

## THE INTERTEXTUAL ODYSSEY OF VITRUVIUS AND DE ARCHITECTURA THROUGH THE ROMAN, MEDIAEVAL, AND EARLY RENAISSANCE DOCUMENTS <sup>1</sup>

### VITRUVIUS VE MİMARLIK ÜZERİNE ON KİTAP'IN ROMA, ORTAÇAĞ VE ERKEN RÖNESANS BELGELERİ İÇİNDEKİ METİNLERARASI YOLCULUĞU

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**Öz: Amaç:** Bu çalışma Mimarlık Üzerine On Kitap ve yazarı Vitruvius'un Roma dönemi ile erken Rönesans arasındaki metinler arası yolculuğunu ele almaktadır. **Yöntem:** Farklı kurum ve kuruluşlar tarafından sayısallaştırılan ve erişime açılan el yazmaları ve çağdaş alanyazın karşılaştırmalı olarak incelenmiştir. **Bulgular:** Mimarlık Üzerine On Kitap, Roma ve Ortaçağ boyunca hem retorik hem de mimari amaçlarla başvuru bir kaynaktır. Bu dönemler boyunca üretilen ve kopyalanan el yazmaları metnin Rönesans'a kadar kesintisiz yolculuğunu olanaklı kılmıştır. **Sonuç:** Mimarlık kültürüne yaptığı paha biçilemez katkı bir yana, sağladığı tarihsel veri ve yazıldığı dilin dilbilimsel önemi nedeniyle Mimarlık Üzerine On Kitap batı dünyası için vazgeçilmez bir başvuru kaynağıdır. Metnin temas ettiği belgeler batı uygarlığının yapıtaşları olarak büyük önem taşımaktadır. Bu belgelerin aydınlatılması ve erişilebilir hale gelmesi ile Vitruvius ve Mimarlık Üzerine On Kitap üzerine yeni, karşılaştırmalı ve eleştirel çalışmalar yapmanın olanağı ve önemi artmıştır.

**Anahtar Kelimeler:** Vitruvius, Roma İmparatorluk Dönemi, Ortaçağ, Erken Rönesans

**Abstract: Objective:** The main objective of the study is to investigate the intertextual odyssey of de Architectura and its author Vitruvius between Roman Imperial period and early Renaissance. **Method:** A comparative literature survey was conducted in recently digitized and publicized Roman and Mediaeval manuscripts, contemporary researches, documents and books. **Results:** de Architectura and Vitruvius had been cited and quoted rhetorically and technically in numerous handwritten manuscripts until early Renaissance. Every copied manuscript including de Architectura and/or its citation granted its survival. **Conclusion:** Beside its importance for architecture as a discipline, de Architectura has always been a precious source for history and significant reference book for Latin Language studies. Documents crossed with de Architectura and Vitruvius had been the building blocks of western civilization. The recently publicized and accessible documents are considered as an important opportunity and academic motivation for further comparative surveys on de Architectura and Vitruvius.

**Key Words:** Vitruvius, Roman Imperial Period, Mediaeval Period, Early Renaissance

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## INTRODUCTION

It has been 2100 years since *Vitruvius*, a Roman citizen of the 1<sup>st</sup> century B.C., wrote **De Architectura**. His text, nonetheless, is maybe the most cited common reference for architectural culture, history, theories, and education. It is known as the first major and comprehensive work on architecture survived and maintained since antiquity. As the source for all the following architectural treatises until the 18<sup>th</sup> century, *De Architectura* had determined the language, content and the form of western architectural culture.

The uniqueness and continuum of the content of *De Architectura* cannot be explained with the lack of any other or known architectural treatise until **De re aedificatoria** by *Leon Battista Alberti* in the 15<sup>th</sup> century. Or, it cannot be framed within the barren quarrel about architectural orders, certain and invariable proportions and natural analogies assuring beauty, which was the rediscovery of Renaissance and encouraged by the power of printed image.<sup>1</sup> Vitruvian content survived all those centuries because it had always been considered, respected and quoted as a messenger

from the past, and representative of the ancient masters' authority.

The language, form, and content of *De Architectura* have always been considered to be multi-layered research areas for various disciplines. It is a significant body for philological studies of Latin (Morgan, 1906: 467-502; Granger, 1931: xxviii-xxix; Granger, 1934c: xli-xlvi). *Vitruvius* made a great contribution in completing and comprehending, mostly dispersed, intellectual works of antiquity (Granger, 1934b: ix-xxxix). *De Architectura* is an invaluable source for understanding the Greco-Roman contribution to the development of science and culture since he had either completed the missing sources or names or provided the possibility of crosschecking with other ancient documents.<sup>2</sup> Descriptions and explanations of various machines and instruments, especially catapults, ballistae, sundials, and water clocks, provide precious information about Roman culture and technology. The ancient conception of public hygiene, health, illness and medication presented in *De Architectura* is of great value and referred in

1 Sebastiano Serlio was almost at the center of this understanding. He transformed the structural and decorative elements into the vocabulary of a formal – visual language through which it was possible to develop diverse combinations of elements (Carpo, 2001: 49; Krufft, 1994: 73).

2 Pythagoras, Anaxagoras, Empedocles, Democritus who formulated the atomic theory of the universe, Aristarchus who was the first to present the heliocentric model, Plato, Eratosthenes who was the first to calculate the circumference of Earth and the tilt of the Earth's axis, and Berassus who had suggested a world history that is considered to be shockingly longer than the traditional religious narrations, are just few to mention.



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the history of medicine (Sigerist, 1987: 63-247; Pioreschi, 1996: 40-73).

### AIM, METHOD and SCOPE

The number of online accessible documents, journals, books, and particularly manuscripts related to Vitruvian content has been increasing drastically thanks to technological advancement and inter-institutional collaborations. Universities, libraries, and institutions of European Commission have been digitizing and sharing the manuscripts, copyright-free books, and other academic sources.<sup>3</sup> Therefore, it is of increasing importance conducting new studies on the Vitruvian legacy, its history and theory by means of a comparative inquiry through those multiplied resources.

In this respect, this study aims to present the intertextual odyssey of Vitruvian content up to the early Renaissance through a new, comparative, and critical perspective suggested by the recently publicized documents and evidences. The findings and discussions of this study would initiate further researches on the formation and development of architectural language and principles originated from

<sup>3</sup> British Library, Virtual Manuscript Library of Switzerland, The European Library, European Cultural Heritage Online, The Perseus Digital Library and MIT Classics are just few to be named. Project Gutenberg and Internet Archive are also significant as non-profit and copyright free digital libraries.

De Architectura in relation to changing paradigms.

The Ten Books was a part and later representative of architectural treatise tradition. In the introduction of the Book VII, Vitruvius underlines the importance of the transmission of thoughts and accumulation of knowledge in succeeding generations. He expresses his gratitude to the architects, artists, and authors of the preceding works as his sources. He relies on, draws, and converts the ideas and experiences from those ancient masters, whose works could not have survived, for the purposes of his own age.<sup>4</sup>

Vitruvius presents a description of architectural design process that was clearly based on the separation of physical labour from the intellectual activity.<sup>5</sup> This intellectual work

<sup>4</sup> Those ancient authorities and their works are known chiefly through Vitruvius (Tatarkiewicz, 2005: 171-173). They consisted primarily of descriptions of buildings. There were, nevertheless, systematic textbooks of architects written as instructions for perfect proportions. "On the Proportions of Sacred Buildings" by Philon, around 4th century BC, and the work of Doric proportions by his contemporary Silenus were among them. Rowland and Howe (Vitruvius, 1999: 266-267) give a detailed explanation of those authorities and their works in regards to Vitruvius and their own historical context.

<sup>5</sup> It was considered that renowned humanist and Renaissance theorist Leon Battista Alberti (1986: 1) had introduced separation of intellectual and manual work in terms of design and construction. Vitruvius' explicit separation, however, can be traced in Book VI.2,1 and especially VI.8,9. In Rowland and Howe's edition (1999: 24), the term "Arrangement" itself is translated as "Design":



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arises from the body of architectural knowledge that was the synthesis of technical and philosophical inquiries and achievements of antiquity. He put forward a holistic perspective covering and compiling scattered knowledge of architecture among philosophy, arithmetic, geometry, construction, agrimensura, and military engineering. According to Tarkentz (2005: 270), as a man of practice having liberal education and reliable authority, Vitruvius is the representative of the Hellenistic conception of art considering his encyclopaedic, informative, derivative, and selective work. In fact, Vitruvius was outstanding because of his flexibility, respectful and critical approach to the ancestors' traditions, and the grasp of the importance of the experiment and direct observation of the cumulative growth of science (Rowland I., 1999: 17-18). It is possible to state that Vitruvius had synthesized his sources, experience, and prescriptions skilfully by means of the techniques and potentials of rhetoric of his time.<sup>6</sup>

“These species are produced by analysis and invention. Analysis is devoted concern and vigilant attention to the pleasing execution of a design. Next, invention is the unraveling of obscure problems, arriving, through energetic flexibility, at a new set of principles.”

6 Vitruvius, just like his contemporaries such as Cicero, developed and structured his ideas according to the rules of rhetoric. Rowland, inspiringly, unfolds the context and the content of that structure. See the Introduction of Rowland (1999: 1) for her translation of Ten Books on Architecture. For an elaborated study on the subject see Meyers (2005: 71) who indicates that there is a close association between words and physical space in the Roman mind.

That synthesis was concretized through six fundamental principles -order, arrangement, symmetry, eurhythmy, aptness, and economy introduced in Book II.2. They do not only indicate the nature and qualities of design, but also lay down the foundations of the architectural design language.<sup>7</sup> The intertextual odyssey De Architectura was the journey of that conceptual framework and its language.

## PROBLEM DEFINITION

It is important to clarify the nature of De Architectura and its intricate forms of presence in various document formats during those fifteen centuries between Imperial Roman Period and early Renaissance. Because of the fact that each appearance of Vitruvian content or

7 “The Fundamental Principles of Architecture: Architecture depends on Order (in Greek ταξις), Arrangement (in Greek διαθεσις), Eurythmy, Symmetry, Propriety, and Economy (in Greek οικονομία).” (Vitruvius, 1914: 13)

“Of What Things Architecture Consists: Now architecture consists of Order, which in Greek is called taxis and of Arrangement, which the Greeks name diathesis, and of Proportion and Symmetry and Decor and Distribution which in Greek is called oeconomia.” (Vitruvius, 1931: 25)

Arrangement, the apt placement of the elements with respect to their quantitative and qualitative character, is of particular importance. It is developed by means of ground plan, elevation, and perspective, all of which, according to Vitruvius, arise from imagination and invention, which imply the concept of “design” in a contemporary sense:

“Imagination rests upon the attention directed with minute and observant fervour to the charming effect proposed. Invention, however, is the solution of obscure problems; the treatment of a new undertaking disclosed by an active intelligence.” (Vitruvius, 1931: 27)



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Vitruvius himself in those documents reflects a different aspect of cosmology depicted by De Architectura and the containing document itself. Both the Vitruvian content and the forms of that content within the documents cannot be abstracted from that cosmology.

The manuscript copying tradition of the monasteries secured the continuity of De Architectura. The partial or full handwritten copies were available in various places of Europe before the appearance of the first printed copy in 1486 (Krinsky, 1967: 38). It is claimed and widely accepted that a manuscript containing the entire text, British Museum Harley 2767, written in the era of Carolingian Dynasty of the c. 9<sup>th</sup> century, is the oldest copy and the source of many others (Krinsky, 1967: 41; Granger, 1931: vii).<sup>8</sup> For long it was a general

opinion that Vitruvius was almost unknown before the discovery of De Architectura in the library of St. Gall Monastery in 1416. Poggio Bracciolini, an early humanist appointed by the papacy for collecting manuscripts, and papal secretary Cencio da Rustici were credited for this discovery (Krinsky, 1967: 36; Scaglia, 1979: 17; Clarke, 2002: 320).<sup>9</sup> The translations of many other manuscripts and letters have showed that De Architectura had been copied and circulated among different monasteries, royal courts, and personal collections for centuries.<sup>10</sup> It passed from one generation to another almost without a rupture by means of copied manuscripts, letters, summa and encyclopaedia tradition of the mediaeval times.<sup>11</sup>

8 As a centre of cultural and historical attraction, De Architectura has initiated a mass literature of commentaries, translations, and editions. Despite the variety of compilations, translations, and editions, the highly respected and cited English versions belong to Morris Hicky Morgan, Frank Granger, and Ingrid D. Rowland. Morgan's Latin source is Valentine Rose which was "a consensus of manuscript reading" (Howard A. A., Preface, 1914: iii). Granger version is based upon the Harleian 2767. Rowland's work is a contemporary edition and follows the various manuscripts beside the Fra Giocondo's compilation dated to 1511 and Rose's edition (Rowland, 1999: xiii). Vitruvius himself does not explain the reason behind the idea of structuring his writings in ten volumes. McEwen (2003: 40-44) says that the number "ten" had been an important part of Pythagorean cult and might have played a role in fixing the length of the work. Each book had been dedicated to different subject matter, which had been explained in the prefaces of each volume. The division of the work into the chapters is due to Fra Giocondo, whereas the

paragraph numbers are due to Schneider (Pollionis V. M., 1807; Granger, 1931, p. xxv). The subsequent versions and translations continued to have titles, with different interpretations. It was, again, Fra Giocondo who added illustrations, glossary of terms, and a table of mathematical symbols used in the text (Ciaponni, 1984: 74).

9 Clarke (2002: 320) names Bartolomeo Aragazzi, the Apostolic Secretary of Papacy, besides Bracciolini and Rustici.

10 Krinsky (1967: 43-70) provides a comprehensive list of manuscripts found in collections, libraries, cities, and countries. A few country-based examples are as follows: GERMANY: Hildesheim, Worms, Köln. Italy: Verona, Ambrosiana, Milano, Venice, Florence, Naples, Pavia, Siena. FRANCE: Paris, Rouen, Mazarine, Rosny. BRITAIN: Canterbury. Winchester. BELGIUM: Ghent. POLAND: Trzemeszno, Wrocław. There were more than one copy in different libraries in some cities.

11 Hermann the Paralytic of Reichenau, Hugo of St. Victor, Gervase of Melkley, Vincent of Beauvais, William of Malmesbury, Theoderich of St. Trond, Thomas Aquinas, Petrus Diaconus, Bernward of Hildesheim, Albertus



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## RESULTS

### Compilations, Commentaries, and Letters of Roman Literati

Recordings of Vitruvius' name or his works can be traced back until the 1<sup>st</sup> century AD. The first known reference was by Roman soldier, author and natural philosopher *Pliny the Elder* (23-79 AD). He (1857: 327-8) writes that Vitruvius had brought statues made of porphyrite to Rome. Pliny the Elder calls him Vitrasius Pollio in his great work **Natural History**, Book XXXVI. The related part (11) is titled "The Marbles of Alexandria."<sup>12</sup> Furthermore, Pliny's examples of brick works of Greek land in Book XXXV.50 -the wall at Athens facing Mount Hymettus, the Temples of Jupiter and Hercules at Patrae columns and architraves of which are of stone, a fine fresco work on brickwork transported in wooden frames to Rome, the palace of Croesus at Sardes that was converted to a care centre for elderly- manifest that Pliny had read Vitruvius, especially II.VIII.9-10.

*Sextus Julius Frontinus* (c. 40–103 AD), Roman senator and contemporary of Pliny the Elder, cites Vitruvius in his treatise **De Aq-**

**uaeductu Urbis Romae**. Frontinus (1913: 25; 2003: 367; 2014; McEwen, 2003: 5) refers Vitruvius about the dimensions, origins, and meanings of particular measuring units used in the Roman irrigation system.

In the 3<sup>rd</sup> century, *Cetius Faventinus* writes **Compendium (De Diversis Fabricis Architectonicae)** as an abridgement of *De Architectura* (Faventini, 1899; Plommer, 1973).<sup>13</sup> Faventinus says that the erudite copiousness of Vitruvius and other authors, who left a length of work with an extraordinary knowledge on the art of architecture, may frighten the ordinary readers. Therefore, he decides to prepare his short study adapted to the daily language, to be used for practical needs. Faventinus (1973: 41) claims that the parts of architecture were order, disposition, beauty, measurement, distribution, building, siting and mechanical engineering, five of which – order/taxis, disposition/diathesis, beauty and elegance / eurhythmia, the measurement of units / symmetria and distribution / oeconomia – were embraced by the Greeks as the study of architecture. His admission of Greeks for those five concepts underlines the importance of conducting further researches on the sources Vitruvius' synthesis of them as the fundamental principles of architecture.

Magnus, Filippo Villani, Jean de Monreuil are a few to be named for having indirect contact with Vitruvian content (Krinsky, 1967: 37; Ciapponi, 1976: 400).

12 Vitruvius was mentioned as a Stewart in Egypt for the Emperor Claudius. The reign of the Emperor Claudius was between 41 – 54 AD. In this case it was hardly possible that Vitruvius had served to Claudius.

13 The Latin edition including the *Compendium* of Cetius Faventinus was prepared by Valentinus Rose. For the English translation and comparison between Faventinus and Palladius see Plommer, 1973: 1-6.



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Plommer (1973: 1-2), in his study containing the Compendium as well, mentions Faventinus and Palladius (4<sup>th</sup> century AD), who are recognized with his writings on agriculture, in relation to their additions and subtractions from Vitruvius. He (1973: 2) claims that the Vitruvian content of the Palladius' text was derived from Faventinus. Krinsky (1967: 39) adds Pliny the Elder as another source for Palladius (1898; 1807), who, however, did not cite Vitruvius. The similarities, excerpts and abstractions can only be traced through a careful cross – examination of the texts. Plommer (1973: 2) indicates that in many cases Palladius shortened the abbreviated and partly rewritten text of Vitruvius by Faventinus.<sup>14</sup>

Kruft (1994: 30) claims that Vitruvius had been known only in a rhetorical context during the mediaeval times. *Sidonius Apollinaris* (c.431-489 AD) can be recalled in that sense. Apollinaris was a Gallo-Roman poet, priest, and man of letters. He refers to Vitruvius' skills twice, in VIII.L.6 and IV.L.III, as the example of praiseworthiness (Dalton, 1915: cv, cxlvi; Apollinaris, 1915b: 8, 148). In VIII.L.6 Apollinaris (1915b: 148) mentions Vitruvius' competency in building as similar to the skills of his correspondent, Admiral Namatius, who had studied architecture. In another letter to Claudianus Mamertus, a priest and writer, Apollinaris (1915b: 8, Book IV.L.III.4-5) mentions the genius of his correspondent with the eloquence of his work "The Soul of Nature" by comparing with important personalities who cannot imagined without their iconic symbols, such as the staff with Aesculapius, horoscope with Euphrates, and the plummet with Vitruvius.

*Maurus Servius Honoratus* of the 5<sup>th</sup> century cites Vitruvius in his commentary on the epic poem *The Aeneid* by Vergil, who was a contemporary of Vitruvius (Ciapponi, 1976: 400; Honoratus, 1884, 6.43). Servius refers to Vitruvius to define what is a doorway or opening in relation to the entrances of the cave of Sibyl, the oracle and mouthpiece of Apollo, in *The Aeneid* 6.43.<sup>15</sup> The commen-

14 Plommer gives a typical example: " 'ad regulam et libellam summo libramento cote despumato redditur species nigri pavimenti' (Vitruvius VII. 4, v);

'ad regulam exaequata planities reddit speciem nigri pavimenti' (Faventinus: 26);

'quod exaequatatum nigra pavimenta formabit' (Palladius: I.9)."

"The top surface is then rubbed with stone to rule and level, and has the appearance of a black pavement." (Vitruvius, 1934: VII.4)

Another rewritten part is II.4 starting with

"Genera autem harenae fossiciae sunt haec: nigra, cana, rubra, carbunculum..." (Vitruvius: II.4).

"Harenae fossiciae genera. sunt tria, nigra, rubra, carbonbunculus..." (Faventini: VIII).

"harenae ergo fossiciae genera sunt tria, nigra, rufa, cana: omnes praecipuae, rufa melior, meriti sequentis est cana, tertium locum nigra possedit..." (Palladius: I.10).

"Now the kinds of quarried sand are these: black, white, red, and from lignite..." (Vitruvius, 1931: II.4)

"There are three sorts of fossil-sand, the black, the grey, the red..." (Palladius, 1807: 21)

15 Sibyl was a female oracle who tells her divine inspired,



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tary of Servius suggests an interpretation about the opening direction of the doors in relation to the prophetic responses of Sibyl coming out of the many mouths of her cave. Considering the Vitruvian content about the doors and entrances, particularly in Book IV, it is possible to suggest that Servius' rhetoric associating the emergence of Sibyl's voice towards out with a definition of doorways opening outwardly might have a different source. Moreover, according to Hare (1832: 551) the interpretation of the related Vitruvian content, IV.6,6, about the opening direction of doors is controversial since the related part indicates rather constructive detail about door posts placed externally. The form of the reference is rhetorical, indeed. On the other hand, Servius' case unveils an instance of the articulation of architectural and technical issues within metaphysics of the era in which Vitruvius was considered to be the authority.<sup>16</sup>

### Vitruvian Tradition during the Mediaeval Period

*Isidore of Sevilla* (c.560-636 AD), bishop of Sevilla, wrote the first known encyclopaedia of the Middle Ages, **Etymologies** or **Origins**. Origins had a noteworthy influence on the Latin West since it contained the ancient

Greco-Roman and early Christian worlds' compendium of much of the essential learning (Seville, 2006: 3). Isidore of Sevilla had drawn upon Faventinus' book, and derived additional Vitruvian material from Pliny the Elder's text (Krinsky, 1967: 39).<sup>17</sup> Kruff (1994: 30-31), on the other hand, compares the Vitruvian content in *Origins* and *De Architectura* in order to show that even though Isidore of Sevilla had referred Vitruvian concepts, they do not correspond to the definitions given by Vitruvius.

Isidore of Sevilla (2006: 377) states that there are three stages in building: siting (*dispositio*), which is "the marking out of the building site or seat and of the foundations"; construction, which means binding together to build the sides and top; and decoration (*venustate*) that is anything added to building as ornaments and embellishment.<sup>18</sup> The definitions and following explanations do not prove that Isidore of Sevilla had read Vitruvian texts. On the other hand, it is obvious that the au-

<sup>17</sup> Krinsky (1967: 40) indicates that numerous manuscripts of the mediaeval times include agrimensorial content of which ideas can be traced back to Vitruvius.

<sup>18</sup> For English translation of the original text see Seville (2006: 377) XIX.ix-xi. In fact, the translation of "de venustate" as "decoration" is a controversial issue due to the varying meanings attributed to it. Granger, Morgan and Rowland correspond "venustatis" differently. Morgan translates as beauty, whereas Granger prefers grace, and Rowland uses attractiveness. For a history of the concept of "beauty" and related terms see (Tatarkiewicz, 1980). For the concept of "decorum" in relation to decoration see Payne (1999).

and riddled, prophecies through cave-openings where her voice boomed and echoed (Gowers, 2005: 170).

<sup>16</sup> It is of importance to conduct a cross-textual investigation of related material. See Vitruvius (1808) and Hare (1832: 537-553).



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thor made an extraordinary effort to compile and present all the accumulated knowledge and information of the humanity, not only for scholarly reasons, but also for practical use, which explains the inclusion of Vitruvian content as well (Kruft, 1994: 30).<sup>19</sup>

It is possible to claim that by the help of these efforts of the Middle Ages' scholars Vitruvius and his works, in addition to many other works of the antiquity, survived. In this respect, the 8<sup>th</sup> century **Mappae clavicula** is a noteworthy example. That collection of technical recipes, which covers gilding metals, distilling alcohol, compounding pigments, and so on so forth, happened to appear in particular manuscripts containing Vitruvius as well (Reynolds, 2005: 442). Krinsky (1967: 38) indicates that the writers of the **Mappae clavicula** might have an indirect knowledge of Vitruvius or his teachings.

Those works like **Mappae clavicula** present the great labour bestowed in the survival of the legacy of antiquity. It is a fact that without scripture tradition and manuscript copiers, the re-construction of the European civilization would have followed another path after the political and economic collapse following the fall of Roman Empire.<sup>20</sup> The Carolingian

Renaissance of the 9<sup>th</sup> century and the following cultural achievements of the Ottonian Dynasty demonstrate the role of intellectual development as an essential aspect of the social, political and economic reconstruction.<sup>21</sup> The new emperors, such as Charlemagne (c. mid 740s – 814) of the Carolingians, might have realized that their legacy could only be claimed through the patronage of the emperor on knowledge, art and wisdom, alongside with the blessing of Pope or the invented family trees.

The pursuit for cultural legacy and restoration of imperial ideals could be considered to be the motive behind Charlemagne's decree to gather books from many lands for the court library that was going to be an important collection and the model for the succeeding ones. The collection was containing the manuscript of Harley 2767 that includes the earliest copy of Vitruvius in addition to copies of agrimensorial texts, Calcidius, Cicero, Claudian, Horace, Justinus, Juvenal, Latin Euclid, Lucan, Lucretius, Phaedrus, Pliny the Elder, Sallust, Seneca the Elder, Seneca the

sources particularly for the emergence of Italian Renaissance.

<sup>21</sup> For the concept of Carolingian Renaissance see Trompf (1973); for the cultural history of Carolingian era see Schutz (2004: 39), who underlines that in their "architectural and artistic intentions the Carolingians were never free of their need to demonstrate their legitimate continuity with Christian Rome and continuing legitimacy through the church".

<sup>19</sup> For example the description of pavement construction in relation to the terminology and origins of terms in XIX.x.25.

<sup>20</sup> Despite that his Renaissance image has been criticized, Bruckhardt (1928) is still one of the most important



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Younger, Tacitus, Virgil (Schutz, 2004: 156; Reynolds, 1983: xxv).

It is considered that the earliest evidences of any knowledge of Vitruvius after the “Dark Ages” were shown by two important figures of Charlemagne’s court, *Alcuin of York* (735-804 AD) and *Einhard* (c.775-840 AD) (Reynolds, 2005: 441; Krinsky, 1967: 36; Kruft, 1994: 31).<sup>22</sup> Einhard mentions a Vitruvian content in relation to a philological issue in one of his letters (Pevsner, 1942: 552; Scaglia, 1979: 15; Kruft, 1994: 31). Scaglia (1979: 23) indicates that the translation problem mentioned by Einhard in his letter implies two important issues: The Vitruvian terminology was unknown, because, the building technology upon which that terminology based on was lost. According to Kruft (1994: 31), it cannot be proved that Einhard had got an architectural aid from Vitruvius for his basilicas in Steinbach and Seligenstadt.

A prominent writer and teacher of Carolingian Age, *Hrabanus Maurus* (780-856 AD) is considered as being familiar with Vitruvius works. Krinsky (1967: 36) claims that Hrabanus’ quoted directly from Vitruvius. The

related parts in Maurus’ *De Universo Libri XXII*, nevertheless, show that it is much probable that his source was Isidore of Seville, not Vitruvius himself.<sup>23</sup>

Kruft (1994: 31) mentions the St. Michael’s in Hildesheim as a possibly unique case of use of Vitruvius for building construction in the 11<sup>th</sup> century, since first abbot, *Bernward of Hildesheim*, was assumed to have a copy of Vitruvius. If he played an important role in planning, design and construction of the church, the Vitruvian content might have been utilized. Conant (1968: 33) argues a similar idea and claims that the Cluny III, in the 12<sup>th</sup> century, “had an inheritance from the Roman architectural tradition” which is known through Vitruvius. He proposes geometrical and dimensional analysis in order to prove that the cathedral was built upon the Roman tradition exposed by Vitruvius.

Granger (1934: xli) indicates *William of Salisbury* (1095-1143) who had written extracts from de Architectura. According to Granger, he had regarded as a practical manual considering the summery reference from Book X. Granger (1934: xli) claims that the builders of

22 The archetype of the tradition starting from Carolingian script might be an Anglo-Saxon script, although there is no evidence about any knowledge of Vitruvius in England at that time (Reynolds, 2005: 441). Unfortunately evidences or references indicating any relation between Alcuin of York and Vitruvius are limited to those mentioned above.

23 In Maurus (2014): “Ædificiorum partes sunt tres: dispositio, constructio, venustas. Dispositio es areæ vel soli et fundamentorum descriptio.”  
In XIX.ix-xi of Isidore of Seville (2006: 377): “Aedificiorum partes sunt tres: dispositio, constructio, venustas. Dispositio est areæ vel solii et fundamentorum descriptio.”



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Malmesbury Abbey, where William of Salisbury lived as a monk, had followed some precepts from De Architectura.

Kruft (1994: 35) claims that *Hildegard von Bingen* (1098-1179), an important female philosopher, writer and composer, had knowledge of Vitruvius. In a copy of Bingen's **Liber Divinorum Operum**, also known as **De Operatione Dei**, from the early 13<sup>th</sup> century, an illustration represents a “universal man” with outstretched arms and feet touching the surrounding circle.<sup>24</sup> That representation of cycle of macrocosm and microcosmic man, however, may not be an allusion of Vitruvian Man as suggested by Kruft (1994: 35).

For the representation of the microcosm and macrocosm through the illustration of “universal man” in Hildegard, Papapetros (2010: 113-114) refers to Fritz Saxl. As Papapetros presents, Saxl claimed that the reappearance of the anthropomorphic cosmology of the 12<sup>th</sup> century, like Hildegard's illustrations, were the replicates of images and “totem-like constellations” of Oriental, especially Iranian, astrology and mythology, to which Vitruvius indebted his proportionate human body (Papapetros, 2010: 114).

Saxl (1915: 45), however, cites Charles Singer about Hildegard. Singer (1917) provides an elaborate picture of Hildegard of Bingen in addition to the sources and inspirations of her visions and views.<sup>25</sup> Hildegard's ideas had various sources, including St Augustine, Isidore of Seville, Herrade of Landsberg, her contemporary Gerard of Cremona's translations from Messehlah, a 9<sup>th</sup> century Persian-Jewish astrologer and astronomer, and Aristotle, and the complex cabalistic systems of Jewish community settled in her district (Singer, 1917: 15-21). Her conception of macrocosm and microcosm, which was probably borrowed from Bernard Sylvestris, “has analogies also to those well-known figures illustrating the supposed influence of the signs of the zodiac on the different parts of the body” (Singer, 1917: 38). In this respect it is possible to conclude that Hildegard of Bingen's unity of microcosm and macrocosm represented with the harmony of body in the spherical universe did not suggest a Vitruvian content.

The intellectual atmosphere of the 12<sup>th</sup> century was rich for the sake of Vitruvius. *Peter the Deacon* (c.1107-1140), the librarian and keeper of the abbey of Monte Cassino, had

24 The 13th century copy of the illuminated manuscript of Hildegard of Bingen (MS 1492 fol9r.) is preserved in Biblioteca Statale di Lucca in Italy. <http://www.bslu.beniculturali.it/dettaglioNews.asp?ID=238&IdTipologia=99> accessed in 13.01.2016

25 There is a controversial issue about the publication dates of those two books: Singer in 1917, Saxl in 1915 in which Singer was referenced. Most probably Saxl's study, which is mentioned in here, is a reprint without any indication in the book.



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produced a no-longer-exist passage about the proportions of human body extracted from a copy of *De Architectura* (Kruft, 1994: 31; Rossum, 1996: 364). He had copied Frontinus' *De Aquaeductu Urbis Romae*, as well (Frontinus, 2004: 37).

*Vincent de Beauvais* (c.1190-1264) was the author of the most important encyclopaedia of the Middle Ages. Granger (1934: xlii) underlines that Vincent de Beauvais had considered the practical application of the text to mechanics and building construction, like William of Malmesbury. Vincent de Beauvais quotes directly from Vitruvius, without referring to him or Greek corresponding of the terms, in his **Speculum Doctrinale**, Book X.Ch.XIII-XV.<sup>26</sup> At the beginnings of X.Ch. XVI and X.Ch.XVIII, Beauvais cites Isidore of Seville. The parts of building given

in Chapter XVII, without citation, are quoted from *Etymologies Book XIX.xix-xxi* (Beauvais, 1494; Seville, 2006).

*Albert the Great* (Albertus Magnus, 1200 – 1280) was one of the key figures of the Middle Ages. He was a universal thinker and “avid commentator on nearly all the great authorities read during the 13th Century”. Albert the Great paraphrases Vitruvius, VI, 1.10-11, to articulate his discussion on the relations between human culture, geography, and climate in **De Natura Locorum** (The nature of places), Tr. II, chap.3.<sup>27</sup>

One of the most important heritages of the high Middle Ages is the lodge-book of *Villard de Honnecourt* of the 13<sup>th</sup> century. His sketches and notes can be considered to be the only survived mediaeval study on architecture since Vitruvius. Honnecourt had recorded the lodge tradition of Gothic. Furthermore, his lodge-book cannot be considered to be mere pattern book since he had sketched his architectural ideas too (Willis, 1859).<sup>28</sup> Kruft (1994: 37) claims that Honnecourt's salutation implies a Vitruvian understanding about the education of the architect regarding to the French translation of Lassus:

26 In Beauvais: “Constat autem architectura ex ordinatione et dispositione et eurhythmia et symmetria et decore et distributione. Ordinatio est modica membrorum operis commoditas separatim, universaeque proportionis as symmetriam comparatio. Haec coponitur quantitate. Quantis autem est modularum ex ipsius operis sumptione, singulique membrorum partibus, universi operis conueniens effectus.” (Beauvais, 1494)

In Valentine Rose's Latin edition of Vitruvius: “Architectura autem constat ex ordinatione, quae graece ταξις, dicitur, et dispositione, hanc autem Graeci διαθεσιν vocitant, et eurhythmia et symmetria et decore et distributione quae graece οικονομια dicitur. Ordinatio est modica membrorum operis commoditas separatim universaeque proportionis ad symmetriam comparatio. haec componitur ex quantitate, quae graece ποσότης dicitur. quantitas autem est modularum ex ipsius operis <membris> sumptio e singulisque membrorum partibus universi operis conueniens effectus.” (Vitruvius, 1899: 10)

27 For the place and importance of Vitruvius in *De natura locorum* and the translation of related parts see Glacken, 1976: 265 and Floyd-Wilson, 2003: 33

28 The name is given as Wilars de Honnecorts in this English version. For a French edition see Honnecourt (1927).



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*For this book will greatly aid you in learning the principle of masonry and construction work. It will also teach you how to render something accurately and how to do line drawing, according to the rules and precepts of geometry.*

The English translation of from Lassus by Robert Willis (Honnecourt, 1859: 23) quotes the same part as follows:

*For in this book may be found good help to the knowledge of the great powers of masonry, and of devices in carpentry. It also shews the power of the art of delineation, the outlines being regulated and taught in accordance with geometry.*

Considering the two translations, it is hardly possible to figure out that if Honnecourt knew Vitruvius or he might have read De Architectura. The ideas relating drawing to geometry cannot be attributed only to Vitruvius, either. In fact, it is significant to elaborate the discussion around Honnecourt's emphasis on geometry in order to locate Vitruvius properly within the Gothic context.

Rykwert (1984: 26) points out a double, even contradictory, discourse considering that united practice-aesthetic concerns of mediaeval builders, between the year 1000 and the year 1500. According to Rykwert, the lords, clergy and literati were using the Vitruvian discourse in talking about building, whereas masons,

carpenters, building workers and jewellers were using the 'secret' Euclidian discourse on site. The master-masons might have been at the intersection of both discourses since it had to meet the lords at the dinner table and workers on the construction site (Rykwert, 1984: 27). A sound explanation for that split in the identity can be found within the chapters of the profession presented by Spiro Kostof. According to Kostof (1977: 60), the Vitruvian concept of architect grounded on the Liberal arts and technological know-how was replaced by the master-builder who grew out of the ranks of building crafts and construction. Kostof (1977: 61) claims a change of social standing of the medieval architect, despite the fact that the traditional task of developing concepts and supervising of the building remained the same.

The geometry knowledge of the medieval architect was the key factor for both the development of concepts, and management of the construction. In fact, as can be seen in Rykwert's argument, it has two facets: The theory considering the composition of the building incarnated by key geometrical figures of which commensurable and proportional measurements subjected to the knowledge of the architect; and the practice of those key geometrical figures in working size by less educated masons without commensurable measures (Frankl, 1945: 59). Ackerman (1949:



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105-106) writes that the former is “*scientia*” which was a set of geometrical and arithmetical formulae about interrelationships of the parts and the whole, whereas the latter is “*ars*” implying the builders’ technical know-how about constructing a cathedral. *Scientia* is a sort of “a priori” template to be installed in order to interrelate the structural and functional parts. *Ars* is a way of “doing” of which knowledge was accumulated by means of experience. According to Frankl (1945: 58), both theory of the educated architect and know-how of less educated mason had been derived from Plato’s dialogues. That know-how, which has been claimed as the secret Euclidian discourse by Rykwert, was about taking the elevation from the ground plan by means of a method which enabled the mason to translate the small sketch of the architect into the real size without any scale (Rykwert: 49-50).<sup>29</sup> As Frankl (1945: 58) presented, Vitruvius had played a key role in the continuity of that knowledge and its application particularly in architecture. Vitruvius (1934:199-

201) refers to Plato about the doubling of a square and Pythagoras about making a set-square without the help of a craftsman. These two theorems are “the special form of the secret of the masons” that were derived from Plato and transferred from Roman architects to their successors through De Architectura (1945: 58).

### Early Renaissance and Re-Discovery of the Tradition

Contrary to its latent existence and continuity as a form of technical knowledge, particular cases show that De Architectura was of importance as a literary work at the dawn of Renaissance. It is known that *Francesco Petrarca* (1304-1374), the father of Humanism, had his own copy of de Architectura (Kruft, 1994: 39; Ciapponi, 1976: 401).<sup>30</sup> Moreover there had been other copies with Petrarca’s annotation circulating among the other renowned humanists including *Giovanni Boccaccio* (1313-1375) (Krinsky, 1967: 38; Ciapponi, 1976: 401; Ciapponi, 1984: 72). Boccaccio mentions Vitruvius couple of times in **Genealogie Deorum Gentilium**.<sup>31</sup> Except one

29 Frankl unveils the secret of medieval masons within its historical, mathematical and architectural context. The contribution of Erwin Panofsky, the translation of Stornaloco’s formula for the Cathedral of Milan, is of extreme importance in developing a better understanding of the geometry knowledge and use towards the end of the Gothic.

In 1949, James Ackerman exploited Frankl’s argument in his comprehensive text “Ars Sine Scientia Nihil Est” Gothic Theory of Architecture at the Cathedral of Milan”, which contains translated parts of the Annals of the Building of Milan Cathedral. See Ackerman, 1949: 84-111.

30 Kruft (1994: 39) claims that there are marginal assumptions such as Petrarch might have consulted Vitruvius for the rebuilding of Pope’s Palace in Avignon.

31 To compare Boccaccio and Vitruvius:  
Boccaccio Book II – Chapter XXX. / Vitruvius VIII, 3, 21.  
Boccaccio Book IV – Chapter LIV. / Vitruvius I, 6, 4.  
Boccaccio Book VII – Chapter I. / Vitruvius VIII, 4.  
Boccaccio Book XII – Chapter LXX. / Vitruvius II, 1, 1.  
Boccaccio Book XII – Chapter LXX. / Vitruvius II, 1, 1.



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quotation about the origins of house, the rest refers to Vitruvian content with regard to mythology.

The first and only known written record about the use of Vitruvius as a technical handbook is from the 15<sup>th</sup> century, not long after the discovery of full text in St. Gall in 1416. *Antonio Beccadelli* (1394-1471) says that the King Alfonso of Aragon had called *De Architectura* for the renovation or reconstruction of Castelnouvo in Naples in 1442/43 in his **The Sayings and Deeds of King Alfonso** (Beccadelli, 1538: 15; Krufft, 1994: 39; Burckhardt, 1928: 226).

It is claimed that it was needed to wait Humanism to discover the hegemony of written word because it had recognized the authority of the documents and subsequent commentaries (Masiero, 2006: 77). Renaissance produced a textual body of translated and commented works, almost simultaneously. As Payne (1999: 72) puts, this translation mobilization of Humanists not only set off a dialogue across different disciplines but also created textual associations, which produced the language of all subsequent discourses. As a matter of fact, their influence is much further than the language. It is possible to state that this body of translated and commented texts determined the content and intellectual posi-

tions of the subsequent architectural thinking and writing.

It was *Leon Battista Alberti* (1404-1472) who laid the first known stone publicly in building the new paradigm of written word. He was a prominent humanist, author, poet, architect, linguist, and philosopher. Alberti wrote **De re aedificatoria** – “*On the Art of Building in Ten Books*” or “*The Ten Books of Architecture*”- that was published in 1486, the very same year in which *De Architectura* was printed as well. It was not much after the invention of printing with movable types. *De re aedificatoria* was a proclamation of the new era for architectural practice of thinking, building and writing. It was indicating the rebirth of the architectural treatise tradition. Alberti seems to have followed Vitruvius’ model in structure and content. The promise of *On the Art of Building in Ten Books*, however, was new and ground breaking. Alberti did not only acknowledge the importance of content of *De Architectura* as a text, but also put a critical distance against Vitruvius. As Payne (1999: 72) puts forward, after a millennium and half year of silence, Alberti wrote on Roman architecture, authority, and models of the past to present his envision of perfection and progress of architecture. It was arguably the most important part of a chain of theoretical texts that “absorbed, transformed and reconstituted” *De Architectura* for which they had

(origins of the house)



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established reading frames and using patterns (Payne, 1999: 70). In the final analysis, it is possible to claim that Vitruvius' text determined the content and form of Renaissance architecture and architectural books, starting from *De re aedificatoria* (Hart, 1998: 2).

## CONCLUSION

The first printed version of *De Architectura* in 1486 symbolically ended the intertextual odyssey of the Vitruvian content. It is also possible to think that the printed format demystified authority of the ancient master by making it accessible and available at hand. It had, however, occupied the centre of all the axes of architectural thinking and writing for two hundred years more, until the ground-breaking commentary and treatise of *Claude Perrault* towards the end of 17<sup>th</sup> century. Perrault (1692; 1993) ended the hegemony of *De Architectura* decisively by promoting the time and culture based architectural aesthetics and beauty, and confining Vitruvian theory to its cosmic and metaphysical paradigm.

Today, there is still a lot to learn from *De Architectura* and its history. The copied, or re-produced texts have always reflected the paradigms they belonged. The odyssey of the same body of knowledge through successive traditions presents also a unique research material for the history of language and concepts of architecture of which semantics had to be

invented by every generation because of the dissociative interference of time and intertextuality. By working like a Rosetta Stone of architecture in two different but interrelated modes, *De Architectura* deciphers the codes of the paradigms it had run through and reveals the formation and evolution of concepts of architecture and design.

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