

BUILDING A DIGITAL NARRATIVE FOR KOMANA:
A THEORETICAL AND METHODOLOGICAL APPROACH
OF DEEP MAPPING

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ABSTRACT

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Fast-paced development of digital technologies and their adoption in archaeological research provides possibilities for experimenting with new methods of archaeological interpretation and integration of theoretical perspectives. Especially, previously implausible applications of highly sophisticated theoretical aspects of landscape studies can be implemented practically through digital techniques and methods.

The objective of this thesis is to develop a digital deep mapping methodology which incorporates both the theoretical framework and the datasets of archaeological research that facilitates the emergence of alternative narratives. Accordingly, the thesis bases the theoretical foundation of the proposed methodological model upon the subjects of landscape studies, mapping practices and narrative. The practical aspects of the methodology are provided by the introduction of videogame narrative design techniques and structures. The theoretical framework and the practical components of the methodology are conceptualized and combined for the completion of the deep map model.

Proposed methodological model is tested on the case study of Komana 11th – 14th century landscape with particular focus on the narrative. Interdisciplinary research at Komana provide a variety of raw and processed data. This data and information accumulation is incorporated to create a narrative of the site and its landscape during

Danishmend – Seljuk Periods. As a result, the development of the methodological model and the application of case study proved successful at enabling the emergence of unique experiences through the engagement with archaeological data and enabled nuanced understanding of Danishmend – Seljuk Periods in Komana landscape.

Keywords: Deep mapping, Komana, landscape, digital archaeology, narrative

ÖZ

KOMANA’NIN DİJİTAL HİKAYESİNİN İNŞASI: DERİN HARİTALAMAYA TEORİK VE METODOLOJİK BİR YAKLAŞIM

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Dijital teknolojilerin hızla gelişmesi ve arkeolojik arařtırmalarda kullanılması, arkeolojik yorumlama yöntemlerinin deneyimlenmesi ve teorik bakış açılarının entegrasyonu için yeni olanaklar sunmaktadır. Özellikle, pek önceye kadar uygulanamaz olan pek çok sofistike teorik yönün dijital teknikler ve yöntemler aracılığıyla pratikte hayata geçirilmesi mümkündür.

Bu tezin amacı, alternatif anlatıların ortaya çıkmasını kolaylařtıran arkeolojik arařtırmaların teorik çerçevesini ve veri kümelerini içeren bir dijital derin haritalama metodolojisi geliřtirmektir. Bu nedenle, tez önerilen metodolojik modelin teorik temelini peyzaj çalışmaları, haritalama uygulamaları ve anlatı konularına dayandırmaktadır. Yöntemin pratik yönleri, video oyunu anlatı tasarım tekniklerinin ve yapılarının tanıtılmasıyla sağlanmaktadır. Teorik çerçeve ve metodolojinin pratik bileşenleri, derin harita modelinin tamamlanması için kavramsallaştırılır ve birleştirilir.

Önerilen metodolojik model, Komana'nın 11. - 14. yüzyıl peyzajı üzerine yapılan bir vaka çalışmasında, özellikle anlatı üzerinde odaklanarak test edilmiştir. Komana'daki disiplinler arası arařtırmalar çeşitli ham ve işlenmiş veri sağlamaktadır. Bu veri ve

bilgi birikimi, Komana peyzajının ve Danishmend - Selçuklu Dönemlerinin bir hikayesini oluşturmak için entegre edilmiştir.

Sonuç olarak, metodolojik modelin geliştirilmesi ve vaka çalışmasının uygulanması, arkeolojik verilerle etkileşim yoluyla benzersiz deneyimlerin ortaya çıkmasını ve Komana peyzajındaki Danishmend - Selçuklu Dönemlerinin nüanslı bir anlayışını sağlamada başarılı olmuştur.

Anahtar Kelimeler: Derin haritalama, Komana, kültürel peyzaj, dijital arkeoloji, anlatı

To My Family

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LIST OF ABBREVIATIONS

3D	Three Dimensional
AD	Anno Domini
AI	Artificial Intelligence
BC	Before Christ
GIS	Geographic Information System
GPS	Global Positioning System
MT	Mount
NPC	Non-playable Character

CHAPTER 1

INTRODUCTION

The history of digital archaeology begins as early as the 1960s, with the groundbreaking work of James Deetz who used the computer to conduct stylistic analyses of Arikara ceramics. Following decades introduced geographic information systems, computer-aided design, databases, and every other digital tool that are still in use. Archaeologists have vigorously unearthed, recorded, and processed data with simulations, spatial analysis, clustering, imaging, geophysicing, 3D modeling, neutron activation analyzing, or x-tent modeling for a long time. These data in varying degrees of process from raw to gray literature, from monographs to catalogues have significant potential to serve archaeology for comprehending journeys of human societies through time. Recognition of this potential led to the latest trends of open access and data sharing, where the main focus is fixed on full disclosure of masses of raw data. Despite legal license problems and technical issues concerning management of the colossal pile of already accumulated data, the concept of open data has become a source of great expectations. It is true that dissemination of archaeological knowledge benefits from technological developments, especially digital data repositories such as Archaeology Data Service, Open Context and the Digital Archaeological Record. However, while these sources provide search tools, access to digital back-issues of journals, monograph series and grey literature reports, as well as downloadable datasets from a variety of field and research projects; they do not offer any tools that facilitate interpretation of the data within a cohesive narrative or theoretical framework.

Therefore, the main objective of this thesis is to devise a methodological model that brings different datasets together in a flexible, dynamic and coherent manner to tell the story of an archaeological site. with access to the information the narrative is based on. This methodological model is founded on deep mapping technique. A deep map is

an environment that encourages participants to explore and interact with real and imaginary renditions of a place that offers a unique experience for each individual user and user. The most essential parts of deep mapping, and the proposed model, are the compilation of multiple layers of information and the combination of these layers in a manner that centralizes narrative for coherence. Accordingly, videogame narrative design techniques and processes are integrated in order to design the proposed deep map model with a focus on the narrative.

The proposed methodological model is tested on the case study of 11th – 14th centuries settlement at Komana. Interdisciplinary research project at Komana provide necessary amounts of raw and processed data regarding epigraphic, architectural, stratigraphic, archaeobotanical, archeozoological and other material culture studies. This data and information accumulation is synthesized to create a narrative of the site and its landscape during Danishmend – Seljuk Periods.

The thesis is comprised of six chapters including this first one of introduction and a section of appendix containing the deconstruction of the proposed deep mapping methodological model.

Chapter 2 is where the theoretical framework is presented through the literature reviews on three subjects of landscape studies, maps and narrative. Chronological development and relevant aspects of each subject are explored to provide the theoretical foundation of the methodological model of deep mapping. Environmental and phenomenological aspects of landscape archaeology; cartographic and deep mapping practices with theoretical backgrounds; influence of meta-narratives on the narratives of the past and the alternative local and micro-narrative scales are the contents of this chapter.

In Chapter 3, a proposed methodological model for deep mapping is developed. The relevant aspects of each subject comprising the theoretical framework are identified, conceptualized and visualized with four respective pyramids divided into sections containing particular key concepts. Next, videogame narrative design techniques and processes are introduced as practical components of the methodology. Two respective pyramids for narrative structures and narrative design are provided to conceptualize

these components as well. The final model is designed with the combination of all six pyramids into the hexagonal form.

Chapter 4 presents the application of the case study which follows the three phased process adopted from videogame narrative design. The first phase is world building where the overarching narrative of the Komana landscape is set. Second is the level design phase which focuses on the built environment of Komana settlement. The third and final phase is environmental storytelling that produce the micro-narrative vignette composed of archaeological objects arranged in a way that reflects the characteristics of a specific workshop within the settlement.

Chapter 5 presents the discussion on the key findings of the case study application. Additionally, the issue of theoretical integration of deep mapping methodology is revisited; contributions of the thesis to each field of landscape archaeology, cartography, narrative theory, and digital archaeology are evaluated; limitations of the thesis are explained; and suggestions for future research are shared in this chapter.

Chapter 6 concludes the thesis study with a brief critique of the journey and projections on the future of digital archaeology.

CHAPTER II

THEORETICAL FRAMEWORK

2.1. Introduction

In order to suggest a methodological model utilizing deep mapping and digital storytelling, several areas of theory need to be explored through literature survey. The theoretical justification of present methodology is organized as the literature reviews on three main subjects and their specific aspects. First subject is the landscape study and its development in archaeology. Highly refined theoretical discourse on landscape is the foundation both for deep mapping and digital storytelling as methodologies. Especially the phenomenology and the bodily experience aspects cultivated within the landscape theory are essential for the case study of the thesis.

Next, the literature review on the history of map making and the formation of cartography as a discipline is provided as the chronological basis for the deep mapping methodology. In addition to that, the enduring role of cartographic maps in archaeological knowledge production and dissemination as a major tool of visualization necessitates this study on map making. This part of the chapter also includes the literature survey on the history of deep mapping which reveals the antiquated practice of chorology as the common essence inherent in all three of the landscape studies, the map making practices and the deep mapping methodology.

The chapter continues with the subject of narrative, where the literature on the narrative of archaeology is reviewed together with the narrative of history with the purpose of examining “the text” as the main mode of archaeological knowledge production. In addition, some observations on the meta-narratives influencing both disciplines of cartography and archaeology are shared in this part of the text along with alternatives of local and micro-narrative scales.

The nature of the dissertation demands a linear ordering of these subjects within the format of its text; however, it is important to note that landscape studies, map making

and narrative subjects are interrelated and their relations to each other resembles a theoretical tripod which supports the proposed methodology.

2.2. Landscape studies

The roots of landscape term go back to 16th century to define the paintings of rural sceneries created by Dutch painters¹. It was born to contain the aesthetic value of environment and human relationship; landscape was an entity to be admired and analyzed from a distance. Adoption of landscape as a concept by archaeology, which can simply be called "landscape archaeology", is relatively later than its origins in the 16th century paintings, since the first time it was used was in 1974 by Aston and Rowley². Throughout the 1980s landscape archaeology became more frequently cited³, where it was used as a term that referred to the natural environmental elements within a certain geographical area. These early adoptions of the term landscape archaeology are considered as the counterpart to settlement archaeology and the study of settlement patterns that has been widely contained within the processual approach⁴. New survey strategies devised for detailed fieldwork documentation, statistical analyses, focus on material and site distribution encouraged by approaches of Processual Archaeology brought on the search for a larger spatial scale to look at settlement patterns and systems⁵. As the scale grew bigger to encompass regions, the "non-site" spaces found their way into the picture and began to capture more attention than ever before⁶. Singular locations of material culture began to form a whole picture when combined with human social behaviors between, around and at these locations⁷. Ian Hodder's 1978 dated book *The Spatial Organization of Culture*⁸, which played a key role in the birth of Post-processual Archaeology, simultaneously progressed landscape archaeology itself. Once the realization that human beings are not solely driven by logic, and that their behaviors are inevitably affected by symbolic and

¹ Cosgrove, 1992, p. 74.

² Aston & Rowley 1974.

³ Akuma, 1980; Sullivan, 1982; Hantman et al. 1985.

⁴ Sherratt, 1996, pp. 141-149; Feinman, 2015, p. 654.

⁵ Binford, 1964; Flannery 1976.

⁶ Foley, 1981; Dunnell & Dancey 1983.

⁷ Renfrew 1982; Ashmore 1991; Flannery & Marcus 1976.

⁸ Hodder, 1978.

emotional factors, was integrated into the existing understanding, landscape archaeology became more socially oriented⁹. This is where the seeds of landscape archaeology known today were planted. This is also where the theoretical discourse shifted from a simpler plane to a more complex one.

Geography and biology are the fundamental components of landscape. Environmental approach is inclusive of both geographical and biological components; thus, the earlier landscape archaeologies mentioned above were heavily based on environmental approaches adopted from these disciplines. The technical aspects of environmental archaeology have been promoted over its conceptual aspects as expressed by Tim Denha¹⁰. He advocates that environmental archaeology is more than just a combination of techniques and methods, that it can inform the theoretical framework of landscape archaeology. Denham's point is illustrated through the issue of scale in landscape study: the scale at which the archaeological research is conducted is closely related to geography as a discipline, yet the geographical limits of a given landscape are determined by various factors that range from natural environment to economical and political preferences. According to geographical theory, scale is best determined by represented events in a given space¹¹, which consequently brings another dimension into landscape study, which is time. First there is space that exists on its own, then natural and cultural existence coincides with a specific unit of space at a specific time slice, - this is called the event - eventually resulting in the creation of the place. As a geographer specializing in human-environment relations, Lesley Head also emphasizes that both time and space should be considered when deciding on the scale of the landscape¹².

On the other hand, philosopher Edward S. Casey delves into the semantic root of word "place" and compares it with "space", arguing that space exists on its own, as a dimension similar to time, while the place is a container of specific events, objects, structures, and humans among other entities¹³. Casey concludes that, a landscape is "made up of a set of discrete places and is itself a place¹⁴". Ruth M. Van Dyke

⁹ David & Thomas, 2008, pp. 32-36.

¹⁰ Denham, 2016.

¹¹ Meentemeyer & Box, 1987; Golledge, 2001.

¹² Head, 2016.

¹³ Casey, 2016.

¹⁴ *Ibid.*, p. 59.

combines the place component of landscape with memory, stating that “Landscapes are meaningfully constituted physical and social environments and meaning is inscribed on landscapes through experience”¹⁵. The phenomenon known as “sense of place” is created with intentional and unintentional acts of forgetting and remembering that is in short, embedding of memory in a place.

Describing what landscape means is impossible if a universal description is sought out and the same sentiment applies when describing one landscape at a time as well. Phenomenological approaches to landscape become valuable at this point in theoretical accumulation. Current landscape phenomenologies are founded on Tim Ingold’s 1993 dated essay which provides a conceptual platform to understand ideas of bodily practice, dwelling and inhabitation¹⁶. This platform is christened as “taskscape” by Ingold, since “tasks are the constitutive acts of dwelling” and “It is to the entire ensemble of tasks, in their mutual interlocking, that I refer by the concept of taskscape. Just as the landscape is an array of related features, so - by analogy - the taskscape is an array of related activities¹⁷”. Ingold is a strong believer that landscapes are known to those who dwell in them and when combined with taskscape perspective, “the activities that comprise the taskscape are unending, the landscape is never complete: neither 'built' nor 'unbuilt', it is perpetually under construction¹⁸”. Landscapes are many things at once, countless meanings embedded in the space-time, each meaning is an ideal combination of individual, social, cultural, and natural elements for the creation of a singular experience, a phenomenon, in short.

Christopher Tilley advocates that from a phenomenological point of view, landscapes are meant to be bodily experienced in order “to provide a rich or “thick” description¹⁹”. Because the landscape is experienced through the participant’s physical body, Tilley places the term embodiment into the center of phenomenology. This approach is conceptually appropriate for landscape studies; however not realistically compatible with past landscapes due to the irrevocable alterations it went through over time. For example, town’s marketplace may be preserved enough to talk about some trade

¹⁵ Van Dyke, 2016, p. 441.

¹⁶ Ingold, 1993.

¹⁷ *Ibid.*, p. 158.

¹⁸ *Ibid.*, p. 162.

¹⁹ Tilley, 2016.

goods, but it no longer holds the rich smell of spices merchandised there; a heavily worked stone quarry can be located through source analyses yet there is no longer the sound of picks eating away pieces of the earth; paths are no longer crowded with people returning to their homes after a day's labor. It is strongly possible that most of the geological and topographical characteristics endure the passage of time, yet the elusive "sense of place" is no longer discernable through recorded archaeological data. Furthermore, the data recovered is far from complete, so much so that there is no correct way to imagine what a complete dataset looks like.

So, how to grasp a phenomenon created by such ephemeral qualities? In the last couple decades phenomenology and other approaches to landscape have been increasingly fueled by philosophy in pursuit of an answer to this question, along with other connected issues. The foundation of phenomenological archaeology is strongly influenced from phenomenological philosophers of 20th century such as Husserl, Merleau-Ponty and Heidegger²⁰. The subjects these philosophers focused on were agreeable for archaeologists and anthropologists since their approach brought a fresh and versatile perspective to the essential routine in which ordinarily employed agents 'dwell' on this earth, which took hold in archaeological community as 'dwelling perspective', undoubtedly with great influence of Tim Ingold. The current state of landscape theory and phenomenology is more than adequately explored in different approaches and perspectives and there may not be much original contribution left to be made at this point. However, this literature review provides a theoretical background which enables some new practical experiments.

It is a compelling argument that landscapes are dynamic units of interaction, that they are meant to be bodily experienced to be understood and described. The ephemeral nature of landscape and its personalized meanings for individual bodies provide valuable yet abstract depth to the understanding, but the argument of this thesis is to suggest that it is possible to transform bodily experience into a cognitive one and synthetically imitate the landscape experience. There are numerous scientific studies as well as literature and entertainment medium that can strengthen this synthetic landscape experience. For example, when a landscape is visualized in static images,

²⁰ Tonner, 2015, p. 143.

digital or not, it is difficult to express it as more than simply physical space. Catherine Ward Thompson collected some results from a questionnaire, which studied how people perceive foreign landscapes²¹. Questionnaire results reveal that pictures of landscapes were better at stimulating participants compared to maps of landscapes. Furthermore, short videos of landscapes instead of photos, were even more successful in creating deeper and meaningful associations with landscape visuals. This shows that time / change properties enhance the perception of landscapes. Thompson also notes that natural or built landmarks and their recognition instill the sense of familiarity and therefore safety which is yet another element of “sense of place”.

Here, it is suggested that deep mapping and digital storytelling present a great opportunity to create an engaging landscape experience filled with knowledge and wonder. Digital techniques and tools enable the transformation of highly philosophical current landscape theory into a tangible methodology. Additionally, utilizing videogame narrative processes for producing archaeological knowledge of archaeological landscapes, sites and objects can provide valuable perspectives and alternative, emergent narratives in the non-digital, traditional medium of text.

2.3. Maps

Cartographic maps are archaeology’s primary visualization tool along with photos and drawings. As such, they are inevitably a part of the narrative of archaeology. The utilization of maps and its implications are explored in this subheading for better understanding their role in the development of archaeological narrative and knowledge.

2.3.1 The History of Cartography

The earliest object recognized as a map, dates back to 6th century BC and is known as the Babylonian Map of the World (Fig. 1)²². It is a clay tablet etched with primal version of a “T-O” map of the world, named as such because a “T” shape divides the world into three continents (Asia, Europe, and Africa) surrounded by an “O” shaped ocean. Babylon is marked as a rectangle in the center of the world.

²¹ Thompson, 2013.

²² Horowitz, 1988, p. 147.

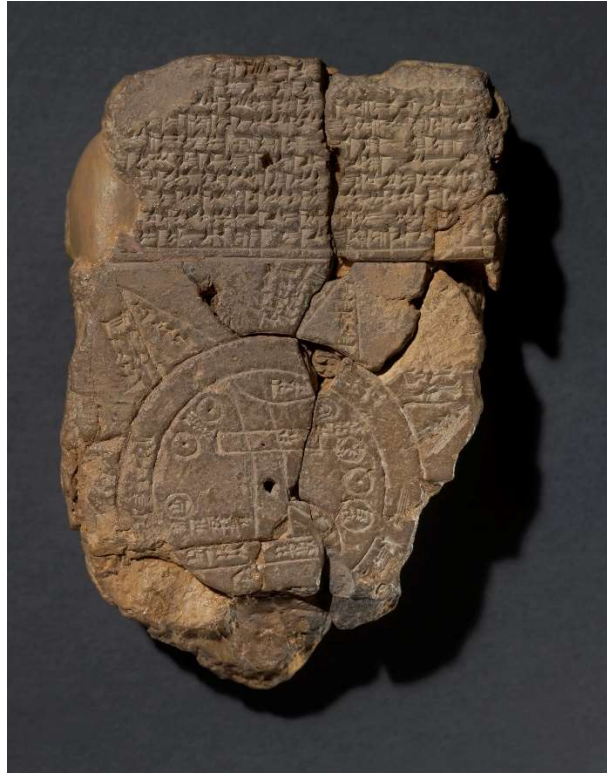


Figure 1: Babylonian map of the world²³.

Even though it is named as the map of the world, the geographical information consists of the Euphrates River and the neighboring cities surrounding Babylon circled by the ocean. Obviously, it is geographically inaccurate and focuses on around the region immediately surrounding Babylon, missing the rest of the world. It is expected the maker of this map did not have the technique or the knowledge to project the whole world yet; however, it is clear that this map was not intended to be used as a geographical reference document. Locating Babylon at the center of the surrounding region and claiming it represents the world is a strong political propaganda demonstrating the utilization of maps as political tools early on.

During and following the 6th century BC, several new theories and scientific calculations regarding the sphericity and the size of the Earth were being proposed by the Greek philosophers such as Pythagoras, Aristotle, Eratosthenes and

²³ Rassam, 1988.

Posidonius^{24,25}. By the 2nd century AD, Ptolemy was equipped both with Greek and Babylonian knowledge to further his astronomical and terrestrial understanding²⁶. Ptolemy integrated archival records and travelers' accounts into his studies, which resulted in the compilation of his monumental work, *Geographica* (Fig. 2) around 150 AD.



Figure 2: Ptolemy's *Geographica*, around 150 AD²⁷.

Part of *Geographica* was an atlas with detailed textual descriptions of cities, extensive list of coordinates for 8,000 specific locations, 64 map drawings at different scales of larger and smaller areas. The rest of Ptolemy's work set the foundation for scientifically accurate map-making in many ways. His explanations of the techniques for representing the globe on 2-dimensional surface advanced map projections while his implementation of parallels and meridians played a fundamental part in the creation of the coordinate system still used today²⁸. In short, *Geographica* fulfilled the function

²⁴ Evans, 1998.

²⁵ Bunbury, 1883.

²⁶ Jones, 1991, p. 442.

²⁷ By [http://en.wikipedia.org/wiki/User%3APortolanero/Wikimedia Commons](http://en.wikipedia.org/wiki/User%3APortolanero/Wikimedia_Commons), Public Domain, <https://commons.wikimedia.org/w/index.php?curid=16043748>

²⁸ Snyder, 1997, pp. 2-6.

of a guide for cartography for a long time until it was temporarily forgotten in western scholarship after the fall of Roman Empire.

In the Middle Ages, Ptolemy's legacy was recovered and improved upon by Muslim scholars. Accounts of sailors and travelers were integrated into cartographic understanding of the world. Al-Idrisi was a prominent, well-traveled map-maker during this period, protected and commissioned by Roger II, presumably to further his political agenda of expanding Norman lands in Europe and Mediterranean²⁹. After decades of extensive research, in 1154 AD, Al-Idrisi completed Tabula Rogeriana (Fig. 3) which included a world map and 70 regional maps³⁰ with impressive accuracy.

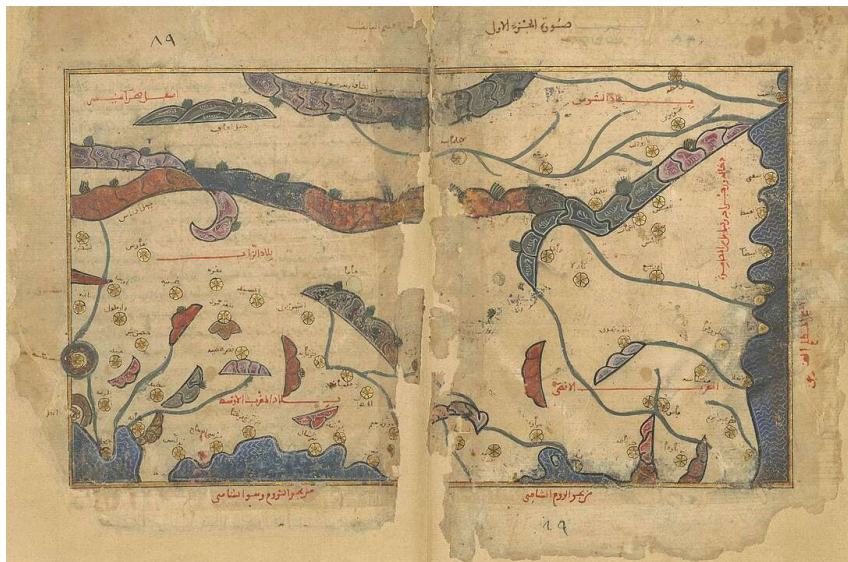


Figure 3: Al Idrisi's Tabula Rogeriana.³¹

Following Ptolemy's example Al Idrisi provided geographical texts on natural environment, ethnicity and cultural background of communities, socioeconomic circumstances characterizing the areas he mapped³². One thing worth expressing here is that no matter Roger II's political incentive, Al-Idrisi had Islam oriented world

²⁹ Selin, 2018, p. 128.

³⁰ *Ibid.*

³¹ By unknown copyist - Arabe 2221 BNF, earliest known surviving copy of Idrisi's Nuzhat al-Mushtaq, 13th century copy <https://gallica.bnf.fr/ark:/12148/btv1b6000547t/f165.item.zoom>, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=128511980>

³² Harley & Woodward, 1992.

vision evident in his maps; he placed south, the direction of Mecca, at the top³³. However, religion based orientation preference was not a novel application during this era since religious symbolism was quite common in other maps originated from Europe as well.



Figure 4: Hereford Mappa Mundi³⁴.

Hereford Mappa Mundi (Fig. 4) is another prominently recognized map made during the Middle Ages which is dated around 1300 AD with no clear knowledge of its creator. It is mostly commended for its level of detail in artistic and symbolic features prevalent in medieval Christian Europe maps. On the top of Hereford world map the Day of Judgment is depicted and is comprised of over 500 drawings, locations of 420 settlements, depictions based on 15 different events from the Bible, 33 plants, animals and strange creatures in addition to 8 mythical creatures as well as 32 people figure

³³ Idrīsī & Miller, 1928.

³⁴ By Unknown author - unesco.org.uk, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=41201813>

around the world³⁵. Like the majority of the maps produced during this era, Hereford world map does not accurately represent the world, nor does it adopt the cartographic techniques developed throughout the ages. Much like the Babylonian map of the world from the 6th century BC, it was designed - like majority of the medieval world maps - as a “T-O” map with Jerusalem in the center, and east is at the top which was accepted to be the holiest direction and where the Garden of Eden was located. Apparently, some maps created in the Christian Europe during the Middle Ages were primarily artistic accomplishments while the cartographical accuracy was somewhat ignored in favor of spiritual stimulation.



Figure 5: Catalan Atlas of Cresques Abraham Around 1450. ³⁶

Along with religious symbolism, there were still some innovations that can be observed in navigational map-making in the late Middle Ages. The utilization of compass in sea navigation beginning as early as the 12th century brought forth a new

³⁵ Bevan et al., 1873, pp. 15-20.

³⁶ By <http://www.cedoc.mo.it/estense/img/geo/Catalana/index.html>, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=6411103>

type of European map known as portolan charts³⁷. Characterized with crisscrossing lines over the seas connecting ports to each other, portolan charts assisted sea trade and travel to become faster and safer. The most expansive and famous portolan chart is the (Fig. 5), assumed to be made by a Jewish Majorcan book illustrator Cresques Abraham around 1450³⁸. Even though there are scholarly discussions on whether Cresques Abraham was a cartographer, the royal documents commended him on his excellent artistic skills of map-making and referred to him with the titles of “master of mappaemundi” and “master of mappaemundi and compasses”³⁹. Evidently, Catalan Atlas is recognized as the first map which included the compass rose, a cartographic tradition still observed today.

The regular use of compass initiated a renewed interest in geographically accurate maps. It was also a time of colossal change marked with the Renaissance, the Reformation and the Age of Discoveries. Beginning with the early 15th century, European countries rivaled in economic growth, the dissemination of the Christian religion and the military advantage over other countries. Consequently, the exploration and the colonization of new land became imperative⁴⁰ which was only possible with accurate and expansive maps. Therefore, cartography once again became a significant discipline.

The next big advance in cartographic science happened in 1569 with the publication of Flemish-German cartographer Gerardus Mercator’s map of the world (Fig. 6) , engraved in 18 separate plates in total⁴¹. Mercator was the developer of the most widely used map projection, namely the Mercator projection. During the 16th century, Ptolemy’s projection was still in use however it required constant calculation along the sea route because of the sphericity of the Earth. Mercator devised a way to project the round shape onto a cylindrical one, distorting the actual size of landmasses increasingly as their distance to equator grows. This was the first time it was acknowledged that no map can be without some distortion and as Mark Monmonier

³⁷ Marcus, 1956, pp. 18-19.

³⁸ Cresques & Grosjean, 1978.

³⁹ Cresques, 1975, pp. 14-22.

⁴⁰ Krim, 2014, pp. 249-251.

⁴¹ Monmonier, 2010, pp. 47-63.

states “No map entirely tells the truth...”⁴². Yet the knowledge of geography and map-reading was understood as a significant part of education and continued to grow throughout the following centuries.

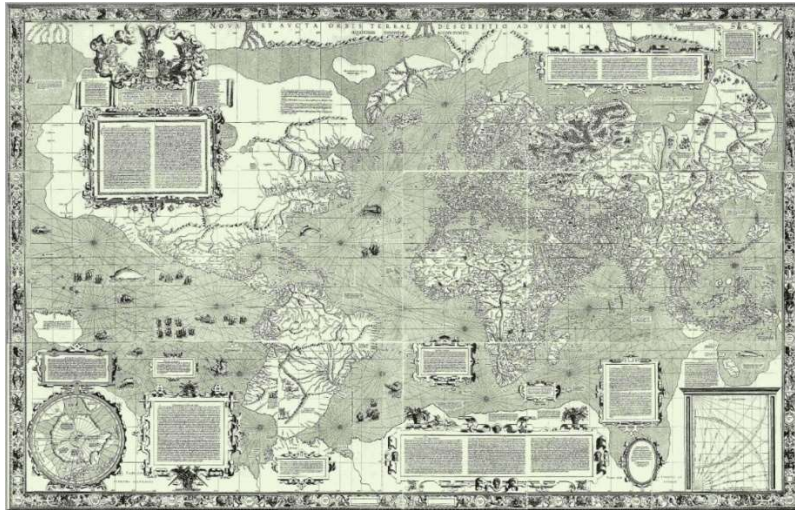


Figure 6: Mercator Map of The World, 1569⁴³ .

During the period of 17th to 19th centuries, travel for education and pleasure became increasingly common which consequently made the maps common tools of navigation. In the 18th century, maps were more than representations of the world, they were the representations of the nations’ claim over their land. And by the 19th century, nationalistic agendas oriented cartography, and geography in general, towards formalized state institutions⁴⁴ rather than patronage of wealthy and powerful.

Increased international conflict resulted in wars and the development of reconnaissance technologies in 20th century. Aerial photography was one of those technologies that spread to civilian use after the World War I. A civil company named Fairchild Aerial Survey Company photographed the New York City in 1922⁴⁵. The low-altitude flights and high-quality image resolution provided a very useful map of

⁴² Monmonier, 1996, p. 1.

⁴³ By Gerardus Mercator - This image was originally uploaded to pt: by User:Alvesgaspar on 08:22, 23 Abril 2006. The description provided was: Carta do Mundo de Mercator (1569), Public Domain, <https://commons.wikimedia.org/w/index.php?curid=730484>

⁴⁴ Capel, 1981.

⁴⁵ Light, 2005.

the city that was changing. The aerial map was immediately put to use by New York's city planning department, financial department, as well as companies of gas, phone, bank, railroad, electricity etc.⁴⁶. The development of technology seems to be continuously accelerated by warfare in the 20th century. The Space Race and the Cold War were the results of a grand breakthrough initiated by the launch of Russian satellite Sputnik in 1957⁴⁷. Even though it induced mass panic in the US, it also led to the discovery that depending on the position of the satellite, it was possible to track any fixed body on Earth's surface. Based on this discovery, the US initiated the NAVSTAR GPS satellite constellation program and launched four satellites in 1978, which would change both the military and the economic understanding worldwide⁴⁸. This system would be recognized as the Global Positioning System (GPS).

In the meanwhile, computers were becoming more common around the world, enhancing the map making technique and availability immensely. In 1963 an English geographer Roger Tomlinson developed the first computerized Geographic Information System for the Government of Canada to create and manage its inventory of natural resources⁴⁹. The GIS technology was quickly recognized all over the world, initiating both government supported and commercial development and use of the new system at the global scale⁵⁰. GIS specialists and analysts became the new employers of cartographic science, engaging in a great range of studies that can be researched from the viewpoint of geography. After the easing of restrictions regarding civilian accessibility to sensitive location tracking, GPS, Remote Sensing, globalization of geographical data, web-based map services and map-making software improved all manners of cartographic endeavors by leaps and bounds. User friendly and free products were developed by Google, a combination of Earth, Maps, and Street View provided the majority of the world population with the most accurate and complete map of the world⁵¹ fitting in their pockets in the 21st century.

Today, map-making is more about working on already provided base maps and adding

⁴⁶ *Ibid.*

⁴⁷ Kennedy, 2005, p. 1.

⁴⁸ Kumar & Moore, 2002.

⁴⁹ Goodchild, 2018.

⁵⁰ *Ibid.*

⁵¹ Kilday, 2018, p. 247.

layers of data regarding the specific purpose of the map-maker, in essence it is map-editing rather than map-making. Maps are used by military, economists, statisticians, and countless other professionals and amateurs. However, in all its scientific uses, map-making and map-reading comes with an ethical responsibility born out of the knowledge that maps are imperfect representations of the geographical reality of the Earth and they are powerful tools that can be utilized for furthering individual and communal agendas.

2.3.2 Maps in Archaeology

In archaeology, maps are essential tools to plan, mark, compare and interpret data; they are platforms where archaeological knowledge can be shared and discussed. Even though cartography is an entirely separate discipline from archaeology, they both share the same roots in the forgotten technique named chorology or chorography. The art and discipline of detailed textual or illustrated description regarding a small region's flora and fauna, land shapes, prominent architectural features and demographic elements, is a superficial definition of chorology. Theoretical discourse on the use of maps specific to archaeology is mainly formed around smaller regions, which is also chorology's area of focus. In his paper on chorology, Darell Rohl notes that the common roots of both disciplines are entwined further in the traveler's journals and antiquarianism of the 16th to mid-19th century⁵². During this period, young men of European elite would be expected to travel to Italy and Greece to learn the art and philosophy of the ancient world. These travels in general were called the Grand Tour⁵³. Though travelers from all over Europe were participating in this tradition, travel journals of the young gentlemen of Britain were more prominently studied among others. Furthermore, many antiquarian scholars such as George Wheeler⁵⁴, William Martin Leake⁵⁵ and Theodore Bent⁵⁶ traveled these lands and recorded archaeological remains and monuments, performing chorology as well. In addition to those who traveled internationally, British antiquarian scholars traveled in their motherland,

⁵² Rohl, 2012, p.20.

⁵³ Loy, 2019.

⁵⁴ Wheeler & Spon, 1682.

⁵⁵ Leake, 1830; Leake, 1835.

⁵⁶ Bent, 1885.

performing chorology which, according to Rohl, was largely synonymous with British antiquarianism⁵⁷. Rohl notes that chorology was displaced by specialized empirical forms of topography and spatial analysis while antiquarianism evolved into the more formalized discipline of modern archaeology⁵⁸.

Elizabeth Bollwerk, in her article about native cultural landscapes in the Middle Atlantic⁵⁹, advocates that the evolution of archaeological thought is supposed to affect how maps are modified yet her exploration proves that this was not the case. Antiquarian geographical approaches to landscape were primarily text-based descriptions and artistic illustrations. Then, the cultural historical approach entered the stage in the 19th century. During this period, archaeology focused on the cultural similarities and differences between the communities and would work with the language, cultural elements and material culture. When these factors demonstrated homogeneity in a certain area, they were accepted as cultural areas and marked on maps with strict lines between each other. Even though researchers noted the fluidity of boundaries and how difficult they can be to delineate⁶⁰, their maps would tell a different story. Towards the middle of the 20th century archaeologists became increasingly more concerned about the behaviors of humans of the past and moved beyond the generalized culture areas. A new approach fueled by the developments in positive sciences became the most popular way to conduct archaeology. This new archaeology known as Processual Archaeology, approached to culture as integrated functional systems while the relations between the nature and the culture became the focus of understanding the human behavior. With Processual Archaeology, the scale of the study areas became larger to better represent the settlement systems as a whole. As a consequence, maps with larger scales depicting multiple settlements of various types, sizes, locations and distance from each other began to emerge rapidly. However, this new approach's focus on the ecological elements altered the map borders of the communities to align with the geographical ones. Once again, the maps archaeologists produced were insufficient to represent the social intricacies behind human needs and choices. The arrival of Post-Processual approach pushed this insufficiency even further

⁵⁷ Rohl, 2012, pp. 20-21.

⁵⁸ *Ibid.* p. 21.

⁵⁹ Bollwerk, 2015.

⁶⁰ *Ibid.* p. 4.

due to its focus on the dynamic and diverse nature of human behavior. Native communities and their truthful representation were prominent issues this approach brought forth as the still living descendants of these communities were often misrepresented due to traditional narrative rooted in the centuries old colonialism. Ethical and politically correct representations of such communities were developed and discussed thoroughly since then^{61, 62, 63}, yet the map-making practices were not noticeably altered to reflect the theoretical advancements on the issue⁶⁴.

It is hard to believe that cartographic inadequacy is the reason behind the underwhelming development in representing the advancements of archaeological theory and practice in map making practices. It is also doubtful that this is an issue regarding the archaeologists' inaptitude at the cartographic technique, considering that map-making and map-reading are essential skills required even from the novice level archeologists. The logic urges to reach for a wider understanding regarding the concepts that are relevant both to cartography and to archaeology. This understanding could be carried out through the exploration of deep mapping as a technique. I suggest, in order to represent the theoretical advancements in archaeology, deep mapping can be recognized as a viable alternative without abandoning the use of traditional cartographic maps altogether.

2.3.3 Deep mapping

The term deep map and its historical background are somewhat ambiguous in the chronological and terminological sense. The first time deep map term was used, it was for a cartographic text genre in 1991 by Heat-Moon, yet the concept of describing and representing the landscape in cultural and natural sense was actually a well developed technique called chorology or chorography since the age of ancient geographers. Chorology as a term was forgotten during the Middle Age, until the social scientists of the last decade revived the deep map term and its ancestor chorology, with a new vision brought forth by advancements in digital technologies. Therefore, the

⁶¹ Dewhirst, 1980.

⁶² Denton, 1985.

⁶³ Nicholas & Andrews, 1997.

⁶⁴ Bollwerk, 2015, p. 17.

chronological development of deep map terminology begins with an introduction to chorology in this context.

Even though the term deep map was popularized during the 20th century, the intellectual roots of the concept itself can be found in much earlier records of historical geography, under another name and genre, chorology, the practice of textual and visual description of regions, provinces or cities. David Rohl introduces chorology as “a little-known field of theory and practice concerned with the significance of place, regional description/characterization, local history, and representation⁶⁵”. The foundation of chorology goes back as early as 2nd century AD, with *Geographica* by Ptolemy. Although, Ptolemy refers to chorology as a technique of drawing landscape views proportionately and in detail rather than textual form, the emphasis he makes on qualitative elements rather than quantitative ones of a region or the smaller scale study area is shared by later historical geography writings. According to John F. Moffitt, the technique and the term chorology were forgotten by the time of Medieval Age cartographers and geographers⁶⁶. On the other hand, Michael Shanks refer to chorology or *writing on the land* as an effort of deep mapping by stating that “...eighteenth century antiquarian approaches to place, which included history, folklore, natural history and hearsay, the deep map attempts to record and represent the grain and patina of place through juxtapositions and interpenetrations of the historical and the contemporary, the political and the poetic, the discursive and the sensual; the conflation of oral testimony, anthology, memoir, biography, natural history and everything you might ever want to say about a place ...⁶⁷”. Shanks is one of the pioneers of modern study of deep map and he points at the parallelism between chorology, 18th century historical geographical approaches and deep map of Heat-Moon.

The linguistic coinage of the term deep map is attributed to William Least Heat-Moon, a traveler and a historian who is the author of *PrairyErth: A Deep Map*⁶⁸. Heat-Moon published this book in 1991 and sub-titled it as a deep map which described the geographical, biological and cultural character of a specific landscape, namely, Chase

⁶⁵ Rohl, 2012, pp. 19.

⁶⁶ Moffitt, 1993.

⁶⁷ Shanks, 2001, pp.64-65.

⁶⁸ Heat-Moon, 1991.

County in the state of Kansas, US. Les Roberts refers to this book as textual cartography⁶⁹ that is comprised of archival research, interviews, complex personalities of the region's dwellers, vegetation, animal species and various other details that makes a place. Obviously, the depth is provided through the author's experience and observation of many components of this place and finely detailed texture of his writing. *PrairyErth* may be the first of this genre of literature however, it is by no means a singularity as demonstrated by Susan Naramore Maher in her book named *Deep Map Country: Literary Cartography of the Great Plain*⁷⁰ which brings together and examines the writings of Julene Bair, Sharon Butala, Loren Eiseley, Don Gayton, Linda Hasselstrom, John Janovy Jr., John McPhee, Kathleen Norris, and Wallace Stegner in addition to William Least Heat-Moon. Multi-layered stories that are told in this genre range from geology, evolutionary biology, indigenous communities, personal journeys, political and economical circumstances, and their effects on the environment, as well as the spiritual elements embedded into the physical world. In other words, the origins of deep maps as a literary genre conceptually coincide with its predecessor chorology, while also providing a platform for landscape studies.

Maps have always been one of the most utilized tools in archaeological practice. While traditional cartographic maps provide knowledge on where places are located, deep maps can offer depth by informing the reader how and why those places came to be and the experiences that result in the sense of place. As Harris sums it, "deep maps seek to map the unmappable⁷¹".

In the last decade, deep maps became relevant once more and even acknowledged as 'the essential next step' for humanities studies⁷². Deep maps enable the implementation of identity of the place by centralizing people and personal experiences. They provide a platform which can contain multiple perceptions of a place shaped by personal, social and imagined connections. With deep maps, it is possible to represent the details of memory as Mike Pearson and Michael Shanks

⁶⁹ Roberts, 2016.

⁷⁰ Maher, 2014.

⁷¹ Harris, 2015, p. 33.

⁷² Bodenhamer et al. 2015, p.1.

states: “anecdotal, fragmentary, speculative... all those things which we might never regard as authentic history but which go to make up the deep map of the locale⁷³”.

According to Shelley Fishkin, deep maps are “projects rather than products⁷⁴” while Bodenhamer, Corrigan and Harris states that “A deep map is simultaneously a platform, a process and a product⁷⁵”. This contradiction is caused by an often overlooked nuance about deep map and deep mapping. The act of deep mapping does not result in the final product called deep map. Deep maps are never complete or exact; they are deliberately dynamic and instable to enable constant development of narratives that make the place. Traditional scientific discourse is provided by scientist and scholars for the rest of the community, however deep maps only work if all interested parties are encouraged to participate in deep mapping. New information needs to be added as often as possible and these can be scientific data or local folklore, qualitative or quantitative, fact or fiction, visual or text. Deep maps do not aim to replicate the exact truth; they function as common ground for all possible representations of the truth from as many perspectives and participants possible. In summary, deep maps are eternally unfinished since the second they are deemed complete, it is as though they never existed.

According to Ridge, Lafreniere and Nesbit, deep map is a fundamentally exploratory environment in which a near limitless range of sources can be included⁷⁶, which means that deep maps are boundless and need a considerable amount of space to grow. Various descriptions of deep maps represented here suggest that they require a significant amount of space, coherent curation strategies and accessibility for all participants. It appears, the expectations based on deep maps can only be fulfilled now, through the utilization of modern digital technologies. Therefore, in addition to the descriptions provided above, a deep map is a digital environment that encourages participants to explore and interact with real and imaginary renditions of a place that offers a unique experience for each individual use and user.

There are a number of undertakings regarding the rebirth of deep mapping in the digital

⁷³ Pearson & Shanks, 2001, p. 144.

⁷⁴ Fishkin, 2011, p. 3.

⁷⁵ Bodenhamer et al. 2015, p.3.

⁷⁶ Ridge et al., 2013, p. 177.

environment, and digital humanities play the leading role in this endeavor. One notable example of deep mapping is Three Landscapes Project which was mentioned by Harris in *Deep Maps and Spatial Narratives*⁷⁷. According to Harris, this project involves several media forms such as a large collage on a wall combining traditional maps, painting, photography, journals and essays on a graphic form; audio records of discussions with guests, and educational video of the project's report and a software to enable collaborative work on the whole deep map project. Unfortunately, web links to these materials were not able to connect to the sources, and it was not possible to explore this deep map personally. However, it is a good sample of a deep map in physical environment as well as the utilization of basic digital tools which are quite sufficient for deep mapping and demonstrates that, professional level digital skills are not a must for such undertakings.

Another example is the ghost maps of Los Angeles created by Ethington, a scholar of history and political science. This deep map is actually planned to be published in multimedia book format titled *Ghost Metropolis* as a combination of text, interactive maps, photographs and video⁷⁸. Ethington's ghost maps are named so "because they make visible the invisible traces of past human action in the landscape."⁷⁹ However, these ghost maps are actually examples of deep map which provide the depth in two ways: one is visual depth achieved through juxtaposition of many semi-transparent layers organized from earlier to later urban texture and the second way is chronological depth, presented in form of bar and pie charts representing the changes of each neighborhood from 1940 to 2000 throughout the shifts of power from Uto-Aztecs to Spanish Mexicans and to Americans afterwards. One most effective and simple approach to add depth to these ghost maps that require mentioning is the use of white circles to specify the major events that took place which are described in the margins of the map. Such practices are well aligned with the characteristics of deep maps in sense of the representation of multiple layers of information in a single screen. Deep maps are visually untidy due to their purpose of being free from the necessity of meticulous cataloging generally adopted in scientific studies. Cataloging and

⁷⁷ Harris, 2015, p. 36-37.

⁷⁸ Ethington, in publication.

⁷⁹ Ethington & Toyosawa, 2015, p. 90.

classifying the data inevitably carries the burden of confining the narrative and interpretation into a linear form that is heavily influenced by the views of people handling the catalogue organization. Deep maps' one of the primary purposes to minimize linear narrative in order to benefit from multivocality desired for expressing the depth of the landscape vibrantly.

Another deep mapping effort is the project named *Geospatial Innovation: A Deep Map of the Lake District* conducted between 2015 and 2018 at Lancaster University. In its website⁸⁰, this project is described as a venture for building a historical deep map of the English Lake District based on literary data. They focus on the period between the 18th and 20th centuries of this landscape to explore the social, economic and industrial revolutions that played a role in its multifaceted identity. Alexander Reinhold and his colleagues explain the process of this deep mapping in an article titled *Exploring Deep Mapping Concepts: Crosthwaite's Map and West's Picturesque Stations* and provide details on how they created a prototype⁸¹. They chose a Google map as the digital platform and added the locations of the eight West stations which also include Google Street View of the station surroundings. Regrettably, it appears as though neither this prototype nor a primed version of the mentioned deep map was made available for public appreciation, and personal exploration of the English Lake District landscape cannot be experienced. However, this endeavor successfully demonstrates once more that basic web applications can be sufficient for deep mapping.

One last deep mapping example to be mentioned is both the most recent and the most valuable yet for the purposes of this thesis. Opitz's 2018 dated article on digital publication of Gabii House near Rome, stands very close to the issues and methods proposed in this paper^{82,83}. This is another born-digital publication sharing the entirety of issues concerning the previously mentioned literature. What is fascinating about this project is its efficiency and pleasant experience offered by the digital interface as well as satisfying academic and scientific depth. As shortly explained by Opitz, "This volume presents the archaeological story of a single mid- Republican house at various

⁸⁰ <http://wp.lancs.ac.uk/lakesdeepmap/> Accessed on 11.11.2020.

⁸¹ Reinhold et al., 2018.

⁸² Opitz, 2018.

⁸³ <https://doi.org/10.3998/mpub.9231782> Accessed on 21.02.2024

levels of detail and sophistication intended for different audiences, within a single digital product through a multi-layered textual narrative, a fully searchable database, and an interactive 3D representation of the archaeological remains and reconstructions⁸⁴”. Additionally, Gabii house project is the only exception that is still available online as an actualized deep map example while previously presented deep map cases are one way or another unavailable for users. It is important to note this issue with digital deep maps and acknowledge the difficulties of creating and maintaining a digital platform perpetually. At this point it should be suggested that deep mapping as a method to understand and explore archaeological data is still a valid approach even without digitization, similar to ancient technique of chorology did in the past.

One last example of deep mapping is one of the latest and most current applications, produced by The Guardian’s online case on Gaza which have been a scene of mass destruction in October 2023. Niels de Hoog and colleagues have created a deep map of the destruction to civilian infrastructure by Israel in its war on Hamas. The title of the news piece is “How war destroyed Gaza’s neighbourhoods – visual investigation⁸⁵” and they did not refer to it as a deep map, however, the combined use of satellite imagery and open source evidence along with very simple navigation allowed by scrolling down is an example of digital, interactive and multi-media deep map. While the satellite imagery provides the base map; photographs, videos and texts provide a striking depth. This example can be significant both from the perspective of demonstrating deep maps’ capacity to be used by various disciplines such as journalism, and from the perspective of timeframe which is up to date and rather relevant in actual situation of this landscape.

Lastly, the examples provided thus far indicate that deep maps do not in any way aspire to replace traditional cartographic maps, on the contrary, 2-dimensional maps are a valid point to start deep mapping. Deep maps are created with different types of knowledge presented in a loosely constructed environment which can result in difficulty of navigation and consequent confusion. Various units of knowledge need to be conceptually organized in an unrestricting manner to avoid ending up with haphazardly piled pieces that do not come together coherently. Traditional maps can

⁸⁴ *Ibid.* p. 569.

⁸⁵ De Hogg et al. 2024.

become deep maps when combined with knowledge concerning a specific theme. The main approach to provide coherence is through narrative, however, development of the narrative is a delicate task due to social and political implications embedded in it. Further exploration on the subject is required for the awareness of the ethical pitfalls of meta-narratives and a basic understanding of the philosophical discourse on the subject of narrative needs to be involved in the process.

2.4. Narrative

2.4.1. Narratives of Archaeology and History

The literature on the narrative of archaeology frequently overlaps with the narrative of history. Even though there are fundamental differences regarding the nature of data, types of textual format and the timeframe, the two disciplines share some common ground in their pursuit to understand and produce the knowledge of the past in a coherent way. Therefore, it is appropriate to further explore the shared notions of narrative in both disciplines.

According to Pluciennik, the overall coherence is achieved with the narrative that consists of a chronological sequencing of situations and conditions. Pluciennik defines “narrative as story—a chronologically ordered and somehow unified or related sequence of events with a beginning, middle, and end⁸⁶”, and notes that archaeology’s essential concern with chronology is already aligned with this definition. To clarify, it is suggested here that archaeological knowledge is produced in narrative form by default. Pluciennik’s view, like several others’ scrutinizing the nature of narratives of history and archaeology, is actually formed on the basis of French philosopher Jean Paul Gustave Ricœur’s work on the narrative theory. A thorough study of Ricœur’s three volumes of *Time and Narrative*⁸⁷ is rather ambitious for the scope of this thesis; however, references to his work are stumbled upon throughout the literature survey on the narratives of archaeology and history due to its fundamental role in narrative theory. In his textual analysis of Aristotle’s *Poetics*, Ricœur repeatedly refers to the term “*emplotment*” to further explore the narratives and their constructed nature. As

⁸⁶ Pluciennik, 1999, p. 654.

⁸⁷ Ricoeur, 1984.

any narrative must have characters, events and a plot to bind them so that the causes and effects of a given event can be followed in order to provide a series of events in a logically coherent sequence⁸⁸.

Coherence is one of the most sought out qualities in any narrative as another influential scholar on the subject, Hayden White's arguments demonstrate⁸⁹. White refers to the historical documentation forms of roughly between the 16th to 19th centuries of annalists, chroniclers and historians: while the annalists briefly record somewhat extraordinary events such as the death of a ruler or a natural catastrophe with their dates as they transpire, resulting in a chronological order, the chroniclers also record events as they occur but they include some of their knowledge of what had happened earlier relating to the event described at that present. Thus, the chroniclers' record becomes a little more coherent than the annalists' as it gains a retrospective depth. Yet the chroniclers' intervention based on his personal knowledge and his understanding of the causation chain taints the objectivity of his account. Even though it is not a fully formed narrative yet, because it does not have a beginning or an end, the problem of objectivity emerges. Archaeological approach is a somewhat similar process, while history refers to written documents in order to serve its purpose, archeology's primary source of data is the material remains of the past. Raw archaeological data is traditionally comprised of measurements, coordinates, layout plans, photographs and various outputs of technical analyses that are basically coded and recorded as series of numbers and letters, abrupt verbal descriptions, graphics and other visuals that do not actually tell anything on their own. It is the archaeologists' burden and privilege to acquire and link those bits of data to provide a coherent understanding of the past. In the cases of both the historians and the archaeologists, they have full retrospective view, therefore a coherent understanding, since they write well after the events are concluded. But at this point a new depth to the discussion reveals itself: how to determine the beginning and the end of a series of events?

Pluciennik offers an explanation by referring to Larry J. Griffin for his definition of event: “(a) historically singular happening that takes place in a particular time and place and sequentially unfolds or develops through time... Events are thus temporal

⁸⁸ *Ibid.*, pp. 31-51.

⁸⁹ White, 1980.

processes characterized by the ‘emergence of novelty’⁹⁰” and furthers Griffin’s point with William H. Walsh’s “historical colligations” argument as “relational constructs that unify a number of past or contemporaneous actions and happenings that might otherwise have been viewed as discrete or disparate into a coherent, configured whole that gives meaning to and explains each of its elements and, simultaneously, is constituted by them. . . . What is included as a description of an event, then, is a problem of sociological-historical purpose, and that is a property of the analyst rather than of history “objectively given.”⁹¹” Though Pluciennik does not interpret these two references further, what is implied here appears again to be the problem of objectivity since White’s thoughts on coherence arrives at a similar conclusion that the historians’ narratives are affected by their personal understanding of the present world and their knowledge of the past. Even though a fully formed historical narrative conveys a considerably more coherent representation of the past compared to the accounts of the annalists’ and the chroniclers’, said coherence is achieved within a system of ideological and political views, which can be studied under the term of meta-narrative or grand narrative.

The term was first introduced by the famous French philosopher and a pioneer of postmodernism, Jean-François Lyotard⁹². Lyotard uses the term to refer to a theory that tries to give comprehensive and totalizing accounts to various historical events and experiences as well as to social and cultural phenomena based upon the appeal to universal truth. In other words, for Lyotard, a meta-narrative is a type of story which legitimizes forms of knowledge by supplying them with a validating philosophy of history, hence the story or narrative functions to legitimize power, authority and social customs. Therefore, a meta-narrative defined as a narrative that claims to explain various events in history and gives meaning to them by connecting disperse events and phenomena by appealing to some kind of universal knowledge or truth. The influence of meta-narratives can be observed both in the formation of cartography and archaeology along with history.

⁹⁰ Griffin, 1992 as cited in Pluciennik, 1999. p. 655.

⁹¹ Walsh, 1974 as cited in Pluciennik, 1999. p. 655.

⁹² Lyotard, 1984.

2.4.2. Meta-narratives and Cartography

Geographer Mark Monmonier argues that all maps lie⁹³. They tell lies because distortions in projection and the necessary abstraction of the reality in form of generalization, symbolization, classification and aggregation are inherent “white lies” of the cartography. However, Monmonier also warns that because we know that maps must lie and we tolerate them, it is also not difficult for maps to tell malicious lies. Furthermore, because the technical aspects –including the distortions of the reality- of map-making are based in scientific logic and can be explained so, they create the illusion that maps represent the scientifically proven facts. This illusion has been enabling the utilization of maps to distort reality beyond the maps and in the actual world. Considering the earliest “maps of the world”, which are neither useful for navigation nor realistic representations the world, cartographic propaganda could be interpreted as the reason for cartography to be born in the first place. Putting aside the irony, cartographic propaganda is known to be a statement of the power for the authority throughout the centuries. While the Medieval Europe world maps adorned with religious symbolism communicated the supreme power of Christian Church; during the colonial period, maps were used to legitimize the imperial control over “uncivilized” peoples and lands of Americas, Australia, Africa and Asia. Similarly, national atlases were strong statements asserting the nations unity and sovereignty under its current rule⁹⁴. In fact, nationalism in general heavily utilizes maps as Robert B. Kent states that “National governments may use maps to mold national opinion, influence international perception, or obscure the true location of places. International territorial conflicts, embarrassing national problems with spatial implications, and the need to obscure the location of strategic places from internal or external adversaries represent situations in which a national government might be inclined to modify cartographic reality”⁹⁵. One documented instance for this statement is the production and wide distribution of modified maps by the Nazi propaganda machine during the Second World War to further national socialist views⁹⁶.

⁹³ Monmonier, 1996.

⁹⁴ Kent, 1986.

⁹⁵ *Ibid.* p. 122.

⁹⁶ Tyner, 1974.

It appears that the historically persistent concepts such as colonialism, imperialism, nationalism and globalism and their manifestations in forms of wars, international politics and economical growth are thoroughly embedded in the development of cartography as a discipline both in its advancement and in its abuse in an ever-revolving pattern of cause and effect. Furthermore, these vast concepts inevitably expand through time and space and are intertwined with the story of humans and all the social sciences concerned with the humankind of all times and places. This is why these concepts are referred to as meta-narratives and as Mark Pluciennik states “Although narratives and meta-narratives are not limited to modern Western times and places, these goal-oriented interpretations which are used to impose a *telos* on the past seem to have a particular political resonance with colonialist, imperialist, and nationalist projects⁹⁷”. This understanding leads to the necessity of exploring the influence of these meta-narratives on archaeology as a discipline.

2.4.3. Meta-narratives and Archaeology

The meta-narratives mentioned here are mainly grounded in the grand concepts of colonialism, imperialism and nationalism that are brought forth by political, economical and socio-cultural conditions unfolded since the Enlightenment. The influence of these grand concepts can be observed in many areas of both science and daily life as well as in the formation of archaeology as a discipline. In turn, archaeological knowledge was produced and employed to shape the majority of the world according to these grand concepts. Even though much earlier attempts at archaeological studies can be observed in Egypt, ancient Mesopotamia and China, they did not develop into a systematic discipline. It was the western antiquarians who took the first steps towards systematic archaeology beginning in the late middle age and developing tentatively through the Enlightenment era. During those centuries archaeological artifacts and sketches of ancient architectural remains were confined mostly within the personal collections of the wealthy or in the records of scholars. Initially there was no real necessity for a theoretical framework to interpret these archaeological remains as the predominant western view of the world in the Middle Ages was based on religious dogma. However, philosophical and scientific approaches

⁹⁷ Pluciennik, 1999, p. 656.

that became prevalent with the Enlightenment further developed into a movement of individual liberalism in opposition to absolute monarchy and religious tolerance instead of fixed dogmas of the church. In the late 18th and the 19th centuries the movement of liberty for the nations matured into imperial nationalism which presented a new purpose for archaeological excavation and interpretation. Acquiring archaeological artifacts became a significant endeavor funded by nations' leaders if not personally conducted by them, as in cases of Thomas Jefferson and Napoleon Bonaparte. Personal collections were displayed at national museums demonstrating the nations' great reach to far lands.

The cultural-historical approach that identified different cultures based on their stylistic variations in material remains relied mostly on the diffusionism for explanation. According to this approach cultural progress was achieved by specific groups and then diffused by migration to other groups, subsequently enabling the idea of a superior culture amongst less progressed ones. Nationalism campaigns employed the cultural-historical interpretation to instill strong national sense which could be a powerful method to move masses of people to war in the name of their nations. Evidently, such was the case in the 20th century which was marked with great international wars across the continents.

War, by its nature, is a catastrophic event with dire repercussions to economical, social and psychological aspects of people's daily life. It also had a considerable impact on scientific disciplines, manifesting as New Mathematics, New Biology, New Geology, New Geography, New Social Studies, and New Architecture as well as New Archaeology, which is also known as Processual Archaeology. Technological advancements born out of warfare were rapidly adopted by archaeologists, primarily resulting in the application of various new techniques that were essentially practical rather than theoretical. The theoretical framework itself was focused on approaching the data collected through scientific method in an equally systematic manner that would not taint positivism and objectivity of the archaeology. Meta-narratives that first gave purpose to the discipline were abandoned for the meta-narratives such as the rise of state, evolutionary theory or urbanization which are specific to archaeology or broader area of social sciences. Nevertheless, archaeology's predilection for meta-narratives resuming that the past can be perceived as a linear process, one in which

something progresses straight from one stage to another, conforms to the principle of modern science.

Modernity's unwavering insistence on order, coherence, regularity, and general laws lead to the categorical erasure or neglect of normal variability that does not fit within the logical structure of the meta-narratives. This strict form was first challenged by artists who are characteristically positioned at the fringes of the normal variability, but modernity's vision and expectation of ordinary people was such a uniformed perfection that soon it became a collective movement under the name of post-modernism. The first principle of post-modernism is the incredulity towards meta-narratives; instead, post-modernism celebrates individuality, diversity, and ambiguity. Post-modernism's reflection on the social sciences has founded the post-structuralist movement that questions and criticizes the validity of positivist science. As one of those disciplines which declared its commitment to positivism, processual archaeology was also challenged by archaeologists under the banner of post-processual or interpretative archaeology. Post-processual archaeology was influenced by post-modernism in a more theoretical sense where objectivity was questioned, and relativity was taken into account. Most importantly, the reasons and factors influencing the production of narratives of the past were subjected to critical scrutiny with the emphasis on ethical concerns and archaeology's utilization in political agenda.

Undoubtedly the critical discussions on these issues were significant steps toward a better archaeology. However, even now, long after the introduction of the post-processualist mindset, archaeological narrative is mostly confined within the third person passive voice as dictated by the academic writing practices of the modernity. It is not far off a conclusion that by removing the first-person active voice, the archaeologists themselves are removed from the narrative in exchange for a more credible position provided by the meta-narrative of archaeology being an objective discipline of science which can only tell the truth. Obviously, archaeologists who are the authors of these narratives are credited by their names on their publications, however if the authors' name is removed as well, almost all literature of archeology discipline could be perceived as produced by one entity that in actuality, does not exist. This being a take on Lyotard's argument of "incredulity" towards meta-narratives, his

proposal for local determinism in the production of knowledge is worth mentioning as one of the alternatives to the universal truth.

2.4.4. Alternative narratives

Local narratives

Lyotard defines his local determinism theory on the basis that knowledge is shaped by local conditions and circumstances⁹⁸. In other words, knowledge is not universal, but is instead determined by the specific context in which it is produced and used. These local contexts can be influenced by language, power, and social institutions, which are inherently unstable and fragmented, and result in multiple, competing local narratives or "language games" that do not necessarily cohere into a single, unified whole. In literature, local narratives are stories or accounts of specific places and communities. They are usually formed around powerful events or conditions such as invasions, droughts or migrations that directly affect the community of the locale, and are reflections of the unique perspectives, values, and experiences of the said community. Local narratives can be found in various forms, such as oral histories, folklore, literature, art, and music. They can also be expressed through the built environment, such as architecture and public spaces, and through local traditions and customs. Local narratives, by nature, are shared and collectively known by the individuals of the community and also generally observable in some ways by the outsiders.

Micro-narratives

If local narratives can be regarded as a means to avoid meta-narratives, then micro-narratives should also prove useful in this argument since they are even smaller, personal stories that capture the uniqueness of a moment or an experience. Micro-narratives can often be extremely intimate and subjective anecdotes in written form or parts of private conversations that expose individual perspectives and experiences. The nature of such micro-narratives is usually brief and focused on a singular event rather than being part of a larger narrative arc. Like mentioned earlier, micro-narratives can take the forms of literature and oral history, however the most common examples of such narratives can be observed in current social media practices on digital platforms.

⁹⁸ Lyotard, 1984.

Even though micro-narratives are far removed from the objectivity and the truth, in various areas of social sciences such as medical ethics⁹⁹, cognitive psychology¹⁰⁰, sociology¹⁰¹ and linguistics¹⁰², they are found valuable because they provide fascinating insight on how individuals make sense of the world, how they shape their understanding of reality through telling and how different individuals tell of the same event in their own versions which may be overlooked or erased in larger, more universal narratives. Therefore, micro-narratives can be associated with the postmodern turn towards the local and the particular, and can be seen as an alternative to universalizing meta-narratives by recognizing the diversity and complexity of individual experiences.

2.5. Conclusion

These three main subjects of landscape archaeology, maps, and narratives are explored through literature survey to establish the theoretical foundation of the deep mapping methodology. Consequently, the presented accounts on the development of these subject areas reveal both chronological and conceptual consistencies between them. To begin with, the connections between cartography and archaeology disciplines are observable from their shared roots in chorology and their relationship with meta-narratives. Furthermore, it is exposed that while the environmental aspects of landscape archaeology are aligned with cartographic maps and Processual approaches; the phenomenological aspects of landscape studies are more in line with deep maps and post-processual approaches. Respectively, culture historical and Processual archaeologies are more compatible with the characteristics of meta-narratives when compared with Post-processual Archaeology which is better suited with local and micro-narratives. Based on these observations, it appears that there is a pattern of correspondences between the subjects of landscape studies, maps, and narrative that can be further exposed through conceptualization, and they can be efficiently brought together to form an interwoven construct for the proposed deep mapping methodology.

⁹⁹ Frank, 1997.

¹⁰⁰ González-Monteagudo, 2011.

¹⁰¹ Riessman, 2007.

¹⁰² Bamberg & Georgakopoulou, 2008.

CHAPTER III

METHODOLOGY

3.1. Introduction

In the previous chapter, the theoretical framework of the thesis was stated to be comprised of the three subjects of landscape studies, maps and narrative. In addition, deep mapping was presented as the primary method to propose a new methodological model for landscape archaeology. This thesis argues that, even though the digital tools adopted by archaeology are valuable for recording, visualizing, analyzing, storing, and sharing archaeological data; they also have a seldomly utilized capacity for interpretation, especially from the perspective of archaeological narratives.

Digital deep mapping promises to be a viable approach to take advantage of this capacity because as previously stated “landscapes are many things at once, countless meanings embedded in the space-time, each meaning is an ideal combination of individual, social, cultural, and natural elements for the creation of a singular experience, a phenomenon, in short.¹⁰³” and “a deep map is a digital environment that encourages participants to explore and interact with real and imaginary renditions of a place that offers a unique experience for each individual use and user¹⁰⁴”. Despite the convenient overlapping of meanings conveyed by these statements, certain contradicting characteristics required of deep maps prove challenging on application of how such an environment can be built. The main problem is that a deep map is supposed to be unstructured, defying cataloging and classifying in order to prevent singular interpretation and linear narrative. On the other hand, such an unstructured platform can result in confusion if the content is not organized in a coherent manner and even more paradoxically, coherence is carried through narrative.

Fortunately, there already is a medium that deals with these issues in a somewhat formulized manner, namely, videogames. Further investigation on this subject reveal

¹⁰³ See p. 7.

¹⁰⁴ See p. 23.

that videogame designers have already been applying well developed techniques to create landscapes, narratives and game mechanics that come together as coherent and engaging systems that create new experiences upon human interaction. In light of this revelation, previously explored aspects of deep mapping such as their capacity to implement the identity of the place by centralizing people and personal experiences, and their inherent nature of being simultaneously a platform, a process and a product resonates harmoniously with videogame design fundamentals on multiple levels.

The remainder of this chapter first explores what videogame design concepts have to offer for devising a platform containing archeological data and information that is structured but also allows for multiple narratives to emerge throughout the experience. The chapter then continues with the identification of key techniques and tools of videogame narrative design utilize to achieve this effect. And in the last part, chapter endeavors to conceptualize and combine the theoretical framework and videogame narrative design structures to provide a deep mapping model for archaeological research.

3.2. Videogame design and fundamental concepts

Before delving into more specific aspects of videogames, a brief definition of what videogames are should aid in introducing the concept more clearly. At this point, a summary of the Wikipedia page on videogame definition should suffice for the purposes of this introduction¹⁰⁵. Video games are interactive electronic games played on a computer, gaming console, or mobile device. Players can control characters and objects on a screen using controllers, keyboards, or other input devices. Video games come in many different genres such as action, adventure, role-playing, simulation, sports, and strategy. They can be played alone or with others, either locally or online. The earliest video games were simple arcade games like Pong and Space Invaders, which were introduced in the 1970s. Since then, video games have become more sophisticated and complex, with advanced graphics, sound, and gameplay mechanics. Today, videogames are a major form of entertainment, with 3.03 billion of players

¹⁰⁵ https://en.wikipedia.org/wiki/Video_game Accessed on 22.02.2024.

around the world, which is more than one thirds of the total global population¹⁰⁶. Videogames have also become an important industry with total global worth estimated around 200 billion U.S. Dollars¹⁰⁷. As mentioned above, videogames can vary in many ways based on their platform, genre, and number of players however their artistic design style, story and game mechanics also bring forth unique gameplays for every individual videogame. It is a vast area both in literature and entertainment industry yet for the purposes of this thesis, environment, objects, avatar and narrative design subjects are most relevant aspects that requires further elaboration on their relation to suggested methodological model. This exercise is not directly related to producing videogames for archaeological landscapes, sites or objects, but to drawing analogies between videogame concepts and archaeological theory and methodologies. The purpose of these analogies is to demonstrate how videogame narrative tools and structures inform the construction of the deep model in a conceptual sense.

3.2.1. Environment

Excluding the fully text-based adventure games such as Colossal Cave Adventure and Warp, all videogames provide digitally produced audio-visual environments. These are usually fictional environments but there are some cases where designers built almost exact digital replicas of already existing real places. Faithful representations of New York in Marvel's Spider-Man, American Western Frontier in Red Dead Redemption 2 and Moscow in Metro 2033 are some examples demonstrating that it is possible to recreate actual places by using videogame engines. Furthermore, some games readily provide access to their map editing software as Far Cry does with CryEngine to allow the user to modify maps or create new ones and interact with them.

Academic research on the implementation of georeferenced spatial environments in videogame engines topic involves new approaches to improvement of spatial thinking and spatial orientation skills, map-based therapy environment for people with certain

¹⁰⁶ <https://www.statista.com/statistics/748044/number-video-gamers-world/#statisticContainer>
Accessed on 22.02.2024.

¹⁰⁷ <https://www.gamesindustry.biz/video-game-market-revenue-forecasted-to-hit-usd200bn-for-2022>
Accessed on 22.02.2024.

inaccessibility issues¹⁰⁸, and field geology experiences designed to allow flexible, open-ended exploration for geologic mapping and structural geology¹⁰⁹.

In archaeological practice, GIS software are already widely used for creating georeferenced 3D digital maps which can include the physical limits and properties of a topography such as mountains, valleys, plains and rivers as well as geographical features like climate, natural resources distribution, fauna and flora, soil types, build structures, settlements and systems. Game engines provide a powerful computational platform for these topographical environments to also contain 3D objects such as renditions of vegetation, architecture, objects, animals and people as well as animations that can mimic continuous movements such as rain, waves of the ocean or a running animal. Such digital environments where the user is able to explore and experience in first-person view with the use of game engines¹¹⁰, allows for reconsidering the environmental approaches to past landscapes in digital era.

3.2.2. Objects

Objects in videogame context can be defined in several ways from different aspects such as visual design, narrative design, programming or other more area specific approaches. Unfortunately, academic research regarding videogames is still in the progress of establishing definitions for interdisciplinary study and at this time citable literature source for a possible definition for the object is not available. For that reason, this study defines objects in videogames based on their levels of interaction, information carrying capacity, function and value.

Objects in videogames are virtual entities such as environmental props, tools/items, mechanisms, or non-playable characters (NPCs). If these objects are stationary or animated in reoccurring patterns, they usually offer minimal to no interaction but can still convey information audio-visually and provide enhanced immersion as props designed for artistic purposes. For example, an animated tree with swaying green leaves in the wind and emitting rustling sounds but does nothing else upon clicking

¹⁰⁸ Qamar et al., 2014.

¹⁰⁹ Needle et al., 2022.

¹¹⁰ Laksono & Aditya, 2019.

with the mouse cursor, may not offer much interactivity but refers to the player's preexisting conceptions of tree, leaves, and wind, indicating that in this game world, trees act just like they do in the real world. If the same, non-interactive tree in the videogame has words or symbols carved on its trunk, the player can read and gain additional information without clicking but by just looking at it in a similar way a person looks at and sees a tree in real world, hence the immersion. When an object is interactive, it actively serves as a function within the game world in one or several ways. Furthering the tree example, if the player is expected to cut down the tree to collect wood, the tree would be interactive. Also, the player would need a tool like an axe, as well as game mechanics that allows the player to take this action and observe the game's reaction. In that case, player is given an inventory space to carry the axe and the collected wood, which are, at this point, items rather than objects. Items are virtual objects that the player can collect and use to continue their progression through the game. Items can appear in various forms such as health potions, coins, ammo or in any other way but they are supposed to be limited resources and/or consumed after use. Continuing with the same example, after cutting the tree, the axe can still be usable and can stay in the players inventory for future use, but if the player lights a fire with the wood in their inventory, the wood is consumed. If the player uses the wood to construct a shelter, the wood is still consumed but became another object. On a more complex level, the amount of wood one tree provides, and the amount of wood required to build the shelter dictates how many trees the player needs to cut down. The game environment can provide a sufficient resource of trees within easy reach but can also make trees, wood and consequently, the shelter, a commodity that is difficult to come by. At this level, the aspect of game economy is introduced as well. Depending on the availability and the necessity of a resource, certain items may end up being more valuable than others and the player's strategy to obtain and consume this resource can affect the gameplay experience significantly. Therefore, objects and items can be seen as smaller units of a complex system in videogames.

Comparably, archaeology discipline also studies objects as smaller units of complex systems. Perhaps from the perspective of cultural historical approach less so, since this approach prioritizes functional and chronological information that material remains of

the past may provide based on their study of technology and style. However, from the Processualist Archaeology's perspective, the processes of procurement of the raw material, production of the object, use and reuse periods of the object, and finally, disposing of the object can reveal patterns that indicate at complex cultural systems and the ways changes occur within said systems¹¹¹. The aim with theoretical and methodological approaches brought on by processualism is achieving the ultimate formulation of laws of cultural dynamics¹¹². Later on, when post-modernism challenges totalizing, universal explanations, archaeological approaches toward objects is also challenged by post-processualist archaeology. From the post-processualist perspective objects pertaining to material culture are not passive receivers of human influence but active containers of information regarding human relationships and meanings^{113, 114}. Furthermore, as soon as these artifacts are uncovered by archaeologists in the present, they resume their influence on human understanding and activities¹¹⁵.

With 3D scanning devices increasingly more available for archaeological recording process, digital 3D copies of these artifacts are beginning to accumulate in individual or collective databases. One can inspect and measure the details of these digital copies in similar ways to the real artifacts. Moreover, digital versions allow for more than it is possible with the actual artifacts; these artifacts can be included in digital environments and can act as objects or items as they do in videogames with various levels of interaction, information carrying capacity, function and value.

3.2.3. Avatar

Avatar in a videogame is the graphical representation of the player's locus of manipulation¹¹⁶. The avatar can be as simple as a straight line like in the game of Pong which features two paddles (player's avatar and opponent's avatar) and a ball, or it can be customizable and complex such as offered by Dark Souls (Fig. 7).

¹¹¹ Binford, 1972.

¹¹² *Ibid.*, p. 100.

¹¹³ Thomas, 1996.

¹¹⁴ Tilley, 1996.

¹¹⁵ Holtorf, 2002.

¹¹⁶ Bayliss, 2007.



Figure 7: Screenshots from games of Pong (left), and Dark Souls (right).

In many cases avatar selection and creation can have direct impact on the game play both visually and mechanically which in turn affects the player's sense of presence, agency and embodiment throughout the game experience. The sense of presence or presence is the term that refers to the feeling of being inside a virtual environment and can be commonly experienced when a player interacts with a videogame. Presence is considered a phenomenon by neuropsychological researchers¹¹⁷ and widely studied in three dimensions of spatial presence, social presence and self-presence^{118, 119}.

Spatial presence is player's perception of being bodily in the digital environment and their interaction with the environment and the objects in it as they might do in real world¹²⁰. This concept corresponds well with the previously mentioned sense of place concept in phenomenological approach to landscape. Especially considering that past landscapes cannot be bodily experienced in the present time, digitally recreated landscapes with the integration of archaeological data can provide a means to cognitively experience the sense of place.

Social presence dimension specifies the sense of cohabitation of the digital environment with other entities. It has been noted that social presence can occur in various degrees depending on whether these entities are other players' avatars or NPCs

¹¹⁷ Riva, 2008.

¹¹⁸ Terkildsen & Makransky, 2019.

¹¹⁹ Havranek et al., 2012.

¹²⁰ Caroux, 2023.

(non-playable characters), and cooperation/collaboration mode vs competition mode¹²¹. From agency perspective, social agency can be conceptualized as a continuum where the level of cooperation is the determinant of individual's sense of agency¹²². Similarly, depending on genre, mechanics and rules of the videogame, sense of agency can increase or decrease.

Self-presence is the dimension of the presence that corresponds with the sense of being able to observe, feel and consider the outcomes of one's avatars actions in the digital environment as an extension of their physical body¹²³. In a videogame when the player's avatar gets hit by an enemy, the player would make the comment "I got hit!", they refer to their avatar as "I" without a second thought. The sense of ownership toward one's physical body will immediately duplicate into their virtual avatar. As embodiment determines what a person perceives as belonging to their body, self-presence occur as the product of embodiment¹²⁴.

3.2.4. Narrative

Narration is a significant act that produces meaning of off the seemingly serendipitous collision of space and time which creates the event. Both personal and interpersonal experiences are embedded with meaning through an act of describing an event or telling a story. Narration is fundamental to human social cognitive process¹²⁵. The process of creating a narrative involves selecting and organizing information, establishing cause-and-effect relationships, and attributing meaning to events and objects, as well as creating the place. Narratives can carry various amounts of both fact and fiction, generally without a clear separation between them¹²⁶. However, academic endeavors such as this study require a conscious and transparent narrative construction process. In order to suggest a methodology utilizing deep mapping technique within a narrative structure for archaeological knowledge production and dissemination, one must present clear steps of said methodology. From the purely archaeological theory

¹²¹ *Ibid.*

¹²² Silver et al., 2021.

¹²³ Ratan & Hasler, 2010, pp. 11-14.

¹²⁴ Forster et al., 2022, p. 2.

¹²⁵ Bruner, 1990, pp. 11-13.

¹²⁶ *Ibid.*, p. 44.

perspective, such clarity is difficult to achieve due to existing accumulation of already established approaches. Evidently, there are distinct dualities in archaeological discourse such as objective/subjective, systems/agents or processual/post-processual, archaeologists negotiate their position between these dualities through their narratives. In order to achieve coherence, archaeologists must commit to a certain narration style which is often linear, chronologically seriated and typologically categorized. Such narrative approaches are generally based on some form of widely accepted meta narratives, whether intentionally or unintentionally. As a result, archaeological academic narrative rarely leaves enough room for more inclusive and multivocal micro-narratives or local narratives which are especially essential to phenomenological perspective of landscape study. However, the critical approach to the traditional narrative building in archaeology discipline is not the sole scope of this thesis. Here it is argued that digital technologies are now at their prime for experimenting with new narrative building methods for archaeology. Specifically, videogames of the last decade emerge as the new media form dealing with narrative issues.

Narrative in videogames is carried out through narrative structure and narrative tools. While narrative structures rely on interaction, narrative tools put the user in the observer's position. Most videogames use a combination of a narrative structure such as linear, string of pearls, branching, amusement park and rhizomic, and various narrative tools like text, dialogue, cutscenes and environmental storytelling.

Narrative tools

Narrative tools used in videogames can be explained shortly since most of them are familiar formats. The first one is text, the most frequently employed form to convey the plot to the player in the older games. A block of text provided in between the story events are used to give narrative context to player¹²⁷. The second narrative tool is dialogue which, in videogames appear as conversations between the players and non-playable characters (NPCs). These conversations can provide information regarding the game's objectives or details about the story. Characters can also converse about subjects that are not directly related to the gameplay in order to offer clues to their

¹²⁷ Majewski, 2003, p. 45.

identities and relationships¹²⁸. The third tool to convey narrative context in videogames is cutscenes in the familiar cinematic form. Cutscenes can include a block of text or dialogue in addition to action through digitally produced, non-interactive video and commonly criticized for breaking the immersion of the interactive gameplay¹²⁹.

Consequently, environmental storytelling, the last narrative tool to be presented here deals with the issue of immersion. Environmental storytelling can be defined as a technique rather than a tool because the narrative elements are integrated into the game environment during the process of the design. Places, objects, non-playable characters and music can be designed to let the player interpret the environment to reason and deduce their own ideas¹³⁰. In an ideal environmental storytelling, where narrative elements are not provided in form of text, dialogue or cutscenes, the player is encouraged to ask some simple questions such as “Where is this place?”, “What happened here?”, “What am I supposed to do?”. As a result, player will intuitively look for explanations in the game environment and answer these questions by interacting and observing. The most significant aspect of environmental storytelling is to tap into the player’s preexisting knowledge and experience gained from their real life as well as other media such as books, movies or music¹³¹. For example, even though the majority of the players have never been in a spacecraft, when they find their avatars in an environment with a certain type of utilitarian, futuristic and technologically advanced place they will recognize it as a spacecraft because they have previously seen similar environments in movies. If there are violently executed bodies laying around in this hypothetical spacecraft, the player will immediately have some idea about what has happened and proceed cautiously based on their feeling of danger. In a scene like this, the music and other sounds also can add to the player’s understanding of what they should do in such an environment. In the spacecraft scene an eerie, dark, slow music can urge the player to move slowly and check over their shoulder at every step yet, a fast-paced, dissonant, and intense piece of music can convey a sense of urgency and fear, making the player feel like they are being chased

¹²⁸ Cameron, 2017, p. 22.

¹²⁹ Majewski, 2003, p. 14.

¹³⁰ Ulaş, 2013, pp. 18-25.

¹³¹ Jacob et al., 2008.

and leading them to flee from a dangerous situation without even looking back. In the same scene, an uplifting, epic music can prepare the player for a battle waiting to be triggered just around the corner. Environmental storytelling or narrative is the rarest form of storytelling in games. Primarily because it takes a lot of attention to detail in the design and development process where a block of text can effortlessly, and at a relatively lower cost, inform the player on where they are, what has happened and what they should do. The point of using the environment to convey the narrative elements is improving the sense of presence by fully engaging the player's senses, emotions and attention, often to the point of feeling deeply involved or absorbed in the experience¹³².

This concludes the narrative tools videogame designers utilize to convey the story elements. As mentioned above, one or multiple of these tools can be combined with the narrative structures presented in the following title.

Narrative structures

To begin with the identification of different narrative structures, the most straightforward and commonly known would be the linear structure. Linear can be defined as progressing from one stage to another in a single series of steps¹³³. Such narrative structure is the traditional structure that can be seen in books and movies that put the user in a passive observer's position. In videogames, a linear structure means that gameplay offers one storyline without variation and the player is not allowed to choose where the story leads. One example to such linear narrative structure is the heavily story driven survival game *The Last of Us*¹³⁴, where the player alternately embodies the avatars of a middle-aged man Joel and a young girl Ellie in a postapocalyptic world. In the figure below (Fig. 8), the linear narrative structure is shown as a structure with a beginning, a series of events and an ending.

Another narrative structure used by videogame designers is the string of pearls structure. With this structure, story progression is still considered linear but has some side events that can be experienced if the player chooses¹³⁵. However, it can be possible to complete the story in a linear fashion without exploring the side events, as

¹³² McEnerney, 2017, p. 18.

¹³³ Majewski, 2003, pp. 31-34.

¹³⁴ Naughty Dog, Inc. 2013.

¹³⁵ Schell, 2015.

they bear little to no consequence regarding how the narrative plays out. The point of string of pearls narrative structure could be revealing background stories or special items to make the player feel awarded with the sense of discovery for their attention to detail and curiosity. A videogame example that fits into this definition, *Batman: Arkham Asylum*¹³⁶ has a linear main storyline made of a series of missions, but also permits the player to freely explore the area of Arkham in between the missions.

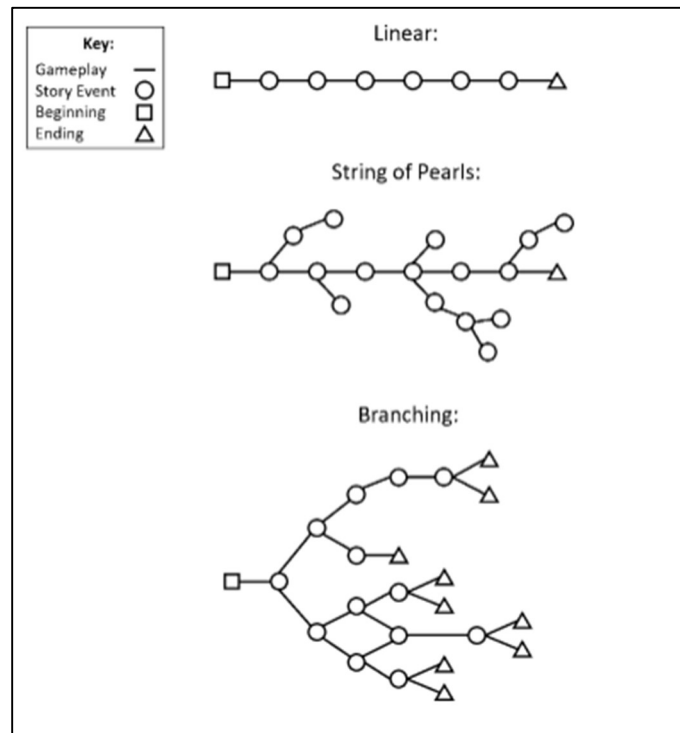


Figure 8: Narrative structures of linear, string of pearls and branching¹³⁷.

As provided in the figure (Fig. 8), the main storyline progresses from one event to the next, and if the player happens to visit the side events, they will need to backtrack their steps to get back to the main storyline.

As the narrative structure becomes more complex, the player choice becomes more relevant to the progression of the story and the agency factor is increased¹³⁸. One of these more complex structures is the branching narrative where multiple storylines can

¹³⁶ Dini, 2009.

¹³⁷ Stone, 2019.

¹³⁸ Murray, 1997, p. 126.

occur based on each decision and the story can reach at different endings¹³⁹. These endings are usually categorized as bad endings and true endings. In case the player reaches a bad ending first, they will feel unsatisfied either because the mystery is not solved or the villain is not defeated. Player is, consequently, motivated to reflect upon their decisions and to consider the outcome of them, as well as, contemplating where and how they could have decided differently to reach the true end of the game. Such as it is, branching narrative structures are meant to be experienced multiple times, allowing the player to detect at which point they could have chosen differently and reload back to that moment in the storyline, usually justified with the integration of concepts such as time travel, time loop or multiple timelines into the narrative. Zero Escape Series¹⁴⁰ made of three connected games of visual novel genre uses branching narrative with multiple endings and multiple timelines in a fashion that allows for multiple playthroughs. The figure (Fig. 8) demonstrates how branching narrative structures are built with nodes as decision points leading to different endings and the storyline allows for decision points to be revisited without actually needing to backtrack as in the string of pearls structure.

There is also the amusement park narrative structure, which is actually based on theme park industry and focuses on the spatiality of the experience¹⁴¹. In videogames with amusement park narrative structures only the entry and the exit points are narratively constant as the beginning and the end of the game. Events in between these two points are not chronological or ordered, instead player is given the freedom of wandering and stumbling upon bits of the narrative randomly. Navigating through the pieces of narrative while spatially navigating the game world at the same time may result in fractured and incohesive narrative yet the design of these environments and the use of other narrative tools such as cutscenes, text and dialogue can provide the necessary information for the player to make the connections and deduce the structure themselves. A very popular and long established video game example for this narrative structure is World of Warcraft¹⁴² where the player is presented with many possible storylines and missions to choose from to create their own story. Figure (Fig. 9) shows

¹³⁹ Majewski, 2003, pp.37-41.

¹⁴⁰ Chunsoft. 2009., Chunsoft, 2012a., Chunsoft. 2012b.

¹⁴¹ Carson, 2004.

¹⁴² Blizzard Entertainment, 2004.

how amusement park narrative structure is designed with one beginning and one ending but the player's decisions in between these two points can allow for the spatially scattered pieces of narrative to come together in numerous different combinations.

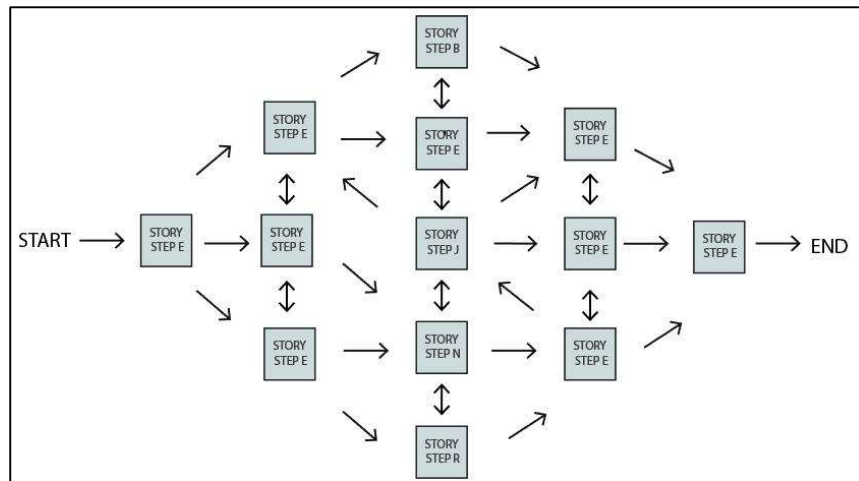


Figure 9: Amusement park narrative structure¹⁴³.

The last narrative structure that is mentioned in the proposed methodology is the rhizome structure. Originating from botany and dendrology, a rhizome (from Ancient Greek $\rho\acute{\iota}\zeta\omega\mu\alpha$, *rhízōma*, "mass of roots"¹⁴⁴) is a modified subterranean plant stem that sends out roots and shoots from its nodes¹⁴⁵ (Fig. 10).

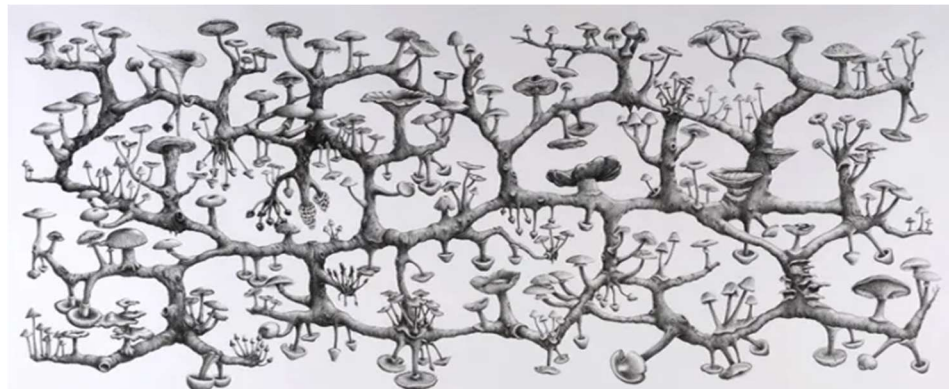


Figure 10: Rhizome structure, Botany and Dendrology¹⁴⁶.

¹⁴³ https://issuu.com/polisuniversity/docs/ikonomi_thesis_final_19_june_2022_pdf_a/s/17158997

¹⁴⁴ Liddell & Robert, 1940.

¹⁴⁵ <https://www.britannica.com/science/rhizome>

¹⁴⁶ Giblett, 2009.

Philosophy borrows this structure to describe a non-linear network that "connects any point to any other point"¹⁴⁷. French theorists Deleuze and Guattari coined the term to refer to networks that establish "connections between semiotic chains, organizations of power, and circumstances relative to the arts, sciences and social struggles"¹⁴⁸ with no apparent order or coherency. Deleuze and Guattari's use of the term for data representation and interpretation defines the rhizomic structure with some characteristics that are concurrent with deep maps like their common demand for multiple and non-hierarchical data entry and exit venues. Even though the rhizomic structure is defined as a type of narrative structure, perhaps it should be defined as the lack of narrative structure, especially from the videogame narrative design perspective. In fact, it can be argued that the rhizomic narrative and navigational structure cannot be realistically designed in the videogame environment because categorically, all games must have a clear beginning position, rules and winning conditions¹⁴⁹. However, there are certain examples of videogames demonstrating that such a design is possible, one immediate case being the very popular sandbox game Minecraft¹⁵⁰

where there are no predefined goals to accomplish for the player and no narrative component whatsoever, allowing the utmost player freedom to imagine their own world, purpose and story. In such cases, the player's interactivity throughout the gameplay and their experience can occur in a rhizomic form unique to each player and playthrough. An academic thesis on this argument is provided by Ulaş from the visual communication design perspective, demonstrating that "...smallest scale of a rhizomic environment and story model shows that it is indeed inefficient for narrating a singular story but it is efficient when it is evaluated as a story-making playground"¹⁵¹. This argument can also be expanded based on previously explored narrative scales of meta-narratives, local narratives and micro-narratives by likening the "singular story" to the meta-narrative and comprehending the rhizomic model as a platform for more interpretative local and micro- narratives.

¹⁴⁷ Deleuze & Guattari, 1987, p .21.

¹⁴⁸ *Ibid.*, p. 7.

¹⁴⁹ Ulaş, 2013, p. 16.

¹⁵⁰ Mojang, 2011.

¹⁵¹ Ulaş, 2013.

On the subject of narrative structures and tools provided by videogame industry, here it should be stressed that there are some left out in this study either because they are considered similar to the ones already mentioned (e.g., building blocks narrative structure that carries the characteristics of rhizomic structure¹⁵²) or require detailed technical explanation (e.g., player's ability to manipulate the camera angle¹⁵³).

Before concluding this part on the videogame narrative, it is appropriate to explore the presented narrative structures and tools from the perspectives of embedded narratives and emergent narratives. Embedded narrative refers to “pre-generated narrative content that exists prior to a player's interaction with the game¹⁵⁴” meaning that any narrative content written by the author is predetermined. From this view, the example provided previously for the linear narrative of *The Last of Us*, the total wordcount of the cinematic cutscenes is approximately 12.000¹⁵⁵. However, embedded narrative content in more complex, non-linear structures such as string of pearls, branching or amusement park models consists of even higher number of pre-written words like the branching narrative structure example of *Zero Escape Series' first game* with approximately 243.000¹⁵⁶ wordcount script. The point of this comparison is to demonstrate that even though non-linear narrative structures appear to provide the player with a sense of agency based on their choices, they are still predetermined narrative structures. There may be multiple storylines and endings but they are still only possible because the author imagined them and incorporated them into the videogame. There are choices but limited to the script. Based on this demonstration, it appears, as the authored narrative content moves from linear to increasingly non-linear, the narrative is also increasingly more structured with embedded narrative components. Then again, embedded narrative can coexist with emergent narrative due to interactivity enabled by game mechanics and design.

Emergent narrative refers to the pattern of the experience as a whole occurring via interactivity between the player and the embedded components of the game. The concept of emergence through interactivity is recognized as a cognitive process made

¹⁵² Majewski, 2003, p. 6.

¹⁵³ Cameron, 2017, pp. 23-24.

¹⁵⁴ Salen & Zimmerman, 2004, p. 383.

¹⁵⁵ Druckmann, 2019.

¹⁵⁶ Uchikoshi, 2011.

of concentration, visual scanning, auditory discriminations, motor responses and perceptual patterns of learning¹⁵⁷. Emergent narrative is “...not pre-structured or pre-programmed, taking shape through the game play...¹⁵⁸”. Therefore, emergence is recognized as an unpredictable component that is closely connected with the sensations, perceptions and memories of the player. From the narrative perspective, player is situated in a position between the author and the audience, they are the actor in an environment embedded with narrative, a plot, but unlike an actor who knows the whole script before performing, player is acting and reacting in an improvised manner which is more enacting than acting¹⁵⁹. Emergence arises through this enactment, the cognitive association between an embodied agent and its environment¹⁶⁰, which is a core concept in phenomenology as revealed in the previous chapter.

As human beings perform tasks on a day-to-day basis, their bodies are spatially and temporally situated in the world. According to ludology, the act of play is a fundamental human activity to make sense of that world¹⁶¹. There are rules that apply to all bodies, such as gravity, and humans learn them by experience as they tend to test the limits of their bodies versus gravity through play, especially during childhood. There are also rules that are customized for specific roles embedded within societies based on gender, religion, status etc. which are narratively relayed whether as oral history such as folklore or as written text such as laws. Game of chess is an example how these embedded rules can result in an astronomical number of gameplay variations to emerge. The same sentiment applies to videogames where player is constantly looking for clues to understand the limits and the possibilities of the game world. Videogame narrative structures allow the player to discern these limits and possibilities. Even in the rhizomic narrative structure model, where there is no authored narrative content, the rules of the game world dictate the limits and the possibilities.

One last point to be acknowledged on the subject of narrative structures and tools is that they are not strict recipes but guidelines. The decisions made by game designers

¹⁵⁷ Sutton-Smith, 1986, pp. 69-72.

¹⁵⁸ Jenkins, 2004, p. 128.

¹⁵⁹ Løvlie, 2005.

¹⁶⁰ Vahlo, 2017.

¹⁶¹ Huizinga, 1955.

in terms of narrative choices are influenced by financial or artistic considerations, while the rapid advancements in technology often lead to the emergence of a wide range of stories and game worlds, which blur the present guidelines. Moreover, the whole narrative design of a videogame is a multi-layered process that work on different levels and combines various structures and tools. In the following part a narrative design process for a cohesive and immersive experience is presented as an example for the deep mapping methodology proposed with this thesis.

Narrative design

The narrative structures, tools and techniques explored in this study can be combined in a multitude of variations to create a narrative design. Here, a narrative design model influenced by videogames with the explicit goal of creating an immersive experience through environmental storytelling is presented. The suggested narrative design model prioritizes environmental storytelling technique but can also utilize other narrative tools such as text and dialogue. This narrative design primarily focuses on the embedded elements because as discussed previously, emergent narratives cannot be pre-designed due to their unpredictable nature.

The proposed narrative design model is comprised of three layers which provides the depth and considered to be appropriate for constructing a deep map of an archaeological landscape. Three layers may not seem very deep at first glance, but in fact each layer is designed with complexity to contain embedded information to stimulate comprehension. These layers are environmental storytelling, level design and world building, visualized as horizontal sections of a pyramid (Fig. 15).

Environmental storytelling on the highest layer refers to micro-narrative vignettes composed of objects arranged in a way that reflects the characteristics of the game world such as time period and location. These objects can be regarded as small units of narrative that decorate the setting to enable the player to interpret a coherent narrative as a whole. The audience of this narrative is referred to as the player rather than viewer because the interpretation is based on deductive reasoning. Player exercises investigative skills of an archaeologist to establish relationships of cause and effect which makes the player a potent participator of the narrative rather than a passive viewer. The micro-narrative vignettes mentioned on the high level represent only one of the ways of using environmental storytelling to suggest narrative.

On the level design layer of the pyramid, environmental storytelling is represented with the built environment in a landscape. Places such as a market area, a pub district or a domestic zone with individual buildings and rooms or an isolated stone bridge across a river can constitute the elements of built environment. Architecture, construction materials, scale and layout of the built environment can relay a significant amount of information regarding function, private or public accessibility along with an overall understanding of the people inhabiting those spaces. The narrative focus of the environmental level design is to create believable places that associate with the player's preexisting conceptions to allow them to conduct and orient their avatars in relation to the environment. Designing believable levels is possible when all the individual locations are logically consistent with each other and with the player's basic expectations of how space works.

The bottom layer of the narrative design pyramid is world building which is the overarching setting of the narrative. All the information relayed in this layer's design are the facts of that world which the player is expected to grasp and behave accordingly. Consequently, the world building layer is where the history and the current state of the game world is presented as the meta-narrative. Information regarding the topographical and geographical features; different political, religious, or cultural factions; major plot points such as wars, revolutions or cataclysmic events; main characters like the protagonist, antagonist, and other supporting characters with individual motivations and backstories are provided in this layer of the narrative design. The primary purpose of this layer is to create a cohesive and immersive game world that draws players in and keeps them engaged.

In an ideal design, all three layers of this model should work in harmony, with the same themes echoing up and down the pyramid. An application of this environmental narrative design model can be seen in the fifth videogame of the Deus Ex Series: Mankind Divided. The world building layer introduces a dystopic Prague set in 2029 with factions of oppressed augmented humans, purist natural humans; global organizations with political agendas and mega corporate groups that reap profit from the violence and riots caused by the divisions. On the level design layer, the segregation of augmented humans is represented in the design of the city with different train cars for "naturals" and "aug", and ghetto zone where "aug" are forced to live

in dire conditions. The same theme is intensified on the highest layer of the narrative design with micro-narrative vignettes such as “anti-aug” graffities on the walls, overheard conversations about racism, and e-mails mentioning forced relocation. The narrative of the videogame as a whole is based on the philosophical and ethical takes on transhumanism with a focus on discrimination. All three layers of the narrative design reinforces the same theme from the high layer demonstrating the people divided, to middle layer with Prague divided and to the low layer showing the mankind divided. Even though this is a case of heavily structured narrative design, the player is given the power of agency to approach the situations stealthy or violently by choosing lethal or non-lethal force. The game recognizes the player’s choices and reacts accordingly, allowing for emergent narratives to take shape through the gameplay. Obviously, the narrative and environmental storytelling of Deus Ex: Mankind Divided, like the majority of videogames, is a work of fiction. However, here it is argued that presented narrative design model can be integrated with the theoretical framework of the thesis to formulize a deep mapping model for archaeological data and information. The following part conceptualizes the previously laid out theoretical elements of landscape study, narrative and map making along with fundamental approaches of archaeology theory and unites these concepts with videogame narrative structures and narrative design model presented here.

3.3. Conceptualization of the deep map model

Conceptualization process of the deep map model begins with the identification of the key concepts associated with the landscape, map-making and narrative components of the theoretical framework. Additionally, the fundamental approaches in archaeological thought such as cultural-historical, processual, and post-processual, are integrated with these three components. The conceptualization process continues with the incorporation of methodological components borrowed from videogame narrative design and aligns the methodology with the theory. In order to clarify the conceptualization, the key concepts of each component are visualized with horizontally divided pyramids to indicate at a hierarchical order of layers. However, the hierarchical ordering does not aim to prioritize one layer over the other, but endeavors to represent the depth and value of the accumulated knowledge and

organizes the types of data each layer can contain within the proposed methodological model.

To begin with the first step of the conceptualization, the landscape component of the theoretical framework is scrutinized with the aim of identifying its key concepts. As presented previously, archaeological landscapes are historically defined by their geographical and environmental characteristics in the first place. Thus, the natural and physical features that make up the landscape are located at the base of the landscape conceptualization pyramid as the “environmental” key concept. Topographical features such as mountains, hills, plains, rivers, lakes and coastlines; other environmental features such as climate, soil types, mineral deposits, vegetation and animal species naturally inhabiting a landscape; specific geographical features that are related to human activity such as agricultural land use for cultivation of crops and animal husbandry, as well as the built features like settlements and road systems, are all contained within this concept. On top of this pyramid’s “environmental” base, the ephemeral components of the landscape are contained within the key concept of “phenomenology” (Fig.11).

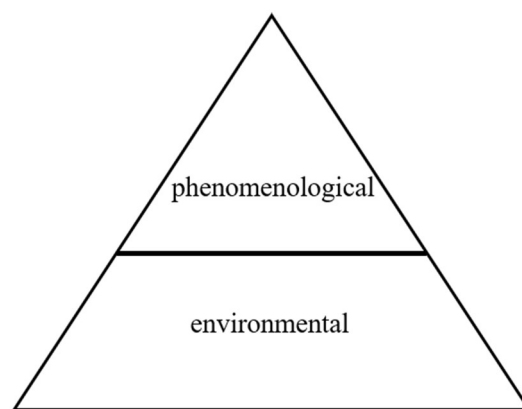


Figure 11: Conceptualization of landscape

The accumulation of interactions between the environment and people are embedded into the physical features of a space through the intentional and unintentional acts of forgetting and remembering. These acts, collectively and individually, forges meaningful relations between the space and its inhabitants which creates the phenomenon of the sense of place. The interactions allowing for the embedding of memory in a landscape is carried through the daily tasks of dwelling that include all activities related to household, diet, hygiene and health, leisure, work, clothing,

shopping. Viewing the landscape from the perspective of taskscapes, identifying how these daily activities are carried out defines the characteristics of the locale and provides an insight into the dynamic nature of the landscape. Another significant aspect of phenomenology is the bodily experience where the individual's identity and perceptions both affect and are affected by the landscape. The individual's ability to interact with its environment is conducted through their physical body and directed by their agency. As such, the social identities, financial status, adherence to belief systems as well as execution of the daily tasks of dwelling are the prerogative of the embodied agents. In short, the ephemeral elements of phenomenological approaches to landscape are conceptualized as the sense of place created with memory and meaning; dwelling that is connected to taskscapes of daily life activities; and the embodied identity of the agents which bodily experience the landscape.

The second component of the theoretical framework is maps and map-making practices of both traditional cartography and the deep mapping practice which was once known as chorology. Since cartographic maps are one of the most fundamental tools of archaeological practice, especially when describing, defining, interpreting and presenting the location of any archaeological site, the key concept residing at the base of this pyramid is cartographic maps (Fig. 12). When archaeologists work on a landscape, it is common, even mandatory practice to visualize the topographical and geographical characteristics of the landscape and the exact coordinates of any archaeologically relevant feature on a base map. However, as previously stated, cartographic maps are inherently distorted projections of the real world and they can be easily manipulated for specific agendas. Unfortunately, utilization of the cartographic maps in archaeological practice and interpretation is not immune to those manipulations. In the best case, cartographic maps unrealistically visualize the landscape from the viewpoint of an observer who is suspended in mid-air and only provide static images that are insufficient in demonstrating the dynamic nature of the said landscape. In the worst case, cultural identities contained within the landscape are ignored, miss-represented or justified for exploitation of natural resources and human workforce. In order to avoid such pitfalls inherent in the cartographic maps and map making practices, the phenomenal occurrences born out of human – environment interactions must be included in map making practices. This is where deep maps

become vital for representing the advancements in archaeological understanding of how individuals and communities inhabiting a landscape are as much a rightful part of it as a mountain or a river. Perhaps the extremely long lasting nature of a mountain is not suitable for an analogy, yet the archaeological thought has already demonstrated both in its processual and post-processual phases that if there is a mountain, there are innumerable connotations of it in human cognition and practice. In order to recognize this vast array of meanings contained within the landscape, the contributions of phenomenological approaches such as the sense of place, agency and dwelling should be included in mapping practices. Thus, deep mapping is deemed better suited “...to map the unmappable” and placed on top of the conceptualized map pyramid as a key concept in this methodological model.

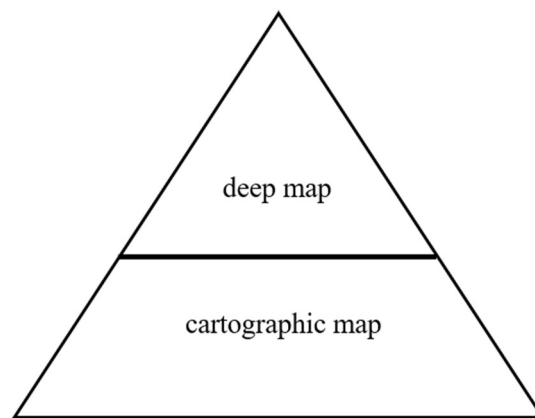


Figure 12: Conceptualization of maps

Narrative is the third component of the theoretical framework. It is primarily incorporated into the theoretical course this study follows from the perspective of meta-narratives that overpower the archaeological and historical discourse, yet reveals more than anticipated upon the acknowledgment of the enlightenment, modernity and positivism and later, their counterparts that manifest in post-modernism, post-structuralism, and consequently, in post-processualism. Alternative narrative scales offered by the latter indicate at local and micro-narratives which are also included in the conceptualization pyramid. To begin with the base layer of the narrative conceptualization (Fig. 13), narratives of the past from the perspective of archaeology and history are defined as the construction of characters, events and the plot which

bind them in relations of cause and effect with the purpose of providing a chronologically and logically coherent sequence. Coherence being the most indispensable quality of any narration, also constitutes a problem in regard to their claims of objectivity and truth because said coherence is achieved within a system of ideological and political views that vie for a position of comprehensive, universal truth. Therefore, narratives of the past which aim for such a position are identified as meta-narratives and the middle layer of narrative conceptualization is reserved for local narratives as an alternative scale to avoid the mentioned pitfalls of the grand scale narratives. Local narratives are based on the argument that knowledge is shaped and used locally instead of universally. This perspective is founded on local determinism theory which argues that local contexts shaped by language, power and social institutions produce multiple, unstable, fragmented and competing narratives.

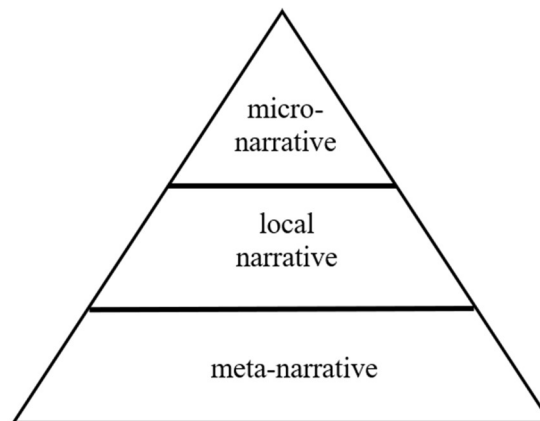


Figure 13: Conceptualization of narrative

Accordingly, local narratives are not immediately coherent but can be observed in a diversity of forms such as oral histories, folklore, art, music, architecture and customs, all of which are fragments representing the perspectives, values and experiences of the local communities. At the top layer of the narrative conceptualization pyramid, the smallest scale approach to narrative is defined with micro-narratives. These are generally characterized with extremely intimate and subjective accounts of the unique experiences and perspectives of the individuals which can be found in personal diaries, private conversations and most currently, social media entries on digital platforms. Micro-narratives are not concerned with the issues regarding objectivity or truth, yet on the other side; they provide a valuable means to comprehend how the cognitive

process of making sense of the world can occur through the individual's narration of it. Lastly, the individual's narrative does not emerge in isolation from local and meta-narratives but negotiates the adaptable position of the individual in relevance to more static structures.

The conceptualization of the theoretical framework is aligned with the three most prevalent approaches of archaeological thought (Fig. 14). Presented in chronological order of emergence and represented on the pyramid with culture historical approach at the base level, processual approach on the mid-layer and post-processual approach at the top. Instead of providing a comprehensive account on the progression of archaeological theory, the fragmented references given throughout the thesis are revisited in exposition of the key concepts.

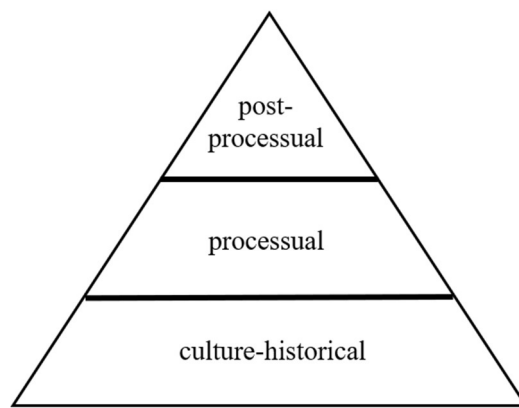


Figure 14: Conceptualization of archaeology theory

The methodological approach borrowed from videogame narrative structures and narrative design process explained in the first half of this chapter is also conceptualized in two respective pyramids. The one representing the videogame narrative design model is already explained with three layers of world building, level design and environmental storytelling from base layer to top in order (Fig. 15). The second component of methodological conceptualization is videogame narrative structures and shown in the pyramid model with five types of narrative structures placed according to their degree of linearity (Fig. 16). Consequently, linear narrative structure is placed at the first layer from the bottom. On the second layer, the string of pearls structure is placed since the main storyline in this type of narrative is mostly linear with optional

narrative components offering some player freedom. Next layer is the branching narrative structure where multiple storylines and endings can be experienced depending directly on the player's choice.



Figure 15: Conceptualization of videogame narrative design

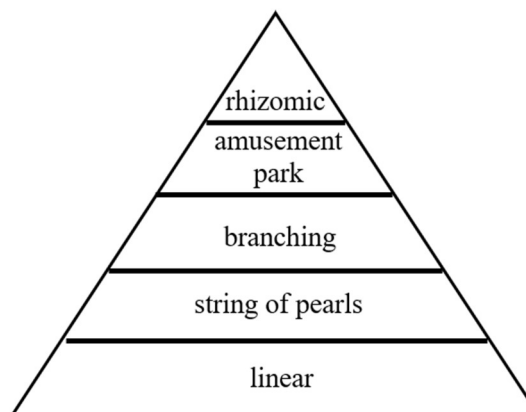


Figure 16: Conceptualization of videogame narrative structures

On top of this, the amusement park narrative structure is placed at the fourth layer because in this type of structure, the story is completely non-linear with events of the story are spatially distributed into the game world without any semblance of chronological importance. Finally, at the top layer, rhizomic narrative structure is placed due to the fact that rhizomic narrative is actually an unstructured environment which does not involve any embedded narrative elements but provides a platform for unique narratives to emerge through interaction. These five types of narrative

structures are rather loosely incorporated into the model due to their acknowledgement as guidelines rather than strict rules, yet their ordering from linear-to non-linear structure allows for indicating the capacity for interpretative, emergent narratives. Finally, said pyramids are brought together to form a hexagon that represents the conceptualized model as a whole (Fig. 17). Within the hexagonal form, the hierarchically ordered divisions of the pyramids are visually aligned to represent the relationships between the corresponding layers of each pyramid. In the appendix section the hexagonal form is deconstructed into pairs of key concepts for a detailed exploration of the relationships between every key concept of the same layer individually and collectively in order to demonstrate the complexity, or more appropriately, the depth of the deep map model.

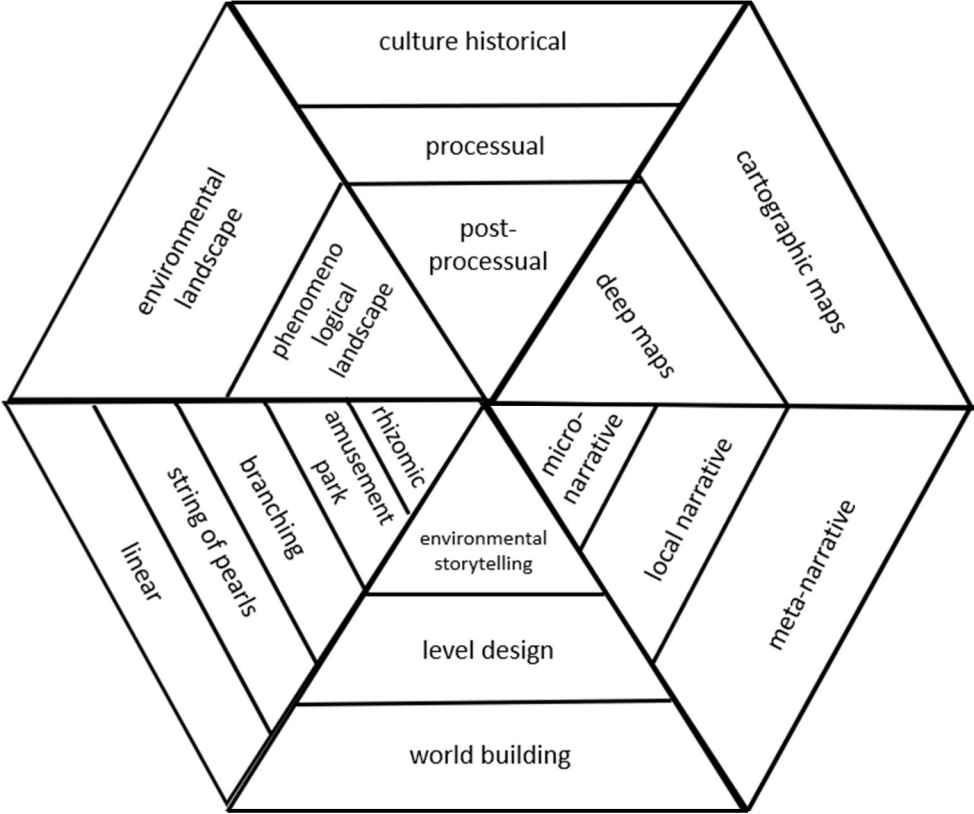


Figure 17: Conceptualized methodological model

3.4. Conclusion

In conclusion, the model conceptualization incorporates the theoretical framework with the methodological approaches and simply demonstrates how a deep mapping methodology can be built for exploring alternative interpretative approaches can be adopted for landscape archaeology. The model provided here, indicate at digital techniques and tools such as use of GIS based digital maps or 3D modeling of artifacts in archaeological practice, however the methodological components borrowed from video game industry also suggest that theoretical approaches embedded within landscape archaeology can be revisited in relation to digital archaeology's capacity for alternative narrative building processes. Moreover, the production of these narratives in digital environments can present an opportunity to store digitized archaeological data in its contextually situated nature which is vital for interpretative approaches.

CHAPTER IV

CASE STUDY OF 11TH-14TH CENTURY KOMANA

4.1. Introduction

Primary goal of this chapter is to demonstrate how the proposed deep mapping model can be implemented to archaeological material (data and other information resources such as historical texts and academic literature) in a manner that expands upon the existing narrative patterns of archaeology. In a traditional archaeology thesis, this chapter would begin with an incompressive overview of the case study site and research history. However, this information have already been written and published in nearly every Komana related literature so far, and the objective of this thesis is to suggest alternative narrative approaches to archaeological sites and their research. Consequently, this is not a study on Komana which aims to answer archaeological research questions but a case study exploring Komana as a practice of archaeology.

To be clear, all resources implemented here, are already incorporated in archaeological narrative in one way or another. Furthermore, all the information and data presented here are obtained from archaeological literature and record on Komana excavation. In order to gain a deeper understanding of these textual sources, case study includes a narrative analysis of academic literature on Komana. The purpose of this narrative analysis is to reveal how the present case study implementation can assist in building bridges between different types of data and literature sourced information that constitutes the larger narrative of Komana. This way, it may be possible to test the suggested deep mapping model's capacity for archaeological interpretation and narrative in the digitized age.

The actual implementation of the case study follows a three phased plan which is based on the three layers of videogame narrative design; world building, level design and environmental storytelling as presented in the model. All corresponding layers of conceptualized pyramids are involved with regard to their relation to videogame narrative design layers, following an order from outer to inner layers of the whole

hexagonal model provided in the previous chapter. Therefore, the outermost layers corresponding with the world building are comprised of environmental landscape archaeology, cartographic map, meta-narrative, linear narrative structure, string of pearls narrative structure, culture-historical archaeology and processual archaeology. Consequently, the middle range layers of the model which are correspondent with level design are environmental landscape archaeology, cartographic map, meta-narrative, local narrative, string of pearls narrative structure, branching narrative structure, amusement park narrative structure and processual archaeology. Finally, the innermost layers of the model corresponding with environmental storytelling are phenomenological landscape archaeology, deep map, local narrative, micro-narrative, amusement park narrative structure, rhizome narrative structure and post-processual archaeology.

The reason behind this decision is prioritizing narrative design in application of archaeological material while emphasizing the increasing complexity with each of the three phases. The proposed deep mapping model endeavors to both express the complexity of the archaeological record and aims to offer alternative narrative building methods to bring some coherence to this complex dataset.

4.2. Analysis on the Narrative of Komana

The subject of narrative is a significant part of this thesis as the influence of meta-narratives within the general narratives of archaeology has been acknowledged and alternative narrative scales and structures used in videogames are explored with the aim of integrating deep mapping as a methodology by constructing a conceptual model. Since the thesis also uses actual archaeological evidence from Komana to test the suggested model in the case study chapter, it is only appropriate to analyze the narratives of Komana for elucidating how this model can improve our understanding of the site. With this purpose in mind, two introductory chapters from two volumes on Komana archaeological research are chosen for analysis.

Before delving into the narrative, it is important to recognize that both of these texts chosen for analysis are written by Prof. Dr. D. Burcu Erciyas, who also maintains the

responsibility of the director for Komana Archaeological Research Project since 2004. Erciyas's unique and decidedly involved role as a decision maker regarding all aspects of archaeological research at Komana, is strongly related with her academic background. Therefore, a brief overview of Erciyas's academic background may reveal a more nuanced understanding with her practical and theoretical approaches toward academia, excavation and narrative of archaeological research at Komana. Considering her higher education beginning with Bilkent University Faculty of Letters, Archaeology and Art History Program and continuing with Masters and PhD. at University of Cincinnati, Department of Classics, it is immediately apparent that Erciyas's academic background is clearly influenced by Anglo-American perspective on archaeology during the last decade of 20th century. It is not practical to explain this perspective with its entire complexity here, however, certain aspects of the development of archaeological thought and practice in North America can be presented for the purpose of indicating connections between the author, the text and the broader framework of the discipline. First of all, by the 1990's American archaeology had moved on from the premodern approaches toward material culture with its primary focus of categorization and cataloguing, and already digested the novelty of New Archaeology through a lively process of scholarly discussion. Secondly, the position of Classical archaeology had all but remained unchanged for the most part as it continued to refrain from engaging with these discussions. It can also be surmised that post-processual framework was still very young and therefore inconsequential to institutional and pedagogical structure of the universities including the curriculums of Classical archaeology. From this wider perspective, it is only logical that Erciyas's earlier research is related with Hellenistic period, although her Doctorate thesis focuses on the long neglected Pontus region instead of gravitating to Aegean or Mediterranean coasts of Anatolia, like many archaeologists researching this period in Türkiye do. Consequently, Erciyas's decision to follow Strabo's lead and begin an excavation project at Tokat, Hamatepe to unearth the Hellenistic temple of Comana Pontica is justified from research perspective. Upon preliminary research consisting of surveys, geophysical prospections and literature study, excavations at Komana began in 2009 and it was quickly observed that the hill was almost continuously occupied since Hellenistic period, if not earlier, until the Ottoman period. Accordingly,

excavations conducted ever since chronologically revealed an Ottoman phase with 17th-18th century rural village settlement; a Danishmend/Seljuk phase characterized with a fortified rural settlement; a Middle Byzantine phase signified by two churches and related cemetery; an Early Byzantine phase represented with a fortified rural settlement; and a very few structures representing a Hellenistic-Roman phase with no evidence regarding the initial expectation of the temple. Regardless of the current absence of Hellenistic phase related finds, Erciyas's academic background enabled her to approach every phase and its finds with equal diligence with regard to data collection and recording. As a result of processual archaeological formation, excavation practices at Komana are conducted with an analytical and empirical approach towards all phases and types of finds which directly translates into Erciyas's objective approach to narrative of Komana as an author. On the other hand, a more detailed perusal of literature reveal that Erciyas also published on public archeology, ethnography , and education subjects with some inclination towards post-processualist archeology. In fact, a chronological consideration of Erciyas's publications, reveal her gradual shift from Classical archaeology's culture-historical perspective to processual archaeological approaches with empirical and positivist frameworks. Furthermore, sporadically, but with increasing prominence, Erciyas appears to adopt post-processualist approaches. Privileged personal dialogue with Erciyas confirms that her future plans regarding the research and narrative of Komana will demonstrate a more post-processualist perspective. In addition to that, Erciyas's willingness and encouragement to entrust Komana data with post-processualist or even more progressive approaches, like the present thesis, shows that although pedagogical indoctrination is a significant part of academic endeavor, research agendas and researchers' mindsets are meant to transform and transcend the existing paradigms. That being said, the following analysis on two texts on Komana does not appear to represent this aspect fully and the absence of interpretative approach needs to be acknowledged for the critical assessment of the deep mapping model prioritizing the narrative in archaeology as this thesis argues.

To begin with the narrative analysis, the first text chosen is the introduction chapter of "Medieval Settlement at Komana" volume¹⁶². This book is a compilation consisting of

¹⁶² Erciyas & Tatbul, 2015.

chapters written by different specialist on diverse aspects of archaeological research such as geology, epigraphy, anthropological analyses of human remains, archaeozoological and archaeobotanical studies as well as studies on metal reliquary crosses, stylistic and archaeometric analyses of pottery, church fresco fragments, and ancient cults related to the site. The introductory chapter is written by Erciyas under the title of “Helenistik’ten Osmanlı’ya Pontos ve Komana’nın Tarihsel Coğrafyası” which can be translated as “Historical Geography of Pontos and Komana from Hellenistic to Ottoman”. As an introduction, the chapter’s primary focus is to provide a background for this multidisciplinary research agenda.

As previously stated in Chapter II of this thesis, under the subtitle of Narratives of Archaeology and History, the coherence of a narrative is provided through chronological sequencing of separate events, and the decisions regarding the beginning and the end of the narrative is an issue related to the purpose of the narrative. From this perspective, Erciyas’s decision to begin the sequence with the Hellenistic period is justified with the significance of Mithridatic reign at Pontos region with a specific focus on Mithridates VI Eupator whose resistance against Roman rule, adoption of the savior role for Anatolian cities and claims of dual heritage due to Persian and Greek ancestry strongly represents the political and ethnic background of the region. Furthermore, Komana’s enduring sacred aspect, regardless of the multiple conversions, is assumed to begin with the temple state settlement of Hellenistic Period. Thanks to this politically, socially and economically relevant background, mentions of Komana are relatively frequent in historical accounts. Consequently, after a detailed portrayal of the Mithridatic dynasty, Erciyas informs us of the mentions of Komana in Strabo’s *Geographica*. Strabo provides valuable information regarding geography, history and philosophy for many researchers of the modern era through his monumental work *Geographica* which is based on his extensive travels. On the other hand, his homeland and family relations grant essential perspective on Komana and surrounding region since he is from Amaseia and his family is known to be influential in politics especially during the reign of Mithridates VI. Strabo introduces Komana as a sacred location with the temple of warrior goddess Ma and the settlement that houses and feeds 6000 temple servants. Komana is also described as a fertile land that yields

abundance of agricultural products as well as a center for commerce due to its position on trade route connecting to Armenia. Due to these attributes relayed by Strabo, Erciyas emphasizes the significance of research at Komana and its potential to reveal the traditions of Middle Black Sea region. That is undoubtedly the case in the broader term of the research agenda, however the excavation project that has been carried on at the site since 2009, did not unveil sufficient evidence regarding the temple of Ma or the Hellenistic period in general.

From a critical point of view, the lack of evidence appears to be conceded in favor of historical narrative which corresponds with the coherent yet extremely unilateral narratives that fall under the concept of meta-narrative this thesis explores. Considering Strabo's personal background and his family's involvement with politics, it would be appropriate to approach his account as a narrative that is built around a system of ideological and political views. Consequently, the narrative of Strabo needs to be critically evaluated since there is a possibility that it could have served the purpose of legitimizing the power, authority and social customs of Mithridatic reign.

As Erciyas continues the chapter with Roman period in Pontus and Komana, historical literary sources such as *De vita Caesarum* by Gaius Suetonius Tranquillus and *Epistulae* of Pliny the Younger, in addition to *Geographica*, remain as the prevailing references and primary sources. There are also references to modern academic literature that are used as secondary sources such as "Roman Rule in Asia Minor to the End of the Third Century after Christ" by David Magie and Ph.D. Thesis of David R. Wilson, "The Historical Geography of Bithynia, Paphlagonia and Pontus in the Greek and Roman Periods". Both the primary and the secondary sources used by Erciyas to give this introduction to Komana conforms with historical narrative. Based on these, during the Roman period, Pontus region was reorganized by Pompey after the fall of Mithridatic reign and Komana continued its somewhat autonomous status, now as a principality. For a while the territory of Komana had significantly expanded to the boundaries of its neighbors and kept its power. However, by the time of Rome's first emperors Komana was annexed and temporarily lost its significance as a sacred center. The reason for the latter is assumed to be the expansion of Christianity, which is elaborated on further in the continuation of the introduction chapter under the subheading of Byzantine period.

Erciyas consistently maintains the style of historical narrative and references to historical literary sources, for example letters of Pliny the Younger and Eusebius, the Bishop of Caesarea are provided to illuminate the political and social components of the spread of Christianity in Pontos and Komana during this period. These primary sources along with the secondary ones demonstrate that Komana was still a frequently mentioned locale at the background of important personages of the region and era. Historical figures such as Bishop of Neocaesarea Gregory Thaumaturgus, Komana's first bishop Alexander, Basil of Caesarea and Archbishop of Constantinople John Chrysostomos are all part of this narrative and represent the significance of Komana in Christian realm and its stable prosperity that lasted several centuries.

However, by the 11th century, the peaceful atmosphere is said to leave its place to destruction and violence due to arrival of Turkic/Turkoman? tribes in Anatolia. Erciyas addresses this period under the subheading of "Danishmendids and Komana" since the most influential alterations to settlement and community of Komana were majorly brought on by this tribe. The influence of Danishmendname, the epic story of Melik Danişmend Gazi and his deeds to spread Islam, is rather prominent at this part of the historical narrative. The reason for this prominence is the numerous mentions of Komana, which is referred as Sisiyye, and its capture. This historical literary source that was compiled and transcribed in the 13th century provides descriptions of the settlement's physical features such as its size, fortification walls, bridges, abundance of churches; comments on the majority of the settlement population consisting of clergymen; and includes the names of prominent figures that lead the castle defense. As expected, Danishmendname also relays the violent and challenging course of conversion of Sisiyye to Islam, presumably with the purpose of glorifying the leadership of Melik Danişmend Gazi in his holy crusade. Since Danishmendname is a historical narrative itself, written by the victors of this cause, it needs to be acknowledged as a medium of propaganda transmitting the Turkic tribes' power over Anatolia and therefore no exception to meta-narrative form that is produced to legitimize power, authority, and social customs. Especially considering the capture of Komana by Danishmendids in 1101, along with the decline of the Christianity and the expansion of Islam, the influence of Turks continued to spread throughout Anatolia.

When Tokat was seized by II. Kılıçarslan in 1175, Komana was also effectively surrendered to Seljuk Empire. It is difficult to discern information regarding the settlement or population of Komana during this period from the text. One explanation for this gap could be that historical literary sources Erciyas prioritizes for present historical narrative are not available for this specific period and region. Therefore, the chapter moves on to its final part which is “Komana during the Ottoman Period”.

Erciyas informs briefly about this period and uses secondary sources of history such as Jean-Baptiste Tavernier’s travel journal from 17th century or modern academic literature of history like the Ph.D Thesis of Ali Açıkel on settlement patterns and demography of Tokat during the 16th century . In this overview Erciyas only mentions Komana once as it was a subdistrict (nahiye) of Sivas province (vilayet) and was known as Komanat in Ottoman period. The rest of the paragraph reports that Tokat was located on a major trade route and that it was a city of fertile agricultural products and lively craftsmanship. According to 19th century official annals of the Ottoman Empire, Tokat’s population was rapidly growing with almost equal parts of Muslim and Christian groups. With this, the chapter is concluded without further discussion.

This narrative analysis of the introduction chapter is rather inquisitive with the term “historical geography” in the title. The main reason of this focus lies with the consideration of the relationship between archaeology and historical geography as a methodology that involves the application of historical texts, material culture distribution and settlement patterns with the purpose of drawing comparisons between the three. However, the present introduction chapter primarily utilizes historical literary sources and modern academic literature of history along with some references to archaeological reports but ultimately lacks explicit mention of material culture and settlement patterns of Komana and Pontus region. It must be granted, the following chapter titled “Komana’da 2009-2014 Yılları Arasında Yapılan Kazı Çalışmalarının Ön Değerlendirmesi” or “A Preliminary Assessment of 2009-2014 Komana Excavations” by Erciyas and colleagues partially completes the absence of material culture and settlement pattern studies. Also, the remainder of the book with chapters dedicated to specific findings further elaborates on material culture comparanda. However, the fragmented nature of the chapters prevents this particular introductory chapter from being considered as a fully realized historical geography study on its

own. As a result, the chapter can safely be defined as a historical narrative of Komana. Hayden White's arguments on coherence can be revisited at this point to further analyze the implications. White suggests that the coherence of a narrative of the past is developed with the involvement of its author's experience, ideology and knowledge. However, as the coherence of the narrative increases, the objectivity of it is assumed to be decreased. I would like to take advantage of this conundrum by moving onto the second text of this narrative analysis on Komana which represents the more objective approach towards the narrative of the site.

The second text is also an introduction chapter written by Erciyas for the multi authored volume titled "Komana Small Finds¹⁶³". As the title indicates, the volume consists of chapters that categorize and examine some of the small finds from Komana. Each chapter is authored by specialists on various aspects and types of finds such as architectural decoration elements from churches, jewelry, figured ceramics, lamps, objects crafted from animal bones, coins, glass bracelets and tobacco pipes. The introduction chapter itself is titled "Archaeology at Komana" and with a neutral, concise and technical style explains how and where these finds were acquired at the excavation site. As a result, the text is almost entirely an archaeological report on the procedures and findings. The wording and content aquacise with archaeological interpretation based on processualist theory that adheres to positivist and empirical methods. Number of supervisors and workmen of excavation teams, trench size and type, soil and bedrock characteristics of the site are provided in an objective manner. Precise measurements of the main architectural features are abundant within the text as well as the drawings of the plans. Information regarding the chronologically seriated layers of Ottoman phase, Danishmend /Seljuk phase, Middle Byzantine phase, Early Byzantine phase, and Hellenistic phase are explained in this order of occurrence. Then, each of the chronological layers are further elaborated on whenever the data is sufficient and compliant with categories such as architectural remains, features and plans; material culture; renovations and graveyard use. Chronological deductions are founded on analyses of material culture either by relative or absolute chronological approaches ranging from numismatics to dendrochronology.

¹⁶³ Erciyas & Acara Eser, 2019.

If the archaeological interpretation is accepted to be present in all archaeological practice as Shanks and Hodder argue that even the most objective and logical observations - such as the measuring of an artifact- can be seen as an act of interpreting since it involves decision making and judgement. In that case it would be incorrect to define this introductory chapter as a text majorly built on objective observations. On the other hand, these kinds of decision making processes and reasoning behind the judgement does not appear to be made consciously or deliberately. Shanks and Hodder refer to such interpretations as black-boxing by stating that “When an interpretation or set of interpretations is accepted, treated as uncontroversial and no longer even seen for what it is, the term black-boxed can be used. Interpretation is made, accepted and then put away, out of sight and often out of mind, in a black box.”. Certain practices have been accepted as the norm a long time ago and to scrutinize each and every one of them would be starting from the beginning instead of taking advantage of the accumulated knowledge of the discipline. From this perspective, Erciyas adheres to such interpretative norms as a part of conventional writing style that is pervasive in academic and technical texts within the discipline.

That being said, there are a few instances where Erciyas approaches more casual interpretations that are perhaps based on preconception, assumption, imagination or expectation. These are the clues I have been capitalizing on for a more creative way of interpretation and, eventually, as building blocks of alternative narratives. For clarities sake, I refer to such instances within the text as casual interpretations. For example, in page 5, Erciyas refers to Ottoman taxation surveys and provides some information regarding the population and demographics:

“The earliest tahrir defter (taxation surveys) from the area dates to 1455.3 On this document, the province named Komanat has 12 villages. In these 12 villages, there were 261 muslim and 91 non-muslim households and 44 unmarried males. The Komanat village itself was the administrative center of this district and there were 38 Muslim, 44 non-muslim households and 22 unmarried male. According to these numbers, the population in the Komanat village was around 391 people and in the nahiye of Komanat in total 1628. We are unsure if Komana continued to have this kind of a central position 300 years later however, we may suggest that at some point the hill, Hamamtepe, was once more occupied between the abandonment after 14th

century and the 19th century. 18th century-19th century court records indicate that Komanat was still a district of Tokat at such a late date.”

This information is from the mid-15th century records, however Erciyas suggests that at some point the hill, Hamamtepe, was once more occupied between the abandonment after 14th century and the 19th century. This may be a subtle indicator of preconception that historical written sources can be read and interpreted as a basis for reasonably extended suggestions. I also follow this reference for further interpretation in pursuit of alternative narrative building and utilize this historical source as a possibility to speculate that even after Komana was officially converted to Islam, the religious inclinations of the population may emerge as various demographics. As seen in this tahrir defteri excerpt, there were many non-Muslims along with Muslims at Komana centuries after the siege of Komana in 11th century.

Another example for casual interpretation is a purely technical one about earthen ovens in page 8:

“The preservation degrees are also varied; while some are preserved up to around 70 cm high others are bare rings on the ground. Originally, some must have been much taller with narrowing upper parts but none has survived to the degree that we could reconstruct the original form.”

Erciyas explains the conditions of the ovens in their archaeological context however she also states that these ovens “must have been much taller” without providing further reason or source regarding this assumption. This is where I got the idea of the oven in the imagined visual interpretation. Obviously, I assess that there is enough archaeological evidence to reconstruct the original form of the oven in presented visual interpretation, especially after perusing the ethnography related research results of a search conducted with Google Visual Search.

Another significant piece of casual interpretation is found on page 9 where Erciyas mentions a group of bronze objects:

“A peculiar group of finds from the Danishmend/Seljuk layers is the bronzes. Bronze objects, mostly church equipment and various types of crosses (reliquary, ceremonial, ornamental) must have been originally from the middle Byzantine church. These must have been collected from the church remains to be melted and re-used. In addition to

these, there is a group of pitchers (3 complete ones) and an upper part of a distiller in addition to deformed pieces of cups or cauldrons.”

I use this fraction of an interpretation about the collection of discarded metal reliquary and further interpret this as an indication of conversion in the context of blacksmith workshop.

In page 19, Erciyas points at a contradiction between one of the primary historical resources and the actual archaeological data obtained with excavations:

“The excavations in the last two years have indicated that Hamamtepe was a fortified settlement before the middle Byzantine period, then became a cemetery hill with small churches at its center in the 11th -12th centuries. The fortifications must have been repaired after the Danishmends took over the settlement. However, this supposition contradicts with the accounts in *Danışmendname* where Komana or Sisiyye is described as a fort settlement. While the fortifications which must have stood at the time could have been used as refuge, there is no indication archaeologically that there had been a battle in or around the walls. There is no destruction layer, no weaponry at the site. There are a number of sphero-conical cups, which are now and then interpreted as a form of dynamite, and a collection of slingshots but not in numbers which could indicate a serious battle. Considering the presence of a wide range of game indicated by the bone data, the slingshots could have as well been used for hunting”.

Here I collect the information on archaeological data demonstrating that the settlement was fortified before the arrival of Danishmends but also the singular case of comparison between archaeological data and a historical literary source. As Erciyas states, in case the events did indeed unfold as written in *Danışmendname*, the walls must have needed repairs, however archaeological evidence does not support this. On the other hand, Erciyas briefly mentions that there are indeed some finds such as dynamite shells or slingshots. The evidence is decidedly not in quantities to confirm *Danışmendname*, yet sufficient for further inquiry regarding the extent and impact of the supposed siege of the fortified area. Conversely, Erciyas’s comment about the slingshots being related to small game hunting rather than a siege can also lead to the question of whether there was a siege at all. Of course, reaching for inferences from the absence of evidence is too obvious of a fallacy that does not align with the

empirical and objective narrative of the present text. In fact, all the assumptions, inferences and comments that can be found in the narrative are soundly linked with the evidence and demonstrated with photographs and plans. As Hodder and Shanks claim “Because the report is coherent and reads well (no contradictions betraying lies and artifice), and the photographs witness things actually being found, because its style and rhetoric are found acceptable, because it delivers what is required (from format to types of information), it is described as sound. Objectivity is what is held together. If a report holds together, it is considered objective”. I acquiesce to this statement and confirm that the present text is indeed an objective narrative in the form of an archaeological report.

Considering the purpose of this analysis of the narrative of Komana, there are certain observations that can be made. The contrast between the narrative styles of the two texts is sharply pronounced, presumably, a deliberate decision of the author, although Erciyas does not explicitly divulge the motivation. While the first text titled “Historical Geography of Pontos and Komana from Hellenistic to Ottoman” is a purely historical narrative that is not linked with archaeological data acquired from research at Komana, the second text titled “Archaeology at Komana” gives a report on archaeological evidence from the site often without revealing the connections between what is unearthed in the present and what has happened in the past. As such, relevance between archaeological evidence and historical literary sources is not explained in depth. It is entirely possible that there are other texts that explore the connections and inconsistencies however, based on only these two texts and their narrative styles, there appears to be a gap in the narrative of Komana. I am well aware that this gap is only existent in the narrative and not in the research agenda or excavation process of the site. I suggest that, the reason for the absence of Komana’s unique story is Erciyas’s well justified reluctance of deviation from the norms of discipline and academia. As a matter of fact, these two contrasting approaches to archaeological narratives are not specific to Komana but excessively common within scholarly spheres. My intention is to draw attention to the expanding gap between the archaeological narratives and the technical progress as the digitization of the archaeological record expands and accelerates, yet the scientific pursuit cannot in good conscience deviate from the meta-

narratives. I argue that the authors of archaeological narratives need to seek balance between a wider context to describe, grasp, manipulate, explain or understand the ways in which the world works, shortly, meta narratives; and a vision of the world in its messy, incoherent condition ruled by contingencies and indeterminacy as Pluciennik notes.

Elsewhere in this thesis, embedded and emergent narrative styles are introduced with the purpose of drawing parallelisms between videogame narrative production and archaeological narrative production. At this last point of the narrative analysis, it may be beneficial to revisit this subject to underline how embedded and emergent narratives can be identified for archaeological texts. The first chapter analyzed here represents the embedded narrative of Komana as it is majorly based on historical literary sources which have been existent long before the archaeological excavations at the site begin. This text identified as the historical narrative could have been written by anyone who has access to said sources, there is little to no indication that this narrative was written by someone who has been actively engaging with the site's past through fieldwork. The information Erciyas relays through this text is pre-generated and therefore an example of embedded narrative. The second text on the other hand is an objective account of archaeological finds that are purely based on excavation process at the site and appear to relay evidence gathered through interaction with the site. It is still difficult to define this report as a fully emergent narrative though. The reason for my reservation is that content and structure of the hill that is being excavated are pre-existing components of the archaeological accumulation and from this perspective, analytical reporting of these finds are the objective observations about organically embedded nature of archaeological site. Emergence, however is recognized as an unpredictable component that is closely connected with the sensations, perceptions and memories of the enactor. Surely Erciyas and many other archaeologists who dig at Komana are involved with the site in this emergent manner as the cognitive association between an embodied agent and its environment occurs throughout the experience. However, the text in question does not reflect the emergent nature of these associations, and therefore cannot readily be accepted as emergent narrative.

Nevertheless, my engagement with this text, especially the parts where little pieces of casual interpretations presented by Erciyas that permit further interpretation can constitute the grounds for emergent narratives to prevail.

In conclusion, the narrative analysis of Komana based on these two separate introductory chapters reveal that there are dichotomies existent both in the sense of information source such as historical literary sources and empirical archaeology data; and in the sense of embedded and emergent narratives. It is important to note that the contrast caused by the dichotomies in either sense, constitutes the gap where this thesis and the suggested deep mapping model can assist to bridge.

4.3. World building

The first phase of the case study is world building, a concept borrowed from videogame narrative design which constitutes the overarching setting of the narrative. As a beginning, the theoretical and methodological approaches contained at this layer are introduced with regard to their application at Komana research. This part also reveals the major source of the information implemented at the world building phase. Then, world building phase continues with presenting the information regarding the environmental aspects of Komana landscape such as geographical location and characteristics, topographic features, and indicators of human activity. While the geographical location of Komana landscape is explained, the concept of cartographic maps is touched upon with the purpose of demonstrating the string of pearls narrative structure with a small pocket of information that does not connect back to the main storyline but offers some perspective on the nature of cartographic maps of the era. And finally, the world building phase is completed with the integration of information on different political, religious, or cultural factions; major plot points such as wars, revolutions, or cataclysmic events; main characters with individual motivations and backstories; the history and the current state of Komana during the 11th-14th centuries are presented as a meta-narrative, structured in a linear fashion.

World building implementation

Archaeological research at Komana is mainly built upon the theoretical and methodological approaches of Processual archaeology, however it also follows certain

fundamental practices and understandings presented with the culture-historical approach as much as any archaeological research anywhere. To begin with the culture-historical approach's contributions to modern archaeology discipline, its focus on the development of typologies involving the classification of artifacts, sites and various data groups is practiced at Komana for the study of pottery and small finds. Specifically, the extensive study of the Seljuk period ceramics demonstrates the versatility of this approach by firmly identifying the characteristics of glazed, colored, and decorated pottery of the Seljuk culture¹⁶⁴. Another understanding provided by culture-historical approach is the historical reconstruction which aims to reconstruct the past societies through the correlation of archaeological data with historical sources. The creation of the Komana narrative is often established through the introduction of historical texts such as the *Geographica* of Strabo for describing the role of the Temple of Ma during Hellenistic period; and the application of *Danishmendname* for exploring the influence of Turkification and Islamisation at later settlement phases. As for the Processual archaeology at Komana, applications improved or introduced with this approach are prominently utilized at every possible part of the project. At the earliest years, survey strategies and methods such as the application of GIS for producing the topographical model of the landscape and the utilization of geophysical scanning tools such as gradiometers for discerning the buried archaeological remains from the surface have been prioritized before beginning the excavations¹⁶⁵. Later on, archaeometric examinations conducted for source analysis of pottery¹⁶⁶; well established study on environmental remains such as animal bones¹⁶⁷ and plant remains¹⁶⁸; interpretations regarding natural and cultural site formation processes influencing the archaeological record¹⁶⁹ have been meticulously integrated with the excavation project.

Komana settlement is located in the central region of Anatolia. Since Anatolia is a land surrounded with Black Sea from the north, Aegean Sea from the west, and Mediterranean Sea from the south; its connection to Europe from the Constantinople Strait, also known as Bosphorus, and its continuation to Asia from the east side renders

¹⁶⁴ Karasu, 2020.

¹⁶⁵ Erciyas et al., 2008.

¹⁶⁶ Er & Ertaş, 2015.

¹⁶⁷ Pişkin, 2015.

¹⁶⁸ Pişkin & Tatbul, 2015.

¹⁶⁹ Tatbul, 2021.

it a bridge between the two continents. Even though Komana settlement is located within the Pontic Mountains; the high mountain range geographically puts Komana in a region that is a transition zone between Pontos and central Anatolia. The nearest urban center of the region Dokeia is within 2 hours walking distance towards the west of Komana settlement. Other major central settlements within a day's travel distance are Neokaisareia towards the east, Amaseia towards the north-west and Sebasteia towards the south.

The one example from the medieval period loosely referring to this location on earth is the famous map of Hereford Mappa Mundi (Fig.18). As customary of this period, maps would tell the stories of great heroes, cataclysmic events and legendary adventures. Therefore, it is no surprise to see the black sea and its inner region depicted with two legendary events and locations on Mappa Mundi are the myth of Jason and the Golden Fleece and Noah's Ark. While the Golden Fleece legend is possibly related with the colonization of the Black Sea¹⁷⁰, the depiction of Noah's Ark coincides with the location of Mt. Ararat¹⁷¹. Komana on this "world map" would be located in the middle of these two depictions.



Figure 18: Estimated location of Medieval Komana in Hereford Mappa Mundi¹⁷².

¹⁷⁰ <https://www.themappamundi.co.uk/mappa-mundi/>

¹⁷¹ Petrosyan, 2001, p. 36.

¹⁷² By Unknownauthor- unesco.org.uk, <https://commons.wikimedia.org/w/index.php?curid=41201813>

Public

Domain,

Komana landscape is characterized with high ranges of the Pontic Mountains and the large valley floor containing the Iris River¹⁷³. The soil types of the landscape are alluvial deposits formed by the Iris River covering the majority of the large plains at the valley floor and colluvial deposits that are formed by the gravitational force at the mountain slopes. The types of minerals which can be observed commonly in this environment are schist, phyllite, marble, and metabasic rocks¹⁷⁴.

With its extensive river system and rich forests, various ecological habitats of the landscape is suitable for native animal species such as deer, boar, wolf, bear, aquatic birds and other small animals such as hare, partridge and mice¹⁷⁵. The native vegetation species of Komana landscape are mostly grassy areas surrounding the river's path and trees of hackberry, cornelian cherry; shrubs of hawthorn and blackberry¹⁷⁶ along with forested areas in the higher grounds of mountain slopes. The climate conditions are relatively cool and dry during summers, and very cold during winters^{177, 178}.

The alluvial deposits that are formed by the Iris River provide the people of this landscape with great fertility for crop farming. The riverbed which changes and sometimes floods the fields is managed with agriculture terraces, canals, terracotta pipes and collection basins¹⁷⁹. The fertile lands on slopes farther from the river and the risk of flood are put the use for orchards of fruit trees.

The built features of Komana landscape include Komana settlement surrounded with fortification walls, an inn (han) near the road, a bathhouse (hamam), a shrine tomb (türbe) and its lodgings (zawiya), bridges across the Iris River and water collection pools dating back to Roman Period. The road system that enters the region from the west side through Dokeia, and continues towards the east is a part of major intercontinental trade route known as the Silk Road¹⁸⁰.

¹⁷³ Altın, 2015, p. 65.

¹⁷⁴ *Ibid.*, p. 72.

¹⁷⁵ Pişkin, 2015, p. 125.

¹⁷⁶ Pişkin & Tatbul, 2015, pp. 145-146.

¹⁷⁷ Bottema et al., 1995, pp. 16-18.

¹⁷⁸ Telelēs, 2004.

¹⁷⁹ Altın, 2015, pp. 68-69.

¹⁸⁰ Bakırcı, 2005.

Komana during the Danishmend and Seljuk Periods was already an ancient settlement with around a thousand years of continuous occupation. During the Hellenistic Period, Pontos region, which includes Komana, was ruled by the Mithridatic dynasty. The earliest historical text mentioning Komana is written by Strabo of Amaseia¹⁸¹. In *Geographica*, Strabo describes Komana in the 1st century BC as a semi-autonomous religious center with its temple dedicated to goddess Ma and a center of commerce, as well. Komana, with its fertile plains providing plentiful crops famously celebrated its richness with religious festivities which entertained visitors and merchants from all around Anatolia¹⁸². Following the decline of Mithridatic dynasty, Komana, along with the rest of Anatolian lands, became a part of the Roman Empire and assumed to continue its temple status as a Romanized temple for Bellona, and later, Virtus¹⁸³. By the 1st century AD, Komana and its religious significance were expectedly diminished due to the spread and rise of Christianity, and the settlement was officially converted by the year of 250 with the appointment of its first bishop¹⁸⁴. For centuries Komana was a part of the peaceful and stable region within the lands of Byzantine Empire until the year of 1071 when the peoples of Central Asia first began to arrive at Anatolia¹⁸⁵.

One of the peoples who entered Anatolia in the 11th century was Danishmends, a Turkic dynasty which invaded and burned down the churches and monasteries of the region according to *Danişmendname*, the religious-heroic narrative that glorifies the life and leadership of Melik Danişmend Gazi. *Danişmendname* clearly states the reason for this destruction as the holy purpose of spreading Islam. Komana was also mentioned in this text as a fortified settlement named Sisiyye. The people of Sisiyye resisted the conversion to Islam and fought against Danishmends multiple times under the commands of Natron and Esriyanos before their eventual fall in 1101¹⁸⁶. After that, the locals of Komana were partly spread out to rural areas where they struggled with diseases, hunger and captivity by Turks. Komana was seized again in 1175, this time by II. Kılıçarslan of the Seljuk Empire, another Turkic and Muslim rule¹⁸⁷. By the 14th

¹⁸¹ Strabo 12.557.

¹⁸² Erciyas, 2015, p. 7.

¹⁸³ *Ibid.* pp. 9-10.

¹⁸⁴ *Ibid.* p. 11.

¹⁸⁵ *Ibid.* p.13.

¹⁸⁶ Demir, 2002.

¹⁸⁷ Turan, 1993.

century, like the majority of Anatolia, Komana has been significantly Turkified and united under the rule of Ottoman Empire¹⁸⁸.

4.4. Level design

The second phase of the case study primarily deals with the built environment as level design concept adopted from videogame narrative design process does. Accordingly, zones, districts, individual places and the layout of Komana settlement in its landscape are defined at this phase. The implementation of data regarding the environmental research at Komana provides part of the required information, while the consideration of architectural remains and artifacts supply the rest. The demonstration of these built environment elements is done with cartographically coordinated layout plans and drawings from the excavation. Then narrative scales of meta and local; and narrative structures of string of pearls, branching and amusement park which are aligned with level design are explored with the focus on Komana as a landscape, a settlement and an archaeological excavation site. Lastly, the phase is concluded with an argument on the high compatibility between the processual approach and the proposed model for digitization of archaeological landscapes.

Level design implementation

The most important features of the built environment of Komana settlement and its landscape are the zones, districts, individual places, and layout. As a rural settlement located in the fertile plain and fed with water from the Iris River, Komana is a place of abundant agricultural products. Therefore, agricultural zones of the landscape are defined as follows. While cereals and legumes were planted in the fields near the river on flat lands, slopes a little further from the riverbed were used as orchards and vineyards for a variety of fruits. Higher parts of these slopes were used for animal husbandry for sheep, goat and cattle. These agricultural zones occupy the areas surrounding the domestic and production districts. At Komana, the fortification wall surrounding the upper level of settlement creates the delineation of workshop district where food and small-scale industrial production is carried out. Houses were scattered

¹⁸⁸ Erciyas, 2015, p. 14.

across the immediate lands outside the fortification walls on both sides of the river¹⁸⁹. Therefore, there is a compact workshop district and a relatively spread-out domestic district defined at Komana settlement. There are also individual places and structures that appear as significant locations in relation to roads on trade routes. A han (inn) on the road just outside the fortification walls was such a place where travelers were provided with lodgings and a hamam¹⁹⁰ (bathhouse) across the han functioned as a facility for business meetings, cultural activities, medicinal applications in addition to bathing¹⁹¹. Another individual location is a building complex of türbe, the tomb of a holy personage and its zawiya, an institution of education, religious and philosophical contemplation as well as facilities for scholars and pilgrims of Islam¹⁹². The location of this complex was a little further towards the west of the settlement. In addition to individual buildings, there were two stone bridges within the settlement, just outside the fortification walls. These bridges were positioned on the main road, very close to each other, one of them connecting the south and the north banks of Iris River; the other built on the tributary Huni Stream in the west-east directions. The position of the bridges overlaps with a topographical depression point where the impact of flood is lessened and thus the structure of the bridges is protected¹⁹³.

The narrative at the level design is also influenced by the meta-narrative of Islamisation and Turkification of Anatolia and emphasizes the destructive and forceful nature of the conversion. This is mostly due to historical literary sources like *Danishmendname* and its derivative interpretations in modern historical narratives. However, archaeological data may provide local and contradictory alternatives to such narratives. There actually is evidence of destruction of the churches at Komana

however, it is also evident that some parts of them were continued to be used as workshops after the arrival of Danishmends. Furthermore, even though the settlers who resisted the conversion are thought to be forced out of the settlement, there are indications that some occupants, who perhaps accepted Islam, could continue to live

¹⁸⁹ Strabon, 2000. pp. 26-27.

¹⁹⁰ Tatbul, M. 2019. p. 429.

¹⁹¹ Kaya, 2022. p. 65.

¹⁹² Blair et al., 2012.

¹⁹³ Altın, 2015, p. 69.

at the settlement. The continuation of pottery production made with the same technique with new Islamic and Turkic motives and decorations, is interpreted to be an indication of pottery masters continuing their lives and crafts within the settlement¹⁹⁴. There is also the issue of graves and the conditions of their occupants. Anthropological study on skeletal remains clearly denies any indication of settlement scale violence such as one that is expected to be observed if the invasion and destruction of the settlement indeed caused the decimation of local occupants¹⁹⁵. Of course, it should be considered that the locals were indeed slain but were not buried around the church where the studied remains were excavated. Still, the consideration of contradictory interpretations such as these, belong to this step of the methodology. Another case of contradiction is the historical literary source describing the local characteristics of this region is found in 17th century travel records of Evliya Çelebi in his Seyahatname. Though Evliya Çelebi does not mention Komana, some of his report can be relevant to the settlement; especially his description of Tokat's climate should be valid for Komana as well. Based on this, during the 17th century the weather was refreshing due to its exposition to northerly winds and the winters were mild¹⁹⁶. This report is not compatible with the results of the research on climate since they indicate that the winters were long and very cold, however the contradiction could be the result of climate change occurring over the centuries that have passed between the reported dates. Then again, these contradictions are worth acknowledging.

These narrative structures allow for different perspectives to emerge especially during the construction of alternative narratives based on archaeological and historical sources and data. To begin with the less complex approach, the string of pearls structure can be used to offer small and seemingly inconsequential options to the

settlement's local narratives which upon realization reward the curious and perceptive observer with discovery and deeper understanding. For example, even though the ordinary occupants of Komana were mostly farmers and craftsmen, the settlement's role as a commercial focal point on the Silk Road would allow these occupants to be

¹⁹⁴ Karasu, 2020, p. 2.

¹⁹⁵ Erdal et al., 2015, p. 90.

¹⁹⁶ Kahraman, 2010, pp. 101-102.

exposed to a multitude of different peoples, objects and cultures. The interactions between the locals and visitors were possibly part of the daily life at Komana and are worth contemplating though their impact on the meta-narrative scale is neglected.

The results of these interactions are not apparent in the archaeological record yet, so their influence on the decisions and values of the locals are difficult to discern. In case the impact is observable in the archaeological record, the narrative structure can be configured as a branching narrative. Especially when there is a decision to be made, exploration of the possible outcomes is best structured with the branching narrative. The most prominent case of such a decision point in Komana settlement during the Danishmend period is the decision to either convert to Islam or resist it at a cost. The meta-narrative simply recognizes this process as an unanimously made decision by the settlers of Komana. According to *Danishmendname*¹⁹⁷, Dokat fortress was already seized by Danishmends before they attacked Komana/Sisiyye fortress and people of Dokat were complaining that people from Sisiyye were disturbing them. Upon that 12.000 men were gathered to surround and take over Sisiyye however Sisiyye had a general named Nestor and called upon reinforcements from near and far to defend the fortress of Komana/Sisiyye against the invasion. But the reinforcements were not enough, the Byzantine allies of Nestor were slain, and the fortress was breached with deceit. Many churches of Sisiyye were destroyed, and bloodshed was immense. Surviving locals were converted to Islam and were provided with a meşid building to worship Allah, and religious officials such as kadi, hatib and imam were appointed. Still, Nestor continued negotiations and offered 100 slaves, 100 horses, 100 mules loaded with goods; in return he demanded to be free of Danishmend attacks and be in good terms with them. The offer was declined as Danishmend Gazi demanded full conversion to Islam and threatened with the total decimation of the settlement and its

people if they did not accept. Apparently, there was no concede by either side, and Byzantine lords and men allied once more to fight against Danishmends and ambushed Danishmend Gazi near Turhal but again Danishmends were victorious. After that, Komana/Sisiyye was left with no choice but to surrender and convert to Islam.

¹⁹⁷ Akkaya, 1950, p. 139.

In retrospect, the conclusion that Komana was converted and Turkified by Danishmends seems true enough but as expected, the narrative of Danishmendname is concerned only with establishing the heroic and religious narrative of Danishmends in their holy purpose and disregards the individual decision making capacity of Komana's peoples except for prominent figures such as general Nestor. Even if the events recounted in Danishmendname were accurate, at the individual level, ordinary people of Komana made individual choices that are not recorded, yet at any point of this period, people could have chosen to leave their homes or to stay and defend their settlement or to accept Islam willingly or to appear as converted to Islam yet continue to believe what they believe in private. They did have options, for better or worse, and it is only natural that they made decisions and lived –or died- with the consequences. A branching narrative can include such possible scenarios and different outcomes for different individuals, families and factions. Unfortunately, this type of narrative building leaves a lot to the imagination and ideology of the narrator and has little credibility in academic literature, yet it should be emphasized here that the grand scale narratives are also not immune to the narrator's preconceptions but more readily accepted. Even if the archaeological data indicates at such alternative choices of the individuals, they are often interpreted within the established framework of meta-narrative rather than as diversities.

One other approach to recognize the fragmentary decision-making processes of the individuals, families and factions is demonstrating them with individual locations, zones and districts embedded within the narrative structure of the amusement park model. This narrative structure focuses on the spatiality of the experience, even though the entry and the exit points are narratively constant, the freedom to explore various locations with different values, lifestyles and dynamics can provide multiple narratives to emerge. Within the historically prioritized narrative of Komana being invaded and converted by Danishmend and Seljuk Turks between the 11th and the 14th century is set as the beginning of a time period. Similarly, the period is finalized with the event of Ottoman's takeover of Komana. The events related to the beginning and the ending of this process can easily overshadow the narrative of the whole time period of 400 years. Recognizing these two events as the entry and exit points of the narrative is the first step of establishing the amusement park narrative structure; however, the 400

years of time span is a long enough time to deserve the contemplation of narrative possibilities beyond major events. Consequently, this perspective permits to consider domestic units as ambiguous locations where the beliefs, values and lifestyles can be carried out in private by individuals or as a family. Similarly, singular locations such as the zawiya at Komana can be considered as a location publicly exposing the beliefs, values and lifestyles of its occupants. As such, the amusement park narrative structure within this methodology emphasizes the importance of individual locations as focal points of different lifestyles, values and activities occurring within and around the same settlement during the same time period.

To clarify, three narrative structures linked to level design can be adopted separately but also in combination by taking the string of pearls structure as a meta-narrative base and then considering possible fragmentary narratives that emerge via the choices of the individuals through the branching narrative structure and then establishing individual locations where different outcomes of choices are represented with amusement park model.

The considerable amount of archaeological data gathered, analyzed and interpreted by the researchers of environmental studies conducted at Komana, emphasizes the inevitable influence of Processual archaeologies in settlement and landscape studies. Both the practices and the interpretations based on evolutionist, behaviorist, ecological, and positivist perspectives that processual approach contains are highly compatible with current digital archaeologies, including the proposed model for narrative design of archaeological data and information in digital environment. Specifically, the process of digital reconstruction of the landscape has potential for the application of the systems view on the matters of production, distribution and consumption of agricultural and material products since the proposed model also recognizes the videogame economy as a concept relevant to this processual approach. As previously provided, the availability of a resource in the game environment and the resource amount required for the continuation of the game play are regulated with a closed system called game economy. Therefore, where this thesis states that Komana settlement is located by the Iris River and used its alluvial deposit as fertile fields for agricultural production, the digital visual reconstruction of the landscape environment, as well as the game mechanics based on the archaeological evidence of production,

distribution and consumption patterns of the said product can be incorporated within the digitized landscape as an interactive system of economy. From the level design perspective, the visual representation of agricultural activity the fields are defined as related zones in the landscape of Komana, but agricultural production is a dynamic process related to soil type, climate and season, as well as economical, political or religious traditions or events. Thus, reconstructing the landscape as a digital environment in a static way is utilizing only a small fraction of the potential of digital technologies and it is important to consider adopting videogame engines to incorporate the dynamic processes. As for the archaeological narrative, the adoption of videogame techniques into the way of thinking brought on by processual approach contains further potential for the academia of the discipline to explore and discover novel facts such as the validation or refusal of continually utilized archaeological frameworks regarding the data collection, analysis and interpretation¹⁹⁸.

4.5. Environmental storytelling

This phase of the case study implements the environmental storytelling technique of videogame narrative design. Environmental storytelling refers to micro-narrative vignettes composed of objects arranged in a way that reflects the characteristics of the place such as time period and location. These objects can be regarded as small units of narrative that decorate the setting to enable the observer to interpret a coherent narrative as a whole. The concepts related to this layer of the proposed model are defined as phenomenological landscape archaeology, deep map, local narrative, micro-narrative, amusement park narrative structure, rhizome narrative structure and post-processual archaeology. Therefore, the implementation exposes the connections between these concepts and archaeological data by starting with Ingold's take on landscape phenomenology and his perspective of taskscapes. Next, taskscapes perspective is applied as a daily life themed schema. This schema introduces a selective demonstration of deep mapping method for designing the micro-narrative vignettes. The actual creation of the vignette as a digital image utilizes text-to-image AI tools provided by image editing software of Adobe Photoshop (Beta version

¹⁹⁸ Hanussek, 2019, p. 6.

25.1.0). After that, the relevance between the micro-narrative vignettes and narrative structures of amusement park model and rhizome are explained and their potential for emergent narratives are critically evaluated. Lastly, the place of the post-processual approaches at this phase of the case study is acknowledged briefly.

Environmental storytelling implementation

Landscape archaeology's connection to philosophical subject of phenomenology is mainly based on Tim Ingold's introduction of the dwelling perspective and the term of taskscapes. Ingold's approach adopts the bodily practice concept from phenomenological philosophers such as Husserl and Heidegger and applies it to archaeology's subject of past landscapes. According to Ingold, landscapes are places where daily activities of dwelling are conducted continuously through human-landscape interactions and thus the tasks carried out by the dwellers transform the landscape into the taskspace. As such, as long as the inhabitation of humans continues, the landscape is under constant transformation. Furthermore, as the landscapes are transformed by their inhabitants, in turn, the inhabitants are transformed in perceptible of imperceptible ways by their landscapes and the tasks they conduct. With this taskscapes perspective in mind, suggested deep map of the Komana landscape follows a daily life scheme (Fig. 19) to formulize a path from archaeological landscape to archaeological finds from a selected context such as architectural remains, ecofacts and small finds.

Purpose of this practice is to demonstrate how conventionally recorded and stored archaeological data can be integrated into the digitally created narrative platforms using the environmental storytelling technique of the proposed methodological model. Although deep mapping is a unit within the said methodology, it also resonates at a larger scale of the whole model. Thus, the categorization and presentation of the archaeological data as a deep map is configured to be made ready for the creation of micro-narrative vignettes that are composed of objects arranged in a way that reflects the characteristics of the place such as time period and geographical location. This approach is closely connected to the term "context" in archaeology discipline as Ashmore expresses "Context is an evaluation of archaeological data based on both behavioral and transformational processes.

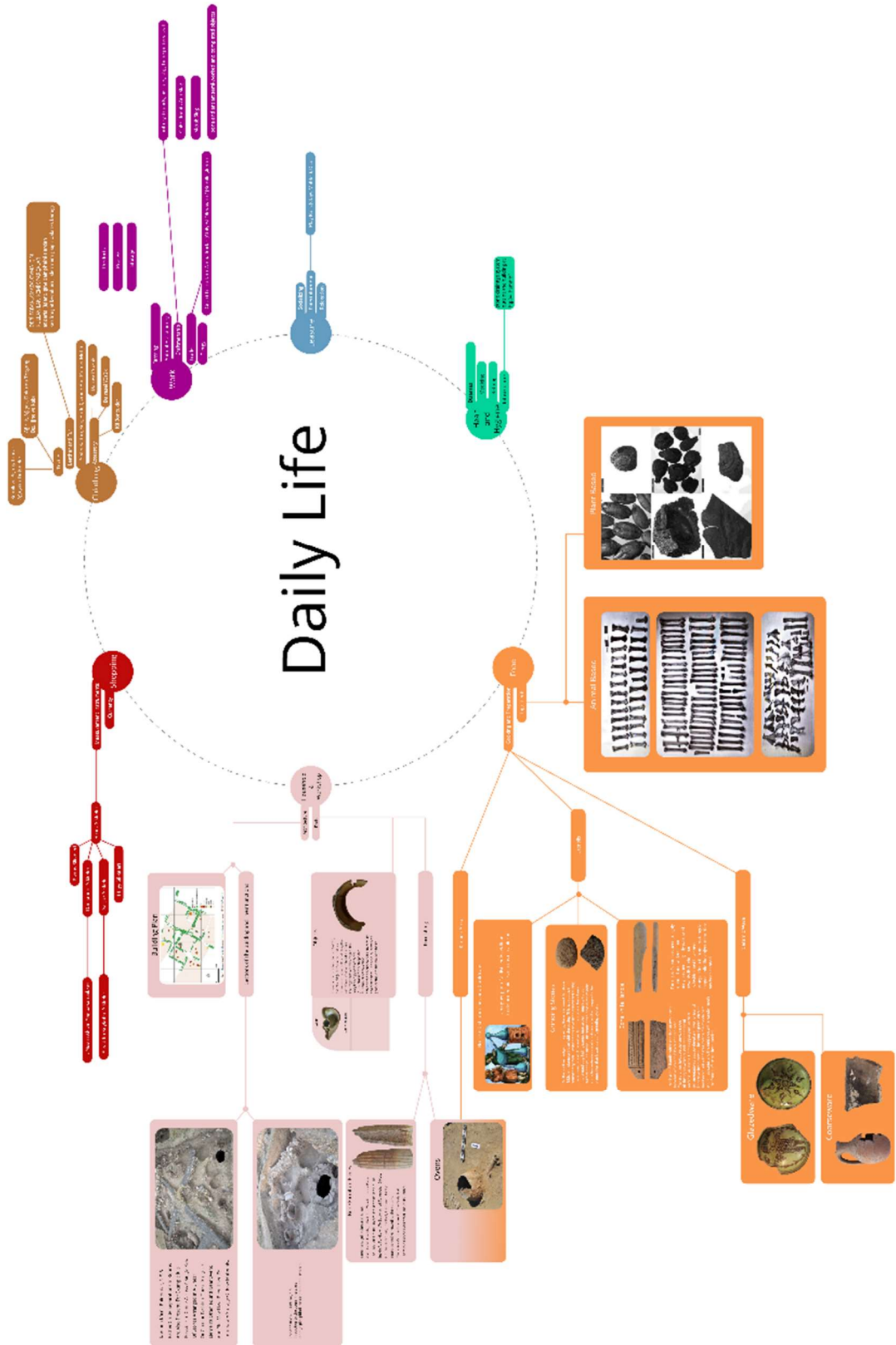


Figure 19: Schema of daily life

By considering the significance of provenience, association, and matrix for artifacts and ecofacts, the archaeologist identifies the transformational processes that have acted on these items and then reconstructs the original human behavior they represent¹⁹⁹. Ashmore also emphasizes the significance of association that refers to the occurrence of two or more artifacts in the same matrix as crucial to the interpretation of the past. The idea residing at the core of this definition aligns with how in a game world, objects composed in a micro-narrative vignette can be regarded as small units of narrative that come together and enable the observer to gain insight into the time period and location by deductive reasoning.

Here it is stated that, archaeologists already record, observe and interpret archaeological contexts in this manner as a part of their profession. The point of this statement is to suggest that archaeological practice is readily compatible with environmental storytelling of game worlds and the archaeological record is similarly compatible with the elements of videogame design practices. This compatibility offers an opportunity to integrate digital archaeological records with videogame platforms where narratological capabilities of these platforms can transform archaeological narrative in innovative ways. Such an assessment of this potential for digital archaeology does not exclusively promote the idea of creating videogames based on archaeological data but suggests that archaeological practice and theory can benefit from the techniques of videogame design as well.

In order to move forward with this idea, archaeological finds from 11th-14th century Danishmend and Seljuk period workshop layers of Komana are subjected to a selection process. The criteria of this selection is mainly the applicability of the contextual archaeological data into the design of micro-narrative vignettes where small finds obtained from the workshop area can be composed in manner to indicate at the function, time period, and industrial processes carried out in this area. At the backdrop of this vignette, there are architectural components such as mudbrick walls, packed dirt floors, ovens, and workbenches that have been recovered during the excavations. Then, the small finds from this matrix are arranged in such a manner that overtly evades the technicalities regarding the formation and refuse processes which affected

¹⁹⁹ Ashmore & Sharer, 2014, p. 72.

the archaeological context. To clarify, the appearance of these objects in archaeological context may or may not be *de facto* or even *in situ*, but for the sake of this case study application such disregard may be accepted as hypothetical application rather than provocation. Moreover, a meticulous spatial analysis on the workshop area has already been done by M. N. Tatbul in 2017 in his Ph.D. dissertation titled “Identifying Medieval Komana in the 12th-13th Centuries through Spatial Analysis of Archaeological Data with a Multidisciplinary Approach”. Tatbul provides invaluable information on the formation processes of systemic and archaeological contexts of the workshop area during the 12th-13th centuries, revealing patterns of procurement, manufacture, use, maintenance, and discard, as well as the gradual abandonment of the site²⁰⁰. Consequently, the wide-ranging dataset provided by Tatbul’s research constitutes a significant amount of the data applied to proposed model with this case study. In short, the application of the data to said daily life scheme given above takes advantage of already completed valuable research to experiment with narrative possibilities through reconfiguration of archaeological datasets.

The application of Komana Danishmend and Seljuk period data into the daily life schema follows a path from broader concepts to specific finds and information. Seven broader aspects of daily life are defined as workshop, diet, hygiene and health, leisure, work, clothing, and shopping. Next, each of these aspects divided into smaller components with consideration of existing archaeological excavation data and information obtained from academic literature on Komana. Then, these components are divided further into containers of data and interpretation for specific buildings, artifacts and ecofacts (Fig. 20). As a consequence, categorization of the archaeological data is completed in a way that reflects its complex nature within a narratively coherent organization around the theme of daily life.

²⁰⁰ Tatbul, 2017.

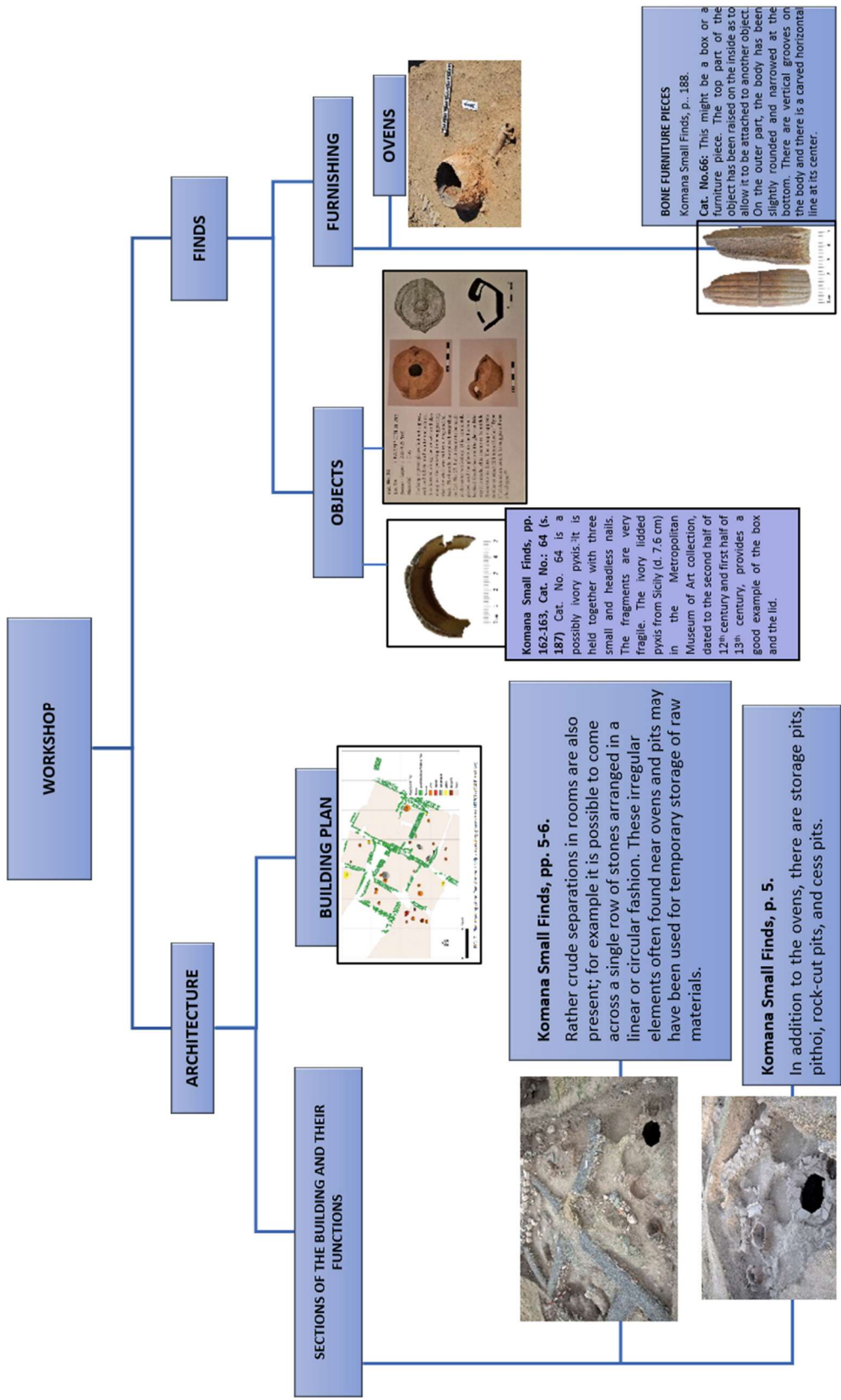


Figure 20: Workshop branch of the daily life schema.

As for the emergence of local and micro-narratives through the application of case study, creation of the cognitive experience for the reader to initiate their own dialogue with past landscapes is carried out by images, rather than words as the environmental storytelling technique requires. With the amusement park narrative structure in mind, a landscape image is digitally produced with the help of text-to-image AI component of the image editing program Adobe Photoshop (Beta v. 25.1.0) to show different spatial narrative locations like fields, fortification walls surrounding the higher part of the settlement, and dispersed domestic area outside of the fortification walls (Fig.21).



Figure 21: Imagined rendition of Komana settlement in its landscape.

For the rhizome narrative structure, workshop branch of the daily life schema is chosen as an example for a micro-narrative vignette. The final product is an imagined rendition of this author's take on the actual archaeological record and aims to serve as a demonstration of the environmental storytelling technique applied to archaeological data (Fig. 22). There is no further commentary provided on the image with the intent of leaving room for the observer to tap into their deductive reasoning capacity and preexisting knowledge based on personal experience. Since the micro-narrative vignette here is only a static image and not an actual interactive environment, it is appropriate to admit that a lot of the burden is placed on the imagination of the observer especially if they are not familiar with recent videogame environments.



Figure 22: Micro-narrative vignette of the blacksmith's workshop.

Yet, it can be confidently said that if the viewer is urged to keep in mind the questions such as “What is this place?” or “What happened here?” just like archaeologists do with professional instinct, micro-narratives are bound to emerge through interpretation for answering these questions. Although present vignette's capacity for emergent narratives is only assumed at this point, considering the theoretical framework of the proposed methodological model, it is expected to start new conversations on the subjects of landscape archaeology, narrative of archaeology and the untapped potential of the digital archaeology beyond the storage and curation of big data.

Lastly, this phase of the case study also attempts to implement the theoretical approaches brought on by post-processual archaeology on two subjects of landscape phenomenology and material culture. First, phenomenology is recognized as an approach that is introduced with post-processualist archaeology along with the related concepts such as subjectivity, individual agency, and the recognition of multiple

interpretations. The adoption of taskscapes perspective emphasize the embodied involvements and experiences of the individuals and communities that construct their own unique meanings and narratives based on their interactions with the landscape. Considering the previously mentioned avatar concept from videogames, it is also possible to imagine how an embodied individual would experience the topographical position and sloped road from the domestic zone towards the fortified zone of

production. Likewise, it is also possible to refer to archaeological data and interpretation that this workshop was a three walled building with one side left open and imagine how the light could fill the building and heavy smoke from the oven leaves the space. Second, post-processual archaeology's approach towards the material culture is emphasized at this phase of the case study. Application of archaeological objects into the micro-narrative vignettes, overlaps with the notion that objects are not passive receivers of human influence but active containers of information regarding human relationships and meanings. Furthermore, with the present case study implementation, archaeological objects continue to carry and convey meaning and resume their influence on human understanding and activities since they are regarded as small units of narrative content.

4.6. Conclusion

The case study chapter is designed to demonstrate the practical application of archaeological data onto the proposed deep mapping model presented in the methodology chapter. The implementation consists of three phases which follow the videogame narrative design process, prioritizing the narrative at the organization of archaeological data in digital environment and traditional medium of text. This three-phased structure allows for moving from the world building process where landscape scale information is conveyed, to the level design process that contains the settlement scale information, and finally arrives at the smallest scale of individual buildings and objects with the environmental storytelling process. Considering the primary objective of the thesis is to devise a methodology that brings different datasets together in order to tell the story of a landscape with access to information the narrative is based on, deep mapping is chosen as the foundation of the methodology. Accordingly, this case study application reveals how deep mapping is capable of containing several layers

and types of information that reflect the complexity and the depth of archaeological data. The ability to work on multiple layers and scales proves useful in several aspects. First of all, instead of preferring one approach or scale over another, the value of accumulation and variability is fully recognized with deep mapping. For instance, both the universal, totalizing nature of the meta-narratives and the unique and subjective characteristics of micro-narratives are explored for their respective benefits. The same

sentiment is applicable for archaeological approaches of culture-historical, processual, and post-processual as well. Secondly, various interdisciplinary information and data types, including historical, architectural, and environmental data, can be effectively implemented as the case study demonstrates. Furthermore, it is also revealed that techniques and approaches from the completely separate area of the videogame industry can be incorporated into archaeological study with this deep mapping model that also permits cross-disciplinary approach.

The case study implementation proves challenging on some aspects as well. The most limiting of these challenges is also the most anticipated one since it is an issue of medium. The present thesis declares that its purpose is to offer a methodology for digital deep mapping and storytelling and includes a significant amount of content on the techniques and approaches of the digital media of videogames. However, the case study does not deliver a fully realized digital environment for several reasons. The most obvious one is that this is a thesis submitted to an archaeology program and I am neither educated to singlehandedly build a digital environment nor expected to demonstrate that I can. Furthermore, even if I were capable of using multiple complex digital programs, it would still be an unachievable goal because it would take more than one person and significant financial resources in addition to availability to work with already digitized datasets. Since none of these were viable options from the start, the case study attempts to articulate how this hypothetical digital environment can be built and presents the primary work done, optimistically, on a future project.

In conclusion, the case study accomplishes its purpose of demonstrating the application of archaeological data onto the proposed model. Especially, considering the proposed model's foundations in deterministic nature of the environmental landscape study in contrast with the ephemeral qualities of the phenomenological approach; issues of objectivity and truth with the narratives of the past; cartographic distortion of reality both literally and figuratively; and finally, the relevance of these subjects to videogame industry. Further insight on this conclusion is saved for the discussion chapter for a more in-depth assessment of the thesis as whole.

CHAPTER V

DISCUSSION

In this discussion chapter, having explored the theoretical foundations, developed a novel deep mapping methodology, and applied it to a practical case study, I now delve into the implications and insights that emerge from this integrated approach. With the primary objective of creating a methodology for applying archaeological data into a case study with a focus on narrative and interpretation, I have identified three main literature subjects to explore as the theoretical foundation. Landscape archaeology as a substantial research area provided a versatile basis for this multi-layered and multi-scaled study. Exploration of environmental and phenomenological aspects of the landscape archaeology proved beneficial on two levels. Firstly, while the environmental aspect is aligned with quantitative, objective, and physical characteristics of the landscapes, the phenomenological aspect reveals the qualitative, subjective, and ephemeral properties of them. Secondly, these conceptual dualities reflected by the two aspects allowed for discerning correspondences between other theoretical and practical approaches I adopted in subsequent stages. Accordingly, as I moved on the subject of maps with a specific focus on the history of cartography and the literature survey on deep mapping, the insight gained from the dualities within the landscape archaeology begin to translate into a pattern of correspondences which could be followed both on the theoretical framework and the intended methodology. Here I argued that while the environmental aspects of the landscapes are best represented with traditional cartographic maps, the phenomenological aspects are more suitably explored through deep mapping. The third subject I reviewed is the theory of narrative, with a particular focus on the disciplines of history and archaeology that produce the narratives of the past. Consequently, exploring the relationships between philosophy and literary theory movements such as modernity and post-modernity, and the history of archaeology theory allowed for acknowledging the issue of meta-narratives and their influence on the narrative of archaeology. Further inquiry on the alternative narrative scales provided me with opportunity to align local and micro-narratives with

phenomenological aspects of landscape archaeology and thus, with deep mapping, while regarding the meta-narratives as the same standard of conduct with cartographic maps and environmental aspects of landscape studies. Hence, the theoretical framework of the intended methodology was formed around the subjects of landscape archaeology, maps and narrative are brought together in a conveniently interwoven construct.

In the methodology chapter, the size and complexity of the archaeological record proved challenging considering that my primary methodology, deep mapping, requires an unstructured, dynamic, and interactive approach yet the nature of archaeological record necessitates a systematic organization for coherence. At this point, my personal experience and knowledge of videogame media offered a solution to deal with this challenge and academic literature on the subject provided extensive, interdisciplinary resources. Therefore, the narrative design techniques, tools and processes employed by the videogame industry are introduced as a guideline to construct the intended deep map model in a coherent, even formulated fashion. Specifically, the non-linear narrative structures made available by interactivity of videogame environments resonated harmoniously with phenomenological aspects of landscapes, and the points of local and micro-narratives. Also, my concentrated analysis of the narrative design process of videogames provided a three phased basis for the case study implementation in the related chapter. As a result, the pattern of correspondences presented in the theoretical framework advantageously fit with these narrative structures and design of videogames, allowing me to identify, conceptualize and combine both the theoretical and the methodological components of the deep map model in a highly interoperable manner. Of course, the conceptualization of the model depends on some degree of simplification of its components, specifically for the visualization. I have conceptualized the three theoretical framework subjects of landscape archaeology, maps and narrative; then incorporated culture-historical, processual and post-processual approaches of archaeological theory into the conceptualization as well as the videogame-based methodologies of narrative structure and narrative design. I visualized the conceptualization with pyramids for each respective subject and horizontally divided the pyramids to identify subsequent key concepts. Afterwards, I combined these six conceptual pyramids to form the hexagonal model with a particular

attention to each pyramid's layer division alignments. As a result, there are intentional fractures in the alignment of the key concepts which may lead to incoherence. In order to explain my justification of the alignment or misalignment of these layers, I have also executed the deconstruction of the model through a cross-combination of key concept pairs as in the appendix. At this point I should acknowledge that while some of these key concept pairs combine in a more logically clear manner, some combinations are somewhat constrained. Especially five layers of narrative structures used in videogame development are difficult to combine with other conceptual pyramid layers. The reason for this is the organization of these narrative structures from linear to non-linear with the purpose of demonstrating the increasing complexity of the model, however, in the conceptualized model, the alignment of the layers inevitably results in multiple contradicting combinations. At this point, it is appropriate to underline the interoperable nature of the model that, in each case of application, provides the ability to choose and reconfigure their unique key concepts according to the particularities of the said case. However, contrary to my statement in the previous sentence, the case study implementation I provide for this thesis endeavors to demonstrate the full capability of the suggested model as it is presented, despite the apparent discrepancies.

The case chosen for the implementation and testing of the suggested deep mapping methodological model is Komana settlement during the period of 11th – 14th centuries, namely, Danishmend – Seljuk Periods. The selection of this particular settlement and period is based on several criteria, first of them being the accessibility of archaeological material at the site thanks to my thesis advisor who is also the director of Komana Archaeological Research Project. Additionally, diverse archaeological data is the defining reason for the period decision, since the geomorphological, archeozoological and archaeobotanical studies conducted and published by specialist researchers and academic theses on Danishmend – Seljuk Periods at Komana are readily available. Moreover, the existence of relevant historical texts and the transitional characteristics of geographical and cultural position of Komana landscape are also defining factors on the decision of the case study.

The implementation follows a three phased plan adopted from videogame narrative design process which consists of world building, level design, and environmental storytelling. The first phase is world building where the overarching background of the narrative is set through organization and application of existing information regarding the key concepts of environmental landscape archaeology, cartographic map, meta-narrative, linear narrative structure, string of pearls narrative structure, culture-historical archaeology, and processual archaeology. Following the proposed methodological model, I applied the relevant type of data and literature sourced information about the archaeological research, landscape, history and Danishmend-Seljuk Periods of Komana for each key concept. A similar application is carried out in level design, phase two of the case study application as well. All level design relevant key concepts such as environmental landscape archaeology, cartographic map, meta-narrative, local narrative, string of pearls narrative structure, branching narrative structure, amusement park narrative structure and processual archaeology are considered as containers of archaeological information regarding the physical settlement and its local people. Since the primary subject of level design is the built environment, I identified zones, districts and individual structures at the settlement of Komana during Danishmend- Seljuk Periods and then demonstrated how non-linear narrative structures can be integrated with the built environment at this phase of the suggested methodology. Moving on to the third phase of environmental storytelling, the case study implements the deep mapping method founded on the theme of daily life for a selected group of archaeological data obtained from a particular district and archaeological matrix. Finally, the transformation from the data based deep map to an imagined visual rendition is executed. As a result, the micro-narrative vignette of a blacksmith's workshop located in a compact workshop district is designed through the application of selected archaeological remains and AI supported text-to image visual content creating programs. Since this phase's relevant key concepts are phenomenological landscape archaeology, deep map, local narrative, micro-narrative, amusement park narrative structure, rhizome narrative structure and post-processual archaeology, there is more room for subjective, imagined and creative interpretations to emerge. I endeavored to take advantage of this phase's potential through the interpretative execution of selecting and composing of archaeological data through

deep mapping and the creative process of designing a visual micro-narrative vignette based on that interpretation. However, the micro-narrative vignette of the blacksmith's workshop only partially represents the full potential of this phase due to the static, 2D nature of the present media. The issue of medium is further expanded upon as a limitation in the following pages, however, after this brief overview of the thesis, now I present the key findings of the case study in relation to the theoretical framework and suggested methodological model for deep mapping to set the foundation of the discussion regarding the overall outcomes of the thesis.

My report on the case study's key findings begins with how the deep mapping methodology enhanced my understanding of the case study site and period. I freely admit that my personal experience and knowledge regarding Komana as an archaeological site and Danishmend - Seljuk Periods in general were limited. It may appear unseemly to expose ignorance on the case study subject I have chosen, however, this lack of previous knowledge on the settlement and the period has provided me with the opportunity to experience the learning process through the implementation of the theoretical and methodological model I am proposing. From this perspective, the deep mapping model proved versatile in the interpretation of the archaeological data, specifically during the application of local and micro-narrative concepts. Exploring the alternative narrative possibilities the site and the data offer provided a more nuanced understanding of the historical context beyond the meta-narratives of Islamisation and Turkification of the landscape and purposeful consideration of variability born out of human agency and decision making capacity allowed me to suggest alternative possibilities for individuals, families and factions.

Further advantage gained by the deep mapping model is the inclusion of the spatial relationships into the interpretation process via the introduction of videogame narrative design structures and techniques such as the level design phase and the amusement park model. The narrative diversity and flexibility allowed by these components of the deep mapping model can be observed at case study implementation where the possibility of pottery masters continuing their lives and crafts at Komana despite the allegedly forced conversion or total decimation of the settlement is considered based on previous study conducted on pottery.

Another key finding of the case study is the notion that the alignments of theoretical and methodological key concepts contained within the deep map model allowed me to experiment with representing the Danishmend – Seljuk landscape of Komana in a holistic manner that integrates historical literary resources along with academic literature and raw data from the site. Settlement scale approach based on level design with an emphasis on the narrative capacity of built environment, and object scale approach aligned with environmental storytelling technique of micro-narrative vignette design enabled me to display the application of deep mapping on multiple scales. Obviously, multi-scale approach is not a novelty in the academic practice of archaeology discipline; however, deep mapping provides the opportunity to reconsider the common practices with new perspectives and awareness. Especially considering the ever-increasing pace of progress made in digital technologies and their similarly frequent implementation in archaeological research, I argue that it is essential to devise new methodologies that integrate the progress made in theoretical approaches of archaeology with new techniques offered by digital era.

Regarding new techniques offered by digital era, the application of videogame narrative design phases facilitates the multi-layered construction of the deep map to provide a platform for alternative narratives to emerge without sacrificing coherence that is traditionally founded on meta-narratives. Phases of world building, level design, and environmental storytelling lead to a more comprehensive narrative that is difficult to achieve with deep maps since they are characteristically unstructured or unorganized. On the other hand, these characteristics of the deep maps are what render them viable for alternative interpretations and non-linear narratives to emerge. Therefore, I observe that founding the implementation process upon the three phases of videogame narrative design led to a diverse yet coherent narrative layers of information regarding archaeological data.

One of the unexpected outcomes of the case study is the realization of the visualization capabilities of the deep mapping methodology. From the start I argued that current applications of data storage and curation through digital databases are only one approach to organize and share archaeological data. Even though digital databases allowing big data to be published and shared via open access are beneficial, they rarely

provide coherence or case specific reconfiguration of datasets. Furthermore, the nature of data recording executed during the fieldwork is mostly consist of contracted words, codes made of letters and numbers, and abrupt verbal descriptions that are useful for saving time and space, however the same procedure is carried out into the data storing process with digital databases render the archaeological record unintelligible for outsiders both from the academic and public spheres. I do not argue that digital databases should be abandoned, on the contrary, I suggest that deep mapping platforms that enable individual users to categorize, organize and interpret the data should be considered as part of usual practice included with the database creation process. Because the deep mapping method presented here allows for the visualization of connections and relevance of various types of data and academic literature for a more immersive understanding of the historical and archaeological contexts. Additionally, the opportunity to design micro-narrative vignettes based on the deep mapped content proved versatile for creating imagined yet insightful images that explore the lived experiences of people during the Danishmend-Seljuk Period. In short, I suggest that the visualization capabilities of the deep mapping methodology can empower the interpretative and narrative building processes as well.

In essence, present case study is only a preliminary implementation that aims to demonstrate the proposed deep mapping methodology's potential, despite that, engaging with the archaeological data with this method is already a dynamic and interactive experience that enhances the understanding of the site and the period studied.

On the broader perspective of the whole thesis, there are some aspects worth discussing as well. The first one is the theoretical integration of the deep mapping model. Throughout the construction of the model, I endeavored to pay due regard to each theoretical key concept I identified. I have explored both the environmental and the phenomenological aspects of landscape archaeology; inspected the development of both cartographic maps and deep maps; took advantage of all three ranges of narratives of meta, local and micro scales; acknowledged the contributions of culture historical, processual and post-processual approaches without valuing one over the other. The consideration of the accumulated knowledge on these subjects and

conceptualization of the most relevant parts allowed me to utilize them as containers of information that compound the deep map. Furthermore, the key concepts from each subject have overlapping aspects which are explained in detail in the appendix of Deconstruction of the Model. For example, the identification of connections between the phenomenological landscape archaeology, deep mapping and micro-narratives permits the highly sophisticated philosophical concepts such as the sense of place, memory and identity to be applied into a practical methodology with the introduction of videogame narrative design concepts such as environmental storytelling and non-linear narrative structures. Based on these connections, I articulate on the possibility of mimicking the bodily experience concept from the phenomenological landscape study in a videogame environment and introduce the neuropsychological phenomenon of sense of presence that emerge during interaction with videogames. Due to the requirements of the thesis and the constrictions of printed media, I proceed with designing a static 2D image of a micro-narrative vignette for the case study implementation. Nevertheless, the multi-layered construction permitted by deep mapping is still advantageous because with the same model, I also draw attention to connections between meta-narratives and cartographic maps with the investigation on the history of world maps and utilize a medieval period map, Hereford Mappa Mundi, in the world building phase of the case study application to discern Komana's location in the medieval world, both narratively and geographically. Therefore, I advocate that deep mapping methodology offers a more flexible, in depth approach when compared with traditional linear style of archaeological narratives.

One other subject for comprehensive discussion is the contributions this thesis offers to each relevant field. As the literature survey on the development of landscape archaeology as a research area suggests, environmental studies and phenomenological studies are regarded as two different approaches to landscapes. This methodology integrates both approaches by evaluating their respective key concepts as mutually complementary layers of the deep map along with other components of theory and practice. On the subject of mapping practices, this thesis accomplishes to demonstrate how archaeologist can utilize different visualization techniques beyond cartographic base maps such as deep mapping but also design tools and techniques like micro-narrative vignettes and AI text-to-image programs for creating images that can tell the

story of an archaeological context. These map making practices, which are capable of reflecting the fluid and ephemeral qualities of landscapes, can be integrated into archaeological studies instead of just editing cartographic base maps. The thesis also offers some contributions to the area of narrative theory with the introduction of videogame medium and its potential for interactive and intuitive storytelling beyond fictional entertainment for children. I endeavor to establish that consciously made decisions regarding the narrative can facilitate the emergence of evidence based, non-linear, alternative narratives of the past. And lastly on the subject of digital deep mapping, I begin by acknowledging the fact that deep mapping can be executed in many forms as the literary origins of the term provides. Also, it is possible to create it in the physical environment, for example a large pinboard or a whole room can be designed as deep map, and it could be an interesting installation. However, considering the size and complexity of archaeological data digital deep mapping is the best solution for research purposes. In fact, I argue that deep mapping could lead to more purposeful decision making processes regarding the digitization of the archaeological record, since there is little sense in spending resources on 3D scanning and modelling of an artifact just to print it on paper. Additionally, the integration of deep mapping method with the videogame narrative techniques in a digital environment promises significant potential for the future of archaeology.

Regarding the limitations of the thesis study, issue of media format was an expected challenge for a few reasons. The primary objective of this thesis is to develop a digital deep mapping methodology and the digital environment of videogames are explored extensively, yet the study on these subjects does not result in the production of a digital environment. The first reason is the fact that such an undertaking requires either considerable amounts of financial and industrial resources, or just one person and an infinite amount of time for trial and error. Neither one is a viable option because in the end such an endeavor does not meet with the expectations of a doctoral dissertation such as this one. Moreover, even if such a digital environment were possible to create, it would end up printed on paper, flat and lifeless on the present medium. On the other hand, it should be obvious by now that I never intended to argue that archaeologists should make videogames, I mainly suggest that recording, categorizing, storing and

interpreting practices of archaeology can benefit from centralizing narrative through the adoption of videogame narrative design techniques. Therefore, this thesis serves its purpose by providing a preliminary study on how deep mapping and videogame narrative design techniques are compatible with theoretical and methodological foundations of archaeological research and datasets. One other information worth sharing regarding the data from Komana is that the digital database constructed by an individual professional in a more traditional manner was lost to the researchers for a few years now. Therefore, the digitized database is not available for quicker application of the deep mapping. This hindrance not only made the case study implementation somewhat limited, but also, is a topic of a whole discussion on the reliability of specialized digital services providers and the risks of data loss altogether. Now, the excavation data is being digitized through the means of open sourced software to ensure the sustainability of the database, however, the data pertaining to Danishmend-Seljuk period at Komana being used in this thesis' case study is integrated manually by myself from the actual objects stored at the excavation house, their forms, reports and photographs. As a direct result, suggested methodology is highly comprehensive for one person to fully implement all the relevant material. I overcame this challenge by simplifying certain aspects of the daily life schema and settled for the demonstration of only one of the aspects. Of course, this limitation led to the realization that deep mapping of this case study is best suited for teamwork. In fact, I consider that deep mapping model presented here may provide a useful method for multiple researchers specialized on diverse aspects to work collaboratively.

Before concluding the discussion chapter, I will share insights on further research possibilities that could enhance and refine the current methodology. First topic is a comprehensive study on possible public archaeology related applications and potential benefits. Primarily due to concerns regarding time management and the consistency of content, this thesis does not include such a perspective at the present however, I acknowledge that a fully realized version of the digital deep map could be made available for public benefit. Such availability has the possibility to serve as a source of archaeological information, to expose the archaeological way of thinking and accomplish the emergence of micro-narratives mission to its fullest potential. Second topic on further research agenda is testing the potential of the suggested deep mapping

methodology through the application of different key concepts and case studies in order to evaluate the merits of the methodology more realistically. I expect that it is possible to reconfigure the deep map model according to the particularities of a case study and its relevant concepts. For example, a research on Classical Period sea trade of pottery could replace the concept of landscape archaeology with network analyses or similarly, material culture studies can be conceptualized and implemented for a study on a museum collection of artifacts. Furthermore, a research adopting the ethnographic approaches can take advantage of the local and micro-narrative aspects and disregard the meta-narratives on the subject, while another research follows a branching narrative structure and removes the other four completely. I presume, as long as the multi-layered, interoperable nature of the deep map model is conserved, it is possible to experiment with various cases and concepts.

In conclusion, this thesis study serves as an essential connection between well known theory and unexplored practice. The integration of deep mapping methodology and videogame narrative design techniques offers an innovative approach that transcends disciplinary boundaries and unearths deep-rooted constraints.

CHAPTER VI

CONCLUSION

Considering the development process of this thesis study from the beginning to the end, it seems appropriate to revisit the initial purpose of the thesis at this point of conclusion. I embarked on this journey with the purpose of exploring alternative solutions for data curation of the digital archaeological record beyond big data repositories. The reason that spurred this undertaking, aside from the academic concerns regarding the Ph.D. degree, is my observation of the fast paced development in digital technologies and their seemingly arbitrary adoption by archaeological research, which is a point of concern from the broader perspective of discipline's relevance to the current state of the world. Of course, technology is shaping every aspect of our daily lives and it is only natural that scientific research is also affected by it. However, much like the personal sphere, research agendas and disciplinary conduct are susceptible to influence of practice. Since the pace of development and integration of digital technologies are considerably faster than theoretical advancement in the field, the negligence of this aspect has the potential to cause errors in critical evaluation of digital practices. "Certainly new ancillary methods do not alter the intrinsic nature of the discipline and we must not suppose that because we can display an archaeological relationship mathematically and analyze archaeological data scientifically that the discipline itself necessarily assumes a mathematical or scientific status. But equally neither may we assume that, because we describe archaeological observations in a literary form and interpret our data imaginatively, the discipline is a free creative art.²⁰¹". As David Clarke warns in *Archaeology: loss of innocence*, he also guided me toward a narrative focused digital environment for data curation and information production. Accordingly, I have attempted to bring theoretical and methodological aspects together within a construct of deep mapping and digital storytelling for landscape archaeology.

²⁰¹ Clarke, 1973, p. 11.

I have had the chance of receiving impeccable advice that steered me toward the theoretical foundations laying beneath deep mapping and storytelling. Consequently, exploration of the narrative theory and the history of map making practices provided an opportunity to delve into the depths of the present issues and experience the true potential of deep mapping as a guide for learning and understanding. It has also allowed me to detect and isolate concurrent concepts as alternative units of data and information storage. As a result, the pattern of the envisioned deep map model has begun to emerge.

Nevertheless, the process was not devoid of challenge, as the necessity to offer practical solutions for developing alternative narrative structures carried the threat of academically unacceptable subjective or outright fictional approaches. The alternative narrative structures needed to be firmly based on archaeological evidence. I contemplated the idea of integrating videogame concepts and narrative design techniques for a while but was reluctant to introduce them to academic realm of archaeology. Fortunately, I was advised to take advantage of personal interests and experience and ultimately, the literature survey on the narrative design aspect of videogames proved adequate for academic endeavor. With the integration of the applicable alternative narrative structures and techniques adopted from videogame media, deep map model was completed.

Suggested methodological model is tested with the implementation of case study of Komana landscape during Danishmend – Seljuk Period. I have joined the excavation team of Komana Archaeological Research Project in 2019, 2020 and 2021, and had the chance to experience the landscape in person. I also studied the small finds obtained, created an inventory and took photographs of almost all small finds obtained from relevant layers to case study during the study I conducted at the excavation camp. As previously stated, I had no access to the digital database this data is stored and non-digitized data is considerably more time consuming for the application of deep mapping. As such, I was not able to fully incorporate this dataset into the case study application as it proved impossible for only one person to undertake such a task along with the rest of the thesis study in the limited time available. Therefore, this dataset is conserved for future work and the case study proceeded with published or researched

data. This experience showed that deep mapping may not be a simpler alternative to big data repositories, since it deals with the same large and complex datasets yet, also involves engaging with the narrative aspect. This may also explain why so many of the digital deep map projects mentioned in publications are not actually available online. It appears, deep mapping is a significantly time consuming and complex project that requires teamwork and continuous attention since one of the major characteristics of the deep maps are their deliberately dynamic and instable nature which enable constant development of alternative narratives. Still I maintain that deep mapping practice have its benefits of enhanced exploration and learning process. Both the development of the methodological model and the application of case study proved successful at enabling the emergence of unique experiences through the engagement with archaeological data. Based on this limited experience, I believe that, a fully realized digital deep mapping environment has exciting potential for the future of archaeology.

Finally, I would like to conclude on a more personal note that reveals the original motivation that persuaded me to work on digital deep mapping to incorporate traditional theoretical and methodological approaches of archaeological research. Although I strongly believe that digital technologies should be utilized in archaeological studies, I also have concerns regarding the impact of these technologies on the way we conduct and perceive the discipline. I expect the “digital archaeology” term currently referring to the subdiscipline of archaeology will not be in use much longer as the increasingly more digitized conduct will become the norm and incorporated in the discipline fully. Adopting new technologies causes cognitive alteration in our engagement with data in all stages of recording, storing, curating, interpreting and publishing. As the fundamental tasks such as drawing or cataloguing conducted by the members of the excavation team are majorly performed through digital tools and techniques, the skillset and education of archaeologists may need to be replaced as well. Furthermore, the cognitive and embodied interactions between the archaeologists and the site that occur during the fieldwork and research which have been an essential component of the archaeological knowledge production, may change in ways that we do not anticipate, or worse, recognize. This is why I endeavored to present an approach of digitization that recognizes the accumulated knowledge of

archaeological theory and practice. Through deep mapping, the core principles of the discipline can be explicitly acknowledged and preserved, and further developments brought on by the digital era can be built upon this foundation.

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APPENDICES

A. DECONSTRUCTION OF THE DEEP MAP MODEL

1. Landscape key concepts & Mapping key concepts

Environmental landscape archaeology + Cartographic maps: The environmental study on landscapes in archaeology is traditionally represented on cartographic maps. Topographical and geographical features such as mountains, plains and rivers, as well as agricultural land use, settlements and road networks are typically included in cartographic base maps that shows the coordinates of the archaeologically relevant locations or remains.

Phenomenological landscape archaeology + Deep maps: The ephemeral concepts of phenomenological approach such as memory, identity or sense of place cannot be conveyed with cartographic maps. Demonstration and exploration of these concepts require multi-media solutions which can be integrated with deep maps. Especially digital environments built as deep maps offer opportunities to map the unmappable qualities which are essential to phenomenological approach to landscape archaeology.

2. Landscape key concepts & Narrative key concepts

Environmental landscape archaeology + Meta-narrative: The environmental approaches towards landscapes are based on archaeological evidence of human environment interactions through the exploration of natural resources such as water for drinking and crop cultivation; land use for animal husbandry or timber procurement from forested areas. From the perspective of narrative, the interpretation of the environmental aspects of the landscape has the potential to be imposed with overarching explanations based on environmental determinism. Such overarching explanations are defined as meta-narratives that can portray human societies as exploiters of the landscape's natural resources based on the evidence of deforestation or exhaustive agricultural activity. The same evidence can also be interpreted in a more positive manner that defines the same human society as resilient and adaptable in spite

of the environmental challenges. Either way, the narratives focusing on the environmental aspects of the landscape appear at the scale of meta-narratives due to their inclination towards deterministic and overarching characteristics.

Environmental landscape archaeology + Local narrative: The environmental aspects of landscape studies constitute a foundation to interpret the environmental archaeological evidence of a specific region and its cultural context. Local determinism theory suggests that societies' interactions with their environments are determined by language, power, and social institutions specific to the locale and multiple, competing local narratives that emerge in this context are not universal but typically formed around local events such as invasions, migrations and environmental disasters like droughts, volcanic eruptions or floods. The local communities' experiences, perspectives and values are reflected in local narrative forms of oral histories, folklore, literature, art, music and architecture.

Phenomenological landscape archaeology + Local narrative: Phenomenological approaches are concerned with individuals' subjective experiences of their landscape, which can include how they perceive, interact, and create meaning in said landscapes. Understanding the cultural and social contexts in which people interact with landscapes is closely related to the concept of local narratives which are the stories and meanings attached to specific places and landscapes by the people who inhabit them. The connection between local narratives and phenomenological landscape studies is that both are concerned with local society's subjective experiences in their landscape and the meanings they attach to specific places and events related to the landscape.

Phenomenological landscape archaeology + Micro-narrative: In this model phenomenological landscape studies are related to micro narratives since micro-narratives are intimate and subjective personal stories that capture the uniqueness of a moment or an experience. Therefore the phenomenological approaches which focus on the memories and meanings the individuals assign to objects, places and events can be best explored through micro-narratives.

3. Landscape key concepts & Archaeology theory key concepts

Environmental landscape archaeology + Culture-historical approach: Culture-historical approach prioritizes typology and categorization of material culture remains to explain the diffusion and migration of the technologies from one geographical location as origin. Interpretations of archaeological evidence based on this approach suggested widely accepted ideas that all information and technological advancements in the ancient world had diffused from a singular place of origin such as the Middle East or Mesopotamia or Ancient Egypt where the circumstances were optimal for the development of agriculture, religion, urbanization, and state. Culture-historical approach is aligned with the environmental aspects of landscapes since said optimal circumstances include the environmental aspects of the region, prominently the topographical and geographical features delineating boundaries between different cultures or as logistic means that facilitate diffusion.

Environmental landscape archaeology + Processual approach: Considering the processual approach's recognition of human societies as complex adaptive systems that react to environmental restraints and opportunities, the systematic integration of the studies on environmental elements into the archaeological thought and practice coincides with the emergence of Processual approach. Therefore, the model clearly defines the environmental aspects of the landscape studies at the same layer with the Processual approach within the conceptualized model.

Phenomenological landscape archaeology + Post-processual approach: In the conceptualized model, phenomenological landscape study is naturally aligned with Post-processual approach. The commonalities between the phenomenological landscape studies and post-processual approach can be shortly defined as subjectivity, individual agency, and the recognition of multiple interpretations. The shared notions of the two key concepts emphasize the embodied involvements and experiences of the individuals and communities that construct their own unique meanings and narratives based on their interactions with the landscape.

4. Landscape key concepts & Videogame narrative structures

Environmental landscape archaeology + Linear narrative structure: In environmental landscape archaeology, the interpretative focus is mainly placed on the idea that human

societies and their interactions with landscapes subsume the preconception of adaptation and change processes over time. The linear narrative structure is combined with this landscape key concept since they both follow a chronological sequence of events that is based on cause and effect continuation to provide coherent interpretation.

Environmental landscape archaeology + String of pearls narrative structure: The string of pearls narrative structure is mostly a linear structure that allows for some side locations or events that are navigational dead ends within the narrative. Therefore, the justification of the combination of environmental landscape archaeology and linear narratives are majorly valid at this layer as well. In addition, the environmental landscape studies that integrate the assessments of raw material resource locations along with the related main settlements can be aligned at interpretative level of the string of pearls narrative structure's capacity for exploration and discovery.

Environmental landscape archaeology + Branching narrative structure: Environmental landscape archaeology, with its understanding of human societies as complex adaptive systems, is aligned with branching narrative structure which is also a structurally complex system allowing the variability of the adaptation strategies to be tested against the environmental constraints and opportunities present in the landscape. The most versatile characteristic of the branching narrative structure is the possibility of exploring the outcomes of human societies' choices within their ecological system.

Phenomenological landscape archaeology + Branching narrative structure: Phenomenological approaches to landscape archaeology is also aligned with branching narrative structure due to their shared emphasis on individual agency, multiple perspectives, and the exploration of diverse pathways. While the environmental landscape study focuses on the environmental determinism, the phenomenological approach articulates that both the individuals and the communities can act with disregard to least-cost principle and make decisions based on intuition, emotion or values. A major merit of branching narrative structure is its capacity to explore the effects of these irrational factors in decision making processes.

Phenomenological landscape archaeology + Amusement park narrative structure: The amusement park narrative structure is a type of narrative that allows for replicating the spatially scattered and fragmentary nature of human experience within the landscape.

From the perspective of phenomenology, the fragments of meaning, memory and identity is not present in a coherently structured manner in a landscape yet the organization and building of the cause and effect relations of these fragments are brought together in the narrative form. Therefore, the amusement park narrative structure provides an interpretative ground for exploring ways to organize archaeological narratives that prioritize the individual places rather than chronological sequencing.

Phenomenological landscape archaeology + Rhizome narrative structure: Rhizome narrative structure is the most viable candidate for the highly emergent human experience defined as the phenomenon to be represented in narrative form. By aligning the rhizomic narrative structure with phenomenological landscape archaeology, it is possible to explore the non-linear, multivocal, and dynamic nature of human – landscape relationships. Both key concepts reject rigid structures and promote non-hierarchical complexity and variety.

5. Landscape key concepts & Videogame narrative design

Environmental landscape archaeology + World building: The world building layer of videogame narrative design is a complex process which integrates the physical, cultural, and historical aspects of the game world into its landscapes. Approaching the environmental landscape study as a world building process involves all sorts of archaeological data regarding the landscape to be presented at this layer. Therefore, the theoretical key concept of environmental landscape is aligned with the methodological key concept of world building in narrative design.

Environmental landscape archaeology + Level design: Utilizing the environmental archaeological data gathered from the landscape such as faunal and floral remains, organic building materials, and evidence indicating the conditions of climate is essential for approaching the landscape's features of the built environment from the perspective of level design process. Architectural style, construction materials, scale and layout of the built environment can relay a significant amount of information regarding technique, function, logistics, economics, divisions within social structures of specific locations built within the landscape. Consequently, both the environmental landscape studies and the level design process in videogames share the purpose of

creating individual locations which are logically consistent with each other and with the environmental elements of the landscape containing them.

Phenomenological landscape archaeology + Level design: The alignment of phenomenological landscape study with videogame level design process is based on their common conception of the sense of place, the emotional and cognitive attachment individuals and societies have to specific locations. In order to provide a platform for phenomenological approach toward past landscapes, level design process is a viable process to incorporate distinct geographical and architectural features of the landscape to evoke the sense of place which enables immersion and the emergence of unique experiences.

Phenomenological landscape archaeology + Environmental design: Environmental storytelling in videogame narrative design seeks to create immersive experiences by approaching the environment as a narrational medium to convey meaning and evoke emotions. This objective of environmental design technique is well aligned with the phenomenological landscape archaeology's focus on acknowledging the subjective and unique experiences born out of human-landscape interactions. This alignment offers the possibility of phenomenological philosophy to be put into practice through digital representation of past landscapes based on archaeological evidence. Such an approach allows for the ephemeral qualities of the landscape to emerge by providing a vivid and immersive environment full of details and contextual cues that are conveyed via material culture, spatial arrangements, and sensory experiences within the landscape.

6. Mapping key concepts & Narrative key concepts

Cartographic maps + Meta-narratives: Cartographic maps are perceived as objective depictions of geographical features; however, considering their historical development, they can also be interpreted as instruments of propaganda serving national or ideological agendas. These agendas are often intertwined with meta-narratives rooted in colonialism, nationalism, and other socio-political ideologies. Therefore, it is possible to draw a connection between cartographic map making practices and meta-narratives as tools of legitimizing authority through universally valid, totalizing explanations.

Deep maps + Local narratives: Deep maps are characterized by their multi-layered and multi-media nature that enable the representation of rich, multi-faceted nature of local narratives. These narratives are directly or indirectly influenced by the language, power dynamics, and social institutions specific to a particular locale. How communities experience and interpret their surroundings are shaped by local narratives and in turn their experiences shape their local narratives. Deep maps serve as a platform to reflect the dynamism of diverse experiences and values of these communities, and their local narratives by offering a nuanced and comprehensive portrayal of the narratives associated with a specific place. For instance, a deep map could incorporate layers of information about local folklore, oral histories, and cultural practices. By weaving together these different narrative threads, a deep map can provide a vivid and multifaceted depiction of the stories and traditions that define a community's relationship with its environment.

Deep maps + Micro-narratives: Deep maps are designed to be interactive and exploratory environments that allow users to navigate through various layers of information and narratives. Therefore, a deep map including micro-narratives that depict personal stories or memories associated with specific landmarks or events can facilitate deeper and multi-faceted understanding of the landscape and its inhabitants through interactivity. Users can explore these narratives as they navigate the deep map and gain insight into the cultural, historical, and social dimensions of the landscape. By incorporating micro-narratives, deep maps transform from static representations into dynamic platforms for storytelling and exploration.

7. Mapping key concepts & Archaeology theory key concepts

Cartographic maps + Culture-historical approach: Cartographic maps are widely utilized to visually represent cultural areas and similarities between communities, reflecting the cultural-historical approach of the 19th century. This approach aimed to understand the development and diffusion of cultural traits by studying the distribution of artifacts, architecture, and other material remains. Therefore, there is a historical and organic connection between cartographic maps and culture historical approach.

Cartographic maps + Processual approach: Processual approach's focus on larger spatial scale, settlement patterns and, in general, systems are reflected on cartographic

maps with an emphasis on topographical features and environmental aspects of landscapes. Therefore, ecological elements appear to overlap with cultural and behavioral delineations of human societies that archaeologists research and visualize on cartographic maps.

Deep maps + Post-processual approach: Deep maps are aligned with post-processual approaches due to their shared recognition of the diversity in human – environment relationships. Deep maps are better suited to reflect symbolic, irrational and subjective aspects of human behaviors due to their multi-layered, multi-vocal and dynamic nature. These aspects are also significant in post-processual approach with concepts such as sense of place or agency.

8. Mapping key concepts & videogame narrative structures

Cartographic maps + Linear narrative structure: Cartographic maps that are traditionally static visuals produced or edited with pre-determined information regarding the landscape. As a result, their capacity to reflect variation of human behaviors is minimized and the narrative indicated by these maps can be defined as linear where a series of events progress from one stage to another without acknowledging alternative or parallel events. Therefore, the alignment between cartographic maps and linear narrative structure is highly abstract and intended to be recognized along with their relation to other aligned concepts of environmental landscape archaeology, meta-narrative, string of pearls narrative structure, culture-historical archaeology, processual archaeology and world building.

Cartographic maps + String of pearls narrative structure: String of pearls narrative structure is aligned with cartographic maps due to its mostly linear structure with small branches representing the variability in the narrative. However, these branches are, figuratively speaking, dead ends regarding narrative progression. Therefore, the insufficiency of cartographic maps regarding their capacity to reflect variation of human behaviors is aligned with string of pearls narrative structure and should be considered along with other conceptual alignments with environmental landscape archaeology, meta-narrative, linear narrative structure, culture-historical archaeology, processual archaeology and world building.

Cartographic maps + Branching narrative structure: Branching narrative structures are both aligned with cartographic maps and deep maps. These narrative structures are complex structures that are comprised of alternative or parallel storylines that begin at the same point but arrive at different finals. The reason they are connected with cartographic maps is that when these multiple storylines are considered separately, as singular lines, they appear as linear narrative structures. More importantly, regardless of alternative narrative capacities, the production of branching narratives has highly pre-determined, embedded narrative foundations. This embedded nature is considered more aligned with cartographic maps rather than deep maps and should also be considered with the rest of the relevant concepts defined as environmental landscape archaeology, meta-narrative, local narrative, processual archaeology and level design.

Deep maps + Branching narrative structure: Branching narrative structures are both aligned with cartographic maps and deep maps. These narrative structures are complex structures that are comprised of alternative or parallel storylines that begin at the same point but arrive at different finals. The reason they are connected with deep maps is their ability to represent alternative storylines that reflect the diverse nature of human behaviors in a multivocal manner. Although branching narratives have heavily pre-determined and embedded contents, the unfolding of the events occur in an emergent fashion due to interactive storytelling.

Deep maps + Amusement park narrative structure: Amusement narrative structure's mostly non-linear nature based on spatially distributed events rather than chronologically aligns well with the purpose of deep maps which is minimizing linear narrative in order to benefit from multivocality. This alignment can be considered along with the concepts of environmental storytelling, phenomenological landscape archaeology, local narrative, micro-narrative, rhizome narrative structure and post-processual archaeology for better comprehension.

Deep maps + Rhizome narrative structure: Considering that rhizome structure refers to networks that establish connections between semiotic chains, organizations of power, and circumstances relative to the arts, sciences and social struggles with no apparent order or coherency, it is apparent that deep mapping is well aligned with this narrative structure. Use of this term for data representation and interpretation defines

the rhizomic structure with some characteristics that are concurrent with deep maps like their common demand for multiple and non-hierarchical data entry and exit venues. Parallelisms between deep maps and rhizome narrative structure is better understood when considered with other aligned concepts of environmental storytelling, phenomenological landscape archaeology, local narrative, micro-narrative, amusement park narrative structure and post-processual archaeology.

9. Mapping key concepts & Videogame narrative design

Cartographic maps + World building: Cartographic maps are aligned with the world building phase of videogame narrative design due to their shared focus on defining and visualizing the geographical and topographic features, as well as administrative borders of a landscape. Since the use of cartographic maps are traditionally common in archaeological research and demonstration, their capacity to represent physical components, and social and cultural delineations contribute to the overarching setting of the narrative as worldbuilding phase aims to accomplish.

Cartographic maps + Level design: Cartographic maps align with the level design phase as well. This alignment is based on plans of architectural remains produced with methodological technical drawings from the site, which are accepted as a specific form of 2-dimensional maps. Level design's focus on the built environment and archaeological practice of drawing architectural remains combines in a manner that allows for the documentation to facilitate interpretation and visualization of related components.

Deep maps + Level design: Level design is the phase of videogame narrative design that deals with the built environment. Although some components of the built environment such as architectural plan, settlement layout and locations of singular structures are better represented cartographically, the ephemeral or evocative aspects of architecture are better relayed through deep maps. Since deep maps can include artistic sketches, photographs and reconstructions due to their multi-media characteristics and relay the abstract concepts such as sense of place, dwelling and embodiment, level design phase is aligned with deep maps as well.

Deep maps + Environmental storytelling: Environmental storytelling technique used in videogames is directly related with integrating narrative elements into the visually designed scenes with the purpose of creating immersion. Said immersion is created by carefully combining places and objects with animations, lighting, sounds and music. Deep maps are aligned with this phase of narrative design due to the variety of these features environmental storytelling uses and deep map's capacity for enabling the multi-media forms to encourage engagement with the environment by asking questions and making deductions based on the user's preexisting knowledge.

10. Narrative key concepts & Archaeology theory key concepts

Meta-narrative + Culture historical approach: Culture-historical approach's understanding of cultural variety and diffusion allows it to be aligned with meta-narrative layer due to their shared roots in legitimizing power. According to this approach cultural progress was achieved by specific groups and then diffused by migration to other groups, subsequently enabling the idea of a superior culture amongst less progressed ones. Nationalist campaigns employed the cultural-historical interpretation as meta-narrative to instill strong national sense which could be a powerful method to move masses of people.

Meta-narrative + Processual approach): Processual approach is also aligned with meta-narratives due to this theoretical framework's focus on approaching the data collected through scientific method in a systematic manner that would not taint positivism and objectivity of the archaeology. Meta-narratives such as nationalism, imperialism and colonialism were abandoned for the meta-narratives such as the rise of state, evolutionary theory or urbanization which are specific to archaeology with Processualism.

Local narrative + Post-processual approach: Local narrative layer is based on local determinism theory that knowledge is shaped by local conditions and circumstances influenced by language, power, and social institutions. As such, this layer is aligned with post-processual approach which recognizes the variability of how individuals make sense of the world, how they shape their understanding of reality through telling and how different individuals tell of the same event in their own versions which may be overlooked or erased in larger, more universal narratives.

Micro narrative + Post-processual approach: Micro-narratives can often be extremely intimate and subjective stories that capture the uniqueness of a moment or an experience. As such, micro-narrative layer is also aligned with post-processual approach due to their shared association with postmodern turn towards the local and the particular; and the recognition of the diversity and complexity of individual experiences.

11. Narrative key concepts & Videogame narrative structures

Meta-narrative + Linear narrative structure: Meta-narrative and linear narrative structure are aligned in the deep map model based on their understanding of a series of events progressing from one point to the next without considering alternative, discursive or ambiguous ways human beings behave and tell their stories.

Meta-narrative + String of pearls narrative structure: Similar to linear narratives, string of pearls narrative structure is also aligned with meta-narratives for the same reason that the main storyline in this type of narrative is mostly linear with optional narrative components offering minor variability.

Local narrative + Branching narrative structure: Local narrative that focuses on the locality of knowledge produced by local conditions and circumstances influenced by language, power, and social institutions. This layer of narrative is aligned with branching narrative structure based on their shared recognition of the decision making capacity of human societies as a community that experience the same local conditions and shared values. Especially when there is a decision to be made, exploration of the possible outcomes is best structured with the branching narrative.

Local narrative + Amusement park narrative structure: Amusement park narrative structure focuses on the spatiality of the experience, even though the entry and the exit points are narratively constant, the freedom to explore various locations with different values, lifestyles and dynamics can provide multiple narratives to emerge. Therefore, the alignment of this narrative structure with the local narrative is based on common understanding of individual locations as focal points of different lifestyles, values and activities occurring within and around the same locale.

Micro-narrative + Amusement park narrative structure: Micro-narrative layer is aligned with amusement park narrative structure in the model. The reason for this is the nature of micro-narratives which are usually brief and focused on a singular event rather than being part of a larger narrative arc and amusement park narrative structures emphasizes the importance of individual locations as focal points of different lifestyles, values and activities.

Micro-narrative + Rhizome narrative structure: Rhizome narrative structure is also aligned with micro-narrative because of rhizome structure's nature that enable a non-linear network that connects any point to any other point with no apparent order or coherency. Since micro-narratives are subjective and fragmentary; they combine with rhizome structure as a platform of story-making that enable the emergence of personal narratives.

12. Narrative key concepts & Videogame narrative design

Meta-narrative + World building: World building is the narrative design phase that is aligned with meta-narrative layer because it represents the overarching setting of the narrative which include information regarding the topographical and geographical features; different political, religious, or cultural factions; major plot points such as wars, revolutions or cataclysmic events; main characters like the protagonist, antagonist, and other supporting characters with individual motivations and backstories. Consequently, the world building layer is where the history and the current state of the game world is presented as the meta-narrative.

Meta-narrative + Level design: Meta-narrative is also aligned with level design phase of narrative design in the model. Although level design is mainly focused on built environment, natural environmental features of the landscape are also part of level design because some natural features directly influence the built environment. For example, a river can necessitate a bridge, or climate can dictate the construction materials. As such, from the perspective of narrative, the interpretation of the environmental aspects of the landscape has the potential to be imposed with overarching explanations based on environmental determinism. Such overarching explanations are defined as meta-narratives and therefore can have some influence on the level design.

Local narrative + Level design: The alignment of local narrative and level design occurs due to their mutual influence regarding the locale. Local narratives are reflections of the unique perspectives, values, and experiences of the local community which can be found in various forms, such as oral histories, folklore, literature, art, and music. They can also be expressed through the built environment components such as architecture, construction materials, scale and layout.

Local narrative + Environmental storytelling: Environmental storytelling phase of narrative design is based on integrating narrative elements into the audio-visually designed scenes with the purpose of creating immersion by carefully combining places and objects with animations, lighting, sounds and music. This is why environmental storytelling is aligned with local narrative, since various forms of local narratives such as oral histories, folklore, literature, art, music and architecture can be combined to design said audio-visual scenes and integrate narrative elements as well.

Micro-narrative + Environmental storytelling: Micro-narrative and environmental storytelling are naturally aligned in the model since they also terminologically overlap. Environmental storytelling refers to micro-narrative vignettes composed of objects arranged in a way that reflects the characteristics of the game world such as time period and location. These objects can be regarded as small units of narrative that decorate the setting to enable interpretation based on deductive reasoning. The user exercises investigative skills of an archaeologist to establish relationships of cause and effect which makes them a potent participator of the narrative rather than a passive viewer. This participation encourages the emergence of micro-narratives which are short, personal stories that capture the uniqueness of a moment or an experience that offer insight on how individuals make sense of the world, how they shape their understanding of reality through telling and how different individuals tell of the same event in their own versions.

13. Videogame narrative structures & Videogame narrative design

Linear narrative structure + World building: World building phase mainly exposes the overarching setting of the narrative and consists of invariable background information regarding the topographical and geographical features; different political, religious, or cultural factions; major plot points such as wars, revolutions or cataclysmic events;

main characters like the protagonist, antagonist, and other supporting characters with individual motivations and backstories. All of this information is relayed within a linear structure that progresses from one stage to another in a single series of steps and the outcome of this narrative is fixed in a way that cannot be altered for unique, individual stories to emerge.

String of pearls narrative structure + World building: World building phase is also aligned with string of pearls narrative structure due to this structure's similarity to linear narrative with minimal variety in the unfolding of the events.

String of pearls narrative structure + Level design: The alignment between the string of pearls narrative structure and level design phase is rather feeble with the only connection being based on level design's focus on creating believable places that associate with the user's preexisting conceptions. Designing believable levels is possible when all the individual locations are logically consistent with each other and said coherence may require a somewhat linear way of understanding.

Branching narrative structure + Level design: Branching narrative is a structure where the beginning of the narrative is fixed but multiple storylines can occur based on each decision made at narrative nodes and the story can reach at different endings. This structure's alignment with level design is mostly based on narrative aspect where the elements of built environment can constitute places such as a market area, a pub district or a domestic zone with individual buildings and rooms or an isolated stone bridge across a river. These units can relay the preferences of their occupants in private or public matters, especially when there is a decision to be made and the result distinguishes individuals or larger groups within the settlement's community based on their choices.

Amusement park narrative structure + Level design: Amusement park narrative structure which is designed to allow for the spatially scattered pieces of narrative to come together in numerous different combinations, and the level design phase where the areas, districts, zones or singular buildings constituting the built environment are aligned due to these two concepts' focus on the spatiality of the experience and narrative.

Amusement park narrative structure + Environmental storytelling: In amusement park narrative structure user is given the freedom of wandering and stumbling upon bits of the narrative randomly. Navigating through the pieces of narrative while spatially navigating the game world at the same time may result in fractured and incohesive narrative yet the design of these environments can provide the necessary information for the user to make the connections and deduce the structure themselves. Environmental storytelling phase is aligned with this structure because with this phase narrative elements such as places, objects, non-playable characters and music are integrated into the game environment during the process of the design to let the user interpret the environment to reason and deduce their own ideas.

Rhizome narrative structure + Environmental storytelling: Rhizome narrative structure is described as a non-linear network that connects any point to any other point with no apparent order or coherency. With environmental storytelling phase, narrative elements are integrated into the game environment during the process of the design to let the user intuitively look for explanations in the game environment to interpret and deduce their own ideas. The alignment of these two layers emphasizes their compatibility and capacity for unique, individual narratives to emerge upon interaction.

14. Videogame narrative structures & Archaeology theory key concepts

Linear narrative structure + Culture historical approach: According to culture historical approach cultural progress was achieved by specific groups and then diffused by migration to other groups, subsequently enabling the idea of a superior culture amongst less progressed ones. As such, according to this approach culture and societies progress in one direction from one step to the next in a linear fashion.

String of pearls narrative structure + Processual approach: Processual approach is aligned with string of pearls narrative structure due to this structure's mostly linear progression and processual archaeology's focus on geographical and geographical elements in a manner that is insufficient to represent the intricacies behind human needs and choices in narrative form.

Branching narrative structure + Processual approach: Branching narrative structure is aligned with processual approach due to its emphasis on the deterministic perspective regarding human-environment relationship. Since with branching narrative structure, multiple storylines can occur based on each decision made at narrative nodes and the story can reach at different endings, the environmental conditions can be regarded as nodes in the narrative that determine various ways of interactions between human societies and their environments.

Branching narrative structure + Post-processual approach: Branching narrative structure is aligned with post-processual approach as well. The reason behind this alignment is the branching narrative structure's capacity to enable multiple alternative narratives to emerge, representing the variability of human behavior based on symbolic, emotional and spiritual aspects which post-processual approach acknowledges as essential.

Amusement park narrative structure + Post-processual approach: Post-processual approach and amusement park narrative structure are aligned in the model due to their shared focus on the spatiality of human experience. Especially considering the phenomenological perspectives such as the sense of place and taskscapes about landscape, amusement park narrative structure's emphasis on dispersing pieces of narrative elements on and around the space renders this alignment meaningful.

Rhizome narrative structure + Post-processual approach: From the post-processualist perspective objects pertaining to material culture are not passive receivers of human influence but active containers of information regarding human relationships and meanings. Rhizome narrative structure also regards these objects as small units of narrative that are not hierarchically organized, and thus fragmentary and incoherent network of these objects can enable the emergence of alternative narratives depending on the variability of interpretation regarding human relationships and meanings.

15. Videogame narrative design & Archaeology theory key concepts

World building + Culture historical approach: World building phase is where the information such as topographical and geographical features; different political, religious, or cultural factions are provided within the overarching setting of the

narrative. World building is aligned with culture historical approach because this approach prioritizes functional and chronological information that material remains of the past may provide based on their study of technology and style. The type of information produced based on culture historical approach is compatible with world building phases' aim to relay the overarching setting of the narrative in concurrence with meta-narratives.

World building + Processual approach: World building phase is aligned with processual approach as well. The reason for this is processual archaeology's aim for achieving the ultimate formulation of laws of cultural dynamics through the study of the processes of procurement of the raw material, production of the object, use and reuse periods of the object, and finally, disposing of the object which can reveal patterns that indicate at complex cultural systems and the ways changes occur within said systems. The systems approach can be combined with the world building phase that relay information about topographical and geographical features; different political, religious, or cultural factions which are provided within the overarching setting of the narrative.

Level design + Processual approach: Processual archaeology's approach towards culture as integrated functional systems with various types, sizes, locations of settlements is aligned with level design phase that focuses on the elements of built environment including places such as a market area, a pub district or a domestic zone with individual buildings and rooms or an isolated stone bridge across a river.

Level design + Post-processual approach: The influence of post-processual approach is prominent in landscape phenomenology and related concepts such as taskscapes and sense of place. These concepts can be integrated into the narrative with level design phase which is focused on the built environment and its components. Architecture, construction materials, scale and layout of the built environment can relay a significant amount of information regarding function, private or public accessibility along with an overall understanding of the people inhabiting those spaces. Therefore, the alignment of level design phase and post-processual approach emphasizes their common interest in cognitive and bodily experience of the individual within the natural and built environment.

Environmental storytelling + Post-processual approach: From the post-processualist perspective objects pertaining to material culture are not passive receivers of human influence but active containers of information regarding human relationships and meanings. This approach is aligned with environmental storytelling because with this phase the narrative elements are integrated into the game environment during the process of the design. Places, objects, non-playable characters, and music can be designed to let the user interpret the environment to reason and deduce their own ideas. As such, the parallelisms between environmental storytelling and post-processual approach is based on the capacity for alternative narratives to emerge upon observation and interaction with the environment.

B. CURRICULUM VITAE

PERSONAL INFORMATION

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EDUCATION

- METU Settlement Archaeology Masters Degree (2016 graduate)
- Hacettepe University Archaeology Department Bachelors Degree (2013 graduate)

WORK EXPERIENCE

- Research Assistant at METU Settlement Archaeology Department 2015 - (continues)
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- TÜBİTAK Science-Society Project: Archaeology Laboratory (METU Archaeology Museum) 2014-2015
- TAÇDAM-METU Burgaz Excavation Project 2010-2017
- Panaztepe Excavation Project 2009

FOREIGN LANGUAGES

- Advanced English

C. TURKISH SUMMARY / TÜRKÇE ÖZET

KOMANA'NIN DİJİTAL HİKAYESİNİN İNŞASI: DERİN HARİTALAMAYA TEORİK VE METODOLOJİK BİR YAKLAŞIM

Dijital arkeolojinin tarihi, James Deetz'in 1960'ların başlarında yaptığı çığır açıcı çalışmalarla başlamaktadır. Deetz, bilgisayarı kullanarak Arikara seramiklerinin stilistik analizlerini gerçekleştirmiştir. Ardından gelen on yıllarda, coğrafi bilgi sistemleri, bilgisayar destekli tasarım, veri tabanları ve hala kullanılan diğer tüm dijital araçlar yaygınlaşmıştır. Arkeologlar halen, simülasyonlar, mekansal analiz, kümeleme, görüntüleme, jeofiziksel analiz, 3B modelleme, nötron aktivasyon analizi veya x-tent modelleme gibi araçlarla verileri toplamakta, kayıt altına almakta ve işlemektedirler. Bu veriler, ham veriden gri literatüre, monograflardan kataloglara kadar değişen derecelerde işlenmiş olup, insan topluluklarının zaman içindeki yolculuklarını anlamak için arkeolojiye önemli potansiyel sunmaktadır. Bu potansiyelin tanınması, açık erişim ve veri paylaşımının son trendlerine yol açmış, bu süreçte temel odak noktası, büyük miktardaki ham verinin tamamen erişime açılması olmuştur. Hali hazırda birikmiş olan devasa veri yığınıyla ilgili yasal lisans sorunları ve teknik problemlere rağmen, açık veri kavramı büyük beklentilerin kaynağı haline gelmiştir. Arkeolojik bilginin yayılmasının, özellikle Archaeology Data Service, Open Context ve Digital Archaeological Record gibi dijital veri depoları gibi teknolojik gelişmelerden faydalandığını söylemek doğrudur. Ancak, bu kaynaklar arama araçları ile dijital dergi arşivlerine, monograf serilerine ve gri literatür raporlarına, çeşitli saha ve araştırma projelerinden indirilebilir veri kümelerine erişim sağlarken; verilerin tutarlı bir anlatı veya teorik çerçeve içinde yorumlanmasını kolaylaştıran araçlar sunmamaktadır.

Bu tezin temel amacı, bir arkeolojik alanın hikayesini esnek, dinamik ve tutarlı bir şekilde anlatmak için farklı veri kümelerini bir araya getiren bir metodolojik model geliştirmektir. Bilgiye erişimde arkeolojik anlatıyı merkezine alan bu model,

metodolojik açıdan derin haritalama tekniğine dayanmaktadır. Derin harita, katılımcıların bir yerin gerçek ve hayali betimlemelerini keşfetmelerini ve etkileşimde bulunmalarını teşvik eden bir ortamdır ve her bir kullanıcı için benzersiz bir deneyim sunar. Derin haritalamanın en önemli avantajı çok katmanlı bilgilerin derlenmesi ve bu katmanların anlatıyı tutarlı hale getirecek şekilde bir araya getirilmesidir. Bu nedenle, önerilen derin harita modelinin tasarımında, anlatıya odaklanılarak video oyunu anlatı tasarım teknikleri ve süreçleri entegre edilmiştir.

Önerilen metodolojik model, Komana'daki 11.- 14. yüzyıl yerleşim yeri üzerine bir örnek çalışma üzerinde test edilmiştir. Komana'daki disiplinler arası araştırma projesi, epigrafik, mimari, stratigrafik, arkeobotanik, arkeozoolojik ve diğer maddi kültür çalışmalarına ilişkin ham ve işlenmiş verilerden uygun miktarını sağlamaktadır. Bu veri ve bilgi birikimi, Danışmend - Selçuklu Dönemleri sırasındaki alanın ve kültürel peyzajın bir anlatısını oluşturmak için sentezlenmiştir.

Tez, giriş mahiyetindeki ilk bölümü ile birlikte toplam altı ana bölümden ve önerilen modelin yapı sökümünü ile Komana'nın anlatısının analizinde kullanılan iki yayını içeren üç ek bölümden oluşmaktadır.

Bölüm 2, kültürel peyzaj çalışmaları, haritalar ve anlatılar üzerine literatür incelemeleri aracılığıyla teorik çerçevenin sunulduğu kısımdır. Her bir konunun kronolojik gelişimi ve ilgili yönleri, derin haritalama modelinin teorik temelini sağlamak için incelenmiştir. Kültürel peyzaj arkeolojisinin çevresel ve fenomenolojik yönleri; teorik temellere sahip kartografik ve derin haritalama uygulamaları; meta-anlatıların geçmiş anlatıları üzerindeki etkisi ve alternatif yerel ve mikro-anlatı ölçekleri bu bölümün içeriğini oluşturur.

Derin haritalama ve dijital anlatımı kullanarak bir metodolojik model önermek için, birden fazla konunun teorik temelleri literatür taraması yoluyla incelenmelidir. Dolayısıyla söz konusu metodolojinin teorik altyapısı üç ana konu ve bunların belirli yönleri üzerine literatür incelemeleri olarak düzenlenmiştir. İlk konu kültürel peyzaj konusu ve arkeolojideki gelişimi, özellikle de kültürel peyzajın derin haritalama ve dijital anlatım metodolojik yaklaşımı için nasıl bir temel oluşturduğu ile ilgilidir. Kültürel peyzaj teorisi kapsamında bugüne kadar geliştirilmiş olan fenomenoloji ve

bedensel deneyim yönlerine bu kısımda özellikle vurgu yapılmaktadır. Daha sonra, haritaların üretim ve kullanımlarının tarihi ve kartografyanın bir disiplin olarak oluşumu üzerine gerçekleştirilen bir literatür taraması, derin haritalama metodolojisinin kronolojik temeli olarak sunulmaktadır. Kartografik haritaların arkeolojik bilgi üretimi ve yayılmasında süregelen bir rol oynaması, özellikle de bilginin görselleştirilmesinde ana araç olarak kullanılması, harita yapımı üzerine böyle bir incelemeyi gerekli kılmıştır. Bu bölüm ayrıca, kültürel peyzaj çalışmaları, kartografik harita yapımı ve derin haritalama metodolojisi olarak bahsi geçen bu üç yaklaşımın ortak kökenini, antik dönemlerden beri faydalanılmış olan koroloji tekniğini gündeme getirmektedir. Teorik çerçeve bölümü, "metin" in arkeolojik bilgi üretiminin ana modu olarak incelenmesi amacıyla anlatı konusuyla devam etmektedir. Burada arkeolojinin anlatısına ilişkin literatür, tarih disiplininin anlatısı ile birlikte incelenmekte, hem kartografya hem de arkeoloji disiplinlerinin gelişimi üzerinde etkili olmuş meta-anlatı kavramını incelemektedir. Ayrıca, yerel ve mikro-anlatı ölçekleri de meta-anlatılara muhtemel alternatifler olarak tezin bu bölümünde paylaşılmaktadır. Tezin doğası, bu üç temel konunun metin formatında lineer bir şekilde sıralamasını gerektirse de; kültürel peyzaj çalışmaları, harita yapımı ve anlatı konularının birbiriyle olan doğrudan ve dolaylı ilişkilerinin, önerilen metodolojiyi eşit derecede destekleyen teorik bir üç ayağa benzer olduğunu belirtmek önemlidir.

Kültürel peyzaj arkeolojisi, haritalar ve anlatı olarak tanımlanan üç ana konu etrafında gerçekleştirilen literatür taraması ile bu alanların gelişim süreçleri derinlemesine incelenmekte, sonuç olarak bu üç alan arasında hem kronolojik hem de kavramsal tutarlılıkların olduğu ortaya koyulmaktadır. Öncelikle, kartografi ve arkeoloji disiplinleri arasındaki bağlantılar, antik koroloji tekniğinde yatan ortak kökleri ve meta-anlatılarla olan ilişkileri perspektifinden gözlemlenebilmektedir. Dahası, kültürel peyzaj arkeolojisinin çevresel yönlerinin kartografik haritalar ve Süreçsel arkeolojinin yaklaşımlarıyla uyumlu olduğu gözlemlenirken; kültürel peyzaj çalışmalarının fenomenolojik yönlerinin ise derin haritalar ve Post-süreçsel yaklaşımlarla daha uyumlu olduğu söylenebilmektedir. Benzer şekilde, kültürel tarihsel ve Süreçsel arkeolojiler, meta-anlatıların özellikleriyle daha uyumlu görünürken, Post-süreçsel arkeolojinin yerel ve mikro-anlatılarla daha uyumlu olduğu gözlemlenmektedir. Bu gözlemlere dayanarak, kültürel peyzaj çalışmaları, haritalar ve

anlatılar konuları arasında karmaşık bir örüntü olduğu anlaşılmaktadır. Söz konusu örüntünün kavramsallaştırma yoluyla daha net bir şekilde açığa çıkarılabileceği ve bu kavramların birbirine entegre bir yapı oluşturmak için etkili bir şekilde bir araya getirilebileceği görülmektedir. Önerilen derin haritalama metodolojisi işte bu karmaşık örüntüyü çok katmanlı bir teorik model oluşturarak gözler önüne sermektedir. Bununla da kalmayıp, uygulanması mümkün olan yeni tekniklerin aynı kavramsallaştırma sürecine tabi tutularak derin harita modeline entegre edilebilmesini sağlamaktadır.

Bölüm 3'te, derin haritalama için önerilen metodolojik model geliştirilmektedir. Teorik çerçevenin oluşturulmasında baş vurulan her bir konunun ilgili yönleri, belirli anahtar kavramları içeren bölümlere ayrılarak dört ayrı piramit ile tanımlanmış, kavramsallaştırılmış ve görselleştirilmiştir. Daha sonra, video oyunu anlatı tasarım teknikleri ve süreçleri, metodolojinin pratik bileşenleri olarak tanıtılmıştır. Anlatı yapıları ve anlatı tasarımı için iki ayrı piramit de bu bileşenleri kavramlaştırmak için sağlanmıştır. Modelin son hali, bu altı piramidin birleşimiyle oluşturulmuş bir altıgen formunda tasarlanmıştır.

Önceki bölümde, tezin teorik çerçevesinin peyzaj çalışmaları, haritalar ve anlatı olarak üç ana konudan oluştuğu belirtilmekte, derin haritalamanın dijital arkeoloji alanında yeni bir metodolojik model önermek için temel yöntem olarak sunulduğu vurgulanmaktadır. Bu tez, arkeoloji tarafından benimsenen dijital araçların arkeolojik verileri kaydetme, görselleştirme, analiz etme, depolama ve paylaşma konularında değerli olduğunu savunurken; özellikle arkeolojik anlatılar perspektifinden bakıldığında arkeolojik yorumlama kapasitesine de sahip olduklarını, ancak nadiren kullandıklarını iddia etmektedir. Dijital derin haritalama, bu kapasiteden yararlanmanın uygun bir yaklaşımı olmayı vaat etmektedir çünkü "kültürel peyzajlar birçok şeydir, zaman-mekan içine gömülmüş sayısız anlamlardır, her biri bireysel, sosyal, kültürel ve doğal unsurların ideal birleşiminden oluşarak, tekil bir deneyim, yani bir fenomen sunar" ve "derin harita, katılımcıları bir yerin gerçek ve hayali betimlemeleriyle keşfetmeye ve etkileşime girmeye teşvik eden ve her katılımcının kendisine özgü bir deneyim sunan dijital bir ortamdır". Bu ifadelerle iletilen anlamların uygun şekilde örtüşmesine rağmen, derin haritaların istendiği gibi

yapılandırılmasını zorlaştıran bazı çelişkili özellikleri, böyle bir ortamın nasıl oluşturulabileceği konusunda uygulamada zorluklar yaşanmasına neden olmaktadır. Ana sorun, derin haritanın yapılandırılmamış olması gerekliliğidir, bu da tekil yorumu ve lineer anlatıyı önlemek için kataloglama ve sınıflandırmaya karşı çıkmak demektir. Diğer yandan, böylesi bir yapılandırılmamış platform, içeriği tutarlı bir şekilde düzenlenmediğinde kafa karışıklığına neden olabilir ve hatta daha paradoksal olarak, tutarlılık anlatı aracılığıyla sağlandığında söz konusu platform bir derin harita olma özelliğini kaybedecektir. Neyse ki, bu tür sorunları nispeten formüle edilmiş bir şekilde ele alan bir medya halihazırda mevcut olup, video oyunları sektörü olarak yaygın biçimde bilinmektedir. Bu konuda yapılan detaylı literatür araştırma, video oyunu tasarımcılarının, insan etkileşimiyle yeni deneyimler yaratan, tutarlı ve etkileyici sistemler olarak bir araya gelen kültürel peyzajlar, anlatılar ve oyun mekanikleri oluşturmak için geliştirilmiş teknikleri uyguladığını ortaya koymaktadır. Bu bilginin ışığında, derin haritalama yönteminin daha önce belirtilmiş olan yönleri, özellikle de insanları ve kişisel deneyimleri merkeze alarak bir yerin kimliğini yansıtma kapasitesi ve aynı anda bir platform, bir süreç ve bir ürün olma doğası, çok katmanlı olarak video oyunu tasarımı temelleriyle uyumlu bir şekilde yankılanmaktadır.

Bu bölümün geri kalanı, önce arkeolojik veri ve bilgi içeren ancak deneyim boyunca birden fazla anlatının ortaya çıkmasına izin veren yapılandırılmış bir platform tasarlamak için video oyunu tasarım kavramlarının ne tür imkanlar sunduğunu açıklamaktadır. Daha sonra, bu etkiyi elde etmek için video oyunu anlatı tasarımının temel tekniklerini ve araçlarını tanımlamaktadır. Video oyunlarında kullanılan lineer anlatı, inci dizisi anlatısı, dallanan anlatı, eğlence parkı anlatısı ve rizom anlatı türleri açıklanmakta; çevre, obje, avatar ve anlatı gibi temel video oyunu kavramları ile arkeolojinin temel kavramları arasındaki paralellikler de vurgulanmaktadır. Ve son olarak, bölüm, teorik çerçevenin ve video oyunu anlatı tasarım yapılarının kavramsallaştırılması ve birleştirilmesiyle arkeolojik araştırmalar için derin haritalama modelini sunmayı hedeflemektedir.

Sonuç olarak, kavramsallaştırılmış model, teorik çerçeveyi metodolojik yaklaşımlarla birleştirir ve derin haritalama metodolojisinin nasıl oluşturulabileceğini gösterirken,

kültürel peyzaj arkeolojisi için alternatif yorum yaklaşımlarını keşfetmek için benimsenebilecek bir yol sunmaktadır. Burada önerilen model, arkeolojik uygulamada coğrafi bilgi sistemlerine dayalı dijital haritaların veya 3B modelleme gibi dijital tekniklerin kullanımını işaret etse de, video oyunu endüstrisinden ödünç alınan metodolojik bileşenler, kültürel peyzaj arkeolojisi kapsamında geliştirilmiş teorik yaklaşımların dijital arkeolojinin alternatif anlatı oluşturma süreçleri için de yeniden ele alınabileceğini önermektedir. Dahası, bu anlatıların dijital ortamlarda üretilmesi, dijital arkeolojik verilerin bağlamsal doğasını saklama fırsatı sunabilir, ki bu, yorumlayıcı yaklaşımlar için hayati öneme sahiptir.

Bölüm 4, video oyunu anlatı tasarımından örnek alınan üç aşamalı bir süreci takip ederek örnek çalışmanın uygulamasını sunar. İlk aşama, Komana kültürel peyzajının genel anlatısının belirlendiği dünya oluşturma aşamasıdır. İkinci aşama, Komana yerleşiminin insan eli ile inşa edilmiş unsurlarına odaklanan seviye tasarımı aşamasıdır. Üçüncü ve son aşamada çevresel hikaye anlatımı yoluyla, yerleşim içinde yer alan belirli bir atölyenin karakteristik özelliklerini yansıtabilecek şekilde düzenlenmiş arkeolojik buluntulardan oluşan bir mikro-anlatı manzarası üretilmiştir. Bu bölümün temel amacı, önerilen derin haritalama modelinin, arkeolojik materyallere (veri ve tarihî metinler gibi diğer bilgi kaynaklarına) nasıl uygulanabileceğini, böylelikle arkeolojinin mevcut anlatı kalıplarının nasıl genişletebileceğini göstermektir. Geleneksel bir arkeoloji tezinde, bu bölüm genellikle örnek çalışma alanının ve araştırma geçmişinin detaylı bir genel incelemesinin lineer bir anlatısıyla başlamaktadır. Ancak, bu bilgiler Komana ile ilgili neredeyse tüm literatürde zaten yazılmış ve yayınlanmıştır. Bu tezin amacı, arkeolojik sitelere ve onların araştırılmasına alternatif anlatı yaklaşımları önermek olduğundan, farklı bir yol izlemektedir. Sonuç olarak, bu, arkeolojik araştırma sorularını yanıtlamayı amaçlayan bir Komana çalışması değil, arkeolojik bir uygulama alanı olarak Komana'yı inceleyen bir örnek çalışması olarak değerlendirilmelidir. Bu bağlamda, örnek çalışması bölümünde kullanılan, sunulan tüm bilgi ve veriler, Komana kazılarıyla ilgili arkeolojik literatür ve kayıtlardan elde edilmiş olup bir şekilde zaten arkeolojik anlatıya dahil edilmiştir. Bu yazılı kaynaklarının derinlikli bir şekilde incelenebilmesi amacıyla, örnek çalışması bölümünde Komana üzerine yazılmış akademik literatürün bir anlatı analizi de dahil edilmiştir. Bu anlatı analizinin amacı, mevcut örnek çalışması

uygulamasının, Komana'nın daha büyük anlatısını oluşturan farklı türdeki veri ve literatür kaynakları arasında köprüler kurmaya nasıl yardımcı olabileceğini ortaya koymaktır. Bu şekilde, önerilen derin haritalama modelinin, dijital çağda arkeolojik yorum ve anlatı için kapasitesinin test edilmesi mümkün olabilmektedir.

Örnek çalışmasının pratikte uygulaması, derin haritalama modelinde gösterildiği şekilde dünya oluşturma, seviye tasarımı ve çevresel anlatı olarak sunulan video oyunu anlatı tasarımından örnek alınmış üç aşamalı bir plana dayanmaktadır. Buna göre, metodoloji bölümünde açıklanan tüm konseptler birbirleriyle olan ilişkilerine göre çok katmanlı piramitlere yerleştirilmiştir. Modelin örnek uygulaması video oyunu anlatı tasarımı aşamalarını takip eder ve önerilen modelde bu sıralama katmanların dıştan içe doğru denk gelecek şekilde kurgulanmasını da anlamlı kılmaktadır. Bu durumda, dünya oluşturma ile uyumlu olan dış katmanlar, çevresel kültürel peyzaj arkeolojisi, kartografik harita, meta-anlatı, lineer anlatı yapısı, inci dizisi anlatı yapısı, kültürel tarihsel arkeoloji ve Süreçsel arkeolojiden oluşmaktadır. Benzer şekilde, modelin seviye tasarımıyla uyumlu olan orta katmanları, çevresel kültürel peyzaj arkeolojisi, kartografik harita, meta-anlatı, yerel anlatı, inci dizisi anlatı yapısı, dallanan anlatı yapısı, eğlence parkı anlatı yapısı ve Süreçsel arkeolojiden oluşmaktadır. Son olarak, çevresel anlatıyla uyumlu olan en iç katmanlar, fenomenolojik kültürel peyzaj arkeolojisi, derin harita, yerel anlatı, mikro-anlatı, eğlence parkı anlatı yapısı, rizom anlatı yapısı ve Post-süreçsel arkeolojiden oluşmaktadır. Bu kararın arkasındaki neden, arkeolojik materyalin uygulamasında anlatı tasarımının önceliklendirilmesi ve her bir katmanla birlikte artan karmaşıklığa vurgu yapmaktır. Nihayetinde, önerilen derin haritalama modeli, arkeolojik kayıtların karmaşıklığını ifade etmeye ve bu karmaşık veri kümesine baskın olmayan bir tutarlılık getirmeyi amaçlamaktadır.

Örnek çalışmasının sonucunda, üç aşamalı video oyunu anlatı tasarımı ile arkeolojik araştırmanın çok ölçekli yapısı arasındaki uyumluluk dikkat çekmektedir. Benzer bir uyumluluk anlatının ölçeklendirilmesinde de gözlemlenebilmektedir. Bu üç aşamalı yapı, kültürel peyzaj ölçeğinde coğrafi ve çevresel konularda bilgi aktarılan dünya oluşturma sürecinden, yerleşim ölçeğinde insan eliyle inşa edilmiş mekanların bilgisini içeren seviye tasarım sürecine ve nihayetinde, çevresel anlatı sürecinde tekil bina ve nesnelerin en küçük ölçeğine ulaşmaktadır. Tezin asıl amacının, farklı tür ve

ölçeklereki veri kümelerini bir araya getirerek bir kültürel peyzajın hikayesini anlatmada uygulanabilecek bir metodoloji geliştirmek olduğu göz önünde bulundurulduğunda, derin haritalamanın metodolojinin temeli olarak seçilmiş olmasının anlamlı olduğu görülmektedir. Bu örnek çalışma uygulaması, derin haritalamanın arkeolojik verilerin karmaşıklığını ve derinliğini yansıtan çeşitli katmanları ve bilgi türlerini içerebildiğini ortaya koymaktadır. Çeşitli disiplinler arası bilgi ve veri tipleri, tarihî, mimari ve çevresel veriler dahil olmak üzere, örnek çalışmasına etkili bir şekilde uygulanabilmektedir. Dahası, video oyunu endüstrisi gibi tamamen ayrı bir alandan ödünç alınan teknik ve yaklaşımların, bu derin haritalama modeli ile arkeolojik çalışmalara entegre edilebileceği ortaya çıkmaktadır. Ancak, örnek çalışması uygulamasında bazı açılardan zorluklarla da karşılaşmıştır. Bu zorlukların en kısıtlayıcı olanı aynı zamanda en önceden tahmin edilmiş olandır çünkü bu bir medya sorunudur. Mevcut tez, dijital derin haritalama ve hikaye anlatıcılığı için bir metodoloji sunmayı amaçlamaktadır ve video oyunlarının dijital medya teknikleri ve yaklaşımlarına dair önemli miktarda içerik bulundurmaktadır. Ancak, örnek çalışma, birkaç nedenle tam olarak gerçekleştirilmiş bir dijital ortam sunmamaktadır. En açık nedenlerden biri, bunun bir arkeoloji programına sunulan bir tez olması ve bu programda bir dijital ortam oluşturacak eğitim verilmemesi ve dolayısıyla böyle bir ürünün sunulmasına dair akademik bir beklentinin bulunmamasıdır. Dahası, eğer birden fazla karmaşık dijital programı kullanabilecek yetenekte olursa bile, bu ulaşılamaz bir hedef teşkil etmektedir çünkü bunun için bir kişiden fazlası ve kayda değer finansal kaynaklar gerekmektedir. Ayrıca halihazırda dijitalleştirilmiş veri kümeleriyle çalışabilme olanağı bütün bu problemlerin aşılması için gerekli bir temeldir. Bunların hiçbiri mevcut seçenekler olmadığından, örnek çalışması, bu hipotetik dijital ortamın nasıl oluşturulabileceğini ve gelecekte gerçekleştirilebilecek bir projede kullanılması umuduyla yapılmış bir ön çalışma niteliği taşımaktadır.

Sonuç olarak, durum çalışması, arkeolojik verilerin önerilen modele uygulanmasını gösterme amacını gerçekleştirmiştir. Özellikle, önerilen modelin temelini, çevresel kültürel peyzaj çalışmasının determinist doğası ile fenomenolojik yaklaşımın soyut niteliklerinin karşılaştırılması; geçmişin anlatılarında nesnellik ve gerçeklik sorunlarının ele alınması; haritacılıkta doğrunun hem kelime anlamında hem de gerçekliğe uygunluk anlamında bozulmasından bahsedilmesi ve son olarak, bu

konuların video oyun endüstrisi ile bağdaşan noktalarının gözler önüne serilmesi faydalı çıktılar olarak değerlendirilebilir.

Bölüm 5, örnek çalışma uygulamasının temel bulguları üzerine bir tartışma sunmaktadır. Buna ek olarak, derin haritalama metodolojisinin teorik entegrasyonu sorunu yeniden ele alınmakta; tezin kültürel peyzaj arkeolojisi, kartografi, anlatı teorisi ve dijital arkeoloji alanlarına katkıları değerlendirilmekte; tezin sınırlamaları açıklanmakta ve gelecekteki araştırma potansiyeline yönelik öneriler bu bölümde paylaşılmaktadır.

Bu tartışma bölümünde, teorik temelleri keşfettikten, yeni bir derin haritalama metodolojisi geliştirdikten ve bu entegre yaklaşımı pratik bir örnek çalışmasına uyguladıktan sonra, bu bütünlük yaklaşımından ortaya çıkan sonuçlar ve içgörüler üzerine derinlemesine bir inceleme sunmak isterim. Arkeolojik verilerin bir örnek çalışmasına uygulanması için bir metodoloji oluşturma amacıyla, teorik temel olarak üç ana literatür konusunu belirledim. Kültürel peyzaj arkeolojisi, çok katmanlı ve çok ölçekli bu çalışma için çok yönlü bir temel sağladı. Kültürel peyzaj arkeolojisinin çevresel ve fenomenolojik yönlerinin incelenmesi iki düzeyde faydalı oldu. İlk olarak, çevresel bakış açısı, kültürel peyzajların nicel, objektif ve fiziksel özellikleriyle uyumlu iken; fenomenolojik perspektif, bunların nitel, öznel ve soyut özelliklerini ortaya koydu. İkinci olarak, bu iki bakış açısı tarafından yansıtılan kavramsal ikilikler, sonraki aşamalarda benimsediğim diğer teorik ve pratik yaklaşımlar arasındaki tutarlılıkların fark edilmesine olanak sağladı. Dolayısıyla, haritalar konusuna geçtiğimde, özellikle haritacılığın tarihine ve derin haritalama üzerine literatür taramasına odaklandığımda, kültürel peyzaj arkeolojisi içindeki ikili yapıdan elde edilen içgörüler, hem teorik çerçevede hem de amaçlanan metodolojide izlenebilecek bir tasarım deseni oluşturmaya başladı. Burada, kültürel peyzajların çevresel yönlerinin geleneksel haritalarla en iyi şekilde temsil edilirken, fenomenolojik yönlerin derin haritalama yoluyla daha uygun bir şekilde keşfedilebileceğini savundum. İncelediğim üçüncü konu ise anlatı teorisiydi, özellikle de geçmişin anlatılarını üreten tarih ve arkeoloji disiplinlerine odaklandım. Sonuç olarak, modernite ve post-modernite gibi felsefe ve edebi teori akımları ile arkeoloji teorisinin tarihini araştırarak, meta-anlatıların ve arkeolojinin anlatısını nasıl etkilediğini

açıklamak mümkün oldu. Alternatif anlatı ölçekleri üzerine daha fazla inceleme, yerel ve mikro-anlatılar kültürel peyzaj arkeolojisinin fenomenolojik yönleriyle ve dolayısıyla derin haritalama ile uyumlu hale getirme fırsatı sundu. Meta-anlatıların ise kartografik haritalarla ve kültürel peyzaj çalışmalarının çevresel yönleriyle benzer bir uyum gösterdi. Dolayısıyla, amaçlanan metodolojinin teorik çerçevesi, kültürel peyzaj arkeolojisi, haritalar ve anlatı konularını uygun bir şekilde iç içe geçmiş bir yapıda bir araya getirmiş oldu.

Metodoloji bölümünde, arkeolojik kayıtların boyutu ve karmaşıklığı, temel metodolojim olan derin haritalama için yapısal bir düzen gerektirirken, arkeolojik kaydın doğası tutarlılık için sistemli bir düzen gerektiriyordu. Bu noktada, kişisel deneyimim ve video oyunu medyası hakkındaki bilgilerim bu zorluğa çözüm sundu ve konuyla ilgili akademik literatür geniş, disiplinler arası kaynaklar sağladı. Dolayısıyla, video oyunu endüstrisi tarafından kullanılan anlatı tasarım teknikleri, araçları ve süreçleri, amaçlanan derin harita modelinin tutarlı, hatta formüle edilmiş bir şekilde oluşturulması için bir rehber olarak sunuldu. Özellikle, video oyunu ortamlarının etkileşimliliği tarafından sağlanan lineer olmayan anlatı yapıları, kültürel peyzajların fenomenolojik yönleriyle ve yerel ve mikro-anlatılar ile uyumlu bir şekilde yankılandı. Ayrıca, video oyunlarının anlatı tasarım sürecine yönelik gerçekleştirdiğim derin analiz, ilgili bölümde örnek çalışması uygulaması için üç aşamalı bir plan sağladı. Sonuç olarak, teorik çerçevede gözlemlenen düzen, bu anlatı yapıları ve video oyunlarının tasarımı ile avantajlı bir şekilde uyuşmuş ve derin harita modelinin teorik ve metodolojik bileşenlerini son derece uyumlu bir şekilde tanımlamamı, kavramlaştırmamı ve birleştirmemi sağladı.

Tabii ki, modelin kavramlaştırılması, özellikle görselleştirme açısından bileşenlerinin belirli bir derecede basitleştirilmesine dayanmaktadır. Kültürel peyzaj arkeolojisi, haritalar ve anlatı gibi üç teorik çerçeve konusunu kavramsallaştırdım; ardından arkeolojik teorinin kültürel-tarihsel, süreçsel ve post-süreçsel yaklaşımlarını, ve anlatı yapısı ve anlatı tasarımına yönelik video oyunu tabanlı metodolojileri de kavramsallaştırmaya dahil ettim. Kavramsallaştırmayı her ilgili konu için piramitlerle görselleştirdim ve piramitleri yatay olarak ardışık anahtar kavramları tanımlamak için böldüm. Daha sonra, bu altı kavramsal piramidi birleştirirken, her piramidin katman

bölümü hizalamalarına özel bir dikkat göstererek altıgen modeli oluşturdum. Sonuç olarak, anahtar kavramların hizalanmasında kasıtlı kırılmalar mevcut olup bu, tutarsızlığa yol açabilir. Bu katmanların hizalanmasının veya hizalanmamasının gerekçesini açıklamak için, anahtar kavram çiftlerinin çapraz kombinasyonlarını açıklayarak modelin yapı sökümünü de ekte sunulduğu şekilde gerçekleştirdim. Bu noktada, bazı anahtar kavram çiftlerinin daha mantıklı bir şekilde birleştiğini, bazı kombinasyonların ise belirli ölçüde kısıtlayıcı olduğunu belirtmek gerekir. Özellikle, video oyunu geliştirmesinde kullanılan beş katmanlı anlatı yapılarının, diğer kavramsal piramit katmanlarıyla birleştirilmesi bazı noktalarda zorlama gibi görünebilir. Bunun nedeni, bu anlatı yapılarının lineerden lineer olmayana doğru düzenlenmiş olmasıdır ve bu da modelin artan karmaşıklığını göstermeyi amaçlamaktadır, ancak, kavramsallaştırılan modelde katmanların hizalanması kaçınılmaz olarak çelişen kombinasyonlara yol açmaktadır. Bu noktada, her uygulama durumunda benzersiz anahtar kavramlarını seçme ve yeniden yapılandırma olanağı sağlayan modelin adapte edilebilir doğasının altını çizmek uygun olacaktır. Ancak, önceki cümledeki ifadeyle çelişen şekilde, bu tez için sunduğum örnek çalışması uygulaması, açıkça görülen uyumsuzluklara rağmen önerilen modelin tam kapasitesini göstermeyi amaçlamaktadır.

Önerilen derin haritalama modelinin uygulanması ve test edilmesi için seçilen örnek alan, 11.- 14. Yüzyıl arasında, yani Danışmend- Selçuklu Dönemlerinde Komana yerleşimidir. Bu yerleşim ve dönemin seçimi birkaç kriter temelinde yapılmış olup, bunların ilki, tez danışmanımın aynı zamanda Komana Arkeolojik Araştırma Projesi direktörü olması nedeniyle, yerleşimdeki arkeolojik materyallere erişilebilirlikten kaynaklanmaktadır. Ayrıca, arkeolojik verinin çeşitliliği, dönem kararının belirleyici nedenidir, çünkü Komana'daki Danışmend- Selçuklu Dönemleri hakkında yapılan ve uzman araştırmacılar tarafından yayınlanan jeomorfolojik, arkeozoolojik ve arkeobotanik çalışmalar ile akademik tezler kolayca erişilebilir durumdadır. Dahası, ilgili tarihi metinlerin varlığı ve Komana kültürel peyzajının coğrafi ve kültürel konumunun coğrafi bir geçiş bölgesi olmasından doğan karakteri de örnek çalışmasının seçilmesinde belirleyici faktörlerdir. Uygulama, video oyunu anlatı tasarım sürecinden alınan üç aşamalı bir planı takip eder, bu da dünya oluşturma, seviye tasarımı ve çevresel hikaye anlatımını içerir. İlk aşama, ana hikayenin genel

arka planının belirlendiği dünya oluşturmadır ve çevresel kültürel peyzaj arkeolojisi, kartografik harita, meta-anlatı, lineer anlatı yapısı, inci dizisi anlatı yapısı, kültür tarihçi arkeoloji ve süreçsel arkeoloji anahtar kavramlarıyla ilgili mevcut bilgilerin düzenlenmesi ve uygulanması yoluyla gerçekleştirilmiştir. Önerilen metodolojik model doğrultusunda, arkeolojik araştırma, kültürel peyzaj, tarih ve Komana'nın Danishmend-Selçuklu Dönemleri ile ilgili her bir anahtar kavram için uygun veri ve literatür kaynaklı bilgi uygulanmıştır. Aynı uygulama, durum çalışmasının ikinci aşaması olan seviye tasarımında da gerçekleştirilir. Seviye tasarımı ile ilgili tüm önemli kavramlar, fiziksel yerleşim ve bölgenin yerel halkıyla ilgili arkeolojik bilgileri içerik olarak ele alır. Seviye tasarımının asıl konusu insan eliyle inşa edilmiş çevre olduğundan, Danishmend-Selçuklu Dönemleri'nde Komana'daki yerleşimde bölgeleri, mahalleleri ve tekil yapıları belirledim ve önerilen metodolojinin bu aşamasında anlatının inşa edilmiş çevreye nasıl entegre edilebileceğini gösterdim. Çevresel hikaye anlatımı olan üçüncü aşamaya geçildiğinde, örnek çalışması, belirli bir bölgeden ve arkeolojik matrisden elde edilen seçilmiş arkeolojik verileri kullanarak günlük yaşam temasına dayanarak derin haritalama yöntemini uyguladım. Son olarak, veri tabanlı derin haritanın hayal edilmiş bir görsel yorumlanmaya dönüşümünü gerçekleştirdim. Bunun sonucunda, kompakt bir atölye bölgesinde bulunan bir demirci atölyesinin mikro-anlatı manzarasını, ilgili arkeolojik kalıntıları ve yapay zeka destekli metinden-görsele özellikli görsel içerik oluşturma programlarından faydalanarak oluşturdum. Bu aşamanın ilgili anahtar kavramları fenomenolojik kültürel peyzaj arkeolojisi, derin harita, yerel anlatı, mikro-anlatı, eğlence parkı anlatı yapısı, rizom anlatı yapısı ve post-süreçsel arkeoloji olduğundan; sübjektif, hayali ve yaratıcı yorumların ortaya çıkması için alternatif anlatıları mümkün kılacak bir alan açma hedefime bu noktada ulaşmış oldum.

Örnek çalışmasının temel bulgularıyla ilgili raporuma, derin haritalama metodolojisinin örnek çalışması alanı ve dönemi hakkındaki anlayışımı nasıl artırdığını açıklamakla başlamalıyım. Bir arkeolojik alan olarak Komana ve Danishmend- Selçuklu Dönemleri hakkında kişisel deneyim ve bilgilerimin sınırlı olduğunu özgürce itiraf ediyorum. Örnek çalışması konusundaki bilgi eksikliğim, söz konusu bölge ve dönemi önerdiğim teorik ve metodolojik modeli uygulama yoluyla öğrenmemi ve bu doğal olarak bu süreci deneyimleme fırsatı sundu. Bu bakış

açısından, derin haritalama modelinin arkeolojik verilerin yorumlanmasında, özellikle yerel ve mikro-anlatı kavramlarının uygulanmasında etkin olduğu kanıtlandı. Sit alanı ve verilerin sunduğu alternatif anlatı olanaklarının keşfi, manevi anlatıların ötesinde tarihsel bağlamın daha nüanslı bir anlayışını sağlarken, insan etkisi ve karar alma yeteneğinden doğan değişkenliğin bilinçli olarak göz önüne alınması, bireyler, aileler ve gruplar için alternatif anlatı olasılıkları önermeme olanak tanıdı.

Derin haritalama modeli tarafından sağlanan başka bir avantaj, seviye tasarımı aşaması ve eğlence parkı modeli gibi video oyunu anlatı tasarım yapıları ve tekniklerinin tanıtılmasıyla yorum sürecine mekansal ilişkilerin dahil edilmesidir. Derin haritalama modelinin bu bileşenlerinin sağladığı anlatı çeşitliliği ve esnekliği, örnek çalışması uygulamasında gözlemlenebilir. Örneğin, çanak çömlek ustalarının tarihi metinlerde iddia edildiği gibi din değiştirmeye zorlandığı, aksi taktirde yerleşimden tamamen dışlandığı, hatta katledildiği anlatısının kabul görmüş olmasına rağmen, aslında bazı ustaların Komana'da yaşamlarını ve zanaatlarını sürdürmüş olma olasılığı akla gelmiş, daha önce yapılan çanak çömlek üzerine yapılan çalışmalara dayanarak yeniden değerlendirilmesi önerilmiştir.

Örnek çalışmasının başka bir temel çıktısı, derin harita modelinde yer alan teorik ve metodolojik anahtar kavramların uyumu ile, Komana'nın Danışmend- Selçuklu manzarasını tarihsel edebi kaynaklarla, akademik literatürle ve alanın ham verileriyle bütünsel bir şekilde temsil etmeyi gerçekleştirebilmemdi. Tabii ki, çok ölçekli yaklaşım, arkeoloji disiplininin akademik pratiklerinde yeni bir şey değildir; ancak, derin haritalama, geleneksel uygulamaları yeni bakış açıları ve farkındalıkla yeniden değerlendirme fırsatı sundu. Özellikle dijital teknolojilerdeki hızlı ilerlemenin ve bunların arkeolojik araştırmalarda benzer şekilde sıkça kullanılmasının göz önünde bulundurulmasıyla, arkeolojinin teorik yaklaşımlarındaki birikimin dijital çağın sunduğu yeni tekniklerle entegre edilmesini sağlayan yeni metodolojilerin geliştirilmesinin faydalı olacağı hakkındaki iddiam karşılık bulmuş oldu.

Dijital çağın sunduğu yeni teknikler açısından, video oyunu anlatı tasarımı aşamalarının uygulanması, derin haritanın çok katmanlı yapısının oluşturulmasını kolaylaştırır ve geleneksel olarak meta-anlatılara dayanarak oluşturulan bütünlüğü feda etmeden alternatif anlatıların ortaya çıkmasını sağlar. Dünya oluşturma, seviye

tasarımı ve çevresel hikaye anlatımı aşamaları, yapısal olmayan veya düzensiz olan derin haritalarla elde edilmesi mümkün olmayan, daha kapsamlı bir anlatıya yol açar. Öte yandan, derin haritaların bu özellikleri, alternatif yorumların ve doğrusal olmayan anlatıların ortaya çıkmasını mümkün kılan unsurlardır. Bu nedenle, video oyunu anlatı tasarımının uygulanma sürecini video oyunu anlatı tasarımının üç aşaması üzerine kurmanın, arkeolojik verilerle ilgili bilgilerin çeşitli ancak tutarlı anlatı katmanlarına yol açtığını gözlemlenebilmiştir.

Örnek çalışmasının beklenmedik sonuçlarından biri, derin haritalama metodolojisinin görselleştirme kapasitesinin fark edilmesidir. Başlangıçta, mevcut uygulamaların dijital veri tabanları aracılığıyla veri depolama ve koruma konularında kullanılmakla kaldığını savundum. Büyük verilerin açık erişim yoluyla yayınlanmasına ve paylaşılmasına olanak tanıyan dijital veri tabanlarının faydalı olduğu açıktır, ancak genellikle veri kümelerinin bütünlüğünü veya duruma özgü yeniden yapılandırılmasını mümkün kılmamaktadırlar. Ayrıca, alan çalışması sırasında yapılan veri kaydı doğruluk, zaman kazanma ve imkanların sınırlı olması nedeniyle kısa, kesik kesik kelime, harfler ve rakamlardan oluşan kodlar ve sözlü tanımlamalar içerir. Ancak aynı prosedür, dijital veri tabanlarıyla veri depolama sürecinde de devam eder ve arkeolojik kaydı hem akademik ve hem de toplum çevrelerinde anlaşılabilir hale getirir. Burada dijital veri tabanlarının terk edilmesi gerektiğini iddia etmiyorum, aksine, bireysel kullanıcıların verileri kategorize etmelerine, düzenlemelerine ve yorumlamalarına olanak tanıyan derin haritalama platformlarının, veri tabanı oluşturma sürecinin bir parçası olarak düşünülmesi gerektiğini öneriyorum. Çünkü burada sunulan derin haritalama yöntemi, tarihsel ve arkeolojik bağlamların daha içselleştirilmiş bir anlayış sağlamak için, çeşitli veri türlerinin ve akademik literatürün bağlantılarını ve ilgisini görselleştirmeye olanak tanır. Ayrıca, derin haritalaması yapılan içeriğe dayalı mikro-anlatı manzaraları tasarlama imkanının, Danışmend-Selçuklu Dönemi'nde insanların yaşam deneyimlerini keşfederken hayali ancak içgörülü görseller oluşturmak için kullanışlı olduğunu kanıtlamıştır. Kısacası, derin haritalama metodolojisinin görselleştirme yeteneklerinin yorumlama ve anlatı oluşturma süreçlerini güçlendirebileceğini öne sürmek mümkündür. Özünde, mevcut örnek çalışması, önerilen derin haritalama metodolojisinin potansiyelini göstermeyi amaçlayan öncül bir uygulama olup, arkeolojik verilere bu yöntemle yaklaşmak, sit alanını ve

incelenen dönemin anlaşılmasını destekleyen ve zenginleştiren dinamik ve etkileşimli bir deneyimdir.

Bu tezin her ilgili alana sunduğu katkılar da kapsamlı bir şekilde tartışılacak bir başka konudur. Araştırma alanı olarak kültürel peyzaj arkeolojisinin gelişimine ilişkin literatür taraması, çevre çalışmaları ve fenomenolojik çalışmaların kültürel peyzajlara yönelik iki farklı yaklaşım olarak değerlendirildiğini göstermektedir. Bu metodoloji, derin harita üzerindeki karşılıklı tamamlayıcı katmanlar olarak değerlendirilmesi amacıyla her iki yaklaşımı da kendi özgün anahtar kavramlarını değerlendirerek entegre etmektedir. Haritalama uygulamaları konusunda ise, bu tez, arkeologların derin haritalama gibi kartografik temel haritaların ötesinde farklı görselleştirme tekniklerini nasıl kullanabileceklerini göstererek, mikro-anlatı manzaraları ve yapay zeka metinden-görüntü programları gibi tasarım araçları ve tekniklerini arkeolojik bağlamın hikayesini anlatabilecek görseller oluşturmak için nasıl kullanabileceklerini başarıyla göstermektedir. Kültürel peyzajların akışkan ve geçici niteliklerini yansıtılabilen harita yapma uygulamaları, sadece kartografik temel haritaları düzenleme yerine arkeolojik çalışmalara entegre edilebilir. Tez ayrıca, video oyunu ortamının tanıtılması ve çocuklara yönelik kurgusal eğlencenin ötesinde etkileşimli ve sezgisel anlatının potansiyeli ile ilgili anlatı teorisi alanına bazı katkılar sunmaktadır. Anlatı ile ilgili kararların bilinçli bir şekilde alınması sayesinde, kanıta dayalı, lineer olmayan, alternatif geçmiş anlatılarının ortaya çıkmasının kolaylaştırılabileceğini savunmaktayım.

Ve son olarak, arkeologların video oyunları yapması gerektiğini iddia etmek istemediğim açık olsa da, burada altını çizmek gerekli olabilir. Video oyunlarının kullandığı anlatı tekniklerinin bu tezde incelenmesinin nedeni arkeolojinin kayıt, sınıflandırma, depolama ve yorumlama pratiklerinin video oyunu anlatı tasarım tekniklerini benimseyerek ve anlatıyı merkeze koyarak gerçekleştirilmesinin yararlı olabileceğini öne sürmekten ibarettir. Bu nedenle, bu tez, derin haritalamanın ve video oyunu anlatı tasarım tekniklerinin arkeolojik araştırmanın teorik ve metodolojik temelleri ve veri setleriyle uyumlu olduğunu gösteren bir ön çalışma sunarak amacına hizmet etmektedir. Komana'dan elde edilen verilere ilişkin paylaşmaya değer başka bir bilgi ise, geleneksel bir şekilde inşa edilmiş olan dijital veri tabanının birkaç yıldır

araştırmacıların erişimine mümkün olmayacak halde olmasıdır. Bu nedenle, dijitalleştirilmiş veri tabanı derin haritalamanın daha hızlı uygulanmasını sağlamak için kullanılmamaktadır. Bu engel, sadece örnek çalışması uygulamasını biraz sınırlı hale getirmekle kalmaz, aynı zamanda özel dijital hizmet sağlayıcılarının güvenilirliği ve veri kaybı risklerine ilişkin kapsamlı bir tartışmanın konusunu da teşkil etmektedir. Şu anda, Komana kazı verileri açık kaynaklı yazılımlar aracılığıyla dijitalleştirilmektedir ve veri tabanının sürdürülebilirliğini sağlamak için çaba gösterilmektedir. Ancak bu tezin örnek çalışmasında kullanılan Komana'daki Danishmend-Selçuk dönemine ait veriler, buluntuların saklandığı kazı deposundan, bunların formlarından, raporlarından ve fotoğraflarından manuel olarak benim tarafımdan çalışmaya dahil edilmiştir. Doğrudan bir sonuç olarak, önerilen metodoloji, tüm ilgili materyali tam olarak uygulamak için oldukça kapsamlıdır. Bu zorluğu aşmak için günlük yaşam şemasının belirli yönlerini basitleştirerek ve sadece bir dalını göstermekle yetindim. Elbette, bu kısıtlama, bu örnek çalışmasının derin haritalamasının en uygun şekilde yapılmasının ekip çalışması ile mümkün olabileceğini kavramama yol açtı. Aslında, burada sunulan derin harita modelinin, farklı alanlarda uzmanlaşmış çok sayıda araştırmacının iş birliği yapması için kullanışlı bir model sağlayabileceğini düşünüyorum.

Tartışma bölümünü sonlandırmadan önce, mevcut metodolojiyi geliştirebilecek, gelecek araştırma olasılıklarına ilişkin düşüncelerimi paylaşmak isterim. İlk konu, olası toplum arkeolojisi uygulamaları ve potansiyel faydalarıyla ilgili kapsamlı bir çalışma olacaktır. Öncelikle zaman yönetimi ve içeriğin tutarlılığı ile ilgili endişeler nedeniyle, bu tez şu anda böyle bir bakış açısını içermemektedir, ancak dijital derin haritanın tamamlanmış bir versiyonunun toplumun erişimine sunulabileceğini varsayıyorum. Böyle bir erişim, arkeolojik bilgi kaynağı olarak hizmet edebilir, arkeolojinin düşünme biçimlerini ortaya çıkarabilir ve mikro-anlatıların en yüksek potansiyeline ulaşılmasına yardımcı olabilir. Gelecek araştırma gündeminde yer alabilecek ikinci konu, önerilen derin haritalama metodolojisinin potansiyelini farklı anahtar kavramlar ve örnek çalışmalarının uygulanması yoluyla test etmek ve böylece metodolojinin artılarını daha gerçekçi bir şekilde değerlendirmektir. Derin harita modelinin herhangi bir alan veya döneme dair yapılacak çalışmada kullanılmak üzere, ilgili kavramlarının özelliklerine göre yeniden yapılandırılmasının mümkün olmasını

bekliyorum. Önerilen modelin çok katmanlı, adapte edilebilir doğası korunduğu sürece, çeşitli vakalar ve kavramların incelenmesi için kullanılabilmesine inanıyorum.

Sonuç olarak, bu tez çalışması, iyi bilinen teori ile keşfedilmemiş uygulamalar arasında faydalı bir bağlantı kurmaya hizmet etmektedir. Derin haritalama metodolojisinin ve video oyunu anlatı tasarım tekniklerinin entegrasyonu, disiplinler arası sınırları aşan ve kökleşmiş kısıtlamaları ortaya çıkaran, yenilikçi bir yaklaşım sunmaktadır.

Bölüm 6, dijital arkeolojinin geleceği üzerine kısa bir değerlendirme sunarken bu alanın geleceğine yönelik kişisel beklentileri de paylaşarak tez çalışmasının sonuç kısmını oluşturmaktadır. Bu bölümde tezi sonlandırırken, beni geleneksel arkeolojik araştırmanın teorik ve metodolojik yaklaşımlarını içeren bir dijital derin haritalama yöntemi üzerinde çalışmaya iten orijinal motivasyonumu açıklamak istiyorum. Dijital teknolojilerin arkeolojik çalışmalarda kullanılması gerektiğine kesinlikle inanmama rağmen, bu teknolojilerin disiplini yapış ve algılayış biçimlerimizi nasıl etkileyebileceğine dair endişelerim de mevcut. Şu anda bir alt disiplin olan "dijital arkeoloji" teriminin, giderek daha fazla dijitalleşen uygulamalar norm haline geldikçe ve disipline tamamen entegre edildikçe artık kullanılmayacağını, sadece "arkeoloji" dememenin yeterli olacağını tahmin ediyorum. Yeni teknolojilerin benimsenmesi, kayıt, depolama, küratörlük, yorumlama ve yayınlamanın tüm aşamalarında verilerle etkileşimimizde bilişsel bir değişikliğe neden olmaktadır. Kazı ekibi üyeleri tarafından yapılan çizim veya kataloglama gibi temel işlerin çoğu dijital araçlar ve tekniklerle gerçekleştirildiği için, arkeologların beceri ve eğitimleri de uygun şekilde değişecektir. Ayrıca, saha çalışması ve araştırma sırasında arkeologlar ile alan arasındaki bilişsel ve bedensel etkileşimler, arkeolojik bilgi üretiminin temel bir bileşeni olagelmiş ve bunların, beklenmedik ya da daha kötüsü, fark edilmeyecek şekillerde değişebileceğini ön görmenin gerekliliğini vurgulamaya ihtiyaç duyuyorum. İşte bu yüzden, bugüne kadar birikmiş arkeolojik teori ve uygulama bilgisinin değerini göz önünde bulunduran bir dijitalleşme yaklaşımı sunmaya çalıştım. Derin haritalama sayesinde, disiplinin temel prensipleri tanımlanabilir ve korunabilir, böylece dijital çağın getirdiği daha ileri gelişmeler bu temel üzerine inşa edilmeye devam edilebilir.

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