sky from certain quarters produces these defects; since it settles into the open veins more than the body permits by its natural temperament or admixture.¹¹¹

¹⁰⁹ Ibid., 1.6.1.

¹¹⁰ Hippocrates 1948, 71–3; On the similarities found between Hippocrates' theories on how a site influences health and that of Vitruvius' see Glacken 1973, 106.

¹¹¹ *De Architectura* 1.4.5–6,

In this sense, orientation naturally plays an important role in Vitruvius' theory of architecture. In the section titled "On the Salubrity of Sites," Vitruvius repeatedly cites the importance of the architect reading the quarters of the sky to ensure the site selected is the healthiest. With regards to planning interior spaces, he writes: "by the changes of heat and cold, bodies which are in these places will be affected [...] in wine stores no one takes light from the south or west, but from the north, because that quarter at no time admits changes, but is continuously fixed and unchangeable."¹¹²

The idea of founding a city by quartering the sky, as described by Vitruvius, was, as Joseph Rykwert writes, an ancient Roman practice. This practice involves the augur, using gnomonic tools to cast shadows, whereby the image of the sky is drawn onto the ground as a way to determine the city's layout. In his *The Idea of a Town*, Rykwert explains the symbolism and meaning behind the ritual. The ritual began with the augur who marked on the ground to draw relationship between the cosmos and the earth (Fig. 1.3). A surviving frontispiece showcases how the cosmos is quartered (Fig. 1.4). As Rykwert writes, it was this plan or diagram that guided the actions of the augur as he set about marking the territory of a site: "This was accomplished when the great temple of the sky was first condensed into the ideal form of the augur's diagram, and then projected on to the tract of land before him by ritual formula."¹¹³

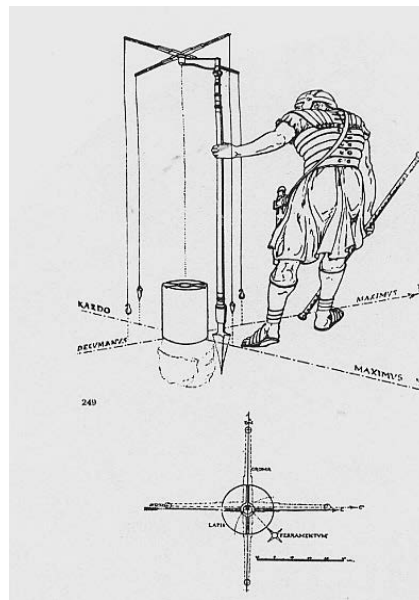


Fig. 1.3 The Roman *agrimensor* at work (Source: Rykwert 1995, 51.)

¹¹² Ibid., 1.4.2.

¹¹³ Rykwert 1995, 47.

The body similarly receives its measure and limits from above: the circle, then the square. It is not surprising then that the aspect of orientation and appropriate times are of vital importance for both body and building. In another passage we find Vitruvius reinforcing the relationship between bodily orientation, architecture, and the cosmos:

The aspects which the sacred temples of the immortal gods ought to regard are so to be appointed (if no reason hinders, and the opportunity is presented) that the temple and the Statue which is in the shrine look towards the western quarter of the sky, so that those who come to the altar to sacrifice or make offerings may look towards the eastern Heaven and the image in the temple. In like fashion persons undertaking vows may look upon the temple and the eastern Heaven. And the very images may seem to rise up and gaze upon those who make vows and sacrifices.¹¹⁴



Fig. 1.4 The *templum* of the sky (Source: Rykwert 1995, 48.)

With the transposing of this ancient idea of tracing the sky onto the earth, onto the human body, Vitruvius evokes the idea of the body as the mirror of the cosmos: a microcosm. It is from such contemplations upon the body that an architect is to derive orders and to guide the act of building. Referring to this, Pérez-Gómez explains that the practice of architecture was to ensure that “the physical configuration of the new human world had to conform to the *mathesis* that linked microcosm and the macrocosm.”¹¹⁵

¹¹⁴ *De Architectura* 4.5.1.

¹¹⁵ Pérez-Gómez 1996, 10.

1.3 The Origin of Building

According to Vitruvius, the relationship between body, cosmos, and architecture is so primordial that he identifies its beginnings to the origin story of human civilization. In Book 2, under the section “The Origin of Dwelling,” Vitruvius leads us into a dark and foreboding forest where our earliest ancestors are described as savages undifferentiated from animals. Without the ability to articulate either number or geometry, they lived in unadulterated natural habitats, “in forests and caves and woods and feeding on the food of the field.”¹¹⁶ Nature intervenes into this scene abruptly and violently. A tremendous and furious storm arrives without warning tossing the trees and causing the rubbing of branches till a violent fire is kindled.¹¹⁷ Our ancestors, who had not witnessed fire until then, were fraught with fear and put to flight.¹¹⁸ Soon after, the fire subsides. One by one the people start to gather around this original hearth out of curiosity. In this setting, through the fire, men discovered the gift of warmth and the technology of understanding how to maintain it by adding wood as fuel to it.¹¹⁹ Soon the previously disparate human beings were drawn to the fire until a community was formed around it. Slowly the human intellect was drawn out as language: “in this concourse of mankind, when sounds were variously uttered by the breath, by daily custom they fixed words as they had chanced to come.”¹²⁰

After a passage of time man discovered that his essential distinction from the rest of the animal world was his ability to stand upright and to gaze at the vertical and the horizontal measures of the world. Of this privileged vertical gaze, Vitruvius eloquently describes that after having the ability to stand upright with ease, our ancestors discovered that they “should look upon the magnificence of the world and of the stars.”¹²¹ Then as climactic evidence of human distinction, Vitruvius concludes this section by stating the realization of another important human ability: the use of the hands and fingers. The very tools that help one to count, measure, make, and eventually build. Only after realizing one’s full potential as a human being, to read the

¹¹⁶ *De Architectura* 2.1.1.

¹¹⁷ Ibid.

¹¹⁸ Ibid.

¹¹⁹ Ibid., 2.2.1.

¹²⁰ Ibid.

¹²¹ Ibid.

stars, and count with one's fingers, Vitruvius allows the human community he has mythologized "to make shelters of leaves [...] to dig caves and wattles."¹²² (Fig. 1.5)

The Platonic resonance of this tale, especially the attempt made to correspond with the cosmic order before the creation, can be found in *Timaeus*: "The work of the creator, whenever he looks to the unchangeable and fashions the form and nature of his work after an unchangeable pattern, must necessarily be made fair and perfect, but when he looks to the created only and uses a created pattern, it is not fair or perfect."¹²³ In Vitruvius' tale, we learn how man's intellect is honed to take measure from the heavens, and then through the body is led to use the fingers, which is also to be used for counting. We are also told of the natural poise of the human, vertical and upright, gazing upwards to the cosmos. In fact the co-relation to man's physical order and his vertical posture is bounded to the natural movement of the soul, which, as Plato writes in *Timaeus*, raise "us from the earth to our kindred who are in heaven."¹²⁴ This attachment of ourselves to cosmic order is so great that "our divine part attaches us by the head to heaven, like a plant by its roots, and keeps our body upright."¹²⁵ It will be this upright body, which will become the basis of the columnar order that was central to the idea of beauty and decoration in classical Western architecture.

¹²² Ibid.

¹²³ *Timaeus* 28b.

¹²⁴ Ibid., 90a.

¹²⁵ Ibid. Compare this to *De Architectura* 9. Preface. 16, which refers to the minds of thinkers who "look upon the upper air and rise to heaven by the staircase of human remembrance."



Fig. 1.5 Origins of Architecture by Cesariano (Source: Pérez-Gómez and Parcell 1994, 3.)

1.4 Body and the Origin of Columnar Orders

In the Preface of Book 2, Vitruvius narrates another curious tale, which he claims to have happened during the era of Alexander the Great. In this tale we are introduced to the architect Dinocrates, who was continually frustrated in his attempts to meet Alexander to present his grand architectural proposals for the cities, which the great Macedonian General was about to conquer. As a last resort to capture the attention of the court, Dinocrates strips his clothes and transforms his body into a site model (Fig. 1.6). This unexpected act captured Alexander's fancy rather effectively. Describing his body that had become the building of a city, Dinocrates states enthusiastically to Alexander how he has in effect transformed his body into a site to present the plan of a city: "I have shaped Mount Athos into the figure of the statue of a man, in whose left I have shown the ramparts of a very extensive city; in his right a bowl to receive the water of all the rivers."¹²⁶

¹²⁶ *De Architectura* 2. Preface. 2.



Fig. 1.6 Dinocrates using his body as a site to demonstrate city planning to Alexander (Source: <http://pendientedemigracion.ucm.es/info/angulo/volumen/Volumen03-2/textos02.htm>. Accessed on 2/9/2013.)

In the section following this story Vitruvius goes on to elucidate the role of the human body as a central feature of architectural ornamentation and how it is made to manifest stories. It is with this as a background that he introduces the Caryatides columns, the “marble statues of long-robed women.”¹²⁷ (Fig. 1.7).

¹²⁷ Ibid., 1.1.5.

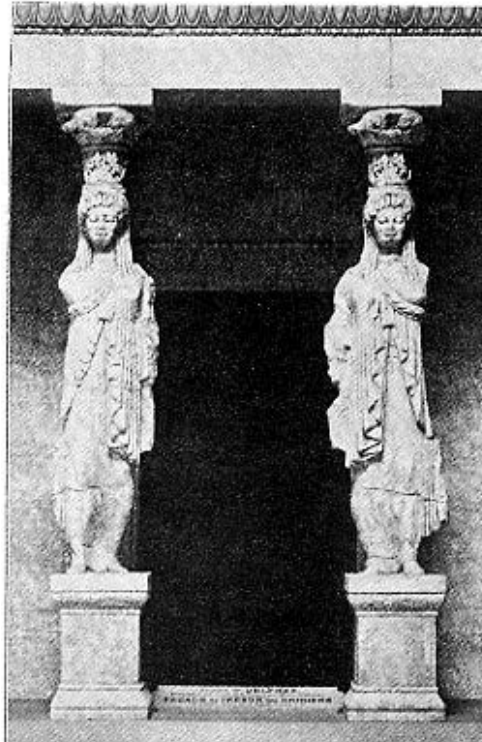


Fig. 1.7 *Caryatides* (Source: Vitruvius 1960, 30.)

The three columnar orders Vitruvius later introduces in his text—Doric, Ionic, Corinthian—seemed to have over time lost their figural and literal human features of the earlier caryatides prototype. Nevertheless, the origin of all the orders derives their measure and features from human forms and expressions. Of the three orders in question, the earliest order was the Doric, which was presented as aggressive, robust and masculine, based on the warrior Doric race.¹²⁸ The Ionic order, dedicated to the goddess of *Diana*, Vitruvius tells us, was achieved by transforming the masculine Doric order with the features of a young maiden:

in a new kind of style, they changed it to a feminine slenderness [...] at the capital they put volutes, like graceful curling hair, hanging over right and left [...] they let fluting fall, like the folds of matronly robes; thus they proceeded to the invention of columns in two manners; one, manlike in appearance, bare, unadorned; the other feminine.¹²⁹

The third order, the Corinthian, mimics a “slight figure of a maiden,” a basket carrier of Corinth who suffers a premature death. At the grave her nurse leaves a basket, which over time overflows with the acanthus plant. A well-known sculptor, who came

¹²⁸ Ibid., 4.1.6 and Hersey 1998, 53–9.

¹²⁹ Ibid., 4.1.7.

across the “basket and the young leaves growing up,” was “pleased with the style and novelty of the grouping,” so “he made columns for the Corinthians on this model.”¹³⁰ The classical orders that would in effect be the “face” of a building, present with immediacy the relationship the body has with the building. In its appearance, it reminds us of its being a synoptic representation of how the entire building is like a human body, where the parts relate to the whole and are assembled appropriately so they appear as a “faultless ensemble [...] in accordance to precedent and approved details.”¹³¹ Here again we find presented the importance the human body played in the Classical architecture to which Vitruvius has provided for us another window. The ensemble offers appearance and effect, which returns us to our previously studied notions of proportion, symmetry, and eurythmy. We find that, for Vitruvius, the “finely shaped human body” is not merely a singular concept. It is a complex and quite sophisticated range of knowledge that negotiates the metaphysical, philosophical, sacral, medicinal, and historical. It is important for this to be established; for it is from these roots we will develop the tracings of our investigations of the body, soul, and architecture in both the Christian and Islamic traditions in subsequent centuries following Vitruvius.

¹³⁰ Ibid., 4.1.8–11.

¹³¹ Ibid., 1.2.5.

CHAPTER 2

IN THE IMAGE OF GOD

2.1 The Measure of Adam

In the first book of the Bible, Genesis, we are presented with a description of the creation of the very first human being. After creating the heavens and then the earth over five days, God decides on the sixth day to create man. The procedure to create man is described in the following verse: “Let us make humankind in our image, according to our likeness [...] So God created humankind in his image, in the image of God he created them.”¹³² Similar to the creation story in Plato’s *Timaeus*, here, too, the human being is assigned a privileged position. In the making of the human being we again notice a close intimacy and ownership claimed by the divine. What differentiates the Judeo-Christian version from *Timaeus*, though, is the identification and naming of the first man. Here, unlike the anonymity in Plato, we learn that he is named Adam. In our attempt to understand the measure of the body and how it relates to building in the Christian tradition of the West, Adam’s body plays an important role. He was not only the paradigmatic first human, but also one uniquely created by God himself. Adam is also given the privilege to have been made in the image of God. Such claims set Adam apart from all other human beings. The creation story of Adam not only introduces the Biblical version of how the human body was formed by God but also some of the earliest intimations of the relationship between body and building.

Adam the First Temple on Earth

In Genesis we read of God proclaiming his creative activity, resulting in Adam: “And the LORD God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living being.”¹³³ In Hebrew, Adam’s name means “clay,” “earth,” “crust,” and “ground.”¹³⁴ This etymology leads to confirming the Judaeo-Christian (and later Islamic) conception that the physical matter of the human being is earth. In making Adam, God is selective from where this earth is taken. Here an architectural link emerges. From early Talmudic references we are told that the earth to create Adam was drawn: “from the place of the altar of the future

¹³² Genesis 1:26–7 All Biblical references unless stated are from *The New Oxford Annotated Bible: New Revised Standard Version with the Apocrypha*.

¹³³ Ibid., 2:7.

¹³⁴ Ibid., n.2.21–23.

Temple.”¹³⁵ In other versions, we are told that the earth of the future temples were reserved for the most privileged parts of Adam’s body, his head and heart.¹³⁶ From the onset we see a link made between Adam and architecture. The material, which constitutes the body of Adam, is the same as the altar in the temple that is later realized by the prophet Ezekiel.¹³⁷

This holy dust is vivified and brought to life by God’s breath. The Talmudic exegesis evocatively describes the process, which extrudes the “plan” of Adam to his feet: “In the first hour, the dust was gathered; in the second, it was kneaded into a *golem*, a still unformed mass; in the third, his limbs were shaped; in the fourth, the soul was infused into him; in the fifth, he stood on his feet.”¹³⁸ In this sense, God’s breath unfolds and defines the extent of human frame, until his full vertical morphology is reached. Also in this fifth hour after God inspired Adam with the soul, he starts to speak and name things.¹³⁹ With this we find the soul of the body, being the breath of God, and Adam’s intellect to be intimately linked.

This divine breath, which God shared with Adam, helped resolve a most difficult theological issue of what it meant when God said that Adam was made in His image. This, for example, was the case with the first-century Jewish-Platonic philosopher Philo of Alexandria and also later with St. Augustine. Philo, who was greatly influenced by Plato’s *Timaeus*, went on to define this Divine breath as the human intellectual soul.¹⁴⁰ In his *On the Creation of the World*, a Platonic commentary on Genesis, Philo describes that God created Adam by endowing the “moist substance,” meaning the physical body, with the “powers of the soul.”¹⁴¹ He categorically rejects the idea that the physical body of man shares any resemblance to that of God. The resemblance spoken of between Adam and God is not one of body but of the soul, specifically the intellecting mind:

¹³⁵ Chipman 2001, 24. Chipman also presents other views, such as the dust was collected from all over the world either suggesting the coming of the future races of humankind, the different organs of Adam’s body or of the fact the Earth could not refuse the burial of a matter made of its own kind. But the honour regarded to this dust is generally consistent.

¹³⁶ *Ibid.*, 14.

¹³⁷ Ezekiel 43: 13-17.

¹³⁸ Ratner in Pérez-Gómez and Parcell, eds. 1996, 228. See also Chipman 2001, 15 n.93.

¹³⁹ *Ibid.*

¹⁴⁰ Runia 1983, 221–228.

¹⁴¹ Philo 2000, 10.

and let no one think that he is able to judge of this likeness from the characters of the body: for neither is God a being with the form of a man, nor is the human body like the form of God; but the resemblance is spoken in reference to the most important part of the soul, namely the mind.¹⁴²

For Philo the material nature of the intellectual soul was light. Citing Moses in Genesis, he writes: “air and light he considered worthy of pre-eminence [...] the invisible divine reason perceptible only by intellect, he calls the image of God. And the image of this image is that light, perceptible only by intellect, which is the image of divine reason.”¹⁴³ To the earthy body of Adam is conjoined this divinely subtle material that is both airy and luminous. To ensure that the human body is able to contain this immense life force, Philo says, God made Adam’s body to be of the most perfect form. Towards this he, too, agrees with Talmudic sources in describing Adam to be made of “the most excellent clay of all earth,” conceived as an “abode or sacred temple.”¹⁴⁴ Then drawing on from his Platonic resources, he mentions that the physical body of Adam was made perfect by God who used “numbers which were suited to it [...] And after he had endowed it with fair proportions, he clothed it with the beauty of flesh, and embellished it with an exquisite complexion, wishing, as far as was possible, that man should appear the most beautiful of beings.”¹⁴⁵ While the physical body itself was not an imitation of God literally, Adam’s body still held within itself a share of God’s luminosity and breath. To ensure that its physical manifestation was equal to its model—the Divine breath—God formed the body with perfect proportions: “an imitation of a perfectly beautiful model must itself be perfectly beautiful.”¹⁴⁶

The creation of Adam reveals important primary ideas of the body as a prototype temple composed of earth, breath, and light, and measured out in perfect mathematical proportions. These themes, as we shall see throughout the thesis, become repeated motifs in both Christian and Islamic considerations in relating body to building.

¹⁴² Ibid., 69.

¹⁴³ Ibid., 31.

¹⁴⁴ Ibid., 137.

¹⁴⁵ Ibid., 138.

¹⁴⁶ Ibid., 139.

The Two Dimensions of Adam

As we know from the famous Biblical tale, both Adam and Eve (who was created out of Adam's rib) lived in the Garden of Eden with the promise of perfection and immortality.¹⁴⁷ The eating of the forbidden fruit broke that contract, as God had previously warned them of the consequences: "You shall not eat of the fruit of the tree that is in the middle of the garden, nor shall you touch it, or you shall die."¹⁴⁸ This meant that the perfect temple body of Adam and all those who come after him will eventually lose their perfect bodily beauty made of divine luminosity, perfect measures and proportions as mentioned by Philo. Instead, now they will age and eventually die. The luminosity, breath and even the earth that were used to compose the body will give way and return to where it came from: "When you [God] take away their breath they die and return to their dust."¹⁴⁹ Here we are posed with the two dimensions of Adam, one before and one after the Fall. The Adam from "before" constitutes, albeit briefly, the template for the perfect body. His body was perfect, its materiality was perfect, his measure was perfect, but after the sin of eating the forbidden fruit his body ceases in its ability to retain its form and would be consumed by time: "My spirit shall not abide in mortals forever, for they are flesh, their days shall be one hundred and twenty."¹⁵⁰ Yet God grants Adam and Eve a final gift as they are banished from Eden. This event, too, evokes the relationship between the body and building. Just before both Adam and Eve are rid from Eden, God directs them to measure out clothes to shelter their bodies—the very body as Philo mentioned God measured out in perfect proportions—and to protect them from the elements, and also at the same time to show them how to properly conceal their nudity.¹⁵¹ Shelter and decorum as we will discover later in the thesis were considered as a fundamental idea of architecture, and formed an important part of the architectural theories of Alberti and Filarete in the Renaissance (see Chapter Seven). Appropriately, the raising of cities was entrusted to Adam's first-born son Cain and his progeny.¹⁵²

¹⁴⁷Genesis 2:22–23. On the play of the Hebrew words *ish* and *ishah* see New Oxford Annotated Bible 2007, n.3.1–24.

¹⁴⁸*Ibid.*, 3:3.

¹⁴⁹Psalms 104:29. See also Job 34:14–15.

¹⁵⁰Genesis 6:6.

¹⁵¹*Ibid.*, 3:22.

¹⁵²*Ibid.*, 4:17.

2.2 The Body of Christ as the Church

For the sixth-century theologian Boethius (d. 525) there are three ages of the world made distinct by the unique actions of God. In each of the ages discussed we can also observe relationship drawn between building and body specifically in relation to salvation. The first age refers to Adam. We have already read how Adam was configured by God as a prototypical temple and then later, upon his expulsion, was granted knowledge to build shelter on earth. The second age belongs to Noah who is commanded to save the chosen by building the Ark of salvation with measures advised by God.¹⁵³ The third and final age is the resurrection of Christ. In describing this role of Christ, we find in the New Testament architectural motifs used repeatedly.¹⁵⁴ The unique nature of Christ, as God incarnate, offered it up easily as the Perfect Man in Christian thought.

In attempting to develop a Christian theory of architecture we see Christian thinkers returning again and again to scriptures to study the body of Christ as the resource to inform regarding proportions, measurement, and material which would become influential in the building of cathedrals from the eleventh century onwards. This will be discussed in detail later in Chapter Six. The section below will briefly introduce how the body and essence of Christ, as spoken of in the New Testament and in the writings of early Church fathers, offered architectural potentialities. Two key features can be observed in the study below. Firstly, the pre-dominant view that Christ was light. This idea would become a feature of medieval cathedral architecture. Secondly is the word “church.” In the New Testament this essentially referred to the body of Christ built up by the congregation of Christians rather than a physical place of worship. While Adam was created in time and made of earth, Christ is understood as one part of a threefold Godhood in Christianity—the Trinity. This had an immediate impact on the ways in which his being was to be understood. Boethius explains that the Trinity—Father, the Son, and the Holy Spirit—is best understood by the term “co-eternal” meaning that there is no chronological gap between the three.¹⁵⁵ Mathematically expressed, this translates as $1 \times 1 \times 1 = 1$: “the relation in the Trinity of Father to Son, and of both to Holy Spirit is like a relation to

¹⁵³ Ibid., 6:13–16.

¹⁵⁴ Boethius 2003, 59–71.

¹⁵⁵ Ibid., 53–55.

identicals.”¹⁵⁶ As this is the case, then Christ is definitively distinct from all other human beings, including Adam.

Christ as the Vessel of Salvation

Though Adam was the first human who was made in the image of God, he was never a God, a co-equal like Christ. Adam, as we read earlier, was made of earth and given life breath by God. The temple of Adam was a composition of clay with light. Christ on the other hand, as we read in the Gospel of John, was the very breath and luminosity Philo had described as the agent of creation,

In the beginning was the Word, and the Word was with God, and the Word was God. He was in the beginning with God. All things came into being through him, and without him not one thing came into being. What has come into being in him was life, and the life was the light of all people. The light shines in the darkness, and the darkness did not overcome it.¹⁵⁷

St. Augustine states in the *City of God* that the “Word” referred to here by John is the very “Wisdom” of God spoken out in the command we read in Genesis to create the world: “Let there be light.”¹⁵⁸ This light, as John has explained, materialized into the form of Christ. Christ in describing himself, later in the Gospel claims: “The Father and I are one,”¹⁵⁹ and also “whoever sees me sees Him who sent me. I have come as light into the world.”¹⁶⁰ Here we can see an essential and fundamental difference between Adam, meaning all of mankind, and Christ. Though Christ assumed the form of the human being, he was never viewed as having been composed of earth. Pelikan in his survey of early Christian sources has brought to our attention the belief that the body of Christ was “made up of elements of stars rather than of ordinary human flesh.”¹⁶¹ Pelikan also reveals that Adam, too, once had a body that was aglow with divine luminosity with the spirit overwhelming the nature of earth. With the Fall this luminescence degraded with the soul becoming sluggish and the opacity of the Adam’s earthiness becoming pre-dominant.¹⁶² In 1 Corinthians we read of this clear contrast: “Thus it is written, ‘the first man, Adam, became a living being’; the

¹⁵⁶ Ibid.,31.

¹⁵⁷ John 1.1–5.

¹⁵⁸ *City of God* xi.24; see also St. Augustine 2006, 263–4.

¹⁵⁹ John 10.30.

¹⁶⁰ Ibid.,12. 45–46.

¹⁶¹ Pelikan 1975, 77. See also 1 Corinthians 15. 39–40.

¹⁶² Ibid., 88.

last Adam became a life-giving spirit [...] The first man was from the earth, a man dust; the second man is from heaven.”¹⁶³

The role of Christ would be one of redemption from and reversal of Adam’s. Descended unto earth as light, through him one can return to the luminous spiritual state enjoyed once by Adam in the heavens: “Just as we have borne the image of the man of dust, we will also bear the image of heaven.”¹⁶⁴ This was only possible due to the sacrifice of Christ upon the cross. With this event, Christ who came from the heavens to earth starts his ascend upwards towards the heavens: the resurrection.

The Body of Christ as Architectural Metaphors

Referring to the resurrection and salvation, and using an architectural motif Christ says: “I am the gate. Whoever enters by me will be saved.”¹⁶⁵ This architectural idea is developed further in the gospel when essentially Christ describes his body as the temple of God. Addressing the Jewish community, who were unconvinced of him, at the site of the temple that was being rebuilt he proclaims: “‘destroy this temple, and in three days I will raise it up.’ The Jews then said, ‘This temple has been under construction for forty-six years, and will you raise it up in three days?’ But he was speaking of the temple of his body after he was raised from the dead.”¹⁶⁶ As the light of Christ supersedes the earthy body of Adam, so does the spiritual body of Christ supersede the physical temple. Commenting on this J. G. Davies writes that Christ wanted to destroy the temple and that at the point of his death the veil in the Jewish Temple was torn. The interpretation here being that the death of Christ “is also the end of the Temple” and a physical “holy place is explicitly rejected” in favour of a new understanding that “worship is declared to be not a merely human act but the act of God in the community through the Spirit.”¹⁶⁷

In place of the physical temple a new imagination regarding the spatiality of worship arises in early Christianity. The site of worship was not to be determined by a fixed place, but rather one that is formed by occupation of a place to pray anywhere: “for where two or three are gathered in my name, I am among them.”¹⁶⁸ This returns us to Christ’s proclamation of destroying the temple building and

¹⁶³ 1 Corinthians 15.45–7.

¹⁶⁴ Ibid., 15:49.

¹⁶⁵ John 10.9.

¹⁶⁶ Ibid., 2.19–22.

¹⁶⁷ Davies 1968, 2–3.

¹⁶⁸ Matthew 18.20.

replacing it with the temple of his body. This temple was in this basic sense the building and re-building of the body of Christ. Simply put, and in summary, it is the gathering of the congregation that is the building of the church and body of Christ at the same time. As Davies, citing St. Paul, explains that for the early Christian “no building was the numinous locus of his worship; that locus was now the Christian community in the world. ‘We are the temple (*naos*, sanctuary) of the Living God’, wrote St. Paul [...] The New Testament writers believed that Church is the Body of Christ and the Temple of the Holy Spirit.”¹⁶⁹

St. Paul in describing the building of this body of Christ in architectural terms writes: “according to the grace of God [...] like a skilled master builder I laid a foundation [...] For no one can lay any foundation other than the one that has been laid; that foundation is Jesus Christ.”¹⁷⁰ But the “edification” of the building, which builds it up from the foundation of Christ as St. Augustine says—referring to the verse from 1 Corinthians, “do you not know that your bodies are members of Christ?”¹⁷¹—lies in the spiritual actions of the Christian community. This effectively for him is the building of the Church and the body of Christ, which is one and the same.¹⁷² Speaking in a similar vein, that it is the body of the Christian community which is the building, we read in 1 Peter: “come to him a living stone, though rejected by mortals [...] let yourself be built into a spiritual house.” This invitation was yet again to build upon the foundation, which was Christ: “see I am laying in Zion a stone, a cornerstone, chosen and precious.”¹⁷³ For St. Augustine this church is both like a building put together perfectly and a body fitted together well: “Behold what the perfect man is—the head and the body, which is made up of all the members, which in their own time shall be perfected [...] It is of the edification of this body [...] it is [...] said, ‘For the perfecting of the saints, for the work of the ministry, for the edification of the body of Christ’.”¹⁷⁴ Augustine draws the main thrust for this argument from 1 Corinthians, in which St. Paul describes the fitting together of the church, the body of Christ, as one, which is of “many parts, yet one body.”¹⁷⁵ That the body of Christ can be re-enacted again and again is also founded

¹⁶⁹ Davies 1968, 3.

¹⁷⁰ 1 Corinthians 3.10–11.

¹⁷¹ *Ibid.*, 6.15.

¹⁷² *City of God* xxii.18.

¹⁷³ 1 Peter 2.4–7.

¹⁷⁴ *City of God* xxii.18.

¹⁷⁵ 1 Corinthians 12.20.

upon the important Christian ritual of the Eucharist, where the body of Christ is realized in the material form of bread and wine.¹⁷⁶ How this was informative in the building of medieval cathedral will be elaborated below in Chapter Six.

The exhortations of St. Paul and St. Augustine amongst others for the Christian community to build and perfect the body of Christ by way of worship and good actions were for a singular reason, to be saved by the Saviour Christ.¹⁷⁷ Here we return to the symbolic moment of Christ's earthly death upon the cross. For St. Augustine the stature of Christ upon the cross was a measure of perfection. He relates that Christ will assume the same body in the future during the general resurrection as well.¹⁷⁸ One important incident he narrates, offers up the proportions of Christ's body when he was hung on the cross. Interestingly we learn of this in the building of Noah's Ark, which St. Augustine describes as

certainly a figure of the city of God sojourning in this world; that is to say, of the church, which is rescued by the wood on which hung the Mediator of God and men, the man Christ Jesus. For even its very dimensions, in length, breadth, and height, represents the human body in which He came as it had been foretold. For the length of the human body, from the crown of the head to the sole of the foot, is six times its breadth from side to side, and ten times its depth or thickness, measuring from back to front: that is to say, if you measure a man as he lies on his back or on his face, he is six times as long from head to foot as he is broad from side to side, and ten times as long as he is high from the ground. And therefore the ark was made 300 cubits in length, 50 in breadth, and 30 in height [...] and the fact it was ordered to be made out of squared timbers, signifies the immovable steadiness of the life of the saints; for however you turn a cube, it still stands. And other peculiarities of the ark's construction are signs of features of the church.¹⁷⁹

¹⁷⁶ See 1 Corinthians 11.23–26

¹⁷⁷ *City of God* xxii.22.

¹⁷⁸ *Ibid.*, xxii. 15.

¹⁷⁹ *City of God* 15:26.

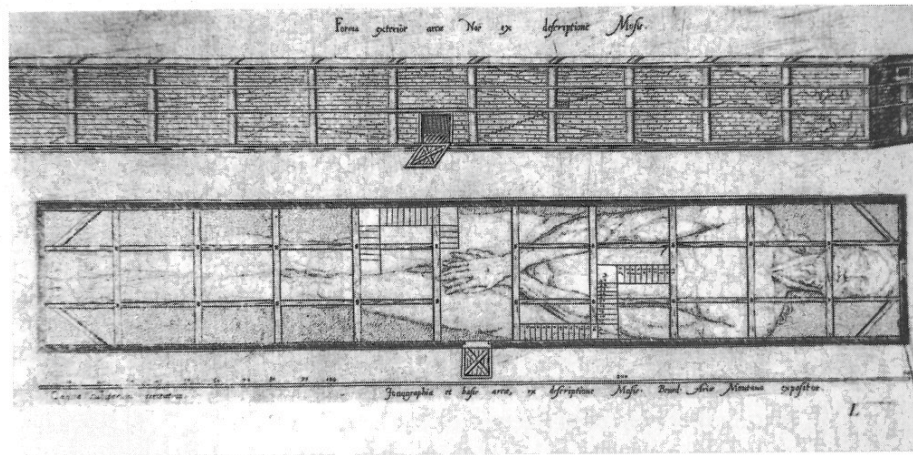


Fig. 2.1 Benito Arias Montano's illustration of the dead body of Christ fitted into Noah's Ark
(Source: Pérez-Gómez and Parcell (eds.) 1999, 148.)

St. Augustine's views, as we will read later, were highly influential in cathedral architecture in the Middle Ages. His views in turn were shaped by his interpretations of the Bible. Two key ideas that were introduced above—one being Christ's predominant nature being made of light, and the other that the church is the body of Christ—would become important features of these cathedrals. In the early years before the great cathedrals were built, the fundamental notion of Christian spatial sensibility was formed around the idea of the building of a Christian community, not a physical building, as the church. It was this community that built and perfected the body of Christ, "the temple of the Living God."

CHAPTER 3

THE BODY AND THE MOSQUE

3.1 The Model of Muḥammad

Born in Mecca around 570, Muḥammad (d. 632) received his first revelations from God when he was about forty years old. The revelations, that came to be known as the *Qur'ān*, called on him to spread the divine message for people to return to the worship of the one God, *Allāh*.¹⁸⁰ These revelations, transmitted to Muḥammad by the angel Gabriel, continued over twenty years until Muḥammad's death in 632. The *Qur'ān* narrates stories, such as that of Adam, Noah, Joseph, Moses, and Christ, that would be familiar to the readers of the Old and New Testaments. The Islamic tradition also teaches that Adam was the first human being to be created and that he was made in the image of God.¹⁸¹ While Adam is the first human being, it is Muḥammad who was the first creation of God. Just as Christ was, God creates Muḥammad as a pre-eternal illumination from which all other beings are created.¹⁸² Muḥammad is the first of creation and the last of the prophetic lineage that started with Adam. He was the chosen one with whom divine revelation becomes perfect and complete. The Muḥammadan Light, the source of all beings, would be influential throughout the history of Islam and would inform ideas regarding body, space, and architecture, as it will be elaborated in the chapters below.

In the Islamic tradition the definitive idea of the perfect man is identified with its prophet, Muḥammad. He was blessed with the most beautiful of forms and perfect proportions. The Andalusian historian and jurist Qāḍī 'Iyāḍ (d. 1149) who collected reports detailing the qualities of Muḥammad in describing his bodily features starts by affirming without doubt that Muḥammad was the best of creations: "The Prophet is the worthiest of all mankind, the greatest of them in position and most perfect of them in all good qualities and virtue."¹⁸³ Qāḍī 'Iyāḍ continues by stating that it was an accepted idea, without dispute, that the body of Muḥammad was one that was most beautiful in both form and proportion. Despite stating this Qāḍī 'Iyāḍ, unlike St. Augustine's description of the body of Christ, does not offer mathematical dimensions or proportional ratios. In its place we find a rather detailed literary description utilizing metaphors in presenting Muḥammad's physical features:

¹⁸⁰ Mattson 2008, 14–21; Lings 2007, 43–45; Haleem 2005, 1–14.

¹⁸¹ *Qur'ān* 15:28–9. Unless stated I have used Abdullah Yusuf Ali's translation of the *Qur'ān* throughout; Shafi 1998, v.8, 825–826 (henceforth *Ma'riful Qur'ān*)

¹⁸² See Schimmel 2008, 123–143 and Böwering 1980, 153–157.

¹⁸³ Qāḍī 'Iyāḍ 2003, 33. On the veneration of the Prophet's physical and spiritual nature by Muslims see Schimmel 2008, 24–55.

He had the most radiant colouring, deep black eyes which were wide-set and had a sort of red tint to them, long eyelashes, a bright complexion, and aquiline nose, and a gap between his front teeth. His face was round with a wide brow and he had a thick beard which reached his chest. His chest and abdomen were of equal size. He was broad-chested with broad shoulders. He had large bones, large arms, thick palms and soles, long fingers, fair skin and fine hair from the chest to the navel. He was neither tall nor short, but between the two. In spite of that, no tall person who walked with the Prophet seemed taller than him. His hair was like a flash of lightning or they seemed as white as hailstones. When he spoke, it was like light issuing from between his teeth. He had a well-formed neck, neither broad nor fat. He had a compact body which was not fleshy.¹⁸⁴

Despite the rather comprehensive description, as the one recorded by Qāḍī ‘Iyād, given the taboo in Islam towards making images of human beings, the memorializing of Muḥammad’s body did not necessarily materialize as an aesthetic theory for the purposes of paintings, sculpture, or architecture.¹⁸⁵ Rather Muslims “preserved” the form of Muḥammad by imitating his practices, following the command given in the *Qur’ān*: “If ye do love Allāh, Follow [Muḥammad and] Allāh will love you.”¹⁸⁶ This meant that an observant Muslim went about daily rituals such as bathing, greeting, and dressing following the way and in the manner of the Prophet. This dictated, for example, the number of times one drew water to gurgle their mouth to wash before prayer and even the length of their pants. The following of the Prophetic model in itself was considered as a way of worship and drawing near to God. Perhaps the most important imitation of the Prophet was in the performance of the five daily prayers, known in Arabic as *ṣalāt*. The study of the prayer, established by Muḥammad, reveals the earliest and most fundamental principles concerning the Islamic tradition’s articulation of the relationship between body and building.

3.2 The Body as a Mosque

As the leader of the new Islamic faith, Muḥammad played an important role in informing about its sacred architecture by building the first mosque. In 622, facing unceasing hostility in Mecca, Muḥammad sought safe haven in the city of Medina (about three hundred kilometres north of Mecca) to establish what was to become the first Islamic state. Upon arrival into the city one of the first things Muḥammad did

¹⁸⁴ Ibid., 33–34.

¹⁸⁵ On the subject matter of depicting life-forms in the Islamic tradition see Belting 2011, 55–67.

¹⁸⁶ *Qur’ān* 3:31

was to secure a site to build a mosque so that the young community could gather to pray. But it is important to note that Muslims had already established their ritual prayer prior to this mosque being built. In fact one of Muḥammad's sayings, *aḥādīth*, offers the idea that the body in prayer itself can be understood to be a place of prayer: "the earth has been made sacred and pure and a mosque for me, so whenever the time of prayer comes for anyone of you he should pray wherever he is."¹⁸⁷ Simply put, a mosque becomes manifest when a Muslim claims a spot of land in front of him and uses it to pray. This idea of the body in worship becoming in itself the place of worship echoes how St. Paul viewed the church primarily not as a physical building but the space configured by a believer in worship.¹⁸⁸

The mosque in Arabic is known by the term, *masjid* from the word *sujūd*, which refers to the posture of the body in prostration during the prayer. The mosque is therefore essentially a place where prostration is established. The prostration is one of several bodily postures performed in the daily prayer. According to Nasr "the space of the mosque" is one which is "created in accordance with the nature of the most important rite performed in the mosque, namely, the ritual prayers."¹⁸⁹

The phenomenon of the ritual being a precursor to architecture is one that is found to be common in many pre-modern cultures. For example, Pérez-Gómez describes the origins of Western art and architecture to be found in religious rituals and performances. He specifically refers to the choral performances of poetry, music, singing, and dance to be the basis of the paradigmatic Western architectural spaces of the labyrinth and the Greek theatre. In rituals the body in performance defines and experiences space, time, and orientation, the core elements, which become "frozen" and materialized into architecture later.¹⁹⁰

When we study the body in the Islamic prayer we discover how, by way of its orientation and geometry, a primary system of architectural understanding regarding body and building unfolds. It is an understanding that pre-figures the building of the physical mosque itself and elaborates what Muḥammad meant when he said that wherever a Muslim establishes his prayer that place becomes a mosque.

¹⁸⁷ Muslim 1990, no. 1058 (henceforth *Sahih Muslim*); see also Al-Ghazālī 1986, 32.

¹⁸⁸ See for example 1 Corinthians 3.10–11 and 1 Corinthians 6.15.

¹⁸⁹ Nasr 1987, 38.

¹⁹⁰ Pérez-Gómez 1994, 9–13. Pérez-Gómez in his study reflects on the term *chora*, which Plato uses to describe space in *Timaeus*. Drawing on the hermeneutical connection between *chora* and choreography, Pérez-Gómez offers the idea that the beginnings of Western architecture began with the choral performance that evolved into the buildings such as dance platforms, theatres, and later temples.

The Body's Time and Orientation in Prayer

The beginning of the prayer is in assuming an upright position facing the *Ka 'ba* in Mecca. The *Ka 'ba* is a cuboid structure venerated by Muslims universally to be the first temple that was established on earth (Fig. 3.1). This first temple is also known as the “House of God.” Muslims believe that Adam laid the first foundations of this structure, affirming its very ancient status.¹⁹¹ The *Qur 'ān* in its description of the *Ka 'ba* relates how Abraham and his son Ishmael were instructed by God to establish this structure as a place of pilgrimage.¹⁹² Believed to be at the centre of the cosmos, the *Ka 'ba* (Fig. 3.2) is set up in such a way that its four corners face the four cardinal points.¹⁹³ These four corners of the *Ka 'ba* are known as the *arkan* (pillars). The *Ka 'ba* plays an important role in the daily life of the Muslims, as they must face the *arkan* to pray wherever they may be. This directionality towards the *Ka 'ba* is known as the *qibla*.¹⁹⁴ This marks the first spatial expression of the prayer: the body oriented towards the *Ka 'ba*.

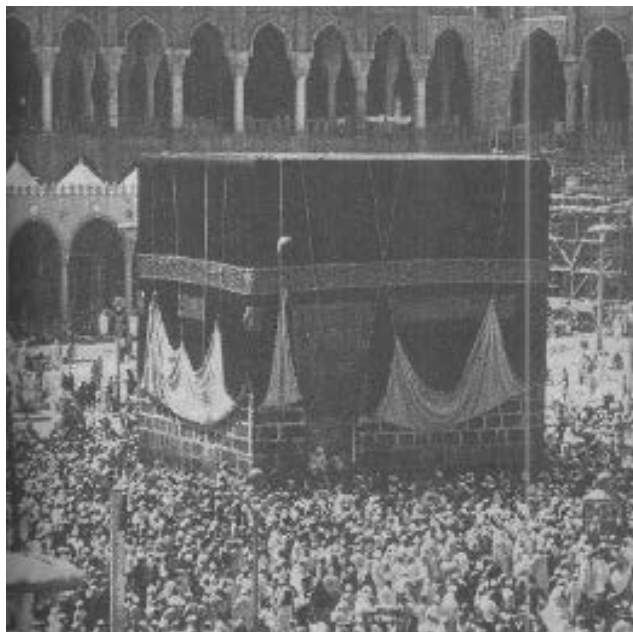


Fig. 3.1 The *Ka 'ba*, the House of God, in Mecca being circumambulated by pilgrims
(Source: Nasr 1987, 43.)

¹⁹¹ Al-Qu'āitī 2007, 6-7

¹⁹² *Qur 'ān* 14:37.

¹⁹³ For a brief history of the *Ka 'ba* see Al-Qu'āitī 2007. Al-Qu'āitī in his study reveals how for the Muslims the *Ka 'ba* is understood to be a central axis of the universe directly below the Divine Throne of God. See also Akkach 2005, 181 and Burckhardt 2009, 1–6.

¹⁹⁴ Al-Jazīrī 2009, 255.

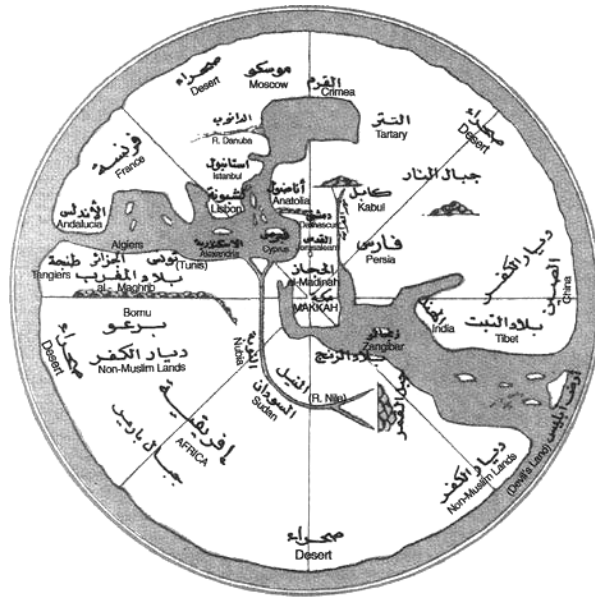


Fig. 3.2 A map by al-Jilahi, 10th c with the Ka 'ba at the centre of the world.
(Source: Al-Qu'aiti, 2007, pg. vi)

The establishment of this orientation is followed by the chronological organization of the obligatory five daily prayers. The timings of these prayers follow the tracing of the sun's path from its rising to its setting. The first prayer of the day begins with the first light (*fajr*), this is then followed by the midday prayer (*dhuhr*), the late afternoon prayer (*'aṣr*), sunset (*maghrib*), and concluding with a prayer that begins with the last light (*'ishā*). Thus with each prayer the body sets up its two coordinates in relation to space and time. One of it is in relation to the direction it faces, which is towards the Ka 'ba, and the other being the body concordant with the established times of prayer.

The occasioning and directionality of the prayer space is further accentuated with the setting up of a boundary in front of the praying person, which is known as the *sutra*. The term *sutra* in Arabic literally means “a shield and screen.”¹⁹⁵ In the context of the prayer, this boundary is set up about 1.4 metres from the foot of the worshipper towards the direction of the *qibla* (Photo 1). The *sutra* is preferably established by a vertical element such as a pillar or a wall, though this can be substituted by a prominent stick, a rug or at the minimum “a line drawn in the ground either length wise or crosswise.”¹⁹⁶ In the absence of any markings, the boundary of the *sutra* is determined by the estimated length of the body when it is in prostration.

¹⁹⁵ al-Jazīrī 2009, 349.

¹⁹⁶ Ibid. see also Akkach 2005, 168–169.

The demarcation of the boundary of the *sutra* is to reinforce the Prophetic command that the space in front of the person in prayer must be respected and not crossed into. The Prophet described this cordoned off space as a territory in which the worshipper is in conversation with God. If anyone chooses to interrupt this zone, then permission is given to resist: “when any one of you prays, he should not allow anyone to pass before him, and if he refuses, he should then be forcibly resisted.”¹⁹⁷



Photo 1. Position of *sutra* in relation to the worshipper who is about to start his prayer

The orientation (direction towards the *qibla*), the distinct prayer times and strict boundary (*sutra*) offers understanding of the basic spatial field of the body in Islamic prayer (Fig. 3.3). We can now turn to the performance of the prayer ritual itself to recover further understanding how the body in prayer relates to space.

¹⁹⁷ *Sahih Muslim* no.1025.

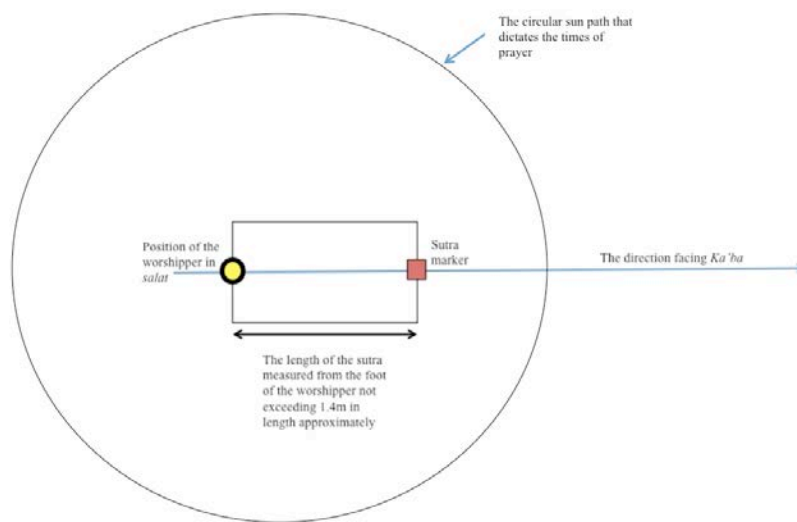


Fig. 3.3 The boundary and orientation of a person performing prayer
(Source: Author.)

The Body's Unfolding of Directions in Prayer

The Islamic prayer is a sequentially choreographed bodily ritual. There are four key body postures in each cycle: standing (*qiyām*), bowing (*rukūʿ*), prostration (*sujūd*), and sitting (*julūs*) (Fig. 3.4).¹⁹⁸ When we study each posture, it presents an axial ordering, and as a collective it informs of a six-sided movement.

The famed twelfth-century theologian and Sufi al-Ghazālī (d. 1111), in his advice on how to perform prayer in conformity with the Prophetic model, describes how the body in each posture presents an axial directionality. He starts with the standing posture. This must be performed by standing absolutely upright, with the weight of the body equally distributed on both feet, set about four inches apart for perfect stability. One is expected to face the *Ka'ba* strictly, without fidgeting and “not turning left or right.”¹⁹⁹ With this instruction we find the body in the standing posture establishing a firm vertical and upward thrust. The bowing, on the other hand proposes the body adopting the posture of the horizontal: “[The worshipper] locks the knees upright, straightens the back, neck and head that they are like one level horizontal plane.”²⁰⁰ The posture of prostration grounds the body downward ensuring seven main bodily points, including that of the forehead, makes contact with the ground: “He then drops into prostration [...], putting his knees and his forehead and

¹⁹⁸ Akkach 2005, 202.

¹⁹⁹ Al-Ghazālī 2013, 62–63.

²⁰⁰ Ibid., 64–5

his open hands on the ground; first the knees, then the hands, then the nose and forehead.”²⁰¹

This spatial structuring of the prayer, as Akkach has revealed through his study of Islamic mystical sources, especially that of the thirteenth-century Sufi Ibn ‘Arabī (d. 1240), is a representation of the unfolding of six-directions in space—left, right, front, back, up, and down—effectively forming a three-dimensional cross (Fig. 3.5). As a geometric form this assumes the form of a cube based on a square plan (a quadrature). For Sufis like Ibn ‘Arabī, Akkach tells us, this constituted the geometrical illustration of not only the manner in which God structured the cosmos but also the microcosm, the human body: “Sufis see the spatial tendencies of the prayer as an expression of the three-dimensional cross, the underlying divine structure of both human and cosmic formation.”²⁰² In fact the spatial structure of the cosmos was one that was drawn out initially from a human body itself: the body of Muḥammad. In his *Shajarat al-Kawm* (*The Tree of Being: An Ode to the Perfect Man*) Ibn ‘Arabī describes that the cosmos emerged from a Tree of Being that grew out of the illuminated quintessence of a seed planted by God. The illuminated quintessence was Muḥammad, the “origin-source of all and everything that comes into being.”²⁰³ The sapling which emerged from the ground formed the foundational axial cross from which the entire cosmos became realized: “First, three shoots grew from the sacred seed of the Tree. One of those shoots bent to the right and grew in that direction [...] Another grew towards the left [...] The third shoot drew tall and upwards [...] And the Tree of Being grew, reaching the far heavens. Its lower branches became the worlds of matter; its higher branches became the worlds of ideas.”²⁰⁴

This original formation of the cosmos and its geometric form can also be seen in the way the human body is ordered. Ibn ‘Arabī also draws attention to the saying of Muḥammad that the human “formation will be established upon the sacrum.” For Ibn ‘Arabī the sacrum “represents the center whence the body springs forth and upon which it is symmetrically established.”²⁰⁵ The body in its movements, like a compass, renews the directional nodes established by the cosmic tree: “In humans, the

²⁰¹ Ibid., 64–5.

²⁰² Akkach 2005, 202.

²⁰³ Ibn ‘Arabī 2005, 108 (henceforth *Shajarat al-kawm*).

²⁰⁴ Ibid., 100.

²⁰⁵ Akkach 2005, 88.

downward movement unfolds the lower part of the body, from the sacrum to the feet; the upward movement unfolds the upper part of the body; and the outward movement unfolds the body in the four directions.”²⁰⁶ These movements are repeated in a choreographed fashion in the prayer. All the movements are hinged around the lower pelvis about which the body rotates to perform the postures of bowing, prostrating, and sitting. Ibn ‘Arabī in his *Fuṣūṣ al-Ḥikam (Ringstones of Wisdom)* draws attention to how this geometry, seen in the prayer, comprehensively demonstrates the structure of all beings.

[T]he Prayer—as the world is conveyed from non-existence into existence by virtue of an intelligible motion—comprises all motions, which are three: upright motion, which is when the praying person stands; a horizontal motion, which is when the praying person bows; and a downward motion, which is when he prostrates. The motion of man is upright, the motion of animals is horizontal, and the motion of plants is downward. In themselves inanimate objects have no motion.²⁰⁷

As Dagli in his commentary observes, Ibn ‘Arabī here is alluding to the idea of how the geometry of the prayer confirms that man is the totality of cosmos, a microcosm: “The Prayer is a quintessentially human act, and like the human reality expresses a totality in its very form. Man is in the image of the world, and the motions of man’s prayer are in the image of the motions of the world: vertical, horizontal, and downward.”²⁰⁸

The six-directional unfolding and the three-dimensional cross in its geometric form are crystallized in its planar form as a square and volumetrically as a cube. In the Islamic tradition this naturally finds its architectural correlation in the *Ka‘ba*. The geometric structure and spatial unfolding of the body in prayer resemble and mirror the very structure it faces in the act of praying. In fact this mirroring between the body and the building of the *Ka‘ba* is one acknowledged by the Sufis who consider the “cube-like form [of the *Ka‘ba* as] a crystallization of the cube of man,” clearly referencing the shared configuration of the three-dimensional cross (Fig. 3.6).²⁰⁹

²⁰⁶ Ibid., 89. It is interesting note that unlike Vitruvius, Ibn ‘Arabī in agreement with Alberti identifies the centre of the human being to the lowest point of the pelvis. For Alberti’s proportioning of the human body and his differentiation with Vitruvius see Aiken 1980, 83 and 93–4.

²⁰⁷ Ibn ‘Arabī 2004, 291.

²⁰⁸ Dagli in ibid., 291, n.60.

²⁰⁹ Akkach 2005, 180.

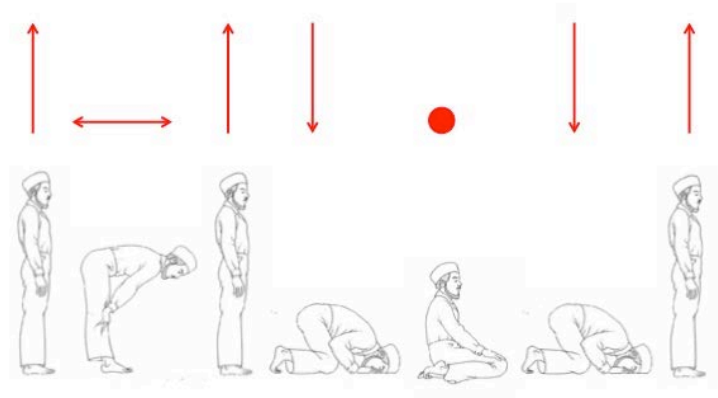


Fig. 3.4 Spatial coding of the body in prayer (Source: Chisti 1985.)²¹⁰

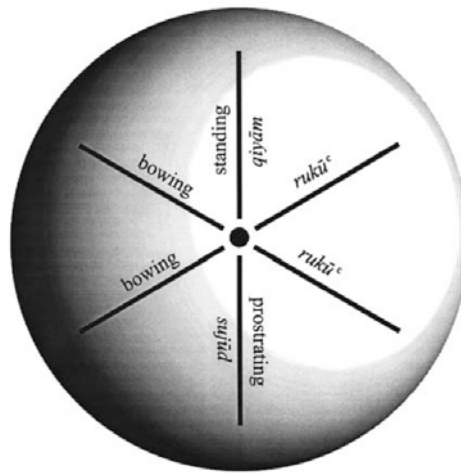


Fig. 3.5 The six-sided unfolding of human spatiality being re-enacted in the prayer (Source: Akkach 2005, 203.)

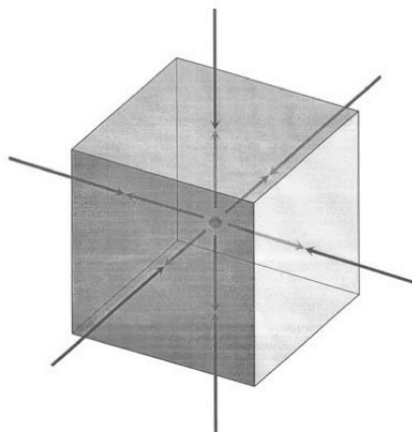


Fig. 3.6. The three-dimensional cross as a shared spatial configuration between the human body and the Ka 'ba (Source: Akkach 2005, 180.)

²¹⁰ The orthographic arrows used to notate the prayer postures are adapted from Akkach 2005, 201.

3.3 The Mosque and the Three-Dimensional Cross

We find the paradigmatic first mosque Muḥammad established in Medina sharing similar spatial and geometric articulations of the body in prayer as observed above. The Prophet's mosque was a simple structure based upon a square plan measuring about 100 cubits on all sides. Entrance to the mosque was via an open courtyard made accessible from three sides (see Fig 3.7 and 3.8). The key feature of this simple structure was the treatment to the *qibla* wall, on the southern end, which was sheltered and colonnaded by two rows of palm tree trunks (see Figs. 3.7 and 3.8).²¹¹

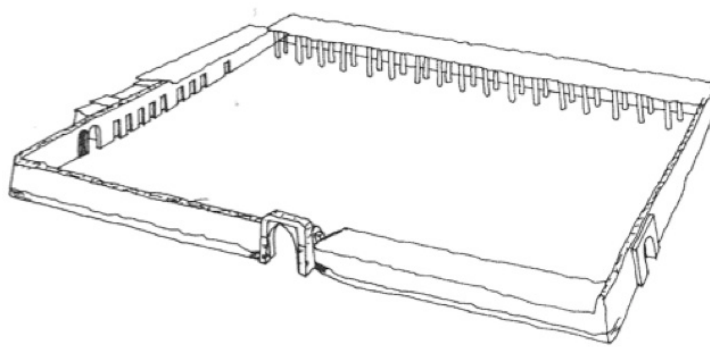


Fig. 3.7 The Prophet's Mosque, the colonnaded side marks the *qibla* wall facing Mecca
(Source: Hillenbrand 1994, 39.)

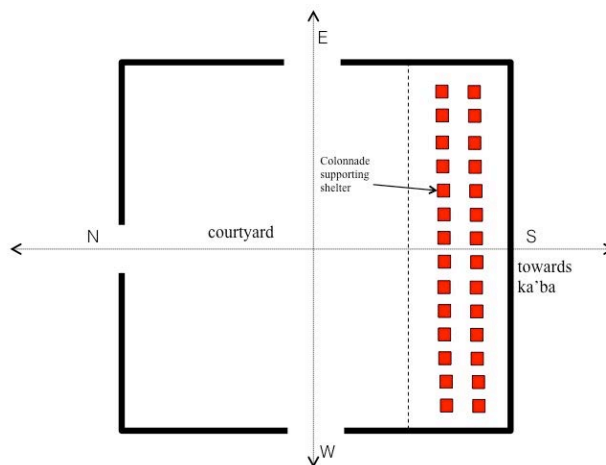


Fig. 3.8 Schematic diagram of the Prophet's Mosque.

²¹¹ Ibid., 194 ; *Sahih Muslim* no.1068; Al-Qu'āṭī 2007, 53–56. Initially the sheltered colonnade was at the northern wall, facing Jerusalem, the original *qibla* of the nascent Islamic community. Later a divine directive was given to Muḥammad that the prayer direction was to be changed to face the *Ka'ba* in Mecca. At this juncture the shelter was moved and installed on the northern wall with the previous made entrance to the mosque sealed. Since that day onwards Muslims have used the *Ka'ba* as their undisputed *qibla*.

The design of the mosque in its primary form emphasizes the same quadrature observed in cubic form of both the *Ka'ba* and the body in prayer. The three-way entry together with the open courtyard presents the mosque to be generated out of a conspicuous vertical axis intersected by dual horizontal axes—the three-dimensional cross—thus drawing a link between this model and the primordial structuring of the human body. While there is no evidence that Muḥammad intended with the design of his mosque to establish the abovementioned axuality, this simple model nevertheless came to be adopted and repeated in the design of mosques until today all over the world. One would notice that in many mosques, the entrance to the main prayer hall is by way of an open courtyard following the Prophetic model (Fig. 3.9). Also usually the main prayer hall allows for entrances on three of its sides, with the *qibla* wall marked by a niche in the middle, known as the *miḥrāb*, accentuating the mosque's directional link to the *Ka'ba* (Photo 2).

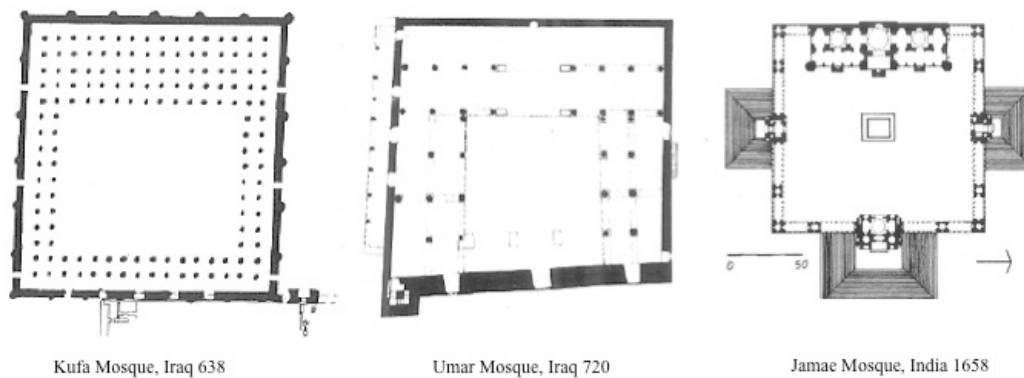


Fig. 3.9 Plans of mosques that tend to be largely reflective of mosque designs around the world across the ages. All the plans illustrated above illustrate the emphasis of the quadrature of the designs.
(Source: Michell (ed.) 2000)



Photo 2. The *mihrāb* at the centre of the *qibla* wall, Masjid Al-Falah in Singapore

Akkach in his study has observed that this spatial structure, which he describes as expanding “from a focal point” and evolving “symmetrically about a central axis, resulting in a balanced synthesis in all directions,” is utilized ubiquitously in Islamic cultures in the designs of mosques, courtyard gardens, and mausoleums. In such spaces, the centre becomes prominent in the way the openings are arranged thus bringing to consciousness the directions converging upon one who is occupying the space.²¹² It can be said that the model of the mosque Muḥammad built, and the subsequent models that followed, emphasizes to one who stands up to pray within it, that the worshipper is the centre of a six-directional axis (Photo 3).

²¹² Akkach 2005, 154–156.

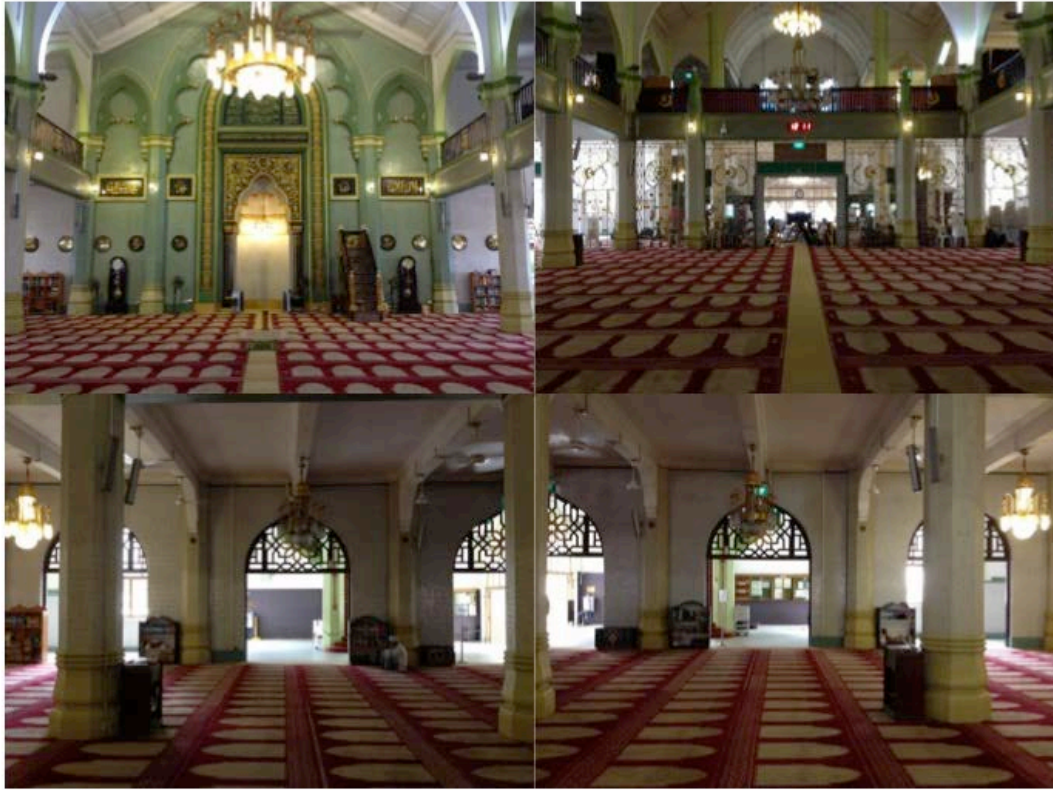


Photo 3. Photographs taken from the centre of Masjid Sultan in Singapore. Completed in 1928, this is the largest and perhaps the most well-known mosque in Singapore. Images clockwise from top left: facing the *qibla* wall with the mihrāb situated right in the centre [northwest]; entrance opposite to the *qibla* wall [southeast]; northeast entrance; southwest entrance.

The Spatial Structure of the Congregation Prayer

While it was acceptable for one to perform the daily prayers on one's own, Muḥammad strongly urged his followers to establish their five daily prayers communally led by an *imām* (prayer leader) preferably within the confines of a mosque. In this sense, the mosque became a focal point for the community to gather regularly. On top of this, the mosque hosts the weekly Friday communal prayer and sermon (similar to Sunday Mass in a church). The mosque also serves to organize community events, festival worship, and in the days of the Prophet, a place to receive foreign dignitaries and guests. But the basic and most important function of the mosque continues to be a place in which the five daily prayers are conducted in a congregation led by an *imām*.²¹³

When the time for prayer arrives, the congregation gathers behind the *imām*. The location of the *imām* is at the front of the group. He is the marker point and the

²¹³ In his biography of the Prophet, al-Būtī identifies the building of a mosque to be the “First Foundation” of an Islamic society following the example of Muḥammad in Medina. He writes that the ties of the young community were strengthened by meeting one another regularly at the mosque while attending it for congregational prayers. al-Būtī 2007, 251–254.

boundary of the group. The *imām*'s position is the indicator of the direction towards the *Ka'ba*. Once the *imām* has assumed his position the congregation forms rows behind him. The forming of the rows has a particular hierarchical order following the advice of Muḥammad on how the space is to be organized and occupied. One is to fill up the front row to the right first, then only to the left. The row is formed width-wise first (right to left) then after that it expands in length (the layers of rows forming behind the *imām*) (Photo 4).

The role of the *imām* is to unify the congregation in establishing the prayer. As the leader, he is entrusted to give commands so that the worshippers formed in rows behind him move from one prayer position to another in unison. This he does by way of vocal commands. This means that even if one is standing at the back and cannot visually connect with the *imām*, his actions are nevertheless dictated by the sound of the commands he is able to hear.²¹⁴ In this manner the control of the *imām* reaches as far as his voice. This meant that the formation of the congregation is not determined by the physical boundaries of the mosque. In explaining this phenomenon, Akkach states that the spatial organization and relationship between the *imām* and the worshippers following him offers the view that the acoustic space is more privileged than the visual—the agency of invocation over the agency of depiction. Describing this spatial organization he writes: “Islamic prayer thus understood does not depend on the eye and the sense of seeing [...] rather, it depends on the ear and the sense of hearing, bearing a strong affinity with auditory or acoustic spaces.”²¹⁵

The *imām*'s position is at the front centre of the congregation. Muḥammad is reported to have said: “Keep the *imām* in the centre and fill in the opening space.”²¹⁶ The front rows are said to be the most blessed, as they are the rows in which the angels are said to join in.²¹⁷ In this manner we see the spatial pattern of the congregation unfolding. Beginning from the tip, the *imām*, and then cascading downwards, shifting to the right, then to the left, with the front row completed followed by the second, third and so on. Muḥammad gave advice to his followers to vie towards the front and the right side of the *imām*: “Verily Allāh and His [Angels] shower blessings upon those who are on the right flanks of the rows,”²¹⁸ and to fill up

²¹⁴ Akkach 2005, 195.

²¹⁵ Ibid., 196.

²¹⁶ Al-Tabrizi 1994, #1103.

²¹⁷ Sabiq, vol.2, 65.

²¹⁸ Al-Tabrizi 1994, #1096

the front rows: “Verily Allāh and His Angels shower blessings upon those who are near the first row, and no step is more pleasing to Allāh than that of a servant which he takes in order to find his place (in the first row) for observing prayer (in congregation).”²¹⁹

Once the worshippers are arranged behind the *imām* we find further calibration before prayer can begin. The worshippers are told to be mindful that their rows are straight and assembled tightly without gaps. Muḥammad used to ensure the rows were straight before he began the prayer in his role as an *imām*: “Allāh’s Messenger [...] used to arrange our rows straight as we got up for prayer and [only after] we had straightened them he [would] commence the prayer.”²²⁰ The tightening of the row is to be made by standing shoulder to shoulder, ensuring there are no gaps (Photo 4).



Photo 4. Formation of the congregational row behind the *imām*

This sideways “tightening” is contrasted with the space that is opened up between the rows. Enough space must be maintained between each row of worshippers so that one has enough room to prostrate (Photo 5). We find in this arrangement of the rows, the worshipper being made alert to his position from all six directions. First, one must observe that he stands vertically upright. Then with his shoulders butted against his fellow worshippers he is constantly made cognizant how space is ordered on his left and right, to ensure the row is straight, and also his front and back—so that he has

²¹⁹ Ibid., no.1095

²²⁰ Ibid., no.1097.

enough space to prostrate and also those behind him can enjoy the same allowance too.



Photo 5. In the arrangement of the rows, the worshipper is made alert to his position in all six directions. The image also shows how the sideways tightening between worshippers is contrasted with the gap created in front and behind.

When we observe the arrangement of the *imām* and the congregation behind him, it becomes evident how at least two other key features of the mosque's spatial layout is to be found crystallized in it. First is the *qibla* wall. One prominent aspect of the Prophet's mosque is the colonnaded shelter along the *qibla* wall (Fig. 3.7 and 3.8). Both the colonnade and the *qibla* wall mirror the worshippers arranged and facing towards it. The columnar arrangement, running the breadth of the mosque also reflects the manner in which the congregation is formed. It is always breadthwise before it starts to expand in length.²²¹ It is also interesting to note that the Prophet only built two rows of columns and he made it to be close to the *qibla* wall. This perhaps can be taken to represent by use of architectural elements—the columns—in conveying the importance of occupying the front few rows and being closer to the *imām*.

The second feature is the *miḥrāb*, although the *miḥrāb* was a later invention and not part of the original design proposed by Muḥammad. It is claimed that the first *miḥrāb* was introduced in the Prophet's mosque around 709 by the Caliph 'Umar ibn Abdal Azīz when he took charge of its expansion.²²² This soon became a main feature of mosque architecture in general throughout the Muslim world. Usually a concave

²²¹ See Burckhardt 2009, 18.

²²² Dickie 2000, 33.

indent into the centre of the *qibla* wall, it marked the place for the *Imām* to assume his position at the front of the congregation. This idea of the *miḥrāb*, as a marker towards Mecca and also the positioning of the *imām*, is said to have been drawn from the Prophetic example to stand at the front and centre of the congregation. Referring to the construction of the *miḥrāb* in the Prophet's mosque by 'Umar, Grabar writes: "It served to honor the place where in his original house [the Prophet's mosque was built adjoining his house], the Prophet used to stand when leading prayers or preaching."²²³

This organization of the *imām* and the congregation that forms behind him according to Ibn 'Arabī represents spatially the relationship between God and all beings. For Ibn 'Arabī, the unique singularity of God is reflected in every single existence that comes into being. Chittick, in explaining this phenomenon, turns to the example of the entire palette of colours that is informed by a single light source: "[Ibn 'Arabī] maintains that everything we perceive in the cosmos is nonexistent in itself, but existent in some sense through [God's being]. In the same way, every colour we perceive is nonexistent in itself, but existent through the existence of light."²²⁴ Similarly this is also the case with the singular *imām* and multiple rows of the congregation: "standing alone, the *Imām*'s prayer projects God's 'unity of totality' [...], whereas standing in aligned rows, the prayers of individuals projects God's 'totality of unity'."²²⁵ Architecturally, as Akkach has claimed, this organization of bodies has become crystalized in the singular, and centralized, *miḥrāb* and the colonnade that runs parallel to the *qibla* wall in the design of the mosque.²²⁶

It may be thus said that the body in prayer—the congregation in prayer—as having a direct correspondence to the building. At this point too, we find again how axial lines are reinforced. The rows of worshippers and its mirror, the *qibla* wall, run horizontal to the vertical axes of the *miḥrāb* and the *imām* (in his standing posture) towards the *Ka'ba*. This formation returns us to what was earlier discussed about the correspondence of the six-directional cross to the human body, the body in prayer, the *Ka'ba*, and also the layout of mosques in general. With the congregation in prayer in the mosque, we find this relationship further edified. The mosque seems to be set up in a way as a body in prayer as much as the body it hosts several times a day to

²²³ Grabar 1987, 115. For an in depth study on the meaning of the word *miḥrāb*, its roots in pre-Islamic culture and its eventual adoption and adaptation in Islamic architecture see Serjeant 1959, 439–453.

²²⁴ Chittick 1994, 16–17. See n.373 below. The *miḥrāb* is said to have originated from the idea of an illuminated niche.

²²⁵ Akkach 2005, 204.

²²⁶ Ibid., 205.

establish prayer. In each instance we find the recovery and repetition of the spatial structuring of the cosmos and the human being.

While the ideas discussed above extrapolate how the body in prayer and the also the basic mosque layout articulates spatial orientation and directionality, such ideas did not become codified to become a formalized architectural theory. In the following chapters Islamic thinkers rarely discuss the spatiality of the mosque. Their ideas regarding space and body will largely be influenced by reflections in philosophy and mystical thought. For a codification of the mosque architecture one had to wait until the sixteenth century with the Ottoman chief architect Sinan, who would articulate how the body of the mosque offers analogy to the body, especially to the illuminated spiritual station of Muḥammad.

PART II PHILOSOPHICAL AND MYSTICAL DEVELOPMENTS

CHAPTER 4

EARLY ISLAMIC PHILOSOPHY

4.1 Greek Philosophy and Islam

Within three centuries of Muḥammad's death in 632 CE the Muslims had brought under their control most of the Near East. As Islam expanded from its core in Arabia towards Damascus, Alexandria, and Baghdad, it was inevitably exposed to the novelty of Greek philosophy that had a long tradition of being taught in these intellectual centres. As with Judaism and Christianity, Islam has had an uneasy relationship with Greek philosophy. The Greek philosophical system generally posited a remote God, favoured Naturalism, and privileged reason over faith. Despite such ideological differences, some Islamic rulers were curious about other traditions and supported translation and transmission of Greek philosophical works. The Islamic contribution to the preservation of Greek heritage through translations and commentaries can be dated back to the eighth century, beginning with the patronage of the Umayyad prince Khālīd bin Yazīd (d. 704) and later flourishing under the Abbasid caliphate with its famous *Bayt al-Hikma* (House of Wisdom).²²⁷ In that process Islam produced some of the leading lights of Platonic and Aristotelian philosophy, such as al-Fārābī (d. 950), Avicenna (d. 1037) and Ibn Rushd (d. 1198). Orthodox theologians though were completely dismissive, or at best ambivalent, when it came to philosophy.²²⁸ Some like al-Ghazālī adopted a position similar to that of St. Augustine several centuries earlier accepting philosophical arguments only in the instances when it did not contradict faith.²²⁹ There were others who even considered Greek philosophers to be part of the Islamic prophetic tradition. Pythagoras, for example, according to some Islamic thinkers was said, "to have received wisdom from Solomon."²³⁰ Whatever the case may be, learning from foreign sources was not necessarily seen as an anathema as long as it did not contradict Islam. This was based upon Muḥammad's advice for Muslims to actively seek knowledge even if one had to travel as far as China.²³¹

²²⁷ Al-Khalili 2010, Ch 5; Bennison 2011, 4–6.

²²⁸ Nasr 2006, 38–41.

²²⁹ Al-Ghazālī 2000, 4–7. The first book in al-Ghazālī's magnum opus *Iḥyā' 'ulūm al-dīn* (*The Revival of the Religious Sciences*) is on knowledge. In here he states what are the types of knowledge that are obligatory, permissible, and blameworthy. Of philosophy he warns that it should not be studied by those who are weak in faith as it would lead them to heresy. This would even include the study of arithmetic. See al-Ghazālī 1991, 53.

²³⁰ Fakhry 2004, 19. See also Nasr 1989, 34–35.

²³¹ See al-Ghazālī 1991, 18.

By the ninth century, Muslims had at their disposal translations of almost the entire Aristotelian corpus, several of Plato's dialogues, and other Greek treatises of mathematics and medicine.²³² Despite its constant contention with mainstream orthodoxy, the philosophies of Plato and Aristotle thrived in the Islamic world until the thirteenth century. In attempting to study the ideas in pre-modern Islam regarding the relationship between the body and architecture the thesis will initially consider the works of Islamic philosophers such as the Ikhwān, al-Fārābī, and Avicenna, who viewed Greek philosophy sympathetically and drew from the traditions of Pythagoras, Plato, Aristotle, and Plotinus in developing their own. Though none of them wrote on architecture specifically, we find them using the ordering and planning of a city as a metaphor to explain how the human body is a microcosm of the entire cosmos. It is by way of this do we find in their writings the relationship between the body and the cosmos, and together with it the body and the city. Their recourse to an ordered city following a divine precept, calls to mind Plato's utopian cities mentioned in both the *Republic* and *Critias*. Existing purely in the realm of imagination, all three Muslim authors charge us to consider how, by way of imagining the nature of the human being as a well-ordered and perfect city, one can achieve felicity in both this life and the one to come after death.

4.2 Ikhwān al-Ṣafā': Body, Soul, and Geometry

The identities of the tenth-century group of scholars from Basra, Iraq, known as the Ikhwān al-Ṣafā' remain anonymous to this day. What we know is that they were from the Ismā'īlī sect, an offshoot of Shī'a Islam, and their works and ideas were inspired by a wide range of ancient sciences drawn from Greece, Persia, Egypt, Arabia, and India.²³³ The Ikhwān, T. J. Boer writes, were "Arabic in faith, of Iraqi, that is, Babylonian, in education, a Hebrew in astuteness, a disciple of Christ in conduct, as pious as a Syrian monk, a Greek in the individual sciences, and Indian in the interpretation of all mysteries, but lastly and especially, a Sufi in his whole spiritual life."²³⁴

²³² Hasse in Hankins (ed.) 2007, 113.

²³³ Shī'a Islam is the second largest sect after the dominant Sunni denomination in Islam. For a succinct portrayal of Shī'a Islam and how it differs from its Sunni counterpart see Ṭabāṭabā'i 2010.

²³⁴ Boer cited in Nasr 1993, 31.

Nasr writes that the Ikhwān, influenced by Neoplatonism and Sufism, understood man as a being situated between the perfection of the heavens above and the change of the temporal world below. Man was the “central link in the great chain; below him stands the animal kingdom, and above, the world of the angels.”²³⁵ Unfortunately, though, as the Ikhwān describe it, for many this potential to transcend towards the divine is lost except to those bestowed with providential grace whom they called “the purified men.”²³⁶ The purified men were essentially those who live a life practicing philosophy as taught by their forebears such as Pythagoras, Socrates, and Plato. According to the Ikhwān it was philosophy alone that allowed a human being to realize his fullest nature, becoming an angel: “He attains the form of humanity and progresses in the hierarchy of beings until in crossing the straight way (bridge) and the correct path he becomes an angel.”²³⁷ According to the Ikhwān, these purified philosophers, such as themselves, after arriving at this stage spend their time contemplating upon all of God’s creation. It is at this stage that it is revealed to the philosopher the invisible reality that frames all of creation. To understand the divine order of the created world, the Ikhwān followed the way of both Pythagoras and Plato, and turned to mathematics. Only arithmetic and geometry allowed for the true experience of divine perfection separate from its perceptible imperfections. The Ikhwān in their writings, drawing from such an understanding of mathematics, develop one of the earliest reflections in Islam in considering the body as architecture. Using mathematics as the divine language in composing the world, they sought to reveal how numbers manifest as proportions in the human body and also how measurements that are shared between the cosmos and the human body can be understood as a well organized city.

The Ikhwān’s attempt to measure out the body using numbers and geometry appears in the chapter on music from their most famous text, *Rasā’il Ikhwān al-Ṣafā’ wa Khillān al-Wafā’* (*Epistles of the Ikhwān al-Ṣafā’*). One cannot but acknowledge the close resemblance it shares with Vitruvius’s numerical translation of the body in *De Architectura*. Since there is no known evidence of an extant translation of the *De Architectura* in the Islamic world during the Middle Ages, it is most probable that the

²³⁵ Ibid., 1993, 69.

²³⁶ Ikhwān al-Ṣafā’ cited in ibid., 1993, 39.

²³⁷ Ibid., 34.

Ikhwān's source was drawn directly or modified from Pythagorean teachings. The Ikhwān measure out the human body as follows:

[W]hen the body is completely developed and reaches its final form [...] It will have a height of eight of its hand-spans [...] ; two hand-spans from its knee caps to the soles of its feet; two hand-spans from its knees to its groin; two hand-spans from its groin to the top of the heart; two hand-spans from the top of the heart to the parting.

When [the body] opens its hands and stretches (its arms) right and left like a bird stretching its wings, the distance from the finger-tips of the right hand to those of the left will be found to be eight hand-spans, the half-way point being reached at the clavicle, and the quarter, at the elbow.

When it reaches its hand above its head, and a pair of compasses with one point on its navel is extended to its fingertips, and a circle is described to the tips of its toes, the distance between them will be equal to ten hand-spans—a quarter more than its height.

The length of its face from the point of its chin to the onset of hair above its forehead will be found to be a hand-span and a quarter; the length of its nose will be found to be a quarter of a hand-span; the length of each of the apertures of its eyes will be found to be an eighth of a hand-span; and the length of its forehead, a third of the length of its face; the length of the aperture of the mouth and each lip will be found to be equal to the length of the nose; the length of each foot will be found to be a hand-span and a quarter; and the length of the hand from the base of the wrist to the tip of the middle finger, a hand-span; the length of its thumb and little finger will be found to be equal; the tip of the ring finger is one eighth of hand-span longer than that of the little finger; the same difference occurs between the middle and the ring finger and also (between the middle finger and) the first finger; the width of its chest will be found to be a hand-span and a half; the distance between its nipples a hand-span; the distance from its navel to its genitals, a hand-span; and from the top of its heart to its clavicle, a hand-span; and the distance between its shoulders will be found to be two hand-spans.

On the same basis, when one considers the length of the intestine and gut, of the blood vessels of the body, of the sinews that adhere to the bones and the tendons of the joints, it will be found, according to this model, that they are proportionate to one another in length, thickness, and depth in the same way as we have described for the measurements of the external parts.²³⁸

²³⁸ *On Music* 5:11.

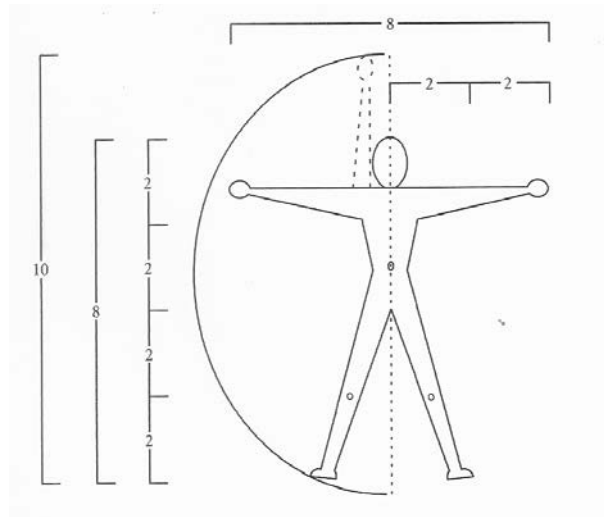


Fig. 4.1 The proportional ratios of the body according to the Ikhwān (Source: *On Music*.)

While the proportioning of the body by the Ikhwān seems somewhat similar to Vitruvius, in detail they do differ. Their approach to measuring the body can also be said to be rather different in comparison to Vitruvius. Vitruvius' proportioning system seems to mainly accentuate how different parts of the body measure against the height of the human body. In this case we realize the perfect human body measures six times the length of its feet, ten times the span of its palm, four times the width of its forearm and so on (Fig. 4.1).²³⁹ With the Ikhwān, though, all measures are reduced to the span of the palm. While Vitruvius' inter-body measures, where the height is measured against the length of the foot or the span of the palm, seem to yield ratios that correspond to the Greek perfect numbers (*teleion*, six and ten), for the Ikhwān this is not quite the case. In the Ikhwān's system the span of the palm measures one-eighth of the human height instead of the one-tenth ratio we read of in Vitruvius.²⁴⁰ When we reduce the Vitruvian measure also to the basic unit used by the Ikhwān—the hand span—we find that both systems differ in the way they measure out the human body. While such may be the case with regards to differences, one finds an important similarity shared in the mathematical description of the body provided by Vitruvius and the Ikhwān: this being the idea that the navel is the centre of the body and placing a sharp point of the compass and drawing a circle will encompass the entire body with

²³⁹ See *On Architecture* 3.1.2. In Vitruvius the span of the palm is the same as that of the measure of the face—measure from the chin to the top of the forehead. Whereas in the Ikhwān the measure of the face is one and one-eighth hand span. See also Wright's "Introduction" in *On Music*, 22 and n.24.

²⁴⁰ The Ikhwān's use of the one-eighth fraction was not arbitrary as in their theory of numbers they have indicated eight to represent the total number of musical notes. See Nasr 1993, 97.

its arms extended.²⁴¹ As with Vitruvius the Ikhwān also emphasize that the body yields a quadrature as the width of the body—with its arms stretched out like “a bird opening its wings”—and its height are both of the same length. We also note that in both systems the proportioning ratios stay faithful to the Pythagorean *tetractyes*. In the “First Treatise of the Division of Abstract Sciences” the Ikhwān, affirming their Pythagorean influence, write that the *tetractyes* are the source of all numbers and that the “rest of the numbers are composed and generated from them.”²⁴²

The turn to the study of the mathematical and geometric underpinning of the human body in such detail, as it was also with Vitruvius, was an attempt to showcase to the reader how the divine language of mathematics is made to relate and function in the forming of the human body. Similar to Vitruvius, who advised that one must study the proportions of the human body to build architecture, we also find the Ikhwān advising craftsmen to study the proportions they have mentioned of the cosmos and the human body prior to proceeding to carry out their works. Though architecture is not mentioned explicitly, it comes across quite clearly that this theory is applicable to all works to be undertaken by the artist: “And it is according to the same analogy [of the human body proportions] and model that skilled artists produce their artefacts, whether shaped, sculpted or painted, so as to be proportionate to one another in composition, and arrangement, in all respects emulating the work of the Creator [...] imitating His wisdom.”²⁴³

In another instance, the Ikhwān commented that if architects (*muhandisīn*, which also means geometers) train properly they can possess the ability to imagine in their mind’s eye how geometric forms unfold from a point, to line, to its two-dimensional surface, then to a three-dimensional body. Those who are truly trained to understand the perfection of geometry will be able to manifest in the material world knowledge abstracted from the divine ordering principle.²⁴⁴ As Akkach notes, this understanding constitutes a knowledge, which draws relationship between metaphysics, mathematics, and geometry. The Ikhwān demonstrated this very principle by operating the compass around the human body. Here we find an intimate connection drawn between divine and cosmological ordering principles made to bear upon the human body, the microcosm.

²⁴¹ See *ibid.*, 3.1.3.

²⁴² Ikhwān al-Ṣafā’ in Goldstein 1964, 139.

²⁴³ *On Music* 5:11.

²⁴⁴ See Akkach 2005, 161.

The Body as a Similitude of the City

The study of the body was of fundamental importance to the Ikhwān. Following their intellectual forebears, Pythagoras and Plato, they too described the human body as a microcosmic abbreviation or mirror of the entire cosmos. For the Ikhwān the human being's "spiritual and physical dimensions correspond to the physical and spiritual nature of the universe."²⁴⁵ As the world is too large to be studied, one needs to turn only to his own body "and he will know the universe in all its dimensions."²⁴⁶ Rather interestingly the Ikhwān termed the human body "a small world" (*al-ʿālam al-ṣaghīr*) and the cosmos a "great man" (*al-insān al-kabīr*). The correct manner in studying the cosmos, and the human body, is mathematical. Following Pythagoras, the Ikhwān posited the idea that the cosmos was ordered after a divinely thought out proportioning system—the harmony of the spheres. The Ikhwān here reiterate that the harmony of the spheres is one that is also found in the human body: "You should know, dear brother, that the ideal proportion, as we have explained before [on the harmony of the spheres], consists of the ratios (2): 1, 3:2, 4:3, 5:4, and 9:8. This is further exemplified by the human form and the structure of its frame."²⁴⁷ The Ikhwān, as we see below, sought to completely translate all aspects of the human body mathematically and by that agency also geometrically, and at junctures drawing this relation to both music and the cosmos:

- 2 – [God] has divided the body into two parts, left and right, to correspond to the first number, which is 2
- 3 – [God] has divided the constitution of animals into two extremities and a middle, corresponding to the first odd number, 3
- 4 – Four humours, the first square number
- 5 – Five senses, the first circular number; also the number of the elements plus ether
- 6 – Six powers of motion in the six directions, the first complete number²⁴⁸ [...] and the number of the surfaces of the cube
- 7 – Seven active powers, the first perfect number (*kamil*) and the number of planets
- 8 – Eight natures [...] the first cubic number and the number of musical notes
- 9 – Nine levels [...] of the body, the first odd square and the number of heavens

²⁴⁵ Mohammed 2000, 662.

²⁴⁶ Ibid.

²⁴⁷ *On Music* 5:10.

²⁴⁸ Nasr states that this is known in Arabic as *tamm*, this also corresponds to the Platonic idea of the perfect number, the *teleon*. See Nasr 1993, 96 n.1.

- 12 – Twelve openings for the senses and limbs [...] the number of signs of the Zodiac
- 28 – Twenty-eight vertebrae of the backbone [...] the number of stations of the moon
- 360 – Three hundred and sixty veins, the number of degrees of the circle of the signs and the number of days of the year²⁴⁹

After having said this, when it came to collating this abstract numbers and geometrical forms into a coherent idea we find the Ikhwān turning to architecture. It is only through architecture, specifically in the planning of a city, can we imagine how the order of both the cosmos and the human body can be ideally understood. With regards to the cosmos the Ikhwān present it as a built-up city, regulated by perfect order governed by God:

[governance of the cosmos is] like the government of a city which has walls and in the interior of which there are stopping stations and inns, and city-quarters, where there are lanes and streets and bazaars, and in the midst of which there are habitations and dwellings, in which there are houses and storehouses, in which there are goods, and instruments, and household wares, and vessels [and over them just like the one God there is a] single king [who] rules over all this.²⁵⁰

Just as God has made the cosmos into an ordered city, so it is in the case of the human body: “When God created the body and perfected its formation and breathed into it the spirit, making the soul dwell in it and gave it lordship over the body this was in similitude to the city.”²⁵¹ This proclamation by the Ikhwān recalls that of the fifteenth-century Renaissance architect Francesco Di Giorgio’s statement in his *Trattati di Architettura, ingegniria e arte militare (Treatise on Architecture: Inventions for Military Use)*. Di Giorgio went beyond his predecessors Vitruvius, Alberti, and Filarete to claim that not only did the body imitate the building but in fact that the entire city was an imitation of the body (Fig. 4.2).²⁵²

²⁴⁹ Ikhwān al-Ṣafā’ cited in *ibid.*, 96-97. On a brief introduction to the Ikhwān’s numerology see Nasr 1993, 47–52.

²⁵⁰ Ikhwān al-Ṣafā’ cited in Mohammed 2000, 664.

²⁵¹ *Rasā’il* II, 320.

²⁵² Di Giorgio cited in Fiore in Hart and Hicks (eds.) 1998, 72. See also Lowic 1983, 360–363 and Manuel and Manuel 1979, 1624–165.

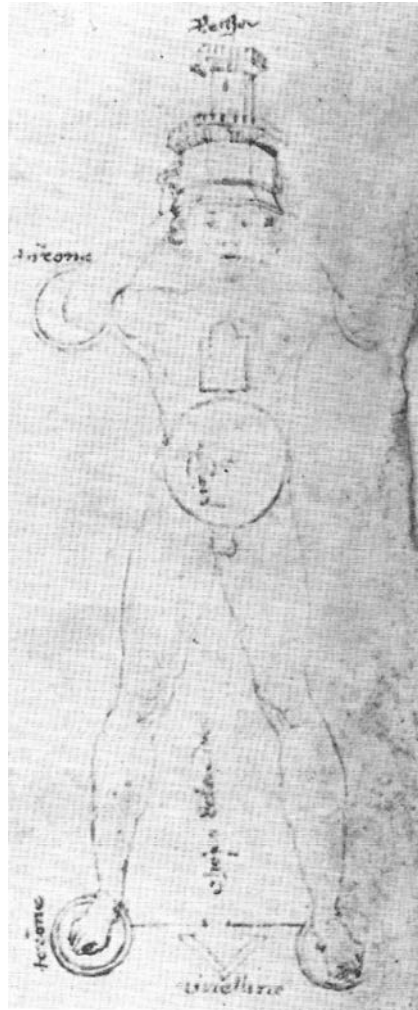


Fig. 4.2 The body as a fortress city according to Francesco Di Giorgio (Source: Rykwert 1996, 67.)

Mohammad in his study of the cosmology of the Ikhwān points out that the use of the city analogy is significant as the human being alone amongst all creations creates, orders, governs, and participates in a city. Only man is able to participate in the ways of God by building and ordering cities by following the divine pattern. This city man participates in realizing is one that is to be studied from both the working of the cosmos and also the human body itself.

In their brief foray into presenting the body as a city we find the Ikhwān compressing into the human body not only the image of a built city, but with it also the cosmos. In fact it is the city image that acts as a glue to study both the body and the cosmos.

To begin with, the Ikhwān present the fundamental composition of the body: its four humors. These humors in their combinations form “anatomical elements: the

bone, brain, nerves, veins, blood, flesh, skin, nails and hair.”²⁵³ These nine elements as Nasr explains also correspond to the nine heavens.²⁵⁴ These elements are amalgamated together and arranged across ten rising levels. Here we see the Ikhwān dividing the body into ten parts starting from the feet to all the way up to the neck. These levels are held up together by two hundred and forty-eight columns—the bones—with seven hundred and fifty connections tightened by ropes, referring to veins and arteries. As we continue to read, we find in this city of the human body that there are three hundred and sixty passages for the human soul to freely travel. Here the body is returned to its mathematical and geometrical fundamentals, one that is inscribed within a circle. The body and the cosmos are governed by the radial form. As we read earlier about how the Ikhwān had geometrically described the body, it thus becomes clear that the circle they drew by placing a compass upon the navel was symbolic of the human soul.²⁵⁵ Reminiscent of a fortress town, this radial city is surrounded by a boundary wall with twelve gateways, referring to the orifices in the body,²⁵⁶ and in turn these twelve gates also refer to “twelve signs of the Zodiac.”²⁵⁷ Protection of the city is granted by seven craftsmen referring to the astrological oversight of the seven planets over “the seven powers of the body: attraction, sensation, digestion, repulsion, nutrition, sleep and imagination.” The city has five outposts—the five senses—which corresponds to the “five moving planets.”²⁵⁸ Thus the body and cosmos converge upon the idea of the city affirming repeatedly in one another the harmonic measures the Ikhwān drew from Pythagoras.

The Ikhwān never wrote specifically regarding architecture, nevertheless their cosmological studies allows understanding for how they viewed the planning of cities as an exemplary model to teach the relationship between the human body and the cosmos. The Ikhwān’s proportional study of the body, which parallels Vitruvius’ attempt was not explored in their treatise architecturally nor was this type of study of the human body evident in the Islamic world much less to be used for the purpose of

²⁵³ Ikhwān al-Ṣafā’ in Nasr 1993, 99.

²⁵⁴ Ibid., 100.

²⁵⁵ This circular movement of the soul is in agreement with Plato. See *Timaeus* 36e–37c.

²⁵⁶ Ikhwān al-Ṣafā’ cited in Nasr 1993, 100. The twelve openings in the body are the eyes, ears, nostrils, mouth, navel, nipples, the urethra and anus. Here too we can observe similarities between the Ikhwān al-Ṣafā’ and di Giorgio. See Lowic 1983, 362.

²⁵⁷ Ibid. Both radial form and the symbolic translation of the number twelve was quite commonly used in the description of utopian cities in the Renaissance. The radial nature of the city was seen as a mirror of the comic movement and the number twelve represented the zodiac signs and the twelve apostles of Christ. See Manuel and Manuel 1979, 162.

²⁵⁸ Ibid. See also *Rasail* II, 321–322.

architecture. But the advice to consider the body both as a microcosm and as a city or a fortress town was a motif, as we shall study below, adopted by Islamic thinkers such as al-Fārābī, al-Ghazālī, and, Ibn ‘Arabī.

4.3 Al-Fārābī: Virtuous Bodies in Virtuous Cities

The great Islamic philosopher of the tenth-century Abu Nāsr al-Fārābī (d. 950) “is generally heralded as having founded political philosophy within the Islamic cultural tradition.”²⁵⁹ Al-Fārābī’s thirst to learn philosophy saw him travel to study with scholars in various lands and cultures.²⁶⁰ His erudition is especially evident in his commentaries on the philosophy of Plato and Aristotle whose writings and ideas defined his philosophical orientation. He refers to both Plato and Aristotle in his writings as the Ancient Philosophers, to whom anyone who seeks the benefits of philosophy must defer.²⁶¹ One of al-Fārābī’s major contributions to Islamic philosophy was in his attempts to convince his fellow Muslims that the philosophies of Plato and Aristotle were indeed in accord with Islam. In fact one of his most famous works titled *Kitāb al-Jam‘ bayn Ra’yay al-Hakīmayn, Aflātūn al-Ilāhī wa Arisṭūṭālīs* (*Harmonization of the Opinions of Plato and Aristotle*) was his response to his critics—especially theologians—who found the views of the Greek philosophers on issues such as “the creation of the world, the survival of the soul after death, and reward and punishment in the hereafter” to be in conflict with orthodox Islamic views.²⁶²

The inspiration of al-Fārābī’s resolution of Plato and Aristotle into a divinely inspired message can be traced to the pseudo-Aristotelian text titled *Theologia Aristotelis* (*Theology of Aristotle*). Al-Fārābī, citing this work, writes: “whoever looks into his statements on Lordship in the book known as the *Theology* will no longer be confused about his affirming (the existence) of the Artisan, the Innovator of this

²⁵⁹ Butterworth, “Preface”, in al-Fārābī 2001, ix. Mahdi writes that al-Fārābī was the “political philosopher par excellence” who was influential amongst Islamic, Jewish and Christian political philosophers until the translation of Aristotle’s *Politics* in the West in the latter half of the thirteenth century. Mahdi 2001, 65.

²⁶⁰ Ibid. Mahdi 2001, 1–3; Fakhry 2004, 111–113.

²⁶¹ “These two sages are the fountainheads of philosophy, the originators of its beginnings and the fundamentals, the fulfillers of its ends and branches. We depend on them for what is minor and what is major with respect to it [...] Whatever they produce in any of its disciplines of dependable, fundamental, free from blemish and turbidity.” Al-Fārābī 2001, 125–6.

²⁶² Mahdi, *Introduction*, in al-Fārābī 2001a, 4.

world.”²⁶³ Aristotle, as we now know, did not write this text. Instead, this text was a compilation of extracts from the works of Neoplatonists such as Plotinus, Porphyry, and Proclus and is not representative of Aristotelian philosophy.²⁶⁴ Neoplatonism creatively married the two seemingly diverse philosophical traditions of Plato and Aristotle, and infused it with a divine agency, which permeated and interconnected all beings in an intricate hierarchical order that informed Western cosmology right up till the seventeenth century. The *Theology of Aristotle* was a highly influential text in Islamic philosophy mainly because it presented evidence that religion and philosophy can harmoniously co-exist. Harris writes that one of the factors that contributed “to the fascination of early Islamic scholars with Neoplatonism” was that they found its “ontology [not to be] inconsistent with concepts of reality” as described in the *Qur’ān*.²⁶⁵

One of the results of Muslim thinkers negotiating Neoplatonism—albeit thinking it was Aristotelian—can be seen in their adoption of the doctrine of emanation, which Fakhry writes, “served as the cornerstone of almost the whole of Arab philosophical thought.”²⁶⁶ The emanation doctrine attempted to explain in a step-by-step manner the creation of the world. In this system we find all elements from minerals to planets arranged and ranked according to their hierarchies in relation to one another and to God. The three most famous Islamic philosophers, al-Fārābī, Avicenna, and Averroes adopted the emanation doctrine as a foundational basis of their philosophies.²⁶⁷

Cosmic Model: The Philosopher-King and the Perfect City

The emanationist cosmology was especially used in al-Fārābī’s philosophical system to explain how metaphysics can be made practical in politics and governance. The manifestation of this is found in his most important philosophical work *On the Perfect State*, which follows Plato’s *Republic* and Aristotle’s *Politics* in advising how to establish a model state based on the wisdom and justice of God.²⁶⁸ Of the

²⁶³ Al-Fārābī 2001, 155.

²⁶⁴ Fakhry 2004, 22; see also Davidson, 1992, 8.

²⁶⁵ Harris in Morewedge (ed.) 1992, viii. On a short introduction to how Neoplatonism resolved the tension between the Platonic and Aristotelian systems see Cassirer 2000, 18–20.

²⁶⁶ Fakhry 2004, 22.

²⁶⁷ For an elaboration and explanation of the emanationist cosmologies of al-Fārābī, Avicenna and Averroes see Davidson, 1992.

²⁶⁸ Ibid., 121; Mahdi 2001, 83–89.

emanationist model, al-Fārābī writes: “It starts with the most perfect existent and is followed by something a little less perfect than it. Afterwards it is followed successively by more and more deficient existents until the final stage of being is reached beyond which no existence whatsoever is possible.”²⁶⁹

In *On the Perfect State* al-Fārābī describes, using the emanationist model, how the cosmos is formed and how the planets are inter-related. He then goes on to explain how the emanation process that formed the heavens is mirrored in the creation of the sublunar world including the human being. As such, the human body and its soul also follow the hierarchical arrangement of the cosmos. As with the Ikhwān, al-Fārābī too saw the building of cities as an activity that mirrored the act of God. In this way the emanationist model becomes vital in how cities are to be organized.²⁷⁰ Al-Fārābī in structuring his study in such a way draws parallels between the following three elements: the cosmos, the human body, and the city. This configuration allows this section of the thesis to investigate how al-Fārābī relates cosmos to the human body, and then the human body to building. The final aim of al-Fārābī in his text was to found a city that engenders goodness, justice, and virtue: “felicity is not attainable in every city. The city, then, in which people aim through association at co-operating for the things by which felicity in its real and true sense can be attained, is the excellent city.”²⁷¹ It would be this city that in turn mirrors the human and the perfect cosmos.

A brief explanation of the emanationist model is helpful to understand how the cosmos is related to the human being, and from thereon how the human being and city are related to the cosmic model. The beginning of the emanation process begins with the First Cause, meaning God. It results in the formation of the First Intelligence, which by interacting with the First Cause yields the first planetary sphere, Saturn, and with it a Second Intelligence. Saturn then emanates a Third Intelligence that similarly yearns for the First Cause and then considers its own essence resulting in the production of the next sphere, Jupiter and a Fourth Intelligence. This process

²⁶⁹ Al-Fārābī 1998,1–2 (henceforth *Ārā’ Ahl al-Madīna al Fāḍila*).

²⁷⁰ Mahdi 2001, 59.

²⁷¹ *Ārā’ Ahl al-Madīna al Fāḍila*, 15:s3. Al-Fārābī’s ambition here seems to parallel and most certainly inspired by Plato’s *Republic*. At the conclusion of the *Republic* one finds Plato to be surprisingly downcast and unsure if the perfect state he had described, one which is led by philosopher-kings, seeking virtue, goodness, justice, and excellence can practically be realized. But he advises the reader that if one wants to learn about it to seek it in the “pattern in heaven” and that “he who wishes can see it and found it in his own heart.” *Republic* 592b.

continues with the emanation of all Intelligences and their relative planetary spheres concluding with the moon.

The moon then emanates the Tenth Intelligence, which is called the Active Intellect.²⁷² Unlike the previous Intelligences, the Active Intellect's activity is "not directed towards a celestial sphere but toward man an inhabitant of the lower world."²⁷³ The arrival of the Active Intellect also marks the boundary separating the corruptible sublunar world below and the heavenly spheres above. At this point with the Active Intellect, the creative activity and its gradated hierarchical arrangement reverse. Now the initial and simplest forms, such as minerals and plants, issue first but they will remain most remote from the Active Intellect, unlike man who emerges at the end of this emanation cycle. Man is granted the closest proximity to the Active Intellect, and thereby he is considered as the most excellent creation on earth. In *On the Perfect State* al-Fārābī writes,

The order of these existents is this: the least valuable of them is placed first; then the other existents follow in an ascending order of excellence until the most excellent existent is reached which is not surpassed by anything more excellent. The least valuable of them is the common prime matter; the elements are superior to that; then come the minerals, then the plants, then the animals which lack speech and thought, finally the animals which are endowed with speech and thought. There is nothing after the animal [i.e. man] endowed with speech and thought that surpasses it in excellence.²⁷⁴

The human being is unique because while the Active Intellect is the creative force of all the manifestations in the sublunar realm, it is only with the human being that it is intimately related to by "speech and thought." The Active Intellect's main responsibility is to ensure man achieves his perfection by realizing his true intellectual potential both in thought and in practical action such as founding excellent cities.

The Active Intellect "emanates" to the human being three levels of intellectual capabilities that manifests as the rational soul. These three levels are: material, actual, and acquired.²⁷⁵ At its highest level, "the acquired," the soul is suffused with the light of the Active Intellect that transforms the actual to an acquired intelligence that has the capability to sieve and separate the permanent realities of being from the shadow

²⁷² Nasr, 2006, 110.

²⁷³ Davidson, 1992, 47.

²⁷⁴ *Ārā' Ahl al-Madīna al Fāḍila*, 6:s1.

²⁷⁵ Davidson, 1992, 53.

of becoming.²⁷⁶ This is the highest, yet rarely claimed, realization of the human soul reserved only for the most eminent philosophers. For al-Fārābī, it is such a philosopher who has the capability to found a city of excellence, as he alone can understand and implement the most perfect and excellent arrangement following the order of the cosmos.

This philosopher-king also possesses an illumined capability to experience the fullest expression of the human potential, which not only grant him the gift of prophetic foresight, thereby transcending time and space, but also the “gifts of leadership.” He is described as one who “holds the most perfect rank of humanity” and whose body is robust, strong, and beautiful. Al-Fārābī, in describing the qualities that constitutes this perfect human being, says that he must have a beautiful body, a sharp mind, be excellent in decorum, and be intuitively just.²⁷⁷ The most excellent is always ranked the highest in the emanationist structure. The philosopher-king is to his state as the Active Intellect is to the sublunar world, and as the First Cause is to all of creation.

The Body and City Planning

It is when al-Fārābī attempts to define what constitutes an excellent city that he makes an analogy between the city and the body. In *On the Perfect State*, al-Fārābī explains the analogy between the body and the city in the following way: “The excellent city resembles the perfect and healthy body all of whose limbs co-operate to make the life of the animal perfect and to preserve it in this state.”²⁷⁸ Aristotle too evokes the parallel of the well-functioning city to a living organism in his *Movement of Animals*,

The constitution of an animal must be regarded as resembling that of a well-governed city-state. For when order is once established in a city there is no need of a special ruler with arbitrary powers to be present at every activity, but each individual performs his own task as he is ordered, and one act succeeds another because of custom.²⁷⁹

²⁷⁶ Ibid., pg. 55.

²⁷⁷ *Ārāʾ Ahl al-Madīna al Fāḍila*, 15:s12: “this state (of perfection) can only be reached by a man in whom twelve qualities are found together, with which he is endowed by birth.” At this point the similarities between the *Republic* and *On the Perfect State* converge. It is well known that the idea of the philosopher-king was one which was conceived by Plato. In the *Republic* when Plato speaks about the education of the philosopher he states that he needs to be trained both mentally and physically. *Republic* 521b–541a.

²⁷⁸ Ibid., 15:s3.

²⁷⁹ Aristotle 2006, *Movement of Animals*, 703a29.

In his *On Virtues and Vices*, Aristotle defines that good governance is to a city like healthy spirit is to a human body,²⁸⁰ and in his *Politics* Aristotle advises one to study how the soul rules over the body to understand how authority is to be exerted in governing a *polis*.²⁸¹ Likewise, such comparisons are made several times over by al-Fārābī both in his *Aphorisms of the Statesmen* and the *On the Perfect State*, revealing a consistent attempt made by the philosopher to consider the inter-related order and relationships that govern three systems in totality: the cosmos, the body, and the city. Illustrating this relation al-Fārābī writes: “The soul has health and sickness just as the body has health and sickness [...] as the health of the body is an equilibrium of its temperament [...] so too, are the health of the city, and its uprightness an equilibrium of the moral habits of its inhabitants.”²⁸²

While the role of the physician is to treat the body, only the Perfect State is able to, al-Fārābī says, treat both the body and the soul. To initiate such a city, the creator must be one who has understood the potential of his body and soul so completely that he is able to emanate his perfection upon the city he is set to govern. When analysed properly, the body, for al-Fārābī, actually presents itself as a hierarchical city with its own order of governance. Al-Fārābī posits the body as a prior foundational education before the forming of a Perfect State.

The body is sectoried into four faculties: 1) the faculty of nutrition, 2) senses, 3) representation or imagination, and 4) reason in an ascending order. The totality of the body is ruled only by the heart and not “any other organ of the body.”²⁸³ The heart contains the innate vital spirit granted by the Active Intellect, which sustains life, spreading “from it to all parts of the body.” Al-Fārābī then goes on to rank the body organs according to their ruling capacities:²⁸⁴

- 1) Heart
- 2) Brain
- 3) Liver
- 4) Spleen
- 5) Organs of Reproduction

²⁸⁰ Aristotle 2004, viii.1–2.

²⁸¹ Aristotle 2009, 1254b. 2.

²⁸² Al-Fārābī 2001, *Aphorisms*, no.1 and 2.

²⁸³ *Ārā' Ahl al-Madīna al Fāḍila*, 11:s1.

²⁸⁴ *Ibid.*, 11:s8.

Unlike the examples we read in Vitruvius and the Ikhwān, where the mathematical ratios and proportions are made manifest in the external body, with al-Fārābī the body is described by way of its dark and hidden interiority. This also meant that there is an absence of mathematical or geometrical description in attempting to draw relationship between body, cosmos, and architecture. For example, instead of the geometrically central navel as presented by Vitruvius, we find the symbolic heart situated as the central and most perfect of all bodily parts due to its intimate relationship with the Active Intellect. With al-Fārābī the proper measurement of the body is not found on a surface described mathematically as length and breadth, but rather the reality of the body is to be considered in the form of the hierarchies of the interior organs.

The manner in which al-Fārābī describes the interior organs of the body is also consistent with his earlier mentioned emanation theory, in that it gradates from the most refined to the most gross, beginning with the heart and ending with the organs responsible for excretion. The construction of the body system is also presented as one that is inter-related. This meant that when “a single member (of the body) is touched by corruption it is feared it will be communicated to the rest”.²⁸⁵

The study of parts and their relationship to the whole is vital because sublunar beings, including human beings are defective, and in their striving towards achieving perfection they inevitably seek assistance from one another, which leads to the formation of communities. Likewise in a body, single organs are impracticable and useless; it is in the coming together of the various parts that the body is brought to full expression, form, and health. So too is the case with a city: “the relation of the village to city is one of service whereas the quarter is related to the city as a part of it; the street is a part of the quarter, the house a part of the street. The city is a part of the territory of a nation, the nation a part of all the people of the inhabitable world.”²⁸⁶ Thus it is by observing one’s own body that one is able to properly understand this ordering of the city both spatially and politically. The Perfect State is one, which, al-Fārābī states, “resembles the perfect and healthy body,” because within it each part is arranged in a manner to complement and cooperate with one another. Furthermore, all the various parts acknowledge the leadership of a singular ruler—the heart—thus avoiding chaos and corruption.

²⁸⁵ Al-Fārābī 2001, *Aphorisms* no. 24.

²⁸⁶ *Ārāʾ Ahl al-Madīna al Fāḍila*, 15:s2.

Al-Fārābī advises that people should be arranged in the cities according to their ranks, the same way in which organs are ranked according to their dispositions. Drawing an analogy between the arrangements of the organs in the body with how the city should be planned, al-Fārābī writes,

[As with the organization of the organs within the body] the same holds good in the case of the city. Its parts are different by nature, and their natural dispositions are unequal in excellence: there is in it a man who is the ruler, each of them with a disposition and a habit through which he performs an action in conformity with the intention of that ruler; these are the holders of the first rank. Below them are people who perform the actions in accordance with the aims of those people; they are in the second rank. Below them in turn are people who perform their actions according to the aims of the people mentioned in the second instance, and the parts of the city continue to be arranged in this way, until eventually parts are reached which perform their actions according to the aims of others, while there do not exist any people who perform their actions according to their aims; these, then, are the people who serve without being served in turn, and who are hence in the lowest rank and at the bottom of the scale.²⁸⁷

Following this the palace of governance must be erected first, just “as the heart comes to be first and becomes the cause of the existence of the other organs and limbs of the body.”²⁸⁸ The palace like the heart is to be situated centrally for it was “obligatory for the governor to keep an eye on the dwellings,”²⁸⁹ and this was also “the most perfect part of the city and has the best of everything” that would be a catalyst and “subsequently be the cause of the rise of the city and its parts.”²⁹⁰ This remains philosophically coherent to the emanationist diagram he had previously introduced in his treatise by stating that, “for the relation of the First Cause to the other existents is like the relation of the king of the city to its other parts.”²⁹¹

Those whose workings are “close in authority to the ruler” are placed at the height and centre of this system, and those who perform menial tasks, and need to be guided and ruled over, “like the action of the bladder and the action of the lower intestine,” are to be placed at the lowest or furthest away from the centre. He repeats several times in this section that what is found in the arrangement of the body “applies

²⁸⁷ Ibid., 15:s4.

²⁸⁸ Ibid., 15:s5.

²⁸⁹ Al-Fārābī 2001 *Aphorisms* no.22 and 23.

²⁹⁰ *Ārāʾ Ahl al-Madīna al Fāḍila*, 15:s5.

²⁹¹ Ibid., 15:s6. It is quite interesting to note that in the *Timaeus* too we find Plato presenting the region of the heart not only as being the centre of the body but also as a fortified city. *Timaeus* 70a. See also Lowic 1983, 362.

equally to the city,” reiterating the relationship between the body to the Perfect State.

292

A perfect summary to this body-city analogy is found in the *Aphorisms of the Statesmen*,

Both the city and the household have an analogy with the body of the human being. The body is composed of different parts of a definite number, some better and some baser, adjacent to one another in rank, each doing a certain action, so that from all of their actions they come together in mutual assistance to perfect the purpose of the human being’s body. In the same way, both the city and the household are composed of different parts of a definite number, some baser and some better adjacent to one another in a rank of different ranks, each performing on its own a certain action, so that from their actions they come together in mutual assistance to perfect the purpose of the city or the household.²⁹³

Individual Body, City Planning, and Social Order

Al-Fārābī begins *On the Perfect State* by explaining that the meaning of the term “city”, or *madīna* in Arabic, derives from the root word د ي ن (*d-y-n*), meaning “submission, obedience, compliance [...] obeying a strong ruler who governs them firmly.”²⁹⁴ He then concludes by defining that the city, as that which is opposed to any other types of settlements, as one that refers specifically only to the gathering of a “group of people who concur with one another in holding excellent views and who live near to one another in one place within closed walls or in tents, in an inn or in a house, on top of a mountain or beneath the ground.”²⁹⁵ Defining the important role of an excellent community as a basis for the Perfect State, al-Fārābī writes: “teaching all the citizens and for forming their character so to enable everyone to achieve happiness by nature.”²⁹⁶ The primary idea and success in building, if we could infer from his writings, is in the ability to bring people of differences together and persuade the whole community towards philosophical excellence. In that sense, it is the governance of people, which is posited as the foundational idea of architecture. Places must be arranged to first contain, protect and then influence the body, then the intellectual spirit.

²⁹² Ibid.

²⁹³ Al-Fārābī 2001, *Aphorisms* no.23.

²⁹⁴ *Ārāʾ Ahl al-Madīna al Fāḍila*, Appendix to Summary: a.

²⁹⁵ Ibid., Appendix to Summary: b.1.

²⁹⁶ Mahdi, *Introduction*, in al-Fārābī 2001a, 6.

“City” and “household” do not mean merely the dwelling for the Ancients. But they do mean those whom the dwelling surrounds whatever the dwellings, of whatever thing they are, and whether they are beneath the earth or above it—being wood, clay, wool and hair [...] Dwellings may engender different morals in their inhabitants. For example, dwellings of hair and leather in the desert engender in their inhabitants the states of character of alertness and resoluteness. Sometimes the matter intensifies to the point that courage and boldness are engendered. Inaccessible and fortified dwellings engender in their inhabitants states of character of cowardice, security and fright.²⁹⁷

In essence, the philosopher-king is both an architect and a physician. His actions in planning the city are expected to parallel the order of the body. His continual striving is to maintain and establish the body of the city in equilibrium, enjoining mutual co-operation. On the other hand, the city is also presented to us as a philosophical project that if crafted ideally has an ability to influence and perfect the virtues of its inhabitants.

Al-Fārābī’s work as we can see above shows an immaculate consistency in its reference to its foundational emanationist cosmology. Following this, it adheres to the strict system of rank, order, and arrangement. This cosmology, which grounds his metaphysics, initially appears to be abstract. But later we find al-Fārābī by way of studying the relationship between the inner ordering of the human body and its relation to the structuring of the city, demonstrating how the pattern of the cosmos can become practical in ways to realize the perfect human in the form of a philosopher-king, who founds and rules the felicitous Perfect City.

Walzer in the introduction to his translation of al-Fārābī’s *On the Perfect State* writes that the sections in the text that deal specifically with the establishing of the ideal city-state as to be a type of an explanation of Plato’s *Republic*.²⁹⁸ The *Republic*, *Timaeus* and *Laws*, all intimate the relationship between the cosmos, the body and the city. These works were influential in the Renaissance amongst architects—such as Alberti and Filarete—who dedicated their treatises to those who were in power to impress the role of architecture in statecraft. Other key writings that served as literary sources for Renaissance architectural theorists would include Aristotle’s *Politics* and *Nichomachean Ethics*, St. Augustine’s *City of God* and St. Thomas Aquinas’ *Summa*

²⁹⁷ Al-Fārābī 2001, *Aphorisms* 22.

²⁹⁸ Walzer “Introduction” in *Ārā’ Ahl al-Madīna al Fāḍila*, 9.

Theologica.²⁹⁹ Al-Fārābī's text, which performs the same role as many of the works cited above, proposes similar potential, to serve as a rich source to be engaged for an architectural theory. But unlike in the West, where architectural treatises expanded upon philosophical and theological writings, such an endeavour does not seem to have had appeal in the Islamic world.

4.4 Avicenna: the Body and the Soul's Orientation

Ibn Sīnā or Avicenna (d. 1037), as he came to be known in the West, was one of the most important philosophers of the Middle Ages, influential both in the Islamic and Christian worlds. His synthesis of Neoplatonism, Aristotelian philosophy, and Islam drew upon and greatly expanded the works of his esteemed predecessors such as al-Kindī and al-Fārābī.³⁰⁰ Regarding the influence of Avicenna, Nasr writes: "His philosophy was to have a profound effect not only upon Latin Scholasticism, but also upon Muslim philosophy of which it is the basis."³⁰¹ It is known of Avicenna being a prodigious student, who was blessed with a very sharp intellect from a very young age. Philosophy for him was the highest of intellectual vocations as it alone granted one the knowledge of things: "The purpose in philosophy is to know the true nature of all things to the extent that man is capable of knowing."³⁰² Avicenna is said to have attended to his philosophical studies with relentless fervour and obsession. The text that had most influence in the way he formulated his philosophy was Aristotle's *Metaphysics*. Interestingly, Avicenna found this text to be tremendously difficult to comprehend until it was made easy for him by way of al-Fārābī's commentary on the treatise.³⁰³ Despite the considerable influence al-Fārābī had upon Avicenna, when it came to matters of metaphysics it is said that Avicenna's views were "more complete and [...] more comprehensive" as compared to his intellectual teacher.³⁰⁴ In this manner Avicenna became famed for his deliberations in metaphysics as was al-Fārābī when it came to practical philosophy: "Indeed, although they differ on specific points of doctrine and have different centers of interest—al-Fārābī being as fascinated with

²⁹⁹ See Lowic 1983, 362; Yates 1981–82, 29–33; Manuel and Manuel 1979, 161–167.

³⁰⁰ Heath 1992, 25; Fakhry 2004, 133–134

³⁰¹ Nasr 1993, 183–184; see also Davidson, 1992, 127–219

³⁰² Avicenna in Marmura 2005, 3.

³⁰³ Gutas 1988, 28; Fakhry 2004, 134.

³⁰⁴ Fakhry 2004, 137–138.

practical philosophy as Avicenna is with metaphysics—the two philosophers share the fundamental epistemological, essentially NeoPlatonic, postulates.”³⁰⁵

Avicenna rather remarkably was famous for not only his work in metaphysics but also medicine. In this sense while he privileged the soul over the body, the role of the body was one that he could not neglect. As the body is the housing of the soul the maintenance of the body was seen to be vital. It is notable that Avicenna titled his most major philosophical work the *Al-Shifā'*, meaning the healing. His famous medical text was titled *al-Qānūn fi 'l-Ṭibb (The Canon of Medicine)*. As Poormann and Savage-Smith remark it seemed that Avicenna was attempting to cure both the body and soul with his teachings.³⁰⁶ In an attempt to study how such works has anything to convey towards a study of body and building, we realize that a key aspect in the process of healing—of both body and soul—is contingent to orientation. Orientation as we have encountered above, especially with the chapters on Vitruvius and also the Islamic spatiality of prayer, forms a fundamental basis of architecture by articulating how the body's negotiation in space and time is made meaningful. Directions in pre-modern cosmology made in relation to the centre, cardinal points or to a symbolic place (e.g. Mecca) sought to explain how one was connected to the divine. Directions and orientations were always very important as it provided ontological foundations, the meanings for existence, and advice on how to participate with the divine. As Eliade has explained, sacred orientation, in the form of rituals, festivals, or temple ceremonies, allows for a human being to transcend the mundane and immanent, and participate with the divine, thereby experiencing a qualitatively different space-time condition to what is understood conventionally.³⁰⁷

The section below seeks to draw attention to how Avicenna in his attempt to rehabilitate the soul and also the body to its full health presents the seeking of correct orientations as the antidote. With regards to the soul, the mapping he presents attempts to provide a lens to other-worldly dimensions—a mystical cosmography—that the soul confronts as it seeks to sojourn to its place of origin, God.

As Avicenna was also a physician, he could not but also deal with the physical body and the environment it is subject to. Towards this Avicenna follows the Hippocratic and Galenic tradition, in which the doctor prescribes city planning as the

³⁰⁵ Heath 1992, 43; see also Marmura 2005, 17–18.

³⁰⁶ Poorman and Savage-Smith 2007, 49.

³⁰⁷ Eliade 1987 68–76.

foundation of good health. Simply put, the body's relationship to its site ultimately determines its health and fortune. Indeed this knowledge was also considered an important aspect of architecture according to Vitruvius.³⁰⁸ By way of orientation it becomes possible to understand how Avicenna attempted to understand the relationship between the body and soul not so much directly with architecture but rather more broadly with the environment in which it becomes sited and the impact it has on it.

The Soul Seeking its Home

In the final chapter of *The Healing* Avicenna discusses the meaning and importance of the science of metaphysics. He considers metaphysics as the foundation of what philosophy is: "it imparts validation to the principles of the rest of the sciences; and that it is, in reality, wisdom."³⁰⁹ In an attempt to find the ultimate causality of things, metaphysics becomes an operation that abstracts from things that which is contingent to arrive at that which is certain and true. Explaining this Avicenna writes that in metaphysics things are

regarded inasmuch as they are (the things) they are (*min ḥaythu hiya hiya*), in which case viewing them in this way does not differ from looking at them inasmuch as they are abstracted—for they would then be among (the things examined through) the kind of examination that pertains to things not inasmuch as they are in matter, since these, inasmuch as they are themselves (*min ḥaythu hiya hiya*) are not in matter.³¹⁰

For Avicenna, God alone in this respect is a being that is independent of contingencies and matter, thus He becomes the foundation upon which metaphysics is to be established.³¹¹ Therefore, the study of metaphysics, for Avicenna, "was intended to hasten for man the knowledge of the existence of the First Principle [God], so that the desire to acquire the other sciences would take hold of him, and (to hasten) his being drawn to the level (of mastering these sciences) so as to reach true knowledge

³⁰⁸ Vitruvius in *De Architectura* states the architect must study medicine to understand the various regions of the earth so as to judge if a site is suitable for inhabitation. This is comprehensively treated in Book 1 Chapter 4.

³⁰⁹ Avicenna 2005, 1.1.9. (Henceforth *Al-Shifā'*)

³¹⁰ Avicenna in Marmura 2005, 7; see also *Al-Shifā'* 1.1.12.

³¹¹ Marmura 2005, 131–148.

of Him.”³¹² God is the direction towards which man needs to aim to understand the meaning of his existence.

The way towards this knowledge lies as a potential in man; the rational soul. Following al-Fārābī, Avicenna, too, adopts the emanationist cosmological model, which sees man as the privileged creation granted the rational soul by the Active Intellect, which distinguishes him from all other terrestrial creations. With this faculty man can contemplate God, and when this soul is perfected his condition is likened to that of the angels.³¹³ With Avicenna this highest disposition, the rational soul, is further divided into two other faculties: the practical and the theoretical. The role of the practical soul is to deal with matters related to ethics, politics, and governance: “The practical intellect’s most important function [...] is to employ its induction to govern, and control faculties and appetites of the lower souls [...] the practical intellect promotes good ethical behaviour.”³¹⁴ Towards the end of the chapter on metaphysics in the *Healing*, one sees Avicenna following al-Fārābī’s example in *On the Perfect State*—albeit briefly—using the metaphor of the city to exemplify how the philosopher-king puts to full use the practical intellect.³¹⁵

While the practical intellect deals with particulars and the matters of governance, it is the theoretical faculty that is granted the ability to comprehend matters related to things “as they are themselves,” abstract from contingencies, and its aim ultimately is to grasp knowledge of the First Principle, meaning God. The theoretical faculty is to be imagined like a bridge that draws knowledge from the Active Intellect and other celestial beings to “intuit universals from the particulars derived from the animal soul’s apprehensions and practical intellect’s interaction with the external social conventions.”³¹⁶

For the soul to truly negotiate the metaphysical realm of the Active Intellect, the celestial angels, and God, it needs to realize the true potential of beings separate from its material existence.³¹⁷ This would mean also that the soul must realize its

³¹² *Al-Shifā’* 1.1.12 .

³¹³ Fakhry 2004, 128.

³¹⁴ Heath 1992, 64 ; see also Rahman 1952, 32–33.

³¹⁵ *Al-Shifā’* 10.2.1 and 10.4.

³¹⁶ Heath 1992, 64.

³¹⁷ Avicenna, in attempting to explain what this theoretical faculty is, demonstrates his famous “Flying Man” experiment. Here, in order to prove that the human body has an immaterial element to it, Avicenna—somewhat similar to the Cartesian experiment—has the body and all its senses stripped away from it to be left with only the consciousness of the intellecting soul. See Rahman 1952, 10 and Marmura 2005, 185–195.

priority over its material body as well. This soul, following the emanationist model, is one which descended to the world from the Active Intellect. Its true objective is to continually search for means for its return by way of ascent back to its origin.³¹⁸ Avicenna describes the soul to be disoriented after its descent to earth having “forgotten its original abode.”³¹⁹ As Nasr writes the most significant task of the human being is to search for his place of origin: “It is for him to remember once again from where he came and to return once again to his original dwelling place.”³²⁰ In attempting to describe how the soul’s return can be imagined, Avicenna uses the means of “visionary narratives, or recitals” of which he wrote three.³²¹ Such recitals offer unique perspectives into metaphysical experiences using highly symbolic language and involving evocative places, personalities, and atmospheres.³²² In the first of the three recitals, the initiatory recital, titled *Ḥayy ibn Yaqzān*, we find a traveller seeking true knowledge being met by a sage, the Active Intellect, on the road, an in-between place, to arrive at the illuminated Orient, the origin of the human soul. It is in this journey we find Avicenna mapping the geography of the soul and proposing a potential to understand how the place and building of the soul could be imagined.

The Cosmic Geography of the Soul

In Avicenna’s *Ḥayy ibn Yaqzān*, the name of the sage, the Active Intellect, we meet at the road is Ḥayy ibn Yaqzān (literally, “Living Son of the Awake”) who claims to have studied all the sciences. He is also one who has seen the entire universe: “since my journey embraces the whole circle of it, it is as if all the horizons of all climes were brought together before me.”³²³ The traveller, who represents a human being seeking his orientation in this world, then asks Ḥayy to take him on this journey so he too, can learn of all the sciences and understand the truth of existence. To this request

³¹⁸ Nasr 1993, 207.

³¹⁹ Ibid., 259.

³²⁰ Ibid.

³²¹ Nasr 1993, 263; Corbin 1986, 4.

³²² Nasr explains that such visions are granted only to elected Gnostics who have come to realize the potential of their own souls and thus they are able to experience celestial archetypes in a manner which defies immanent realities and phenomena. Nasr 1993, 264. Corbin writes that the symbolic poetry Avicenna turns to with the recitals complement his philosophical works in attempting to find the right language to describe the experiences of the soul. Corbin writes: “By substituting a dramaturgy for cosmology, the recitals [such as the *Ḥayy ibn Yaqzan*] guarantee the genuineness of this universe; it is veritably the place of a personally lived adventure.” Corbin 1986, 4.

³²³ Corbin 1980, 138.

Ḥayy replies that the initiate is not ready for such a sojourn as his soul is still attached to matters of the world and the body, and that to undertake such a journey he advises that the initiate “break with them wholly.”³²⁴ This being the case, the disappointed traveller, to satiate his curiosity asks of Ḥayy to instead narrate to him the experiences he had of the places he has been to. The telling of the journey that follows from hereon in effect refers to the stages of the soul. It would describe how the body and soul are made to co-exist and the place in which the soul will reside if it reaches its full potential and its true destination.

The journey is presented as a cosmographic narrative, beginning in the darkness of matter. The location of this darkness is the west, the Occident. This dark place refers to all material beings on earth including the physical human body. In this way Ḥayy starts the narrative by describing the domain of the Occident. The journey starts from a foreboding place of “Perpetual Darkness”, which consists of no beings at all except elementary air, the fundamental basis of human life.³²⁵ The second region or kingdom consists of air, minerals, plants, and animals. This refers to the physical souls present within the human being. In this region we are told there are human-like beings. But they are not quite humans as they are, as Ḥayy describes them, quadrupeds with vegetation growing on their body. Ḥayy, we soon realize, is building the various stages of the body and soul’s evolution as though they are layers or floors of a building rising upwards. The quadrupeds he refers to here are human beings who have not realized their true humanity by way of the rational soul. As such they are presented as a hybrid between minerals, plants, and animals.³²⁶

As Ḥayy continues his journey, he soon crosses into the next level in which he witnesses a glimpse of the Orient. Here the human being has come into possession of the illumination of the rational soul. Thus he is no more a quadruped but a fully formed human body. Avicenna presents the relationship of the rational soul and the body as a city “possessing a king [rational soul], soldiers, travellers, streets, walls, and so on.”³²⁷ At the centre of this city is the fortress of the rational soul. This fortress is approached by five avenues, meaning the five senses. The practical faculty, which is one part of the rational soul, guards the barriers of the five avenues. If the laneways

³²⁴ Ibid., 141.

³²⁵ Corbin 1980, 142; Nasr 1993, 269.

³²⁶ Compare this to Aristotle’s statements in the *Nicomachean Ethics* where he calls such human quadrupeds to be like cattle. See Shields 2007, 314–5.

³²⁷ Nasr 1993, 270.

and the barriers function optimally, the kingdom will continue to draw illumination from the Orient, if not the darkness from the Occident may cloud over it. This serves as a metaphor illustrating the tension between body and soul.

Nasr describes that while the traveller, Ḥayy, may have gotten a glimpse of the Orient, he still “has not yet left the Occident, or the world of matter.”³²⁸ The next stage of the journey starts at the boundary that separates the terrestrial world from the visible heavens, namely, the moon. From this point on, the theoretical faculty of the soul starts to separate itself from the practical faculty, moving upwards seeking the First Principle, God. Avicenna states, that the “Pillar of the Heavens” above are set upon this boundary marked by the position of the moon. Raised upon these pillars are the seven celestial spheres, the zodiac, and the starless heavens as regions layered one upon another forming a rising tower. Each layer is described as a region composed of cities differentiated from one another by its people, their nature, and the crafts they practice.³²⁹ For example, Mercury is described as “a kingdom whose inhabitants are even smaller in stature than the former (on the Moon), while their gait is slower. They passionately love the arts of the writer, the sciences of the stars, theurgy, magic; they have a taste for subtle occupations and deep works. Their cities number ten.”³³⁰ The limit of this cosmic structure continues on until it concludes with the starless heavens: “Above it there is no longer a land which is occupied. The heavens and the earth which make up the left side of the universe, the Occident, here come to an end.”³³¹ The traveller arrives at the threshold at the furthest end of the Occident and at the edge of the visible planets. Moving forward, the Occident is completely left behind. From here on, the journey onwards and upwards is one towards the Orient.

This journey is one in which the sense perceptions are completely left behind, meaning that now the theoretical faculty completely breaks itself from its counterpart, the practical faculty, in its ultimate search for the First Principle. Upon its arrival in the Orient it finds itself in a completely illuminated realm. This then is the true kingdom and destination of the soul and the rising sun,³³² where the inhabitants live in cities of “lofty castles and magnificent buildings” made up of materials exhibiting the

³²⁸ Ibid.,

³²⁹ The cities refer to the orbs dedicated to each planetary sphere in the Aristotelian cosmology and the inhabitants refer to angels associated each one of them. See Nasr 1993, 271 n.23.

³³⁰ Corbin 1980, 143.

³³¹ Nasr 1993, 272.

³³² Corbin 1980, 164.

strength and radiance of diamonds and jacinth.³³³ The destination stands diametrically opposed to the journey's beginning in darkness. Moving away from the darkness of the sublunar realm, the soul experiences the increasing luminosity of the celestial realms until it reaches the Orient: the source of all illumination. Avicenna demonstrates with this narrative, his diagram of the body and soul mapped over that of the entire cosmos. Here the body as the microcosm is as such availed of the entire array of cosmic experiences stretched vertically from the earth below to an irradiated zone that is over and beyond the grasp of bodily senses, but only made possible to the soul that seeks proper orientation.

In such a way the poem *Ḥayy ibn Yaqẓān* images the body and the soul as a gradated luminosity transposed over a cosmological diagram. It begins with darker and denser terrestrial regions that clarify and become more and more luminous ascending upward towards heaven. Here correspondingly, the soul also becomes differentiated until it reaches the Orient, where all aspects of the material body are overcome. The theoretical soul becomes fully actualized here, becoming illuminated.³³⁴

Siting the Body and Building

Avicenna does mention matters specifically to architecture, albeit in a short section, in his famous medical text the *Canon of Medicine*. This text was used as a standard medical text both in the West and the Islamic world well into the sixteenth century.³³⁵ In the conclusion to the section titled “The Influence of Places of Residence on the Human Body,” he advises on the selection of the site and the design of a building. Avicenna writes: “How should one choose a place of residence and what type of house should be selected?”³³⁶ In addressing this important question one should consider the selection of the site, the nature of the soil, the altitude, exposure to the elements, the source of water, the quality and type of winds, orientation, etc. He ends the section by advising on key factors that needs to be considered towards the design, planning, and construction of a dwelling place.

³³³ Ibid., 148.

³³⁴ Nasr 1993, 267.

³³⁵ Al-Khalili 2010, 12:13.

³³⁶ Avicenna, 1999, 10.4.2.3 #785 (henceforth *Al-Qānūn*).

(on) whether it should be large and roomy, or with narrow entrances, good ventilation and wide chimneys. Do the doors and windows face east and north? One must be specially careful to arrange to have the easterly winds able to enter the house and to see that the rays of the sun can enter all day because the sun's rays make the air pure.³³⁷

Avicenna's recommendation is to have the house not only located in a salubrious place, but to ensure that the house is filled with air and light. Its orientation to the east is vital because the wind that is illuminated by the sun is most pure and healthiest. Here we can notice similarities between the preferred orientation of the east in the sojourn of the metaphysical soul we read above and the selection of a site for the settlement of the physical body: "Towns which are open to the east receive pure fresh air as they are exposed to the sun which purifies it [...] Towns exposed to the west... are not as healthy as those open to the east."³³⁸ Vitruvius likewise in his *De Architectura* advises that cities face east. He considers any other direction to be injurious to the health of its inhabitants.³³⁹

The equivalent of this illuminated and airy place of dwelling within the body is the heart. The heart is the residence of breath: "God created the left side of the heart and made it hollow in order that it should serve both as the storehouse of the breath and as the seat of manufacture of the breath."³⁴⁰ The heart houses the original breath granted by God as the beginning of life of the body.³⁴¹ This breath is the vehicle of the soul and the movement of breath and soul is facilitated by the intake of air from outside of the body.³⁴² As Avicenna had recommended that the dwelling must be illuminated and airy, he also recommends both these qualities to be abundantly present in the human heart so that the body is both healthy and filled with joy. This means that the qualities of the place of residence parallel the experience of the heart.

It may be said that when the breath residing in the heart is plentiful (as it is when there is plenty of that material from which it is rapidly and constantly being generated); when it is balanced in temperament; when it has a luminous, beautiful and bright substance, then there is a strong tendency to joy.³⁴³

³³⁷ Ibid. This can also be compared to Aristotle's advice on town planning in *Politics*. Aristotle writes that the most important consideration in planning for a city is with regards to health and in this respect cities that face east are the healthiest. Aristotle 2009, 1330a 34.

³³⁸ *Al-Qānūn* 10.4.2.3 #783–4; On the benefits of easterly winds see *Al-Qānūn* 10.4.2.2 #761.

³³⁹ *De Architectura* 1.4.1.

³⁴⁰ Ibid., 7.1 #486.

³⁴¹ Ibid., 7.1 #488 ; Nasr 1993, 256.

³⁴² Ibid., 10.2 #648.

³⁴³ Ibid., 7.3.1 #512.

A body in which breath is pure and plentiful is one that has drawn its breath from the east where the winds are purified by the sun. The right admixture of light and breath according to Avicenna ensures “perfect equilibrium” of the physical and metaphysical states of the human body: “Perfect equilibrium and perfect balance renders possible the manifestation of the perfection of the rational life, which celestial beings possess. And it is just this kind of character which is to be found in the case of the human breath!”³⁴⁴ The perfect breath according to Avicenna is in fact “a luminous substance. It is a ray of light.”³⁴⁵

Light is the principal and most excellent of materials with Avicenna. The pinnacle to the journey to the Orient sees the theoretical faculty in a radiant and shining city. Similar are the qualities he seeks in both body and in the composition of buildings. The site, the architecture, the body, the celestial heavens, and the First Principle are inter-related by their affinity to light. This motif and importance of light, as a way to draw relationship between body and building will be built upon by other important Islamic thinkers such as al-Ghazālī and Suhrawardī, whose ideas are discussed below.

³⁴⁴ Ibid., 7.2 #498.

³⁴⁵ Ibid., 7.2 #499.

CHAPTER 5

MEDIEVAL ISLAMIC THEOLOGY AND MYSTICISM

5.1 Al-Ghazālī: The Light of the Heart

In the Islamic tradition religion was used in design ideation while architecture was used in religious thinking. Architectural imageries have been widely employed as tools and support for religious reflections. Al-Ghazālī (d. 1111), one of the leading and most influential medieval Muslim scholars, used various architectural imageries to present his teachings in tangible and comprehensible ways.

Born in Ṭūs, Iran, al-Ghazālī is said to have been a prodigious student who mastered all the major religious sciences. He rose to a prominent teaching position at a very early age and was soon attracting a devout following to his classes.³⁴⁶ The influence of al-Ghazālī in Islamic thought is immense. He is recognized as one who counteracted the influence of various forms of heresies that threatened Islam at a crucial junction of its history.³⁴⁷ As Fakhry writes, al-Ghazālī took it upon himself, “to champion publicly the cause of orthodoxy against the sectarians of heresy and deceit,” especially the philosophers against whom his arguments are, “most sustained and searching.”³⁴⁸ Al-Ghazālī’s reaction against the various groups in fact rose as a result for his quest to search for “the true meanings of things.”³⁴⁹ True knowledge, al-Ghazālī would claim, comes as a Divine illumination of the heart.³⁵⁰

It is with this position that dealt with the illumination of the heart that we find al-Ghazālī grappling with spatial notions, such as centrality, light, access, fortification, exposure, and so forth. Al-Ghazālī’s use of architectural imagery is made to reflect upon the human body and its soul. The “heart”, a term he uses to describe the spiritual nature of the body is identified to be the centre of the human being. The spatial quality of this “heart” is variously described as a fortress penetrated from many sides or a column structured from the world below to the heavens above. Fundamentally the structure of this centre is to be imagined to be a place of luminosity that is continually under threat. The calibration of this luminosity happens at the thresholds. The threshold, the dilation of the openings, and its orientation dominates al-Ghazālī’s spatial meditations. We find him turning to the use of architectural elements such as perforations, gateways, and windows. The openings that face upwards, by which he

³⁴⁶ Griffel 2009, 25–40.

³⁴⁷ McCarthy in *al-Munqidh*, 9–14.

³⁴⁸ Fakhry 2004, 226.

³⁴⁹ Al-Ghazālī 1980, 55 (henceforth *al-Munqidh*); see also Fakhry 2004, ch 2 & 4; Ziai in Winter (ed.) 2008, 66–69; Walker in al-Juwaynī 2000, xxvii–xxxii; *al-Munqidh*, 66–67 and Griffel 2009, 99.

³⁵⁰ Skellie “Introduction” in Al-Ghazālī 2007, xix; *al-Munqidh*, 57–8.

means right and virtuous actions, draw in light from the heavens. Openings, which face downwards towards the material world, representing vices such as envy and greed, are said to cloud the interior. In this manner we find the body presented by al-Ghazālī to be an architectural structure in which the tuning of openings affect the luminosity of the structure and with it also its location in relation to God.

The Dual Dimensions of the Heart

Al-Ghazālī in the search for the truth turned to the practice of the Islamic mystical tradition known as Sufism.³⁵¹ Through the study and practice of Sufism, which he defines as the emptying of the heart of everything save for the remembrance of God, he claims to have experienced a divine illumination of certainty that confirms his faith and belief in God.³⁵² This certainty, al-Ghazālī states, was not arrived at by dialectical disputation or philosophical arguments but rather it was an inspiration that was directly cast into his heart by God.³⁵³ The only way one can draw near to God is by the way of the heart. Al-Ghazālī says that what he meant by “the heart” does not refer to the “flesh which man has in common with corpse and beast,” but “the essence of man’s spirit which is the seat of the knowledge of God.”³⁵⁴

In his most famous work, *Iḥyā’ ‘Ulūm al-Dīn (The Revival of the Religious Sciences)*, al-Ghazālī explains that the term “heart” has two meanings. One of its meanings is the physical heart: “the cone-shaped organ of flesh, which is located at the left side of the chest.”³⁵⁵ But it is to its other meaning, he says, one needs to pay very close attention: “the second meaning of the ‘heart’ is a subtle tenuous substance of an ethereal spiritual sort [...] this is the real essence of man.”³⁵⁶ This spiritual heart, al-Ghazālī writes in his *Mishkāt al-Anwār (The Niche of Lights)*, is “a sample of the light of God” and the reason why Muḥammad has said that Adam was honoured by being made in the image of God.³⁵⁷ Thus the human body is essentially divided into two dimensions. The perceptible physical body belongs to this temporal earth. The other half of the body, which cannot be seen by the human eye, can only be realized by a spiritual insight; this belongs to the realm of the unseen heavens. Nevertheless

³⁵¹ *Al-Munqidh*, 77–83.

³⁵² *Ibid.*, 77.

³⁵³ *Ibid.*, 57.

³⁵⁴ *Ibid.*, 87.

³⁵⁵ Al-Ghazālī 2007, 5.

³⁵⁶ *Ibid.*, 6.

³⁵⁷ Al-Ghazālī 1998, 6 (henceforth *Mishkāt*).

the body and its essential heart are bound together with the body playing an important part in the heart's journey towards God.

It is impossible for the creature to reach Allāh except by dwelling in the body and passing through this present world (*al-dunyā*), for the nearest stage must be passed through in order that the most distant stage may be attained. This present world is the seed-bed (*mazra'ah*) of the world to come (*al-ākhirah*), and it is one of the stages of right guidance (*hudā*). It is called "nearer" (*dunyā*) only because it is the nearer of the two abodes. The heart must therefore get its supply of provision from this world. The body is its vehicle by which it comes into contact with this world. Thus the body needs to be cared for and preserved, and it is preserved [...] by procuring for it [...] food and other things suitable for it, and by warding off from it the causes of destruction which are repugnant to it and destroy it.³⁵⁸

This relation between the body and its heart will form the basis in attempting to draw al-Ghazālī's reflections on how the body is related to building. The first part of this chapter therefore turns to two of al-Ghazālī's well-known works, *Revival of Religious Sciences* and *Kimyā' al-Sa'āda* (*Alchemy of Happiness*), to study his use of architectural motifs such as the city, door, gate, and window, to describe the relationship of the body and the heart. The second and concluding section will analyze al-Ghazālī's *Niche of Lights*. In this text al-Ghazālī offers the idea of the make-up of the human body as an illuminated niche from which an ascending column of light is built upwards towards God.

The Body as a Fortress City

In the twenty-first chapter of the *Revival of the Religious Sciences*, titled the "Wonders of the Heart," we read that the "heart has two armies: an army seen with the eyes and an army seen only by insight. The heart is as king, and the armies are as servants and helpers."³⁵⁹ The external army is made up of the five senses and the entire physical body. The interior army is composed of will, desire, and the knowledge of perception.³⁶⁰ We are told that the actions of the internal army are continually threatened by beastly, brutish, and demonic qualities that are mixed up in one's heart. To succeed and move towards God one needs to overcome such threats

³⁵⁸ Al-Ghazālī 2007, 14.

³⁵⁹ Ibid., 12.

³⁶⁰ Ibid., 15.

with the heart's most important army: "which is knowledge, wisdom (*hikmah*), and reflection [...] for it is the party of Allāh."³⁶¹

Al-Ghazālī continues that if the heart "neglects this help [...] it will surely perish and suffer a manifest loss."³⁶² By way of example, al-Ghazālī explains that defeat here means anger and appetite taking over the light of human wisdom thus relegating him to the level of a beast and a tool of Satan. Al-Ghazālī then by inferring to this make-up of the human body writes that we should consider the heart to be "like the ruler in his city, and his kingdom, for the body is the kingdom of the soul, its world, its abode, and its city."³⁶³ With this we find in al-Ghazālī an attempt to explain the relationship between body and its soul describing it as a fortress city. He then goes on to describe the importance of noting the openings and pathways into this body. The architecture of the body is in effect presented as a structure with multiple perforations that is continually impacted by the traffic on the highways leading to and out of it. The body as a guarded fortress is governed by the wisdom of the heart. It is the king. In this fortress the physical body is identified as a tenuous border, "a frontier outpost," that needs to be manned constantly so that the castle, the heart, is properly protected from the forces of Satan.³⁶⁴ In a later chapter he describes this constant anxiety in the following manner:

Know that the heart is like a fortress, and Satan is an enemy who wishes to enter the fortress, to take possession of it, and rule over it. The fortress cannot be kept secure from the enemy except by guarding its doors and the entrances and the breaches in the wall. He who does not know its doors cannot guard them.³⁶⁵

There are many doors "like the large street gates" through which Satan can find its way into the centre of the city. These gates in reality refer to the multitude of human attributes. Al-Ghazālī names eleven of these street gates in the "Wonders of the Heart." The following are the names of those gates:³⁶⁶

1) Of anger and appetite

³⁶¹ Al-Ghazālī 2007, 17.

³⁶² Ibid., 17–18.

³⁶³ Ibid., 18.

³⁶⁴ Ibid., 20.

³⁶⁵ Ibid., 106.

³⁶⁶ Ibid., 107–122.

- 2) Of envy and greed
- 3) Of satiety of food
- 4) Of love of adornment
- 5) Of covetous desire
- 6) Of haste
- 7) Of material desires
- 8) Of stinginess and the fear of poverty
- 9) Of sectarian and partisan prejudices
- 10) Of the uneducated dabbling in the nature of God
- 11) Of thinking evil about fellow Muslims

He concludes this section by stating that there are even more gates to describe, one for each and every blameworthy trait of the human being.

Gateways of Illumination

In the *Alchemy*, al-Ghazālī adds to this list of gates by describing the five senses as five gates “outside the heart open to the world of perceptible things.”³⁶⁷ Al-Ghazālī, quoting the Islamic mystic Abū Sulaymān al-Dārānī, adds another architectural reference in describing the gates to the heart. He says that it is to be imagined like “a pavilion which has been pitched, around which are closed doors, and whatever door is opened into it influences it.”³⁶⁸ These are doors that lead into the heart from the visible world, but we are told by al-Ghazālī that the heart has also another door or aperture that is opened “towards the unseen world of spirits [...] the world of the angelic,” and this door, “the inner door,” is only opened to the one who devotes himself to the remembrance of God constantly.³⁶⁹ When this door is opened, divine radiance is allowed into the heart, strengthening the human being’s angelic qualities thereby stemming the influence of Satan by closing or narrowing the various entrances and pathways discussed above.³⁷⁰

The influence of Satan, if it is made to prevail by the loss of the guard at the frontier gates, will eventually darken the interior pavilion, that is, the heart. Here we can note how the luminosity of the city is impacted by that which penetrates the gates.

³⁶⁷ *Kimiyā*, 23.

³⁶⁸ Al-Ghazālī 2007, 86.

³⁶⁹ *Ibid.*, 70–71; see Al-Ghazālī 1998, 23 (henceforth *Kimyā*) and al-Ghazālī 2009, 490.

³⁷⁰ Al-Ghazālī 2007, 93–94.

The natural state of the heart is a shiny radiant material. Al-Ghazālī cites the *Qurʾān* to establish this: “God Most High created men in darkness, then sprinkled on them some of His Light.”³⁷¹ Al-Ghazālī in his writings, citing evidence from the both the *Qurʾān* and *hadīth* describes the heart—the city, the fortress, the pavilion—to be made of shiny, reflective metallic material.

Undoubtedly, the heart becomes rusty just like copper, silver and other minerals become rusty. Remembrance is that which removes such rust, for remembrance polishes the heart until it is like a shiny mirror. If the heart is left alone, it will rust, and if remembrance of Allāh is made, it will become polished.³⁷²

Therefore, each time a man sins, allowing Satan a pathway into his heart by one of the large gates as warned by al-Ghazālī, the radiant heart become clouded and stained: “Whenever a man commits a sin he makes a black spot upon his heart, and whenever he turns away from it and repents, the spot is polished away, and if he returns to sin it increases until it covers the heart.”³⁷³ He cites Muḥammad who describes the heart of the devoted believer as that which is clear, transparent, and “in which a lamp shines,” as opposed to the heart of a disbeliever, “which is black and upside down,” meaning the door to the heavens is shut.³⁷⁴ Al-Ghazālī goes on to extend these ideas in describing the state of the human heart in the “Wonders of the Heart” to be like the inside of the house. The house will be pure and radiant if it is illuminated by angelic light. If satanic influences take over, the house will be lit by a fire that will slowly but eventually blacken the walls and ceilings of the house with the effect of its smoke. The entire interior will become cloudy and soon it will be consumed in darkness.³⁷⁵ The core idea is that the body is as a fortress city, as a hub, impacted by radiance or darkness from outside of itself continually threatening to change its interior qualities.

The Body as an Illuminated Niche

This idea of the human being as a lit enclosure is also studied as a central theme in one of al-Ghazālī’s late works, *Mishkāṭ al-Anwār* (*The Niche of Lights*). Al-Ghazālī

³⁷¹ *Al-Munqidh*, 57; see also al-Ghazālī 2007, 78–79.

³⁷² Ibn Qayyim cited in ‘Isa 2009, 103.

³⁷³ Al-Ghazālī 2007, 37.

³⁷⁴ *Ibid.*; see also *hadīth* of Muḥammad cited in Chourief 2011, 47.

³⁷⁵ Al-Ghazālī 2007, 90.

was to use this work to explain a single verse from the *Qur'ān* known as the “Verse of Light.”³⁷⁶ The verse reads:

Allāh is the Light of the heavens and the earth. The Parable of His Light is as if there were a Niche and within it a Lamp: the Lamp enclosed in Glass: the glass as it were a brilliant star: Lit from a blessed Tree, an Olive, neither of the East nor of the West, whose oil is well-nigh luminous, though fire scarce touched it: Light upon Light! Allāh doth guide whom He will to His Light: Allāh doth set forth Parables for men: and Allāh doth know all things.³⁷⁷

The verse is set out as a parable or similitude to describe the reality of God as the most radiant of lights that is contained within an illuminated glass lamp, lit by a most luminous and pure olive oil, which is expressed from a radiant olive tree. This entire structure of the most radiant of lamps is contained, we are told, in a niche or an apse (*mishkāṭ*), which architecturally refers to a recess made into a wall to contain usually a sculpture. In fact, rather appropriately in the following verse of the *Qur'ān* this lamp niche is described as one that is found in the interior of mosques: “(Lit is such a Light) in houses, which Allāh hath permitted to be raised to honour; for the celebration, in them, of His name: In them is He glorified in the mornings and in the evenings, (again and again).”³⁷⁸ Of the term *mishkāṭ*, which is used only once in the *Qur'ān*—in the above quoted verse—Böwering explains, is of either Ethiopian or Abyssinian Christian origin with the Ethiopic meaning of the term referring to the skylight that illuminates an interior of the building from above.³⁷⁹ In fact the term that is used in the *Qur'ān* to describe a prayer niche is the word *miḥrāb*, in conjunction with the prophet Zechariah, the father of John the Baptist.³⁸⁰ The *miḥrāb*, as we studied in Chapter 3, became an integral part of mosque architecture about a century after Muḥammad’s death.³⁸¹

In explaining how one was to draw lessons from such a verse, Chittick says it is in essence a method to teach how God can be understood by way of examples or similitudes in the world he created. According to al-Ghazālī, God does not use

³⁷⁶ Buchman, “Translator’s Introduction” in *Mishkāṭ*, xvii.

³⁷⁷ *Qur'ān* 24:35

³⁷⁸ *Qur'ān* 24:36; see also Al-Firuzabadi 2008, 453 (henceforth *Tafsīr Ibn ‘Abbās*) and *Ma’ārif al-Qur’ān* vol. 6, 435–438. It is said it was Muḥammad’s companion Tamīm al-Dārī, who introduced oil lamps to the Prophet’s mosque in Medina. Al-Dari, who was a Palestinian, knew of this practice from the lighting of churches in his homeland. Böwering 2001, 118.

³⁷⁹ See Böwering 2001, 119 and 132.

³⁸⁰ *Qur'ān* 3:37; 3:39 and 19:11.

³⁸¹ See above 3.3.

symbolic language “primarily as literary imagery, as similes and metaphors” but far more importantly God “employs [such] language [...] to clarify the actual nature of reality. At issue are the structure of the cosmos and the human soul.”³⁸² In this way we learn that the description examining the qualities of God in effect is an attempt to explain, by way of similitude how God manifests himself in the universe, including the human body. Al-Ghazālī turns to the exegesis of this verse by Muḥammad’s contemporaries Ibn Mas‘ūd and Ubayy ibn Ka’b to help explain this manifestation, which reveals the relationship between the human being and God. Ibn Mas‘ūd states: “the similitude of His light in the heart of one who has faith is like a niche,” while Ubayy ibn Ka’b similarly has drawn relationship between the light and the human heart: “the similitude of light is of the heart of one who has faith.”³⁸³ Both interpretations reveal an understanding that identifies the human body to be an illumined structure.

Expanding on this idea al-Ghazālī explains that the human body is made up of two columns. One made out of clay, and this is the part of the body that belongs to the physical world, and the other made of lights, referring to the interior spiritual heart. This luminous column belongs to the “world of dominion,”³⁸⁴ and, we are told, is composed of five illuminated spirits. In this way the body is transformed as a vertical structure made of two materially varying columns, one stacked upon the other. The materiality in question is light or the lack of it. Al-Ghazālī continues by describing the ascending luminous tower first. We recognize the ordering begins with the least luminous, which ascends upwards getting brighter in each stage: “once you have recognized these five spirits, know that, taken together, they are lights.”³⁸⁵ The first of the five human spirits cast into the human being is known as the sensible spirit. This spirit is closest to the physical body and its five senses. Its light is constantly in contact with the visible world. Al-Ghazālī identifies this spirit as the niche from the *Niche of Lights* verse. In fact he imagines the surface of this niche to be punctuated with perforations or apertures, referring to the five senses, through which its light comes pouring out: “when you consider its specific characteristic, you find that its lights come out of numerous holes, like the two eyes, the two ears, the two nostrils, and so forth [...] the most suitable similitude for this spirit in the visible world is the

³⁸² Chittick, “Foreword” in *Mishkāt*, xiii.

³⁸³ *Mishkāt*, 25; see also *Tafsīr Ibn ‘Abbās*, 452–453 and *Ma’rifat Qur’ān* vol. 6, 433.

³⁸⁴ *Mishkāt*, 25.

³⁸⁵ *Ibid.*, 38.

niche.”³⁸⁶ As the sensible spirit has the most contact with the world (of clay) it is also the least radiant.

Above it in the column of light is placed the imaginal spirit, which is described to be of a quality that is originally dense. This is because its nature is partially drawn from the clay of the lower world due to its close relationship with the sensible spirit. Al-Ghazālī compares this spirit to be like that of the material glass, which surrounds a lamp. This is so because just like glass, which is originally “a dense substance,” the imaginal spirit can also over time be “purified and made clear.”³⁸⁷ Above the imaginal spirit is arranged the rational spirit, which is the lamp or the light itself, for this is the spirit “through which perception of noble, divine knowledge takes place.”³⁸⁸ This spirit is placed below the fourth spirit, the reflective spirit, where the light of knowledge drawn from the light of the rational spirit is “augmented, fixed, and given subsistence,” therefore this spirit is like the olive tree. The highest spirit in this column is the “holy prophetic spirit,” the pure olive oil, which as we read in the Qur’ānic verse, encompasses with its radiance both the east and the west without even being touched by fire.³⁸⁹

The Body as a Luminous Column

The prophetic spirit is closest to God, who is Light of all lights. Al-Ghazālī concludes by stating how the “niche of lights”, meaning the spiritual and unseen dimension of the human being, should be imagined. As we read al-Ghazālī’s own description below we find described the body to be composed of five layers straddling between the physical world and the world of dominion (Fig. 5.1).

When these lights are ranked in levels, one on top of the other, then the sensory spirit is the first. It is like the preparation and introduction to the imaginal spirit, since the imaginal cannot be conceived of as being placed in its situation except after the sensory. The reflective and rational spirits come after these two. Hence, it is most appropriate that the glass be like the locus for the lamp and the niche like the locus for the glass. Hence, the lamp is in a

³⁸⁶ Ibid., 39.

³⁸⁷ Ibid.

³⁸⁸ Ibid., 40.

³⁸⁹ In several of the traditional *Qur’ānic* commentaries this is how the verse in totality is explained: “The niche is explained literally, as a windowless recess in the wall of a house, a candlestick, or a wick, and symbolically, as the chest of the believer holding the lamp of faith and the *Qur’ān* in the glass of his heart, or as the body of Muḥammad enclosing the lamp of faith.” Böwering 2001, 130.

glass and the glass is in a niche. Since all of them are lights, one above the other, it is appropriate that they be ‘light upon light.’³⁹⁰

Al-Ghazālī, in attempting to explain the “niche of lights”, has generated an ascending structure, which is in effect the human body. This begins with the niche at the most outer surface in connection with the physical world, where light and clay intermingles. From this point onwards the layers of light grow in luminosity as they move towards the First Source, God: “to which no light comes from any other. From this light all the lights shine forth, according to hierarchy [...] the Furthest, Highest Light, beyond which there is no light and from which light descends to others.”³⁹¹

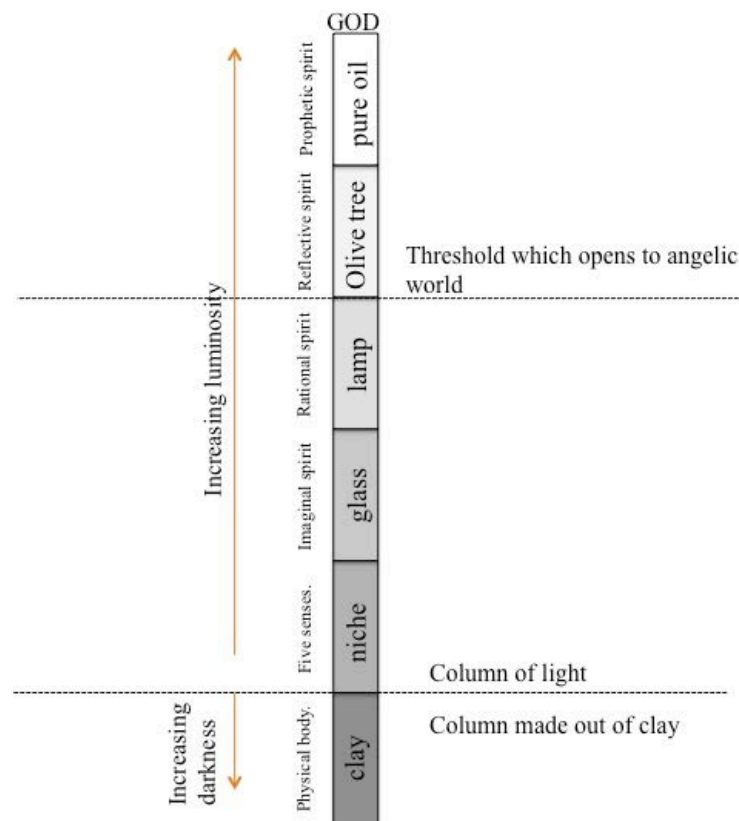


Fig. 5.1 The construction of man as composed of two columns. The nature of the human being is described by a luminosity that increases with his spiritual state.

Moving away from the niche, away from the physical world, and upwards towards the First Source, we find right in the middle, the pivotal third spirit known as the rational spirit (*al-‘aql*). This is an important boundary and threshold of this structure (see fig.

³⁹⁰ Ibid., 41; see also Moosa 2005, 227–229.

³⁹¹ Ibid., 14–15.

5.1). Above we read al-Ghazālī in his “Wonders of the Heart”, placing at this juncture the door to the angelic world. When this door is opened in the “niche of lights”, al-Ghazālī names the opening as a veil; illumination from the “world of dominion” is made to enter and transform the human experience.

Appropriately, al-Ghazālī identifies the rational spirit in his exegesis as a lamp. Once this door or veil is lifted, meaning the lamp is lit, the rational faculty is completely transformed, as it disengages itself from the physical world: “through the angelic light the proper order of the world of highness becomes manifest.”³⁹² From this stage onwards its gaze is turned upwards becoming part of the unseen spiritual world, where things are seen as they really are: “When this has been unveiled to you with a complete unveiling, then the first door of the world of dominion will have been opened to you. In this world there are wonders in the relation to which the visible world will be disdained.”³⁹³

In the case of the unbelievers of God, al-Ghazālī warns that the door to the rational spirit is kept shut from divine illumination. Instead of an ascending column of light, the body darkens, and the influence of Satan, which we read above, enters by the various gates into the heart.³⁹⁴ For example, he writes: “it is appropriate that it be something dark, because anger is the ghoul of the rational faculty.”³⁹⁵ Al-Ghazālī refers us to the verses in the *Qur’ān* that arrives five verses after the verses of the *Niche of Lights* as a way of comparing the state of the believer as opposed to disbelief in God. Of their state it is said to be: “like the depths of darkness in a vast deep ocean overwhelmed with billow topped by billow, topped by (dark) clouds: depths of darkness, one above another: if a man stretches out his hands, he can hardly see it! For any to whom Allāh giveth not light, there is no light!”³⁹⁶ Just as the body is described as an ascending luminous tower, it can also be considered as a descending opaque structure, each state commensurate to its spiritual acumen.

Al-Ghazālī in his writings was most concerned about the intentions and the state of the heart. This spiritual dimension is one that needs to be cultivated and refined so that one may eventually return to God upon his death with a sound and

³⁹² Ibid., 19.

³⁹³ Ibid., 11.

³⁹⁴ *Mishkāṭ*, 42.

³⁹⁵ Ibid.

³⁹⁶ *Qur’ān* 24:40; see also *Tafsīr Ibn ‘Abbās*, 453.

felicitous heart.³⁹⁷ In the texts considered above, al-Ghazālī explains how this heart is related both to the sensible world below and the angelic realm above. The angelic realm is the one that draws one closer to God. Al-Ghazālī has used architectural references in his writings to describe the human body as a niche, pavilion, or city having pathways leading to its heart. These pathways are opened to forces from below, that of Satan, and from above, the light of God.

5.2 Al-Suhrawardī: The Temples of Light

The use of light to present the relationship between the human being, cosmos, and God in the writings of Avicenna and al-Ghazālī, offers with it ideas on architecture. With Avicenna, the geography of the virtuous soul is identified with the metaphysical Orient, a place described as an illuminated celestial kingdom. Al-Ghazālī, too, uses the motif of light to describe the interior of the body as an illuminated fortress city. In another reading al-Ghazālī likens the body to an ascending illuminated tower that emerges from the earth all the way up to the unseen heavens. Following in their footsteps was the philosopher and Sufi master, Shihāb al-Dīn Yahya al-Suhrawardī (d. 1208). Suhrawardī went on to develop a complete metaphysics based on light, founding what would come to be known as the Philosophy of Illumination. Scholars have cited that both Avicenna and al-Ghazālī, amongst others, influenced Suhrawardī in the development of his philosophy.³⁹⁸

Born in the year 1170, in Northern Persia, al-Suhrawardī would come to be known as Shaykh al-Ishrāq (Teacher of Illumination). For al-Suhrawardī all that is in existence are modes of light. Based on this foundational premise of the relationship between God and the created world, al-Suhrawardī developed his Illuminationist philosophical system. In this system God, the origin of being, is identified as the Light of lights.³⁹⁹ As all that is created emerges from God, it follows that every being is nothing but a variation of this original Light. This meant that for al-Suhrawardī light was the singular lens through which the reality of existence can be explained and understood. In two of his most important works, the *Ḥikmat al-Ishrāq (Philosophy of Illumination)* and the *Hayākil al-Nūr (Temples of Light)*, we find him exploring ideas

³⁹⁷ *Al-Munqidh*, 87.

³⁹⁸ Razavi 1997, 31; Nasr and Razavi (ed.) 1996, 129; Nasr 1964, 53–62; Fakhry 2004, 301; For the Greek lineage of al-Suhrawardī's philosophy see Walbridge 2000.

³⁹⁹ Razavi 1997, 37.

not only on how the world can be understood through the reality of light, but also how this understanding can be reinforced by drawing analogies between body and building.

Hayākil al-Nūr and the Ancient Temples of Fire

To start with we can turn to the text titled *Hayākil al-Nūr*. The term *haykal* (singular), “temple,” which al-Suhrawardī uses, is rather unique. It is not a term for an Islamic place of worship. In Islam the term used for the place of worship, the mosque, is *masjid* and never *haykal*. When probed further we discover that the term *hayākil* itself has an additional meaning, referring to the human bodily structure. In fact we find al-Suhrawardī using the term to refer to the human body in the *Philosophy of Illumination*.⁴⁰⁰ As Kuşpınar explains, this term *hayākil* was utilised by al-Suhrawardī to represent the human body as a temple building in which the light of the soul dwells.⁴⁰¹ This idea is not merely metaphorical, as we learn from the fifteenth-century commentator on the *Temples of Light*, Jalal al-Dīn al-Dawwānī (d. 1501). According to al-Dawwānī temples called Hayākil al-Nūr had existed in ancient Persia. Given that al-Suhrawardī’s metaphysics and cosmology also drew from pre-Islamic Zoroastrian religion, it is most likely that his inspiration for the *Hayākil al-Nūr* is based on Zoroastrian fire-temples (Fig. 5.2).⁴⁰² In fact we actually find al-Suhrawardī describing fire as the one earthly element that has most affinity to the divine illumination of the stars, and that was why Suhrawardī claimed that the Zoroastrians “of ancient times appealed to the sacred fire and worshipped it.”⁴⁰³

⁴⁰⁰ Al-Suhrawardī 1998, 139 (henceforth *Ḥikmat al-Ishrāq*)

⁴⁰¹ Kuşpınar 1996, 89.

⁴⁰² *Ḥikmat al-Ishrāq*, 108; Razavi 1997, 81–87. For a study of the architecture and the rituals around the Zoroastrian fire temples see Boyce 1975, 454–465.

⁴⁰³ Stepaniants 2002, 168.

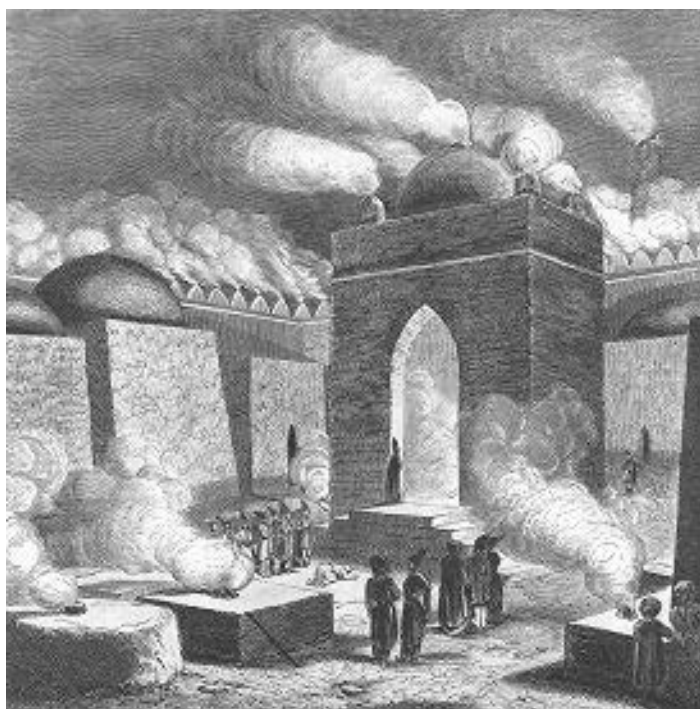


Fig. 5.2 Nineteenth century engraving of a Zoroastrian Astehgah Fire temple in Baku, Azerbaijan. It may be assumed that such fire temples were an inspiration for al-Suhrawardī's Temples of Lights. (Source: <http://www.virtualani.org/firetemple/>, online accessed 16/08/2013).

Al-Dawwānī's commentary avails us further on how these temples may have operated. He says that "ancient sages" or priests of these fire temples, in order to draw down providential favour from the seven planets or stars, would start by searching for sympathetic metals associated with these planets.⁴⁰⁴ These metal artefacts, both in composition and form, are made as talismans to respond to the planets they are associated with. They will then go on to build seven separate temples to house each one of these talismans. The sites of these temples are very specific, being "in conformity with a horoscope, in a location appropriate to the star." The liturgy within the temples included fire and smoke "which correspond to the star at its respective time."⁴⁰⁵ Al-Dawwānī writes that each one of these temples were also constructed in the most magnificent of ways so as to be an appropriate homage to the stars they were related to. Also the metallic talismans placed in each of these temples not only resemble the stars by way of symbolic forms but also in terms of luminosities: "these theurgies [...] which were the forms of the stars which themselves were the temples of

⁴⁰⁴ see Boyce 1975, 459.

⁴⁰⁵ Dawwānī cited in Kuşpınar1996, 88.

the extreme lights.”⁴⁰⁶ With al-Suhrawardī’s reading of the human body as a temple, this was also the case. The human body-temple is explained to be a site, in which the light or fire of the rational soul is made to reside: “In other words, the temple, i.e., the body becomes a theurgy for the rational soul.”⁴⁰⁷

To reinforce his idea that al-Suhrawardī’s reference is drawn from the ancient temples, al-Dawwānī states that it is no mere coincidence that the *Temples of Light* has seven chapters with each chapter heading titled “Temple.” Al-Dawwānī explains that there is an unmistakeable correspondence between the text written by al-Suhrawardī and the ancient temple building he had alluded to as its inspiration: “so, each chapter of this treatise, together with the explanations as well as the terms that it contains, would resemble a place of theurgy whose contemplation would lead inevitably to the contemplation of these lights.”⁴⁰⁸ The opening prayer of the book presents an architectural interior to be a site contested between light and darkness: “O Deity of the worlds! O eternally Subsistent! Strengthen us with (the aid of) the light, maintain us in the light, assemble us under the light [...] Those who are imprisoned in darkness stand at Your Portal, awaiting mercy and liberation from captivity.”⁴⁰⁹ It is clear that light is preferred and that darkness should be avoided.

The Body as the Temple

This contestation between light and darkness is also played out in the temple of the human body. In describing the body as a *hayākil* in the *Philosophy of Illumination*, Suhrawardī writes that each of the bodily faculties “is a shadow of what is in the commanding light,” and then, referring to the body as a temple, he continues “and the temple is only its talisman, so that even the imaginative faculty is the idol of the faculty of judgement in the commanding light.”⁴¹⁰

This idea that the body is like a temple is further strengthened when we study other closely related terms to *haykal*, such as *al-haykal al-‘aẓmī* and *haykal al- binā’*, both of which refer to the structural or skeletal framework of the body. With this unique analogy between body and temple, Suhrawardī perhaps is the only Islamic

⁴⁰⁶ Dawwānī cited in *ibid.*, 88–9.

⁴⁰⁷ Kuşpınar 1996, 89.

⁴⁰⁸ Al-Dawwānī cited in *ibid.*, 88–89.

⁴⁰⁹ *Ibid.*, 77.

⁴¹⁰ *Hikmat al-Ishrāq*, 139.

thinker who comes close to the Vitruvian notion that the human body is analogous to the measure of the temple.

By the term “commanding light” al-Suhrawardī means the rational faculty, which acts as an archetype and a resource to all modalities of the human body. Thus just like the actual Hayākil al-Nūr which mirrors the illuminated planets in the way they are built, the human body-temple, too, is modified and influenced as a talisman by the commanding light which as we learn is an illumination that is drawn from the stars above. This commanding light, the rational soul, is described to be an incorporeal light, which in itself is drawn specifically from the Archangel Gabriel who is situated at the boundary of the sublunar realm. In this manner, Gabriel becomes the bridge between the human and the celestial realm. Thus by the agency of Gabriel, the human body-temple is made into a site enabled to draw to itself the luminosities of the planets similar to the Hayākil al-Nūr:

when [...] their passion and desire for the world of light [the celestial planets and God, the Light of Lights] is strengthened, they are illumined by the dominating lights [from above] and acquire the habit of connection with the world of pure light [...] Desire bears the perceptive essences to the Light of Lights [God]; that which is greater in its desire is more attracted and climbs higher toward the world of the All-Highest Light⁴¹¹

Suhrawardī’s description explains how the human body is part of cosmic illumination that begins all the way up with God himself. It is important at this point to study Suhrawardī’s Illuminationist cosmology to help reveal the design of the cosmic lights and how it illuminates the human body as a temple of light.

The Body and the Illumination of the Cosmos

In Suhrawardī’s Illuminationist cosmology, a being which is self-illuminated and has the power to illuminate another body assumes a higher ontological status when compared to a being that is dependent on another being for its source of light.⁴¹²

Suhrawardī defines this in his *Philosophy of Illumination*:

A thing either is light and luminosity in its own reality or is not light and luminosity in its own reality [...] Light is divided into light that is a state of

⁴¹¹ *Hikmat al-Ishrāq*, 145.

⁴¹² Razavi 1997, 78–81.

something else (the accidental light) and light that is not a state of something else (the incorporeal or pure light). That which is not light in its own reality is divided into that which is independent of a locus (the dusky substance) and that which is a state of something else (the dark state).⁴¹³

Light is thus differentiated as being incorporeal or corporeal, self-subsisting or dependent. We also learn from Suhrawardī that because of this, all bodies are only to be defined in relation to light. Their qualities are therefore defined as varying degrees of luminosities, for example, bright dusky, transparent, opaque, and so forth. In the *Philosophy of Illumination* Suhrawardī gives an example of this:

Light in itself varies in its reality only by perfection and deficiency and entities external to it. If it had two parts, neither of which was light in itself, each would be either a dusky substance or a dark state, and the whole would not be a light in itself. Were one of them light and the other not light, the latter would not participate in the luminous reality, though it was one of the parts.⁴¹⁴

Razavi identifies five main illuminative qualities one can derive from studying Suhrawardī's philosophy. All these lights are like elements that are mixed in differing qualities in the creation of the entire cosmos.⁴¹⁵

Incorporeal light (<i>nūr mujarrad</i>)	<i>The light that subsists by itself</i>
Accidental light (<i>nūr 'aradī</i>)	<i>The light that depends on something other than itself</i>
Corporeal darkness (<i>ghasaq</i>)	<i>It is that whose true nature is darkness</i>
Accidental darkness (<i>hay'at al ḡulāmani</i>)	<i>The type of darkness that depends on something other than itself and requires space and has the accident of darkness.</i>
Purgatory (<i>barzakh</i>)	<i>An object or an object-like entity that hides and reveals light.</i>

⁴¹³ *Hikmat al-Ishrāq*, 77.

⁴¹⁴ *Ibid.*, 85.

⁴¹⁵ Razavi 1997, 79.

Thus the cosmological design begins with God, the Light of lights (*nūr al-anwār*) at the highest point. Directly from this source emanates the Proximate or nearest light (*al-nūr al-aqrab*). From the Proximate light emerges a longitudinal order (*ṭabaqāt al-ṭūl*).⁴¹⁶ This longitudinal order conceives, after a series of mirror play between the cosmic incorporeal lights, two sets of beings: planetary spheres and the unseen realm of cosmic intelligences: “From the Proximate Light [*al-nūr al-aqrab*] a barrier [*barzakh*] and an incorporeal light [*nūr mujarrad*] results, and from this light result another incorporeal light [*nūr mujarrad*] and barrier [*barzakh*]. This continues until all the planetary bodies are formed.”⁴¹⁷ When the incorporeal lights solidify with a definable barrier they emerge as planetary bodies. Those that do not solidify retain both transparency and extreme radiance. Here we realize how bodies and their definable limits become defined for al-Suhrawardī. At the cosmic level, the planetary bodies are formed by the crystallization of its luminous state. We can imagine incorporeal light thickening until the edges become definable thus a clear separation occurs between the free-form incorporeal lights and bodies defined as pristine stars and planets. But here in the heavens this boundary that defines the body of the planet, the barrier is in itself a light-giving element: “The opaque bodies in the heavens are luminous, and all others are transparent.”⁴¹⁸

With the extra luminous planetary and celestial intelligences the upper order of the cosmos is established. This order as noted above is vertical and known as the longitudinal order. It is an order that also establishes an affinity with the human being. Those who seek towards the divine and therefore greater luminosity will find themselves becoming attached to the luminous vertical structure of the cosmos: “that which is greater in its desire is more attracted and climbs higher toward the world of the All-Highest Light.”⁴¹⁹ This longitudinal order’s boundary is the latitudinal order (*ṭabaqāt al-arḍ*). This marks the beginning of the sublunar realm. This horizon is populated by illuminations that are archetypes (similar to the Platonic World of Forms), which are connected to the world below. From this point onwards bodies that are created become more and more opaque, where their barriers, unlike the planetary bodies lose their transparency and radiance. The one being capable of most luminosity thus becoming a microcosm of the cosmic vertical order is the human being.

⁴¹⁶ Nasr and Razavi (ed.) 1996, 138; Razavi 1997, 82.

⁴¹⁷ *Hikmat al-Ishrāq*, 99.

⁴¹⁸ Ibid., 124.

⁴¹⁹ Ibid., 145.

The Body Oscillating Between Light and Darkness

The archetype of the human being at the latitudinal order is the angel Gabriel. Gabriel is the bridge connecting the human luminosity to the longitudinal order.⁴²⁰ This relationship between the higher lights and the human body, al-Suhrawardī reminds us, is just like the interior of the temple lit by the fires. In the *Philosophy of Illumination* he uses another architectural term to describe the body and to emphasize the dichotomy of its nature, made distinct by opacity and darkness. He calls the body to be like a fortress: “from one of the dominating lights [from the latitudinal order] the incorporeal light that is controlling light in the human fortresses is brought into being for the human—the most perfect—constitution.”⁴²¹ Describing Suhrawardī’s choice of words, Ziai and Walbridge write that the Arabic term “*ṣiṣīya*” (pl. *ṣayāṣī*), meaning “fortress” is an unusual word that Suhrawardī uses as the Illuminationist term for the human body.⁴²²

The term “*ṣiṣīya*” from its root in Arabic offers several meanings. These include for example the description of a type of fork that is used to straighten and tighten the weft and warp during the process of weaving. It also has martial analogies with the term also meaning horns of bulls that is particularly used in the tip of spears.⁴²³ All these terms in relation to a fortress reinforces the idea of resistance and the opacity of the human body. But as the human is unique in his relationship to the longitudinal order and being able to draw his light from above, al-Suhrawardī after introducing the body as a heavy barrier soon offers it to be capable of being possessed by divine lights. In this instance, his analogy draws an even closer parallel between the human body and the temple. He presents here the idea of the human fortress body to be like a *ṣanam*, meaning a temple idol.⁴²⁴ While he uses the term “idol,” the nature of this idol he describes seems to operate more like the temple of fire we read of earlier. It is a place that contains “pouches” for the safekeeping of lights.

The fortress is the locus in which its acts are made evident, the pouch for its lights, the container for its effects, the encampment of its faculties. Since the dark faculties love the commanding light, they cling to it out of love and draw

⁴²⁰ Nasr, 1964, 70–71

⁴²¹ *Hikmat al-Ishrāq*, 131–132.

⁴²² Ziai and Walbridge in *ibid.*, n. 12, 184.

⁴²³ Etymology and translation by Dr. Samer Akkach.

⁴²⁴ *Hikmat al-Ishrāq*, 134.

it to their world from the world of pure light, that world where there is no taint of the darkness of barriers.⁴²⁵

As al-Suhrawardī mentions above, if the body is properly attuned, it will benefit from the luminosity of the “world of pure light.” But in the case of those temples or idols that are unable to draw influences from the stars, they will lose their lustre of luminosity, with darkness prevailing over them. In expressing this in both spiritual and metaphysical terms al-Suhrawardī at the conclusion of his text *Temples of Light* writes that the human being must avoid this fate. If the human effort fails in striving to draw closer to God—the longitudinal order—al-Suhrawardī warns that that temple or body will be overcome by another sort of talisman, the “heads of the dragons.”⁴²⁶ Explaining what this term means, al-Dawwānī refers this to the transformation of the human temples from sites of fire and luminosities into the “abode of the dark forces.”⁴²⁷

In his poetic recital, *Qiṣṣat al-ghurba al-gharbiyya* (*The Story of the Occidental Exile*), al-Suhrawardī uses another distinctive architectural analogy to emphasize this distinction between light and opacity. He uses the example of a subterranean well, with the darkened regions below representing the latitudinal order, and a luminous city of rising crystal towers representing the longitudinal celestial order. The emphasis here, though, is again an attempt to exemplify how the human being is situated between the extremities of opacity and luminosity.

In this story we encounter seekers of the divine light from above who have been kept imprisoned at the pit of a well. The geographical location of this prison-like well is identified to be the “Occident.” One can note here al-Suhrawardī’s indebtedness to Avicenna’s visionary recitals we read earlier.⁴²⁸ As it was with Avicenna, for al-Suhrawardī too “the Occident is the world of matter, the prison into which man’s soul has fallen and from which he must escape.”⁴²⁹ In the tale we read of these prisoners enviously observing the illuminated architecture above, the Orient, through a tiny window situated at the mouth of the well: “the Orient of lights is the

⁴²⁵ Ibid.

⁴²⁶ Kuşpınar 1996, 217.

⁴²⁷ Ibid.

⁴²⁸ Nasr notes that Suhrawardī not only follows on from Avicenna in writing his own mystical recitals but that sections of the *Philosophy of Illumination* closely follows the commentary Avicenna wrote of the pseudo-Aristotle work *Theology of Aristotle*. Nasr in Razavi (ed.) 1996, 130. Corbin writes that Suhrawardī’s *The Story of the Occidental Exile* “has its point of departure in the Avicennan *Recital of Ḥayy ibn Yaqẓān*.” Corbin 1980, 7.

⁴²⁹ Nasr in Razavi (ed.) 1996, 132.

world of archangels above the visible cosmos which is the origin of the soul (*rūh*) [...] The Orient properly speaking, is the visible cosmos; it is the world of informal manifestation with its boundary at the heaven of fixed stars.”⁴³⁰ Nasr also goes on to elaborate that the contrast between the well and radiant castles refers to the contrasts within the human body separated between “the world of elements” and the “faculties of the soul,” the incorporeal lights, respectively.⁴³¹ In the story we see the prisoners’ yearning for escape from the well to the illuminated castle city similar to the desire of the idol, the talisman, and temple, for the heavenly incorporeal light. In the *Temple of Lights* al-Suhrawardī relates something similar. At the “Seventh Temple,” the final chapter of the treatise, he mentions that the conclusion of the spiritual journey sees the aspirant ascending upwards towards the beam of the Divine Light. He states that when one reaches this stage “the road to the sacred world is opened” to occupy its place amongst “elevated dwellings.”⁴³²

The Microcosm: Elevated Dwellings and Polychromatic Surfaces

Corbin in his study of the *Story of the Occidental Exile* explains that this analogy of al-Suhrawardī—of elevated dwellings—was inspired by the archetypal seven-layered cosmic mountain, which was architecturally realized in the ancient ziggurat temples of Babylonia: “the famous *ziqqurat* of Babylonia typified the cosmic mountain with seven stories whose colours corresponded respectively to those of the seven Heavens; thus allowing the pilgrim, ritually, to climb to the summit.”⁴³³ After explaining this, he goes on to say that this architectural morphology is similar to the “microcosmic temple” and, referring to al-Suhrawardī’s philosophical school, he continues: “called by the *Ishrāqiyyūn* [the Illuminationists] the ‘temple of light’ (*haykal al-nūr*), the human with its seven centres or subtle organs: the seven *latifa* [...] or inner heavens, resting one upon another, each with its own colour.”⁴³⁴ The issue of colour read in conjunction with light, as Corbin explains, was an important consideration for Persian Sufis including al-Suhrawardī.

In effect the world is not only a manifestation of lights of various gradations emanating from God, the Light of lights, but these various qualities of lights are also

⁴³⁰ Ibid.

⁴³¹ Ibid.

⁴³² Kuşpınar 1996, 233.

⁴³³ Corbin 1994, 41.

⁴³⁴ Ibid., 42. Italics from original.

to be understood as a conglomeration of different grades of colours: “the whole universe of lights extends upwards and in their actuality as light become colours.”⁴³⁵ All colours, we are told, are composed of the seven foundational colours, which in themselves are the colours of each of the seven heavens.

Ardalan in his study of the intense interest in polychromy in Safavid era architecture, such as that of the Shah and Luftullah mosques in Isfahan, postulates that the Sufi guild masters who built them were influenced by the mystical theology of light found in the works of their Persian predecessors Avicenna, al-Ghazālī, and al-Suhrawardī.⁴³⁶ Ardalan states that the guild masters attempted by working with colours to represent symbolically the idea of how Divine Light is made to appear in its manifold forms, thus in this way imitating the creative actions of God, in the works of art and architecture. Ardalan explains that to the guild craftsmen of the Safavid era it is “in the saturated use of colours within the creative expressions” one can seek means to manifest the “concealed reality” of the hidden phenomenal world.⁴³⁷

Ardalan, following Corbin, mentions the importance of the “the seven colours,” white, black, sandalwood, red, yellow, green, and blue, which he writes “dominated the [Safavid] world of art and architecture.”⁴³⁸ The seven colours are a symbolic luminous manifestation that draws together the seven visible planets to what Corbin calls the seven centres of the body, meaning the microcosmic temple of light. Thus here we find that the body and building are made relative to one another by way of both light and colours.

Steirlin in his study of Shah Mosque (completed circa 1630) states that the architect Alī Akbar Iṣfahānī was completely inspired by al-Suhrawardī’s poetic imagination of the heavenly realm such as how it is described both in the Seventh Temple of the *Temples of Lights* and the Occident in his *Story of the Occidental Exile*. As we read above this was a place described to be populated by elevated dwellings of immense radiance. Steirlin draws our attention especially to the distinctive “blue radiance of [the main mosque dome and minaret] domes [see fig.5.3]” to be representative of this.⁴³⁹ The Shah Mosque also evidences a remarkable array of polychromatic mosaic decorations typical of Persian architecture of that period in

⁴³⁵ Ibid., 101. See also 101–103.

⁴³⁶ Ardalan 1974, 165–166.

⁴³⁷ Ibid., 168.

⁴³⁸ Ibid., 169.

⁴³⁹ Stierlin 2012, 228–229

which the richness of colour is further played out in the spatial interweaving of light and shadow. In fact the entire interior structure is suffused with an admixture of the multiple colours that also compose and illuminate the entire cosmos (Figs. 5.3, 5.4 and 5.5). Ardalan in his review of the use of polychromatic colours in such works, citing Suhrawardī's premise that "everything in the world is derived from the light of His Essence," writes: "just as multiplicity is emanated from Unity, so colours are viewed as emanations from the light of the Absolute."⁴⁴⁰

Contemplating the Illuminated Body

With this we see how the Temples of Light, which Corbin referred to as both the seven-tiered ziggurat and the human body, with each layer accorded its own coloured light, may have been realized in Islamic architecture half a century after al-Suhrawardī. Here we find instead of neat and differentiated layers, the play with colour is by way of fragments of parts forming a whole. It recalls the image of the various shades of luminosities al-Suhrawardī mentions in his *Philosophy of Illumination* that constitutes the makeup of the cosmos, that it is in their intermingling that the known cosmos becomes manifest to the senses.

⁴⁴⁰ Ardalan 1974, 168.

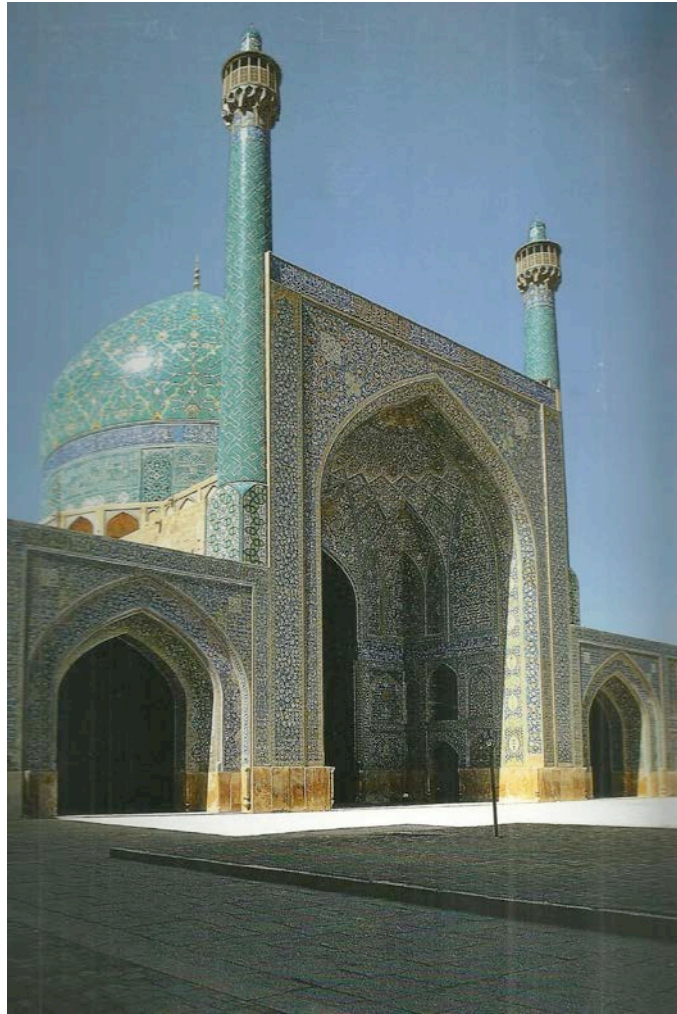


Fig. 5.3 Main dome and minarets of the Shah Mosque (Source: Steirlin 2012, 211)



Fig. 5.4 Vault over the entry portal to the Shah Mosque (Source: Steirlin 2012, 214)

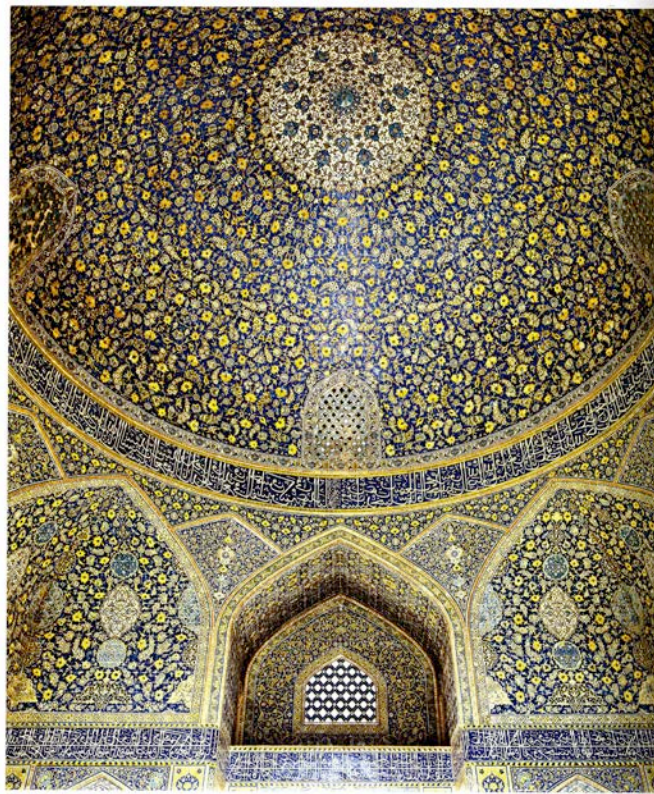


Fig. 5.5 Dome of the western hall, Shah Mosque (Source: Steirlin 2012, 216)

At the conclusion of his commentary on the meaning of the term *hayākil*, al-Dawwānī states the following: “each chapter of this treatise, together with the explanations as well as the terms that it contains, would resemble a place of theurgy [in the ancient temple] whose contemplation would lead inevitably to the contemplation of these lights.”⁴⁴¹ Al-Dawwānī makes us ponder each temple (chapter) of the book as though it was also an illuminated physical temple. The text when read carefully proposes in each of its seven “Temples” the ways in which the human is able to overcome the impediment of the physical opacity to receive illumination from the heavens. Therefore it becomes inevitable that in the contemplation of the temple of the text one is necessarily also contemplating the temple of the body.

The human body serves as an important pivot so that profound realities of the world and the nature of the Divine can be comprehended. This thought is also reinforced towards the end of the *Philosophy of Illumination* where we find al-Suhrawardī making his final mention of the body as a temple in the text. Referring to the multiple lights that can descend upon the body he writes: “all of these are

⁴⁴¹ Al-Dawwānī cited in *ibid.*, 88–9.

illuminations upon the managing light reflected upon the temple and the spirit of the soul.”⁴⁴² The illuminations he refers to here are the various stages and types of luminosities that descend upon the human temple from the heavens giving rise to sensations and experiences that are beyond the ordinary. For example we read:

lights of sundry kinds shine upon the brethren of incorporeality: a flashing light descending upon the beginners [...] a stronger flashing light descending upon others [...] a light extremely pleasant, shining from the soul upon the entire spirit of the soul, in which it seems as though something armors the body, and the spirit of the entire body might almost seem to have a luminous form.⁴⁴³

With al-Suhrawardī luminosity is a binding element between body and building. The imagery he paints posits parallel illustrations of structures composed of lights with varying qualities of radiance layered one upon another, returning us to the idea of the body being like a temple idol with pockets of lights radiating out of it. The potential of the body is in its becoming a temple of light joining up with the temple of the celestial order that concludes with God, the Light of lights.

5.3 Ibn ‘Arabī: The Geometry of Being

Muḥyī al-Dīn Ibn ‘Arabī (d. 1240), was born in Andalusia, Spain, in 1165. Ibn ‘Arabī is considered to be one of the most influential thinkers in the Islamic world. Ibn ‘Arabī was a remarkable Sufi and scholar whose works range from treatises on mystical exercises to scriptural exegesis. He was a prolific author who is said to have authored over four hundred works. His most important work is his magnum opus, *al-Futūḥāt al-Makkiyya* (*The Mecca Revelations*). His other significant works include *Fuṣūṣ al-Ḥikam* (*Ringstones of Wisdom*) and *Al-Tadbīrāt al-Ilāhiyya fī Iṣlāḥ al-Mamlaka al-Insāniyya* (*Divine Governance of the Human Kingdom*).⁴⁴⁴

⁴⁴² *Ḥikmat al-Ishrāq*, 160.

⁴⁴³ Ibid. See also Kuşpınar 233.

⁴⁴⁴ “Ibn ‘Arabī can reasonably be claimed as the most influential thinker of the second half of Islamic history [...] Indeed, from the thirteenth century onward, most prominent Muslim thinkers have felt it necessary to define their position vis-à-vis him [...] since the second half of the nineteenth century, his teaching has exerted a particular pull among Westerners attracted to Sufism. The last few decades have witnessed a growth of interest in Ibn ‘Arabī’s thought in the West, evidenced by a steady flow of translations, studies and, recently, an exploration of the broad spiritual guidance embedded in his teaching.” Taji-Farouki 2009, 17–18; see also Austin, in Ibn ‘Arabī 2002a, 46 (henceforth *Rūh al-Quds*).

In his *Futūḥāt* Ibn ‘Arabī describes knowledge systems that have the capability to reveal “the Real.” He cites arithmetic and geometry as sciences that signify a “path to knowledge of God.”⁴⁴⁵ He then demonstrates how this can be arrived at. In an attempt to describe the relationship between God and the beings he creates, Ibn ‘Arabī deploys the diagram of the circle (Fig. 5.6). As Chittick explains, for Ibn ‘Arabī “God is both the center point (*nuqṭa*) and the circumference (*muḥīṭ*).”⁴⁴⁶ This basis of the use of geometry effectively sets up Ibn ‘Arabī’s cosmological image. Using the drawing of the circle, we find demonstrated how the centre, radius, and circumference all perform symbolic roles in realizing the relationship of God in the ordering of the world He created.

When you suppose that lines extend from the circle’s center point to the circumference, these reach an end only at a point. So the whole circumference has a similar relation to the point. This is God’s words [from the *Qur’ān*], *And God is behind them, encompassing* (85:20), and His words [from the *Qur’ān*], *He encompasses everything* (41:54). Each point of the encompassing circumference is the end of a line, and the point from which the line extends to the circumference is the beginning of the line, for *He is the First and the Last* (57:3). He is the First of every possible thing, just as the center point is the first of every line.⁴⁴⁷

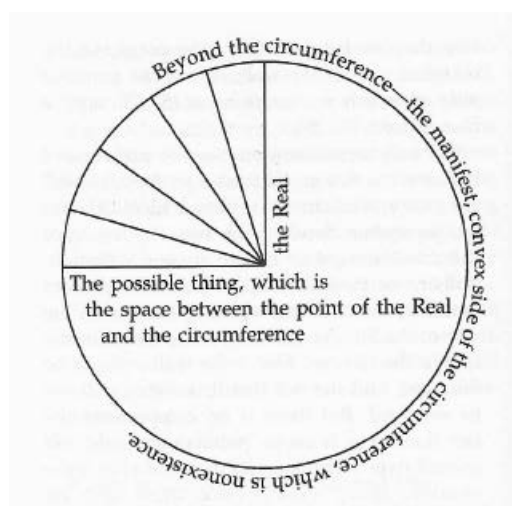


Fig. 5.6 Geometric diagram, which manifests the relation between God, the Real and beings (Source: Chittick 1998, 228.)

⁴⁴⁵ Ibn ‘Arabī in Chittick 1998, 151.

⁴⁴⁶ Ibid., 224.

⁴⁴⁷ Ibn ‘Arabī in Chittick 1998, 228. Italics in original text. The translations of the *Qur’ān* are by Chittick.

For Ibn ‘Arabī geometric exercises were able to represent complex ideas of how the cosmos is ordered. In fact as we will see below, the use of geometry is continually evoked in many forms by Ibn ‘Arabī as a way of realizing his cosmological visions. Akkach, who describes Ibn ‘Arabī’s illustrations as cosmograms, writes that these images “geometrize the cosmic structure at the spiritual, angelic, and human levels of being, revealing the main elements of cosmic landscape that embody the physical and metaphysical order.”⁴⁴⁸ This described order is one that was integrally shared between God, cosmos, and the human being.

Muḥammad: The Tree of Being

Describing the human being as a microcosm Ibn ‘Arabī explains: “everything in the human configuration has its analogue in the macrocosm, also known as ‘the great human being’ (*al-insān al-kabīr*).”⁴⁴⁹ The geometry of the cosmos therefore includes with it the geometry of the human being. The most perfect correspondence between the cosmos and the human being is realized in the form of Muḥammad who is identified by Ibn ‘Arabī as the “the most perfect being” and therefore the Perfect Man (*al-Insān al-Kāmil*).⁴⁵⁰

In the *Futūḥāt* Ibn ‘Arabī discusses this shared relationship between the cosmos and Muḥammad. He claims that both the cosmos and Muḥammad share a symmetrical relationship in which there is an absolute mirroring of form, proportion, and balance between both. Ibn ‘Arabī goes on further to identify the soul of Muḥammad as the spirit of the cosmos, emphasizing it as sharing the centre point of the cosmic circle.⁴⁵¹ Ibn ‘Arabī in his *Shajarat al-Kawm (Tree of Being)*, describes this centre, occupied by Muḥammad, to be extruded vertically in the form of a tree trunk, from which the four axes—the branches—of the cosmos is made to extend. Effectively what we find presented here is the image of the three-dimensional cross. With the unfolding of the centre, and with it the horizontal and vertical—the three-dimensional cross—Ibn ‘Arabī establishes the basis of his geometric notation of the human body and the extent of the space it occupies, being the all-encompassing circle of God. These archetypal and symbolic forms of the circle and the quadrature also offers—as in Vitruvius—the geometric translation of the perfect Pythagorean

⁴⁴⁸ Akkach 2005, 115.

⁴⁴⁹ Chittick 1998, 288.

⁴⁵⁰ Nettler 2003, 177; see also Chodkiewicz 1993, 60–73 and Chittick 1994, 35.

⁴⁵¹ Ibn ‘Arabī in Chittick 1998, 288–289. See also Chittick 1994, 31–38.

numerals: 1, 2, 3, and 4. Obviously with Ibn ‘Arabī the symbolism of the numbers and its corresponding geometry were made to relate to the Islamic tradition. For example the centre as a representation of the oneness of God, the diameter of the circle representing the duality of the metaphysical and physical nature of all beings, the three-dimensional cross being the structure of the human body, and the quadrature representing the cuboid translation of this cross which becomes manifest in the form of the *Ka’ba*, the most primordial of all architectural structures in Islam. Geometry thus becomes with Ibn ‘Arabī a powerful lens to reveal and explain the basic core of the Islamic spatial order. This order is one in which the human plays a central part with Ibn ‘Arabī describing human beings as the “Pillar” and goal of the cosmos.⁴⁵²

To better understand Ibn ‘Arabī’s cosmology, the Perfect Man, and their spatial translations we need to consider first the central feature of his metaphysics, known in Arabic as *waḥdat al-wujūd*, the oneness or unity of Being.⁴⁵³ One of the basic meanings of the term *wujūd* is “to find” or “to be found.”⁴⁵⁴ For Ibn ‘Arabī one is always finding and searching out for God and the place to find him seems rather plain enough. In this search Ibn ‘Arabī turned to the foundational tenet of Islam, known as the bearing of witness of faith that reads: “there is no god except God Himself,” as his beginning.⁴⁵⁵ For Ibn ‘Arabī this statement meant that there was no reality except the reality of God, extrapolating further he understood this maxim to mean that the reality of all existence is God.⁴⁵⁶ With this understanding Ibn ‘Arabī refers his audience to the verse in the *Qur’ān* that reads: “To Allāh belong the East and the West: whithersoever ye turn, there is the Presence of Allāh, for Allāh is All-Pervading, All-Knowing.”⁴⁵⁷ While God’s presence is throughout all existence the *Qur’ān* also clearly states that no existence can be like God: “there is nothing whatever like unto Him.”⁴⁵⁸ The presence of God in the created world is in the manifestation of his attributes. Ibn ‘Arabī singles out the names of God with which to understand how the created world is completely related to God.⁴⁵⁹ Each divine name expresses a particular attribute of God, which is made identifiable to human

⁴⁵² Chittick 1994, 34.

⁴⁵³ Chittick, 1989, 3–21; Chittick 1994, 15–29; Dobie 2010, 40–56.

⁴⁵⁴ Chittick 1989, 3–6; Chittick 1994, 15–20.

⁴⁵⁵ Nasr 1997, 104–108.

⁴⁵⁶ Chittick 1994, 16

⁴⁵⁷ *Qur’ān* 2:115

⁴⁵⁸ *Qur’ān* 42:11

⁴⁵⁹ Chittick 1989, 4–12; Nasr 1997, 108–109.

knowledge. Explaining this Chittick writes that all that exists in reality “manifests something of the Divine Presence, which by definition embraces all that exists.” This manifestation comes by way of Divine Names with which God makes Himself present to His creatures in various modalities. In each case it is God who reveals Himself, who is present in the created thing.”⁴⁶⁰ These divine names include *al-Raḥmān* (the Compassionate), *al-Raḥīm* (the Merciful), *al-Mālik* (the Ruler) and *al-Razzāq* (the Sustainer). It is commonly held that there are ninety-nine of such divine names.⁴⁶¹ Ibn ‘Arabī believed that one can only draw towards God by meditating on these names: “The attributes or names are the [...] isthmus between the Essence and the cosmos [...] The names provide the only means to gain knowledge of God and the cosmos.”⁴⁶²

In the *Tree of Being*, Ibn ‘Arabī, using a mystical cosmological tale, demonstrates the co-relation between the attributes of God’s names and how they manifest and relate to the creation of the world. Creation begins with a command by God, *kun*, meaning “be”. Ibn ‘Arabī describes that *kun* was the seed, from which grew the “Tree of Being”. The branches of this tree encompass the entire universe. All the attributes of God are manifested in the fruits bore by this tree: “thus each and every one of His beautiful names and His attributes is materialized and manifested.”⁴⁶³ This tree then assumes a specific spatiality which Ibn ‘Arabī describes as the following:

First, three shoots grew from the sacred seed of that Tree. One of those shoots bent to the right and grew in that direction [...] another shoot grew towards the left [...] The third shoot grew tall, going upwards [...] The Tree of Being is protected within a wall that surrounds it on its right and on its left, in front of it and in the back of it, above it and beneath it.⁴⁶⁴

From the seed of this tree God squeezes out a pure radiant quintessence, this is the light of Muḥammad (*nūr Muḥammad*): “This light is the origin—the source of all and everything that comes into being.”⁴⁶⁵ As an emergence from the very same seed, both the Tree of Being and Muḥammad come to be identified as one, both of them

⁴⁶⁰ Chittick 1989, 7.

⁴⁶¹ Chittick “Introduction” in Bayrak 2000, 33.

⁴⁶² Ibid., 34. For an extensive discussion on how the names of God are utilized in the Sufi metaphysics of Ibn ‘Arabī see Chittick 1989, 33–76. The other famous work on the study of the names of God is by al-Ghazālī, see Al-Ghazālī 2007.

⁴⁶³ *Shajarat*, 102.

⁴⁶⁴ Ibid., 100–101; see also Akkach 2005, 136–7.

⁴⁶⁵ *Shajarat*, 108. See also Chodkiewicz 1993, 65–66.

manifest in them all the names and attributes of God. Importantly for the consideration of the body in relation to architecture, Muḥammad thus assumes the spatial structure of the Tree of Being.

Akkach describes Ibn ‘Arabī’s narration of the Tree of Being postulating the image of the tree as a three-dimensional cross: “the trunk represents the vertical axis, and the branches represent the two horizontal axes.”⁴⁶⁶ He goes on to explain further that the word *shajarah* that is used to describe the tree, in Sufi terminology refers to “the Universal Man who governs the structure of the Universal Body.”⁴⁶⁷ To reiterate, God’s creative command “*kun*” is materialized as the light of Muḥammad. It is from this light which Ibn ‘Arabī describes growing out in all six directions that becomes the basis of all life forms. In this manner, Muḥammad’s role in the creation of the universe shares similarities with that of Christ as the word and light of God, as described in the Gospel of John.⁴⁶⁸

Muḥammad in his primordial state—as word and light—comes to represent the perfection of all human beings with Adam realized as the “first incarnation of this perfect model.”⁴⁶⁹ What becomes clear though is that the human being is identified with the six directions of space. This spatial construction is further reinforced when we return to the word *kun* which further reinforces the link between text and geometry.

The Alphabetic Geometry of Muḥammad

In relation to understanding Muḥammad as the source of creative light, Ibn ‘Arabī draws our attention to the Arabic word for light, *nūr*. This word, *nūr*, he informs, emerges from the last letter of the word *kun*, which is *nūn* (ن).⁴⁷⁰ The letter *nūn* is written as a semi-circle with a dot in the middle (ن). In his *Futūḥāt* he writes: “In the very way the letter *nūn* is written—it is a hemisphere [...] The first sign of the spiritual and intelligible *nūn* can be seen in the *nūn*’s dot as it stands over the lower part of the letter, which is half of the circumference.”⁴⁷¹

⁴⁶⁶ Akkach 2005, 108.

⁴⁶⁷ Ibid.

⁴⁶⁸ Schimmel discusses in detail the literary sources that describe the “Light of Muḥammad” and also how the role of Muḥammad as *logos* parallels and differs from that of Christ. See Schimmel 2008, 123–143. On the representation of Muḥammad’s light in Islamic visual arts see Gruber 2009, 229–262.

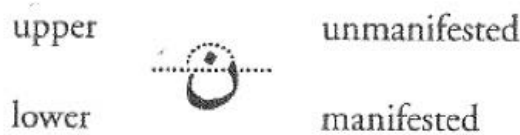
⁴⁶⁹ Ibid., 83.

⁴⁷⁰ *Shajarat*, 95; Chodkiewicz, 1993, 65.

⁴⁷¹ Ibn ‘Arabī 2002, 154; see also Akkach 2005, 136–7.

a.) The letter nûn: ن

b.) The upper and lower nûn:



c.) Alif on its side, or the diameter touching the two ends of the nûn:



Fig.5.7 “Symbolism of *nûn* and the secret of its eternity.” (Source: Ibn ‘Arabî 2002, 148.)

The formation of this circle reflects spatial structure delineated by material and hierarchical differentiation. The circle is made of two halves, one above belonging to the non-manifest world in contrast to the lower semicircle, which symbolizes the perceptible material world. This separation of the “circle” of *nûn* in turn symbolizes the duality of the body and soul of Muḥammad. Muḥammad’s body is then mirrored in the creation of the cosmos: “Muḥammad’s body became the model for the visible world, and the spiritual realms were inspired by his blessed soul.”⁴⁷² Here as the circle separates into two halves the body of Muḥammad it informs the shaping of the world above and the world below.

Now think of how the rest of the creation is but a duplicate of his body and soul. For there is not a single universe, but two. One is the universe of matter and the other is the spiritual universe; the visible and invisible worlds. Muḥammad’s body became the model for the visible world, and the spiritual realms were inspired by his blessed soul. So the density and the weight of things in this lower world are as the weight of his material existence among us. And the fine beauty and grace of the celestial, spiritual world are like his divine soul. All the mountains in the world holding the earth in place are like his bones holding up his blessed body, and all the waters in this world, some still, some flowing, some sweet, some bitter, are like the blood flowing in his

⁴⁷² *Shajarat*, 118.

veins, or standing at his joints, and like the secretions of the body: sweet like his saliva, which sweetens what is drunk or eaten; or salty like the tears that moisten and protect the eye; or bitter like the wax in the ear, which repels flies and insects.

The surface of this earth is like his blessed body. The fertile lands are like places where hair grows; the barren lands are like places where there is none. And the great lakes from which flow rivers, which divide into streams, watering lands for the benefit of humanity, are like his heart that pumps blood into arteries and small veins, reaching every part of his blessed body, keeping it alive.⁴⁷³

Ibn ‘Arabī’s geometric analysis of the letter *nūn* finds itself revealing yet another manner in which Muḥammad’s relationship with the letter *nūn* offers perspectives on human spatiality. He turns our attention to the geometric centre of the circle that forms the alphabet *nūn*, the *markaz* (centre). This centre is derived from the intersection of the letter *alif* (Figs. 5.8).

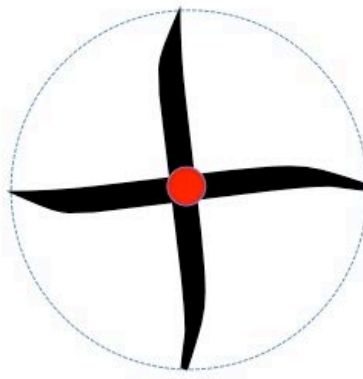


Fig. 5.8 The *markaz* formed by the intersection of the two *alifs* (Source: Author.)

In Arabic calligraphy it is the *alif* that controls the vertical and horizontal proportioning of all other alphabets (Fig. 5.9): “The greatest vertical extension is that of the letter *alif*, composed of a certain number of points. The greatest horizontal extension is determined by the lower half of a circle whose diameter is the length of *alif*.”⁴⁷⁴

⁴⁷³ Ibid.

⁴⁷⁴ Burckhardt 2009, 57. See also Schimmel 1992, 16.

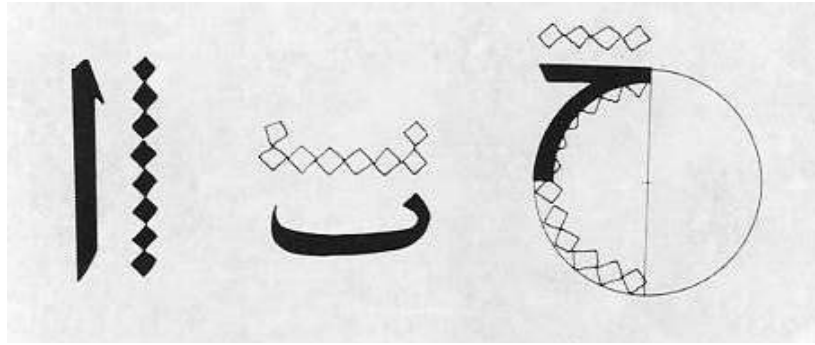


Fig. 5.9 The proportioning of the Arabic alphabets based on the vertical and horizontal lengths of *alif* (Source: Burckhardt 2009, 57.)

As discussed earlier the significance of the letter *nūn* is that it is the letter that symbolizes *nūr*, the light of Muḥammad. As the Muḥammadan light is the first manifestation of God from the seed of the Tree of Being, it is this centre, which births the creative illuminated vertical order. In effect we have a three-dimensional cross formed by the intersection of *alifs* with the appearance of the Muḥammadan light.

According the ninth-century Sufi and exegete of the *Qurʾān* Sahl al-Tustarī (d. 896) this vertically rising *alif*, the Muḥammadan light, is to be imagined as an illuminated columnar tower. Al-Tustarī’s exegesis is considered as one of the earliest mystical commentaries of the *Qurʾān*. Both al-Suhrawardī and Ibn ‘Arabī were well acquainted with al-Tustarī’s works, especially the doctrine of the Muḥammadan Light.⁴⁷⁵ According to Keeler, al-Tustarī “was among the early mystics to have contemplated the idea of the Muhammadan Light.”⁴⁷⁶ It is with this Muhammadan light that Adam’s physical body is composed, which in turn grants Adam his vertical posture: “when God [...] wanted to create Muḥammad [...] He made appear (*aẓhara*) a light from His light, and when it reached the veil of divine majesty it prostrated before God, and from that prostration God created an immense [translucent] crystal-like column of light [...] within it was the essence of God.”⁴⁷⁷

The twelfth-century Persian scholar Aḥmad ibn Manṣūr Sam‘ānī (d. 1140), referencing al-Tustarī’s commentary on the Muḥammadan Light, writes in his *Rawḥ al-Arwāḥ fī Sharḥ Asmā’ al-Malik al-Fattāḥ* (*Repose of the Spirits: Explaining the*

⁴⁷⁵ Keeler “Introduction to the Translation” in al-Tustarī 2011, xvii–xviii (henceforth *Tafsīr al-Tustarī*); See also Chittick 2013, 35.

⁴⁷⁶ *Ibid.*, xxxi

⁴⁷⁷ *Tafsīr al-Tustarī* 77–78. See also Akkach 2005, 102 and Schimmel 2008, 125–138. Schimmel discusses the role of the Muḥammadan light in the writings of both Tustarī and Ibn ‘Arabī. This primordial light is spoken of as being the seed from which the entire cosmos was birthed. For a recent study of the “Primordial Muḥammad” see Chittick 2013, 35–40.

Names of the All Opening King) in explicit terms that Muḥammad himself was given the role of the geometer to construct the world with a pair of compass.⁴⁷⁸ He has in this narrative Muḥammad affirming his being as the centre of the cosmos

A sultan needs a throne, and the throne must have a place and location. The place and location needs a courtyard. The world with all this spaciousness is the courtyard for the throne of Muḥammad. God's Messenger, he is the centre-point of the circle drawn by the compass. When someone has a compass, it has two legs. When he wants to draw a circle, first he makes one leg firm. The firmer it is, the more beautifully it turns, "All beauty is the trace of my centre-point."⁴⁷⁹

The verticality that arises from the point, with the diameter that is earlier identified with *alif* scribed into the *nūn*, returns us back to the six-sided spatial unfolding of man. Ibn 'Arabī describes this as the spatial formation with which God determined the structure of mankind. In his description he draws the analogy of the circle, and how these six dimensions express the idea of man as a microcosm: "In his essence, this individual man corresponds to the divine presence. God created him, in respect of his figure and organs, with six directions. These were made manifest through him because he is to the world as the point is to the circumference."⁴⁸⁰

Geometric Mappings of the Human Structure

As a conclusion in the section discussing the circle in the Arabic alphabets *nūn* (ن), *ṣād* (ص) and *dād* (ض) in the *Futūḥāt* Ibn 'Arabī emphasizes on discovering the perfection of the circle which forms them. The circle as a geometric symbol he claims is most perfect for the contemplation of profound divine mysteries. It is here where he refers his reader to his short treatise titled *Inshā' al-Dawā'ir* (*The Book of Encompassing Circles*).⁴⁸¹ This text, Ibn 'Arabī describes, is one that seeks to explain "the Correspondence of Man to Creator and to creatures, by sensible and intelligible forms."⁴⁸² Ibn 'Arabī then utilizes tables and geometric examples as a way of explanation on how such an understanding of God may be accomplished.

⁴⁷⁸ As Chittick has revealed, the details of Sam'ānī's life are not well known except that he comes from a family of Islamic scholars. His most well known work is the *Repose of the Spirits*. See Chittick 2013, xviii.

⁴⁷⁹ Sam'ānī cited in *ibid.*, 39.

⁴⁸⁰ Ibn 'Arabī cited in Akkach 2005, 86.

⁴⁸¹ Ibn 'Arabī 2002, 155.

⁴⁸² Ibn 'Arabī 1993, 16 (henceforth *Inshā' al-Dawā'ir*)

The first diagram he presents, returns us back to the idea of the centre, circle, and axially we studied earlier. In this diagram titled ‘The Diagram of Transcendence’, we are presented three concentric circles, with the innermost circle quartered (Fig. 5.10).

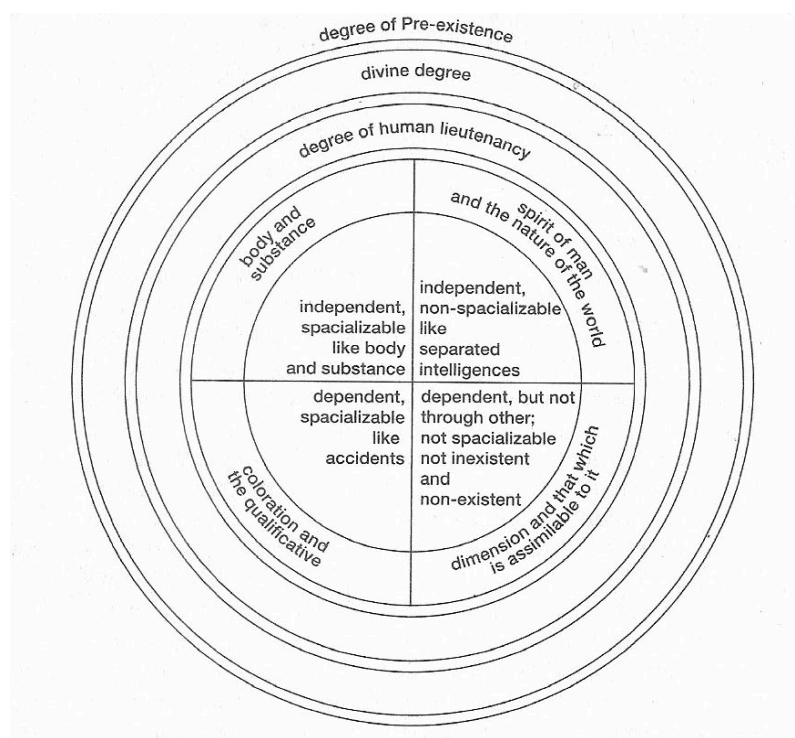


Fig. 5.10 Diagram of Transcendence (Source: Hirtenstein and Tiernan (eds.) 1993,30)

He starts his description with the outermost circle, which he cites as belonging to God. He cites two Qur’ānic verses to describe its role: “And God encompasses everything [...] and God encompasses everything in knowledge.”⁴⁸³ Describing this circle Akkach writes: “ the divine presence is represented by an all-encompassing circle, defining the outer-limit of the circle of the human presence, which in turn defines the outer limit of the circle of the world.”⁴⁸⁴ The second circle—“degree of human lieutenancy”—belongs to the human being in relation to God. The circularity of man here imitates that of God’s and this is because man is the most complete expression of all of God’s creation for which reason he is known as the microcosm.⁴⁸⁵ The circle represents the unique potential of the human soul through which the knowledge of the

⁴⁸³ *Inshā’ al-Dawā’ir*, 30; see also *Qur’ān* 4:126 and 55:12.

⁴⁸⁴ Akkach 2005, 109.

⁴⁸⁵ *Inshā’ al-Dawā’ir*, 26.

divine can be fully comprehended: “Whoso knows his soul, knows his Lord.”⁴⁸⁶ The innermost circle expresses man’s correspondence with the immanent world. This circle is quartered to depict the aspects with which a body assumes its human attributes and measurements. This single diagram thus explains the fullest expression of the human being as a bridge that links the immanent world to the world of transcendence. Akkach in explaining the richness of spatial qualities that arrives from this geometric translation writes: “from Ibn ‘Arabī’s two-dimensional diagram of simultaneous unfolding we can reconstruct the process of universal manifestation in spatial terms. The spatial diagram illustrates the principles of *centrality*, *axiality*, *circularity*, *triplicity* and *quadrature*.”⁴⁸⁷ Akkach goes on to loft this two-dimensional image into a three-dimensional one, as can be seen in Fig. 5.11 presenting volumetrically how the human spatial order is structured within divine limits.

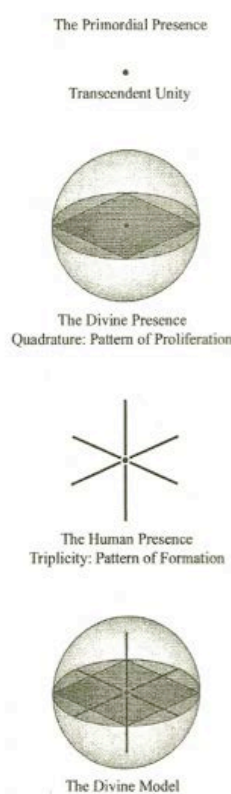


Fig. 5.11 “Diagrammatic representation of the geometry of being”
(Source: Akkach, 2005, 111)

⁴⁸⁶ Muḥammad cited in *Inshā’ al-Dawā’ir*, 26.

⁴⁸⁷ Akkach 2005, 109.

In the *Futūḥāt*, Ibn ‘Arabī presents another image of the manifestation of the immanent world from the divine command to the transcendent realm (Fig. 5.12). In this image too we can realize the very elements we studied above in relation to human spatiality that emerged from Ibn ‘Arabī’s geometric translation: centre, axes, circle, triplicity, and quadrature.

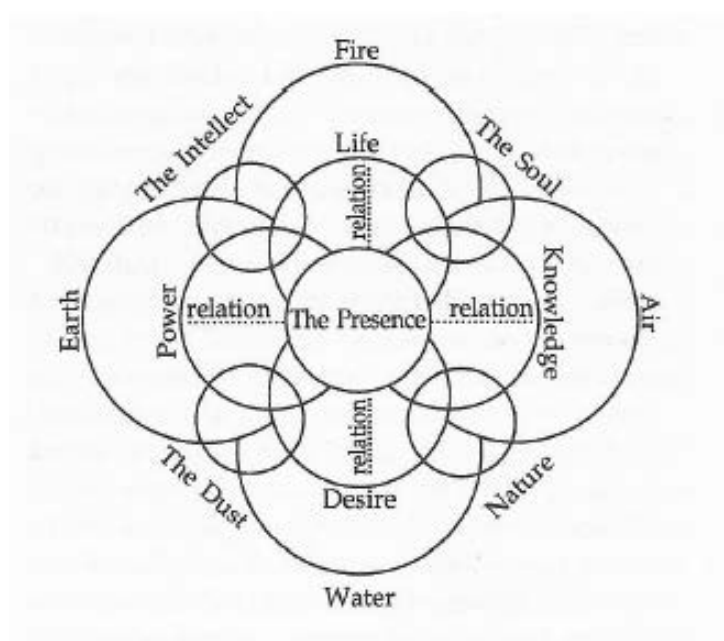


Fig. 5.12 Relationship between the Real, God, and existents illustrated by intersecting circles and repeated quadrature by Ibn ‘Arabī (Source: Chittick 1998, 230.)

This image is said to describe how the cosmos emerges from the divine command to create—*kun*. Ibn ‘Arabī explains the image is in effect about the relationship of the human being to both the cosmos and to God: “all the forms of the cosmos, which He brought out from those storehouses, became manifest in you. Hence you came to know of the cosmos what it does not know of itself.”⁴⁸⁸ The image begins from the centre, “The Presence” and unfolds spatially outwards. Each layer as it unfolds is made up of four circles. This set of four unfolds three times and then becomes completed. Each layer of quadrature—the storehouses—describes the manner in which the divine command is organized in the formation of the cosmos and the

⁴⁸⁸ Ibn ‘Arabī cited in Chittick 1998, 231.

human body. The first layer of quadrature presents divine attributes that form the foundation of the divine creative activity: life, power, knowledge, and desire.⁴⁸⁹ This is followed by the intermediary second layer that presents the division of the world between that which is manifest (dust and nature) and the non-manifest (intellect and soul). The final layer presents the four elements with which the perceptible world becomes manifest. In the *Divine Governance of the Human Kingdom* Ibn ‘Arabī writes: “the human being has four principal elements in this world of matter, the same four elements from which the whole universe is made—earth and water, air, and fire.”⁴⁹⁰ All three layers as it can be seen in the image are presented as overlapping with one another reinforcing the idea that the three dimensions are integral to the formation of the human being.

The Ka ‘ba as the Human Body

The enduring motif of Ibn ‘Arabī’s spatial reflection of the human body, as we read above, returns us to three elements: centre, circle, and quadrature. In Islam it is with the *Ka ‘ba* that these three elements converge presenting another opportunity to investigate the relationship between body and building. We have seen this link made earlier in Chapter 3 discussing the spatial structure of the Islamic prayer which drew relationship between the body in prayer, the layout of the Prophet’s mosque, and the *Ka ‘ba*.

Traditional Islamic sources identify the *Ka ‘ba* not only as the first house of worship but also as the centre of the cosmos. It is around the *Ka ‘ba* that pilgrims circumambulate in a circular fashion. The basic form of the *Ka ‘ba* is a cube raised from a square plan.⁴⁹¹ In the *Tree of Being* Ibn ‘Arabī describes how the *Ka ‘ba* and the human being, beginning with the form of Muḥammad, share similar aspects of centrality. He writes that when the primordial light of Muḥammad emerged as the centre of all creations, “the *Ka ‘ba* on earth and the *Ka ‘ba* above it in the heavens also heard and obeyed, and came down and became the centre of faith on earth.”⁴⁹² Subsequently this relationship between Muḥammad and the physical building of the *Ka ‘ba* is strengthened further with Muḥammad’s body being shaped by exclusively using the “earth that was picked from the site of the Holy *Ka ‘ba*, the centre of true

⁴⁸⁹ Ibid., 230 ; see also Akkach 2005, 76–79.

⁴⁹⁰ Ibn ‘Arabī 1997, 146 (henceforth *At-Tadbīrāt*).

⁴⁹¹ Akkach, 2005, 182.

⁴⁹² *Shajarat*, 112.

faith in Allāh.”⁴⁹³ All other human beings share in this centrality as they have a “drop of this clay” in their constitution. The place of this elemental clay, which draws both the Prophet and the *Ka ‘ba* to the human being, he says, is in the human heart. As with Ghazālī this was not referring to the biological heart, but the spiritual constitution with which one relates to God. Ibn ‘Arabī often cites God’s speech that draws the centrality of the human heart as analogy of the centrality of the *Ka ‘ba* in the universe: “Neither, my earth nor my heaven can encompass me, yet the heart of my faithful worshipper can.”⁴⁹⁴ Chittick in elaborating Ibn ‘Arabī’s viewed the role of the human heart through the prism of the prophetic saying “My earth and My heaven embrace Me not, but the heart of my believing servant does embrace me.” This led him to compare the human “heart to the *Ka ‘ba*, making it the ‘noblest house in the man of faith’ and also as the ‘Throne of God’ (*al-‘arsh*) in the microcosm.”⁴⁹⁵

Akkach expands this mystical idea by drawing out the spatial qualities of the human heart in comparison to the actual *Ka ‘ba*, namely in the expression of both the centre and the circle. He writes that for the Sufis, the heart and *Ka ‘ba* “share the notion of centrality at the micro and macrocosmic levels. Just as man is defined by two extremities, namely, his innermost heart and outermost body, so the world is defined by the *Ka ‘ba*, its innermost centre, and the divine Throne, its outermost body.”⁴⁹⁶ Akkach goes on to cite Ibn ‘Arabī who claims that God revealed to him that, “this *Ka ‘ba* of mine is the heart of existence, and to this heart my Throne is a defined body. Neither of them has space for me, nor tells about me what I tell about them, but the house of mine that has room for me is your intended heart, placed in your perceived body.”⁴⁹⁷

Akkach goes on to explain from his reading of Ibn ‘Arabī that just as pilgrims circumambulate the physical *Ka ‘ba*, the *Ka ‘ba* of the human heart is also circled by what is called *khawātir*, “quick passing thoughts” of a human being, this being four: divine, angelic, psychic, and satanic. This fourfold expression returns us to the *Ka ‘ba*

⁴⁹³ Ibid. One is reminded here of the formation of Adam (see Chapter 2) as described in traditional Jewish literature whose body is said to have been composed of earth picked from the site of the future Temple.

⁴⁹⁴ Akkach, 2005, 191.

⁴⁹⁵ Chittick 1989, 107.

⁴⁹⁶ Akkach, 2005, 191.

⁴⁹⁷ Ibid.

as a form raised from a square plan, which as Akkach writes is a quaternary model shared amongst all human beings.⁴⁹⁸

In the *Divine Kingdom* Ibn ‘Arabī describes the human body as a city based on a square base, with the heart at its centre. The body is the residence of “God’s deputy”, the soul which resides in the heart. The four foundations that establish the city are the four elements: earth, wind, fire, and air.

The Lord built this city on a foundation of four walls made of earth, water, air and fire. Some say that the place of the Lord’s deputy [the human soul] is not the heart but the mind. I insist that it is the heart [...] Our Master [Muḥammad] related that his Lord said: “I do not fit into the heavens and the worlds which I created, but I fit into the heart of My faithful servant.”⁴⁹⁹

He also describes this city as a “central column” with four openings—eyes, nose, ears, and mouth—sat on four supports. Each of the openings is guarded by “four generals who command an army to protect your homeland. Watch them carefully, for your security depends on them.”⁵⁰⁰ Ibn ‘Arabī here is warning against the threat of Satan who had promised to God to attack the human being from his four sides: “Then will I assault them from before them and behind them, from their right and their left.”⁵⁰¹ Satan is nullified in attacking from above and below because this is an axis that is unique to human beings: “It is the dimension that enables [human beings] to transcend the horizontality of their animality, to communicate with heaven and receive pure divine inspiration.”⁵⁰² Ibn ‘Arabī himself describes the potential human vulnerability in the following way:

No other directions from which evil influences may come are mentioned except these four, yet there are two other dimensions: above us and below us. That which is under us always pulls us to it, and that which is above us belongs to our Lord; it is where He ascends and descends. Do not attempt to reach this, for it is the realm of destiny where we are forbidden to penetrate.⁵⁰³

⁴⁹⁸ Ibid. Akkach also states that the quaternary does not apply to prophets as their hearts are not influenced by Satan. Their hearts he writes are thus based on a ternary model. On the ternary model of the *Ka’ba* see Akkach 2005, 188–191.

⁴⁹⁹ *At-Tadbīrāt*, 43.

⁵⁰⁰ Ibid., 145.

⁵⁰¹ *Qur’ān* 7:17; See also Chodkiewicz, 1993, 97.

⁵⁰² Akkach 2005, 95.

⁵⁰³ *At-Tadbīrāt*, 147.

Of the idea that the body may be considered as a cube, Akkach states that it is a view held by Sufis that this is yet another example of how the human being is related to the *Ka'ba*. He writes that the *Ka'ba* “is an embodiment of the human as well as cosmic spatial structure and a visible manifestation of the three-dimensional cross. Its four *arkan* [corners] correspond to the human nature, its six faces to the human figure, and its three dimensions of length, breadth, and depth to the human body.”⁵⁰⁴

The Pole and the Four Columns of the Universe

Though the human being is structured as a six-sided cube (Fig. 5.13), the above and below orientation belongs to the realm of the Divine, leaving the four sides being the primary responsibility of the human being. Ibn ‘Arabī is specific how one should ward off the attack from each of the four sides. For example: “If the enemy attacks you from your right flank, it will be met by the army of your general whose name is Fear of God.”⁵⁰⁵

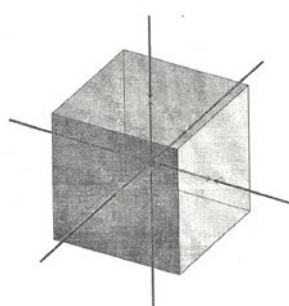


Fig. 5.13 “The cube of the *Ka'ba* crystallizing the spatiality of the human presence.”
(Source: Akkach 2005, 180.)

As the human being is attacked from all four directions, Satan also threatens the cosmos with chaos from four directions. To ensure the continuing existence of the world, God has stabilized it with spiritual masters from all ages, be they the prophets of God, Caliphs, or Sufis.⁵⁰⁶ To each one is trusted a cardinal face of the world. They are called the *awtād* (sing. *watād*), pillars affirming stability of the world and these pillars are identified to be like the mountains, which God has placed on earth to

⁵⁰⁴ Akkach 2005, 180.

⁵⁰⁵ *At-Tadbīrāt*, 147.

⁵⁰⁶ Akkach 2005, 95 and Chodkiewicz 1993, 94–95.

stabilize its movements.⁵⁰⁷ The centre of this fourfold protection is established by the greatest spiritual master of the age who is known as the *Qutb*, the Pole. It is he who safeguards the vertical axis, ensuring divine inspiration and revelations are continually transmitted. Ibn ‘Arabī describes the Pole as the centre of the universe, which is the *Ka ‘ba*: “The Pole is both the centre of the circle of the universe and its circumference. He is the Mirror of God, and the pivot of the world. He is bound by subtle links to the hearts of all created beings [...] He is located in Mecca, whatever place he happens to be in bodily.”⁵⁰⁸ As the *Ka ‘ba* becomes the locus of the Pole—the centre of the cosmos—we also find the four *awtād* assuming their place on the four corners of the cuboid structure: “in Sufi views, the *Ka ‘ba*’s quadrature is a reminder of the four directions along which Satan approaches and corrupts man, and of the four *awtād*, the spiritual guardians of these directions.”⁵⁰⁹ The position of each *watad* is at each one of the corners of the *Ka ‘ba*. These corners are known as *arkan*. Each of the elect *awtād* of the age thus assumes the role of a metaphysical column of the *Ka ‘ba*. They are also aided in their struggle over Satan by their patron prophets and angels (Fig. 5.14).

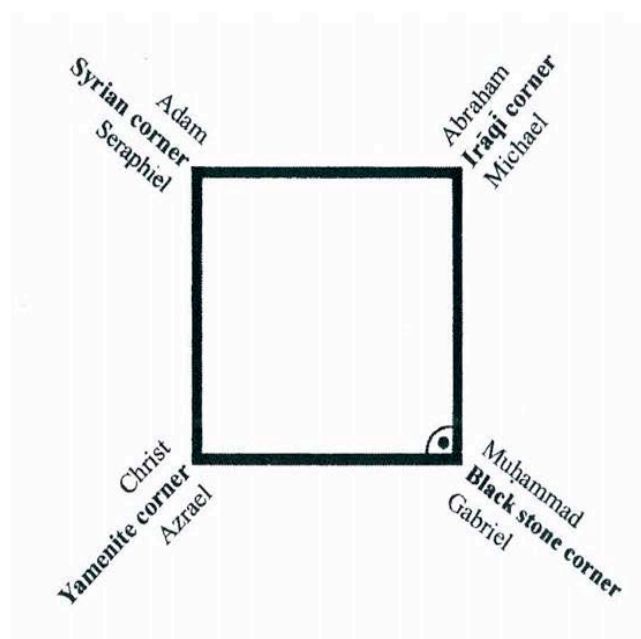


Fig. 5.14 “To each Pillar belongs one corner of the House.” (Source: Akkach 2005, 186.)

⁵⁰⁷ Chodkiewicz 1993, 97.

⁵⁰⁸ Ibn ‘Arabī cited in *ibid.*, 95.

⁵⁰⁹ Akkach 2005, 186.

With this arrives a tri-partite columnar order at each of the four corners of the *Ka'ba*. Ibn 'Arabī himself was assigned an *arkan* together with Muḥammad and Gabriel. Ibn 'Arabī writes

To each Pillar (*watād*) belongs one corner of the corners of the House (*Ka'ba*). The Syrian corner belongs to him who is on the heart of Adam; the Iraqi corner to him who is on the heart of Abraham; the Yemenite corner to him who is on the heart of Jesus; and the corner of the Black Rock to him who is on the heart of Muḥammad—and this is my corner.⁵¹⁰

The spatial translation of The Pole together with the *awtād* and the triple columnar order yet again reinforces the human spatial order of the centre, the circle, the square, and the cube. The human body in this sense is the *Ka'ba* and vice versa. While the body shares its spatial structure as a cube with the *Ka'ba* we also find the function and form of the *Ka'ba* defined and structured by the human body in the form of the *awtād* and The Pole (Fig. 5.15)

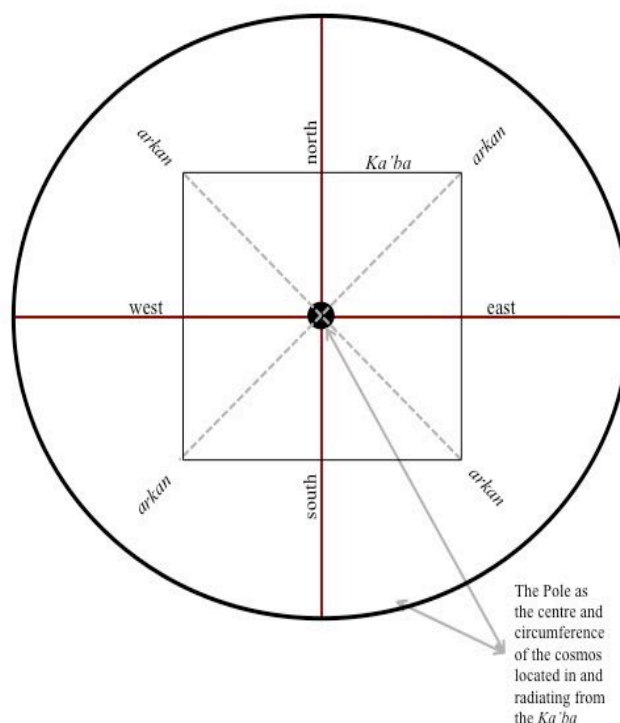


Fig. 5.15 The Pole and *awtād* as a form and function of the *Ka'ba*

⁵¹⁰ Ibn 'Arabī cited in Addas 1993, 66–7.

Explaining this spiritual significance of this geometry and spatiality that emanates from the study of the roles of the *awṭād* and the *Quṭb*, Akkach writes: “spatial sensibility based on awareness of the psycho-religious significance of directions. The three dimensions and six directions are spatial conditions that seem to govern the entire natural world. Along with human nature, one’s body and figure exemplify these conditions, providing a constant reminder of the foundational order of spatial existence.”⁵¹¹

One key numerical resultant of the geometric-spatial structure presented by Ibn ‘Arabī is the number four. It is a number that is identified as the basis that draws for example the building—*Ka’ba*—to the human body. For Ibn ‘Arabī contemplation upon this number is meaningful as it is the most comprehensive number, one which resolves within itself all divine mysteries. Ibn ‘Arabī’s explanation of the number four resembles the Pythagorean numerical symbolism of the *tetractys*: 1, 2, 3, and 4.

Four is the basis; within it, there is Three. When we add Three to Four, it equals Seven. Within the Four there is also Two. When we add Two to Seven, it equals nine. What is left after the Two is One. When we add the One to Nine, it equals Ten. These are the basic numbers. No other numbers add up to Ten except Four plus Three plus Two plus One. So the Ten is within the Four.⁵¹²

The subtleties of the number four as Ibn ‘Arabī has illustrated above means that it is the matrix which births all the other numbers. In the *Divine Kingdom* Ibn ‘Arabī impresses the idea that it is this comprehensive number that is the basis—“power and weight”—of the design of the entire universe. He refers to the four columns that hold up God’s heavens all the way down to the four elements that form all aspects of the sublunar world.⁵¹³ Upon explaining this, Ibn ‘Arabī advises, just as the entire cosmos is ordered and shaped through the agency of the number four: “We are also ordered to

⁵¹¹ Akkach 2005, 95. It is important to note here another important event that binds the relationship between the human body and the *Ka’ba*. This is in the identification of Adam as the *Ka’ba*. In a well-known Qur’ānic story we are told that when Adam was created he was brought to an assembly of angels. God commanded them to prostrate to Adam in deference and respect, because Adam alone was taught all the Names of God. Ibn ‘Arabī states that the prostration of the angels facing the direction of Adam in heaven is the parallel to one facing the *Ka’ba* to pray on earth. *At-Tadbīrāt*, 28.

⁵¹² Ibid., 145–146.

⁵¹³ Ibid., 146. Ibn ‘Arabī clarifies his diversion from the Qur’ānic statement (69:17) which states that there are eight angels that are supporting the heavens. Ibn ‘Arabī explains that this number only comes into effect in the Hereafter and that in the present the number of support of the heavens is four.

live within four dimensions.”⁵¹⁴

⁵¹⁴ Ibid.

CHAPTER 6

MEDIEVAL CHRISTIAN THEOLOGY AND MYSTICISM

6.1 Building the Body of Christ

Almost three hundred years after Christ, Christians still did not have a distinct public house of worship. Persecution by the Romans, who were suspicious of this new faith, was one of the reasons why Christians preferred their worship to remain inconspicuous.⁵¹⁵ The other reason was the resolve of early Christians to set themselves apart from the Jews. Christians were conscious of Christ's own disaffection of worshipping in Jewish temples. As Davies writes, Christ in his statements from the New Testament seem to suggest that worship was not to be bounded by an ostentatious space and that the more private and concealed it was the better. Davis further notes that "Jesus [rejected] prayer in public places, including the synagogue, as mere idle prattle, and his exhortation to go into one's inner chamber shows that he held a man's private room to be holier than the Temple."⁵¹⁶ Christ also vowed to destroy the Temple and rebuild it in three days—referring to his own resurrection. It is also reported in the Gospel of Matthew (27:51) that at the moment of Christ's death the veil of the Temple was split into two, symbolizing the end of the Jewish Temple cult.⁵¹⁷ In the place of the temple the New Testament presented the idea that the House of God, the "church," from the Greek word *kyriakon*, was not necessarily a physical building but instead arrived at by simply the gathering of worshippers.⁵¹⁸ The purpose of this gathering was in building the body of Christ. Only in that realization can a sacred place of Christian worship be actualized.

Following this advice, it is reported, Christians did meet in groups initially in private apartments over a meal that came to be known as the *agape* meal, or love feast. Kilde writes: "these communal meals brought Christians together to learn about their faith, to worship, and to share experiences, but they also functioned to create cohesion within the new community of Christians."⁵¹⁹ The houses that served to accommodate such practices came to be known as "house churches." By the middle of the third century such houses evolved into larger places that were set aside mainly for purposes of worship, funerary rituals, and feasting. In such instances private homes were

⁵¹⁵ Kilde 2008, 16.

⁵¹⁶ Davies 1968, 2.

⁵¹⁷ Ibid., 2–3.

⁵¹⁸ Matthew 18:20.

⁵¹⁹ Kilde 2008, 16; see also Krautheimer 1989, 24–26 and Pérez-Gómez 2006, 120.

purchased and modified for liturgical purposes and they came to be known as *domus ecclesiae* (Fig. 6.1).⁵²⁰

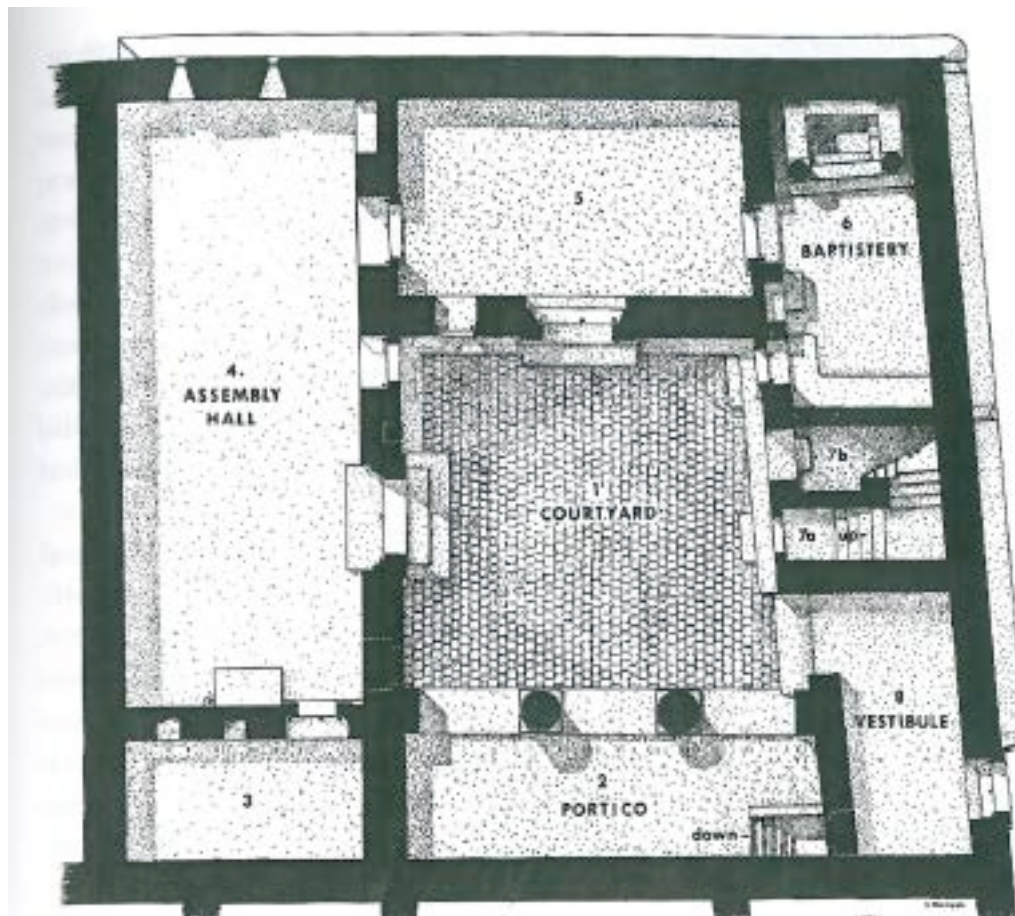


Fig. 6.1 Isometric view of *Domus Ecclesiae* at Dura-Europos (Source: Kilde 2008, 25.)

Christ as the Cornerstone and Pillar

Constantine's triumph in reclaiming Rome in 312, inspired by the vision of the Christian cross, and his subsequent embrace of Christianity, allowed not only for the freedom of religious expression for Christians but also a new consciousness to build places of worship that befitted the new royal and privileged position the faith found itself in. Constantine selected the existing Roman basilica typology to be the basis of the first churches he established, starting with the Lateran Basilica (circa 312).⁵²¹

The novel attempt to build churches as public monuments, as opposed to private dwellings, forced Christian thinkers to refer to scripture for guidance. The key

⁵²⁰ Kilde 2008, 23; Davies 1968, 8; Krautheimer 1989, 26–28.

⁵²¹ Doig 2010, 21–27.

Biblical verse Allan Doig and John Onians have identified to have been most influential in shaping the Christian place of worship is found in the *Ephesians*.

So then you are no longer strangers and aliens, but you are citizens with the saints and also members of the household of God, built upon the foundations of the apostles and prophets, with Christ Jesus himself as the cornerstone. In him the whole structure is joined together and grows into a holy temple in the Lord; in whom you also are built together spiritually into a dwelling place for God.⁵²²

An architectural image is presented here of the house of God. It is one that is composed of the worshippers who build upon the foundation of the prophets and apostles. Christ, the cornerstone, holds together this edifice in its entirety. These verses came to be repeatedly referred to by church builders as a means to theologically justify the architectural principles of their church designs. For example, we find Eusebius of Caesarea (d. 339) in his consecration sermon of the Cathedral of Tyre (circa 315), citing the verses from *Ephesians* in describing the spiritual symbolism of the physical built elements of the cathedral: “when He looks at the live temple consisting of us all, and views the house of living and immoveable stones,⁵²³ well and securely based on the foundation of the apostles and prophets, Jesus Christ Himself being the chief cornerstone.”⁵²⁴

This idea that the church is built upon the firm stability of Christ and his apostles as a column, as a rock, as a cornerstone, and as pillars appear in many passages of the New Testament.⁵²⁵ John Onians, in reflecting upon this, observes that the “early Christians who heard and read these texts came to live in a unique world in which they, Christ and their teachers were all united in a society, the *ekklesia*, which they thought of as a building erected of living stones.”⁵²⁶ Onians studied how this metaphorical image of a place of worship composed of the bodies of Christ, apostles, prophets, and worshippers had influenced the design of the physical church that came later. The evidence of this being architecturally translated, as shown by Onians, can be found in the churches built in the early Middle Ages. In these churches we notice the emphasis on the design of columns and piers as a direct response to the idea that

⁵²² *Ephesians* 2.19–22; see also Doig 2010, 27 and Onians 1988, 70.

⁵²³ This reference is drawn from 1 Peter 2.4

⁵²⁴ Eusebius 1989, 310. See also Doig 2010, 27.

⁵²⁵ Onians 1988, 70 and 75.

⁵²⁶ Onians 1992, 199.

the church was built upon the foundation of Christ and the apostles. We find in these churches the middle piers—representing Christ—made distinct with a square base and much more robust compared to the slender columns that flank it (Figs. 6.2, 6.3 and 6.4). The flanking columns on both sides of the “Christ pier” came to be known as the “apostle columns.”⁵²⁷



Fig. 6.2 Middle pier representing Christ flanked on both sides by apostle columns at St.Wigbert, Quedlingburg, crypt circa 930 (Source: Onians 1988, 82.)



Fig. 6.3 Middle pier representing Christ flanked on both sides by apostle columns at St.Pantaleon, Cologne cloister, circa 930 (Source: Onians 1988,83.)

⁵²⁷ Onians 1988, 84–85.



Fig. 6.4 Middle pier representing Christ flanked on both sides by apostle columns at St. Michael's Abbey, Hildesheim, 1003 (Source: Onians 1988, 83.)

Abbot Suger (d. 1151) also made the reference to the verses in the *Ephesians* in the consecration of the Abbey Church of St. Denis (1140), a church that came to be claimed by architectural historians to be the prototype of the Gothic style.⁵²⁸ Suger, referring to the two rows of columns arranged around the apse, (Figs. 6.5) writes that they symbolize the twelve apostles. He also describes the two rows of twelve columns defining the nave as symbolizing the twelve prophets of the Old Testament. Referring to this symbolism Suger intimates that the church is a place in which the spiritual and physical are interwoven. In his consecration sermon, which is an admixture of his own words and the words from the *Ephesians*, he describes the material church to be representative of the “dual nature of Christ as material and immaterial.”⁵²⁹

The midst of the edifice, however, was suddenly raised aloft by twelve columns representing the number of the Twelve Apostles who buildeth spiritually. *Now therefore ye are no more strangers and foreigners*, says he, *but fellow citizens with the saints and of the household of God; and are built*

⁵²⁸ von Simson 1988, 99.

⁵²⁹ Crow 2011, 65. See also Panofsky 1979, 121.

*upon the foundation of the apostles and prophets, Jesus Christ Himself being the chief cornerstone which joins one wall to the other; in Whom all the building—whether spiritual or material—groweth unto one holy temple in the Lord. In whom we, too, are taught to be builded together for an habitation of God through the Holy Spirit by ourselves in a spiritual way, the more loftily and fitly we strive to build in a material way.*⁵³⁰

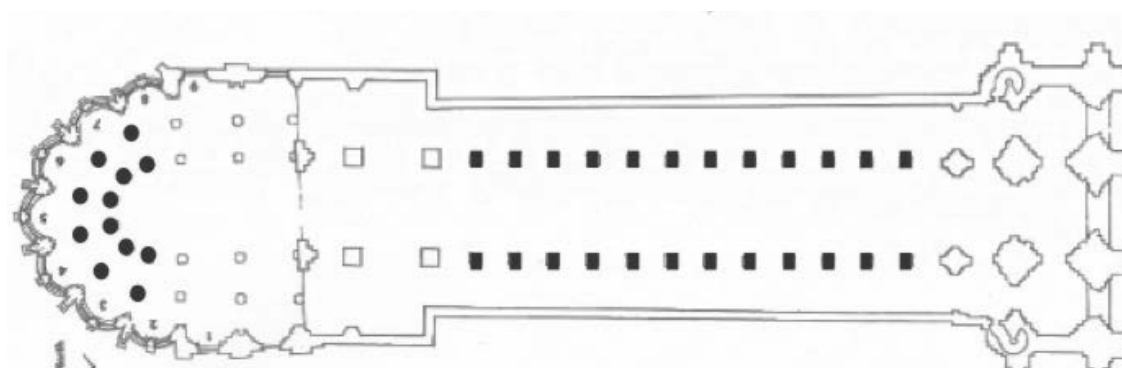


Fig. 6.5 Plan of the Abbey Church of St. Denis. The plan illustrates the twelve columns St. Denis mentions at the apse and also the twelve pairs of columns that mark the nave (Source: Panofsky 1979.)

The Material Church Resembles Christ

All elements of the physical church, according to Suger, have a transcendental and metaphysical premise mirroring the nature of Christ, who was both man and God. Jason Crow relates Suger's understanding of the church to the Christian ritual of Eucharist in which bread and wine come to represent the body and blood of Christ. Thus similarly the church too is the body of Christ, in which both the world of man and the world of God are linked together. Referring to Suger, Crow writes: "for Suger, the Eucharistic bread was not a symbol for the body of Christ: it was literally the material of Christ. Christ was the material bridge who connected the terrestrial realm to the celestial realm."⁵³¹

Abbot Suger's contemporary and friend, Hugh of St. Victor, wrote a short treatise titled *Mystical Mirror of the Church*, in which he details the material church's spiritual analogy. In describing building elements that directly refers to the body of Christ he mentions the four walls of the church, the cornerstone, the light that streams

⁵³⁰ Panofsky 1979, 105. The text in italics refers to the Biblical verses from the *Ephesians* and is found in the original text. See also Onians 1988, 86.

⁵³¹ Crow 2011, 60.

through the stained glass, the door to the church, the beam and the altar.⁵³² Following him in the thirteenth century, William Durandus (d. 1296) wrote a text titled *Rationale Divinorum Officiorum* (*Rationale of Divine Offices*), in which he too went on to explain the symbolic meanings behind the entire church edifice. After describing the church as the “Body of Christ,” he in a similar fashion after Hugh of St. Victor and Abbot Suger, draws analogy between Christ and the building. In fact with Durandus we find every single material aspect, ritual, and vestment directly connected to Christ. In one evocative passage we find Durandus explaining how even the construction process came to embody the nature of Christ, typifying the manner in which the medieval Christian mind saw in the building of the church the body of Christ.

The cement, without which there can be no stability of the walls, is made of lime, sand, and water. The lime is fervent charity, which joineth to itself the sand, that is, undertakings for the temporal welfare of our brethren: because true charity taketh care of the widow and the aged, and the infant, and the infirm: and they who have it study to work with their hands, that they may possess wherewith to benefit them. Now the lime and the sand are bound together in the wall by an admixture of water. But water is an emblem of the Spirit. And as without cement the stones cannot cohere, so neither can man be built up in the heavenly Jerusalem without charity, which Holy Ghost worketh in them. All the stones are polished and squared—that is, holy and pure, and are built by the hands of the Great Workman into an abiding place in the Church: whereof some are born, and bear nothing, as the weaker members: some are both born and bear, as those of moderate strength: and some bear, and are born of none save Christ, the cornerstone, as they that are perfect. All are bound together but one spirit of charity, as though fastened with cement; and those living stones are knit together in the bond of peace. Christ was our wall in His conversation: and our outer wall in His Passion.⁵³³

Durandus then goes on to state that the entire building is in the form of a human body, which in his elaboration refers to the body of Christ crucified. His explanation informs the reader of the symbolic meaning underpinning the cruciform plan, one which dates back all the way to the layout of St. Peter’s Basilica (circa 319) commissioned by Constantine (Fig. 6.6).⁵³⁴ Durandus writes: “the arrangement of a material church resembleth that of a human body: the chancel, or place where the altar is, representeth the head: the transepts, the hands and arms, and the remainder—

⁵³² Hugh of Saint Victor in *Rationale*, xxvi–xxx.

⁵³³ *Rationale* 1:10.

⁵³⁴ Doig 2010, 28.

towards the west—the rest of the body. The sacrifice of the altar denoteth the vows of the heart.”⁵³⁵

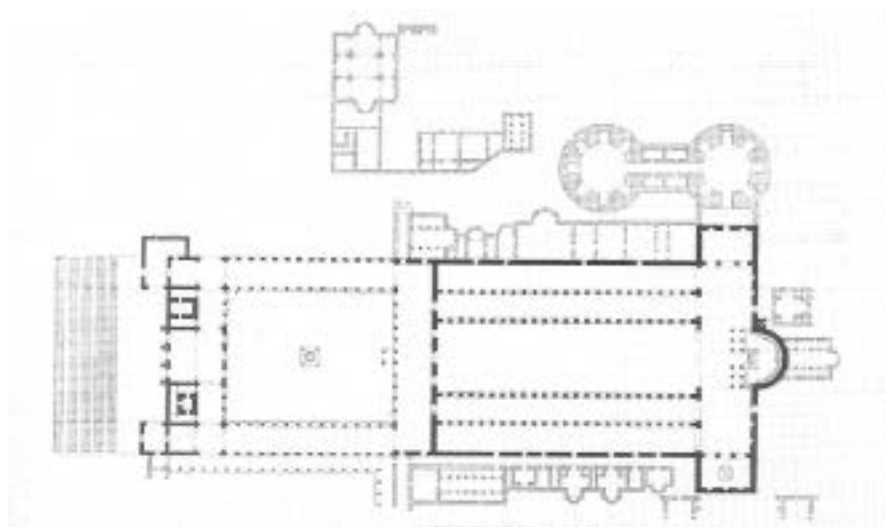


Fig. 6.6 Plan of the Old St. Peter's Cathedral (Source: Doig 2010, 29.)

6.2 Divine Body and Divine Light

In medieval Christian thought Christ is considered the paradigm upon which all temples and holy structures mentioned in the Bible based their design and measures.⁵³⁶ This was one of the reasons why St. Augustine mentioned that the Ark was based upon the proportion of Christ's body, and similarly Durandus mentions Christ as the basis of both the tabernacle and the Temple of Solomon.⁵³⁷ The most magnificent of all these structures is found in the divine prototype, the Heavenly Jerusalem, described in the *Book of Revelations*. One distinct aspect of this structure is in its overwhelming luminosity. Luminosity is a material quality most closely associated with Christ (see Chapter Two). In fact the relationship between Christ and light was not one of metaphor but one that had to be understood in the fullest literal sense.

Referring to St. Augustine, von Simson writes, “St. Augustine had occasionally remarked that Christ is *properly* called the Divine Light, not figuratively, as we speak of Him as the Keystone. In the thirteenth century a French theologian

⁵³⁵ *Rationale* 1:14.

⁵³⁶ Carruthers in Carruthers and Ziolkowski (eds.) 2002, 43.

⁵³⁷ *Rationale* 1:5–7.

picks up the Augustinian dictum and declares that among corporeal things light is most similar to the Divine Light.”⁵³⁸ In the description of the Heavenly Jerusalem we see it described to be composed of remarkably illuminative materials such as gold, sapphire, emerald, onyx, jacinth, amethyst, and glass. Just like the earthly church that was built upon apostles and prophets, we find the heavenly temple also set upon twelve foundations and twelve gates. Each of these twelve gates is said to have been hewn out of a single pearl. This temple, we read in *Revelations*, is in its entirety in fact the illumination of Christ, the Lamb of God: “I saw no temple in the city, for its temple is the Lord God the Almighty and the Lamb. And the city has no need of sun or moon to shine on it, for the glory of God is its light, and its lamp is the Lamb.”⁵³⁹

While Christian builders throughout the ages were inspired to re-create the light of Christ in the churches, as von Simson states, it was only with the Gothic cathedrals did the treatment of this feature reach its evocative peak. Towards this he refers to the interest of this age with Neoplatonism and Christian mysticism.⁵⁴⁰

Christ the Lux Nova

In Abbot Suger’s rebuilding of the Abbey Church of St. Denis, we see explicit intentions to recreate this luminosity attributed to Christ. Suger begins by stating the interior of the church will be painted in “gold and precious colours,” and then goes on to refer to other elements within the interior of the church to be in-laid with precious gems such as rubies, hyacinth, pearls, sapphire, and topaz.⁵⁴¹ We also have him describing the large stained glass windows to be made out of sapphire glass.⁵⁴² For Suger the luminosity presented by the material church must be meditated anagogically so that one may eventually reach the immaterial light of the heavens. One reads of this ambition in Suger’s dedicatory poem to the golden doors of the church.

Whoever thou art, if thou seekest to extol the glory of these doors,
Marvel not at the gold and the expense but at the craftsmanship of the work.
Bright is the noble work; but, being nobly bright, the work
Should brighten the minds, so that they may travel,
through the true lights,
To the True Light where Christ is the true door.

⁵³⁸ von Simson 1988, 53.

⁵³⁹ *Revelations* 21. 22–23.

⁵⁴⁰ von Simson 1988, 13 and 53–54.

⁵⁴¹ Panofsky 1979, 43, 55, 57, 59.

⁵⁴² *Ibid.*, 53.

In what manner it be inherent in this world the golden
door defines:
The dull mind rises to truth through that which is material
And, in seeing this light, is resurrected from its former submission.⁵⁴³

As Crow writes, the luminous materials in the church were to be imagined as being like the light of the incarnate God, Christ. Similar to Christ who was the bridge between the material world and Heaven, the light that emanates from the luminous materials in the St. Denis cathedral, too, would be a vehicle with which one may be able to ascend “from the material to the immaterial.”⁵⁴⁴ In this sense the unique interior luminosity that becomes a central feature in Gothic architecture, was in itself a transmutation of light from material to immaterial.

As we understand the material church to be the body of Christ, this light, too, belongs to Christ. Panofsky presents an influential thesis that Abbot Suger’s theory of anagogy was due to him being influenced by the writings of Pseudo-Dionysius from the second century.⁵⁴⁵ In reading Pseudo-Dionysius, we find light presented as the most spiritual of material creations due to its bond to the Divine. He describes Jesus as the Light through whom one can gain access to the Father.⁵⁴⁶ Human beings, Pseudo-Dionysius writes, are unable to directly contemplate upon the immaterial hierarchies of God and the heavens “without the aid of those material means capable of guiding us as our nature requires [...] material lights are images of the outpouring of an immaterial gift of light.”⁵⁴⁷ But the most perfect of all the lights was Christ. He describes that one can understand this ambition to become part of the light of Christ, by contemplating upon the ritual of Eucharist, where one symbolically partakes of the body of Christ.⁵⁴⁸ He goes on to describe the quality of the light of Christ as one that, as Crow has described earlier as a bridge, one that has a quality to transmute the material to become the spiritual.

⁵⁴³ Panofsky 1979, 47–49.

⁵⁴⁴ Crow 2011, 60.

⁵⁴⁵ As Jason Crow has studied, von Simson has relied much upon Erwin Panofsky’s thesis on Pseudo-Dionysius’ influence upon Abbot Suger and how this led to the program of illuminating the Abbey Church of St. Denis and was influential in design of Gothic Cathedrals thereafter. Crow 2011, 60–61; Kidson has criticized Panofsky’s conclusion stating that Abbot Suger’s while it does allude to Pseudo-Dionysius does not necessarily offer anything conclusive that Suger was consciously using Dionysius’ light metaphysics as a theoretical basis of his decoration of the Church interior with illuminative materials. Kidson also contends that Abbot Suger’s writings were not circulated widely to suggest the influence Panofsky, and then later von Simson, speak of. Kidson 1987, 1-17.

⁵⁴⁶ Pseudo-Dionysius 1987, 145.

⁵⁴⁷ Ibid., 146.

⁵⁴⁸ Ibid.

Jesus who is transcendent mind, utterly divine mind, who is the source and the being underlying all hierarchy, all sanctification, all the workings of God, who is ultimate in divine power. He assimilates them, as much as they are able, to his own light. As for us, with that yearning for beauty which raises us upward (and which is raised up) to him, he pulls together all our many differences.⁵⁴⁹

Abbot Suger in a similar fashion describes how the intensity of all the illumination in his newly renovated church will conjoin to offer an intensity of illumination which announces the arrival of what he describes as *lux nova*, new light, which refers to Christ (Fig. 6.7).

Once the new rear part is joint to the part in front,
The Church shines with its middle part brightened.
For bright is that which is brightly coupled with the bright,
And bright is the noble edifice which is pervaded by the new light;
Which stands enlarged in our time,
I, who was Suger, being the leader while it was being accomplished.⁵⁵⁰



Fig. 6.7 Nave of the Abbey of St. Denis (Source: Crow 2011, 59.)

⁵⁴⁹ Ibid., 195–196.

⁵⁵⁰ Panofsky 1979, 51; see also Crow 2011, 61 and von Simson 1988, 119.

As Pelikan has mentioned, Christians saw the meaning of both the light, with which God creates the world in the opening verses of the Old Testament, and the “Word” (*logos*), with which God creates the world as mentioned in the Gospel of John in the New Testament, as one and the same in referring to Christ.⁵⁵¹ This correlation between light and text is coupled in the design of the stained glass windows in Gothic cathedrals including the St. Denis.⁵⁵² Here the “word” is presented in the form of images, the paintings on the windows, that re-tells the scripture to the visitor of the church in collaboration with the light. In this intermingling, *lux nova*—Christ—is thought to have become present, re-enacting the incarnation of the illuminated Word as flesh, as stated in John. Referring to the correlation between Christ, who is both word and light, and the illuminated stained glass windows at the St. Denis, von Simson writes: “God has revealed himself, directly in the Incarnation, obscurely in nature and the metaphors of the Bible. We must seek to grasp Him in and through these; we must perceive the divine light that illuminates them.”⁵⁵³ Thus the stained glass windows that illustrate scriptural tales were an attempt to manifest the mystical qualities of Christ’s human body that is composed of light (Fig. 6.8). It was Christ who was at once *logos* and *lux*. It is said that cathedrals in the Medieval Age strove to be like the Heavenly Jerusalem, resplendent with luminosity.⁵⁵⁴ This Heavenly Jerusalem as it is revealed in *Revelations* is but Christ, an enclosure formed completely by the light of God.

⁵⁵¹ Pelikan 1985, 59.

⁵⁵² While stained glass pre-dates the Gothic cathedrals, it was with the Gothic cathedrals, as in the Abbey Church in St. Denis, in which a structural system was developed for the glass to dominate the surface; see von Simson 1988, 123. See also Eco 2002, 46.

⁵⁵³ von Simson 1988, 120.

⁵⁵⁴ Kilde 2008, 69; Doig 2008, 169–70.

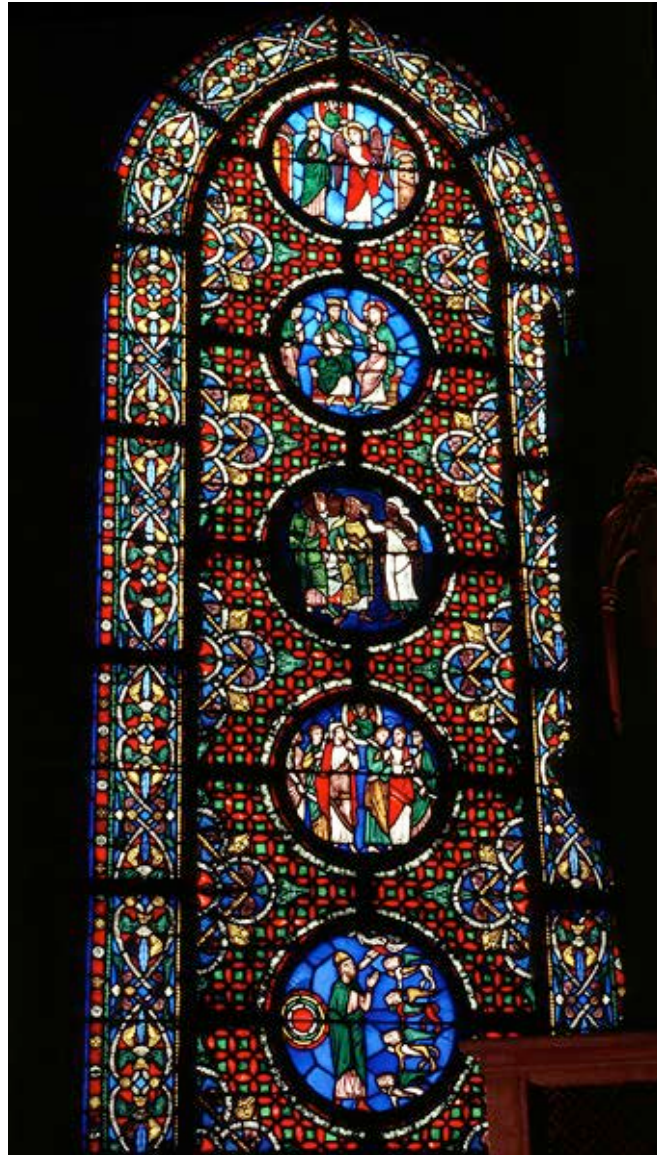


Fig. 6.8 The Ezekiel windows, Abbey of St. Denis

(Source: <http://www.medart.pitt.edu/image/France/St-denis/windows/Ezekiel/Sdenwind-Ezek.html>, accessed on 17/05/2013.)

Light was understood as the material that best described Christ and became the overwhelming feature of the great medieval cathedrals in the eleventh to the thirteenth centuries; light was also identified with Muḥammad. For example the Islamic scholar Qaḍī ‘Iyad, who hailed from Islamic Spain, and a contemporary of Abbot Suger, in his study of the Prophet’s material and spiritual qualities, describes Muḥammad literally emanating light from his body, with his face to be radiant like that of a moon.⁵⁵⁵ The translation of this luminosity of the Prophet manifested by way of literary studies such as that of Qāḍī ‘Iyāḍ and also Ibn ‘Arabī whom we read earlier

⁵⁵⁵ Qaḍī ‘Iyad, 1991, 34.

described Muḥammad as the word and light of creation. Such studies of the Prophet as a source of luminosity were common in the Islamic tradition. The *Qur'ān* itself refers to Muḥammad as a Light of the World, specifically as a “lamp spreading light,” drawing a close affinity between the Prophet and the act of illumination.⁵⁵⁶ The inspiration of such writings and verses can be found in Persian miniature paintings beginning from the eleventh century depicting the Prophet (Fig. 6.9) with a “golden aureole” or “engulfed by flames.”⁵⁵⁷ The direct architectural manifestation of this Muḥammadan Light would be directly inferred to by the Ottoman architect Sinan in his writings on architecture and also designs of grand mosques (see 8.4).⁵⁵⁸



Fig. 6.9 The Prophet’s illumination depicted with a flaming crown. The Prophet’s visage is defaced in the image. He is seated on the fantastical heavenly steed that is transporting him to heaven. The illustration is from an anthology of Persian poetry dated to the early fifteenth century. (Source: Gruber 2009, 230.)

⁵⁵⁶ *Qur'ān* 33:46

⁵⁵⁷ Gruber 2009, 230 and 234.

⁵⁵⁸ On a study of Islamic optics, geometry, and light its effect in Islamic architecture see Belting 2011, 111–123.

6.3 Divine Number and Geometry

St. Augustine is considered to be one of the most influential thinkers of the Middle Ages.⁵⁵⁹ Augustine in his writings sought to articulate Christianity's response to the other traditions, especially Greek philosophy, that it had to confront throughout the Roman Empire. Augustine, though critical of pagan religions and their philosophies, found aspects, especially within the Platonic tradition, which he considered to be compatible with Christian teachings. In his *City of God* he describes Plato's teachings to be the closest to Christianity amongst pagan ideas and offers as example the parallels between the cosmogonic theories found in Genesis and *Timaeus*.⁵⁶⁰ In his *On Christian Teachings* Augustine praises the virtues of studying Platonic philosophy and urges his readers that whatever they find in those readings "true and consistent with our faith" to be used as a means with which one grows himself spiritually as a better Christian.⁵⁶¹ In his *Confessions* Augustine thanks God for guiding him to true faith by way of Platonic teachings.⁵⁶² Augustine found Platonic teachings to have been helpful for him to understand and clarify his own Christian faith. The turn to philosophy to edify one's Christian belief, as Augustine was proposing, meant that one need not find faith and reason to be contradicting one another. In fact they both need to be made to collaborate so that one can comprehend the richness of the Christian faith. Augustine's approach can be said to be one that considered reason as a tool to deepen one's faith "by means of the intellectual disciplines cultivated by the ancient scholars", such as that of the Greek philosophers.⁵⁶³

St. Augustine and the Symbolism of Numbers

Augustine draws attention to the basis of numbers when interpreting the creation story mentioned in the Bible. He emphasizes the uniqueness and the significance of the number six, the number of days God took to complete his task in making the Universe. The attention to six is important because here we see Augustine drawing his knowledge of arithmetic symbolism from both Plato and Pythagoras. In conclusion, Augustine writes that the study of numbers and the meanings behind them was important and that one "must not despise the science of numbers," and he goes on to

⁵⁵⁹ For example see Pelikan 1978, 17; McGrade 2003, 5; Ball 2009, 78.

⁵⁶⁰ *City of God* 8.11

⁵⁶¹ *On Christian Teaching* 2.144

⁵⁶² St. Augustine 2006, 7.4.16, 26–27 (henceforth *Confessions*).

⁵⁶³ Ball 2009, 80–81.

tell his reader that God himself has stated in the scriptures, referring to *Wisdom* 11:20, that all that God has created was based on mathematical order: “But you have arranged all things by measure and number and weight.”⁵⁶⁴

This mathematical idea that underpins the design of the cosmos is realized in the form of Christ—the Word—from which the universe thereafter appears as a mirror of his measure. In explaining the opening verses of the Bible, “In the beginning God created the heaven and the earth,” Augustine writes that this was first formed “in the Son.”⁵⁶⁵ Christ was the Word with which “all things were made.”⁵⁶⁶ Explaining the role of Christ as the pivotal measure that orders the universe, Tavernor writes: “Christians regarded the body of Christ, the Son of God, as a microcosm or symbol of heavenly perfection.”⁵⁶⁷ The idea that Christ was the measure of the cosmos is seen in several medieval paintings. In all such paintings, we see Christ embracing the entire world, intimating the idea that the world was a mirror of his image, just as he was the image of God (Figs. 6.10 and 6.11).

Augustine believed that the measure of Christ, which was translated as the cosmos, could be realized by human beings in the study of mathematics, geometry, and astronomy, and be manifested in both music and architecture. By understanding the mathematical basis of the creation of God—in effect Christ—“one may build a temple or church that reflects the true, divinely beautiful structure of the universe.”⁵⁶⁸ Augustine in fact goes on to discuss how the mathematical order of the universe, Christ, music, and the temple building were all inter-related. Referring to the episode mentioned in the Gospel of John where Christ threatens to tear down the Temple of Solomon, he writes: “The number of years given in the Gospel for the building of the Temple, forty-six (John 2:20), has some musical overtones, and when related to the constitution of the Lord’s body—which is why the Temple was mentioned—compels heretics to admit that the Son of God took on a real human body, not an insubstantial one.”⁵⁶⁹

⁵⁶⁴ *City of God* 11.30.

⁵⁶⁵ *ibid.*, 11.32.

⁵⁶⁶ *Ibid.*, 11.24.

⁵⁶⁷ Tavernor 2007, 27.

⁵⁶⁸ Ball 2009, 118.

⁵⁶⁹ *On Christian Teaching* 2.67

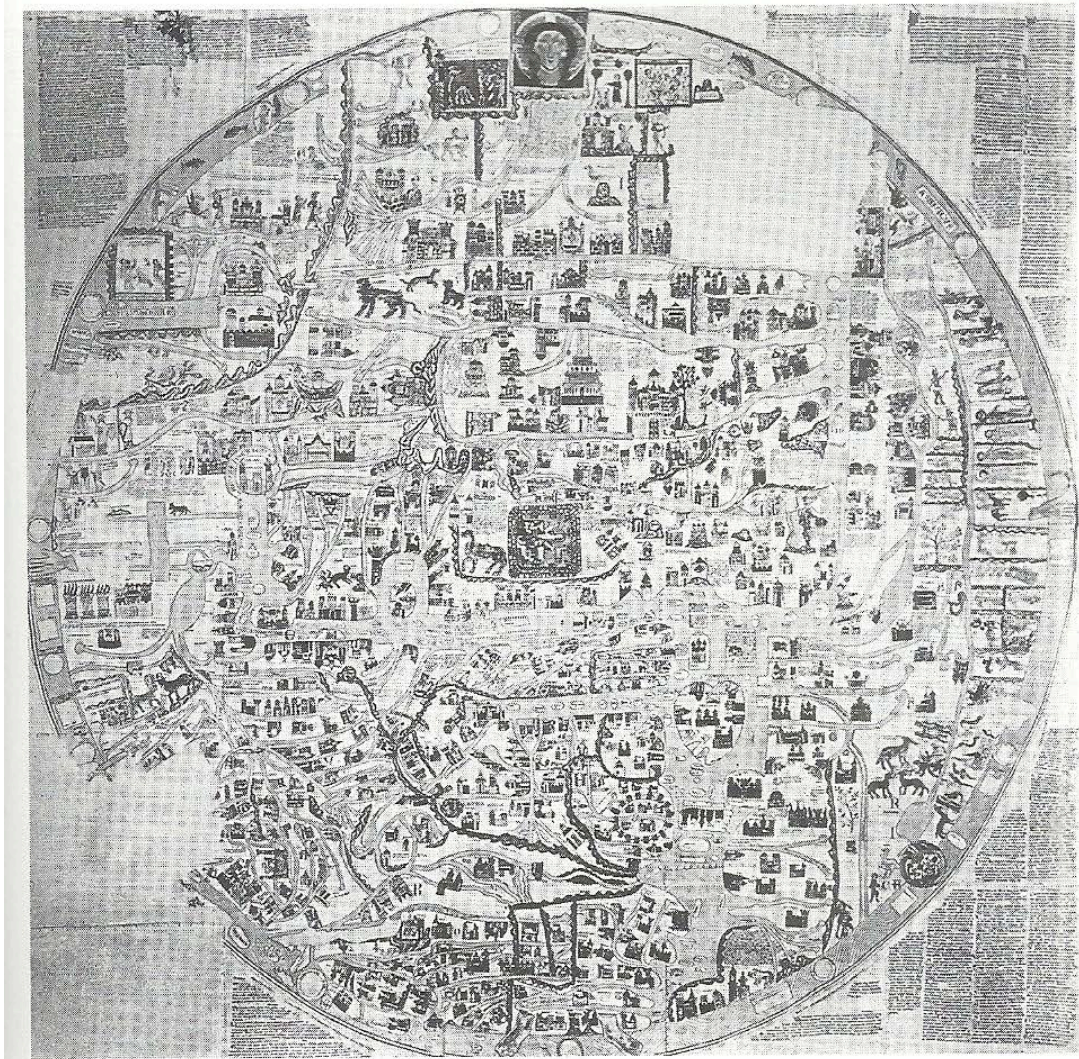


Fig. 6.10 The Ebstorf Map of the World, circa 13th c (Source: Hiscock 2007, 139.)



Fig. 6.11 Cosmic Man fresco circa 1300 (Source: Rykwert 1996, 81.)

Christ's challenge was to tear down the temple that had been in construction for forty-six years and that he will raise it in a mere three days. These "three days" refer to the period between crucifixion and resurrection, meaning in effect his body replaces the temple. In his *On Trinity*, Augustine goes on to explain how the number forty-six is related to the body of Christ. The clue was to be found in the number six. Six as we recall together with the ten in the Pythagorean and Platonic numerological system represents the perfect number (*teleion*).

And not without reason is the number six understood to be put for a year in the building up of the body of the Lord, as a figure of which He said that He

would raise up in three days the temple destroyed by the Jews. For they said, ‘Forty and six years was this temple in building.’ And six times forty-six makes two hundred and seventy-six. And this number of days completes nine months and six days, which are reckoned, as it were, ten months for the travail of women; not because all come to the sixth day after the ninth month, but because the perfection itself of the body of the Lord is found to have been brought in so many days to the birth [...] If, then you reckon from that day to this you find two hundred and seventy-six days which is forty-six times six. And in this number of years the temple was built, because in that number of sixes the body of the Lord was perfected.⁵⁷⁰

As the architectural historian Paul Hiscock has explained, with this interpretation Augustine has effectively drawn the relationship between the six days of creation of the world to the senary basis of Christ’s gestation and birth (46×6). He also mentions that the two hundred and seventy-six day gestation in antiquity symbolized perfection, as it was composed of the full term of pregnancy augmented by a further six days.⁵⁷¹ Six, in the form of the mathematical ratio is idealized in the body of Christ. Augustine states that it was the proportion of Christ’s body that formed the basis of the Noah’s Ark, which measured fifty cubits wide and three hundred cubits long. As Christ was the template to all the holy structures mentioned in the Bible, this meant that this senary proportion applied to all of them too.⁵⁷² The other proportion Augustine informs us of the Ark is the denary, ratio of 1:10. Both 1:6 and 1:10 belongs to the body of the Christ, the incarnate of God: “[The length of the Ark] is six times the breadth, and ten times the height, like a human body, to show that Christ appeared in a human body.”⁵⁷³ These numerical ratios draw together the harmonic ratios of the body of Christ, the Temple of God, and the Pythagorean perfect ratios known as *tetratys*—1:2:3:4.

Similar to Augustine, Boethius (d. 525), too, wrote treatises on music and mathematics. Both their works offer what might be considered a Christian interpretation to the Pythagorean and Platonic concept of number, order, proportion, and harmony, informing at the same time the Christian understanding of beauty, aesthetics, and architecture in the Middle Ages.⁵⁷⁴

⁵⁷⁰ Boethius 2003, *On Trinity* 4.5

⁵⁷¹ Hiscock 1999, 107.

⁵⁷² Rykwert 1998, 77; Hiscock 2007, 134–135.

⁵⁷³ Augustine in Hiscock 2007, 143.

⁵⁷⁴ von Simson 1988, 23–28; Hiscock 2007, 25; Ball 2008, 118–129. It is interesting to note that one of the most important texts of the Middle Ages on the classification of knowledge, the *Didascalion*, written by Hugh of St. Victor, while reviving the importance of geometry from the classical age as one

The Geometry of Christ

In the absence of any art or architectural treatises, the limited transmission of Vitruvius, and the secrecy of masonic lodges, means that one is not fully able to articulate the intention of the builder or the architect of the age. While works of Augustine, for example, offers fertile reflection on how scripture and Platonic ideas can be considered towards understanding the body of Christ as a Temple, there is no direct evidence that such ideas were translated into actual buildings. While theologians of the time, such as Thierry of Chartres and Hugh of St. Victor, may have pondered over the writings of Augustine, scholars are divided as to whether architects and builders were conscious of these writings. Panofsky has argued that given the intellectual climate of the age, especially in the twelfth and thirteenth centuries, concurrent events, such as the Platonic studies in the Chartres School and the building of great Cathedrals of Chartres and Notre Dame meant such influences, if they were not direct, were at least transmitted by way of diffusion: “the connection I have in mind is a genuine cause-and-effect relation; but in contrast to an individual influence, this cause-and-effect relation comes by diffusion rather than by impact.”⁵⁷⁵

Von Simson, following Panofsky, has proposed that the geometric symbolism that was developed in the Chartres School played an important role in the design of Gothic Cathedrals from the twelfth century onwards. The philosopher Thierry (d. circa 1150), who was a major figure in the Chartres School influenced by the writings of Augustine and *Timaeus*, is said to have “transformed [Christian] theology into geometry.”⁵⁷⁶ He proposed that the *tetractys* attributed to the measure and proportion of Christ be studied as two main geometric forms: the equilateral triangle and the square. The equilateral triangle offers the figuration of the relationship between the Father, Son, and the Holy Spirit, manifestly presenting the equality in the relationship between the three. It is also the translation of the ratio 1:1:1. The square on the other hand reveals how the Son was begotten by the Father, yet they are one and the same presenting the geometric figuration of $1 \times 1 = 1$: “God is [...] supreme unity, and the Son is unity begotten by unity, as the square results from the multiplication of a

of the seven important studies of the liberal arts fails to include the practice of architecture even as one of seven mechanical arts. Though Hugh mentions Vitruvius three times in this text he does not elaborate upon the art of building. See Hugh of St. Victor 1991 and Parcell 2012, 67–73.

⁵⁷⁵ Panofsky 2005, 20–21. See also Ball 2008, 120–121.

⁵⁷⁶ von Simson 1952, 11.

magnitude with itself. Rightly, Thierry concludes, is the Second Person of the Trinity, therefore called the first square.”⁵⁷⁷

Augustine and Durandus also in their writings refer to the symbolism of the square and the cube in relation to Christ. The building of the Ark, which is made to the proportion of Christ, according to Augustine is made up of squared timber blocks, representing the apostles and saints of Christ: “for however you turn a cube it stands.”⁵⁷⁸ Durandus apprises that the four walls of the church to represent the four apostles and reveals the basis of his inference to the verses in *Revelations* (21: 16–18) where the Heavenly Jerusalem is described to be based upon a square plan. He also states that the stones used to build the cathedral are to be “polished and squared.”⁵⁷⁹ In an eleventh-century depiction of the Heavenly Jerusalem, *Beatus of St Sever*, we see Christ in the form the Lamb, in the middle of the plan overseeing the angel who is drawing out this cosmic structure.

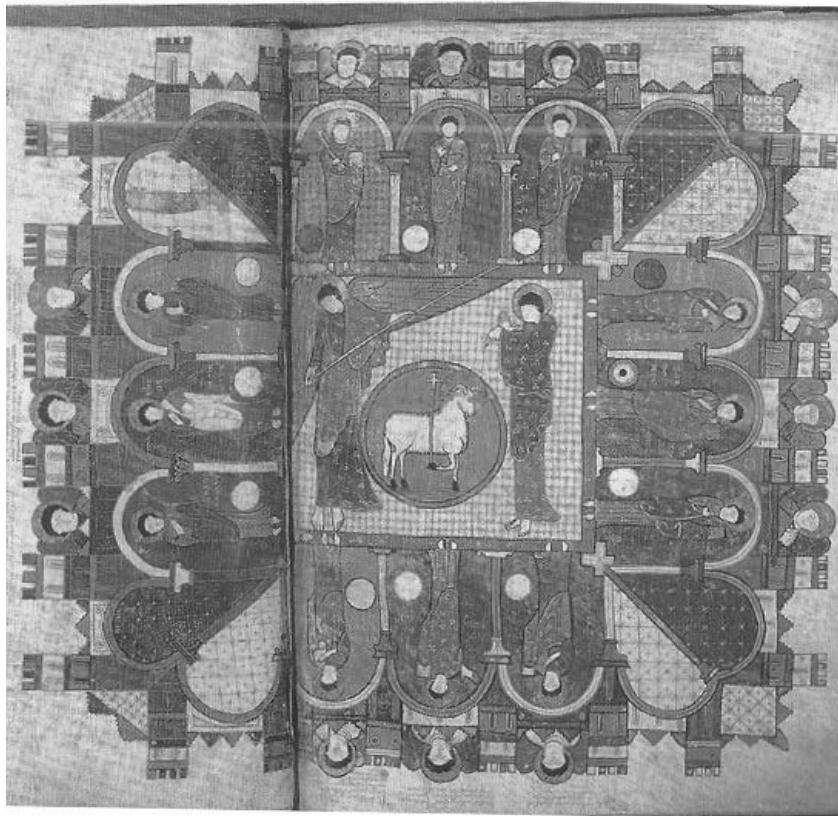


Fig. 6.12 The New Jerusalem, *Beatus of St Sever* (Source: Hiscock 2007, 192.)

⁵⁷⁷ von Simson 1988, 27.

⁵⁷⁸ *City of God* 15.26

⁵⁷⁹ *Rationale* 1:10.

Von Simson states that while “Gothic builders have been tight-lipped about the symbolic significance of their projects [...] they are unanimous in paying tribute to geometry as the basis of their art.”⁵⁸⁰ This was also an age where Christ himself was imagined to be the originator of geometry with which he ordered the cosmos (Fig. 6.13). Similarly one would also recall the idea studied earlier in the Islamic tradition in which Muḥammad too was thought to be the very compass with which the entire cosmos was scribed by God. As we note there was much secrecy to how masons of the Medieval Age would have studied, understood, and practiced geometry and translated it into building as much of the transmission was mostly oral. This contrasts with the experience in the Islamic world where Ibn ‘Arabī’s reflects upon divinity by the use of geometry demonstrating this clearly by way of illustrations as found in the works such as the *Book of the Description of the Encompassing Circles* and also the *Futūḥāt*. While Ibn ‘Arabī’s studies provide a rich potential for architectural expression, again such translations do not seem to have materialized in the way geometry played an important role in the design of the medieval cathedrals.⁵⁸¹

Rykwert, in his study of the masonic transmission of knowledge, has revealed that masons identified their art in scriptural sources and one therefore ordained by divine knowledge.⁵⁸² Paul Frankl, citing the study of Raymond Klibansky on the continuity of the Platonic tradition in the Middle Ages, presents the argument that given the evidence that masonic lodges demanded of their artisans strong Christian ethics and the fact that geometry was taught with an emphasis of Christian symbolism in Neoplatonic schools, such as the Chartres, meant that there were compelling reasons for a medieval mason to choose the use of a square of an equilateral triangle in devising his designs for Cathedrals. This was because for the medieval masons, Frankl writes, these geometric figures “were the holy elements of which God himself had created the universe,” and it alone can “guarantee beauty in architecture.”⁵⁸³

⁵⁸⁰ von Simson 1988, 13.

⁵⁸¹ Begley has argued that Ibn ‘Arabī’s abstract geometrical depictions of the “Throne of God” and the “Plain of Assembly on the Day of Judgment” have been inspirational in the design of the Taj Mahal, Begley 1979, 16–27.

⁵⁸² Rykwert 1984, 22. On the sources of the geometric education of medieval master masons see Shelby 1972, 395–421. Shelby’s study mostly focuses on the works of Roriczer and De Honnecourt, whose sketchbooks shed light on how geometry was taught, learned, and practiced in the late Middle Ages.

⁵⁸³ Frankl 1945, 59. See also Joost-Gaugier 2006, 240.



Fig. 6.13 “God designing the World”, 13th c (Source: Hannam 2010, 67)

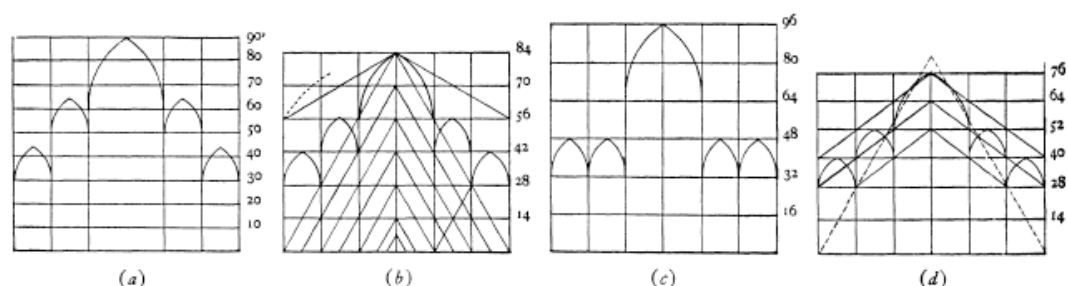
In reflecting upon this, one must continually keep in mind that the basis of these geometric forms was derived from the harmonic measures of Christ, and that Christ was the body of the temple. Thus in the use of both the equilateral triangle and the square we now find the numerical ratios attributed to Christ being generated into geometric figures postulated as architectural expressions.

Architectural historians such as Frankl, Ackerman, and von Simson cite the Milan Cathedral as a case in point.⁵⁸⁴ In the building of the Milan Cathedral a conference was held between the patrons and the engineers on how to raise the building. The question was posed as to whether the cathedral should be raised either based on the figure of a square or an equilateral triangle (Fig. 6.14). The final decision taken by the Cathedral council was to select the triangle. The reason for this selection, as Ackerman writes, has less to do with engineering or aesthetic, but rather concerned with the appropriate sacred geometry for the Cathedral. In fact Ackerman’s study reveals that the Milanese believed more in the geometric symbolism as granting

⁵⁸⁴ Frankl 1945, 51–60; Ackerman 1949, 92–108; von Simson 1988, 19.

structural sturdiness to the Cathedral rather than one that was rationally and technically verifiable.

In reference to the four towers, which were criticized as being structurally unstable, the Church retorts by stating that the geometric basis of the towers was sound, as it was based on the template of the Heavenly Jerusalem mentioned in the *Revelations* with Christ in the centre and surrounded on all sides by the Apostles.⁵⁸⁵ Reflecting on this, von Simson writes: “In other words, architecture that is scientific and good must invariably be based on geometry; unless he obeys the laws of this discipline, the architect must surely fail.”⁵⁸⁶



MILAN, CATHEDRAL. PROJECTS FOR DETERMINING HEIGHT OF NAVE, AISLES, PIERS, AND VAULTS TO BE ERECTED ON FOUNDATIONS 90 BRACCIA WIDE. (a) Project of 1390 employing units of 10 braccia, after sketch and notes by Antonio di Vincenzo. (b) Project of 1391 employing units of 14 braccia, within framework of equilateral triangles, after sketch by Gabriele Stornaloco. (c) Project of 1392 employing grid of squares, reconstructed from texts. Probably proposed by Heinrich Parler of Gmünd. (d) Project accepted in 1392 employing Stornaloco's project to a height of 28 braccia (dotted lines), and continuing with units of 12 braccia within framework of Pythagorean triangles, after specifications of Cathedral council.

Fig. 6.14 Consideration of the equilateral triangle or the square as the basis of the Milan Cathedral (Source: Ackerman 1949, 89.)

Von Simson also highlights the unique interest of Gothic architects in the use of square modules to designing cathedral plans. He cites for example the masonic manual published by Matthew Roriczer (d. circa 1495) in the late fifteenth century (Fig. 6.15) and also the examples from the sketchbook of the late thirteenth-century French architect Villard de Honnecourt (d. circa 1250).⁵⁸⁷ De Honnecourt, as von Simson notes, attempted to teach the use of the square as a means to arrive at the “true measure” of a building. Both Hiscock and von Simson have noted various ground plans of churches, church towers, and steeples based on the application of the square.⁵⁸⁸ The square was the pre-dominant module of church architecture in the

⁵⁸⁵ Ackerman 1949, 89.

⁵⁸⁶ von Simson 1988, 20.

⁵⁸⁷ Shelby cites the translation of the Archimedes' works from Arabic to Latin to have been of influence upon masons such as Roriczer. Shelby 1972, 413.

⁵⁸⁸ von Simson 1988, 16 ; Hiscock 2007, 183–185,

Medieval Age.⁵⁸⁹ In a curious image presented by de Honnecourt of the elevation of the Laon Tower, which was also based on the square module (Fig. 6.16), one sees a divine hand holding on to a quatrefoil (Fig. 6.17), emphasizing the symbolic premise behind the use of the quadrature as the basis of the design.

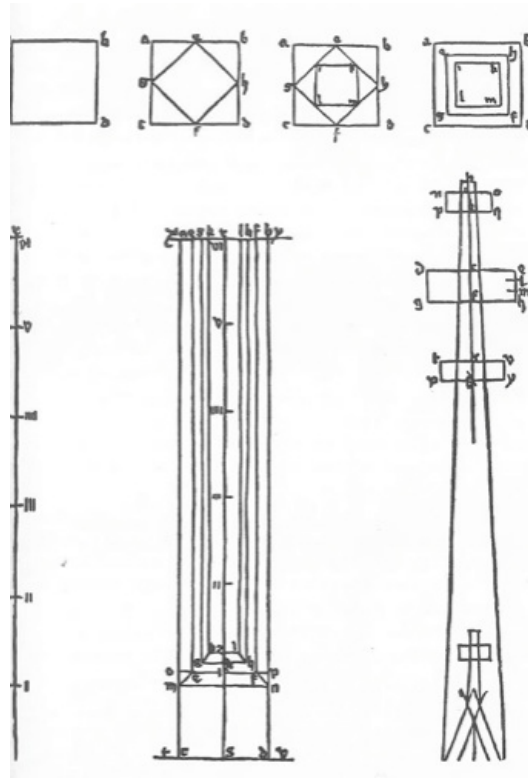


Fig. 6.15 Matthew Roriczer, plan and elevation of the pinnacle using the square
(Source: von Simson 1988, 17.)

⁵⁸⁹ Ibid., 14.

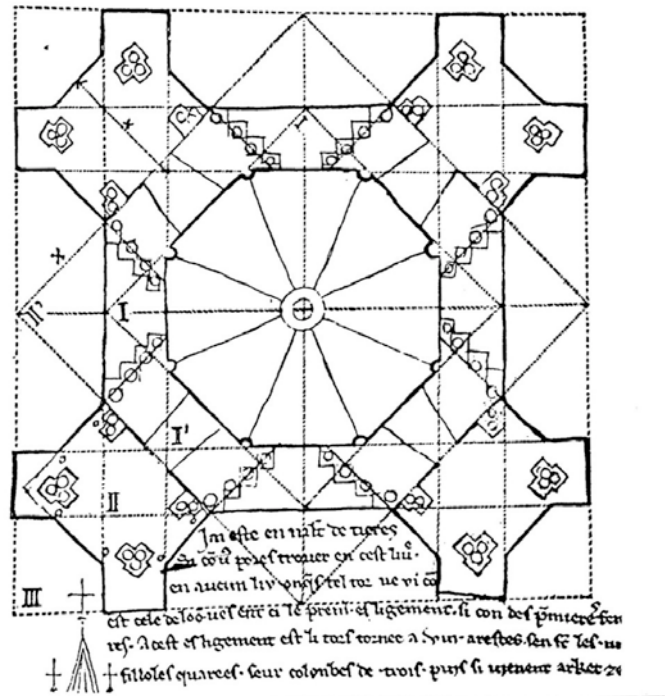


Fig. 6.16 Laon Tower, Plan, Villard de Honnecourt (Source: Hiscock 2007, 188.)

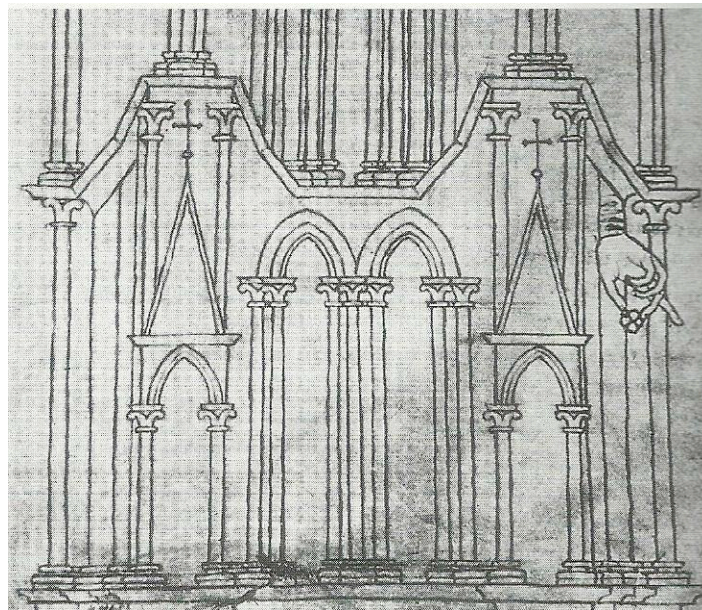


Fig. 6.17 Elevation of Laon Tower, with the insert of hand holding a quatrefoil, Villard de Honnecourt (Source: Hiscock 2007, 182.)

For the medieval builder, the use of the geometric form was to emulate the activity of God, who was imagined as the Divine architect who composed the universe by the use of the compass. In the use of both the equilateral triangle and the square, essentially the medieval builder is attempting to find the means to replicate the great temples mentioned in the Bible. The measure and form of these buildings, as we have

learned before, was essentially based on a singular premise, Christ. In this sense we return to Durandus' explanation of the meaning of the church, as the "Body of Christ."⁵⁹⁰ The church therefore was in essence a comprehensive attempt to transform the body of God into a built edifice.

⁵⁹⁰ *Rationale* 1:4.

PART III RE-ESTABLISHMENT: THE RENAISSANCE

CHAPTER 7

THE RENAISSANCE OF VITRUVIAN MAN (14TH C–16TH C)

7.1 The Synthesis of Ideas

Starting from about the middle of the eleventh century, almost half a millennium after the fall of Rome, the West was starting to re-emerge as a cultural and intellectual force with its principal cities growing in wealth and urbanization. This coincided with contact with the Byzantine East and the Islamic world, which had preserved many of the West's intellectual traditions by way of transmission, translations, and commentaries.⁵⁹¹ From the eleventh century onwards we see the teachings in philosophy, medicine, mathematics, logic, amongst others, being slowly reclaimed by the West. This was also the period, which saw new enthusiasm in the West towards the patronage and support of scholars, and the setting up of universities in which the newly acquired works from the East were being translated and taught.⁵⁹² This momentum kept on going, reaching its peak in the fourteenth and fifteenth centuries, a period that has since come to be known as the Renaissance. A key feature of the Renaissance was its enthusiasm to look back to antiquity as a golden period in human history. Yates, describing the motif of the age, writes that the Renaissance represented a belief, which held the past as always being “better than the present, and progress was revival, rebirth, Renaissance of antiquity.” The role of the scholar of the age, the humanist then was to recover “the literature and the monuments of Classical antiquity with a sense of return to the pure gold of a civilisation better and higher than his own.”⁵⁹³

Humanism, a term used interchangeably with the Renaissance sometimes, came to stand for the re-establishment of the educational program of Classical antiquity. Known as *studia humanitas*, it was a return to a curriculum that emphasized human potential to effect change by knowing how and when to act appropriately, on the basis of one's knowledge of the established traditions learnt from antiquity. The emphasis of the humanist curriculum was in the cultivation of the human being and it involved the classical study of the *trivium* and the *quadrivium*. This meant that the Renaissance humanist scholar was expected to master subjects such as rhetoric, philosophy, grammar, and poetry, amongst others, learnt from the writings of classical authors and thinkers of both Greece and Rome. As the Renaissance historian Paul

⁵⁹¹ Copenhaver and Schmitt 2002, 2–3.

⁵⁹² See for example Marrone in McGrade (ed.) 2003, 10–50 and Hannam 2010, 61–76.

⁵⁹³ Yates 2002, 1.

Oskar Kristellar writes, the ambition of this study was in arriving at becoming the ideal human being by studying the humanities. For the humanists there was only a singular “means through which [the most excellent of] human values and ideals could be attained: through classical and literary—that is, through humanistic—studies.”⁵⁹⁴

It was therefore believed that the study of humanities equipped one with the knowledge to conduct the right way of living the good life. The good life that was sought for emulation was one that was led by their intellectual predecessors, the sages of antiquity such as Socrates, Plato, Aristotle, and Plotinus, whose right actions brought them providential fortune and had survived the test of the ages. As Hankins explains: “humane studies embellished life, brought pleasure, and nourished piety. The humanities did not save souls but living a good life would bring men favour in the eyes of God and strengthen piety.”⁵⁹⁵

Humanist studies, especially in philosophy, led to the understanding of the human as a privileged being, who was called in all the philosophical works as a microcosm. In the works of Plato and Plotinus, for example, it was claimed that man was celebrated as a microcosm only because the human soul was of divine origin. What piqued most interest was in realizing that if the soul was properly conditioned it was able have access to divine reality. Thereafter the human soul and its divine potentials came to be intensely studied. The availability of the entire corpus of Plato and the fabled *Hermetica* attributed to one Hermes Trismegistus, both translated by Marsilio Ficino (d. 1499) into Latin, provided further impetus for this search with Pico Della Mirandola’s *Oratio de hominis dignitate* (*Oration on the Dignity of Man*) and Ficino’s *Theologia Platonica de immortalitate animae* (*Platonic Theology*) being two of the more significant works that developed this widely studied theme.

This intellectual milieu also played an important role in the formation of architectural theories during the Renaissance. The revival of Vitruvius’ *De Architectura*, which presented man as the measure of the temple, meant that architects of that age, too, needed to understand the human body by way of humanistic researches, and turned towards works of antiquity as way to build again in the fashion of the Classical Age.

⁵⁹⁴ Kristellar 1980, 4.

⁵⁹⁵ Hankins 2007, 32.

Emergence of Architectural Theory in the Renaissance

It is a remarkable feat that until the middle of the fifteenth century Vitruvius' *De Architectura* remained as the only work dedicated specifically to the theory of architecture. While remarkable architectural works were accomplished throughout the Middle Ages, both the education and the practice of the architect was understood to be quite different to what was described in Vitruvius' treatise.⁵⁹⁶ With the rupture in the transmission of the Classical tradition, the practice of architecture was considered in the Middle Ages as a mechanical art in the company of other crafts such as pottery, gilding, and bricklaying, rather than being part of the more prestigious liberal arts as described in Vitruvius.⁵⁹⁷ The knowledge of the building art was instead taught in guilds and its transmission was secretive, confined between the master and his apprentice: "the principles of Gothic architecture had been transmitted orally, within secretive guilds and craft lodges, and were not intended for publication; and as an *ars mechanica*, architecture occupied a relatively low status in the medieval hierarchy of knowledge."⁵⁹⁸ Of the works that were written about or that mentioned architecture, such as those of Abbot Suger⁵⁹⁹ and Hugh of St. Victor,⁶⁰⁰ there is either very little or no indication at all of the knowledge of Vitruvius' works.⁶⁰¹ The key control points of medieval architectural theory, as we read in the previous chapter, seemed to be mainly inspired by a Pythagorean and Platonic reading of Christian theology. Such theories together with the writings of Church Fathers, such as Augustine and Boethius, seemed to have underpinned the great cathedral projects of the twelfth century.

While Augustine's study of Christ's proportion does bear some resemblance to what we read in Vitruvius, the need to follow classical architectural precedents was not seen as a main concern to those who built in the Middle Ages. For example there seems to be a lack of reference to the classical proportions or columnar orders

⁵⁹⁶ Pevsner in his study on the term architect as it was used in the Middle Ages reveals it was used in a sense different to what it came to mean in the Renaissance in which the architect leads the design of the building. For example from the tenth century onwards the role of architectural planning of churches was the purview of clerics. Pevsner 1942, 548–562.

⁵⁹⁷ Wittkower and Wittkower 2007, 9; Parcell's recent study of the liberal and mechanical arts traditions in the Middle Ages by analyzing Hugh of St. Victor's *Didascalion* is instructive of how little was mentioned regarding the art of building as part of the study of the arts. Parcell 2012, 59–102.

⁵⁹⁸ Hart and Hicks (eds.) 1998, 3. See also Frankl 1945 and Rykwert 1984.

⁵⁹⁹ "Among the most astonishing of medieval utterances on architecture are the writings of Abbot Suger of Saint Denis [...] which cannot be traced back to any known theoretical forebears, not even to Vitruvius." Kruft 1994, 34.

⁶⁰⁰ Hugh of Saint Victor 1991, 3.

⁶⁰¹ On the extent of the transmission of Vitruvius' *De Architectura* in the Middle Ages see Krinsky 1967, 36–70.

Vitruvius wrote about in the textual or material evidence in medieval architectural practices. Evidence instead proposes scripture and its commentaries as the main resource that was consulted in informing architectural theories. Building and especially the act of the geometry were understood as a continuity of the divine process. Numbers and geometric forms were considered as the language with which God built the cosmos, and it became thus relevant to study it in close consultation with the Christian faith to see what knowledge it revealed in building heaven on earth—the House of God. In this way, the Medieval Age can be considered to have been an age of architectural invention in that it moved away from the Vitruvian—Roman and Greek—tradition.

Alberti: The Humanist Architect

Vitruvius' *De Architectura* started to be circulated and read in Italy around the early fifteenth century. It revealed to its audience that the study and practice of architecture was to be underpinned by a vast knowledge system. Coincidentally, this educational scheme resembled the depth, span, and rigor of the humanist curriculum that was gaining currency in the fifteenth century. In presenting the architect as one who was educated in letters, steeped in mathematics, taught in geometry, versed in philosophy, knowledgeable in harmonics, and also one who had a grasp of astrology, law, and medicine, the *De Architectura* made a case for the architect to be trained as a humanist and schooled in the liberal arts instead of the current practice in which the architect was no different from a carpenter trained under a master mason in the guilds. This claim for a well-educated architect was further strengthened by the treatise's own referencing to ancient authors such as Plato, Aristotle, Pythagoras, and Hippocrates as a premise to derive a theory for architecture. In this way Vitruvius' work allowed for architecture to be considered favourably by humanists.

On the interest Vitruvius' work elicited, Kruft notes that it was the humanists who took interest in it even prior to it becoming of interest to Renaissance architects: "Interest in Vitruvius during the Early Renaissance started with the Humanists, but soon spread to architects, and other kinds of artists and their clients who were united by a common new interest in the architecture of Classical antiquity, for which Vitruvius was the only literary source."⁶⁰² Not only did *De Architectura* present a

⁶⁰² Kruft 1994, 40.

template on how architecture could be theorized, it also acted as a guide to the study of both surviving buildings and ruins in Italy. This was important as it allowed for an understanding of the relationship between theory and practice of architecture.⁶⁰³ The revival and study of Vitruvius also neatly coincided with the rise of the cultural ambitions in major cities such as Milan, Venice, Florence, and Rome, where patrons wanted to rebuild following the model of the Classical period, which was looked upon to exemplify the success and might of the once-great Roman Empire. This was also the time of great patrons of the arts in Italy, led primarily by the Medici family who provided resources in re-creating Italy to be once again flourishing with great works of art and architecture.

At about the middle of the fifteenth century, the first attempt to follow Vitruvius in writing a treatise for architecture was undertaken by Leon Battista Alberti. Alberti, who was trained as a humanist came into contact with Vitruvius' text in 1430, when he was asked to write a commentary on it by his friend Lionello d'Este.⁶⁰⁴ Emulating Vitruvius, Alberti penned an architectural treatise titled *De Re Aedificatoria decem* (*The Art of Building in Ten Books*), which was completed in 1450. While Alberti might have replicated Vitruvius in presenting his ideas in ten separate sections, his work when compared to his predecessor was more expansive and encyclopaedic resulting in a text significantly larger than the *De Architectura*. This was not unexpected as one can see in the work Alberti's ambition to posit the Renaissance architect no longer as the secretive medieval craftsman but rather as an erudite humanist scholar. Alberti makes this distinction early on in his work when he writes that the architect is not a carpenter. In fact the carpenter is to be seen as an "instrument in the hand of an architect."⁶⁰⁵ Following this exclamation we find a text in the mould of scholarly humanist writings with extensive referencing to classical sources, reflecting Alberti's depth of knowledge,.

⁶⁰³ Hart 1998, 2.

⁶⁰⁴ Rykwert 1998, 35.

⁶⁰⁵ Alberti 1999, Prologue (henceforth *De Re Aedificatoria*).

7.2 Proportion and the Human Body

With regards to the relationship the body played in architecture, we find it introduced very early in the *De Re Aedificatoria*. In the Prologue, Alberti writes, describing the pleasures and benefits of a beautifully made building:

It often happens that we ourselves, although busy with completely different things, cannot prevent our minds and imagination from projecting some building or other. Or again, when we see some other person's building, we immediately look over and compare the individual dimensions, and to the best of our ability, consider what might be taken away, added, or altered, to make it more elegant, and willingly we lend our advice. But if it has been well designed and properly executed, who would not look at it with great pleasure and joy?⁶⁰⁶

In the initial reading this statement does not seem to quite explicitly explain how the human body is related to the building. But as Rykwert, Leach, and Tavernor have explained, the key is to be found in Alberti's statement in which he describes the beautiful building as one in which all elements are perfectly assembled so that nothing maybe added or removed. Alberti's phrasing here is one drawn from Cicero's famous section in *De Oratore* (*On Oration*) which advises one to study the human form to perfect poetic and rhetorical presentation: "turn your attention now to the form of the human figure, or even that of the other living creatures. You will find that no part has been attached to the body without some necessity."⁶⁰⁷ The basis of perfect composition rests upon the study of the human body, whether the result be rhetoric or architecture. Rykwert, Leach, and Tavernor cite that with this reflection so early on in his treatise, Alberti has sought to link "the building to the human body," an idea which is thereafter referred to throughout the text.⁶⁰⁸

Alberti is far more explicit about the relationship between the body and building in Book 1 when explaining the term "compartition." Compartition, which is the composing of various building parts so that the result is a harmonious whole, is best understood, Alberti writes, when it is imagined how various members of the body are joined together.⁶⁰⁹ The underlying ambition of compartition is to study and follow

⁶⁰⁶ Ibid.

⁶⁰⁷ Cicero 2001, 3.45. Of Cicero's influence on Alberti read Rykwert "Introduction" in *De Re Aedificatoria*, x.

⁶⁰⁸ *De Re Aedificatoria* n.11, 367.

⁶⁰⁹ Ibid., 1.9.

the manner of the human body in which one finds the harmonious composition of individual parts made in relation to the whole. Alberti writes in the *De Re Aedificatoria* that compartition brings about the organization of the architect's ideas "into a single, harmonious work that respects utility, dignity, and delight,"⁶¹⁰ thus making a direct reference to the famous Vitruvian triad of *utilitas* (utility), *firmitas* (commodity), and *venustas* (beauty).⁶¹¹ With regards to how compartition is perfectly achieved, it is quite clear that Alberti is in fact discussing the importance of the knowledge of proportion to architecture. Proportion, as we recall, was described by Vitruvius as that which "implies a graceful semblance; the suitable display of details in their context. This is attained when the details of the work are of a height suitable to their breadth, of a breadth suitable to their length; in a word, when everything has a symmetrical correspondence."⁶¹² This fundamental premise of architecture according to Vitruvius is best understood in the study of the human body; and this Alberti agreed with and expanded in his own works.

Exempeda: Measuring Buildings by the Body

Alberti discussed how to achieve knowledge of correspondences found in the human body—proportion—in his earlier treatise *Della Pittura (On Painting)* completed about fifteen years prior to the *De Re Aedificatoria*. In this text we find Alberti referencing Vitruvius in relation to the understanding of proportions and the human body. Here Alberti explains to the painter that by studying Vitruvius one understands that proportion is the relation of parts to the whole, and that the human height is measured against the foot:

studious painters should apply themselves to [investigating the human body] and understand that the more care and labour they put into studying the proportions of members, the more it helps them to fix in their minds the things they have learned. I would advise one thing, however, that in assessing the proportions of a living creature we should take one member of it by which the rest are measured. The architect Vitruvius reckons the height of a man in feet.⁶¹³

⁶¹⁰ Ibid.; see also explanation in the Glossary, 426–427.

⁶¹¹ See explanation of Alberti's use of the Vitruvian triad in the Glossary in the *De Re Aedificatoria*, 426–427.

⁶¹² *De Architectura* 1.2.3.

⁶¹³ *Della Pittura* 2.36. Alberti goes on to criticize Vitruvius for selecting the foot as a measure of human height as it does not commensurate with the vertical dignity of the human body. He preferred the use of the head instead. See also Parcell 2012, 125–126.

Alberti's continuing interest in the importance of working out a proportioning system based on the human body is borne out in more detail in his short treatise titled *De Statua (On Sculpture)*. In the *De Statua* Alberti proposes rules for sculpture, not so much in the technique of sculpting but rather a theory of how to study the measurement of the human body. Here, too, Alberti generally follows Vitruvius in attempting to prove that the ideal body is one that manifests the measure of the symbolic Pythagorean-Platonic perfect numbers, six and ten. To aid the sculptor in understanding the measure of the human body, Alberti devises an instrument known as the *exempeda* ruler. The *exempeda* ruler is a vertical rod with six equal divisions, in which each division came to represent the unit of a foot (*pedes*). The foot length is relative to the human model and not a pre-fixed module. This meant that the *exempeda* measuring system was not based on dimensions but rather proportions.⁶¹⁴

With the *exempeda*, Alberti was following Vitruvius' ideal of the height of the human body to be six times the length of its foot (Fig. 7.1). Alberti derived this proportional system by what he says "not the particulars of this man or that one, but as far as possible, that exact beauty granted by Nature and given as if in select portions, to many bodies." He then goes on to state that to arrive at this he studied many bodies and referred to the works of his predecessors: "I have therefore chosen many bodies which are reputed to be most beautiful by those who are knowledgeable, and I have taken the measures and proportions of all of these. Comparing and eliminating the excesses of all the extremes [...] I have selected from many bodies and models those mean proportions which seem to be most praiseworthy."⁶¹⁵

The way the *exempeda* ruler worked was to measure the body in six equal parts and each of these parts is then further broken down to ten parts or degrees. Essentially, this meant that one foot was equal to ten degrees and the total height of the human being was sixty degrees. To measure any of his models, Alberti would devise a ruler to be as high as the height of his subject. The *pedes* division is then marked off by two carpenter's squares adjoined to one another, this is known as the *normae* (Fig. 7.2). This *normae* measure is also later deployed in measurement of the width and breadth of the body.⁶¹⁶ Gadol states that the horizontal measure, like its

⁶¹⁴ Tavernor 2007, 31.

⁶¹⁵ Alberti cited in Gadol 1969, 82. See also Tavernor 2007, 31–32.

⁶¹⁶ Gadol 1969, 77. See also Aiken 1980, 74.

vertical counterpart, also follows the one-sixth division: “for the width and breadth, he used the two squares, graduated in the same way.”⁶¹⁷

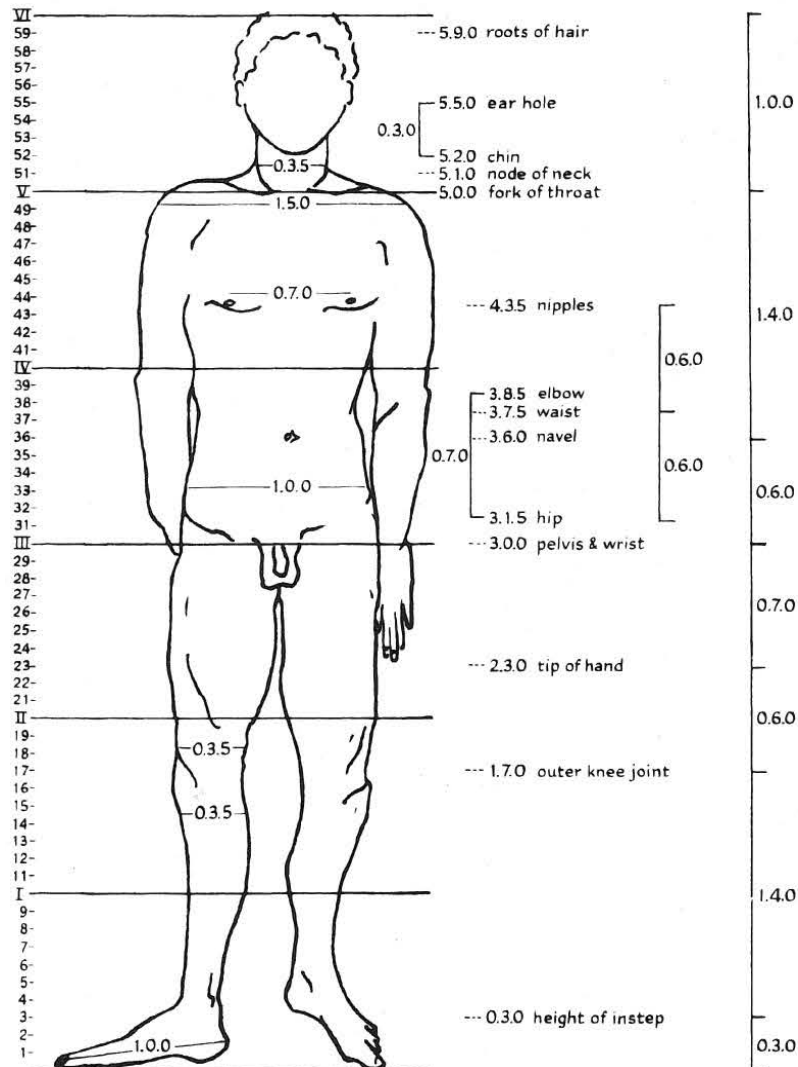


Fig. 7.1 Alberti's *exempeda* rule of measure based on the foot length that is further divided by ten degrees (Source: Aiken 1980, Plate 15.)

⁶¹⁷ Ibid.



Fig. 7.2 Illustration depicting Alberti's use of two set squares—*normae*—which was used to measure both the length, width and breadth in the *exempeda* system (Source: Gadol 1969, 77.)

Aiken in his “Alberti’s System of Human Proportions” states that while Alberti may seem to have intimated that his *exempeda* rule system was a result of extensive empirical research—“from many bodies and models”—the resultant measure he offers seems to simply confirm historical precedents he was already aware of such as that of Vitruvius. Alberti himself claims that it was to Nature (a word Alberti capitalizes throughout his *Della Pittura*, *De Statua*, and *De Re Aedificatoria*), the painter, sculptor, and architect must turn to train and perfect the knowledge of his discipline. In the *De Statua* Albert writes: “in Nature herself there lies to hand something which provides you with a method and certain, exact means whereby you may with application achieve the highest excellence in this art. I will now explain what the convenient and necessary means are that Nature offers to sculptors to execute their works perfectly.”⁶¹⁸

The Finitorium Ruler

As Aiken explains, the means by way of Nature that Alberti talks about here refers to the human body being translated as *dimensio* (measuring the human body using the *exempeda*) and *finitio* (a measurement to “locate the position of any anatomical or sculpted parts relative to the central or internal axis of the figure being measured.”)⁶¹⁹ In addition to the *exempeda*, which was used to measure the vertical and horizontal proportions of the human body, Alberti also invented the *finitorium*. The *finitorium*

⁶¹⁸ Alberti cited in Aiken 1980, 74; see also *Della Pittura* 2.29 and *De Re Aedificatoria* 9.5.

⁶¹⁹ Aiken 1980, 75.

was a circular axial disc with an extended arm known as the *radium*. Plumb lines are made to hang from the *radium*. This device is to be placed on the top of the head (Fig. 7.3). The *radium* is rotated around the centre of the *finitorium* and the bodily movements of the model is measured by the plumb lines attached to the *radium*.⁶²⁰ The furthest reach of an outstretched arm determines the length of the *radium*. With this ruler system too we find the influence of perfect number six deployed by Alberti: “according to Alberti, the sculptor’s *finitorium* [...] has six equal divisions, called degrees, marked around its circumference, with each degree subdivided into six minutes.”⁶²¹

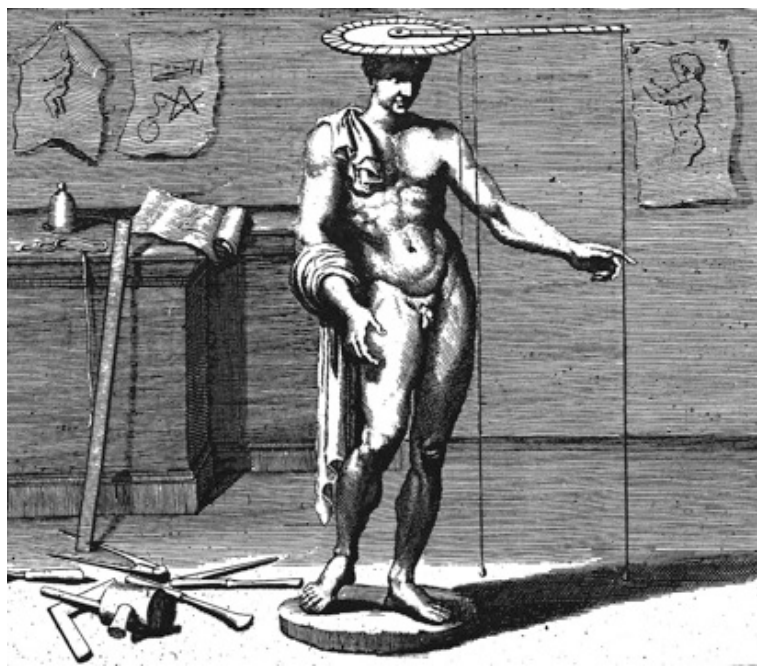


Fig. 7.3 Illustration depicting Alberti’s *finitorium* and *radium*, and how it is made to measure the movement and extensions of the human body (Source: Gadol 1969, 79.)

Aiken maintains that Alberti’s theory of the *exempeda* ruler and its usage was one that was based on his knowledge of Vitruvius’ *De Architectura*: “Both the *pedes* of the *exempeda* ruler and the actual foot length of the well-proportioned man recorded in the tables is ten degrees long or one sixth of the whole; the same relationship of foot to body is found in the Vitruvian system.”⁶²² But there is one significant difference in Alberti’s *exempeda* system when compared to that of Vitruvius. In Alberti the mid-point of the human body is not the navel, as it was with Vitruvius, but rather it is the

⁶²⁰ Ibid. See also Gadol 1969, 78–80.

⁶²¹ Tavernor in Dodds and Tavernor (eds.) 2002, 83.

⁶²² Aiken 1980, 83. See also Morselli 1978, 238.

base of the pelvis. The navel as the mid-point of the body was the symbolic and enduring generator of the circle and square bequeathed to posterity by Vitruvius. This idea compellingly presented the idea of the shared relationship between the human body and geometry upon which the basis of architecture is said to be established. Nevertheless Alberti, too, relates the circle and square to the human body, not by way of the compass but with the use of the *exempeda* and *finitorium* rulers he devised.

With the *finitorium* we find the use of the circle to measure the movement and limit of the body in extension. The geometry of the square, though not made quite apparent in relation to the body in the *De Statua*, can be found in the consistent use of the *pedes* division using the fraction of 1/6 in the measure of height, breadth, and the width, offers the body to be understood by way of fractional relations like a cube. Aiken has also observed that with Alberti's *exempeda* system, and beyond the fractional relations of the *pedes*, the idea of the cube is also present in the relationship and connections between other body parts: "Alberti has employed an elaborate fractional scheme which is not just essentially Vitruvian, but which keenly asserts more forcefully than Vitruvius' few ratios the actuality of a keenly analysed cubic form."⁶²³

The symbolism of the numbers, ratios, and geometrical forms used by Alberti affirms the continuity of that which emerged with Pythagoras and then later found in Plato and adopted by Vitruvius for the purposes of architecture. In the previous chapter, too, we read how these measures and forms were also influential in the Middle Ages.

As Aiken describes, Alberti's turn to Vitruvius is an affirmation of the "characteristic of humanist endeavours to revive and reform the knowledge, methods, and theories of the past."⁶²⁴ It must be noted, though, that in the *De Statua* Alberti does not explicitly draw a link between the *exempeda* rule and architecture. But nevertheless this relationship is expressed implicitly by his continual use of the Vitruvian basis of measure as a key source for his text as observed by Aiken.⁶²⁵ Rather it is in the *Della Pittura* that we find evidence of Alberti, following in the footsteps of Vitruvius, drawing a link between architecture and the human body. In his advice on how to draw a fixed ratio to guide consistency in the application of

⁶²³ Aiken 1980, 84.

⁶²⁴ Ibid., 84.

⁶²⁵ Aiken 1980, 83 n.32.

proportion in a painting, he asks the artist to study Vitruvius and how he transferred the proportions of the human body in the design of a column.⁶²⁶

Body, Proportions, and the Beautiful Building

Alberti, in the *De Re Aedificatoria*, drew on the studies of the human body he made in both the *Della Pittura* and the *De Statua* to articulate how architecture, too, is related to the human body. In the middle of Book 9 of the *De Re Aedificatoria* Alberti alludes to the important aspect of his treatise as being the investigation of what makes architecture beautiful. He writes: “now I come to a matter with which we have promised to deal all along: every kind of beauty and ornament.”⁶²⁷ This study, he warns the reader, is very difficult as it requires one to understand how to arrange and compose parts “according to a true and a consistent agreement and sympathy.”⁶²⁸

Alberti in explaining how one was to compose various parts so that it arrives to become a coherent and beautiful whole, states this is essentially learnt from the study of Nature, specifically the body: “great experts of antiquity, as we mentioned earlier, have instructed a building is like an animal.”⁶²⁹ Though the use of the term “animal” seems ambiguous, it is clear that Alberti meant the human animal, and this becomes apparent in the following section. Here, as an example of how beauty can be explained by studying Nature, he turns to the ways in which a man is attracted to a woman. This attraction, Alberti claims, is based also on proportions: “you, perhaps, might prefer a wife neither so slender of figure as to appear sickly nor so stout of limb as to resemble a village bully.”⁶³⁰ While this may be an easy enough example for one to grasp the basic premise of how proportion is the key to understanding beauty, Alberti states it is too subjective a study of the human body, one based on emotions, thus not an accurate way to judge beauty correctly.

Instead he informs that the beauty of a body is to be studied based on three factors: “definite number [*numerus*], outline [*finitio*], and position [*collocatio*].”⁶³¹ This rule, when applied properly will result in a building of perfect beauty. Alberti calls this beauty *concinnitas*. This term *concinnitas*, which has proven hard to be translated, can perhaps be best understood as a beauty that results by following the

⁶²⁶ *Della Pittura* 2.43; cf *De Architectura* 4.1.6.

⁶²⁷ *De Re Aedificatoria* 9.5.

⁶²⁸ Ibid.

⁶²⁹ Ibid.

⁶³⁰ Ibid.

⁶³¹ Ibid.

laws which regulate Nature.⁶³² To arrive at *concinnitas* was for Alberti the absolute aim of the art of building. The basis of *concinnitas*—*numerus*, *finitio*, and *collocatio*—as Gadol has explained, “corresponds to Vitruvius’ *symmetria*” which is having the knowledge of how to use proper measurement (*numerus*) and proportional ratios (*finitio*) to ensure that the relation between parts are made agreeable (*collocatio*).⁶³³ In the *De Re Aedificatoria* Alberti places special emphasis on discussing the role of number and proportional ratios in arriving at *concinnitas*, “leaving [*collocatio*, position or] arrangement of the parts of the building [mostly] to the architect’s aesthetic judgement.”⁶³⁴

In Book 9, Alberti, after his introduction to *concinnitas* and what it meant, begins by addressing how Nature, in its arrangement of the human body teaches us on the use of odd and even numbers. By studying this he states the architect is able to draw valuable lessons for building, thus illustrating how one can learn from Nature its mathematical order and laws of proportions. Alberti starts by advising the architect to study the manner in which animals and human beings are structured so that they are able to stand with stability and not fall over easily. This is only so because Nature has selected even numbers for its vertical structures, the legs. He then follows this with an advice to study the human face as a proper guide in the design of openings in a building. The law that governs openings in the face, he claims, is based on the odd number. There is only one opening to each side of the body. There is also one mouth in the centre thus this must be used as a basis to design architectural openings especially with windows and doors to a building.⁶³⁵

Alberti then continues even further by fleshing out the symbolism of all the numbers from one to ten. In the study of all these numbers he draws out each number’s relationship to the human being. For example, number five is related to the body, as there are five fingers in one hand. He especially singles out the numbers four, six, and ten, following the views of Pythagoras, Plato, and Vitruvius in emphasizing the significance of the *tetractys*. Of the number four, he writes that it is related to Godhood based on the Pythagorean oath system,⁶³⁶ the number six being perfect “because it is the sum of all integers,” and the number ten the most perfect of all

⁶³² Ibid., see Glossary 421–422.

⁶³³ Gadol 1969, 108.

⁶³⁴ Ibid., 110.

⁶³⁵ *De Re Aedificatoria* 9:5.

⁶³⁶ Ibid., n.77, 409.

numbers “because its square equals the cube of four consecutive numbers [$1^3 + 2^3 + 3^3 + 4^3 = 10^2$].”⁶³⁷ He concludes by stating that architects of distinction in the past have used even numbers no greater than 10, and odd numbers no greater than nine, thus maintaining the Pythagorean privilege accorded to the *tetractys*.

After stating the symbolic meanings of numbers (*numerus*) and its resultant geometry (*finitio*) over a long section in Book 9, Alberti eventually concludes by stating: “by using means like these, whether in the whole building or within its parts, architects have achieved many notable results, too lengthy to mention. And they have employed them principally in establishing the vertical.”⁶³⁸ Alberti here is referring to the column, whose significance and importance he defines in Book 6 of the *De Re Aedificatoria* “as the principal ornament without any doubt.”⁶³⁹ It is when Alberti refers to the origin of the column we find him at the most explicit in stating that the underlying basis for arriving at *concinnitas* in architecture is made from the human body. One can infer from this that for Alberti it is by studying the human body that one can understand the *numerus*, *finitio*, and *collocatio*, and resulting from that, *concinnitas*. Alberti writes:

The shapes and sizes for the setting out of columns, of which the ancients distinguished three kinds according to the variations of the human body, are well worth understanding. When they considered the man’s body, they decided to make columns after its image. Having taken measurements of a man, they discovered that the width, from one side to the other, was a sixth of the height, while the depth, from navel to kidneys, was a tenth. The commentators of our sacred writings also noted this and judged that the ark built for the Flood was based on the human figure.⁶⁴⁰

Alberti here is clearly referring to Vitruvius in *De Architectura*, where in Book 4, we find mentioned the description of how the measurement for the Doric column was derived at by the ancients from studying the human body. With this they found that the “foot was the sixth part of the height in a man [and following that] they applied this proportion to the column.”⁶⁴¹ In discussing how the temple is to be designed, in Book 7, we find Alberti also paraphrasing Vitruvius’s famous statement that the body

⁶³⁷ Ibid., 9:5.

⁶³⁸ *De Re Aedificatoria* 9:6.

⁶³⁹ Ibid., 6.13.

⁶⁴⁰ Ibid., 9.7.

⁶⁴¹ Ibid., 4.1.6.

is the measure for the temple.⁶⁴² Thus consistently we find Alberti in agreement with Vitruvius on how the body is related to the building.

Perfect Geometries and the Body

It is well noted that with Vitruvius, the relationship of the body and building is most evocatively described by the generation of the square and the circle. Given Alberti's knowledge of Vitruvius' work, it is inevitable that he must have known of the significance of both these geometric forms, and their relationship to both body and building. As Wittkower writes it is in fact in the Renaissance that this image of the man encompassed by the square and circle continued to play a significant role in architecture. He argues that the "the Vitruvian figure inscribed in a square and a circle" coalesced the resurgence of Platonic philosophy with that of the Christian idea of man being made in the image of God. These geometrical reflections soon lend itself to architectural theories concerning the design of churches: "How could the relation of Man to God be better expressed, we feel now justified in asking, than by building the house of God in accordance with the fundamental geometry of square and circle."⁶⁴³

For Wittkower, Alberti was the leading figure in the Renaissance who sought to conceive the planning the design of churches—though Alberti himself preferred to use the term "temples"—using the square and the circle as illustrated in Book 7 of the *De Re Aedificatoria*. Alberti begins by affirming the priority of the circle over all geometric forms for it is a form that has been divinely ordained: "Nature delights primarily in the circle."⁶⁴⁴ The circle, Alberti tells us, is the generator of all other geometrical forms. He goes on to detail how by way of geometrical construction one can evolve a four-sided square into a polygon of ten sides within a circle (Fig. 7.4).⁶⁴⁵ Alberti then turns to the significance of the square. He explains how the ancients, using the basic square, extended it to a rectangle, "square plus one-half, the square plus one-third and the square-doubled," by way of geometrical techniques and used it as a basis to design their temples.⁶⁴⁶

⁶⁴² Ibid., 7.5 and n.68 and n.69, 392. Compare this with *De Architectura* 3.1.1, 3.1.4 and 4.1.6.

⁶⁴³ Wittkower 1971, 16.

⁶⁴⁴ *De Re Aedificatoria* 7.4.

⁶⁴⁵ Ibid., 7.4. See also Wittkower 1971, 17.

⁶⁴⁶ Wittkower 1971, 3. See also *De Re Aedificatoria* 7.4 and Tavernor 1998, 145.

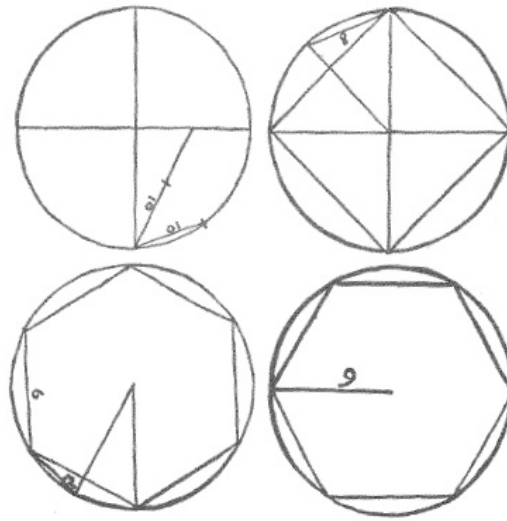


Fig. 7.4 “Construction of square and polygons from the Bartoli edition of Alberti’s *De Re Aedificatoria*” (Source: Wittkower 1971, 4.)

One of the most influential thinkers of the Renaissance was the German cardinal Nicholas Cusanus, (d. 1464) whose intellectual circle included amongst others the architect Leon Battista Alberti.⁶⁴⁷ Cusanus, in wanting to illustrate the relationship between man and God, sought out geometry to be the best tool available. Cusanus, like many others before him, considered geometry as a divine language following the Augustinian dictum that God has arranged the world according to number, measure, and weight. Cusanus’ selection of the geometrical method is especially interesting, as it almost resembles Alberti’s illustration of how the circle is divine and is the generator of all other forms. For Cusanus, God is the centre and circumference of all that comes to existence. God should be meditated as a circle following this. Here too we find a remarkable coincidence between Cusanus and Ibn ‘Arabī. Ibn ‘Arabī as we recall also used a similar type of diagram to illustrate the relationship between God and the entire created world (Fig. 5.6). Using the diagram he had constructed Cusanus explains that our relation to the perfect circle—God—is as like that of a polygon generated from the same centre. It is through these geometric constructions that we should start contemplating our nature of being in relation to God. While the circle can be made to generate multiple sided polygons, a polygon can never translate into the form of the circle (Fig. 7.5). Following this premise, Cusanus explains that the relationship of the human being to God

⁶⁴⁷ Cassirer 2000, 46–51.

is like that of a polygon to a circle; the resemblance to the circle grows with the multiplication of the angles of the polygons; but apart from its being reduced to identify with the circle, no multiplication, even if it were infinite, of its angles will make the polygon equal the circle.⁶⁴⁸

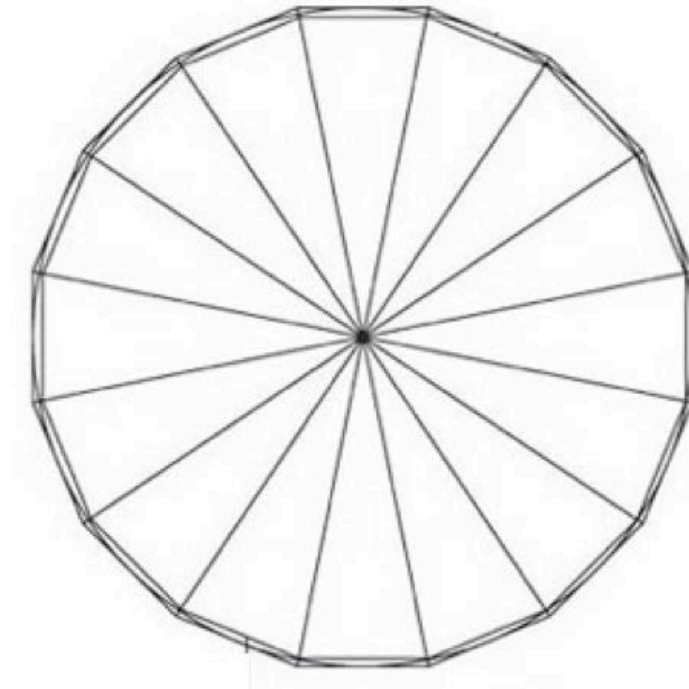


Fig. 7.5 Cusanus' geometric diagram illustrating the relationship of a human to God (Source: http://www.schillerinstitute.org/fid_97-01/012_Cusa_quad_circ.html, online accessed 03042012)

After assigning the circle to be a divinely formed figure, Alberti adopted it to generate what came to be known as the centrally planned church as opposed to the popular model of the churches in the West, which was the cruciform plan. The dominant feature of this model was obviously the centrality of the circle as a plan for the church itself, or its being used to generate polygonal forms circumscribed within it, as explained and demonstrated by both Nicholas Cusanus and Alberti.⁶⁴⁹ Wittkower, citing the influence of Cusanus amongst Renaissance thinkers, writes that the motivation for someone like Alberti to prefer the centrally planned model for churches, as opposed to the cruciform churches that was established in the Middle Ages, may have also to do with the interpretation of the role of Christ. The cruciform plan, he explains, draws its basis on the moment of crucifixion, where God in his

⁶⁴⁸ Cusanus 2007, 11.

⁶⁴⁹ Tavernor 1998, 145.

corporeal form, as Christ, experiences the bodily suffering of a human being. The centrally planned church, though, seeks to accentuate Christ as transcendent God, “an essence of perfection and harmony.”⁶⁵⁰

In the design for the San Sebastiano church in Mantua (completed in 1472), we find Alberti grappling with both the central and cruciform plans. This building was not realized in Alberti’s lifetime and its current form has also been much changed from the original design proposed by Alberti. The only evidence that survives of Alberti’s original intent are the sketches done by the architect Antonio Lobacco (Fig. 7.6).⁶⁵¹ In recent years, the Olivetti/Alberti group, using these sketches, has developed both physical and digital models to study its form and proportions (Figs. 7.7 and 7.8). The floor plan as it is presented emphasises the Greek cross. The ceiling on the other hand is dominated by the circle of the dome.



Fig. 7.6 Sketches of San Sebastiano made by Antonio Lobacco based as he claims on the instructions of Alberti (Source: Tavernor 1998, 128.)

⁶⁵⁰ Wittkower 1971, 30.

⁶⁵¹ Tavernor 1998, 142.

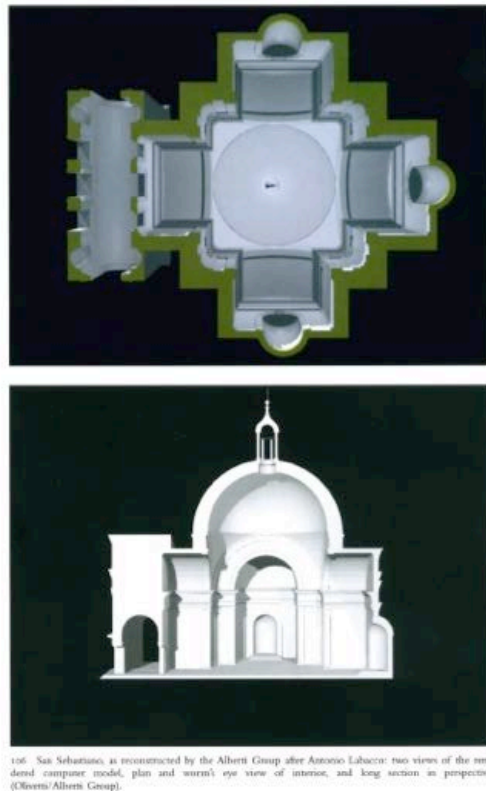


Fig. 7.7 Digital modelling of plan and section of San Sebastiano (Source: Tavernor 1998, 131.)



Fig. 7.8 Timber model showing oblique elevation and section of San Sebastiano (Source: Tavernor 1998, 129.)

As Tavernor has indicated, the perfection of the circle was also realized by Alberti's consistent use of the 6:10 ratio throughout his proposed design. As we recall, Alberti has in both his *Della Pittura* and *De Re Aedificatoria* referred to both these numbers

to be derived from the human body as a fundamental measure for the ancients to make columns. Tavernor, in comparing similarities in the ratios deployed by Brunelleschi in Santa Maria deli Agneli (Fig. 7.9) and Alberti's San Sebastiano, finds the conscious use of numbers six and ten as part of the proportioning of both buildings, affirming the influential role of Pythagorean harmonies in Renaissance architectural practice: "the overall physical dimensions of Brunelleschi's oratory are articulated by whole-number multiples in Florentine braccia of the perfect numbers 6, 10 and 16; and Alberti manipulated these perfect numbers for San Sebastiano so that the ratio of 6:10 permeates every aspect of its plan and section in Mantuan braccia." One further motivation, Tavernor writes, in the use of such numbers is as perfect numbers, they intimate resonance with the perfect form of the circle, they "appear 'round' [...] and be of a certain size overall."⁶⁵² Tavernor has also gone on to show how the plan of Santa Maria deli Agneli when overlaid on that of San Sebastiano's, results in plans—square and polygonal—generated essentially by a circle.

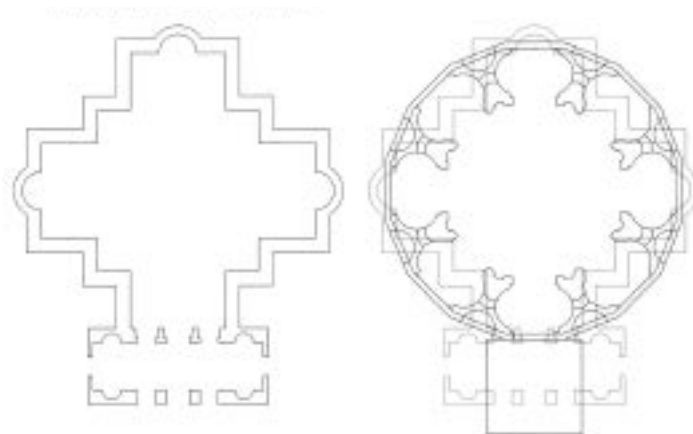


Fig. 7.9 Plan view of San Sebastiano after Antonio Lobacco (*left*); Plan of San Sebastiano overlaid with Brunelleschi's design for Santa Maria deli Agneli (Source: Tavernor 1998, 158.)

The idea of the circle and the square, as formulated by Vitruvius, Wittkower writes, was intensely studied by architects in the Renaissance. Its symbolic meaning of man as a microcosm was influential in the ways architects such as Alberti and those who followed him conceived architectural forms. Wittkower believed that Alberti played a critical role in the transmission of this idea. In fact he cites the central plan preferred by Alberti to have greatly impacted the ideas, writings, and practice of architects such

⁶⁵² Tavernor 1998, 145.

as Leonardo Da Vinci, Francesco di Giorgia, Sebastiano Serlio, and Palladio.⁶⁵³ For example, in Francesco di Giorgia's theoretical design (Fig. 7.10) we see the attempt made by him to illustrate how one can merge both the centralized and quadrangular plans of ancient temples Alberti had spoken of in the *De Re Aedificatoria* as the basis to be used in church design. In this proposal, di Giorgia has also inserted the human body as a generator of the church building, underpinning Alberti's ideas, by way of Vitruvius, that architecture must imitate the regulating laws of Nature to achieve *concinnitas*. The most apt example of Nature's laws was to be found in the human body, which teaches us how parts are to be measured and made in relation to one another so that it can be made to appear harmonious.

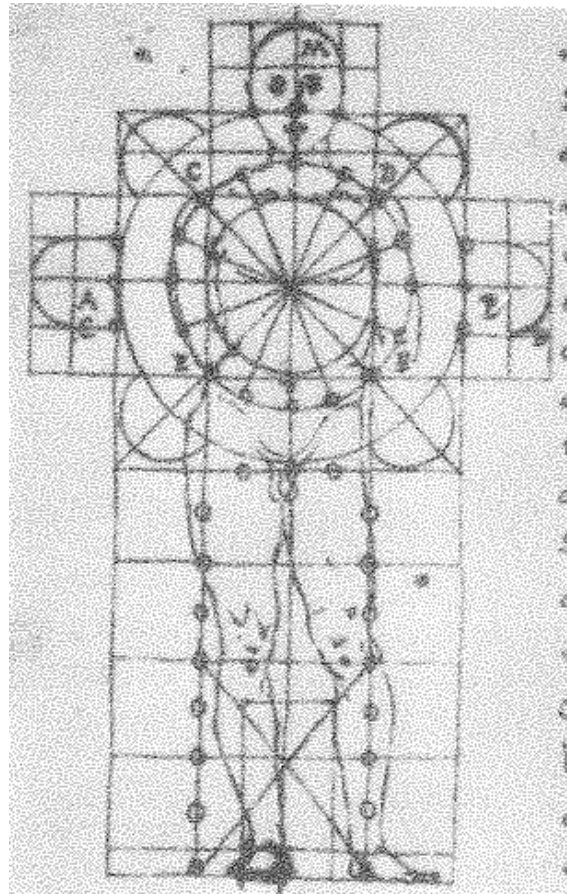


Fig. 7.10 Francesco di Giorgia's illustration of man as a measure of circle, square, and thus the building (Source: Wittkower 1971, Pl 1a.)

⁶⁵³ Wittkower 1971, 11, 24 and 26.

7.3 Filarete and the *Trattato Di Architettura*

In the *De Re Aedificatoria* we find Alberti's repeated concerns with studying proportions. Correct measures must be learned from Nature, including the human body, understood and applied towards the making of architecture. The *De Re Aedificatoria*, which came to be regaled as the pre-eminent Renaissance architectural treatise to be emulated by those who wrote after him, set up the framework of architecture to be elevated and recognized as a liberal art. Alberti's treatise with its recovery of the Vitruvian tradition also brought to focus the relation of the body to architecture to those who succeeded him. In fact the work that came right after the *De Re Aedificatoria* expanded this theme far more evocatively, enlarging the anthropometric dimensions of architecture. The author of this work was Filarete (d. 1470) to whom also belongs the honour of writing the second architectural treatise in the Renaissance.

Antonio di Piero Averlino, also known as Filarete, the lover of virtue, completed the *Trattato Di Architettura* (*The Treatise of Architecture*) around 1465. Given that the work remained in manuscript form till the late nineteenth century, the circulation and influence of the treatise remained limited.⁶⁵⁴ Unlike Alberti, Filarete's humanistic circle was not widely known except for the company he kept with the scholar-poet Filelfo (d. 1481), who also wrote a commendation for his treatise.⁶⁵⁵ Filarete was a goldsmith and a bronze-founder by training. His architectural achievements were seemingly limited. He himself referred to only two significant architectural projects in the treatise he wrote. These being the *Ospedale Maggiore* and the bronze door to the St. Peter's cathedral commissioned by Pope Eugene IV.⁶⁵⁶

Filarete's most important contribution to architecture is actually the treatise he wrote on architecture, *Trattato Di Architettura*. Written in the form of a fictional narrative, it completely differed in form and structure from both Alberti's *De Re Aedificatoria* and Vitruvius' *De Architectura*. Filarete also chose to write his treatise in Italian rather than Latin, as he intended the work to reach architectural and building practitioners rather than the rarefied scholarly field Alberti, with his Latin *De Re Aedificatoria*, had aimed for.⁶⁵⁷ It was a text, as Saalman has observed, that described

⁶⁵⁴ Spencer, Introduction in *Trattato Di Architettura*, xvii.

⁶⁵⁵ S. Lang 1972, 396.

⁶⁵⁶ Kruft, 1994, 51.

⁶⁵⁷ Onians 1988, 158.

“a fairly accurate resemblance” to the architectural practice to be found in the Italy of the fifteenth century.⁶⁵⁸ Written in a dialogical and narrative style, probably influenced by Plato, its main protagonists would be Filarete, playing himself in the role of the architect and the client being his patron, the Duke of Milan Francesco Sforza, to whom the book was dedicated to.

In the treatise Filarete’s architectural theory is articulated as a means to founding and raising a city called *Sforzinda*, named after its client Duke Sforza. The fictional city offered Filarete a perfect platform to discuss a wide range of ideas to impress his patron with his architectural knowledge. Filarete also took this opportunity to explain to Duke Sforza the role of a well-designed city in developing a virtuous society. The building of great cities and societies, Filarete wrote, was important if a ruler wanted providential blessing and to be celebrated in posterity. One can see with this approach Filarete’s debt to Plato, especially the dialogues of the *Republic*, *Laws*, and *Critias*.⁶⁵⁹ Just as in Plato’s philosophical works, *Sforzinda* could be described as an attempt at envisioning a utopian society or a virtuous city. Architecture, Filarete would argue, when established according to the correct principles had the ability to transform its citizens into leading a virtuous life.

In this way Filarete was following on the key motifs of the Renaissance’s humanist thought, which recommended that the search for a propitious life to be guided by the wisdom of antiquity. Similarly, with Filarete, antiquity, with its lineage leading directly to God, must be emulated, imitated, and re-established. Diversion from this path suggested a forgetting of the correct traditions and therefore evidence of a lack of education. Filarete’s diatribe against the medieval architectural tradition stems from this belief he calls derogatorily as the *arte moderna*, which unlike the *arte antica* lacks in correctly following the established order as taught by the ancients. In the *Trattato Di Architettura* Filarete laments this situation. He offered the view that the decline in the quality of good architecture in Italy had to do with the loss of knowledge of antique building practices.

(Architecture declined) as letters declined in Italy; that is, spoken and (written) Latin became more gross until fifty or sixty years ago, when minds became more subtle and were reawakened (to the past). As I say, it was a gross thing.

⁶⁵⁸ Saalman 1959, 89.

⁶⁵⁹ On the influence of the humanist scholar of Greek philosophy Filelfo on Filarete’s use of Platonic resources in his treatise see Onians 1988, 159–161.

This same happened to this art through the ruin of Italy brought on by wars of the barbarians who desolated and subjugated it many times. Because no great buildings were built, since Italy had become poor, men were no longer very experienced in these things. As men lost experience their knowledge became less subtle. Thus the knowledge of these things was lost. Then when anyone wanted to build any building in Italy, he had recourse to those who wanted to do work, to goldsmiths, painters, and these masons. They used the fashions they knew and seemed (best) to them in the modern tradition.⁶⁶⁰

Filarete's treatise then was an attempt to teach his client and architects of his time of the antique practices so that architecture could once again flourish in Italy. Thus, in introducing the objectives of his treatise, Filarete wrote in his work that he would first of all "recount the origin of measure; the building, its sources, how it ought to be maintained." This would be followed by instructions on how to build beautiful buildings "according to the laws of nature," and finally, and perhaps most importantly, he would explain "how to make various forms of buildings according to antique practice," together with things he had discovered or learned "from the ancients that are almost lost and forgotten today." From this, Filarete asserted, it would be understood "that the ancients built more nobly than we do today."⁶⁶¹

7.4 The Measure of Adam

The search for the origins of architecture dominates the opening section of the *Trattato Di Architettura*. While paying homage to both Vitruvius and Alberti, Filarete negotiates away from them in his re-telling of the origins of architecture. The origin of architecture, or specifically the basis of architecture which is its measurements, was instead formed when God created Adam. Adam, made in the image of God, was manifested with all the perfect measures and proportions: "As everyone knows, man was created by God; the body, the soul, the intellect, the mind and everything was produced in perfection by Him. The body (was) organized and measured and all its members proportional to their qualities and measure."⁶⁶²

After explaining that God granted the perfect measures to the human body, Filarete goes on to explain that Adam himself was the very first architect. Adam's first architectural act occurs as he was purged from heaven. Taking much liberty from

⁶⁶⁰ *Trattato Di Architettura* fol. 99v–100v.

⁶⁶¹ *Ibid.*, fol. 1v–2r.

⁶⁶² *Ibid.*, fol. 2v.

established scriptural exegesis, Filarete presented a scenario which saw a torrential downpour accompanying Adam's descent to earth.⁶⁶³ In reaction to this Adam used his hands as shelter over his head to protect himself (Fig. 7.11) from the downpour. Commenting on the significance of the Adamic bodily gesture as a primordial paradigm for architecture, Rykwert writes: "indeed we must assume that when Adam was chased out of Paradise by the angel, he put his hand over his head to make a roof against the inclement weather of the postlapsarian world. Inevitably he extrapolated the rest of building out of his own: he, Adam, being the paradigm of human proportion".⁶⁶⁴



Fig. 7.11 Adam shelters himself using his hands after being expelled from Heaven (Source: *Trattato Di Architettura* fol. 4v.)

Filarete referred to this act, that is, of Adam envisioning a roof over his head by using his own hands, as a matter of Divine grace and guidance.⁶⁶⁵ Once he had landed on earth, Adam, the architect, continues to use his body⁶⁶⁶ to take “measures, members,

⁶⁶³ Ibid., fol. 4v. Filarete at this point mentions the belief that it did not rain until the time of Noah and that the earth was watered instead by mists that rose from the earth (Job 38: 8–11). Filarete, after mentioning this, declares that he disagrees with this view and there must have been rain to have made not only agriculture possible for Adam's sustenance but also that it was rain that forced Adam to invent architecture.

⁶⁶⁴ Rykwert 1996, 65

⁶⁶⁵ Ibid.

⁶⁶⁶ *Trattato Di Architettura* fol. 4v.

proportions and qualities from himself to adapt them”⁶⁶⁷ to raise the very first buildings (Fig. 7.12). After stating this origin story, Filarete concludes that with this one can understand now “how the form of the building is derived from the form and measure of man and from his members.”⁶⁶⁸



Fig. 7.12 Adam builds the first House (Source: *Trattato Di Architettura* fol. 5r.)

Adam plays a significant role throughout Filarete’s treatise. Though Filarete considered Vitruvius as the “supreme authority” for architecture, he ended up transforming what he had learned from the *De Architectura* to fit “into a Christian history.”⁶⁶⁹ The Adamic body measure, given its pre-eminence of being fashioned directly by God, played a privileged role in Filarete’s architectural theory and its effect can be felt throughout the treatise.⁶⁷⁰ In the discussion on the founding of the columnar orders we find Adam’s role not only pivotal but also completely modifying both Vitruvius’ and Alberti’s versions.

Filarete presents the thesis that the Doric order was based on Adam’s body. With this assertion we find Filarete’s digression from the original Vitruvius narrative of the Doric order. Firstly, he revises the genealogy of the Doric order, which, in the *De Architectura*, was derived from warriors from the people of Dorus,⁶⁷¹ to fit the Christian narrative.⁶⁷² Secondly, he would go on to state that the Doric column was the largest of the three orders, while in Vitruvius’ treatise it was the shortest order

⁶⁶⁷ Ibid., fol. 2v.

⁶⁶⁸ Ibid., fol. 5v.

⁶⁶⁹ Giordano 1998, 57.

⁶⁷⁰ Onians 1973, 116.

⁶⁷¹ “Vitruvius says the Doric was invented by Dorus, son of Hellen and the nymph of Phthia [...] The words “Dorus” and “Dorian” contain more than the flavor of racial conquest. They are tropes of violence.” Hersey 1995, 53; *De Architectura* 4.1.3.

⁶⁷² Kruft 1994, 53.

(Fig. 7.13).⁶⁷³ Finally, he claims that the Doric order to be the most beautiful of the three orders (Doric, Corinthian, and Ionic), whereas in the Vitruvian tradition this was usually identified with the feminine Corinthian. In the *Trattato Di Architettura*, Filarete writes that Adam had to be the measure for the Doric column because it is the earliest of all orders, just as Adam was the first of all humans. Since it was based on Adam's form, it has to be also the most beautiful as Adam was fashioned on the image of God:

It is to be believed that the inventors of these things must have taken these measures, that is, quality, from the best-formed large men. It is probable that this quality was taken from the body of Adam because it cannot be doubted that he was most handsome and better proportioned than any other (man) who has ever lived, since God formed him.⁶⁷⁴



Fig. 7.13 Columnar Orders according to Filarete: A. Doric, B. Corinthian, C. Ionic (Source: *Trattato Di Architettura* fol. 57v.)

The Face and Architectural Expressions

Filarete recounts that the very first builders, wanting to build, looked for “the most worthy and beautiful form, wherever it was,”⁶⁷⁵ and they could not find one comparable to Adam. It is from Adam's body that they started to learn measure and proportion. To do this they started with Adam's head, “the most noble and the most

⁶⁷³ Onians 1973, 116.

⁶⁷⁴ *Trattato Di Architettura*, fol. 3r.

⁶⁷⁵ *Ibid.*, fol. 3v.

beautiful member,” the part of the body which Adam used his hands to protect from the rain when expelled from Heaven.⁶⁷⁶ Filarete calls the face the “principal beauty of the body,” and urged architects to study its harmony both by itself and in relation to the body. He states that it is possible for one to have a beautiful face while having a body that was “deformed and twisted,” an unfortunate condition that appeals to no one. This, he warns, would also be the case of a building if the architect fails to pay attention to all parts of his structure—the front, sides, the inside, and the outside—in a consistent manner.⁶⁷⁷ The face also grants the architect another important education, as it teaches how God made one human being to be distinguished from another. While human beings are in some form or other similar to one another, Filarete explains, they can never be exactly alike. The most apparent evidence of this was to be found with faces. This is a valuable lesson the architect must learn. In the *Trattato di Architettura*, Filarete conclusively states that making exact copies of buildings goes against the Divine principle. God, who was all-powerful himself, decided against this, and the architect must seek to emulate God and not otherwise.

As I have said, the building is constructed as a simile for the human figure. You can say that, if a man wanted to, he could make things that resembled each other, of one form and likeness so that they would all be alike. You know well that God could make all men alike; however, he has not done so.⁶⁷⁸

Social and Architectural Status

For Filarete the differentiation amongst human beings needs to be studied even further. Physiognomies are just a start to understand how bodies differ from one another, but more importantly in a functioning society human beings are also categorized differently according to the varying capabilities, professions, and status. As architecture is, for Filarete, one that follows the “human simile,” he expresses how rules for building should also imitate the human classifications present in society. Building scale and ornamentation as such, he states, must follow the “*qualita*,” meaning the social status, of those inhabit and use it. With this interpretation Filarete sought to express and signify architecture based on human attributes and social

⁶⁷⁶ Ibid.

⁶⁷⁷ Ibid., fol. 5r.

⁶⁷⁸ Ibid., fol. 5v.

standing: “I will tell you all. I will first speak of qualities [*qualita*]. There are many qualities in buildings, just as there are many among men.”⁶⁷⁹

The basis for understanding how to apply the *qualita* of human beings to architecture is decided mainly in the categorization of proportions and decorations of the columnar orders. Filarete distinguishes them initially by their sizes: large, medium, and small. The sizes of the columnar orders, Filarete says—and here he is digressing completely from the Vitruvian tradition—was drawn from the three classes found in societies: “It is like lords who also need three kinds of persons in order to be lords, that is, upper, middle and lower classes.”⁶⁸⁰ The Doric, which was based on Adam, is the most distinguished being the largest and most decorated of all the columns. Subsequently, the Ionic is the smallest and least decorated. This means that the Doric, granted its lofty status, needs to be utilized with care and not seen to be carrying as much load of the building as compared to the Corinthian and the Ionic orders. The Ionic, Filarete writes, “is like the lowest (class), that is, for bearing weight,” as compared to the Doric, which though would carry weight of the building, its primary role was to decorate and grant nobility to the structure.⁶⁸¹

These orders were, for Filarete, as Onians explains, not limited to columns only, but they operate as a qualitative guide to be extended to all aspects of a building: “The Doric ‘quality,’ [...] has an adjectival reference: it can be applied to anything which is either more attenuated or more decorated, whether it be as small as a brick or as large as a column, regardless of what was Doric in ancient usage.”⁶⁸² Following this, we find Filarete using the Doric proportions for the most prestigious structures in *Sforzinda*, such as churches, ducal and episcopal palaces, and houses built for the noble classes. In contrast to that, we find him using what Onians describes as “sub-Ionic” proportions when designing the house of a poor man.⁶⁸³

Filarete also advises the architect to study the ways in which people dress. This, too, would inform how to draw congruence between the decorations selected for a building with the social standing of those who inhabit it. Naturally, those who are more dignified in society are better adorned. To explain this he cites his hypothetical design for a cathedral in *Sforzinda*, one that was based on the Doric *qualita*:

⁶⁷⁹ *Trattato Di Architettura* fol. 48v.

⁶⁸⁰ *Ibid.*, fol. 56r.

⁶⁸¹ *Ibid.*, fol. 57v.

⁶⁸² Onians, 1988, 165.

⁶⁸³ *Ibid.*, 168–9.

This (building) is one of the most dignified. It should, therefore, be as nobly decorated as its owner, because of whom it is used to promote divine offices and sacred things. Since those who administer the rites adorn themselves in exercising their office in different sorts of beautiful vestments decorated in gold, silver, pearls, embroidery, and noble and precious things, the building that serves this purpose should be (decorated) in the same degree. For this reason it should be clothed and adorned with beautiful and noble carvings, with gold and colors. Paint them and make them beautiful as possible.⁶⁸⁴

Perhaps the most elaborate of all explanations found in the *Trattato di Architettura* concerned how the material fabric of a building is a representation of the classification in society, in reference to which Filarete used an example of the composition of a wall. In this explanation he details every element, including the finish of the wall, as a parallel to the roles individuals play in a society. Each class is made analogous to a building material, and it becomes clear that those who belong to the privileged class should be represented with larger elements and finished more decorously.

A dominion is like a wall made of many stones. The exterior face is [made] of large stones. There are columns, dressed stones, and other ornaments in it, then the squared stones, that is the bricks and all sorts of stones for the fill. A principality is the same. The larger it is the more different kinds of men it needs. The large, dressed, exterior stones that hold up the wall are gentlemen, persons of goodwill, and virtuous men. The columns are the captains and the men-at-arms. The other stones are the soldiers. The bricks are the people.⁶⁸⁵ The fill of the wall is the people of the territory. The skin is the artisans.

7.5 Caring for the Architectural Body

Filarete tells us that just as a human body is cared, nourished, and provided for, so that it grows, thrives, and endures, this must also be the case with a building. The care that is afforded to buildings must be administered as though it is care granted to a fellow human being, so that a city remains healthy and lasts long enough to carry its ruler's good name through the ages. If this is achieved then one can be sure that God has showered favour unto the king, his people, and also his city. To arrive at this, the preciousness that we accord to human life must similarly be accorded to the buildings we construct.

⁶⁸⁴ *Trattato Di Architettura* fol. 48v.

⁶⁸⁵ *Ibid.*, fol. 168v.

To emphasize this point, Filarete declares that the beginnings of an architectural process mimics human conception, followed by pregnancy and then birth. The client, whom he calls the father, informs of his intentions for the building he wants to be erected. This is received by the architect who is identified as the mother. The architect spends anywhere from seven to nine months working on the ideas of the design of the building.⁶⁸⁶ At the end of the gestation period, the architect gives birth to the ideas he has been carrying in the form of line drawings, and then raises it as a three-dimensional model and nurses it continually till it is ready to be established on a selected site.⁶⁸⁷ Once at the chosen site, the “child”, meaning the physical building, is soon raised with the appropriate foundation, materials, and ornaments. Care must be given in the way it is erected and maintained so that it leads a good long life. As it is with the upbringing of a child, the parents, meaning the client and the architect, must see that the construction of the building is handled by the finest master masons. Throughout the narrative Filarete would situate both the client and the architect to be intimately involved with the minutest concerns of the project so as to bring it to a successful conclusion.

The aim of a healthy and beautiful building, Filarete writes, parallels the wishes of each and every human being. The desire is to be well made and beautiful: “As man wishes his body to be well disposed and organized in order to [be eternal, beautiful and useful] that pertains to him, so it is with a building. Man should be well formed, well proportioned and well complexioned to be healthy and live a long life [...] so it is with building”⁶⁸⁸ The term “well-complexioned,” as Spencer has explained, refers to seeking good fortune based on the study of astrology: “Filarete continues to treat of the building anthropomorphically. The building, like a man, should be born under a good constellation.”⁶⁸⁹ In another passage Filarete points out that just as a human being, who may be seemingly healthy, may die, so may a building. This misfortune, he says, has to do with one’s astrological fortune. Similarly, too, it is with architecture. For a building, too, may fall into a state of disrepair contingent to “the sign or planet under which it was built.”⁶⁹⁰

⁶⁸⁶ Ibid., fol. 7v.

⁶⁸⁷ Ibid., fol. 10v.

⁶⁸⁸ Ibid., fol. 47v.

⁶⁸⁹ Ibid., n.2, 82.

⁶⁹⁰ Ibid., fol. 7r.

Filarete's text reveals the Renaissance anxieties regarding the influence the stars have upon the one's well-being, as explored in the works of Yates, Copenhaver, D. P. Walker, and Couliano.⁶⁹¹ Hermeticism and alchemy, for example, as documented by Yates were considered seriously amongst the humanists and artists in the Renaissance, as it was understood to be a very significant wisdom bequeathed by a venerable ancient source, namely the sage Hermes Trismegistus.⁶⁹² Amongst the most powerful means to seek sympathetic influence from the stars to prolong one's health was by way of talismans. The creation of talismans involved amongst others the knowledge of correspondences between images and materials with astrological signs. The creator of talismans is one with such knowledge as to transform what may be considered to be inert material into becoming one that is astrologically significant and therefore being efficacious in prolonging the user's health and life. Marsilio Ficino in his *De Triplici Vita (Three Books on Life)*, which included the most comprehensive treatment on how to create talismans in the Renaissance, describes that the talismanic images have the power to "change the nature and behavior of the wearer; restore him to a better state, so that he becomes now almost another person; or at least preserve him in good health for a very long time."⁶⁹³ In a similar vein we find Alberti, in the *De Re Aedificatoria*, discussing how particular images within an interior of a building can influence the outcome of human conception:

Wherever a man and woman come together, it is advisable only to hang portraits of men of dignity and handsome appearance; for they say that this may have a great influence on the fertility of the mother and the appearance of future offspring. Paintings of springs and streams maybe of considerable benefit to the feverish.⁶⁹⁴

Alberti demonstrated with the above example how architecture itself could function as a talisman appropriating good fortune to its inhabitant. Filarete, as we saw earlier, took the influence of astrology on body and building very seriously. This was a vital consideration in the founding and planning of *Sforzinda*. The ground plan of *Sforzinda* is a well-known talismanic symbol consisting of two squares, one of which being rotated forty-five degrees from the central axis so as to derive an eight-pointed

⁶⁹¹ See Yates 2002, Copenhaver in Hankins (ed.) 2007, Walker 2003 and Couliano 1987.

⁶⁹² Yates 2002. See also Copenhaver in Hankins (ed.) 2007, 137–170.

⁶⁹³ Ficino 2002, 3.20.

⁶⁹⁴ *De re Aedificatoria* 9.4.

star (Fig. 7.14). A circle then encloses this figure. As Lang has explained, this diagram was known to be an astrological symbol used throughout medieval times (Fig. 7.15) and considered to be powerful as it encompassed the entire cosmos within it.⁶⁹⁵

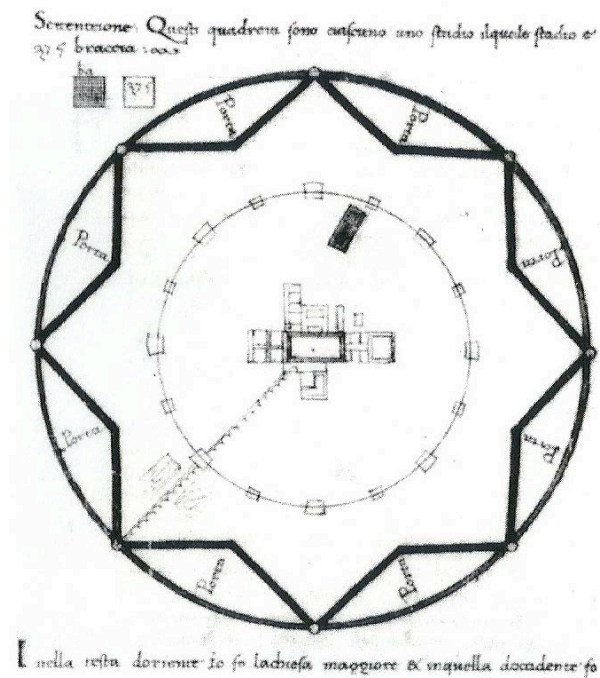


Fig. 7.14 Plan of Sforzinda (Source: *Trattato Di Architettura* fol. 43r.)

⁶⁹⁵ Lang, 1972, 391–392

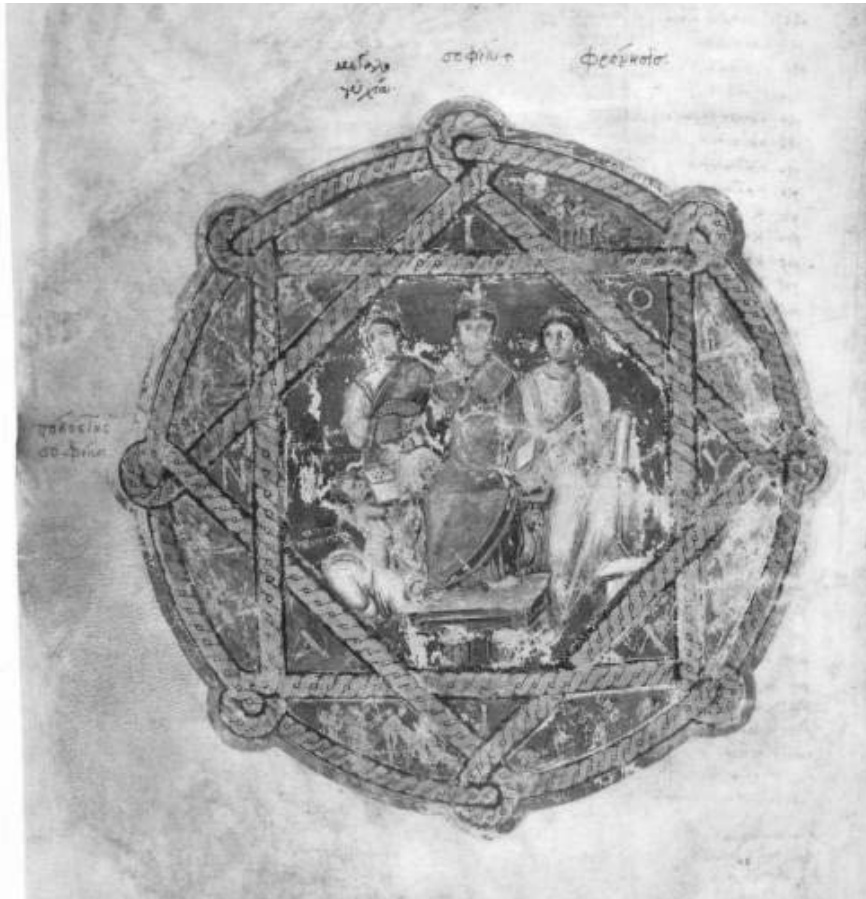


Fig. 7.15 Dedication page of the Vienna Dioscorides (circa 6th c). The image in the middle shows Princess Juliana Anicia flanked by the human symbols of the virtues Prudence and Magnanimity. (Source: <http://www.unesco-ci.org/photos/showphoto.php/photo/4824/title/vienna-dioscurides-2c-ms/cat/939>, accessed 4/4/2012.)

Filarete marks conspicuously the eight points of his city wall with tall towers topped by bronze figures each holding trumpets in their hands. Each time the wind blew in the particular direction of one of these figures it would create a sound within the city, continually reminding them of the correspondence between the city and the cosmos. One can also interpret this to be a literal operation to illustrate how the talisman draws effluvia from the heavens.⁶⁹⁶ As D. P. Walker observes, in his study of Ficino's natural magic, music of the heavens was considered to be an effective talismanic medicine to rouse the human soul and body back to health.⁶⁹⁷

Traditionally, one of the most important roles of astrology concerns the founding of a city. This was to be an elaborate ceremony that needed to be conducted

⁶⁹⁶ *Trattato Di Architettura*, fol. 34v.

⁶⁹⁷ Following Pythagoras music was considered by Ficino to have originated in the movement of the planets. As astrology was considered an important aspect of the Ficino's medical theory, he believed that recreating astrologically appropriate music provided remedy to illnesses. Walker 2003, 12–24; see also Arikha 2007, 126–130.

properly in consultation with an astrologer who would give precise and detailed instructions, such as orientation and timing of breaking the ground, so that the founding is established under the best possible auspices of the stars.⁶⁹⁸ One key aspect of the ceremony was the placing of the founding stone into the ground that had been broken. In establishing the foundational stone of a new city or settlement it was customary to make an offering to the gods to seek providential blessing.⁶⁹⁹ Similarly, for the ground-breaking ceremony of *Sforzinda*, Filarete consults astrologers and priests on the most propitious time to break the ground. As an offering to the ground we find him preparing a chest full of items to be dedicated to the divinities. Almost all of these items possess astrological significance. For example, amongst the items included in the chest we find carved images representing Virtue, Vice, Life, and Death.⁷⁰⁰ Also included in the chest were medicinal and nutritional items, such as wine, milk, honey, millet, and wheat.⁷⁰¹ When asked why he selected such items, Filarete responded by stating that the vase that contains millet and wheat symbolized the relationship between the human body and the city.

This vase is a simile. A city ought to be like the human body and for this (reason) it should be full of all that gives life to man. Its cover is the three fatal goddesses in whom our life consists, that is, one spins, one receives the thread, and the other breaks it. On the vase nothing is written but these two words, Life and Death, for there is nothing in this world but living and dying.⁷⁰²

On the symbolism of the other items we learn that they are placed to exemplify how the qualities of the city and its inhabitants are inter-related. For example, of water we are told that it is the most essential element of the city and its purity benefits all and therefore “in the same way the inhabitants of the city should be clear and clean and useful to others.”⁷⁰³ Similarly, concerning the inclusion of milk, Filarete writes: “because as every man knows, it is distilled blood; it first gives nourishment, and it is white. When the men of the territory are insanguined, they should be purified and purged and become white.”⁷⁰⁴

⁶⁹⁸ *Trattato Di Architettura* fol. 24v.

⁶⁹⁹ Rykwert 1995, 37–38 and 51.

⁷⁰⁰ On Medieval and Renaissance understanding of the influence in the making and use of such images see Gombrich 1948, 163–92. See also Couliano 1987, 32–38.

⁷⁰¹ *Trattato Di Architettura* fol. 25v.

⁷⁰² *Ibid.*

⁷⁰³ *Ibid.*

⁷⁰⁴ *Ibid.*

Other than the use of astrology to safeguard the health of the body and the building, the architect must also understand that the building is like a human body, vulnerable to illnesses. Filarete explains this relationship in the following way:

You can say that a building does not sicken and die like a man. I say to you that a building does just that, for it sickens when it does not eat, that is, when it is not maintained and begins to fall off a little by little exactly as a man (does) when he goes without food, and finally falls dead. This is exactly what the building does.⁷⁰⁵

Furthermore, Filarete compares the “voids, entrances and hollow places” of a body to ingress, storage, inhabitation, and egress in a building.⁷⁰⁶ As the orifices in the body play its role in the maintenance of human health, such as breathing, ingestion, excrement, and reproduction, so too must the perforations of the buildings be maintained accordingly to ensure the survival of both the building and its owner. This maintenance is vital, since without it the necessary proportions and stability of the building will be compromised, and the building together with its inhabitants will naturally be harmed.

7.6 Architecture as a Memory Machine

In reading Filarete’s treatise we continually return to the theme of origin, wherein man is envisioned as the measure of architecture. To ensure that one uses the right measure to build, one has to recall the origin of architecture and its connection to Adam. For Filarete, to build a city or a building was in essence remembering the original act of the creation of Adam by God. Following this pattern and imitating the building of Adam’s body in building a city would ensure the good life of its inhabitants. Filarete writes: “In this way [the architect] participates in God by making something in [the] image [of a human] through the use of his God-given intellect.”⁷⁰⁷

Through Adam’s measure, God’s teachings of how to measure and build shelters were preserved and transmitted. The Doric column and its proportions recall that primary act, and those who practiced the *arte antica* continued this tradition so that it may not be forgotten. It was this knowledge that saved Adam and subsequently

⁷⁰⁵ Ibid., fol. 49r.

⁷⁰⁶ Ibid.

⁷⁰⁷ Ibid., fol. 5r.

the whole of mankind. Filarete's work is thoroughly an ode to the significance drawn from the Adamic beginnings. Filarete seems anxious that this knowledge is not only recalled and transmitted but importantly also realized in built works that will endure through the ages, recalling St. Augustine in the *City of God*: "It is by participation in Him that all are happy who are happy in truth and not in emptiness."⁷⁰⁸

For Filarete, as we read earlier in this chapter, the preservation of traditions was important. In the design of *Sforzinda*, Filarete was keen to transform the entire city to function as a mnemonic machine so that the architecture would continue to impress upon the inhabitants with the stories of the past. In this way architecture and the human being are made to collaborate so as to preserve the right knowledge from the past to effect good actions both in the present and in the future. Filarete, in the abovementioned treatise, would propose the use of text and images to be engraved and placed throughout the city to act as an unceasing reminder of lessons to be learned in order to lead a good life. For example, in the design of a fountain in the main court he paints the six ages of man according to the Christian tradition, beginning with Adam and concluding with Christ. The use of symbolic images to influence and transform the human soul was a well-known practice both in the Middle Ages and in the Renaissance. The art of concentrating upon carefully composed images was considered, as Yates writes, "inner talismans."⁷⁰⁹ Yates cites Giotto's paintings of virtues and vices in the Arena Capella as an example of how these images were manifested so that the worshipper can memorize the entire range of virtues and vices, and lead a good life (Fig. 7.16).⁷¹⁰

⁷⁰⁸ *City of God*, 5.11.

⁷⁰⁹ Yates 1974, 154.

⁷¹⁰ "The age of scholasticism was one in which knowledge increased. It was also an age of Memory, and in the ages of Memory new imagery has to be created for remembering new knowledge. Though the great themes of Christian doctrine and moral teaching remained, of course, basically the same, they became more complicated. In particular the virtue–vice scheme grew much fuller and was more strictly defined and organised. The moral man who wished to choose the path of virtue, whilst also remembering and avoiding vice, had more to imprint on memory than earlier simpler times." Ibid., 84.



Fig. 7.16 Giotto's depiction of Charity (Source: Yates 1974, pl. 3A.)

Yates cites the *Picatrix*, a text of Arabic origin concerned with using images to influence the soul, as one of the most influential works in both the Middle Ages and the Renaissance. This twelfth-century text was considered significant because it cited Hermes Trismegistus as its reference. We read in the *Picatrix* that Hermes himself founded a city in Egypt called the City of Andocetyn. Hermes, who is attributed to have invented the art of image-making, “placed engraved images [around the circumference wall of the City of Andocetyn] and ordered them in such a manner that by their virtue the inhabitants were made virtuous and withdrawn from all wickedness and harm.”⁷¹¹

With the design of the House of Virtue and Vice in *Sforzinda*, Filarete, too, was attempting to use the city and its architecture to transform its inhabitants to lead a good life. This project was most comprehensively elaborated in the *Trattato Di Architettura*. Its objective was to teach that only fame that came by way of leading a life of virtue would endure, whereas that of vice, though it might bring fame, was described as ignominious, dark, and bad. The opposite is true for a life of virtue,

⁷¹¹ Yates 2002, 58.

which is described as bright clear and worthy.⁷¹² Following this, we find the design for the House of Virtue as one that is ascending upwards towards light, while the House of Vice was descending into subterranean darkness. Both these buildings were programmed to serve as a school and a memory spectacle that was decorated throughout its spaces with images, verses, and sculptures related to the acts of virtues and vices (Fig. 7.17). The House of Virtue was conceived to be a place of learning the humanistic sciences, and in its interior one would find great sages, who found fame in their disciplines by pursuing a life of virtue and wisdom.⁷¹³ This was to be in contrast to the House of Vice, which was designed to be correction centre. On its walls one found images of lust, drunkenness and depravity.⁷¹⁴

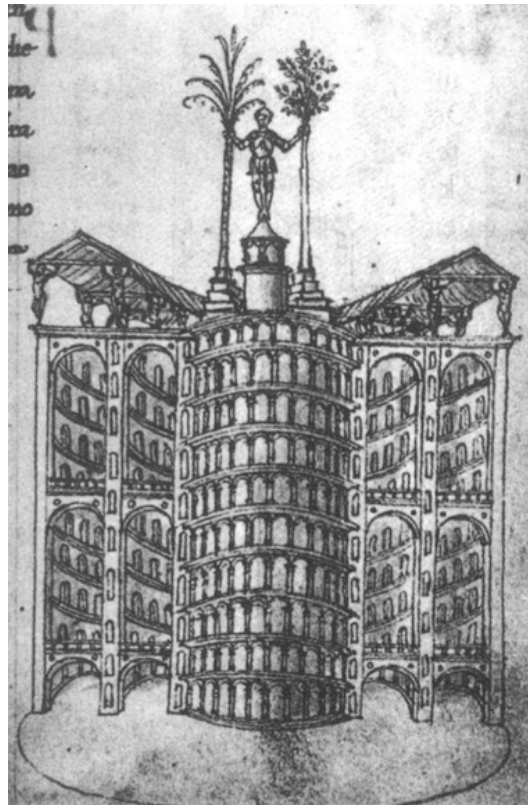


Fig. 7.17 House of Virtue and Vice (Source: *Trattato Di Architettura* fol.144r.)

At the summit of the House of Virtue, Filarete condenses all the virtuous qualities into an awe-inspiring singular human sculpture, the figure of Virtue (Fig. 7.18). He explains this figure in the following manner:

⁷¹² *Trattato Di Architettura* fol.142v.

⁷¹³ *Ibid.*, fol.145r.

⁷¹⁴ *Ibid.*, fol.148r.

First of all I thought how Virtue could be represented in a single figure. There came to my mind (the idea of) making it in this form. (It would be) an armed figure. His head would be like a sun. In the right hand he holds a date tree and in the left a laurel. He stands erect on a diamond and from the base of this diamond there issues mellifluous liquor. Fame (was) above his head.⁷¹⁵



Fig. 7.18 Figure of Virtue (Source: *Trattato Di Architettura* fol.143r.)

In Filarete's depiction we find a sculpture that presents the human being to be a radiant figure. There is also an unquestionable athletic confidence poised steadily on the tip of a pyramid. He is clothed like a warrior wearing a suit of metallic armour.

⁷¹⁵ Ibid., 143r, XVIII, 246

Spencer, in his attempt to interpret the image, suggests that it is a synthesis of “Christian and pagan symbolism,” crystallizing in this one form the qualities of Christ, Apollo, and Hercules. It is therefore an image of athletic confidence, intellectual prowess, and spiritual pre-eminence.⁷¹⁶ The image of man, that of Adam, which opened the treatise, who was pictured as falling from the heavens, with his life in a state of precariousness has now with the Figure of Virtue been transformed to a man of confidence. Instead of being in a state of descent we find him at the summit of the building. Rainfall, which accompanied Adam’s fall, has been replaced by the illumination of the sun. The sin of Adam that caused the fall has been overcome by the ascent of Christ, who redeemed the misgivings of mankind. In the Figure of Virtue, we find wings anticipating flight. At the beginning of his treatise, Filarete emphasised the importance of knowing the measure of Adam because God himself created Adam. In following the measure of Adam, Filarete adds, man was effectively participating in the activities of God. Now at the end of the text and at the summit of the House of Virtue, his figures seem to be gods taking on human forms, not human forms created by God.

However we seek to interpret this figure, it can be agreed that the underlying emphasis made by Filarete is of the role the city and its architecture plays in influencing its inhabitants. As with the City of Andocetyn, *Sforzinda*, too, seeks by way of images and sculptures to transform its inhabitants to lead a life of virtue, so that they may lead a good life, thus ensuring the fame of the city endures through the ages. The goodness of the human being therefore ensures the goodness associated with the city so that one can truly emulate God through architecture. We return to the constant reminder to his reader, one that underpins the ethos of the Renaissance, that of recalling and establishing the wisdom of the past. For architecture it is in remembering that the building is truly like a human body, specifically—for Filarete—the body of Adam. God created Adam with the most perfect measure and it was also God who inspired Adam to use his own body as a reference to build the first shelters on earth. From thereon all successful generations have built based on this ancient wisdom. Through Filarete, who is recovering the ancient precepts, we learn that all building operations that aspire to perfection demand similar consciousness and that architects will do well to reflect thoroughly upon the nature of the human body. It is

⁷¹⁶ Ibid., n.1, 246.

in this study of the human body one finds the recourse to the origins of architecture—as illustrated in the *Trattato Di Architettura*—the most correct way to measure and build following Adam and God. As the use of the measure from his own body to build shelters safeguarded Adam and his posterity, so would following that wisdom in planning and building cities ensure the endurance of kingdoms in the Renaissance, such as the proposed *Sforzinda*. This perhaps was the most important message Filarete was trying to convey to his patron Francesco Sforza by way of his treatise.

CHAPTER 8

OTTOMAN RENAISSANCE

8.1 Islam and the Renaissance

The most important of Islamic contributions to the Renaissance is generally identified to have come by way of the translation of the philosophical works of al-Kindi, al-Fārābī, Avicenna, Averroes, and Ibn Tufayl from Arabic to Latin. These authors were a common feature in the philosophical works of the Renaissance. The translation movement in the West of the works of the Islamic philosophers began around the eleventh century and “reach[ed] their peak of influence as late as the fifteenth and sixteenth century.”⁷¹⁷ The most influential and famous of the Islamic philosophers to have had reception in the West was Averroes, whose “exposition of Aristotle had an overwhelming influence [...] in particular at the University of Padua, the most important center of philosophical study in Europe during the Renaissance.”⁷¹⁸

Influences of Islamic and Arabic sources can also be seen in the works connected to the Renaissance interest in alchemy and Hermeticism. For example Pico della Mirandola in his *Oration on the Dignity of Man* starts his book by referring to a certain Abdul the Saracen, who claimed that there was nothing that was created “more wonderful than man,” which he says is in agreement with Hermes Trismegistus.⁷¹⁹ Della Mirandola also claims to have studied Arabic. Francesco Colonna’s *Hypnerotomachia Poliphili* (*The Strife of Love in a Dream*), a poetic tale of architecture published in the 1499, yet another work identified with magic and alchemy, presents in one of its woodcut illustrations “what are the first Arabic passages in the history of European publishing.”⁷²⁰ The Arabic words forms as part of multi-lingual signages to the three portals, where it is presented together with the languages that define the Judeo-Christian and Western traditions: Hebrew, Greek, and Latin (Fig 8.1).

⁷¹⁷ Hasse 2007, 113.

⁷¹⁸ Ibid., 114.

⁷¹⁹ della Mirandola 1998, 3.

⁷²⁰ Lefaivre 2005, 14.

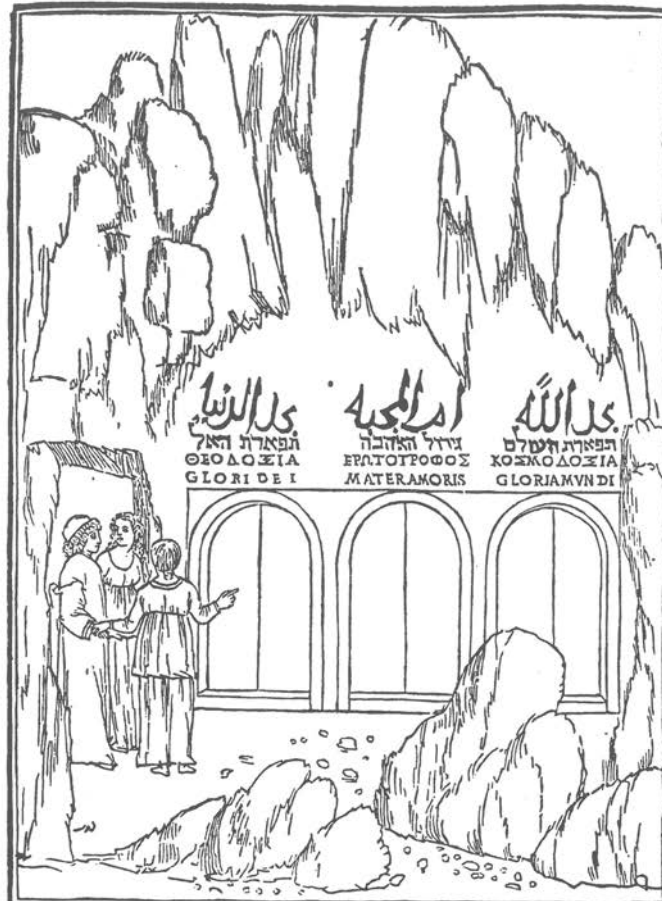


Fig. 8.1 Polyphilo in front of “the three brazen portals, crudely hacked into the living rock: an ancient work of incredible antiquity.” The arrangement of the words from top to bottom is as follows: Arabic, Hebrew, Greek and Latin. The Arabic translation though is not accurate, with the text on the left portal meant for the right portal and vice versa. (Source: Colonna 1999, 138.)

Hans Belting in his recent study has identified the study of optics by the Iraqi mathematician Ibn al-Haytham (d. 1040), who came to be known in the West as Alhazen, being an important resource for artists and architects in the Renaissance. Alhazen’s book, *Kitāb al-Manāẓir* (*The Book of Optics*) presented “a new basis for the ancient Greek theory of vision” and he went on to prove with his “experiments that rays of light could be calculated mathematically.”⁷²¹ Alhazen’s optical theories, which were widely read in the West, Belting contends “laid the foundations for the model of linear perspective in the Renaissance.”⁷²²

⁷²¹ Belting 2011, 92.

⁷²² Ibid., 94.

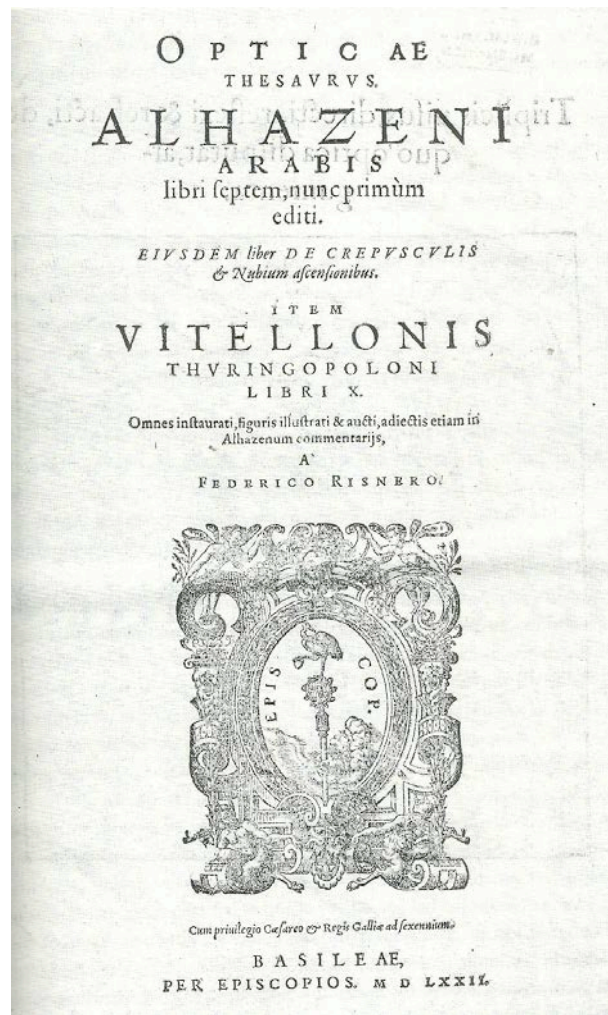


Fig. 8.2 Title page of the Latin translation of Alhazen's *Book on Optics*. Alhazen is credited to have been an important intellectual resource for Renaissance artists especially in constructing perspective drawings. (Source: Belting 2011, 93.)

The most robust interaction between the Islamic world and the West during the fifteenth to the seventeenth centuries can be said to have coincided with the conquest of Byzantine by the Ottomans, for this saw them at the doorstep of Western Europe. The economic and cultural cooperation between Venice and the Ottomans allowed for artistic and architectural exchanges including the transmission of Vitruvius' *De Architectura* to be made available in the Islamic world.⁷²³

⁷²³ For art and architectural exchanges between Venice and Turkey see Howard 2003, 306–325; Necipoğlu 1989, 401–427; Necipoğlu 2011, 77–92 and 98–102.

The Ottoman Renaissance

The sixteenth and the seventeenth centuries in the Islamic world see the Ottomans establishing themselves as a world power. The march of the Ottomans from a small town in Anatolia beginning from the late thirteenth century sees them conquering much of Christian Byzantium. The climax of this march finds them taking over the symbolic remnant of the Roman Empire, the city of Constantinople, in 1453. Thus they established Islamic rule over what once served as the “patriarchal seat of Eastern Christendom for nearly a millennium.”⁷²⁴ The Ottomans saw their arrival and overcoming of Constantinople as a victory of Islam over Christianity, one prophesized by the Prophet Muḥammad himself: “One day Constantinople will certainly be conquered. A good emir and a good army will be able to accomplish it.”⁷²⁵

With the wealth that was accrued through their conquests, each Ottoman sultan sought to mark his reign with an impressive array of architectural works. The Ottoman march left its stamp of authority both politically and architecturally on the cities it conquered. They established mosques, Islamic schools (*medrese*), lodgings for sufis (*zaviyes*) and bathhouses.⁷²⁶ Architecturally speaking, arriving at Constantinople drew the Ottomans close to the remarkable developments of the Italian Renaissance and also granted them access to perhaps the most venerable building of Christendom, the Hagia Sophia. The enthusiasm that was felt towards art and architecture in Italy around the same time was also somewhat mirrored in the development of Constantinople by the newly established Muslim rulers. The Ottomans wanted to concretize the Islamic presence of Constantinople by embarking on an ambitious building project that consisted of multiple community mosques, large Friday mosque complexes, and other religious structures.

While there was much tension between the West and the Ottomans, a healthy cultural exchange existed especially between the new rulers at Constantinople and Venice. Ideas, including that of architecture flowed from both sides. For example Mehmed II, the Ottoman conqueror of Constantinople, was well educated in Western Humanism.⁷²⁷ Subsequent Ottoman sultans it seems were also well apprised of

⁷²⁴ Necipoğlu in Mark and Cakmak (eds.) 1992, 195.

⁷²⁵ Ibid., 48.

⁷²⁶ On a summary of the various influences that informed eventual Ottoman mosque designs that was codified under Sinan in the sixteenth century see Goodwin 2003, 15–33.

⁷²⁷ Raby 1982, 4–5.

architectural developments in Italy and even sought—amongst others—Michelangelo and Leonardo da Vinci to submit design proposals.⁷²⁸ The Latin manuscript of Vitruvius’ *De Architectura* was gifted to the Ottomans around the early sixteenth century.⁷²⁹ As Necipoğlu has postulated, the knowledge of Italian architectural treatises of Filarete and perhaps even Alberti’s were known in Ottoman courts during the period when Mehmed II was in power and when the mosque-complex dedicated to him was being built.⁷³⁰

Such conversations though were not merely one way in which “knowledge in Europe about Ottoman architecture [being] spread by oral and written travel accounts, as well as drawings and prints of monuments made by artists who accompanied embassies.”⁷³¹ It has been suggested that Filarete was someone who may have participated in such early cross-cultural architectural exchanges. For example as Hub has shown in his “Filarete and the East,” Filarete’s various proposals for his ideal city of Sforzinda draws architectural sensibilities from the Islamic world especially in the use of minarets (Fig. 8.3).⁷³² Filarete is also reported to have told his close friend, the humanist Fielfo, that he intended to visit Constantinople around 1465.⁷³³ Given the similarities between his proposals for the Ospedale Maggiore as described in the *Trattato Di Architettura* and the Mehmed II complex, Necipoğlu citing Restle, offers the view that he may have been involved in that project.⁷³⁴ Raby goes so far as to claim that Mehmed “converted Filarete’s theoretical musings about star shaped fortresses into reality [by building within twelve years] four major fortresses in or around Istanbul.”⁷³⁵

⁷²⁸ Necipoğlu 2011, 88. The cultural influence of the Italian Renaissance during the era of Mehmed II is said to have reached such levels to provoke censure from Islamic religious leaders who saw it posing a threat to the Islamic way of life in the sultanate. Goodwin 2003, 102.

⁷²⁹ This manuscript was a gift by the Duke of Milan to Suleyman “after the conquest of Buda in 1526.” Necipoğlu 2011, 102.

⁷³⁰ Necipoğlu draws attention to similarities between the bilateral symmetry of the Mehmet II complex raised upon a large platform to the proposed design for the Ospedale Maggiore in Filarete’s *Trattato Di Architettura*. She also finds resonances between the call by Alberti in his *De Re Aedificatoria* for the “principal temple of a city [to be] centralized in plan, isolated in the centre of an ample square, and raised on a podium,” and the Mehmet II complex. Ibid., 86-88.

⁷³¹ Ibid., 2011, 98. See also Kuban 2010, 245–247.

⁷³² Hub 2011, 27–28.

⁷³³ Necipoğlu 2011, 86; Giordano in Hart and Hicks (eds.) 1998, 52.

⁷³⁴ Necipoğlu-Kafadar 1986, 233–234, and n.18; Raby 1982, 7.

⁷³⁵ Raby 1982, 7

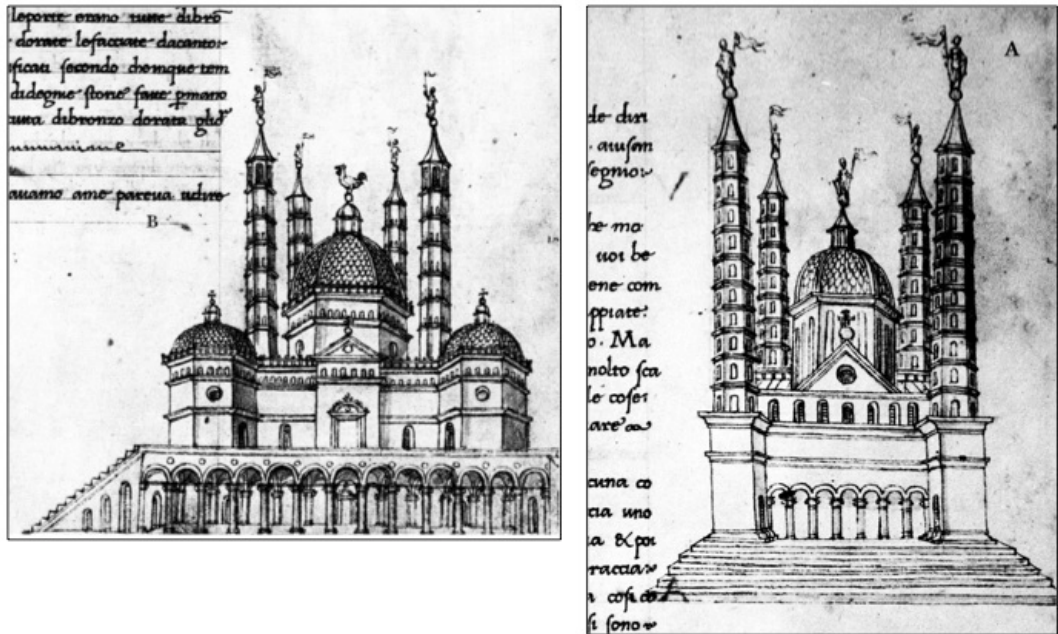


Fig. 8.3 Filarete's use of "minarets" for example in his proposals such as the Cathedral of Sforzinda (left) and the Temple of Plusiapolis are said to have been inspired by mosque architecture in the Islamic East, accounts of it he may have heard during his frequent travels to Venice.
(Source: Hub 2011, 28)

By the early sixteenth century the Ottomans' reliance on foreign architects declined with the emergence of the most famous architect of the Ottoman era, Sinan.⁷³⁶ Yusuf Sinan bin Abdullah was a janissary soldier who rose up the ranks to become the Ottoman chief architect at the age of forty-six, a position he held on for fifty years until his death. During his tenure in the army Sinan was appointed an engineer, and this allowed him to put his training in geometry and carpentry to good use. The various army expeditions he participated in also gave him a very good opportunity to understand various building styles and construction techniques. Sinan was a truly prolific architect who was commissioned to design close to seven hundred projects ranging from grand Friday mosques, palaces, and mausoleums to bridges and bathhouses.⁷³⁷

Sinan and the Education of the Architect

As the chief architect of the Ottoman Empire, Sinan had access to the manuscripts of Vitruvius and other Renaissance treatises found in the court libraries.⁷³⁸ But unlike his

⁷³⁶ See for example Necipoğlu 2011, 13–23.

⁷³⁷ Ibid., 136–137.

⁷³⁸ Ibid., 87 and 146.

Western counterparts, he did not embark on writing a comprehensive treatise on architecture. There was also no venture to advise the Sultan on how to build a good city or a manual on construction or project management in the manner of Filarete. What Sinan did bequeath to us was somewhat different. He chose to leave behind his autobiography. Thus in place of a formal treatise of architecture Sinan commissioned his close friend, the poet and painter, Mustafa Sa‘i Çelebi (d. 1596) to pen down his life story as an architect. This work is unique as it presents a glimpse into an Islamic theory of architecture. Sa‘i’s work has come down to us as five accounts, with the longest work being the *Tezkiretü’l-Bünyân (Record of Construction)*.⁷³⁹

Sinan’s biography, appropriately, centres on the protagonist, the architect, his training, and most importantly his enormous contributions—both in architecture and military—to the empire. In the work, Sinan is portrayed as a truly unique genius. This was not only because he built many buildings but also that the architect seemed to have been elected by Providence to build mosques with awe-inspiring domes. Sinan also claims, rather confidently, that his mosques were a re-creation of Paradise, here on earth. In this manner Sinan joins the likes of Avicenna, al-Ghazālī, and al-Suhrawardī, philosophers and sages who granted a preview of the illuminated abode of the afterlife as a way to motivate the faithful to practice a life of wisdom and virtue. While those philosophers and Sufi sages presented the paradisaical destination in literary form, here we have Sinan who is ready to realize them as built forms, so that it can be physically experienced.

Sinan reveals that the mastery of geometry as being pivotal to the art of building. The study of geometry draws from a very hallowed tradition, one taught by God to his prophets such as Adam, Noah, Solomon, and Abraham. Meḥmed Aga, a student and also successor of Sinan, in explaining the profundity of wisdom availed in the study and practice of geometry writes: “Thus, pure prophets are your masters!/ Thus, in the science of geometry one immediately becomes profound as the sea.”⁷⁴⁰ Geometry is presented as an esoteric science, connected to hermetic figures of both Christianity and Islam, the prophets Seth and Enoch. The subtleties of the science are

⁷³⁹ For an introduction to the Sinan autobiographies see Crane “Introduction” in Crane and Akin (eds.) 2006, 1–44.

⁷⁴⁰ Crane (ed.) 1987, fol.14v (henceforth *Risāle-i Mi‘māriyye*).

not elaborated. In this aspect, one can see parallels between the Ottoman and the Christian masonic guilds of the Middle Ages.⁷⁴¹

Following in this lineage Sinan presents himself to his reader as a Sufi sage: “the Hizir of his age.”⁷⁴² Hizir, or Khidr, is a celebrated prophet in Islam, who is identified as the paradigmatic master of its mystical tradition, Sufism. Hizir is known amongst Muslims as an immortal prophet who is invested by God with deep knowledge in esoteric sciences.⁷⁴³ Amongst the miracles of Hizir, according to Ottoman legends, was in inspiring the architect of the Hagia Sophia to build its large and overwhelming dome.⁷⁴⁴ A dome of such sublime qualities that the sixth-century historian Procopius after witnessing the newly completed church was moved to write:

And whenever one enters the church to pray, one understands immediately that it has been fashioned not by any human power or skill but by the influence of God. And so the mind is lifted up to God and exalted, feeling that He cannot be far away but must love to dwell in this place He has chosen.⁷⁴⁵

The hagiography of the Hagia Sophia had a catalytic effect upon the Ottomans and Sinan.⁷⁴⁶ Though it was established as a Christian church, Muslims viewed the building as a herald for the eventual victory of Islam and be established as a mosque. Ottoman legend has it that on the night of the Prophet Muḥammad’s birth the half-dome of the apse in the Hagia Sophia collapsed. It is related that repeated attempts to rebuild it was met with failure until a “Byzantine embassy was sent to [Muḥammad], who sanctioned its reconstruction.”⁷⁴⁷ It is also said that the mortar to rebuild the dome was composed from the water drawn from the well of Zam Zam, mixed with the Prophet’s saliva so as to ensure that the dome did not collapse again.⁷⁴⁸

For Sinan the dome of the Hagia Sophia (Fig. 8.4), was seen as the pinnacle of architectural evolution, one that was made possible only by divine intervention, with two of God’s prophets—Hizir and Muḥammad—playing a role in its building. The raising of the dome overhead the central nave was significant because it evokes the

⁷⁴¹ See Rykwert 1984, 21–22.

⁷⁴² *Tezkiretü’l-Bünyân* 120.

⁷⁴³ On Khidr’s role as the paradigmatic Sufi master see Halman 2013, 15–52.

⁷⁴⁴ Hizir was also celebrated as the patron saint of architects. Necipoğlu 2011, 147.

⁷⁴⁵ Procopius cited in Mainstone 1988, 10.

⁷⁴⁶ See Charles 1930, 320–345; Necipoğlu 1992, 195–225; Necipoğlu 1993, 169–190.

⁷⁴⁷ Necipoğlu 1992, 200.

⁷⁴⁸ Ousterhout 1995, 49. Zam Zam refers to the well situated near the *Ka’ba* in Mecca. Regarding its origin see Lings 2007, 2 and Al-Qu’āitī 2007, 9–10. On the efficacy of Muḥammad’s saliva to heal wounds see Qadi ‘Iyad, 178–179.

idea of the re-creation of the canopy of God's heaven on earth. This was no mean feat. This skill was evidence that God had granted the elected architect a unique disposition to mimic the divine activity of creating the cosmos. The fifteenth century Ottoman court historian Tursun Beg in describing Sultan Mehmed's close study of the dome—by way of a special platform built for him—writes how the experience of was akin to ascending into the very heavens of God: “as [though] the spirit of God had mounted to the fourth story of the heaven.”⁷⁴⁹ Upon conquering Constantinople the Ottomans transformed the old church into a mosque by adding necessary elements of Islamic architecture such as the *mihrāb*, *minbar*, and minarets.⁷⁵⁰ This building would from hereon serve as a divinely selected reference point for Sinan's works.



Fig. 8.4 Exterior view of the Hagia Sophia with the addition of the four minarets
(Source: Ousterhout 1995, 48)

⁷⁴⁹ Necipoğlu 1992, 197.

⁷⁵⁰ Finkel 2005, 53.

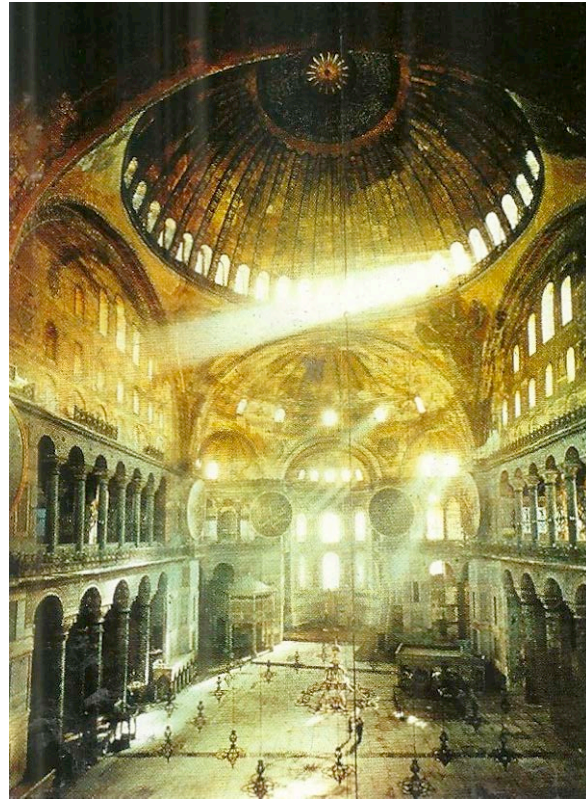


Fig. 8.5 Interior of the Hagia Sophia (Source: Necipoğlu 2011, 82)

For Sinan the education of the architect was essentially one grounded in thorough knowledge in Islam, reverence to God, and his Prophet. One looks to religion to secure an understanding of how to arrive at a spiritual disposition so that God would guide the hand of the architect to continue the work of the great prophets of aforetime, in raising edifices to celebrate the worship of God. To begin such an education, Sinan asks the reader to note that the architect must start his design process by firstly contemplating upon the works of God.

The Pavilion and Temple of Adam

Sinan begins all his biographies by praising God and his Prophet. This is followed by explaining God's construction of the cosmos and the human body of Adam. In reading his account it becomes quite clear that God too is an architect and that the cosmos and the body are to be imagined as buildings. For example in the *Tezkiretü'l-Bünyân* we read:

Thanks and praise to that Creator of the foundation of the seven stories (of the heavenly spheres) and incomparable glory to the Builder of the heavenly

canopy of nine vaults, who, in this workshop of water and earth, without level; or compass, fashioned the private palace of Adam's body, which is the pavilion of the heart and soul, and rendered delightful the mosque of the hearts (of humankind) with the adornment of virtue.⁷⁵¹

The building of Adam is then elaborated: "Kneading clay with (His) hand of power/ He constructed Adam's body/ The eye became the window of the pavilion of the body / And inscription(s) became its eyebrows/ When the pavilion of Adam's body was built up."⁷⁵² The building that is the human being also shares similarities by being ordered in a similar fashion to the multi-storied cosmos. "[God] created humankind, and, by means of a cloak of excellence, rendered it more distinguished and superior than (His) other creations. And in accord with the meaning of the truthful verse of the Qur'ān 'And We raise some of them above others in rank.' He made them differ in esteem from one another."⁷⁵³ For Sinan, almost from the onset, the body and cosmos are intimately interlinked by a common link to architecture, they are both to be imagined as buildings created by God.

Adam's body is also recognized as a temple of God, repeating ideas previously related in the Jewish, Christian, and Islamic traditions: "[God] rendered delightful the mosque of the hearts (of humankind) with the adornment of virtue."⁷⁵⁴ He also repeats Ibn 'Arabī's study that the House of God, *Ka'ba* is also found in the human heart. Identifying Muḥammad as its architect, Sinan says: "countless blessings [...] upon [Muḥammad] that architect of the *Ka'ba* of the hearts of the believers."⁷⁵⁵ Sinan's cosmological survey is brief, but it is completely premised on architecture. It begins with the multi-tiered cosmos, which is then followed by the pavilion-temple of the human body. He concludes the study by turning to the establishment of the physical *Ka'ba* in Mecca by Abraham.⁷⁵⁶ Cosmos, body, and building are considered to be inter-related. For Sinan the relationship between the cosmos, the body, and building is not negotiated mathematically but rather towards metaphorical correspondences which are all understood to be architectural, such as the cosmos is to be studied as a palace, the human body a pavilion-temple, and the *Ka'ba* is one that is found in the heart of the virtuous believer.

⁷⁵¹ *Tezkiretü'l-Bünyân* 112.

⁷⁵² *Ibid.*

⁷⁵³ *Risaletu'l – Mi'mariyye* 58.

⁷⁵⁴ *Tezkiretü'l-Bünyân* 112.

⁷⁵⁵ *Ibid.*

⁷⁵⁶ *Ibid.*

Sinan, who tasks himself to build “great, paradise like mosques”⁷⁵⁷ for the Ottoman state, continues this thematic of understanding the meanings of architecture by way of metaphorical linkages. His narration is suffused with attempts to signify each element of the structure as an aspect of faith. Specific to identifying the body with the building, he draws attention to the foundational core of the mosques he designed: the massive columns and the large dome overhead it supports. For Sinan, these elements, which represent the canopy of God’s heaven, simultaneously represent Muḥammad and his closest companions, the Rightly Guided Caliphs who took over his mantle to rule over the Islamic state after his death.⁷⁵⁸

Muḥammad: The Dome of Faith

The most impressive aspect of Sinan’s great works was to be the large domes that topped his mosques. Though the use of the domes was already prevalent in the Islamic world by the fifteenth century, the domes Sinan erected were massive and monumental to scales never attempted before.⁷⁵⁹ Sinan was attempting to demonstrate that he, like Hizir with the Hagia Sophia, was granted the vision and wisdom by God to re-make on earth the canopy of the heavens.⁷⁶⁰ This achievement was no mean feat. Referring to the dome of the Selimiye mosque he writes:

Its exalted dome is like the highest heavenly sphere/ To the seeing eye it appears an exemplar of the nine spheres/ A dome such as this on earth never was nor ever will [again] be built/ Its like does not exist in the spheres except for the azure sky/ Its dome seems suspended from the mosque of the spheres with the Milky Way.⁷⁶¹

Sinan then demonstrates how the dome is to be read as an analogy between the heavens and the perfect microcosmic human being, Muḥammad: “the dome between the four minarets is a wise spiritual guide” whose centre is the Prophet, the radiant finial: “[t]he finial on the dome hints at the divine light of The Prophet.”⁷⁶² Sinan who describes Muḥammad as the architect “of the *Ka’ba* of the hearts” and the “lamp of

⁷⁵⁷ Ibid., 117.

⁷⁵⁸ “The first four caliphs [Abū Bakr, ‘Umar, ‘Uthmān and ‘Alī] are known [...] as the Rightly Guided Caliphs [...] and are accepted to have lived in a pious and simple manner akin to that of the Prophet.” Bennison 2011, 14.

⁷⁵⁹ Necipoğlu 2011, 144.

⁷⁶⁰ *Tezkiretü’l-Bünyân* 132; As Necipoğlu writes, the Ottomans were well apprised of the use of domes from their interaction with the Timurids. Necipoğlu 1992, 197.

⁷⁶¹ Ibid., 131.

⁷⁶² Ibid.

faith” reiterates the idea in the Islamic tradition that the entire cosmos was a consequence that arose from the centre and illumination of Muḥammad. In the mosque this illumination of Muḥammad presents itself as a radiant light suffusing the interior to emanate the experience of being in paradise: “The world is visible within it like a spherical mirror.”⁷⁶³ This domical sphere, i.e. Muḥammad, sits on the quadrature of four sturdy columns (Fig. 8.6 and 8.7). The four columns are to be read as the first four caliphs of Islam: Abū Bakr (d. 634), ‘Umar (d. 644), ‘Uthmān (d. 656) and ‘Alī (d. 661) (Figs. 8.7 and 8.8): “This well-proportioned mosque became a *Ka’ba*/ Its four columns became [like] the Four Friends/ The House of Islam on four pillars/ Was strengthened by the Four Friends”⁷⁶⁴

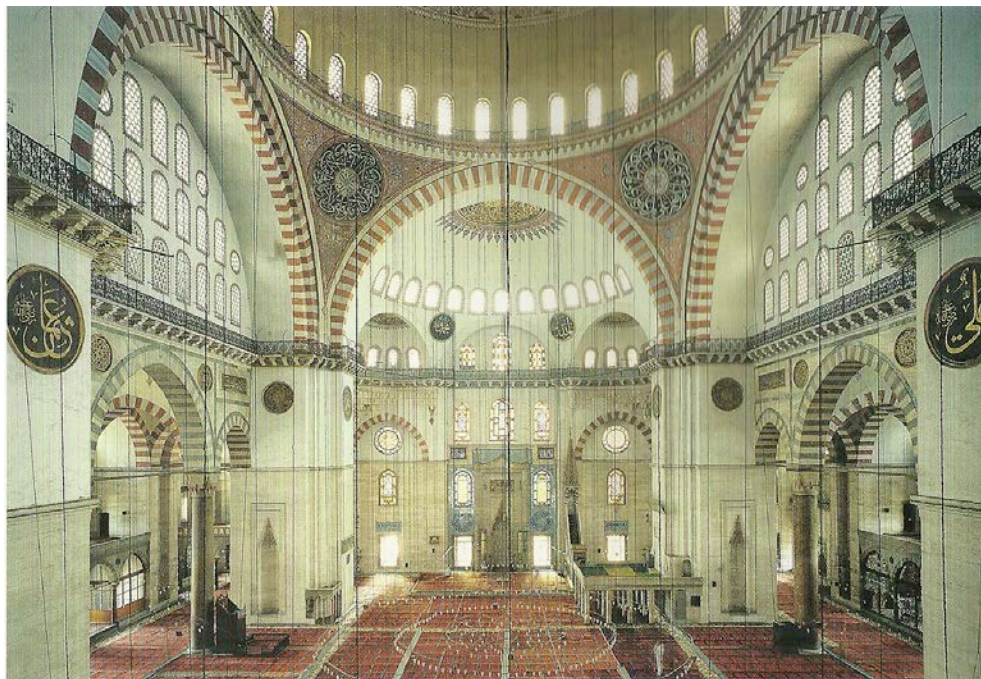


Fig. 8.6 Interior view of the main dome supported by four columns and arches, in the Süleymaniye mosque. The four columns are identified after each of the four caliphs by roundels bearing their names in Arabic calligraphy. (Source: Necipoğlu 2011, 214)

⁷⁶³ Ibid., 131.

⁷⁶⁴ Ibid., 123.



Fig. 8.7 Interior view of the Süleymaniye mosque main dome supported by four columns and arches.
(Source: Necipoğlu 2011, 215)

In the Selimiye mosque, Sinan identified the minarets to the four caliphs (Fig. 8.8):
 “The four minarets are like the Four Friends of the Glory of the World
 [Muḥammad].”⁷⁶⁵ We also read: “And the golden finial shining upon [the dome] is
 like the brilliant, gleaming sun. And the minarets and dome are like the Chosen
 Beloved [Muḥammad] the canopy of Islam, and of the Four Friends.”⁷⁶⁶

⁷⁶⁵ Ibid., 131. It is incumbent upon Sunni Muslims to acknowledge the piety and virtuosity of the Companions of the Prophet. “It is not lawful to insult or denigrate any of them.” Al-Ḥaddād 2010, 260–261.

⁷⁶⁶ Ibid., 124.



Fig. 8.8 The Selimiye Mosque with its large central dome flanked by four minarets. Sinan identifies the dome with the Prophet and the four minarets to the “Rightly Guided Caliphs”
(Source: Kuban 2010, 296)

In another description Sinan presents further architectural analogies for the companions all alluding to representations of fortitude in faith. He describes Abū Bakr as the “mihrāb of the *Ka’ba* of truth and that lamp of the gate of the Way [...] the rock of the *Ka’ba* of faith.” ‘Umar, the “minbar of the mosque of justice and equity [...] pillar of the House of Islam [and the] brick maker of the wall of the pure faith.” ‘Uthmān is distinguished as the “adornment and ornament” of the faith and ‘Alī is presented as the “firm pillar of the house of faith.”⁷⁶⁷

For Sinan, as reading his biographies reveal, the great mosques, such as the Süleymaniye and Selimiye, which he designed, are to be contemplated upon as the physical representation of the foundational protagonists of Islam, presenting a metaphor and reminder of the virtues and actions of the Prophet and his companions.

8.2 Building as the Mirror of the Architect

In the *Tuhfetü’l-Mi’marīn* (*Choice Gift of the Architects*) Sinan draws a connection between the results of architecture—endurance and beauty—to the religious virtuousness and piety of the architect: “In short, there is no art more difficult than

⁷⁶⁷ Ibid., 112–113.

architecture, and whosoever is engaged in this estimable calling must, to begin with be righteous and pious, only then can the architect proceed to lay the foundations of the building.”⁷⁶⁸ In this manner Sinan identifies himself to be following the august footsteps of Abraham and Muḥammad.

[Muḥammad] is the Abraham-like builder of the *Ka'ba* of the heart/
May it soar to the furthest limit like a lofty *Ka'ba*!/
May high and low share in its perfection/
May the Matchless Creator make enduring foundations/
Of that building and its builder for as long as the spheres do turn/
May this beautiful and pure abode be a place of worship for the Muslims/
For as long as the adepts pray in the celestial mosque!⁷⁶⁹

This meant that the strength of the architect's faith, patience with providential decisions, and the sublimity of his spiritual station eventually become evident in the buildings he produces. Only a building that is founded on such a premise is able to support the domes and half domes. Paraphrasing the chapter in the *Qur'ān* that celebrates the virtue of piety and patience, Sinan writes: “[The architect] should not hurry in important matters but should endure in accord with the import of the saying ‘Patience brings one victory!’ in order that, with God's help, he find divine guidance for the immortality of his work. And in this there is no doubt.”⁷⁷⁰

Sa'ī identifies Sinan not only to be a saint but above all a *kamil insana*, the perfect man.⁷⁷¹ The term *kamil insana* is closely identified with the teachings of Ibn 'Arabī that describes the active realization of the human being as the microcosm: “For God entrusted all Knowing in the (heavenly) spheres and He made the fully human being (*insan*) the total sum [...] of the entire cosmos.”⁷⁷² It is to this architect God had entrusted the vision of Paradise so that it may be realised on earth: “Above all, his excellency, the aga of architects [Sinan] that patron saint of masters/ As all the world says, builds with saintliness that which he builds.”⁷⁷³ Sinan is the Hizir of his age. One vested with divine knowledge to build paradise-like mosques, with enormously large domes as it was in the Hagia Sophia: “They say Hizir Hagia Sophia designed/ Do not think this Hizir-like man [i.e.Sinan] a mere mason to be.”⁷⁷⁴

⁷⁶⁸ *Tuḥfetü 'l-Mi'marīn* 66.

⁷⁶⁹ *Tezkiretü 'l-Bünyān* 133.

⁷⁷⁰ *Tuḥfetü 'l-Mi'marīn* 66; *Qur'ān* 103: 1–3.

⁷⁷¹ *Ibid.*, 128 and 153.

⁷⁷² Ibn 'Arabī cited in Morris 2005, 286–288

⁷⁷³ *Tezkiretü 'l-Bünyān* 132.

⁷⁷⁴ *Ibid.*, 132.

As we have read with Avicenna, al-Ghazālī, and al-Suhrawardī, the geographies of the afterlife for the soul is founded upon one's actions in the terrestrial sojourn. Those who had led a life of virtue and goodness are said to enjoy the illuminated company of God in Paradise. Sinan is convinced that he has built such a place here on earth. For example his description of the interior of the Selimiye mosque reads: "Those lamps and spherical mirrors suspended there are/ Like leaves and fruit of the Tuba tree in the Garden of Paradise."⁷⁷⁵

In Sinan's text, the discussion of the relationship between body and architecture is rather brief. What is availed mainly centres on the idea that architectural elements of the mosque, in an abstracted form, serves as a reminder of the virtues of the Prophet and the Rightly Guided Caliphs. The other correlation between the human being and the building centres on the personality of the architect. As Sinan reiterates several times, the path of the architect is to follow the path of Hizir, Abraham, and Muḥammad; the authors of God's house, the *Ka'ba* and also the Hagia Sophia. Similarly it is Sinan's spiritual station as the *kamil insana* that made it possible for him to create and repeat, mosques that conjure the experience of heaven. In this case the splendor and endurance in the building rests upon the perfect spiritual measure of Sinan rather than a set of mathematical proportions of an idealized human body: "My felicitous padishah, this humble servant of yours, the architect [Sinan], is no empty headed man. He seemed to be possessed of saintly abilities!"⁷⁷⁶

The Pavilion of the Architect's Body

Sinan's other reflection of the body as building in his treatise is a moving personal study of the architect's mortality. He writes how the building of the Adamic body, his body, has started to atrophy. Even as one ages and nears death, the study of the body as a mirror of architecture continues to be instructional. As we recall, Sinan called the body of Adam a pavilion built by God. Now at an advanced age, the pavilion that was once set up straight and upright has started to incline. But even this deformation teaches by way of architecture, as an arched bridge that offers the metaphor of travel from this temporal world to the afterlife.

⁷⁷⁵ Ibid., 133 and n.183.

⁷⁷⁶ Ibid., 127.

I looked upon all creation as a lesson/ And completely understood it has no permanence/ I laid the foundations of many buildings/ (Doomed to) annihilation, man does not endure/ The pavilion of my body began to crumble/ I suffered pain in its fetters/ The sorrows of fortune my beard turned gray/ Think not my bended form is an arch/ It is a bridge of passage to grief and sorrow/ Brother, in order to pass to the next world to this vault of fate's pavilion I bowed my head/ Thanks be to God that I am a righteous man!/ In my art, I am upright and firm.⁷⁷⁷

As he concludes his poetry Sinan draws comparison between the crumbling pavilion of the human body—the microcosm—and the ever-enduring pavilion of the world supported by the firm “pillar of the Faith.” Unlike the temporality of the microcosm, meaning both the human body and architecture, the abode of God's house in the heavens is eternal and permanent. Sinan asks Sa'î to join him in seeking this place as the final resting place for himself and all Muslims: “O God, may Your compassion have!/ Make Paradise the abode of them all!”⁷⁷⁸

8.3 Meḥmed Aga's *Risāle-i Mi'māriyye*

Following Sinan's death, the role of the chief architect of the empire was taken over by his student Meḥmed Aga (d. 1623). Meḥmed followed Sinan in having his biography written. This work was undertaken by his friend Ca'fer Efendi. Written in the early period of the seventeenth century, the *Risāle-i Mi'māriyye* (*Treatise of Architecture*) follows Sinan's biography in introducing the background to how the architect was trained. Efendi's work though goes far more into details concerning the major projects undertaken by Meḥmed. Similar to Sinan, Meḥmed's biography edifies the idea of the architect as a spiritual master, one who is on the path of emulating the work of God and his messengers, such as Seth, Noah, and Abraham.

Meḥmed's work is more expansive than Sinan's, with lengthier discussions on the role of mathematics, geometry, music, and architecture. The Pythagorean grounding is unmistakable and presents itself as a connective thread between cosmology, mathematics, music, geometry, and building. Pythagoras, as Crane explains, was considered “by Muslims to be the inventor of the science of music and the propagator of arithmetic and geometry among the Greeks.”⁷⁷⁹ Meḥmed tells us

⁷⁷⁷ *Tezkiretül Ebinye* 89–90.

⁷⁷⁸ *Ibid.*, 90.

⁷⁷⁹ *Risāle-i Mi'māriyye* 27 n.14.

that Pythagoras compiled a book on geometry and mathematics under the guidance of Solomon, who is revered in Islam as a prophet of God.⁷⁸⁰

In the text, Meḥmed narrates to us of what he learnt in studying the symbolic significances of Pythagorean sciences. As a youth, Meḥmed wanted to pursue music as a career. This leads him to a teacher who guides him to understand how the modalities of music arrive from the heavens, starting with the zodiac signs: “as with the twelve constellations of the zodiac of the eighth heaven, the modes are divided into twelve kinds.”⁷⁸¹ This cosmic correspondence continues further with relations drawn to the four elements, the seven planets, and also the twenty-four hours of the day. Music is represented as an exemplary form of manifestation that can reveal the harmony of the cosmos. Though Meḥmed is impressed, he is overcome with premonitions of choosing a career in music. His anxieties are confirmed by a Sufi sage, who advises him against pursuing music, a practice he says is not associated with the virtuous.

Soon thereafter, Providence leads Meḥmed towards the practice of geometry and architecture. He is tutored by the master of the guild on how the great prophets and sages of God (including Pythagoras) pursued this art. Unsurprisingly, he receives spiritual sanction and blessings to become an architect, and is told that the building of mosques was recommended by the Prophet himself: “In accord with the blessed Tradition [...] if one builds a blessed mosque, even if it is like the nest of a tiny bird, in reward for it, God [...] makes a room in heaven for that person.”⁷⁸²

Meḥmed realizes the science of music—the harmonic imitation of the order of the cosmos—eventually in architecture, in his design of the Sultan Ahmed Mosque: “Now we have seen the science of music, in its entirety in the building of the noble mosque.”⁷⁸³ He continues to explain how this was possible: “When looking at this noble building I saw twelve types of marble. From each marble a different sound or type of melodic mode is produced.”⁷⁸⁴ Meḥmed then goes on to discuss the division of jewels and colours used in the materials of the building. In each and every one of them, one is taught of its mathematical significance and its parallel correlation to musical ratios. We find here mentioned the symbolic numbers four, twelve, and seven

⁷⁸⁰ Ibid., 27 and 31.

⁷⁸¹ Ibid., 26.

⁷⁸² Ibid., 27 and 31.

⁷⁸³ Ibid., 68.

⁷⁸⁴ Ibid.

used in the way they are categorized, thus resonating with the cosmic analogy of music he had earlier conveyed.

The idea that Pythagoras did play a key role as a source of instruction in fifteenth and sixteenth century Ottoman architecture offers rather intriguing possibilities of what the Ottoman architects—such as Sinan and Meḥmed—knew as a background to their architectural practice. Pythagoras' ideas on cosmology, mathematics, music, and astro-biology have had a long presence in the Islamic tradition dating back to al-Kindī, al-Fārābī, and Avicenna.⁷⁸⁵ The knowledge of the relationship between the harmonies of the cosmos was seen as being important for both bodily and spiritual well-being. The most famous Islamic Pythagoreans were the Ikhwān. Given that by the sixteenth century the Ottomans had under their control both Baghdad and Damascus, it is likely the royal architects would have had access to the major philosophical works, including that of the Ikhwān. Though Meḥmed's reading of mathematical harmonies and musical theories in the *Risāle* are limited and not fully elaborated to state how it relates to the body or architecture, they do hint at the knowledge he may have had of musical theories derived from all the abovementioned Islamic philosophers. For example it is possible that he would have known of the Ikhwān's *Epistle on Music*, which presents for the first time an Islamic attempt to correlate the cosmic musico-mathematical correspondences to the human body. It is also quite certain both Sinan and Meḥmed had access to Vitruvius' treatise. But both architects, while stating the importance of mathematics and geometry, do not discuss at all how the body mathematically corresponds to the cosmos and how this was transferable to architecture.

While symbolic numbers were in operation, for example columns representing the Rightly Guided Caliphs, the dome as the Prophet, and the use of the twelve types of marbles mirroring the zodiac, the Muslim architects did not formalize them as a set of canonical architectural theory. In fact the relationship between body and building is limited to the brief metaphorical relations we read above from Sinan. With Meḥmed there are no explicit connections made between the body and architecture, but we find him, like Sinan, utilizing metaphorical symbolism to present evocatively how the mosque he had designed replicates the experience of being in heaven.⁷⁸⁶

⁷⁸⁵ See Farmer 1926, 89–124.

⁷⁸⁶ *Risāle-i Mi'māriyye* 68.

The metaphorical correspondences found in the works of Sinan and Mehmed recall the writings of Hugh of St. Victor and Durandus who, as we have read earlier, attempted to map each and every architectural element of medieval cathedrals to the Christian faith. It is interesting to note that such an enterprise continued well into the eighteenth century in the Ottoman Empire. In a monograph written to celebrate the Selimiye mosque, titled *Selimiye Risālesi* (circa 1740), a certain Dayezāde Mustafa attempts to read into each and every aspect of the Selimiye mosque multiple metaphorical meanings drawn from the Islamic traditions.⁷⁸⁷

A self-confessed bibliophile, Dayezāde was led to the study of the Selimiye mosque while participating in a debate concerning the comparison of its dome with the Hagia Sophia.⁷⁸⁸ Thereafter he goes on to study the biographies of Sinan to understand the meanings of this “peerless mosque.”⁷⁸⁹ On why he chose to write his treatise, Dayezāde explains that it was to “discover the metaphors that Architect Sinan [...] aimed at during the construction,” and he succeeded in doing so “in a way nobody had succeeded before [...] to discover in detail [...] comprehensive meanings that Sinan aimed [at].” The way he arrived at these meanings, Dayezāde states, was a providential gift, a “revelation in my heart.”⁷⁹⁰ After this introduction, Dayezāde sets off on an almost breathless recovery of the symbolic meaning he reads into the building. His description of the mosque’s imposing dome and minarets is illustrative of the thrust of the entire text. At one instance an architectural element is able to grant polyvalent meanings to an inspired worshipper such as Dayezāde.

The aim of building this mosque with a unique dome and not surrounding it with smaller domes like other mosques is to indicate the saying: ‘the Truth has come, and falsehood has vanished.’ Through this Islam is compared to the unique dome whereas the other religions are compared to smaller domes [...] The four half domes built near the large dome is to ensure that this mosque lasts until doomsday with all its beauty. However the overall appearance of the minarets with the large dome is poetically expressed as a rising sun around the cypress trees. Moreover, it can also be connected with the *hadīth*: ‘Islam has been built upon five things,’ referring to the five pillars of Islam. Or he might have also indicated the shelter of the earth being our Prophet and his four

⁷⁸⁷ “Dayezāde remains a little known and perhaps marginal figure in Ottoman history.” Morkoç 2010, 79.

⁷⁸⁸ Dayezāde in Morkoç 2010, 319.

⁷⁸⁹ Ibid., 319–321

⁷⁹⁰ Ibid., 323.

companions Ebu Bekir Siddik [Abū Bakr], Omer Faruk [‘Umar], Osman-i Nureyn [‘Uthmān] and Ali el-Murtaza [‘Alī].⁷⁹¹

Dayezāde was writing this treatise in the middle of the eighteenth century when the Ottoman Empire was starting to slowly adopt aspects of Western culture, with ambassadors dispatched to study the cultural, intellectual, and economic transformations in Europe. But the conservatism of the society was such that there were always suspicions concerning any adoptions from the West. For example the printing press, which was already prevalent in Europe was frowned upon by Islamic religious scholars who preferred transmission of religious texts by way of copying from manuscripts. This was symptomatic of a wider resistance against adopting foreign ideologies that were seen to threaten the hegemony of Islam: “Historians have by and large concluded that [Islamic scholars] and their orthodox attitude of not favouring modern sciences and theories were the basic obstacles that hindered an emerging Ottoman enlightenment.”⁷⁹² Even into the eighteenth century it was faith, Islam, rather than modern science that played a central role in offering perspectives on how a Muslim subject in the Ottoman Empire viewed the world.⁷⁹³

While the wealthy did show interest in Western classical and baroque styles, this influence was limited and was hybridized into existing Ottoman architectural paradigms. As Hamadeh explains, even in the early nineteenth century such experimentations had less to do with “western influences but rather [one that] grew for the most part out of [the Ottoman’s] own social climate.”⁷⁹⁴ The sixteenth and seventeenth century architectural developments in the Ottoman Empire mark a new chapter in Islamic architectural history. Sinan is attributed to have canonized a new architectural parlance, especially in the design of grand mosque complexes. While there were no formalized architectural theories, what we learn from both Sinan and Meḥmed is the intention to continue a tradition that had gone long before them, and an enthusiasm to ground their works strongly on established religious traditions. In this manner their approach resonates with the continuity of ideas we see across the age with Islamic thinkers; the desire to build on the past, which is quite different from

⁷⁹¹ Ibid., 331.

⁷⁹² Ibid., 91.

⁷⁹³ Ibid., 97.

⁷⁹⁴ Hamadeh 2004, 46; On the general disinterestedness of the Ottomans of developments in Western architecture even in the early twentieth century see Peker cited in Morkoç 2010, 90 n.223.

the challenges posed against authority and tradition by Western contemporaries such as Descartes and Perrault.

CONCLUSION

THE BODY'S DISINTEGRATION

The Body Disembodied

Following Alberti and Filarete, the fifteenth and sixteenth centuries proved to be prolific in terms of the number of architectural treatises published. Some of the best known works include Francesco Di Giorgio's *Trattati* (1486), Francesco Colonna's *Hypnerotomachia Poliphili* (1499), Sebastiano Serlio's *Regole Generali di Architettura* (1537), Vignola's *Regola delli cinque ordini d'architettura* and the famous *I Quattro Libri dell'Architettura* (1570) by Palladio. Vitruvius' influence was a continual feature in all these treatises with each author referring to the ancient Roman architect as an authority. For example, we see Palladio writing in his *I Quattro Libri dell'Architettura* (*Four Books on Architecture*):

Guided by inclination, I dedicated myself to the study of architecture in my youth, and since I always held the opinion that the ancient Romans, as in many other things, had also greatly surpassed all those who came after them in building well, I elected as my master and guide Vitruvius, who is the only ancient writer on this art.⁷⁹⁵

One of *De Architectura*'s enduring influences can be explained by its being the most ancient source on the rules related to the columnar orders, which was considered by the Renaissance architects, "as the touchstone and tonic of architecture, as the epitome and guarantee of architectural perfection."⁷⁹⁶ By following Vitruvius, it was accepted that the columns were based on the proportions of the human body, and accordingly the body formed the fundamental measure for buildings. This remarkable continuity was possible only because the cosmological priority of architecture during the Renaissance continued to be based on the hierarchical structure of Aristotelian geocentric universe (Fig. 9.1).

⁷⁹⁵ Palladio 2002, 1. Foreword.

⁷⁹⁶ Rykwert 1980, 5.



Fig. 9.1 An illustration of the animistic, symbolic and hierarchically structured Aristotelian cosmos in Cesariano's edition of Vitruvius' *De Architectura* (1521) (Source: Pérez Gómez 1996, 21.)

In this cosmology God was the architect, with the human being viewed as being an abbreviation of the cosmos. In this way, for centuries the body played a compelling role in architectural thought as an important construct to be studied so that the architect may emulate the actions of God.

The nature and structure of this cosmology, which was assumed until then to be irrefutable, came to be challenged by a series of revelations starting with that of Nicholas Copernicus (d. 1543). Copernicus' hypothesis, based on mathematical and scientific researches, described the universe as being not geocentric but rather heliocentric. The impact of this cannot be underestimated. It threw into question, among many things, the veracity of scriptures. Its disruption of the previously held cosmic order meant that the ways in which meaning was accorded to beings did not hold true anymore. The French philosopher Alexandre Koyré (d. 1964), describing the removal of the earth from the centre of the universe as an unimaginable upheaval for it "undermined the very foundations of the traditional cosmic world-order with its

hierarchical structure and qualitative opposition of the celestial realm of immutable being to the terrestrial or sublunar region of change and decay.”⁷⁹⁷

We can find the impact of such a finding even in Copernicus himself, whom we find struggling with his discovery, on one hand, and still attempting to save it as a meaningful phenomenon as a follower of the Church, on the other.⁷⁹⁸ It is for this reason that he was compelled to note that while his thesis of the movement of the earth contradicted both the Aristotelian and the Church doctrines, it nevertheless was also in a better position to explain why the earth was subject to change and decay. He also presented the idea that it is better suited for the sun to be in the centre of the cosmos as this symbolized light as a pre-eminent source of knowledge and life.⁷⁹⁹

While Copernicus was still trying to resolve the tension between the traditional cosmological diagram and its meaningfulness with his astronomical conclusions, we find in Galileo Galilei (d. 1642) no such real anxiety. Galileo’s study of the cosmos was made purely based on mathematical analysis and was unconstrained by transcendental and symbolic meanings. In fact Galileo would go one step further than Copernicus in suggesting that the cosmos may not even be finite and it cannot be assumed that the sun we know of is necessarily the centre of the cosmos.⁸⁰⁰

The long-held view of a finite and closed universe was thrown open, with its limits unknown.⁸⁰¹ As Pérez-Gómez writes, the impact this had upon architecture was significant. With the Galilean system in place, the previously understood meanings and relationships between number, proportion, places, and beings, upon which architectural theory had been based, is thrown into disarray. The old idea of symmetry, of understanding what is below as a mirror of what is above in the cosmos was now lost. In its place we find ourselves, as Pérez-Gómez describes, at the “first step in the

⁷⁹⁷ Koyré 1994, 29.

⁷⁹⁸ Tarnas 2010, 251. Copernicus’ early manuscript of the *De Revolutionibus* includes a preface, which states that it was a mathematical study of the heavens to regulate the calendar and that it should not be taken seriously as a challenge to the geocentric model of the universe. This preface though is anonymous and is probably an intervention by the publisher. Tarnas 2010, 252.

⁷⁹⁹ Koyré 1994, 30. It is said that Copernicus’ initial presentations were not disputed by the Catholic Church in fact there was considerable support to have his findings published. The opposition to his studies came later after the Church felt it needed to counter attacks from the Protestant Church led by Martin Luther that Copernicus’ thesis was yet another evidence of the Catholic Church’s deviation from scriptural truth. Tarnas 2010, 252.

⁸⁰⁰ Koyré 1994, 96.

⁸⁰¹ Ibid.

process of geometrization of lived space.”⁸⁰² Galileo’s views towards nature also stood in opposition to the long-held Platonic and Aristotelian thesis that the natural world cannot be properly comprehended when analysed mathematically.

It is true that Plato, following Pythagoras, studied the world by way of mathematics and geometry, but his was an approach to understand how the entire cosmos was arranged as a meaningful harmonic construct by the *Demiurgoi*.⁸⁰³ Proportions and measures were always in this way made meaningful and played an ontological role.⁸⁰⁴ The role of the philosopher then was to discern that order to advice how to act appropriately on earth. There was nothing in that system which would have allowed for the understanding of how the natural world operates other than acknowledging how the harmony of the cosmos is mirrored in the physical world, including the human body. As Mitrović has explained, for Galileo, the knowledge of mathematics was not for this purpose, rather that mathematics should be used to unlock the mystery of the natural world to clearly understand its workings and potential: “For Galileo [...] even the resistance of matter [...] can be mathematically described and predicted. There is no event in the material world that cannot be quantified.”⁸⁰⁵

Descartes: The Body as a Machine

The French philosopher René Descartes (d. 1650) knew well of Galileo’s major works and also the tribulations he suffered under the Church. Descartes was fraught with fear that his works, too, would suffer the fate of Galileo in being condemned by the Church, as he held to the heliocentric views purported by Galileo and Copernicus.⁸⁰⁶ Trained as a mathematician and a scientist, Descartes from a young age found his scholastic schooling stifling and inadequate to understand the truths about the world and existence.⁸⁰⁷ Descartes’ enquiry led him to what was described as the most famous maxim in Western philosophy: “*cogito ergo sum*,” I think therefore I am.

Descartes arrived at this first principle of his metaphysics by completely eliminating the role of the body, which, in his view, had misled him all through his life. In the *Meditations on First Philosophy*, Descartes writes: “Everything that I

⁸⁰² Pérez-Gómez 1996, 19.

⁸⁰³ Nasr 1996, 136.

⁸⁰⁴ Vesely 2003, 35–39.

⁸⁰⁵ Mitrović 2011, 66.

⁸⁰⁶ Grayling 2005, 161–172.

⁸⁰⁷ Descartes 1999, 7–11.

accepted as being true up to now I acquired from the senses or through the senses. However, I have occasionally found that they deceive me, and it is prudent never to trust those who have deceived us, even if only once.”⁸⁰⁸ For Descartes, sensorial experience of the world was fraught with inexactitude, thus it was uncertain and false. The only way the thinking mind can most accurately relate to the world was by way of mathematics: “among all the disciplines known to others, arithmetic and geometry alone are free from every taint of falsehood or uncertainty [this was because] these alone are concerned with an object so pure and simple that they evidently presuppose nothing that experience might render uncertain, but they consist exclusively of conclusions that are deduced by reason.”⁸⁰⁹ Following on from these precepts Descartes, using mathematical reasoning, and freed from the constraints of traditional metaphysics and cosmology, described the human body to be like a machine. He writes in his *Discourse on Method* that those who had seen how an automata was assembled and made to operate would no doubt also consider their own bodies in a similar fashion almost naturally: “like a machine which, having been made by the hand of God [being] incomparably better structured than any machine that could be invented by human beings and contains many more admirable movements.”⁸¹⁰ Descartes’ impression of how the human body was assembled and made to function was influenced by his own research in anatomical studies and the growing interest in the seventeenth century in developing animated mechanical devices. Philip Ball observes that “the more he looked, the more it seemed to Descartes that the body is an ingeniously wrought mechanism, different in substance but not in principle from the machines that were an increasingly familiar aspect in everyday life in the seventeenth century.”⁸¹¹

Descartes’ views on the human body were articulated in two short works he wrote, *Description of the Human Body and of all its Functions* and the *Treatise of Man*. In these works, he dismissed the traditional idea that the soul is responsible for life and movement. Death, he says, occurs not because the soul has departed the body but because, just like in a machine, the various organs have stopped functioning: “it is more common for a body to be moved by another body than for it to be moved by a

⁸⁰⁸ Descartes 2000, 9.

⁸⁰⁹ Descartes 2006, 120–1.

⁸¹⁰ Descartes 1999, 40.

⁸¹¹ Ball 2012, 95.

soul.”⁸¹² Despite such a conclusion, Descartes continued the tradition of belief in the existence of the soul, so much so as to retain the Aristotelian idea that the rational soul was a gift from the heavens to human beings to make them distinct from animals and plants.⁸¹³ But unlike the traditional philosophical and religious views held prior to him, the aim of the soul was not to collaborate with the earthly body seeking a felicitous life in anticipation of divine favor after death, but rather to function as a neural processor of thoughts and sensations transmitted to it by nerves.⁸¹⁴ With Descartes it becomes clear that the ideal human being was no longer modeled after the cosmos or God, but rather after mathematical and mechanical ideas that were beginning to gain momentum in the seventeenth century. Descartes, as many have discussed, is considered to be the father of modern thought mainly because, as Miller writes, “he was the first to free reasoned inquiry from the shackles of traditional authority, the first to demand that everyone, no matter the topic, think for himself or herself.”⁸¹⁵ This cleaving between the ancient and modern identified with Descartes will also have an impact on architectural theories, in which Vitruvius and his authority will come to be questioned beginning from the middle of the seventeenth century.

While the West was undergoing rather phenomenal changes in its intellectual endeavours, the experiences in the Islamic world could not have been more different. For example, when we look at the works of the most important seventeenth-century Islamic philosopher, Ṣadr al-Dīn Shīrāzī (d. 1641), known as Mulla Ṣadrā, we find in him no anxiety to overcome long-held traditions and authority.⁸¹⁶ Mulla Ṣadrā was mostly influenced by his fellow Persian predecessor Suhrawardī and his Illuminationist School. As scholars have mentioned, Mulla Ṣadrā, in the development of his philosophy also benefitted much from his knowledge of studying Avicenna, al-Ghazālī, and Ibn ‘Arabī. He was also well versed in the Greek philosophical traditions of Pythagoras, Plato, and Aristotle.⁸¹⁷

⁸¹² Descartes 2006, 315.

⁸¹³ Descartes, like many of the key thinkers of the Enlightenment such as Galileo, Voltaire and Diderot, received a Jesuit education, which was dominated by Aristotelian and Scholastic science. Tarnas 2010, 247.

⁸¹⁴ Descartes 2006, 102–103.

⁸¹⁵ Miller 2013, 195.

⁸¹⁶ Fakhry 2004, 314–5; Nasr 2006, 65; Nasr 1997, 27–8.

⁸¹⁷ Nasr 1997, 69–80; Morris 1980, 21–29; Jambert 2006, 245.

Elaborating upon the details of Mulla Ṣadrā's philosophy lies beyond the scope of this thesis, but it can be generally said that while he differed with his predecessors, such as Avicenna and Suhrawardī on several metaphysical conclusions, the premise of his study, similar to theirs, centred mainly on the journeys of the soul. This was a most important concern as the actions of the soul determined its final destination in the afterlife, where the soul is made accountable for its actions on earth and with that its final destination—whether heaven or hell. While in the West Descartes and Galileo had started a rupture from established traditional sciences and scriptural sources, we find in Mulla Ṣadrā, a philosophy that sought continuity of Aristotelian thought, Islamic metaphysics, and the scriptural authority of the *Qur'ān* as the final word on the truths of existence.

Man: Not a Model or Measure

The influence of the ideas of Galileo and Descartes upon architecture can be found first in the architectural treatise authored by Claude Perrault (d. 1688) in 1683.⁸¹⁸ This work titled *Ordonnance des cinq espèces de colonnes selon la method des anciens* (*Ordonnance for the Five Kinds of Columns after the Method of the Ancients*) is understood to be a critical work in the history of architectural theory, one which Pérez-Gómez describes as constituting “a fundamental point of departure for modern architecture.”⁸¹⁹ McEwan, discussing the aim of the work, writes that it sought to “establish methodological foundations for architectural practice as certain and invariable as those developed by René Descartes in his *Discourse on Method* in 1637.”⁸²⁰

Claude Perrault, though trained as a doctor, became famous for this treatise and for his translation of the *De Architectura*, which came to be recognized as a standard in French for its eloquence and illustrations. He is also attributed to have designed the eastern façade of the Louvre. In their debates against those who defended the continuation of ancient traditions, Perrault, together with his brothers Charles and Nicolas, represented and defended the emerging “Moderns,” inspired by the writings of Galileo, Descartes, and Francis Bacon, against the long-revered

⁸¹⁸ Pérez-Gómez 1993, 11.

⁸¹⁹ Pérez-Gómez 1996, 27.

⁸²⁰ McEwan 1998, 324.

classical and scholastic traditions. These intellectual and cultural debates came to be known as the *Querelle des Anciens et des Modernes* (*The Quarrel Between the Ancients Against the Moderns*). The Perrault brothers, contributing to this debate, wrote several works contrasting the certainty of the modern pursuit by way of independent reasoning using mathematics and the emerging new science. In his *Parallèle des Anciens et des Modernes* (*Parallel between the Ancients and the Moderns*) Charles Perrault championed the Moderns over the Ancients. In this text Charles marked the distinction between the Ancients and the Moderns. The methods of the ancients he claimed lacked precision that is arrived by way of empirical studies—as demonstrated by the moderns—for they relied too much on “literary sources, following Aristotle and his interpreters.” This stood in opposition to the Moderns “who actively sought verifiable knowledge in the observation of nature.”⁸²¹

Charles Perrault’s work also included a section on architecture, in which he dismissed one of the central tenets of the *De Architectura*, that the body was the measure of a building. He “rejected the existence of any kind of relation between human proportions and the dimensions of the column,” claiming that the long-held belief was due to a misinterpretation of Vitruvius’ text, which in no way implied “that buildings were to derive their proportions from the human body.”⁸²² This also meant that Charles obviously disagreed with the notion that the body was a divinely shaped microcosm: “Man has no proportion and no relation with the heavenly bodies [...] infinitely distant from us.”⁸²³

In the *Ordonnance for the Five Kinds of Columns*, Claude Perrault agreed with his brother Charles’ thesis that the human body should not form the basis of architectural beauty. He begins by stating that the ancients, when they first started to build, derived the measures of the building from the human bodies. He claims that just as nature had built human beings of varying sizes and forms, early architects following this model arrived at the various architectural orders.⁸²⁴ But Claude draws our attention to the weakness of this approach, one that advised that architectural beauty was regulated by “imitation of nature, such as the correspondence between parts and the whole of a column, which reflects the correspondence between the parts

⁸²¹ Pérez-Gómez 1993, 11.

⁸²² Ibid., 24.

⁸²³ Charles Perrault cited in Pérez-Gómez, 1996, 27.

⁸²⁴ Perrault 1993, 47 (henceforth *Ordonnance for the Five Kinds of Columns*).

and the whole of a human body.”⁸²⁵ He says if such a relationship was needed to make a building, the correspondence between them would be one striving towards complete and more accurate imitation, but this was not the case. He cites columnar proportions as a case in example:

For it is obvious that the capital, which is the head of the body represented by the entire column, has nothing like the proportion a human head should have with respect to its body, since the squatter a body is, the fewer heads make up its length; whereas, on the other hand, the squattest columns have the smallest capitals and the slenderest ones, proportionally the largest.⁸²⁶

Perrault goes on to argue that such proportions did not necessarily derive from the body, but rather people using their own fancy as their guide. He also attacked, rather vehemently, those who have failed to realize this and have gone on further in imposing unnecessarily spiritual and transcendental meanings upon architectural proportions. Citing Charles and himself as an example, Perrault wrote that only now had it become possible for one to be “able to reason in anything other than a theological way,” that is, in a way that overcomes the ancient method that took pride in “discovering the true connotation of the text of Aristotle than in discovering the truth of that which the text deals with.”⁸²⁷ It is worth recounting here Perrault’s views of those who believed that the proportions on which the body and building were based were of a transcendental divine source. Perrault wondered if this had truly been the case, why then had there been no consistency in applying a singular proportional system to buildings.

The extent to which architects make a religion of venerating the works they call ancient is inconceivable. They admire everything about them but especially the mystery of proportions. These they are content to contemplate with profound respect, not daring to question why the dimensions of a moulding are neither slightly greater nor slightly smaller, which is something one presume was unknown even to those who established these dimensions. This would not be so surprising if one could rest assured that the proportions we see in these works had never been altered and differed in no way from those that the first inventors of architecture established.⁸²⁸

⁸²⁵ Ibid., 52.

⁸²⁶ Ibid.

⁸²⁷ Ibid., 57.

⁸²⁸ Ibid.

For Perrault, proportions and architectural beauty should be re-thought and fixed once and for all. Instead of architecture being related to the body and cosmos by way of the “mystery of proportions,” he proposed that reason suggests that architecture should instead be governed simply by two laws, the positive and the arbitrary. Positive beauty required only common sense to agree upon and there was no need for “great architectural competence.”⁸²⁹ Positive beauty dealt with the utilitarian understanding of a good building: scale, structural firmness, good craftsmanship, and symmetry. By contrast, arbitrary beauty, Perrault wrote, “is the beauty which depends on authority and custom,”⁸³⁰ which relates to taste and that which “distinguishes true architects from the rest.”⁸³¹ Perrault considered columnar proportions as an arbitrary beauty that needs to be established accurately. Studying established authority, Perrault thus derived his own version of columnar proportions, one based on the mean drawn from the extremes of the ancient models. He articulated his derivations to ensure that it formed simple “exact proportion in whole numbers” (Fig. 9.2) so that it can be easily remembered and executed by architects.⁸³²

⁸²⁹ Ibid., 54. See also McEwan 1998, 330.

⁸³⁰ Perrault cited in Ibid., 324.

⁸³¹ *Ordonnance for the Five kinds of Columns*, 54.

⁸³² Ibid., 73.

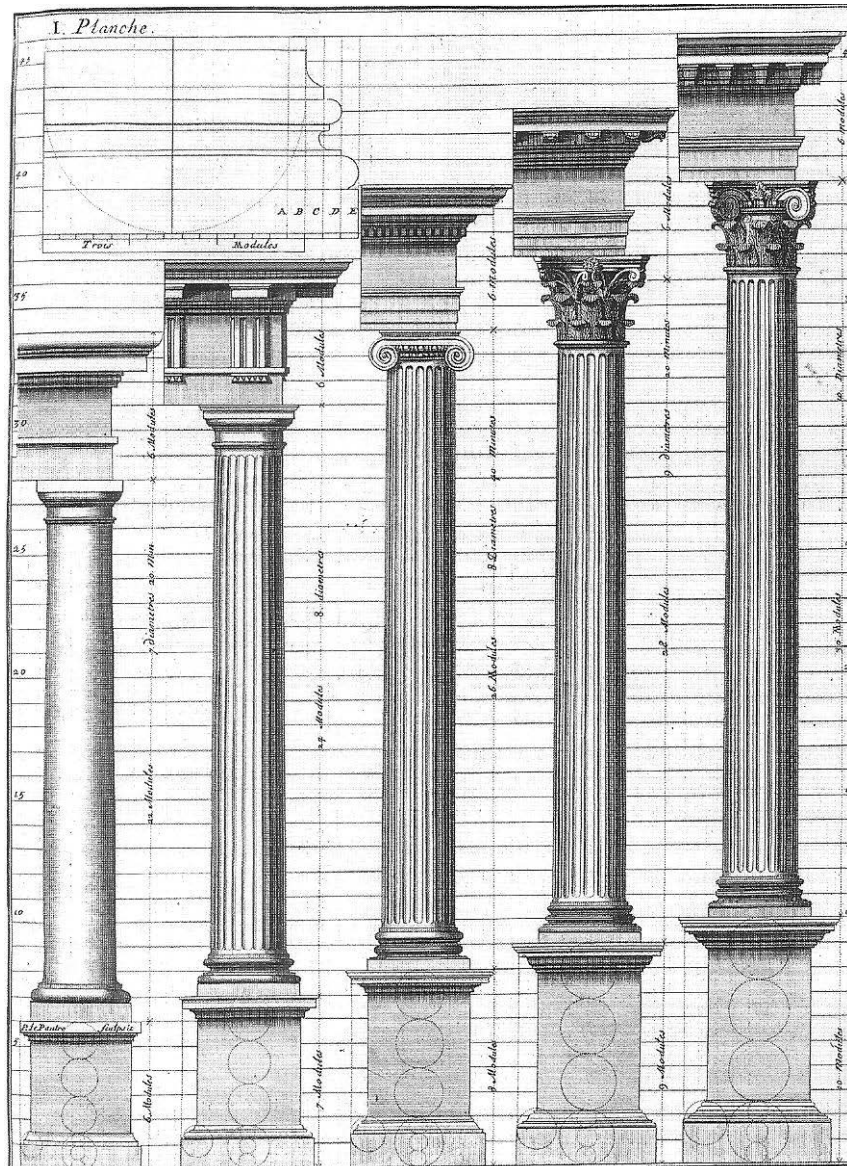


Fig. 9.2 The Five Orders after Perrault. Perrault here has reformulated the lengths based on the mean dimension from traditional references. Further to that one would also notice the module sizes has been made simpler by being rounded off to whole numbers. (Source: *Ordonnance for the Five Kinds of Columns*, 94.)

Perrault's intent was clear from the beginning, it was to establish a new proportional method that was precise and whose foundational theories were not muddled in mystical numerological symbolisms, inaccurately interpreted and inconsistently applied throughout the ages until now. Perrault, with remarkable self-confidence of his endeavour, writes:

my purpose is simply to extend change a little further than before, to see if I might cause the rules for the orders of architecture to be given the perfection, precision and ease of retention they lack by attempting to persuade those who

have more knowledge and ability than I to work toward making the outcome of this project as successful as the project itself useful and reasonable.⁸³³

Perhaps the most telling statement in Perrault's treatise, confirming that the Vitruvian idea that the body and building are related was not applicable anymore, is with regards to the relationship between architecture and music. This idea goes all the way back to Pythagoras, whose ideas had been a foundation of architectural theories in the West since Vitruvius. Perrault wrote:

How ill-founded is the opinion of people who believe that the proportions supposed to be preserved in architecture are as certain and invariable as the proportions that give musical harmony its beauty and appeal, proportions that do not depend on us but that nature has established with absolutely immutable precision and that cannot be changed without immediately offending even the least sensitive ears.⁸³⁴

The Pythagorean harmonies were the binding element that tied together the cosmos, music, body, and architecture together. Numbers and proportions, which governed architecture and the body, were considered to be a form of revelation from a divine source. The architect's role was to study the cosmos and the human body to understand how God had arranged it to form relationships between parts and a whole so that the entire structure appears with harmony. For this reason, architecture has since Vitruvius drawn an affinity with music.⁸³⁵ In the seventeenth century, with the challenge to traditional authorities complemented by the rise of positivism, it was inevitable that architecture, too, was starting to shift away from its own historical legacies. In querying the fundamentals of architecture, beginning with Perrault, the moderns sought to start anew having been, once and for all, unhinged from what was once an unshakeable ancient understanding, that building was formed after the measure of the human body.

⁸³³ Ibid., 62

⁸³⁴ Ibid., 48.

⁸³⁵ The study of the theories of music remained central to the liberal arts education dating back to Antiquity. Vitruvius in his attempt to draw architecture as part of the liberal arts tradition posits the study of music as a key component of an architect's education. See Parcell, 2012, 46–47 and *De Architectura* 1.1.3 and 1.1.8.

Return to the Body?

The impact of the ideas and theories of Galileo and Descartes, and other early modern thinkers, such as Francis Bacon and later Isaac Newton, turned out to be highly influential in shaping the intellectual, religious, and cultural milieu of the West. One would find here a sharp shift in the way truth had to be defined. While mathematics, as before, was considered key to knowledge, it was no longer connected to the horizon of meanings governed by a cosmological priority. This meant quantifiable accuracy was seen as the key to unlocking the secrets of nature, rather than in the symbolic relationships between beings that formed a chain leading upwards to a divine being. As Nasr writes: “this loss of metaphysical insight and awareness into the symbolic meaning of cosmological sciences is also seen in the rapid transformation of cosmology into cosmography, a movement from content to form.”⁸³⁶ The results of pivotal developments such as these are well known, leading to great scientific discoveries and the transformation of towns in the West into industrial cities. By the middle of the nineteenth century it can be said that the role of God and transcendental metaphysics as a means to truth was almost completely diminished in the West, and was replaced by analytical mathematics and rational science. The Islamic world too despite its initial resistance was eventually impacted by modern science, forced to adopt it from a position of weakness stemming from rapid changes in warfare technologies and the global economic environment.

Unlike the works of Plato and Aristotle, which was keenly studied in the Islamic world during the Middle Ages, the modern scientific and philosophical ideas did not enjoy similar success, at not least initially. While Descartes’ ideas, for example, were translated into Persian in the seventeenth century and Muslims became acquainted with Western sciences, especially after the Napoleonic invasion of Egypt in the nineteenth century, the pursuit of modern science as the singular source of truth did not prove to be significantly influential.⁸³⁷ Egyptian scholars who were subsequently sent to France studied scientific and industrial developments in the major cities like Paris, but did not seek to disrupt current orthodoxy with the new ideas they had been introduced to in the West.⁸³⁸

⁸³⁶ Nasr 1997, 66.

⁸³⁷ Bakar 1999, 206–207; Ernst 2003, 157.

⁸³⁸ Al-Tahtawi 2011.

In the Ottoman Empire, which was coming under severe stress to modernize to compete both economically and militarily with its European neighbours, even the simple idea of introducing printing press to publish books was resisted by the religious elites until the early eighteenth century.⁸³⁹ But by the end of the nineteenth century this resistance weakened after a series of embarrassing military setbacks to Western armies with superior mechanical weaponry. Given the new reality of mechanical warfare and the transformation in a capitalist-driven modern market, the Ottoman leaders towards the late nineteenth century took early steps to study positivist and materialist ideas of the West. One Ottoman statesman was so overcome and enamoured by what he saw at the Paris Fair of 1878 that he exclaims, in a poem praising the advances made by the West and its modern methods, evidence of the West's triumph over Islam.

The light of comprehension has touched the summit of perfection/ Many impossibilities have become possibilities/ Elementary substances have become complex, complexity has become elementary [...] / The foundations of old knowledge have collapsed/ Now the sciences are astronomy, geology, physics and chemistry/ Not misconceptions of the mind, conjectures and analogies/ Wise men have probed the depths of the earth/ Treasures of buried strata furnish the proofs of creation [...]/ Alas! The West has become the locus of rising knowledge / Neither the fame of Anatolia and Arabia nor the glory of Cairo and Herat remains/ This is the time for progress; the world is the world of sciences/ Is it possible to uphold society with ignorance.⁸⁴⁰

It is rather significant to note that the roots of Western modernity took a strong hold in the Ottoman Empire, once considered the authority in the Islamic world. Introduced to the positivistic and rational methodologies of the modern sciences, the initial attack against the validity of religion as a way to understand truth emerged around the late nineteenth century: “ a generation of secular materialists emerged in [Istanbul] as standard bearers of the new truth [making] an impact on Ottoman intellectual life quite disproportionate to their numbers.”⁸⁴¹

⁸³⁹ Finkel 2005, 366–367; Hanioglu 2008, 38–41.

⁸⁴⁰ Hanioglu 2008, 139.

⁸⁴¹ Ibid., 140.

Pérez-Gómez, describing the impact of modern science upon architecture two hundred years after Galileo and Descartes, writes that not only did “architecture [lose] its metaphysical dimension” but also now “architecture could no longer be a privileged form between man and his world, between the fluidity and evanescence of everyday life and the immutable and eternal dimension of ideas.”⁸⁴² Pérez-Gómez, at the conclusion of his *Architecture and the Crisis of Modern Science*, identifies Jean Nicolas Louis Durand (d. 1834) as the most important example in architectural theory with whom “number and geometry finally discarded their symbolic connotations.”⁸⁴³

In his *Précis des leçons d’architecture données à l’École Polytechnique* (*Précis of the Lectures on Architecture Given at the École Polytechnique*), Durand defines the primary functions of architecture in purely utilitarian terms, dismissing the role of decorations. Speaking of decorations, he wrote: “In some buildings, sculptural ornaments are to be found; but others are, for the most part, totally devoid of them, and are none the less highly esteemed. Is it not clear that such ornaments are not essential in architecture?”⁸⁴⁴ Durand’s conviction that ornaments are superfluous in architecture is arrived at after his study of the role of the column. The columnar orders were the primary and most important source of ornamentation in Western architecture. In fact the study of ornaments was a central theme in all the architectural treatises beginning with Vitruvius including Perrault’s *Ordonnance*. The columnar orders were also the primary architectural element that fundamentally defined the relationship between body and building. Durand undercuts this long-held idea by stating that the column has no relationship at all to the human body. Amongst his complaints was that he found it rather ridiculous that the smooth tube-like column, “a kind of cylinder with a constant diameter throughout,” could even be compared to a human body.⁸⁴⁵

Durand obviously was unable to see the symbolic relationship between the column, the human body, and the cosmos. He was searching for a rational and accurate explanation to convince him of the long-held view that architecture was an imitation of nature and measured according to the human body. The empirical

⁸⁴² Pérez-Gómez, 1996, 323.

⁸⁴³ Ibid., 311.

⁸⁴⁴ Durand 2000, v.1, 84 (henceforth *Précis*).

⁸⁴⁵ Ibid., 81.

evidence in this instance was unable to prove this. He thus concluded: “it is therefore untrue that the human body served as a model for the orders.”⁸⁴⁶

Pérez-Gómez posits the thesis that it was the rational and utilitarian theories, such as that of Durand, that had the most influence on the architecture of the Industrial Revolution and thereafter, by revealing the efficacy of a functionally driven architectural theory based on the “utopian objective of technology.”⁸⁴⁷ With this we arrive at a critical juncture in architectural history where the relationship between body and building, held reverentially in both the West and the Islamic world, is truly transformed. With Durand’s influential intervention, the body, which stood as a microcosm and a paradigm—in symmetry and proportion—for building for centuries, ceased to be meaningful. Instead, he proposes that the primary relationship between body and building is to ensure that the building design offers maximum comfort and security for the user: “public and private utility, the happiness and the protection of individuals and of society: such is the aim of architecture.”⁸⁴⁸

Pérez-Gómez has argued that the functionally driven architecture of the twentieth century, cut off from symbolic and transcendental negotiations, has greatly impoverished its important role as a bearer of existential meanings for human beings.⁸⁴⁹ The way out of this morass, as he writes in the introduction to his most recent work, *Built Upon Love*, is by recourse to love, that allows for architecture to reflect upon the meanings of human existence as the ground of its intentions. The contract of love to architecture, most powerfully emerges, Pérez-Gómez argues, in the “bittersweet space of experience to reconcile ethics and poetics.”⁸⁵⁰ In this space, architecture resists the Cartesian dematerialization of the human body and turns to find meaning in embodiment, where the multiple facets of human existences are confronted and grounded by it. Instead of reading the body by way of mathematical and geometrical matrices to help yield the most comfortable, efficient, and utilitarian of spaces, Pérez-Gómez suggests that architecture should seek to “engage the primary geometry of the human bodily orientation as the base line of a significant melody aimed at revealing the enigma of depth”⁸⁵¹ and the mysteries of the rich and evocative experiences of the human condition. To augment this reading, Pérez-Gómez in many

⁸⁴⁶ Ibid.

⁸⁴⁷ Pérez-Gómez 1996, 311.

⁸⁴⁸ *Précis* v.1, 85; see also Pérez-Gómez, 1996, 299.

⁸⁴⁹ Pérez-Gómez 1996, 324–325.

⁸⁵⁰ Pérez-Gómez 2006, 213.

⁸⁵¹ Ibid., 211.

of his works has turned to the philosophies of Edmund Husserl, Martin Heidegger, Hans Georg Gadamer, and Maurice Merleau Ponty to articulate how hermeneutics and phenomenology offers alternative means to the rationally and aesthetically driven architectural models to re-think the role of the human body in relation to architecture.⁸⁵²

The human body, until the advent of Modernity served as a fertile diagram to contemplate immanent and transcendental dimensions of human experiences—“the enigma of depth”. Negotiating this body, by way of mathematics, geometry, poetry, and spiritual narratives helped yield remarkable ideas for architecture in both the Western and Islamic traditions. We find this evident for example in the medieval cathedrals filled with divine light and the imagination of the body as a metaphysical fortress with al-Ghazālī. Obviously with the loss of a closed traditional system it is almost impossible to return the role of the body to its pre-modern symbolic definitions for the use of architecture now. But by returning to and revisiting the role of the body in relation to architecture, beyond economic and utilitarian modes, can, as Pérez-Gómez has shown, offer to the practice of architecture ways in which to meaningfully engage the body and in the imagining and conceiving of built spaces.

⁸⁵² See for example Pérez-Gómez in Pérez-Gómez and Parcell (eds.) 1994, 2–32; Pérez-Gómez 1986, 26–29; Pérez-Gómez and Pelletier (eds.) 1994, 3–14. See also Otero-Pailos 2010.

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