Anatomical Architecture:

Building is Body

By

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Abstract

This thesis begins with a proposition that the human body is absent from contemporary architecture. This has impoverished our buildings and our cities. Unparalleled in its design and function, the human body has served as a microcosm for the architecture of antiquity (*body in building*) and as an analogy for the architect of the Renaissance (*body in building*). What role can the body play today?

The disappearance of the body in architecture is difficult to pinpoint in terms of chronology. Rather than attempting to construct a linear history of this phenomenon, in this study I revisit a period of radical transition in both the understanding of architecture and of the body. Specifically, this thesis looks to the early career of Vesalius, the master anatomist of 16th century Padua, and the impact of his work on the understanding of the human body and the subsequent development of the anatomy theatre.

Using Vesalius and the case of the anatomy theatre as a model, I propose a synthesis of the body/microcosm and body/analogy paradigms to propose a hybrid system of proportion. The project of architecture considers an automobile service centre and dealership in order to engage the body in a tragic dance with its *archon* — the automobile.

In concluding, I argue that it is possible to address the absence of the human body in contemporary architecture by asserting that the body *is* building.

*I do not want to give my opinion, you yourselves should feel with your own hands, and
trust them.*

—Andrea Vesalius

To Dr. Fai for the guidance

To my family for occasional phone calls

To “one and only” Hanna Koh for love and support

And to my Father.

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Introduction

Visionary architectural thinking can be achieved from hybrid collaboration with other disciplines. It can be controversial, yet we often find methods of hybridity in architecture thesis. The mutual collaboration of body and architecture is no exception. This thesis believes in the architectural design investigation which suggests an implicit phenomenal agenda, and a design procedure based upon the notion of *building is body*.

Before discussing the relationship between *body* to *architecture*, we should touch upon the reciprocal relation between two words. Body is defined as “the main, central, or principle mass (of living or dead)¹,” and architecture as “the art or science of building specifically; the art or practice of designing and building structures and especially habitable ones.²” Although the complexities of the two words reach well beyond their most fundamental definitions, these definitions provide the necessary context. Comprehensively, the definition of architecture describes it as an art, science, practice, and process. It is clear that architecture cannot be described in a single disciplinary measure, and these measures centre around one “main, central, or principle part” of architecture; *building*. It is naive to say ‘building is architecture’, but it is decisively

Figure I.1
Macrocosmos. From the
Cosmographia of Peter
Apian, 1584)

¹ Oxford Dictionary Online, 2010

² Oxford Dictionary Online, 2010

foolish to discuss *architecture* without *building*. By grafting the definition of *body* to the definition of *architecture*, we arrive at architecture is *building* as a “principle mass”

There is a difference between the notion of body *in* building and the notion of body *and* building. Body *in* building traditionally refers to a phenomenological condition, in which the body perceives and reacts to its stimuli and surroundings (Figure I.1). In contrast, the notion of body *and* building heavily relies upon analogical manifestation, which deals with metaphor, analogy, and proportion of the human body and building themselves. (Figure I.2)

The notion of *body in building* can be understood through the concept of *body and microcosm*; a concept that can be traced back to the epistemological texts of both Plato and Aristotle in which the physical body is a place for the soul, “related to the animated structure of reality as a whole.”³ In his dialogue, *Timaeus*, Plato explains:

The revolutions which are two and are bound within a sphere, shaping body in imitation of the spherical form of the all, which body we now call head, it being the most divine part and reigning over all the parts within us. To it the gods delivered over the whole of the body, which they had

Figure I.2
Francesco di Giorgio,
detail from marginal
drawings, late fifteenth
century.

³ Dalibor Vesely, *The Architectonics of Embodiment*, 31

*assembled to be its servant, having formed the notion that it should partake in all the motions which were to be.*⁴

The notion of microcosm can be understood as a relationship between the human body and the universe, a relationship in which the human body becomes a manifestation of the soul. As Chalcidius suggest, the concept of body and microcosm is simply “man as the abbreviation of the world.”⁵

Building is situated in between the body and the universe. Dalibor Vesely argues that “in the Aristotelian tradition, the body is always seen as engaged with

Figure I.3
Cesare Cesariano, the Persian Portico. From his translation and commentary on the *De Architectura* of Vitruvius, *Liber Primus*, VIII, Como, 1521)

its place and ultimately with the hierarchy of places (topology) within a unified cosmic framework.”⁸ Aristotle argues that the body is ‘included in’ its embracing environment. The notion of an ‘embracing environment’ refers to the building as a *body in building* (figure I.3). As such, this can be interpreted as a condition in which the soul resides in the body, and the body resides in the building . This “continuation of natural structure” suggests a body possessing a soul is alive, and in turn is reflected in the

notion of *body in building*. The building is alive when it possesses a body; “the

⁴ Plato, *Timaeus*, 44E

⁵ Chalcidius, in Mullach 1881, vol. 2, CC. cf. CCXXX

⁸ Dalibor Vesely, *The Architectonics of Embodiment*, 32

soul does not have to be in each part of the body, but she resides in a kind of central governing place of the body and the remaining parts live by the continuity of natural structure, and play the parts nature would have them play.”¹⁰

In order to achieve harmony, the notion of *body and building* is balanced within metaphorical meanings and proportioned configurations (Figure I.4). The mystic of the human body and its analogy between architecture has been studied and stymied throughout the history of architecture, beginning with Vitruvius, who

Figure I.4
The Tuscan entablature of Palladio and the
Tuscan entablature of Vignola. J.-F. Blondel
(1771-1777)

compares the human body directly to the body of a building in a subsequent analogy.¹¹ Vitruvius “makes a sequence of claims for this analogy that transcend the need to explain the meaning of proportion, symmetry, and harmony in architecture.”¹³ *Body and building*

suggests an embedded rule of analogies, founded on proportional geometry. The following statement from Dalibor Vesely explains the notion of *body and building* and its metaphorical articulation of analogy.

The metaphorical nature of analogy, represented numerically as a form of proportion (similar to the nature of syntax or grammar in

¹⁰ Aristotle, *De Motu Animalium*, 703A

¹¹ Vitruvius, *The ten books on Architecture*, book III, chapter 1

¹³ Dalibor Vesely, *The Architectonics of Embodiment*, 38

language), suggests that underlying proportion (and other summary notions such as universal beauty, order, and harmony) there is always present a deeper level of articulation, coextensive with the articulation of the world as a whole."¹⁴

Following the work of Vitruvius, architectural treatises from the Renaissance carry a similar notion of *body and building* in which the building reflects the image of the human body (Figure I.5). Additionally, the golden ratio and other proportional relationships are used to translate the harmony of the universe. *Body and building* is ontological, which contrasts to *body in building* being more phenomenological. These two notions are prominent *and* alternative theories in architectural practise and alternative solutions in visionary architectural thinking.

Figure I.5
Face on cornice. Francesco di Giorgio,
Turin, Cod. Saluzz)

¹⁴ Dalibor Vesely, *The Architectonics of Embodiment*, 38

This thesis is based upon a single hypothesis: *Building is body*. This does not exclude the two previous notions (*body in building* and *body and building*); it builds upon the two notions to reveal the most essential characteristics of phenomenology when *body* and *building* collide in architectural boundaries, which are primary tradition of microcosmos with *body in building*, and the system of proportion applied onto architecture, as a derivation from *body*. It is to respect the tradition in contemporary architecture, where *body in/and building* is absent. Yes, recent memorable buildings are the ones that broke the tradition; their aim is to create jaw-dropping forms with groundbreaking technologies and materials, and they have succeeded in grabbing attention and setting their own trends. They are iconic and glamorous, yet, unnatural due to the ambiguity of missing *body*. Following quote from Marco Frascari shows his concern on this matter:

*Happily and gruesomely clicking on the mouse at their workstations, these designers seek cockatrices, and produce behemoths and Leviathans such as Bilbao Museum or the addition to the Cincinnati School of Architecture... These buildings are miserable figures without proper body images.*¹⁵

Building is body; they both need to be well fed, nurtured, and cared for. In some cases, a body requires deeper analysis upon dissection; for example, extremely, or unusually small people appear unnatural due to their disproportioned body. Likewise, people suffering gigantism shares a similar fate.

¹⁵ Marco Frascari, *A Tradition of Architectural Figures: A Search for Vita Beata*, 259

In order for *building* to be *body*, it needs to proceed through a careful process of dissection. In order for a building to be well-proportioned, with program and space centered around the *body*, Dalibor Vesely suggests:

...the nature and use of a module by which the nature of proportion is probably most clearly revealed. In conventional interpretations, the module is seen as a vehicle for a clearer and more efficient execution of a building, or simply as a unit of commensurability. If, however, we take into account the importance of the concept of identity and the good or the unity of being in the understanding of harmony, then the module is something quite different.¹⁶

This thesis is to act “something quite different”, from something quite familiar: we will approach this matter by beginning with the origin itself, the *body*, in anatomical way. Anatomists’ deepest concern is the human body, and we can adapt their methodology onto architecture in terms of their primal traditions, pedagogical style, theories and practices.

¹⁶ Dalibor Vesely, *The Architectonics of Embodiment*, 43

1. Anatomical Body

In January 1540, an event took place in Bologna, marking one of the most critical moments in the history of anatomy.¹ Andreas Vesalius, a newly appointed professor at the University of Padua, was invited to Bologna by the students to perform a dissection. While Vesalius was only 25 years old, his skill as surgeon was widely recognized, as Andrew Cunningham points out. This event consisted of:

1. A series of lectures, based on the ancient teachings of Galen and Mundinus, given on this occasion by the Professor of Theoretical Medicine.
2. A series of demonstrations conducted on a collection of human and animal bodies (figure 1.1).²

The lectures were given by Professor Matthaeus Curtius. During his lecture, he was teaching the seminal text of Galen, while providing up-to-date surgical techniques. However, Vesalius was the much more knowledgeable from his extensive hands-on practice. Thus, the 65-year-old Curtius faced the most

Figure 1.1
Medieval dissection scene from an edition of Mondino's *Anathomia* (1495). The dissection is performed outdoors by a surgeon while the physician sits on a tall chair or *cathedra*.

¹ Andrew Cunningham, *The Anatomical Renaissance*, 103

² Andrew Cunningham, *The Anatomical Renaissance*, 103

outrageous public humiliation from the 25-year-old Vesalius. Curtius had already given five lectures on Galen's view of the *peritoneum* (the membrane enclosing the organs of the lower venter), and Vesalius was supposed to demonstrate the specific dissection corresponding to Curtius' lectures. However, in an anatomical theatre of about 150-200 people, Vesalius began to conduct his own lecture, despite Curtius' requests to stop. In contradiction with the teachings of Galen and Mundinus, Vesalius suggests that the membrane has "their origin from the collarbone and not from the shield of the mouth of the stomach."³

Curtius interrupts again: But this is not the opinion of Galen!

Vesalius answers: No, Dominus, he said, and even if Galen says

that, yet we shall demonstrate here that in fact it is so. But, he said,

we do not now want to fight with many words. Then the [student]

Rector said, rather uncouthly: Dominus Doctor Andreas, do not be

afraid of telling your opinion on these matters, do not fear such

Fathers [as Galen].⁴

Vesalius was a demonstrator, who was not asked to give an opinion during the demonstration; it was up for the Professor (in this case, Curtius) to lecture on such matters. Even at this early stage in his career, Vesalius was not afraid to question authority and the precedents set before him.

³ Andrew Cunningham, *The Anatomical Renaissance*, 104

⁴ Andrew Cunningham, *The Anatomical Renaissance*, 104

1.1 The ancients of anatomy

In considering Vesalius' critique of the Galenic *corpus*, it is necessary to understand the influence of classical medicine and philosophy on the European medicine of the sixteenth century.

Plato's concern with the human body is first as the place for the immortal soul of man. For Plato, as Cunningham points out, the human body is “deliberately shaped and arranged to fulfill the aims of the gods.”⁵ Plato divides man's body into three natural regions, each corresponding to different types of the soul. The immortal soul, which is a true man, is lodged in the highest region of human body, the head. The mortal soul is divided into two distinct parts, with the higher and considerably greater soul located between the neck and the diaphragm; the lower part of the mortal soul, considered to be ‘a wild animal-like’ soul, is housed in the lower thorax, below the diaphragm. As the container for the soul and a reflection of the unchanging and pure Form of the gods, dissection or vivisection of the body is a violation.

Aristotle, by contrast, claims that the perfect, eternal and stable can be seen within the imperfect and transitory things of this world.⁶ To Aristotle, man is just another animal, and not considered to be the centre of all things. He borrows

⁵ Andrew Cunningham, *The Anatomical Renaissance*, 32

⁶ Andrew Cunningham, *The Anatomical Renaissance*, 32

the concept of the *soul* from Plato and applies it to all living things. Aristotle suggests that being alive and possessing a soul is synonymous.⁷

In the second century C.E., and in many ways following Aristotle, Galen created a fully articulated and coordinated system of knowledge of the human body through a detailed practice of animal dissection (primarily apes). Because of a prohibition against human dissection in Rome, it is doubtful that Galen had the opportunity to dissect a human body.⁸ Galen addresses human anatomy in a set of two books: *On Anatomical Procedures* and *On the Use of Parts*. *On Anatomical Procedures* suggests that one should first learn about the *bones* before anything, since they act as *walls* do in buildings. It is evident to see Galen making an architectural reference to his own writings, for his own father was an architect by profession.⁹

Following Plato's concept of the functional divisions of the human body, (although much less philosophical) Galen's major concern is that of anatomizing the human body. Galen's three divisions of the body reflect Plato's three divisions of a container for the soul. Galen divides the body into the skeleton, the muscles, and the vessels and argues that the organs are so well constructed and serve their functions perfectly, that there the human body could not be formed otherwise.¹⁰

⁷ Andrew Cunningham, *The Anatomical Renaissance*, 32

⁸ Andrew Cunningham, *The Anatomical Renaissance*, 27-28

⁹ Andrew Cunningham, *The Anatomical Renaissance*, 27

¹⁰ Andrew Cunningham, *The Anatomical Renaissance*, 29

1.2 Vesalius, the reformer of the human anatomy

Andreas Vesalius (1514-1564) was educated in the Galenic tradition, but questioned the dogmatic reading of Galen's texts. Through a systematized study

Figure 1.2
Portrait of Vesalius, aged twenty-eight,
from the *Fabrica*, 1543

by human dissection, Vesalius revitalized Galen's contribution to medicine by emphasizing observation and the study of nature over the orthodoxy represented in the texts.

Vesalius was born into a family of medicine. His father was the apothecary to the Holy Roman Emperor, his grandfather was a physician to the Emperor Maximilian, and his great-grandfather was a physician in the city of Brussels.¹¹ He first studied at

Louvain, and later moved to Paris, where he was subjected to a very full and complete Galenic training.¹² The materials he studied followed the fundamental tenets of ancient anatomy.¹³

Leaving Paris, Vesalius attended the leading university for the study of medicine at Padua. At the end of 1537, at the age of 23, he was appointed

¹¹ Andrew Cunningham, *The Anatomical Renaissance*, 89

¹² Andrew Cunningham, *The Anatomical Renaissance*, 89

¹³ Andrew Cunningham, *The Anatomical Renaissance*, 89

professor of surgery and anatomy.¹⁴ However, his basic responsibilities were as a demonstrator. Vesalius had a passion for dissecting, and by the time he demonstrated his first dissection of a human body in University of Padua (Dec.6th – 24th, 1537), he was considered the most skilled, elegant and thorough dissector since Galen himself.¹⁵

As mentioned at the beginning of this chapter, Vesalius was challenging Curtius in every aspect, from issues of manner and respect towards demonstrator from authority to the specific techniques on the floor of the anatomical theatre. Vesalius voluntarily invited Curtius to one of his own anatomy session in an effort to show the professor the validity of his arguments:

.... Curtius: I am no anatomista, but there can well be still other veins nourishing the ribs and the muscles besides these.

Where, I ask? Vesalius said, Show them to me.

Curtius Said: Do you want to deny the ducts of Nature (meatus naturae)?

Oh! Vesalius said, you want to talk about the invisible and the occult – but I am talking about the visible (de manifestis).

Curtius answered: Indeed I always deal with the most evident (de apertissimes). Domine, you do not understand Hippocrates and Galen well on these matters.

¹⁴ Andrew Cunningham, *The Anatomical Renaissance*, 90

¹⁵ Andrew Cunningham, *The Anatomical Renaissance*, 90

Vesalius replied: It is quite true, because I am not such an old man as you are.

...Domine Doctor, I beg Your Excellency not to think me so unskilled that I do not know and understand these matters.

Smiling, Curtius said: Domine I did not say so, for I have always said that you are excellent, but I have rejected your false exposition of Hippocrates implying that Galen should have erred in these matters.

Vesalius replied: I acknowledge that I have said that Galen has erred in these matters, and this is evident here in these subjects, as also many more mistakes of his.¹⁶

From this conversation, it is apparent that Curtius is blinded by the illustrations that

accompanied the Galenic texts. The conversation underscores the argument between ‘what is visible’ (*manifestis*) to the eyes and ‘what is most evident’ (*apertissimes*) to reason as taught by authority.¹⁷

Figure 1.3
Sketch of the liver and the vena cava, as the source and distribution of the veins, by Vitus Tritonicus, copied from Vesalius's own sketch in his first Padua demonstrations, 6-24 December 1537.

¹⁶ from Andrew Cunningham, *The Anatomical Renaissance*, 111

¹⁷ Andrew Cunningham, *The Anatomical Renaissance*, 111

To prove his opinion, Vesalius developed a number of coherent and unique figures. Firstly, Vesalius knew how to think visually. In his surgical lectures and anatomical demonstration, he always sketched the process and the parts of body he examined.¹⁸ (Figure 1.3) They are mere sketches, intended to be a teaching material, but “no one would deny that drawings specially conduce to confirming the memory of things seen.”¹⁹ Secondly, he never forgot to bring at least one visual aid (often a part of body) to his lecture.²⁰ (Figure 1.4) This unique habit not only helped him publish the *Fabrica*, but this evidence of the body proved his opinion whenever it came up against the ancient texts. His most unrivalled skill was dissecting, and he used every aspect of it to build up his evidence. Since the arguments of dispute can only be resolved by ‘evidence’, he kept careful records and sketches of his dissections. As a result, Vesalius had an accurate collection at his disposal. While openly critical of the practice of Galenic anatomy in the 16th century, Vesalius respected Galen's emphasis on observation as it was outlined in *On Anatomical Procedure*. In a conversation with one of his students, Vesalius is reported to have said, “I do not want to give my opinion, you yourselves should feel with your own hands, and trust them.”²¹

Figure 1.4
Remains of the skeleton
articulated by Vesalius in Basel
in 1543.

¹⁸ Andrew Cunningham, *The Anatomical Renaissance*, 91-92

¹⁹ Andrew Cunningham, *The Anatomical Renaissance*, 92

²⁰ Andrew Cunningham, *The Anatomical Renaissance*, 91-93

²¹ Andrew Cunningham, *The Anatomical Renaissance*, 115

Vesalius did not abandon the ancients of anatomy. Rather, he returned to the very premise that guided Hippocratic medicine.

1.3 *De Humani Corporis Fabrica*

PLATE 32
Figure 1.5
From Vesalius *Fabrica*

De Fabrica, completed in 1543, when Vesalius was only 28, marks a fundamental change in the field of anatomy. Vesalius reveals himself as a humanist and naturalist, portraying the "living" anatomy of the human body. His figures of muscles or bones in *de Fabrica* are not placed in the diagrammatic positions as they are shown in current anatomy textbooks, where the parts and bodies are often shown in orthographic position. Vesalius presents the figures as part of the living body, situated within a

background as if they are still alive (Figure 1.5). Although the bodies he dissected were corpses of criminals, Vesalius implies that the bodies need a moral treatment as another human being, not as a specimen.²² Vesalius believed that the human body is a work of God.²³ He did not pursue the perfection of man's form as Galen did; however, Vesalius tries to reveal a work of God by approaching criminals' bodies, worn-out corpses and bodies wasted by disease. To Vesalius, reaching out to the poor corpses was the part of his great design scheme as the anatomist.²⁴

²² Charles Singer, *A Short History of Anatomy & Physiology from the Greeks to Harvey*, 115-117

²³ Charles Singer, *A Short History of Anatomy & Physiology from the Greeks to Harvey*, 115-117

²⁴ Charles Singer, *A Short History of Anatomy & Physiology from the Greeks to Harvey*, 115-117

B A S I L E A E .

Figure 1.6
Frontispiece of *Fabrica*.

The frontispiece of Vesalius' *Fabrica* depicts his theological and practical understanding on the practice of anatomy. Surrounded by enthusiastic crowds, situated in a theatre-like place, we find the body of a female being dissected at the centre stage. Above, there is an articulated skeleton available for the demonstrator to use it as a teaching material. Along the side, there is a monkey and two Venetian dogs, waiting to be either dissected or vivisected.

Looking closer, we can find more deeply coded messages. On the stage, it is Vesalius himself performing the dissection; he is engaged in a personal *anatomical procedure* founded by his predecessor, Galen. The second message is found in the students circling around, eagerly waiting and participating in the demonstration. This implies the change in ritual; young students being heavily involved while comparably older people being situated at the back of the theatre. Instead of being *lectured on*, students are being *shown* how to dissect.

In the foreground, we can notice three figures, which stand due to their size and the distinct dress (figure 1.7). They are covered in long robes and

Figure 1.7
Ancients of the anatomy.

wearing sandals, and are in stark contrast to the attire of most others. The one on the right, looking down at the dogs,

suggests Aristotle and on the left of the stage, wearing a physician's belt with patients' prescription, stands Galen himself. These figures present Vesalius' message, suggesting that he is a "Modern Ancient."²⁵

Lastly, Vesalius is pointing at the dissected body with his right hand, and pointing above while looking directly at the observer (Figure 1.8). His gesture creates a connection between the body, and God, and to himself and to the readers.

Figure 1.8
Vesalius in frontispiece of *Fabrica*

²⁵ Andrew Cunningham, *The Anatomical Renaissance*, 127

2. Anatomy Theatre

In the Italian city of Padua, where Vesalius actively practiced anatomy for most of his life, there became an interesting connection between Vesalius and another professor named Fabricius. Fabricius, who was also a professor of medicine and anatomy at the University of Padua, came after Vesalius and led the demonstration in Padua anatomical theatre (1613). However, his approach to the anatomy was quite different.

It was based on Aristotle's methodology, where the anatomy was in search for a universal principle, whereas Galenic pedagogy was centered around demonstrations.¹ Fabricius' pedagogical style dealt more extensively with the philosophical implications of anatomy, instead of instruction on structural anatomy and the technical art of dissection.² He allocated more time to the universal principles that could be argued from the particular parts of the body rather than to the structural description of particular parts and processes.³ This caused repeated complains from medical students as his demonstrations did not provide the technical education that many students sought. Medical students praised the professors who gave interactive lessons on structural anatomy, the techniques of dissection, and surgical maneuvers (such as Vesalius) and protested those who did not.⁴ These protests suggest the medical students of Padua were

¹ Cynthia Klestinec, *Journal of the History of Medicine and Allied Science*, Vol. 59, No. 3, 375

² Cynthia Klestinec, *Journal of the History of Medicine and Allied Science*, Vol. 59, No. 3, 375

³ Cynthia Klestinec, *Journal of the History of Medicine and Allied Science*, Vol. 59, No. 3, 389

⁴ Cynthia Klestinec, *Journal of the History of Medicine and Allied Science*, Vol. 59, No. 3, 378

considerably more interested in hands-on demonstration, which follows Galen and Vesalius' methodology, due to the fact that they could "respond by asking questions, mimicking his hands-on approach, and occasionally disrupting the event."⁵ Even though Fabricius built the second permanent Padua anatomy theatre out of his own expense, his demonstration in the theatre was not what everyone intended to be.

⁵ Cynthia Klestinec, *Journal of the History of Medicine and Allied Science*, Vol. 59, No. 3, 384

2.1 Temporary anatomy theatre

Figure 2.1
John of Ketham, *Fasciculus Medicinae* (Venice:
Gregorio de Gregoriis, 1493).

Pre-Vesalian anatomical demonstrations were held in a lecture halls; the *lector* would read or recite historical texts from the ancients of anatomy such as Galen's, while the *demonstrator* frequently translating the texts from Latin into the vernacular, indicated to the *sector* the parts of the body that are to be dissected and displayed⁶ (Figure 2.1). Due to the rise of the demonstration's popularity, along with viewing complications and interruptions

from students, anatomical demonstration needed to be housed elsewhere.

The concept of anatomical theatre was first introduced by Alexander Benedictus (1450-1512), a professor of practical medicine at Padua. The following are the requirements of the permanent theatre as proposed by Benedictus in his *Anatomy, or five books on the history of the human body* (1502):

⁶ Andrea Carlino, *Books of the Body*, 11

For this a very cold winter is required, so that the cadavers do not immediately putrefy. Moreover, in a spacious ventilated place a temporary theatre is to be set up with seats around a hollow, like may seen at Rome or Verona, of such a size that the number of spectators may be accommodated, and so that the surgeons (who are the dissectors) should not be inconvenienced by the crowd. These dissectors should be skillful: each of them should have dissected quite often before.

The order of seating is to be allocated according to the rank of the spectators. For this purpose there ought to be one Praefectus who takes care of and arranges everything. Custodes are to be appointed who should prevent the importunate plebs coming in. Two trustworthy Questors are selected, who should provide the necessities out of the money collected. In this respect there is need of: razors, knives, hooks, drills, trepans, sponges with which the blood may be soaked up in the dissection, paring knives and bowls. Moreover torches ought to be got ready for the night. The cadaver is to be placed in the middle of the theatre, on an altar-like stage, in a light place, convenient for the dissectors. A suitable duration of meeting is decided on, such that the task may be completely finished before the material putrifies.⁷

Padua's first anatomical theatre met the detailed criteria proposed by Benedictus; however, we need to further examine Benedictus' view on the term 'theatre'.

⁷ Andrew Cunningham, *The Anatomical Renaissance*, 72

In his 35th chapter of five books, Benedictus indicates the purpose of “theatrical anatomizing” as he “urges everyone, both beginners and veteran physicians and surgeons to attend a frequent ‘theatre’ of this kind ...since in it we see the true, we contemplate the revealed.”⁸ Here, he stresses the point that by looking at the *true nature*, we can connect our knowledge arrived from texts with its true form. “But those people,” Benedictus continues, “who having trusted only in written accounts without an inspection of ‘things,’ are not turning over the impressed ‘things themselves’ in their minds; they are frequently deceived and consign opinion rather than truth to their minds.”⁹ Benedictus’ anatomy theatre is not only the physical place of anatomical demonstration, but also the *body* itself; by attending frequently, one can truly achieve the *body* of knowledge. It is the phenomenological mental connection between the texts and the image that become part of Vesalius’ pedagogical agenda.¹⁰

Benedictus’ notion of ‘theatrical anatomizing’ can be interpreted on architectural practice through the implications of site analysis and contextual inspection. With an enormous leap in visual technologies and vast digital information

Figure 2.2
Google Earth image.

⁸ Andrew Cunningham, *The Anatomical Renaissance*, 72

⁹ Andrew Cunningham, *The Anatomical Renaissance*, 72

¹⁰ Andrew Cunningham, *The Anatomical Renaissance*, 72-73

acquired by a multitude of procedures, one can simply 'view' a specific site, anytime, by simply typing a location in a search field (Figure 2.2). It represents an important asset in which one can observe a specific site in number of different perspectives in short matter of time. However, and as Benedictus argues, an asset should stay as an asset. It is a beneficial feature, but focal point should still remain on actual site visiting, where body can be at the presence of the site and acquire 'things themselves.'

2.2 First permanent anatomy theatre of Padua

It is important to touch upon Vesalius' pedagogical style once again before proceeding further into the anatomical theatre. During his stay at the University, Vesalius insisted on dissecting and pointing at the parts of the body while explaining verbally how that specific operates in relation to the other parts. Demonstrating the techniques of dissection and the structural and functional aspects of anatomy in a virtually exhaustive format, Vesalius spoke *to* his students.¹¹ This particular pedagogical style in structural anatomy was followed by his successors until Fabricius' suggested a new approach.

Fabricius, a *lecturer* in Surgery and Professor of anatomy at Padua, presented himself upon Aristotle's view on human body and placed it within a natural philosophical framework. His major concern during the anatomical demonstration was not addressing the "technical skills of dissection or the dissection of the whole body but on the philosophical principles that the anatomical parts reflected."¹² One might say that participation in Vesalius' class would be a *manual exercise* and Fabricius' class would be a *conceptual exercise*. Fabricius' effort in shifting anatomical trends from Galenic to Aristotelian resulted in a string of complaints from protesting student against the public anatomical demonstration. In disgust with his new techniques, Fabricius' students

¹¹ Cynthia Klestinec, *Journal of the History of Medicine and Allied Science*, Vol. 59, No. 3, 384

¹² Cynthia Klestinec, *Journal of the History of Medicine and Allied Science*, Vol. 59, No. 3, 378

claimed Fabricius *failed* to deliver a proper, coherent, comprehensive understanding of anatomical structure.

The first permanent anatomy theatre in Padua was described as a *theatrum publicum et perpetuum*, translated as a place for seeing that was public and permanent.¹³ It followed a number of suggestions from Benedictus earlier description, including such things as a wooden structure with scaffolding for seating. Built in 1582, students celebrated the theatre as “our new theatre of magnificent Venice,” suggesting that the theatre and even the University were under a financial support from nearby Venice.

The anatomical demonstrations which were held in the Padua anatomical theatre had two ‘impediments’: financial problem and interruptions. The organization of the annual demonstration was a complicated procedure which required a handsome amount of money. Interruption refers to the students’ engagement during demonstration. Records show that Renaissance anatomists suffered under students’ constant *interruption*.¹⁴ Differentiated from *participation*, students could easily interrupt the demonstration since the stage was meant to be surrounded by medical students, so they can ‘feel with [their] own hands’. The Following suggests that even Vesalius suffered through the intimate setting of the anatomical theatre; “...Vesalius rushed to the end of his dissection of the head,

¹³ Cynthia Klestinec, *Journal of the History of Medicine and Allied Science*, Vol. 59, No. 3, 389

¹⁴ Cynthia Klestinec, *Journal of the History of Medicine and Allied Science*, Vol. 59, No. 3, 391

because he was very confused, upset and bewildered owing to some noise and disorder that the students then made.”¹⁵

As previously stated, students had their own issues on Fabricius' lecture, and moreover, against public demonstrations. Due to the fact that the first permanent anatomy theatre provided a formal arrangement and hierarchical display in seating order, the degree of interaction between medical professors and the anatomists remained high, while students' interaction decreased. Students found their own way by attending private demonstrations, which were organized and paid by students in temporary theatre.¹⁶ They wanted to *participate* in demonstration, not wanting to sit and listen to professors' debate. Private demonstration provided a chance for them to participate in every way Galen and Vesalius wanted them to. Fabricius' lack of concern for his students resulted in the regression of anatomical theatre.¹⁷

¹⁵ Cynthia Klestinec, *Journal of the History of Medicine and Allied Science*, Vol. 59, No. 3, 391

¹⁶ Cynthia Klestinec, *Journal of the History of Medicine and Allied Science*, Vol. 59, No. 3, 394

¹⁷ Cynthia Klestinec, *Journal of the History of Medicine and Allied Science*, Vol. 59, No. 3, 397

2.3 Second permanent anatomy theatre

The students began to praise the private demonstrations, as it produced a much more useful instruction compare to Fabricius and his public demonstration; consequently, the shift occurred from the first anatomy theatre to the second. The second permanent anatomy theatre was completed by 1595, again with financial backing of Fabricius. It was designed and built in a way as to enhance the architectural features of the previous one (figure 2.3). Following Benedictus' original proposal, it was built of wood and was oval in shape as to imitate Greek amphitheatre. The stairs encircled the shell structure and served the ellipsis with means of access. There were eight windows, which existed in the previous

Figure 2.3
Padua anatomy theatre

structure of Palazzo del Bo.¹⁸ The first theatre only reached one floor and was often too crowded, so the second theatre occupied two floors. However the increase in size left diminishing sight. Again, by moving further back due to the hierarchical order of seating, the students lost their direct participation in the demonstration. It became a place for Fabricius to lecture on his own interest while spectators simply listened. By focusing on Fabricius alone, his reputation increased as a leading anatomist among the university, which helped the process of formalization. With an expanding reputation, Fabricius requested that entrance into the theatre be free of charge. Hence, the theatre became available not only to professors and students, but also to the public, as anyone who was interested in anatomical demonstration was free to observe the demonstration.

Through a number of architectural and administrative changes, the second theatre established a new style of anatomical demonstration. Its new construction contained two chambers: an arena where the cadavers were displayed and lectured in front of public and students, and an inner chamber where the cadavers were dissected and organized beforehand. The separation of the two chambers resulted in an arena that would have a privilege of display of a cadaver which has been dissected before hand in an inner chamber. Whereas the first anatomy theatre served as a place of demonstration through the dissection process and students' participation, the second anatomical theatre differentiated itself by isolating an inner chamber and elaborating on the philosophical measures of anatomy.

¹⁸ Cynthia Klestinec, *Journal of the History of Medicine and Allied Science*, Vol. 59, No. 3, 400

A significant change in anatomical demonstration was achieved by the modification of architectural elements. After the changes had been made, demonstrations started to focus on “the final causes and universal principles that could be extrapolated from anatomical particularities.”¹⁹ They began with abbreviated process of dissection, and the hands-on technical lessons were nowhere to be found; additionally, the omission of the grotesque served as an additional part of theatre’s formalization. The demonstration would begin with music, and the interior of the theatre was covered with decorative and iconic figures to fulfill the aesthetic feature of the formal demonstration.²⁰ Surprisingly, medical students no longer complained, for Fabricius’ demonstration had established the new pedagogical style. Fabricius achieved this shift in pedagogy not by correcting his perceived flaws, but by modifying the building to suit his prescribed demonstration.

Although the students stopped protesting the shift in practice, they continued attending private demonstration. It is as if they perceived the private demonstration as a lab or tutorial class and public demonstration as a lecture. The private and public demonstrations began to co-exist, similar to the cohabitation of Vesalius’ dissections and Galen’s texts, a process that allowed the students to obtain the *whole body* of knowledge. In field of architecture, the division of practice and theory would be an appropriate analogy to this discussion. They do not collide or head in opposite directions, but are directed to a similar place in parallel relationships.

¹⁹ Cynthia Klestinec, *Journal of the History of Medicine and Allied Science*, Vol. 59, No. 3, 409

²⁰ Cynthia Klestinec, *Journal of the History of Medicine and Allied Science*, Vol. 59, No. 3, 403-404

2.4 The anatomy theatre of Bologna and Cosmology

In Bologna, 1638, “work began on the erection of the sumptuous and lordly anatomy theatre... one of the most renowned constructions in Italy, the constant amazement of foreigners, and the glory of the city wherein it was built.”²¹ The function remained the same as Padua’s anatomical theatre, however, its magnificently decorative features and eminent attendance differentiated itself. The lectures were attended by the most renowned members of the city, “representing lay power, papal power and spiritual church.”²² Attendees were not only to be engaged in the lessons of anatomy, but they shared the experience with the renowned members of society, taking the public anatomy lesson to another level. With each prominent social member presence, along with the educated citizens huddled around the dissected *body*, who came from the lower social order, developed the *building* status from the artificially-created anatomical theatre to the naturally-created mediocosmos, which is the created world, according to Joseph Rykwert in *The Dancing Column*. It is here that we discover a link between the macrocosmos (universe) and microcosmos (*body*) occurs.²³

²¹ Giovanna Ferrari, *Public Anatomy Lessons and the Carnival: The Anatomy Theatre of Bologna*, 50

²² Giovanna Ferrari, *Public Anatomy Lessons and the Carnival: The Anatomy Theatre of Bologna*, 51

²³ Joseph Rykwert, *The Dancing Column*, 84-85

The notion of *body in building*, which was mentioned previously in the Introduction, takes place in the anatomical theatre of Bologna, where the number of architectural features complete the phenomenon defined by the term ‘mediocosmology.’ Construction of the new permanent anatomy theatre in Bologna was aiming for “a larger and more prestigious theatre” than its rival universities’ anatomy theatre, such as university of Padua.²⁴ The committee was under the impression that the new theatre would contain not only a mere scientific and educational purpose, but also “the splendour, the decoration and the honorific needs of the public schools and the whole city.”²⁵ Despite its expensive construction costs, the new anatomy theatre would provide honour to university

Figure 2.4
Bologna anatomy theatre vs. Padua anatomy theatre.

and the city; in addition, become a huge attraction to public and foreign scholars.

The anatomical theatre of Bologna was formally different from the theatre in Padua in that it does not revolve around the central figure (the dissecting table)

²⁴ Giovanna Ferrari, *Public Anatomy Lessons and the Carnival: The Anatomy Theatre of Bologna*, 75

²⁵ Giovanna Ferrari, *Public Anatomy Lessons and the Carnival: The Anatomy Theatre of Bologna*, 75

Mediocosmology of the Bologna anatomy theatre reaches its pinnacle with its iconic ceiling (figure 2.6). The room doubles its height and number of windows after construction. The ceiling is dressed with the “symbolic representations of fourteen constellations gravitating around the figure of Phoebus, the god of medicine.”²⁷ According to Joseph Rykwert, this feature refers to ‘Astral man’ and ‘Cosmic man’ “the implications of an astrological-microcosmic doctrine; a canonic understanding of human proportion. (Figure 2.7)”²⁸ The following quote by a Tuscan astronomer, Restoro d’Arezzo, looks to the Vitruvian studies on human proportion and how the *body* is placed in scientific attention and cosmologic nature:

Figure 2.6
Interior photos of Bologna anatomy theatre, photographed by Nevil Wood.

²⁷ Giovanna Ferrari, *Public Anatomy Lessons and the Carnival: The Anatomy Theatre of Bologna*, 80

²⁸ Joseph Rykwert, *The Dancing Column*, 76

in an amphitheatre-like setting. The dissecting table is placed in a large spacious room with comfortable seats for spectators to sit and engage in the lesson (figure 2.4). According to G. Richter, each theatre, the Padua anatomy theatre and the Bologna anatomy theatre, serves their own unique purpose. Padua's anatomical theatre is built in a way to maximize and deliver its functional aspect, whereas Bologna one is to be "spectacular".²⁶

Figure 2.5
Longitudinal section of the anatomy theatre of Bologna:
Bologna State Archives.

According to
Giovanna Ferrari, the
author of *Public Anatomy
Lessons and the Carnival:
The Anatomy Theatre of
Bologna*, the term
"spectacular" suggests that
the new design of the
Bologna theatre was
extremely symbolic and
iconic. Along the theatre

walls would have special "niches", which would store the wooden statues of the fathers of Bolognese medicine and anatomy; their intrinsic purpose is that they not only represent the history of medicine and anatomy of the particularly honourable university, but they would also watch over the attendances and especially circle the *body*, adding value to theatre's scope of mediocosmology (Figure 2.5).

²⁶ G. Richter, *Das Anatomische Theater* (Berlin, 1936), pp.55 ff.

And the body of the world, with its powers, which it has from the highest God, should all be proportioned according to reason, one part with the other, and one member with another... and the wise artists to whom nature gave and granted the power to devise and to draw the things of the world, when they draw the figure of a man, divide the measurement in ten equal parts... and this

*happened by the nobility and the imagination of the intellectual soul, which was founded in man.*²⁹

It is an “intellectual soul,” not intellectual mind, which places scientific approach and microcosmic doctrine in the same notion. *Building* can be founded by “intellectual soul”, which can be “founded in man.”

Figure 2.7
Zodiacal man. Tres Riches Heures. Miniature. Chantilly

²⁹ Joseph Rykwert, *The Dancing Column*, 77

3. Precedents of *building is body*

There is a clear distinction between *dissection* and *vivisection* in regard to the anatomy of the body. Dissection is when you approach a non-living animal and proceed in an anatomical investigation; whereas, vivisection is subjected to a living body, in which the procedure of incision is on a restrained, living animal while observing the physical reactions that the subject makes.¹ The difference between the cuttings that open the living and the non-living is without debate. However, anatomists have justified both notions in their own terms. As for Aristotle, the living body must contain soul; otherwise, the body is considered non-living.

The concept of *Building is body* can share the very same notion. So far we have looked at anatomists from the classical period to the renaissance and examined their approach to *dissection* and *vivisection*. In interest in the pursuit of Vesalius, the following outlines his pedagogical style.

1. Reconsidering his the precedent of Galen, in order to become *modern*;
2. The importance of visual aids during demonstration and the humanist representation in *Fabrica*;
3. A profound dissection skill to reveal that which is hidden.

Although these have been previously stated, it is once again noted, as these three distinct trademarks of Vesalius' method can be metaphorically translated into architectural techniques, with the purpose of *building is body*:

¹ Oxford Dictionary Online, 2010

1. We can find ourselves looking at architecture in ‘the old way of seeing’ through a scope of *proportion*, the search for the universal beauty;
2. Through the works of our precedents, we can justify what lies in the *body’s* proportion, and impose it upon architectural practice;
3. By dissecting and vivisectioning the design project, we can rigorously approach this thesis in contemporary architecture.

Each of these precedents engages in the concept of *building is body* and justify the bond necessary in order to achieve visionary architectural thinking.

3.1 Proportion

*The order and regularity in objects, which we entitle nature, we ourselves introduce.*²

In 1994, Jonathan Hale writes a book entitled *The Old Way of Seeing*. Drawing from his significant experience of practicing architecture, he has concluded that *The Old Way of Seeing* refers to the old tradition of designing buildings in visual patterns of geometry and measure generated from natural form. Richard Padovan, the author of *Proportion*, (1999) also looks towards the tradition of visual patterns of geometry and measure while investigating the deep foundation of mathematical rules of proportion in art. “If the universe and

² Richard Padovan, *Proportion*, 10

everything it contains,” Richard Padovan reiterates, “including our own bodies, are governed by mathematical harmony, what could be more reasonable than to apply a parallel – though not necessary identical – harmony to the things that we add to that universe?”³

Proportion, or “how one shape relates to another, is at the centre of the old way of seeing.”⁴ R. Wittkower, summarizes that the old tradition – one of the classical way – of using rules of proportion is now forgotten: “We are in a particularly bad position as regards proportion... We cannot find a position of belief as individuals because a broader foundation is lacking...”⁵ It contrasts from the anatomical lessons of the Renaissance in a way that the traditional text was blindly praised by the majority of anatomists. Instead, a once trusted belief of proportion and the play of patterns derived from nature and ourselves is now lost in the practise of architecture. According to Marco Frascari, there is too much architecture “posing” instead of being true to itself. They are “miserable figures without proper body images.”⁶

In as much as Vesalius’ innovative pedagogical style discovered a *modern* approach from classical teaching Galenic anatomy, architectural proportions can be re-defined in contemporary architecture. A common defence used to justify proportional systems in architecture (although plagued with ambiguity) is that “these systems bring about a pleasing visual harmony, or that through modular coordination they enable building components to fit together neatly and without

³ Richard Padovan, *Proportion*, 6

⁴ Jonathan Hale, *The Old Way of Seeing*, 3

⁵ Richard Padovan, *Proportion*, 6

⁶ Marco Frascari, *A Tradition of Architectural Figures: A Search for Vita Beata*, 259

waste.”⁷ “It need no longer be derived from the order of nature, but imposed upon it,” Padovan argues.⁸ When one encounters the beauty of nature, often the case is that not only by mere sight, but of psychological phenomena embodied by nature. These particular phenomena can be originated from the mind of artists, and re-delivered in the state of architecture, through the rigorous practice of proportion – the rules derived from the beauty of nature.

3.2 *Vitruvian Man to Modulor Man*

A number of earlier texts written on the embedded knowledge of classical Greek architecture before Vitruvius’ *De Architectura* are all lost.⁹ Thus, Vitruvius provides us with the ancient architectural treatise, as Galen did to the Renaissance anatomists.

In Book III of his *De Architectura*, Vitruvius stresses the importance of proportion in architectural design:

Proportion is a correspondence among the measures of the members of an entire work, and of the whole to a certain part selected as standard. From this result the principles of symmetry. Without symmetry and proportion there can be no principles in the design of any temples; that is, if there is no precise relation

⁷ Richard Padovan, *Proportion*, 10-11

⁸ Richard Padovan, *Proportion*, 10

⁹ Richard Padovan, *Proportion*, 156

*between its members, as in the case of those of a well shaped man.*¹⁰

It is this ‘well shaped man’ that he starts to describe in detail, known as *Vitruvian Man*, in which the parts of the body relate to the beauty of the whole. “[Since] nature has designed the human body so that its members are duly proportioned to the frame as a whole,” the ideal building should carry the very same notion of proportion in order to have a “proper arrangement.”¹¹ As the fundamental idea of the measurement – such as inch and foot - has been derived from the members of the body, Vitruvius believed that the body was an appropriate choice to be selected as the ‘standard’ for whole to create a rhythmic and harmonic progression in architectural practice.¹²

Body, as a chosen standard by Vitruvius, has been interpreted and re-interpreted by numerous artists and architects in Renaissance period; among the few, Leonardo da Vinci seems to interpret the *Vitruvian Man* (1487) correctly in his well-known drawing (figure 3.1). In his text entitled

Figure 3.1 Leonardo da Vinci's *Vitruvian man*

¹⁰ Vitruvius, *The Ten Books on Architecture*, 77

¹¹ Vitruvius, *The Ten Books on Architecture*, 72-75

¹² Richard Padovan, *Proportion*, 164

Proportion (1999), Richard Padovan suggests Vitruvian representations by Francesco di Giorgio, Fra Giocondo, and Cesariano (figure 3.2) are “rather less compelling” due to the fact that they “all fall into trap of either inscribing the circle in the square, so that its diameter equals the side of the square, or circumscribing it, so that they are related in the ratio of $\sqrt{2}:1$.”¹³ Even so, the

Figure 3.2

Renaissance artists and architects alike showed a great deal of interest in human body.

*The Renaissance focus on humanity and on the human being's central place in the world manifested itself in a new consciousness of the human body as something both potentially beautiful and immensely interesting, at once worthy of celebration and of painstaking anatomical dissection. In architecture, this is manifested in an identification of the human body with the body of the building itself, by means of the proportions between the parts and, above all, of centralized planning and a geometry that unites the circle with square... body as the generator of the circle and the square.*¹⁴

¹³ Richard Padovan, *Proportion*, 168

¹⁴ Richard Padovan, *Proportion*, 212-213

Here, the *body* is described as the “generator” of the circle and square, which inhabits the *body*. Likewise, the *building* is generated by the circles and squares, thus creating a relation of microcosm around the *body*.

The most successful descendant of Da Vinci’s *Vitruvian Man* is Le Corbusier’s *Modulor man* (1945, figure 3.3). “The length of the foot is one sixth of the height of the body,” Vitruvius says about his ‘well shaped man.’ Le Corbusier’s *Modulor man* is six feet tall, 183 cm in metric system, with his navel at the centre of the system. Also, if you would draw a circle centred at the navel, it would touch the sole of the foot and the tip of the hand, relevant to Vitruvius and his ideal body in circle and square. It is Le Corbusier’s intuitive desire on the subject of proportion in architectural practice which, consequently, configured much of his later work.

Figure 3.3 Modulor Man

3.3 The Golden Section

Le Corbusier had a great deal of interest in proportion and measures. He was fascinated by the discovery of logarithmic spirals based on the golden section and ratio (1:1.618), as well as the Fibonacci series in organic movements (figure 3.4). He was one of a group of people who tried to prove and provide convincing evidence of the aesthetic supremacy of the golden section.¹⁵

Figure 3.4

Among various investigations upon the golden section, the most common was that “the repetition, in the ratio between the two parts of a line, of that between the whole line and its larger part provided an ideal balance of unity and variety that

Figure 3.5

was unconsciously perceived and gave aesthetic pleasure.”¹⁶ The golden rectangle (figure 3.5), contains a reciprocal rectangle in addition to a square, which is to be believed as a perceivable beauty by

scientists and artists.¹⁷ This goes back to the notion that proportional system in architectural space is not only perceived by one’s sight, but also occurs as a

¹⁵ Richard Padovan, *Proportion*, 321

¹⁶ Richard Padovan, *Proportion*, 310

¹⁷ Richard Padovan, *Proportion*, 310

psychological phenomenon perceived unconsciously.¹⁸ Therefore, aesthetic beauty of the golden section does not solely rely upon its “intrinsic mathematical properties”; rather, our mind perceives the phenomenon as a naturally proportioned harmony.

3.4 Le Corbusier and the Golden Section

Le Corbusier is arguably one of the leaders of modern architecture, a similar position to Vesalius with respect to modernizing anatomy. However, Vesalius adapted the traditions of Galen’s teaching to become *modern*, whereas Le Corbusier is the one who regarded the old tradition of a system of proportion in his pedagogy. The following quote suggests his passion in proportion system:

*All this work on proportioning and measures is the outcome of a passion, disinterested and detached, an exercise, a game, a preoccupation and an occupation, a need and a duty, a ceaseless facing up to life, a seeking after proof, a right to march forward, a duty to be straight and loyal, dealing in honest-to-goodness, clean merchandise.*¹⁹

In his earlier paintings and buildings, Le Corbusier emphasized ‘regulating lines’ as a foundation of their composition. Richard Padovan defines ‘regulating

¹⁸ Richard Padovan, *Proportion*, 286

¹⁹ Le Corbusier, *The Modulor*, 80

lines' as "the diagonals of significant rectangular parts of facades, which, by their parallelism or perpendicular intersections, revealed the recurrence of one or a few shapes throughout the whole composition... The composition was thus determined by geometry of similar rectangles, the preferred figure being that which has its sides in the golden section ratio."²⁰ Mostly they are hidden, but they may be shown as gables, stairways, etc. (Figure 3.6). Here they are revealed as analysing routes, "traces of the designer's ordering thoughts."²¹

Figure 3.6 Wright, Frank Lloyd. Play of the regulating lines on the windows of the Robie House in Chicago, 1906.

It does not mean that the presence of regulating lines create a universal beauty of nature within the context of the building; rather, its rudimentary pattern generates

²⁰ Richard Padovan, *Proportion*, 317-318

²¹ Jonathan Hale, *The Old Way of Seeing*, 45

a well-organized, harmonious composition received through our sight and transferred to our mind.²²

Figure 3.7, *Villas La Roche-Jeanneret*, 1923-25

The practice of ‘regulating lines’ in the work of Le Corbusier can be found in his *Villas La Roche-Jeanneret* (Figure 3.7) and *Villa Stein de Monzie* (Figure 3.8). Both embody ‘the place of the right angle’ according to Le Corbusier: “Both the paintings and the architectural designs make use of the golden section, the ‘place of the right angle.’”²³ Regulating line surfaces more definitely on the two main facades of *Villa Stein de Monzie* due to the request from the clients,

Figure 3.8 *Villa Stein de Monzie*, 1926-28

²² Richard Padovan, *Proportion*, 320-321

²³ Richard Padovan, *Proportion*, 320

who had spent summer in the Italian Renaissance villa; they asked for “the modern equivalent of this classical dwelling.”²⁴

In *Villa Stein de Monzie*'s plan, Le Corbusier uses the Palladian *a-b-a-b-a* rhythm, which can be compared to Andrea Palladio's *Villa Foscari* (1559), an example of the Italian Renaissance

Figure 3.9 villa in which the clients asked for a similar rhythmic layout (Figure 3.9). Both follow an *a-b-a-b-a* rhythm, only it is translated into the proportion 2:1:2:1:2 as a composition layout for their plan. However, their comparable proportional relationship is in the essence of Palladio's design which Le Corbusier intends to capture in his *modern villa*. The difference rests in the fact that Palladio gives an emphasis on the villa's central area, whereas in Le Corbusier's villa, according to Colin Rowe, “the central focus has been consistently broken up; concentration at one point is disintegrated and replaced by a peripheral dispersion of incident. The dismembered fragments of the central focus become, in fact, a sort of serial installation of interest round the extremities of the plan.”²⁵

²⁴ Kenneth Frampton, *Le Corbusier*, 3.33

²⁵ Kenneth Frampton, *Le Corbusier*, 3.33

Figure 3.10

Le Corbusier overrides the traces of the Palladian paradigm by applying “golden section proportion in the form of regulating lines superimposed on its front and back facades.”²⁶ The following diagrams illustrated by Richard Padovan show a proportional analysis of the *Villa Stein de Monzie* and how Le Corbusier achieved it from the method of constructing a golden rectangle (Figure 3.10).

Throughout the design, *Villa Stein de Monzie* demonstrates consistent rhythm and repetition of proportional systems. The angle of the external stairway exemplifies how one standard can be applied onto the finest detail, through rigorous practice of the golden section and regulating lines. This demonstrates Le Corbusier’s intuitive desire in suggesting a spatial environment, which deals with rhythm and bodily proportional measures. A technique he develops in a system he calls the *Modulor*.

²⁶ Richard Padovan, *Proportion*, 320-321

3.5 The Modulor

Man becomes an abstraction when he shuts his eyes and becomes absorbed in all the possibilities. If he builds, he does so with his eyes open; he looks with his eyes... Architecture is judged by eyes that see, by the head that turns, and the legs that walk.²⁷

Derived from a method of composing based on golden section and

regulating lines, Le Corbusier developed an adapted, yet flexible and innovative system called the *Modulor*. This was defined by “a scale of dimensions fixed by the height of a six-foot man and constituting two interwoven progressions (Figure 3.11).”²⁸ His approach was to create a measurable

Figure 3.11

and scaled method that would be natural and organic through the use of the golden section and conclusively fitting around human proportion.²⁹ Secondly, Le Corbusier wished to overcome the discrepancies between the metric and imperial systems of measure. The metric system was developed around the naturally perfect number ten; Plato has argued that “this number was perfect because ten is

²⁷ Le Corbusier, *The Modulor*, 72-73

²⁸ Richard Padovan, *Proportion*, 321

²⁹ Richard Padovan, *Proportion*, 321

composed of the individual units.”³⁰ However, whereas the foot-and-inch system has its origin in human dimension, the metric system has not. Vitruvius suggests that “it was from the members of the body that they derived the fundamental idea of the measures which are obviously necessary in all works, as the finger, palm, foot, and cubit.”³¹ Vice versa, the foot-and-inch system lacks the strength of the metric system. The following quote expresses Le Corbusier’s frustration toward the existing measuring systems in a conversation with Mr. Kaiser, the famous constructor of Liberty ships during the World War II:

*There is a pernicious obstacle: the existence in the world of two principal, and virtually irreconcilable, systems of measurement, the metre and the foot-and-inch. The Anglo-Saxon society uses the foot-and-inch, which knows nothing of the decimal system and which necessitates calculations of appalling difficulty when dealing with the subtleties of industrial manufacture... I am seriously angry with the metre (forty-millionth part of the meridian of the earth) for having desubstantialized itself as it has done, and for having placed itself so perfectly, so dangerously, so unhappily outside the human scale. The metre and the foot-and-inch are rivals.*³²

Le Corbusier reaches the point where the natural harmony - the human proportion within the context of golden section - meets an efficient method of measuring and scaling. His intuition towards the human body as the key to

³⁰ Vitruvius, *The Ten Books on Architecture*, 73

³¹ Vitruvius, *The Ten Books on Architecture*, 73

³² Le Corbusier, *The Modulor*, 115

architectural proportion, and integration with the classic method of constructing building in the golden section and regulating lines, meets the standard of the visionary architectural thinking, a process that can only be achieved through the hybrid collaboration with other disciplines. Richard Padovan suggests Le Corbusier's the discovery of the *Modulor* was founded on "intuition, not a deduction" and was "led to, not by scientific or mathematical knowledge, but by an overriding faith in the harmony of nature and art."³³

The appeal of the *Modulor* originates from its connection to the human body. The sole purpose of the modular is to develop the space that is in tune with the human body. It is a "measuring tool based on the human body."³⁴ It determines measure based on the human body's occupation of space and its related postures, which ultimately gives "rise to a series of golden sections, called the Fibonacci series."³⁵ The following diagram shows the shifting intervals and characteristic of the *Modulor* measuring to the human body (Figure 3.12).

Figure 3.12

³³ Richard Padovan, *Proportion*, 325

³⁴ Le Corbusier, *The Modulor*, 55

³⁵ Le Corbusier, *The Modulor*, 55

Furthermore, the *Modulor* simplifies the number of measurements applied in designing a building. As described above, it has its own intervals, which divides certain measurements around the human body in context of the golden section creating a limit in the number of measurements to be used in designing a

space. For example, the *Modulor* has been applied in the process of designing the *Unité d'habitation* of Marseilles as “a

working tool, a precision instrument.” *Unité d'habitation* of Marseilles - a building which comprises 337 apartments of twenty-three different types - contained only *fifteen* measurements (figure 3.13).³⁶ “Fifteen,” Le Corbusier said, “let us glorify this prowess of the numbers.”³⁷

Just as “those subtle variations from mechanical accuracy” are embedded in nature,³⁸ the downside of the *Modulor* is inevitable as its general idea has the assumption of one particular proportional system being in tune of all ages and among all individuals. Le Corbusier chose six feet man as a base for the *Modulor man*, because:

³⁶ Le Corbusier, *The Modulor*, 140

³⁷ Le Corbusier, *The Modulor*, 140

³⁸ Richard Padovan, *Proportion*, 324

- a. it is the measurement of ‘well shaped man’ from Vitruvius’ treaties,
and
- b. it is to adapt the height of the “tallest man.”

Following quote reveals Le Corbusier’s ambition through the *Modulor*:

...the objects manufactured on a world-wide scale with the aid of the ‘Modulor’ are to travel all over the globe, becoming the property of users of all races and all heights. Therefore it is right, and indeed imperative, to adapt the height of the tallest man (six feet), so that the manufactured articles should be capable of being employed by him. This involves the largest architectural dimensions; but it is better that a measure should be too large than too small, so that the article made on the basis of that measure should be suitable for use by all.³⁹

It could be argued that such a limited approach is a touch naïve when it comes to a site-specific, user-friendly, economical design process. “It is not only the proportions of the mature individual that are significant, but those attained at each

Figure 3.14

stage of growth,” Padovan argues.⁴⁰ Following diagram from P.B. Medawar, *Essays on Growth and Form*, shows how the human body radically shifts

its shape proportionally (figure 3.14). It is proposed as “a single rigid series of

³⁹ Le Corbusier, *The Modulor*, 63

⁴⁰ Richard Padovan, *Proportion*, 330

proportions as a universal formula,”⁴¹ instead of addressing the issues in nature, which is in constant negotiation with various proportional harmonies and scales.

“An architect lives and works in the world of relations, proportions, and measures. The success-or failure of our work depends on the control we have over this world.”⁴² This quote from Alvar Aalto enlightens the followers of the *body* and its expressive elements while questioning the notion of control. It is deceitful choice to suggest that the *body* is a mere tool of measure. Its proportion provides an appealing method of study, yet, we have to keep in mind that the *body* is also a spiritual one. Figure 3.15 depicts an image of Leonardo da Vinci’s *Vitruvian Man* beside a *Cosmic man: Man and his Creator* (figure 3.15). Both share an image of a man standing as a central figure, but both men are placed in the center of a circle.

Each circle represents something quite different to each other (the formal with the principles of harmonic proportion and the latter with the eternal and universal principles), yet they share a common image, which is the *body*.

Figure 3.15

This particular thesis aims to engage the two images in an overlapping harmony.

⁴¹ Richard Padovan, *Proportion*, 330

⁴² Juani Pallasmaa, *Man, Measure, and Proportion*, 232

4. Application of *building is body*

It can be argued, contemporary architecture represents a trend in which building is without *body*. “These patched-together atrocities are lifeless forms bringing together fragmentary body parts in a kind of anatomical Lego game.”¹ Frascari suggests that the architecture construed through the *body* ensures that “the imaginal force of human bodies is impressed, received, and vividly transmitted into the built environment.”²

Figure 4.1

Part of the difficulty in attempting to apply body in building, or ‘building is body’ in the current architectural environment is a condition in which machine has replaced the *body*. A machine has replaced humans, both literally and figuratively, judging by the area of asphalt pavement compare to a pedestrian walk. We are building a city for machines, instead of human beings. Contemporary programs are consciously and subconsciously dedicated to machine. In order to bring the human body back

¹ Marco Frascari, *A Tradition of Architectural Figures: A Search for Vita Beata*, 259

² Marco Frascari, *A Tradition of Architectural Figures: A Search for Vita Beata*, 261

⁴ Cynthia Klestinec, *Journal of the History of Medicine and Allied Science*, Vol. 59, No. 3, 406

to architecture, the notion of *building is body* needs to arouse the contemporary slumber. Canto begin, one can look no further than the analogy between the anatomy theatre and the automobile body shop (figure 4.1).

When we approach the context of an automobile body shop, there is a unique cosmology between the *body*, automobile and building. The *body* abides in the automobile and the automobile is within the body shop. In terms of cosmology, the program of the body shop accounts for a new layer of mediocosmology – a body nested within a whole. As previously mentioned, when medical students and academics were attending demonstrations at an anatomical theatre; there resides a psychological connection between a living human body and a cadaver being dissected. In fact, the anatomical theatre questions the meaning of not only a human body in the context of anatomy, but also questions the meaning of ones own body. By observing another human body being dissected, exposing the multiple layers, a living body not only learns about itself in an intellectual level (as Benedictus described), but also reflects upon oneself. It is as if you are looking at a mirror, and find yourself being vivisected and studied while simultaneously watching a moral vivisection looking into the layers of ones soul. It is *you* that you are both observing and in pursuit of. The first approach to achieve *building is body* in contemporary architecture looks to achieve this philosophical and phenomenal aspect of anatomical theatre. Using an auto body shop as a cadaver, the following looks to adapt the path of Vesalius' in which he turns towards being modern by emulating the tradition.

4.1 Automobile body shop/Gas station

Every so often, we can find a gas station facilitated with automobile body shop. Such a program assists customers with their automotive needs at relative convenience. The reason for choosing this particular program is to bring the *body* into the *building* that has an immediate lack of body image.

A major concern, or perhaps a major misinterpretation developed in early stages of this project was that to assume the *building* was conceiving automobile as *body*. Such a severe misunderstanding led the design of the project to study proportions of automobiles (Figure 4.2).

Figure 4.2

Commonly, the majority of franchise gas stations have their own architectural language: signs, materiality, canopy structure, etc. As a case study, a

Figure 4.3a
Site Photo Study

gas station in Montréal, Québec designed by Mies van der Rohe was studied (Figure 4.3). Mies' gas station is located on the large boulevard that encircles the urban area. Generally, this typology is built to attract attention. However, Mies' gas station is modest in its presence. A single story building is situated in a basin, and a service area is adjacent to a sloping grass apron. A canopy is supported by twelve steel structure columns painted flat black. The underside features the various functions for fuelling and maintenance. A glass-kiosk and six feeding stations are organized in square-grid, divided by the steel columns. Mies differentiates the program by the play of opacity in which the gas station's main

Figure 4.3b
Detail Site Photo Study

service
area greets
customers
with the
transparent
glazing,
whereas
the
translucent
one on the

opposite side provides the necessary privacy for the workers in body shop.

Although the building is a house for machines, Mies has designed a place for *bodies*. While maintaining the tone of a *Miesian* building, *the subtle* shifts in transparency and planametric design reveals a common thread with the primary

and secondary anatomical divisions found in the Anatomy theatre of Padua. The transparent enclosure for customers and translucent enclosure with opaque glazing combined with a brick wall used to hide the 'preparation' of automobiles assumes a similar role as second permanent anatomy theatre of Padua.

The programmatic identity of the anatomical theatre in Padua distinguishes itself from other buildings by having two chambers: an *Arena*, for exhibition, process of dissection, and exaggerated representation and an *Inner chamber*, for preparation and display of dissected cadavers.⁴ This could be interpreted as the anatomy theatre revealing what needs to be shown, and conceals what needs to be hidden. It is not only a discussion of what is visible and what is not. Although most of our vital organs are hidden behind the skin of the body, it does not mean that they do not exist, or are less important than what is visible. By sacrificing the visibility of the *inner Chamber*, the *Arena* is given the opportunity to be

appreciated to the fullest. In this sense, one could consider at the position of the *inner chamber* as an

Figure 4.4

amplifying force to the *arena*.

Figure 4.5a
Images of 3D modelling of the Barber Surgeons'
Anatomy Theatre

Although the architectural drawings of Padua anatomy theatre were not available, plans, elevation, and cross section of Inigo Jones's design for the Barber Surgeons' Anatomy Theatre (1636 Figure 4.4) in London provide some insight into the architecture of a similar anatomical theatre.

Figure 4.5 depicts a re-

interpretation of the Barber Surgeons' Anatomy Theatre with the concept of the *arena* and the *inner chamber* derived from Padua anatomy theatre (Figure 4.5).

The images provided demonstrates a parallel programmatic arrangement in which

Figure 4.5b

the circulation of the theatre provides the required separate. The inner chamber allows the demonstrator and medical students to

prepare the cadaver, while the *arena* is fully exposed to rows of seating provided for the audience.

In so much as the anatomical theatre has two distinct chambers, the service centre also contains two distinct chambers: a service centre and an express

Figure 4.6

way. The express way is defined as the area in which the vehicle drives through, and the required service takes place while the driver remains in his/her vehicle (Figure 4.6). Since the service centre is where the “demonstration of the cadaver” is taking place, it is comparable to the *arena*. On the other hand, the basement of the express way can be treated as the *inner chamber* of the anatomy theatre in which the driver is not privy to the details of

the inspection. This direct and simple analogy triggers the play of transparency. The objectives of each distinct program determine its level of transparency. A strategy seemingly used by Mies’ gas station in Montreal. By optimizing the transparency in the *arena*, the effect of concealing the content of the *inner chamber* further enhances the interplay of transparency

Returning to the traditions of proportional systems and geometric rhythms, the focus now turns to tying the *body* and the machine together in the context of contemporary *building*. Finnish architect Aulis Blomstedt states, “If one wishes

for something new, one has to seek that which is oldest.”⁵ (Figure 4.7) It can be suggested that the harmony of the world manifests in proportion, where as if any subject appears to be distorted or even disarray, it is mostly due to its proportionally instability. Vocabularies such as skew, distort, and alter, are all proportionally misshapen figures. It is possible that under a certain universal law, there are certain shape and measures selected as standard, and when something matches around those measures, it is in proportional harmony.

Figure 4.7

⁵ *Man, Measure, and Proportion*, 232

In grounding a design with such universal principles, the basic composition of both plan and section (and elevation) begin with a simple game of

Figure 4.8 two golden rectangles *a* and *b*

squares, golden rectangles, regulating lines, finding a harmony within their proportional relationships. Overall, a plan consisting of two golden rectangles

Figure 4.9 breakdown of the service centre into nine squares

(Figure 4.8), adjacent to each other; represent a simple sketch of the building's two programs: the service centre being *a*, and the gas

station being *b*. Figure 4.9 depicts the breakdown of the service centre into nine squares, six predominant ones forming the two chambers, the *arena* and the *inner chamber*, and three subsidiary ones containing supportive programs, such as

Figure 4.10
Collision of a, b, c

washrooms, offices, etc. Rectangle *c*, the grid of detailed-breakdown of the service centre, collides with *a*, leaving a margin around *c* as a circulation route for the *bodies*, which has been differentiated from the circulation of machines (Figure 4.10).

The building's section also consists of three squares, setting its overall

Figure 4.11
Squares, *d*

boundary in similar aspect of its height (Figure 4.11). Each represents the *body's*

of rectangle *c*). Finally, stage *g* refers to the macrocosmology of the *body*; under the canopy, out of his/her vehicle, the *body* contacts the universe (while filling up the gas).

Figure 4.13
Regulating line *h*

Figure 4.13 depicts the *building's* elevation through the use of regulating lines (Figure 4.13). These lines dictate the openness of the *building* through the interplay of transparency (stage *g*), one being controlled and manipulated by transparency/translucency of the *building's* enclosure (stage *f*), and one being secured and hidden inside the machine *and* the *building*. The regulating lines and

Figure 4.14
Collision of *d* and *h*

rectangle *h* not only create the 'revealing and concealing' effect, but also results another margin when they collide with rectangle *d* (figure 4.14); this margin

provides a space for the canopy, a key architectural element of gas station.

Canopy shelters all programs of the project, and its form is an opportunity to use a direct analogy of the *body* and the *building*. Following drawing shows how the certain posture of one's hand can become the key element of architecture (Figure 4.15).

Figure 4.15
Anatomical drawings of hand
and its transformation

Figure 4.16a Site analysis

The site for this project is on the north side (61) of Rue Laurier, Gatineau, Québec (Figure 4.16). Although it was once a gas station, it is now home to a MRI clinic. Like the Canadian Museum of Civilization on the south side of Rue Laurier, it was designed by Canadian architect Douglas Cardinal.

Figure 4.16b
Picture from north-west

Figure 4.17 Plan drawing of gas station and service centre.

Figure 4.18 Section drawing with hand metaphor of gas station and its canopy.

Figure 4.19 Pictures of gas station and service centre physical model.

4.2 SAAB dealership

The thesis' subsequent project looks to focus on the *body's* journey through the *building*, and the mediocosmic phenomenon that can be gained from the experience. The SAAB Automobile dealership surfaced as the program, considering it maintains the contextual format of a *building designed for a machine*, while maintaining the need to incorporate the *body*. The reason for selecting SAAB in particular is that ownership of the company has been transferred from GM to Spyker Cars, and SAAB's future as an independent company is looking for new and exciting identity, which can be delivered and expressed in the context of architectural practice.⁶

Figure 4.20 Picture of the site

The site of this project is 1125 St. Laurent Blvd, Ottawa, Ontario. (Figure 4.20) It is an area that presents a considerable amount of competitor dealerships, including Mercedes-Benz, Honda Motors, Subaru Motors, BMW, etc (indicated in blue, Figure 4.21). The site is bounded all three sides by roads and appears as a floating triangular island. Two major roads intersect with (St. Laurent Blvd. and

⁶<http://newsroom.saab.com/news/news/victormullerceospykercarsnvandjanakejonssonceosaabautomobiletalkonfilmaaboutthefutureofsaab.5.1cbb811125b37dfa407ffe3095.html>

Ogilvie Rd.) one comparably minor road (Cyrville Rd.), centring the attention is to the south-west corner of the island. North-east access, (Cyrville Rd), will be used as a service access for automobiles, whereas the access from St. Laurent Blvd. is more akin to be the main entrance for customers.

Figure 4.21 Site analysis *a.*

As with the previous project, similar *parti* can be made to the SAAB Automobile dealership in which proportional relationship of simple

Figure 4.22 Site analysis *b.*

Figure 4.23
parti

geometry and
harmonious
rhythm begins to
define it most
fundamental
proportions.
However, unlike
the previous
project, the
prescribed rhythm
is obtained

through a direct analogy to the human body in a similar manner as to the inscription of in traditional anatomical representation. The following diagram reveals the rhythmic composition of *a-a-b-a*, with an emphasis on *b*, in which the cross-section of the human body, of approximately through its abdominal part, all the way to the both ends, including both arms (Figure 4.23 *parti*). The width of the arms, in comparison to one another, are differentiated in their dimension, since the cross-section-cut-line has been altered to achieve contrasting volume between two spaces (Figure 4.24). Considering the previous project had the *body* image transferred as a key architectural element, the dealership focuses on the stance of the *body* and how the function of each part can be reflected on the

occupants of the *building*. The abdominal space of the body contains vital organs and the structure and skin to protect and conceal them. In dealership's abdominal space, the concept is that it still contains the vital program of the building; however, the enclosure of the space is transparent, revealing the vital program to its spectators. Journey is rhythmically interrupted by the individual show-room of newly introduced model, making theatrical experience more exciting. (Figure 4.25)

This is done in effort to maximize the journey through the *building*, and the mediocosmic phenomenon that can be gained from the very experience.

Figure 4.24
Where cross-section cut through

Figure 4.25
Conceptual sketch of longitudinal section of the building, with both human/automobile circulations in one route as a ceremonial ramp.

Figure 4.26
Conceptual Sketch of the building's arena, with individual show rooms.

Figure 4.27
Plan drawings
of SAAB
dealership,
from main
level to the
roof level,
connected by
the
ceremonial
ramp.

Figure 4.28a Ceremonial ramp study.

Figure 4.28b Ceremonial ramp study.

Figure 4.29 Section drawing of SAAB dealership, through the ceremonial ramp and the *arena*.

Figure 4.30 Site plan of SAAB dealership, with parking area and green area in grey and green.

Figure 4.31 Pictures of SAAB dealership physical model.

Final design investigation is to conclude what have been discussed so far: the notion of *building is body*, and how it adopts from: the notion of *body in building*, a study of cosmological phenomena when the *body* is placed in *building*, and the notion of *body and building*, a traditional way of using an analogy between the human body and the building, and the system of proportion which can be gained from.

Conclusion

The body, indeed, is where it all begins: as soon as one wonders what, where, or who one is, one looks to the body for the answers.¹

The vision of the *body* in *building* brought together architects, artists, scholars and even mathematicians in search of the potential beauty hidden in the harmony of the proportional geometries. Reciprocal relation of the two elements has directed and resulted in a unique, yet complementary way of architecture thinking.

We have learned from a brilliant Renaissance anatomist called Vesalius, that a path to become *modern* is to return to its origin, understand its fundamentals, and ultimately executing the *hands-on* practice while revelling in its celebrated theory. As Vesalius skilfully demonstrated the dissection and vivisection on the *body*, we shall act likewise onto the *body* of architecture; the *building*. The history of anatomy, particularly around the historically rich town of Padua, and its anatomical theatre, has clearly stated the importance of both *hands-on* technical demonstration and the theoretical lecture when it comes to persuading a deeper meaning of a particular discipline. Comparison between

¹ Ernst van Alphe 1993, p114

Vesalius and Fabricius created an implicit distinction, which has been practised from the ancient teachings of both Galen and Aristotle.

The notion of the *body in building* has been integral from the anatomical theatre of Bologna where it addressed the context of social status within the audience of public demonstration, and created a mediocosmic atmosphere with its key architectural features. It was here that anatomical theatre created a theatrical experience out of the ones who are watching the demonstration, by dissecting and vivisectioning the flesh before their eyes, leaving the audience with a mental connection from the *body* image to themselves.

The notion of *body is building* has been studied by a number of scholars, artists and architects, predominantly by using the system of proportion. Efforts to achieve the universal harmony in architectural design led people to derive proportion from the ideal body; such leading modernists, as Vitruvius and Le Corbusier, who have tried the visionary practice from collaborative disciplinary thinking, and critiques would agree that they only have partially succeeded.²

This particular thesis believes in the architectural design investigation which suggests an implicit phenomenal agenda. The journey through the proposed program's theatrical implication creates a sequential experience from microcosm, through mediocosm, and eventually to macrocosm. The project has been designed thoroughly upon the traditional way of using proportion system, and the use of

² Richard Padovan, *Proportion*, 331

body as a direct/indirect analogy in the design process. It is to return to its origin, value the contents of the tradition, and emulate the principles in contemporary architecture; the notion of *building is body* can be achieved.

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