

Cultural Genesis

Destruction and submersion:

**An investigation into the lasting impact of maritime disasters
on human cultural genesis in the Mediterranean from
prehistory to modern times**

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Declaration

I certify that this thesis does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any university; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text.

Emily Rünzi

3 November 2022

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Abstract

Sea-level rise and maritime disasters have had a tangible impact on the archaeological materials and ideologies of civilisations surrounding the Mediterranean. While maritime archaeology is beginning to delve further into the idea of submerged landscapes, a less investigated aspect of these prehistoric and historic fluctuations are the social effects on the ideologies of those living through the events. This thesis focuses on the sea-level rise of the Mediterranean from prehistoric times to the present. An ever-growing body of work exists that reports newly identified cultural material under the waves, or clues to where lost settlements may be found under submerged coastlines. The evidence for a lost world beneath the waves is clear. While the physical archaeological symbols for these events are tangible and impossible to ignore, the social impact of these events on the ideologies of groups living in the Mediterranean throughout historical times, is equally descriptive through the analysis of the beliefs held by the occupants in the form of myths and legends. Two flood narratives from this region have spread globally and are still the topic of debate today. These are the Genesis and Atlantean flood narratives. While the Genesis flood narrative holds a deep religious significance for many people, the Atlantean flood narrative served as a political tool. This thesis applies a Model of Cultural Genesis to examine the origin points for these narratives and investigate how they evolved from their original historical descriptions into the narratives that have been carried well into modern times. Central to the aims of this thesis, connections are searched for between the archaeological evidence for or against the occurrence of the Genesis flood in the Black Sea, or the Atlantean flood off the coast of Northern Africa, the historical testimonies of these events, and the social implications that can be drawn from analysing these myths against a Model of Cultural Genesis. An examination of clues for or against cultural genesis in this way can be used to determine

where the catalyst for these myths may have arisen within the societal cycle of dying and renewing cultures and ideologies. While definitively identifying the origin point of these events may prove impossible with our current level of technological advancement and level of available historical information, the research contained in this thesis will serve to open a dialogue about the intangible, social impacts on the individuals who lived through historic sea-level rise and maritime disaster. These impacts have left a lasting scar on human memory in the form of mythologies and religious beliefs, of which only two are within the scope of this thesis. Whether there is a definable grain of truth to the origin of these narratives is somewhat overshadowed by the social impact of these stories which are still vivid memories in the mind of the western world today. Rapisarda (2015) argues that the story of Atlantis is 'hard to die'. The aim of this thesis is to discover whether the Genesis and Atlantean flood narratives are hard to die due to a grain of truth within them, or a social cycle in which these stories are retold and adapted to serve societies as they may have for countless millennia.

1. Introduction

The impact of sea-level rise on coastal and riverine settlements around the Mediterranean is a topic that is beginning to gain more attention from maritime archaeologists (Everhardt et al. 2023; Shtienberg et al. 2022; Seeliger et al. 2021; Galanidou et al. 2020; Beck et al. 2018; Poulos et al. 2022). The last two decades have seen increased levels of investigation into evidence for prehistoric settlements underwater and enhanced technologies have allowed archaeologists to better understand the climactic conditions that resulted in much of human history being submerged underwater (Galili et al. 2019; Nunn et al. 2022; Harrison et al. 2018; Benjamin et al. 2011; Papadopoulos 2015; Lemke 2020). The evidence for settlements that have been flooded in this way are now indisputable and many studies cover the brilliant discoveries of maritime archaeologists diving off the Mediterranean coast (Friesem et al. 2022; Ogloblin Ramirez et al. 2021; Eshed et al. 2014; Ronen and Almagor 2021; Papadopoulos 2015). Now that the evidence for this global submergence has come to light, research must be done to investigate how sea-level rise and climate change impacted societies throughout the Mediterranean on a social level (Rapisarda 2015). At face value, a glance into Levantine and European religious and mythological traditions point to two overarching flood narratives: the Genesis Flood and the Atlantean Flood. This thesis searches for discernible answers about rising sea-levels, flooding catastrophes and the flood narratives of this region. The search for proof of these two flooding events has been well researched by academics and pioneered by Woolley (1953) during the mid twentieth century, with more attention devoted to the Genesis flood event, than that of Atlantis. Archaeologists have attempted to pinpoint the Black Sea as the location of the Genesis flood, and the coastline of Northern Africa for the site of Atlantis. The social effects of these flooding events have yet to be investigated,

however. This thesis utilises a Model of Cultural Genesis, designed to theorise the stages of rehabilitation that a society goes through between cycles of destruction and renewal after a natural disaster, discuss the interplay of internal and external societies and the environment, and to mark a point of narrative saturation from where it reaches a threshold and becomes a core part of a belief system (Liritzas 2019). It is suggested in this thesis that by investigating the archaeological evidence for or against these events, comparing it with written histories and then analysing it against a Model of Cultural Genesis, it is possible to determine the likelihood of the origins of these narratives to have a catalyst in fact or fiction, and to suggest why these legends spread as they did to still find an unprecedented level of popularity in the present. The main research question that will be addressed is:

How did prehistoric sea-level rise or maritime disaster influence belief systems in the Mediterranean in historic times?

Further questions that are evaluated in support of this thesis include:

- Is there evidence for the Genesis and Atlantean flood narratives?
- Does this evidence point to cataclysmic events or gradual sea-level rise?
- Using a Model of Cultural Genesis to analyse social attitudes and beliefs, how likely is it that these events occurred?
- What can the Model of Cultural Genesis tell us about the historical societies who held these beliefs?
- When comparing multiple oral traditions, what do the additions and omissions of story elements indicate about the civilisation in which the authors lived?

The aim of this thesis is to determine if there is a connection between the Genesis and Atlantean flood narratives and the current evidence for sea-level rise and flooding events in the Black Sea and the Mediterranean, using a combination of tangible archaeological, and social historical analysis. To do this, this thesis will begin by analysing the evidence for global sea-level rise in prehistoric times, and the resulting submergence of archaeological and cultural material on much of the world's continental shelf. A thorough examination of the ideology of disaster and how prehistoric humans may have coped with tumultuous maritime conditions, will then be followed by investigations into the social impact of disaster, the cyclic nature of the rise and fall of civilisations due to disasters (maritime or otherwise), and an analysis of the Model for Cultural Genesis that will be applied to the two case studies in this thesis. An examination of the methodology used in this thesis will then occur before the presentation of results from investigating the archaeological, historic and social elements of the two case studies in this thesis. Physical evidence and previous academic research attempts into locating and analysing the proposed sites of the Genesis and Atlantean flood narratives will then be analysed, as will an investigation of the five historical texts relating to the Genesis flood, and the four historical texts relating to the Atlantean flood. A discussion will then take place where all of this information will be tied to and critically analysed to draw conclusions to the research questions posed above. While technological inferiority and the limits of historical accounts can pose serious limitations on the ability to definitively answer whether or not these narratives were entirely based on fact or fiction, the information that is available offers sufficient data to be analysed for social significance and the impact that these events, real or imaginary have had on the western world from prehistory until today.

2. Historical background

2.1 Climactic changes and prehistoric archaeology

Sea-level changes directly impact the archaeological material left by humans throughout prehistory, including whether or not it becomes submerged, and also the state of its preservation (Shtienberg et al. 2022; Beck et al. 2018; Seeliger et al. 2021; Benjamin et al. 2011; Papadopoulos 2015; Lemke 2020). The changes in the relative position of the land and sea organized on a time scale of thousands to millions of years leads to either the inundation (transgression) or exposure (regression) of the land. Eustatic changes occur as a result of changes in the volume of water in ocean basins. The term eustacy is used to describe all differences in sea-level resulting from changes in both the volume and distribution of water in ocean basins (Davidson-Arnott 2010:21). These fluctuations may be caused by the growth and decay of ice sheets and its effects, changes in the volume of the ocean basins, either arising from plate tectonics and continental drift, or sediment infill and hydroisostacy. Fluctuations in ocean mass or level distribution can also result due to adjustments in the earth's rotation, tilt or gravitational distribution (Davidson-Arnott 2010:21). The most significant eustatic changes are the effects of ice sheet growth and decay during the Pleistocene.

The determination of past sea-level change, either locally or regionally, requires two major components: Firstly, the identification of some indicator that can be tied to sea-level; and secondly, the dating of that indicator either directly or indirectly (Davidson-Arnott 2010:21). Some common indicators include the in-situ shells of organisms such as clams and barnacles,

salt marsh diatoms, coral microatolls in lagoons, shore platforms, the base of beach ridges and coastal sand dunes, and salt marshes (Davidson-Arnott 2010:21).

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Figure 1. The survey area and locations of submerged and intertidal stone artefacts found in Cape Bruguieres Channel in Australia's northwest, which is part of an ancient drowned landscape (Benjamin et al. 2020:12).

Archaeological fieldwork in submarine environments has been influenced by paleoenvironmental studies of late Pleistocene climate change and postglacial sea-level rise (Benjamin 2010a:253). There is a growing need to define and evaluate physical shorelines when investigating submerged landscapes. A more accurate definition of a shoreline is necessary to evolve our understanding of any region before underwater archaeology begins (Benjamin 2010b:285).

In the past it was believed that nothing had survived or can be found on the seabed (Bailey et al. 2012). This has resulted in a preference for the opportunities afforded by lower sea-levels in terms of improved terrestrial dispersal across land bridges and narrowed sea channels (Bailey et al. 2012). The last decade has seen opinions begin to change, however, in response to a number of factors, including evidence that marine exploitation and seafaring have a much deeper history in the Pleistocene than previously understood; there has been a steady accumulation of new underwater Stone Age sites and artefacts, the growing availability of new technologies and research strategies for underwater investigation, and the growth of targeted underwater research (Bailey et al. 2012).

Paleoshorelines occur at different elevations due to variations in uplift and subsidence. Some paleoshorelines are lifted clear of eustatic sea-level rise, and as such are a gateway into past use of shorelines as settlement sites and possibly the use of marine resources on dry-land archaeological sites (Bailey and Jöns 2020:30). It is indisputable that the offshore archaeological record has a large potential to redefine how archaeologists approach Palaeolithic research (Bynoe et al. 2016:873).

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Figure 2. The extent of the continental shelf which was exposed during the maximum sea-level regression (shown in red) at the Last Glacial Maximum (Bailey et al. 2012).

Approximately 90% of human history has occurred when sea-levels have been substantially lower than they are today, meaning that the large areas that were exposed for human settlement in the past are now located underwater (Bailey et al. 2012). It has become clear that coastal regions generally support larger populations than hinterlands, which could be due to factors such as these areas having greater ecological diversity, better groundwater supplies, more favorable climatic conditions, being more conducive to productive conditions for plant and animal life on land, and the availability of marine resources (Bailey et al. 2012).

Most of the great transformations in world prehistory, including: the global dispersal of archaic and anatomically modern humans, the origins of seafaring and fishing, the beginning of agricultural communities and the birth of civilization (including Mesopotamia and the Aegean), occurred when there were lower sea-levels. As a result, it is possible that our current syntheses of world prehistory based mostly on land-based artefacts, is likely seriously

incomplete. From this, it can be deduced that a significant portion of evidence for human prehistory lies deeper underwater than today's coastlines (Bailey et al. 2012). This makes underwater archaeology a high priority for discovering new depths of knowledge when it comes to human prehistory.

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Figure 3. A reconstruction of the coastline of the Golfe du Lion section of the Mediterranean during the Last Glacial Maximum. The map shows where a river delta and other landscape features would have been situated (Bailey et al. 2012).

Another reason that sea-level changes are so important to archaeology is that they offer a glimpse into the distant past in the form of features such as shell middens. Shell middens are shell matrix deposits where the shells of mollusc-type foods are the main component. These middens occur in their tens of thousands worldwide and are a ubiquitous signifier of coastal settlements which utilized marine resources. Mounds can vary in sizes of up to hundreds of meters long. Shell middens and mounds date almost exclusively from the mid-Holocene, from ca. 5,500 BC onwards (Astrup et al. 2018:472). Shell quantities from the late Pleistocene and early Holocene are also present, but are smaller and mostly located in caves, suggesting that shell midden refuse grew gradually over time. The increase of shell middens during the mid-Holocene suggests an intensification in the exploitation of coastal and marine resources that took place worldwide.

It is argued that as our knowledge of Pleistocene and early Holocene sea-level fluctuations has grown, it has become more possible that the idea of coastal resource intensification may

be incorrect. It is possible that the shell middens that archaeologists have identified to date may reflect nothing more than the higher visibility of coastlines, and shell middens, during periods of higher sea-levels.

In order to distinguish the influence of differential preservation or visibility from economic intensification, it must be acknowledged that the large-scale archaeological timeline of coastal settlement is disjointed due to the fact that many of the coastlines, as they were located before the stabilization of modern sea-levels (approx. 6,000 years ago), today lie underwater. The depth at which they lie is a result of their age, placement, site formation prior to abandonment and isostatic and tectonic activity at both local and regional scales (Astrup et al. 2018:472).

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Figure 4. Submerged hearth found in a trench (Astrup et al. 2018:469).

There is growing evidence that marine resources were important further back in time and more widely and intensively exploited than previously suggested by the pockets of evidence that have been associated with high sea-levels in the Holocene and the Last Interglacial period (Bailey and Flemming 2008:2154). This has led to a fuller understanding of how much historical information may have been lost due to marine inundation. According to Bailey and Flemming (2008:2154) The continued collection of underwater evidence which demonstrate the survival of archaeological sites following marine submergence. In some cases, this extends into the Paleolithic period, sometimes with exceptional levels of preservation and quality of evidence (Bailey and Flemming 2008:2154). There has been a renewed interest in

both coastlines and marine resources as a potentially significant factor in hominin dispersals, in particular the dispersal of anatomically modern humans (Bailey and Flemming 2008:2154). Greater precision and quality in the mapping of palaeoshorelines, as a result of advancements in geophysical modelling, often also in combination with dated evidence from sediment cores and elevated marine terraces has increased accessibility for studying changes in sea-levels. This has led to an increased capacity to define details and reconstruct the original terrestrial landscapes, and to outline greater focus on the impact of evolving landscapes on both human ecological and social dynamics. This has occurred as a result of improvements in the technologies and techniques used for remote sensing, and due to vastly increased computing power. The growing appreciation for now-submerged coastal landscapes may have provided more accessible or ideal conditions on land during glacial periods, in comparison to the more arid or inaccessible hinterlands which we have available to us on land today. It is becoming more widely accepted that submerged coastal landscapes may have been important habitats for plants and animals and possibly also for human populations (Bailey and Flemming 2008:2154).

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Figure 5. A graph depicting the simplified sea-level curves representing the past 200 ka. The graph also includes archaeological sites with evidence of marine resources (Bailey and Flemming 2008:2154).

Throughout the Middle and Upper Pleistocene, and likely for the greater part of the Pliocene (which includes the full history of human origins and evolution), sea-levels were much lower than they are today (Bailey and Flemming 2008:2153). The growing interest in the significance of marine resources and coastal environments has helped to focus our

understanding on just how much history is submerged, and how our current view of history and coastal settlement may be skewed and biased as a result of this.

Archaeologists currently know so little about coastal resources and archaeological evidence associated with periods of lower sea-level, compared to what could be known if the search for underwater evidence is continued (Bailey and Flemming 2008:2153). This is necessary to paint a fuller picture of human history and locate the evidence needed to make strides testing our existing preconceptions and hypotheses. Research indicates that both archaeological and paleoenvironmental evidence on the seabed are likely to reveal new evidence that is qualitatively different from what has been found on land. These archaeological results have the capacity to reveal patterns of settlement and exploitation that have no known counterpart in the current archaeology available on land (Bailey and Flemming 2008:2153).

It is possible that the coastal environments which are now submerged may have provided the ideal conditions for plant and animal life that are not present on modern coastlines. An interesting hypothesis, called the 'Coastal Oasis Hypothesis', suggests that when sea-levels dropped, underground springs would have found an easy exit onto coastlines, which would create a well-watered coastal lowland (Bailey and Flemming 2008:2153). This would have occurred during a period where the hinterland was becoming more arid, and this coastal refuge may have played host to a range of plant, animal and possible human settlement on land which is now submerged. Hypothesis such as these which can only be tested through underwater archaeology may contain profound implications for our current view on human settlement and dispersal.

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Figure 6. A simplified model of the springs which are associated with the initial and final positions of a water table during glacial sea-level fall, part of the Coastal Oasis Hypothesis (Faure et al. 2002:48).

It is estimated that about a quarter of Australia's current landmass was inundated by postglacial sea-level rise over the last 20,000 years. As a result, any archaeological evidence that existed in these landscapes has now been submerged. It is important to note the high level of significance that submerged sites can offer archaeologists when attempting to better understand the past. In particular, it is likely that these submerged landscapes can offer more information into past ways of life, human adaptation to fluctuating sea-levels and changing environments (Wiseman et al. 2021:152). The landmass of the Australian continent was a third bigger than it is today during the Last Glacial Period (circa 110,000–10,000 cal BC). At this time, many of the major changes in early human history were taking place, including the dispersal out of Africa and entry into Europe and Asia, the creation of seafaring crafts and marine resource exploitation, as well as palaeoeconomic diversification and intensification (Benjamin et al. 2020:24). The arrival of humans into Australia and the Americas is currently dated between c. 65,000 and 20,000 cal BC. The ideal conditions (such as ecological diversity and desirable climates) in these areas would have catered for relatively high population density and as a result, a higher concentration of archaeological sites. It is likely that these paleocoastlines would have been a more desirable environment at the time compared to the hinterlands which lay unsubmerged today. Submerged cultural material in an Australian context has been found to survive inundation by sea-level. Research has also found that evidence for the material which survived can be more easily located and analysed through the use of both predictive modelling and applicable underwater and remote-sensing techniques (Benjamin et al. 2020:24).

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Figure 7. Examples of the Indigenous artefacts found submerged on Australia's North-western coast (Benjamin et al. 2020:13).

As future archaeologists continue to build on the relationship between sea-level changes and submerged landscape archaeology, it becomes easier for others to understand the value of underwater research, and we come closer to revolutionizing our understanding of human prehistory.

2.2 Re-evaluating our place in the universe: the ideologic impact of disaster

It is indisputable that climactic changes have resulted in submerged archaeological artefacts and landscapes. Submerged landscapes dating from between 5,000 to 1 million years old have been found across the globe, as are oral histories and mythologies about these places. *Deukalion*, *Noah's Ark* and *The Epic of Gilgamesh* are just a few stories that have existed for thousands of years in written forms, and could potentially be traced back 10,000 years or more in the form of oral histories (Flemming 2017:4). The Mediterranean in particular boasts sunken cities that were well known to the local inhabitants in the area, as well as ancient geographers and historians, who were not above embellishing tangible evidence with the mythological aspects of these oral histories. More questions than answers remain about early hominin migration and dispersal, which can only be sufficiently addressed when more data is

accumulated from the submerged continental shelf. The use of the continental shelf in prehistoric times as a refuge on the periphery of glaciated areas is still poorly understood, as are the effects of this glaciation on the resources that humans living at this time would have had access to (Fleming 201:4). There has been growing interest in submerged continental shelves from archaeologists over the last three decades. Research has found with certainty that under certain conditions, some prehistoric sites that were founded on the continental shelf during times of lower sea-levels have the potential to withstand the rising seas and tumultuous currents that accompanied post glacial sea change, and remain preserved on submerged portions of the shelf (Pearson et al 2017:53). Renewed interest has also surged for the connection between Holocene sea-level rise and changes in complex social and economic behaviors, such as the intensified use of marine resources, sedentary settlements, increased social complexity, monumental architecture, and the development of early agriculture (Bailey 2017:296).

According to Bicket et al. (2017:227), for a prehistoric land surface or deposit to be of special interest, the remaining fabric must have the potential to make a distinctive contribution to our current understanding of the environment or behaviors of prehistoric peoples. Factors to consider when determining whether a site is important includes whether it contributes to understanding the overall history of a region, the early prehistory of a continent or larger region, the global understanding of humanity's origins and any distinct and tangible links to a known, named historical person or event. Additionally, a site will be considered to have special interest if it parallels a topic of research that is popular in public debate today. As such, sites relating to human activity, adaptations and responses to environmental and sea-level change is especially relevant. Particularly relevant is the evidence of activities such as the introduction of modifications to prevent the negative implications of sea-level rise that may have made settlements uninhabitable. While it is possible for a site of impeccable

preservation to offer detailed and direct insight into the lives of prehistoric human, research into the lives of humans during early prehistory usually revolves around broader collections of evidence that can be used to discern patterns and processes that effected human populations or development at large (Bicket et al. 2017:226). Important reasons for developing the exploration of underwater sites include to better document submerged environments to gauge how they existed when they were unsubmerged, and therefore to better grasp how humans interacted with these environments in the past (Werz et al 2017:239). It is imperative that archaeologists devote more time and effort into the research of prehistoric archaeology on the continental shelves. There is a need for further refining and improvement of the methodology to further expand the archaeological record. Greater efforts taken towards this research should result in a better understanding of past human migration, exploration and adaptations (Flatman and Evans 2017:10). According to Bicket et al. (2017:227) the investigation into and analysis of submerged prehistoric landscapes and their conceptual landscape counterparts should be a standard within archaeology and heritage management activities.

The social and demographic impact of sea-level change is a growing area of interest academically. It has been suggested that flood events can be considered as triggers for demographic change. Research by Ryan et al. (1997:546) has attempted to link sudden inundations with agricultural dispersals in the Black Sea area. There are four key reasons why suggestions for inundation causing social changes can be considered controversial. Firstly, patterns of sea-level change in a certain region cannot always be agreed upon by multiple scientists and can be contested. Secondly, there is a limited amount of research into submerged landscapes. Thirdly, there is little hard evidence for or against pre-inundation farming and settlements in low-lying coastal areas. Finally, it is likely that agricultural

changes (most readily identifiable in the archaeological record) came about as a result of a multitude of intertwining factors aside from sea-level change, including ecological, environmental, climatic and social variables. Any social changes defined by research cannot be attributed to just one type of influence without acknowledging the others (Bailey 2017:296). Due to this, research into the effects of sea-level change on the behaviors of a group must allow for these limitations when making their assessment. Multidisciplinary approaches that incorporate archaeological, geological and environmental research can help to answer some of the concerns posed by the limitations listed above. Sea-level change is a recurring event that has affected sites persistently across prehistoric time. It is important to acknowledge that the effects of sea-level change has often influenced the oral histories and mythologies of those communities it effected in a variety of ways.

3. Literature review

3.1 The social impact of disaster

Sea-level has fluctuated throughout human history and prehistory. Glacial and interglacial periods consisted of changes in temperature and the quantity of glaciers. The water that became glaciers during glacial periods was missing from the ocean, resulting in a lower sea-level during these periods of time. Conversely, interglacial periods saw the melting of glaciers, which resulted in the addition of extra water into the ocean, and global sea-level rise. At the time of the glacial maximum, around 20,000 years ago towards the end of the Pleistocene epoch, oceans were emptier and shallower than they are today, and sea-level was 120 meters lower than it is currently. Rapisarda's 2019 article investigates in depth how climate change impacted the lives, and the beliefs of the individuals living through periods of intense environmental upheaval. In particular, Rapisarda (2019) focuses on the origin of the Atlantis myth, and aims to distinguish between fact and fiction using archaeological theory and scientific investigation. This information is important archaeologically, as this currently submerged seafloor that was once unsubmerged would have been available for utilization by past human civilizations. The territorial occupation of shorelines and waterways throughout human history were directly impacted by the fluctuation in sea-level that accompanied the dance of glacial and interglacial periods. It has been deemed by archaeologists and scholars alike that this fluctuation in sea-level has likely caused conflicts, migrations and aggregations among human populations throughout history that are not well understood as of yet (Rapisarda 2019:258).

Rapisarda (2019) explains that the close of the Ice Age saw an increase in volcanic eruptions, the result of continental plate upheaval. When the glacial ice that formed on continental plates began to thaw, the Earth's crust had the potential to deform to the point of cracking, which allowed for magma to reach Earth's surface and create new chains of volcanos. One impact from this new volcanic activity included ash dispersal, which resulted in the reflection of sunlight that resulted in a cooling of Earth's temperature. Increased methane and CO₂ production would have exacerbated a greenhouse effect. Research has shown that variations in sea-level often correlate directly with increased volcanic activity, As an example, the Mediterranean's highest variations in sea-level correlated with a tripling in the number of explosive eruptions in the vicinity (Rapisarda 2019:260).

Rapisarda (2019:261) suggests that the geologic and climatic disasters that occurred near the end of the Ice Age may have been responsible for the creation of new innovations, a surge in human ingenuity and could have created or contributed to the collective memory of a catastrophic period at the beginning of human history. Rapisarda (2019:261) argues that the Herodotean myth of the education of the Egyptian people by gods about agriculture and new technology could be a memory of this time in history when climatic upheaval resulted in the moving of peoples inland and the adaptive migration strategies that may have been implemented in order to cope with this sequence of environmental changes. In this myth, the gods referred to may have in actuality been an early Neolithic people who were displaced from their homeland due to one of the cataclysms that proliferated the epoch. The collective memory of such a sequence of events, and the social impacts that followed may have been passed down from Egyptian tradition to Herodotus and possibly even Plato, laying a foundation for the legends and stories that formed the spiritual and religious cores of innumerable human civilizations.

Taking Egypt's Nile delta as an example, it is one of the least understood areas in Egypt's Early Holocene landscape, as a result of constant sedimentation and reuse of arable land. The earliest recorded occupations of the delta are from approximately 7,000 BC, and there are several explanations for why this area was recorded at a later date than its counterpart terrestrial Egyptian locations. One hypothesis is that regional climate change resulted in fluctuating Nile river flood levels that would have made settlement in the delta difficult before this time. An additional hypothesis as to why the delta was utilized later in Egyptian history has to do with the presence of cultivable river silt. Research into the initiation of farming settlements in the area indicate that the eustatic sea-level rise and marine transgression that occurred around 7,000 BC allowed for the first instance of the deposition of river silt in this region, which the steeper gradient between Cairo and the sea was incapable of withholding. Radiocarbon-dated sites along the Nile River indicate a trend of desertification resulting in tribes gathering along the Nile, and a gradient of technological advancement flowing from north to south along the tribal groups of the river. This trend appears to be present even further back in history, when the northern parts of the Nile were supposed to be uninhabited. This has caused authors such as Rapisarda (2019:263) to call for underwater investigation to determine whether these northernmost sites of occupation have left traces of settlement underwater. It is possible that the Nile River delta was inhabited much earlier than what is accepted today, and the North African coastline at large is essentially 'terra incognita' when attempting to understand how Neolithic societies adapted to climatic change (Rapisarda 2019:263).

Rapisarda's (2019:270) article on the social impacts of sea-level rise serves to investigate the correlation between the advent of sea-level rise and cataclysmic climate change with human oral histories and myths, in this particular case, that of Atlantis. This article focuses on Atlantis specifically because the date given for the mythological capital's demise correlates

with the climactic dramas and technological advancements that occurred in the Mediterranean basin around 11,000 BC. The author argues that the legend of Atlantis, and potentially other oral histories, may have derived inspiration from real events that occurred in the area and could depict the human interpretation of sea-level rise, climate change and disasters throughout various phases of history where these tales were told. In regards to Atlantis, this mythology could depict ancient Egyptian and Greek views on sea-level rise, and the loss of settlements to the fluctuations of maritime climate change, whether these incidences were gradual or catastrophic. Rapisarda (2019:270) argues that globally, dates for the first instances of farming on the Indus and Yangtze rivers have been refined to belong closer to that of the Fertile Crescent, approximately 20,000 BC. In the author's view, this may be evidence for the hypothesis that climactic change at a planetary level may have been responsible for an increase in cultivation and its associated technologies. It is possible that the climactic upheavals that occurred towards the end of the Ice Age impacted human evolution, and encouraged changes in migration and settlement patterns, which ultimately led to the invention of new ways to adapt to a somewhat volatile and ever-changing environment. Archaeologically, these adaptation strategies may show themselves in the record of the evolution of human subsistence and organization methods, particularly at the beginning of the Holocene, and coinciding with the climactic drama of the end of the Ice Age. According to the author, Plato's chronology may be a 'fanciful reconstruction' of the birth of farming and its early spread in the Mediterranean, and the sea-level rise, volcanic eruptions and tsunamis that plagued the area during this time and inspired the mythologies that survive to this day. Hunter gatherers living on the Mediterranean coastline during the end of the Ice Age would have been put under a significant amount of stress in light of the threat of these constant climatic changes. In addition to the Mediterranean, those living in the Persian Gulf, and the

Indus and Yangtze river deltas during this time, were also faced with the forced surrender of their settlement to the ever climbing shoreline.

Sudden changes in climate, and as a result, ecology and resource availability may have had the potential to generate new, and culturally diverse techniques to adapt to these ever-changing circumstances. Rapisarda (2019:270) calls for further research into the exploration of promising near-shore seafloors around the globe.

The area of the Mediterranean that is most compatible with the information offered by Herodotus', Plato's and Diodorus' texts in pursuit of Atlantis, is the archipelago located at the beginning of the Holocene where the Strait of Sicily, and the island of Pantelleria exists today. Evidence exists to prove that an obsidian mine may have existed in this area pre-submergence, but further maritime archaeology is required to better investigate the area and any activities that may have occurred there (Rapisarda 2019:271). Rapisarda (2019:271) claims that finding evidence for human occupation of submerged sites in the Mediterranean would not prove the Atlantis and associated myths outright, but may assist in understanding the broader context in which the myth may be referring to. The author explains that Atlantis may refer to one of many submerged sites within the Mediterranean and beyond, and that archaeologists should expect that the lost city may not be a city after all, but a catch-all term for settlements that were erected during a boom of innovation driven by climatic change, and submerged in the gradual or cataclysmic flooding that systemically inundated much of human coastal settlements during the late Holocene. Rapisarda (2019:271) explains that evidence for specific sites such as Atlantis may never be proven archaeologically, but their existence is a strong possibility, and with the application of new technologies and armed with the information preserved in ancient texts, it is possible that the discovery of the submerged sites which gave rise to the myth of Atlantis may prove to be very rewarding.

3.2 Infinite rise and fall

An article that has had a significant impact on this thesis is *Disaster Geoarchaeology and Natural Cataclysms in World Cultural Evolution: An Overview* by Liritzis et al. In this body of research, Liritzis et al. explains that written and oral histories of catastrophic disasters such as flooding, should be considered as functions of event intensities and their damaging impacts on human lives. Cataclysms, the death of ancient cultures and mythology have gone hand in hand in shaping the human psyche. Liritzis et al. (2019:1321) argues that those disasters which can be categorised as longer term, consecutive and a result of geological or climatic activities tend to have a stronger effect on human memory than cataclysms of any other type. In this way, recurrent disasters are more prevalent in historical accounts, and are heavily documented through both the geoarchives (geology, sedimentology and geomorphology) and the human record (archaeology and history). Astronomical events such as meteor impact, global warming, heavy precipitation, monsoons and droughts have also impacted on the ideology of ancient societies. The combination of terrestrial upheavals and astronomical events has created a set of quasiperiodic cataclysmic episodes which via reshaping the earth, has reshaped human cultural evolution. The transience of the geological and climatic factors listed above implement a variety of environmental circumstances on the face of the earth, which creates a constantly shifting lived experience. The combination of this shifting landscape with a variance in anthropogenic factors results in a continuously evolving human context. The Anthropocene sea-level rise, changes in alluvial sediments, sediment deposits and land modifications over time, have been scientifically proven impacts on prehistoric human settlements. It is likely that these events have been remembered as floods, deluges, and even the fallen sky. Liritzis (2019:1307) explains that disaster archaeology is a relatively new but growing field that provides the opportunity for a unique analysis of the relationship

between archaeology, environmental studies, risk management and prevention and mitigation during both historic and prehistoric times. The resounding waves of damage that occur from a disaster varies between one cataclysmic event and the next. Both the immediate and the post-disaster effects of a cataclysm can impact human resilience in terms of rebuilding societies and ecosystems and returning to a pre-disaster homeostasis. This article by Liritzis, and this current thesis, will focus on natural disasters that impacted coastal environments to a catastrophic scale and are associated with the near extinction of human settlements. Liritzis (2019:1307) argues that these disasters and their impact on the cultural evolution of their local groups is a global phenomenon that has recurred quasi-periodically since the dawn of hominoids and life on earth.

When analysing the underlying concepts of the disasters that have grown in human conception to a mythological scale, this article by Liritzis (2019:1308) critically considers whether catastrophes such as tsunamis, earthquakes and seaquakes, or climate changes such as silting of sea-level rise are likely to be responsible for the cultural evolution that resulted in these stories. The author notes that events such as a tsunami can be triggered by earthquakes, volcanic eruption or comet impacts, which may add a layer of historically unexplainable complexity to mythological deluge stories. Furthermore, Liritzis (2019:1308) goes on to critically analyse the methods necessary for scientifically corroborating the natural events that instigated the mythologies in question.

Liritzis (2019:1308) explains that scientific literature still strongly debates the differences between the terms “catastrophe” and “disaster”, in particularly as to how they relate to human cultural evolution. The definition of “catastrophe” as an abrupt and violent event that results in the suffering or loss of life of humans is an uncommon interpretation. Social facets of a catastrophe such as shifts in political and societal coherence, the abandonment of regions and alteration in material cultures are sometimes considered controversial when used to analyse

the impacts of a catastrophe. Liritzis (2019:1308) reiterates the importance of this point: the everyday use of the word “catastrophe” is a loose description of an event with a negative impact, and the level of severity attributed to a catastrophe can increase when the trigger for such an event is unknown. A “catastrophe” such as a tsunami or earthquake is generally considered an abrupt event that typically occurs within minutes, not decades. Liritzis (2019:1308) argues that the events which lead to the conception of mythologies and biblical stories such as Noah’s flood, Gilgamesh, Atlantis and the collapse of the Minoan civilisation, could be the result of a sequence of interrelating events that occurred over the decades leading up to the demise of a region. This sequence of events could have included tsunamis and earthquakes, but may have also been affected by sea-level rise and delta progradation, possibly occurring simultaneously. It is important to note that the idea of natural events destroying societies and allowing for the creation of new eras of civilisations is an ancient conception that most likely predates our earliest forms of written mythological and historical accounts. Liritzis (2019:1308) explains that the pyramid texts of Egypt use the symbol of the Uroboros, the serpent eating its own tail to depict the lifespan of cultures always rising and falling in a cyclical nature, as an indication that the demise and eventual rebuild of civilisations is a natural part of human history that has sometimes been attributed to supernatural ignition.

The main aim of this 2019 article by Liritzis is to link cyclic environmental and social changes to environmental disasters that have contributed to the demise of civilisations. A correlation must be drawn between archaeological witness, historical and mythological accounts, geoarchaeological documentation, terrestrial and astronomical phenomena. Liritzis (2019:1309) states that beyond the mythology and religion there could be evidence of fact, provable beyond doubt by science that a natural event did occur which influenced cultural evolution to result in the information passed down to us today by our ancestors. Similarly,

Rapisarda (2019:258) in her article: Atlantis: A grain of truth behind the fiction? Chases the answers to the same question: Is there scientific evidence for events that inspired, or existed as the lived experience for those who passed down the stories of demise and cataclysm in our distant past that have stood the test of time and influenced numerous people across human history? Is it possible that there is a provable grain of truth that could provide more context to a human history that is often amnesic when remembering our ancient past and provide us with an insight to why so many cultures across the world believe that our origins began with disaster and rebirth?

Earthquakes are without a doubt responsible for the demise of several civilisations throughout human prehistory (Liritzas 2019:258). Plato describes three “disastrous floods which preceded the destructive deluge of Deucalion” in addition to the testimony of the sinking of Atlantis. On Atlantis, Liritzas (2019:258) explains that Plato’s account contains three pivotal discrepancies. The size, age and location of Atlantis does not allow for its existence in the Mediterranean and any attempts to find evidence to correct this problematic information has been unsuccessful. Geographers and historians of the ancient world including Thucydides, Herodotus, Strabo and Pausanias describe earthquake-related phenomena in their respective works, including the impacts of these events on human activities. In 426 BC, the Greek historian Thucydides dwelt on the nature of tsunamis, and credited them to being a result of seaquakes. The Roman soldier and historian, Ammianus Marcellinus was one of many ancient authors who documents a period of intense seismology, termed “seismic storms” which lasted between AD 350 and AD 365. This period contained earthquakes and tsunamis felt from Greece, to Egypt and Palestine. Interestingly, Liritzas (2019:1310) notes that the ancient authors were rarely interested in documenting the sequence of events which the cataclysm composed of, or its residual effects. Most often, the ancient authors were more concerned with discovering why the catastrophe had occurred and turned to religion and

mythology to do so. This offers a valuable insight into the priorities of these particular ancient authors living during this time, namely that obtaining the divine and scientific reasoning behind these events was more important than the event itself. This paints a picture of ancient people who were deeply philosophical in their approach towards disaster and courageous in applying known information to unknown problems (e.g. Thucydides conjecturing that earthquakes on land may also occur underwater and create tsunamis).

Liritzas (2019:1312) goes on to state that there have been hundreds of recorded flood stories throughout human history. When studying these stories archaeologically, it is necessary to investigate paleoenvironmental studies. The recording of ancient sedimentological flood records is vast and is aided by interdisciplinary work with palaeohydrology and archaeological dating records. The relationship between hydrological mechanisms, climatic change, geomorphologic evolution and civilisations is central to Liritzas article and is drawing the connections between archaeology, mythology and detectable ancient environmental change. Liritzas (2019:1312) suggests that the Mesopotamian and biblical flood myths such as Gilgamesh and Noah's flood originated when the rising sea of the Mediterranean broke through Turkey and inundated the Black Sea Basin, approximately 7,500 years before the present date. According to the author, debates continue as to whether this inundation as sudden or occurred over time, and suggests that the commonly accepted view is that the flooded areas were victim to gradual infilling and could be considered a non-catastrophic and progressive flood. It is likely that this infilling was a result of river flaws, an increase in temperatures and sea-level rise from ice melt (Liritzas 2019:1312). Research into seaquakes in the Mediterranean and Levantine coastline have highlighted the importance of flood-producing calderas which can generate tsunamis. The Minoan civilisation in the Mediterranean was famously destroyed by a tsunami caused by a caldera collapse (Liritzas 2019:1314).

Liritzas (2019:1317) points out that:

“Natural disasters may have initiated myths but science’s contribution beyond the myth is intriguing; thus, through geomythology to geoarchaeology, archaeology is reinvented.”

Natural disaster such as a tsunami can be a catalyst for a chain of other environmental and societal impacts such as the flooding of a coastline which causes systemic societal failure for the communities living in the area who may be affected by loss of labour, tools, equipment and communication. Interestingly, the loss of these aspects of a civilisation can result in the outcast of authority of legitimacy for the rulers of the affected civilisation, a scenario often interpreted by the public as an act of “divine punishment” (Liritzas 2019:1317). Further complications for the inhabitants of the flood affected region can include vulnerability to invasion from other civilisations, crop failure and disease from lagoons and stagnant water. All of these potential effects of the disaster can then culminate into societal collapse and the demise of a civilisation. Liritzas (2019:1317) terms this aftermath a “transition” or “survivor’s” phase, based on a disaster categorisation flowchart that will be covered later in this chapter.

Understanding how ancient humans perceived the concept of disaster involves evaluating disasters in both an ecological and a cultural sense. The frequency of recurrent catastrophic events can also be reduced into workable data and statistics. Liritzas (2019:1317) explains that one problem that archaeologists face when evaluating disasters further back in time is that they become more frequent and more mythological and religious stories appear discussing them. Arguably, the most common catastrophe reported in the Mediterranean and Levant are Floods and include three surviving Babylonian deluge epics of Ziusudra (*Eridu Genesis*), Utnapishtim (*Epic of Gilgamesh*), and Atrahasis (*Epic of Atrahasis*); the river flood

sediments in Shuruppak, Uruk; the Sumerian king list recension (Rowton, 1960); the Genesis flood narrative (Genesis 6:9–9:17), which still holds significance in Judaism, Christianity, and Islam; the respective deluges in *Deucalion* and *Pyrrha* recorded by Hesiod in *Works and Days* and the end of the “third age of the five races of mankind” which was ceased due to a great flood, as reported by the *Theogony of the Apollodorus’ Bibliotheca* (Liritzas 2019:1317). The natural disasters responsible for these mythological and biblical stories are evidenced in the archaeological record through corroborating historical sources. While accepting mythological accounts without question is ill-advised, Liritzas (2019:1317) states that many of these stories contain historical influential morals and ethical lessons, and beyond this may contain a kernel of truth about historical and geological events that may have actually happened, a sentiment echoed by Rapisarda (2019:258). Analysis of these myths to find semblances of truth must contend with millennia’s worth of mistakes, mistranslations and corruption of original texts, in addition to the ongoing debate as to whether or not an event actually occurred and how much if any artistic liberty has embellished the original story.

The archaeological assessment of evidence for and against mythological and biblical accounts is a field that is not often pursued today, and so far, no serious attempts have been made to analyse components of mythologies through a scientific lens (Liritzas 2019:1318). Liritzas (2019:1318) argues that beneath the belief systems of religion and mythology lies a multitude of religious conceptions which are paid more attention than the practical functions and environmental issues which are ignored, suppressed or symbolically interpreted by the ancient writers in recording these disaster narratives. As a result, archaeological investigation into the sea-level rise, flooding and destruction of civilisations which inspired famous accounts of humanity’s origins must be analysed with a multidisciplinary approach across palaeohydrological, environmental, anthropological, historical and mythological studies if the

social implications of these events and how they were recorded will see the light of scientific analysis.

Climactic and geological phenomena that accompany disasters have a direct influence in the theological and anthropological aspects of the civilisation affected (Liritzas 2019:1320). As a result, the author argues that the cataclysmic meaning behind the myths is a reflection of the local impact of such an event, and the consequences associated with it which would have impacted wider regions at a larger scale. To this end, because these flood myths were embedded in environmental reality for a larger portion of the population that those who were immediately affected, the myths became more akin to common knowledge than imagination. Using the available archaeological data as a baseline, it is possible to analyse whether historical facts were the catalysts for the flood-based mythologies and bible stories.

3.3 Liritzas' Model for Cultural Genesis

Geomythology is the study of the connections between mythology and the environment. Throughout human history and prehistory, mythologies have conveyed the mastery of humans over a variety of aspects of their lived experience. For example, humans gained mastery over water when they constructed dams, swamp drainage and coastal infrastructure and mastery over fire when they discovered ceramic, metallurgy and cooking. Mythologies also cover the technological progress of societies as humanity subjugated the elements and began a lust for wealth. Within the origin stories of this progress however, these great leaps in human capabilities and intelligence are almost always attributed to unknown conquerors, city-founders, explorers and leaders, who Liritzas (2019:1320) argues are a personification of

a common cultural substrate known as ‘heroes’ (e.g. Gilgamesh) among other names, for cultures across the globe.

The model for the genesis of a civilisation consists of overlapping climatic cycles and economic-social reasons to define major non-linear fluctuations in the stability of ancient civilisations. In detail, the model acts by examining how group A: a kingdom or city, engages with both group B: external societies and group C: environmental agents. Internal circle (A) consists of a population of settlers or immigrants who coexist within an organised society, which involves social unrest or revolt, pressures to produce enough food, religion, a hierarchal system of government, an explorative character and an economic system. External circle (B) consists of any population or group who acts either directly or indirectly with the society in Inner circle (A). Group C includes natural disasters such as tsunamis and flooding, climactic changes over time like sea-level rise and the geographical setting, and can be categorised as climatological, geological and astronomical (Liritzas 2019:1320). When analysing the effects of environmental threats to human societies, it should be noted that some regions are more prone to natural disasters than others due to the location on floodplains, small islands, coastal areas etc. Furthermore, it is also likely that some civilisations more than others will have imposed environmental modifications to their surrounds such as paving areas with roads and installing buildings will have created far-reaching environmental issues such as altering natural water courses and forested areas which may contribute to the extent of the after-effects of environmental disasters.

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Figure 8. The three interacting circles (Group A: Kingdom or city in question, B: Outside populations who interact directly or indirectly with Group A, and C: Environmental factors) that drive any cultural evolution (Liritzis, 2019:1320).

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Figure 9. An in depth look at Circle C, which consists of environmental factors classified into three causes or sources: climatic, geological, and astronomical (Liritzis, 2019:1321).

Within the phase of a particular culture, the path to cultural progress can be linear, but can also gradually become a local outburst, saturated enough by a complex interaction in fluctuations between the three circles (A, B and C), as to enter a threshold of the next phase of cultural progression. As a result of this fluctuation, a recurrent state is formed (Figure 10 below). The recurrent state is a cycle that occurs in the following stages: firstly, a natural disaster occurs which results in the sudden decline in a society's quality of life among other factors. This sudden decline results in the fragmentation of societies into smaller groups that may be separated due to severity of impact, location or otherwise. Following this fragmentation, new societal leaders, groups and projects emerge to rebuild their landscape in the face of this sudden adversity. This will in turn lead to cultural defragmentation. This phase includes the creation of new histories, myths and legends, consisting also of those which explain the sudden cataclysm and its effects. This is the phase of which this thesis will explore. From these new belief systems and readjusted perceptions of reality, a gradual reactivation of society is formed that incorporates these new ideas and viewpoints and will continue to homogenise and adapt until the next great cataclysm occurs, allowing for a repeat

of the recurrent state. The evolution of a homogenous population in this way is irreversible. During times of cultural equilibrium, for one defined homogeneous social group to transition into a new one as a result of interaction between all circles, it is necessary for this group to go through a transition period before entering this new phase. Cultural change in this way can be considered an open process as opposed to a closed one. In a closed process, only internal fluctuations within group A would result in any cultural changes. The influences from both circle B and C are constantly interchanging information with circle A, however, creating an osmosis between the groups that results in co-dependent cultural development.

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Figure 10. Trend of a cultural system toward a new state. A cultural starts out on a linear path, largely unaffected by any major influences. Outbreaks (either natural disasters or otherwise, see Figure 9 above), then cause populations to becoming saturated by this new disturbance until they reach such a point that their cultural system reaches a threshold where it has been so affected by the influences from circles B and C that it has no choice but to adapt (Liritzas 2019:1321).

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Figure 11. The recurrent state describes the cycle from natural disaster to the reactivation of civilization (Liritzas 2019:1321).

Environmental impacts on cultural evolution appears to follow a periodic or quasiperiodic nature. The components that give rise to a culture's specific identity and how they may interact with environmental disasters and changes are complex and present problems when trying to map these factors mathematically or philosophically. As aforementioned, when depicted as the three interrelated circles, networks are central to investigations into how cultures evolve, because they are dependent on one another, and ideas and beliefs can grow and gain traction through the sharing between groups. Liritzas (2019:1321) argues that disaster archaeology has an important role to play in understanding how environmental factors were strong enough to change the course of history. The search and interpretation of unknown disasters that have caused the fall of / or impact on great civilisations relies on interdisciplinary approaches. Liritzas (2109:1321) explains that natural disasters revealed in both archaeological records and historical sources, especially in relation to coastal sites, require further attention and archaeological investigation. Human cultural evolution is not a linear process, and relies upon the mutual interactions between different human groups and the environment. A complex-system approach is necessary to examine the collective result of nonlinear interactions, which will depict a series of successive transitional phases across a trajectory that will encompass the intricacies of human processes including the material, spiritual and environmental factors that create a culture. Revisiting the three interacting circles, multifactorial issues derived from this concentric system can then be analysed, For example, circle A will create issues derived from tensions within a society, circle B will offer further issues as a result of interactions and conflicts with neighbouring societies, and circle C will offer environmental and geological issues. Liritzas (2019:1322) goes on to explain that Atlantis, as well as other reported accounts, are prime examples of how the naturalistic methodology of a society can serve as a basis for a philosophy that then influences all other

societal aspects including art, science, technology and theological questions. In this way, intense environmental change has impacted humans in such a way that it has instigated mythological and ideological evolution. Investigating the unknown causes of these environmental events has led to the epics, heroes, ethics and mystical knowledge that have echoed down throughout human history until today. It is necessary for further academic work to decipher the myths concerning geological and environmental issues that were used by ancient civilisations to explain their reality (Liritzas 2019:1322).

The pyramid texts of Egypt provide a plethora of information on the cyclical nature of natural disasters and the rise and fall of human civilisations. Within these texts, there are references to volcanic, tsunamic and meteoric events and their effects on civilisations, flora, fauna and landscapes. Unsurprisingly, mythological deluges are also reported in the pyramid texts. Liritzas (2019:1323) interjects when describing the pyramid texts to say that “beyond the myth lies, among other issues of ethics and religion, a natural phenomenon”, echoing the identical view of Rapisarda (2019:270). Liritzas (2019:1323) continues to clarify their position by explaining that mythologies reflect geological or climatic events that caused serious consequences across a landscape. The legends attributed to these events are therefore embedded in a wider environmental reality as opposed to serving a purely imaginary function. The author goes on to say that while not all natural disasters destroyed the civilisations they came in contact with, many of them had much greater impacts on societies than archaeologists and historians may have originally considered. These environmental events led to alterations or complete replacements of human societies, ecosystems, environments, politics, technologies, geographies and cultural systems. The aftereffects of these events have left traceable marks on both the physical landscape and the human psyche. Archaeologically, these events are traced through cultural and ecological changes which are evident in archaeologically sequences, stratigraphies, the mythohistorical accounts of deluges

in particular, and data about past disasters and paleoenvironments. Disaster archaeology can analyse human societies' vulnerability or resilience to natural events and phenomena through risk assessments. A three pronged approach is offered by Liritzas (2019:1322), who advises calculating a societies' vulnerability or resilience to natural disasters by analysing the intensity of the hazard (e.g. scale of a tsunami), the amount of exposure to the hazard (e.g. directly affected flood plains, or a coastal town), and the vulnerability of the settlement (e.g. construction material, prevention warning response systems). From this information, the impact of the disaster on the society can be calculated and whether the event resulted in the civilisation's collapse can be determined.

Liritzas (2019:1323) concludes the article by reiterating that in order to better understand the relationship between human adaptive strategic and cultural responses to the cataclysms that appear throughout human history an interdisciplinary approach is essential. Environmental science, archaeometry, archaeology, historical, mythological, and ethnological research is necessary to gain a fuller picture of how these events affected human psychology in the forms of the mythologies and biblical stories that still survive today. Disaster archaeology aims to define the impacts and the dynamics of natural hazards that have influenced human cultural evolution and civilisation. To do this, the discipline analyses the types, frequencies and magnitudes of natural hazards that have impacted human societies in the past and then searches for the adaptation processes that were used by past human societies to live within the hostile and unfamiliar landscapes that occurred as a result of the disaster's fall-out, such as new shorelines and ecological upheaval. Floods in both riverine and coastal environments have occurred periodically throughout human history. For the humans living through these disastrous events, they would have experienced the ruin of established crops, damage to biodiversity, changes to hydrological cycles, desertification, the sinking or flattening of villages, not to mention the innumerable deaths of families and loved ones. Local disasters

would have played a direct hand in the success of some societies and the collapse of others, the cultural development of these societies in proportion to their impact by the cataclysm, the migration of its victims, and therefore the spread of ideas and experiences to others about the events that have now gained a strong foothold in myths and legends. Central to many if not most of these events include the idea that ethics played a role in the divine destruction of a society. Across all of these myths and disasters is a clear fundamental law: there is a correspondence principle between the micro- and macro systems—the environment, neighbouring groups and group in question influence each other consistently (Liritzas 2019:1323). As a result, the ancient artefacts and the socioculture depicted in the archaeological record reflects dynamic interactions between humanity and the environment, and further attempts to interpret the cultural evolution trajectory through the remains that survived must use tools created from an applied epistemology. Mythologies and legends describe destructive events that have emerged from the environmental impacts of terrestrial and astronomical origin that have recurred since the inception of humanity on Earth. Liritzas (2019:1324) reiterates again that underneath the grey areas of ethics and religion, myths contain a natural phenomenon, a truth that the story originated from. When analysing cultural evolution with an overview of archaeological terms, attention must be paid to the complex relationship between societies, neighbouring societies and the environment.

There are a very limited number of articles that deal with the intersection of disaster archaeology, biblical archaeology and social changes. Aside from Rapisarda (2019) and Liritzas et al's (2019) articles discussed in this chapter, no other articles exist that tackle this issue directly. While articles exist that discuss disaster archaeology, biblical archaeology and mythologies as separate topics, further studies need to occur to better understand the correlation between these disciplines.

4. Methodology

This project involved three main phases: archival research, data collection and analysis.

4.1 Archival research

Archival research into the previous studies on disaster and biblical archaeology, as well as cultural evolution consisted of collecting data from online academic journals, as well as investigation into online museum catalogues that contained relevant artefacts. The types of historical information found through both online academic journals and online museum catalogues included photographs, paintings and drawings of historical disasters, or interpretations of mythological disasters, oral histories from historians such as Plato and Thucydides. Archival research allowed the present research to be divided into three groups: disaster biblical archaeology, disaster mythology and the cultural genesis that accompanied the aftereffects of these disasters. Regardless of the origin of the disaster story (whether it be biblical or mythological), stories were analysed against the leading toolkit for analysing cultural genesis: Liritzas et al.'s Model for Cultural Genesis, found in an article titled: Disaster Geoarchaeology and Natural Cataclysms in World Cultural Evolution: An Overview. Liritzas et al.'s Model for Cultural Genesis was utilised to position the societies that were subjected to disasters through the mythological record and analyse them in relation to the model: for example, comparison in the three interacting circles, the trend of civilisations into a new state, and the cyclical nature of the recurrent state. Rapisarda's 2019 article titled: Atlantis: A grain of truth behind the fiction? provided a template for attempting to locate a site that may or may not exist based on a combination of archaeological, historical

and mythological information. Benjamin's 2010 revision of the Danish Model for locating submerged archaeological sites has also been used to investigate possibilities of locations for the places mentioned in historical and mythological traditions. The four phases of investigation include regional familiarisation, ethnographic component, map, chart and aerial imagery analysis. Due to the very limited number of articles on this topic, the approaches to analysing these oral histories and their potential sites aim to analyse these three frameworks. In this way these sites can be approached from the archaeological perspective of locating them using Benjamin et al.'s revised Danish Model. Ancient oral histories will be revised to pinpoint information using Rapisarda's article on Atlantis as an example. Liritzas et al.'s Model of Cultural Genesis, will then be implemented to tie together both the archaeological and cultural aspects of these accounts and offer scientific explanations for the impact of these disasters and how they've shaped the mythologies and theologies that they've been adopted into.

4.2 Data collection

Data collection from archival research included ancient historical accounts, biblical accounts, mythological traditions and archaeological evidence that supports the impact of these narratives on the population over time. Accounts included written testimonies from ancient authors like Plato and Thucydides, and chapters from the *Bible*, particularly Genesis.

Archaeological evidence included depictions of catastrophes including earthquakes and volcanic eruptions, with a focus on flooding and tsunami depictions. The depictions that were examined dated from ancient to modern times and demonstrated the on-going effects that these narratives had on humanity for generations after the real or perceived event. Data that

was extrapolated from these accounts and artefacts included the severity of event as recorded by the author or illustrator, the date of the depiction, and background information about the civilisation from which the author or illustrator belonged (e.g. in accordance with Liritzas et al.'s 2019 Model of Cultural Genesis, in order to determine how vulnerable or resilient a society may have been to a natural disaster).

Data was collected in an attempt to make suggestions about the location of archaeologically significant submerged sites in relation to flood narratives. Initially, locations were identified as being likely to contain submerged materials as a result of a collection of paleoenvironmental information and cultural material that was compiled from local terrestrial and submerged sites where possible (Wiseman et al.2021:152). The core methodology used for this thesis is the revised model of the Danish Model for international application by Benjamin (2010:358) as follows.

Phase I—Regional familiarization: The archaeology, geography, geology, geomorphology, oceanography, and hydrology for the countries of the North African coast was investigated. The limited amount of archaeological research in these countries, and in some cases the limited academic research, has led to the investigation of geological etc. studies that were later applied to archaeological interests. Geographic and topographic maps, nautical charts, sediment charts and other information was included where applicable. The prehistoric archaeological record is generally restricted to publications on the Mediterranean at large, or a focus on the northern and eastern shorelines, and this has been applied conservatively to the often-neglected North African coastline to make inferences where applicable.

Phase II—Ethnographic component: historical research, containing inferred cultural parallels was conducted on the North African coastline. Every country on this coast was impacted historically by Roman culture at some time, and this is clear from the historical record. In

Egypt, Pharaonic influence also becomes apparent when undertaking historical research. Cultural parallels can be drawn between the northern and southern Mediterranean coastlines, although it must be noted that the information database where these parallels are drawn from are overwhelmingly sourced from the northern Mediterranean coastlines.

Phase III—Map, chart and aerial imagery analysis, and location plotting. Maps, charts, and other sources of information for identifying unexplored areas that are likely to be archaeologically significant include: geographical maps, topographic maps, sediment cores, nautical charts, GIS maps, underwater and aerial photography, sea-level elevation charts, geologic maps, bathymetric maps, flood risk and erosion indexes, paleogeographic reconstructions before and after the Last Glacial Maximum, hydrological maps, and sea surface water circulation maps. Due to the lack of focus in specific areas across the North African coastline, most information accessed has been in a regional context across the Mediterranean (Benjamin 2010:358).

4.3 Analysis

The analysis of the data collected for the effects of natural disasters and climate change on human cultural evolution searched for the following trends: connections between archaeologically proven flood events and written histories describing the event, differences in severity between the archaeologically proven and written history description of the event, attributions to divine interventions and ethical issues mentioned in the narratives, evidence for cyclic repetitions of flood narratives in particular areas, and the evolution of these narratives over time, in particular, how they may have been embellished or adapted to suit their current audience.

4.4 Limitations

This research was limited by the fact that the written histories, historical and biblical accounts examined are most likely not the original scriptures that would have been available directly after the flood events. The re-writing of biblical texts in particular throughout history, may have impacted the information available in our currently known versions of the *Bible*, and as a result, this research can only be based on the forms of biblical scriptures that are available to us today. Another limitation of using ancient written accounts for data is that the personal biases and motives of the original authors cannot be ignored. Liritzas et al.'s (2019) Model of Cultural Genesis has been employed in this study specifically to analyse how natural disasters have been incorporated into narratives, and allows for the embellishment of some details. In this way, any exaggeration of events can be attributed to the recurrent cycle (Liritzas 2019:1322) and how the aftermath of natural disasters are reconstituted into the new belief systems of a recovering society. As a result of this, the embellishment of a flood narrative can be identified and explained within this framework, and any biases or motivations on the part of the authors of the ancient written histories, easily discussed.

In terms of archaeological evidence, archaeologists are limited by the fact that only some of the original structures, testimonials and artefacts survive. Furthermore, the limitations of modern technology have often been able to strongly suggest where flood events may have occurred, but are not necessarily able to pinpoint exactly how extensive these events were. As a result, archaeologists are limited as to what extent they can argue that flood events recorded by ancient authors were exaggerated. Furthermore, artefacts that date from more modern centuries and showcase how these narratives have impacted humanity over time, are also limiting in that they only represent the classes and societies that had the wealth available to them to be able to produce artworks and books that depicted their beliefs of these flood

events during their lifespan. In light of this, archaeologists must understand that these items may not depict the views of the general public, where there is a lack of tangible evidence for values within different class systems over time.

One of the most obvious limitations for a thesis attempting to argue the existence of these flood events exactly as portrayed by biblical and historical accounts would be the lack of any definitive evidence of their occurrence. While no such proof currently exists, this thesis works within this limitation by drawing on current scientific evidence and written histories for flood events not to prove the occurrence of these events as they have been popularly perceived, but to unravel how the ancient, historical, and current perception of these events has evolved over time. In this way, the relationship between natural disasters and human cultural genesis can be further investigated.

A general limitation in the amount of paleoenvironmental studies into flood events in prehistory and historical times also limits an accurate estimation of how frequent and intense flooding events were in some areas compared to others. For example, intense testing of flood events in the Mediterranean cannot be utilised to state that the Mediterranean has seen more flooding than other locales which have not received as much scientific attention. The unequal spread of research into prehistoric flooding across the globe cannot be used to skew the more intense flooding of one area over another.

A further limitation to this thesis is how much investigatory work has occurred on flood events related to biblical and historical written testimonies. A decline in interest in the discipline of biblical and mythological archaeology has made locating research on the relationship between archaeologically proven events and ancient written histories very limited. As of writing this thesis, only one academic article (Liritzas et al. 2019) has been located that discusses a direct link between proven flood events, the recording of biblical and

mythological narratives, and their impact on the belief systems of humanity throughout time. Further articles exist that examine whether the sites mentioned in historic and mythological accounts may have existed (e.g. Rapisarda 2019), but there is a lack of investigation into the ongoing social impact of these events and narratives on successive generations of humanity.

5. Results

5.1 The Atlantean flood

The original source documents to describe Atlantis are two of Plato's Socratic Dialogues: *Timaeus* and *Critias*, both written in 360 BC. These documents describe Atlantis as: in front of the Pillars of Hercules (Tim. III 24.e), on an island larger than Libya and Asia combined, part of a larger chain of islands, with a capital that was a small island, located within three concentric rings of land and sea (Crit. VIII 116.a). According to Plato, the Kingdom of Atlantis ruled from Thyrrenia (North of Greece) in Europe, to Libya and the border of Egypt (Tim. III 25.b). The main island of Atlantis consisted of a plain that was approximately 550 kilometres long and 350 kilometres wide, surrounded by northern mountains and a southern channel that emptied into the ocean (Crit. X 118.b). Atlantis is also said to have contained rivers, lakes, mountains and marshes, two harvests per year (Crit. X 118.e), elephants (Crit. VI 114.e) and exotic fruits (Crit. VI 115.b). Plato goes on to say that the state existed nine thousand years before his time (approximately 9,000 BC), and that the first king of Atlantis was Atlas, an ideal leader who followed commendable principles. When Atlantis rose up to conquer Egypt and Athens, however, the Athenians heroically resisted this oppression, and later, a violent earthquake and subsequent flood destroyed the entirety of Atlantis in just one day and one night (Crit. VI 114.b). Following the destruction of Atlantis, an impenetrable swamp lay where it originally stood (Tim. III 26.d, Rapisarda 2015:4).

When critically analysing Atlantis, Rapisarda (2015:5) explains that Plato was an aristocrat fond of philosophy, and that it is difficult to view the story creditably at face value due to a lack of traditional mythological references to the city-state's existence and demise. In

comparison to sites such as Troy and Mycenae, it is difficult to account for the lack of reference to the history of Atlantis, especially when it was supposedly involved in the attempted invasion of Egypt and Athens. Rapisarda (2015:5) states that the main purpose of Plato's telling of the story of Atlantis was to further political propaganda of an ideal city state, rather than to offer geographical information for identifying a lost city.

Interestingly, a quote referencing Atlantis exists even before the creation of Plato's dialogues. Herodotus, a philosopher writing in approximately 420 BC, mentions Atlantis in *The Histories* of Herodotus. Herodotus discusses the Atlanteans as a community living on Mount Atlas (Book IV, 184-185), near lake Tritonis (IV, 186), and stating that their name comes from the Atlas mountain range of North Africa. Importantly, the Atlanteans of *The Histories* of Herodotus did not contain the societal complexity described by Plato (Rapisarda 2015:8). Herodotus was responsible for naming the Atlantic Sea (now the Atlantic Ocean) after the Atlanteans mentioned in his histories. Aside from this mention by Herodotus, there are no earlier mentions of Atlantis prior to Plato's Dialogues. After Plato's dialogues, Atlantis goes on to be discussed further by other authors who 'mostly rework the philosopher text'. This reworking has been considered by Rapisarda (2015:6) to nullify any authenticity of these subsequent histories.

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Figure 12. Oxyrhynchus Papyri 16 depicts fragments of Book One of Herodotus' *Histories*, dating from the early 2nd century BC (Papyrology.ox.ac.uk 2022).

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Figure 13. The Oxyrhynchus Papyri, excavated as part of later nineteenth and early twentieth century archaeological expeditions in Oxyrhynchus, Egypt (Papyrology.ox.ac.uk 2022). The Oxyrhynchus Papyri archive is one of the oldest representations of Plato's dialogues, and, these papyri contain fragments of Plato's Republic.

Following Plato, the next ancient author to discuss Atlantis was Diodorus Siculus, who published the Library of History, also in the first century BC. According to Diodorus Siculus, Atlantis was the birthplace of the Gods and the tantalising innovation and new technologies they brought to men (Diodorus of Sicily 1935, Book III, 54, 1). No mention is made of Atlantis' conquest of Egypt, however, nor the tsunamic flood that Plato cites as having destroyed it. Rapisarda (2015:8) highlights this difference in interpretation and attributes it to the fact that unlike Plato, Diodorus Siculus did not have the same political ambitions and that dictated how he retold the story of Atlantis to his readers: a story more focused on origins and divine intervention, without political controversies. Diodorus Siculus corroborates with Plato and Herodotus by placing the Atlanteans between the Atlas Mountains and Lake Tritonis, concentrated in what was then the fertile Tunisian coast. Interestingly, Diodorus and Plato

both describe this location as strategically ideal to rule over Libya, Sicily and Italy (Rapisarda 2015:8).

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Figure 14. A circa 1472 version of Diodorus Siculus' *Library of Histories* (World History Encyclopedia (a) 2020).

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Figure 15. The places of the Atlanteans, according to Diodorus (Rapisarda 2015:20).

The proclamation of the existence of a race of people who brought superior technologies which then spread to other local groups is a suggestion that has been critically analysed by Rapisarda (2015:20). According to the author, there is a striking pattern in the dispersal of more advanced technologies and settlements from the north to the south of Egypt, a pattern that dates back eight thousand years before the present time and then abruptly stops.

Rapisarda (2015:20) argues that the reason the source of this wave of improving technologies has not been found is because the settlements from which it originated have been submerged due to sea-level rise. The author goes on to say that the potential for habitation of the now submerged North African coastline, and that for this area to be uninhabited pre-6,000 BC is highly unlikely, and would be going against a settlement trend in the area that persisted throughout millennia. Rapisarda (2015:20) claims that although there is an absence of archaeological findings in the unsearched seabeds of northern Egypt, this does not prove that this area was uninhabited during the time of Atlantis and that the current archaeological distribution of findings strongly suggests that this recently submerged area was inhabited at one point and was likely the origin for the dispersal of new technologies and settlements throughout the region. Rapisarda (2015:20) argues that the mythology packaged as Atlantis today may be telling a factual history about the spreading of revolutionary innovations from the Neolithic period, from an origin point that lies on the submerged seabed today. Although the factual civilisation behind Atlantis may be less fantastical and idealised than the one envisioned by Plato, it is likely that these submerged groups still carried considerable

sophisticated technologies for improving agriculture, building and social needs. The proof of the importance of these inventions lies in Rapisarda's (2015:20) evaluation of the dispersal of these technologies from north to south, which depicts the success of these inventions, leading to their eventual spread and adoptions by other groups.

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Figure 16. Location of archaeological sites in different periods of Egyptian prehistory; note that 8,500 Before Calendar Era (BC) corresponds to 10,500 BC (Rapisarda 2015:16).

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Figure 17. Location of archaeological sites in different periods of Egyptian prehistory (Rapisarda 2015:17).

The global warming that accompanied the Bølling-Allerød period dating from approximately 15,000 to 13,000 BC, impacted human civilisations in the Mediterranean in several ways. Improvements in seafaring, agriculture and permanent settlements, to name a few, were some of the sectors in human development which adapted to the sea-level rise that accompanied this period. It is likely that the heat and rise in sea-levels instigated this push in cultural revolution (Rapisarda 2015:23). When determining if sea-level rose at the time of Atlantis' proposed submergence, Rapisarda (2015:25) argues that the presence of isotopes O16 and O18 in ice samples that were collected from cores drilled in the Antarctic ice sheet confirm that there was a global increase in sea-levels, and a global warming event during this period of time. In addition to depicting differences in temperatures throughout history, these ice cores were also able to offer information about sea-level fluctuations. The larger amount of water in older continental glaciers compared to younger ones is also indicative of water that was missing from the sea, and therefore the sea-level was lower than it is today. At the glacial maximum, sea-levels were 120 metres lower than they are today. Rapisarda (2015:28) argues that therefore the coastline during the proposed time of Atlantis, and throughout history in general, was not the same coastline as it is today. With more exposed shorelines, Rapisarda (2015:28) argues that they were likely to be inhabited due to a general tendency for humans to dwell near or on water sources. A rise in sea-levels would have had a flow-on effect for

those living further inland, with the author asserting that this had been a major cause of conflicts, migrations and aggregations among human populations throughout history.

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Figure 18. Sea-level rise from the Last Glacial Maximum to today (Rapisarda 2015: 25).

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Figure 19. The climate of the Mediterranean basin before MWP 1a (Rapisarda 2015:28).

Following Meltwater Pulse 1A which occurred from 14,700 to 13,500 BC, North Africa entered a period called the African Humid Period, where the Atlas mountain range became filled with forests, the Sahara desert was moist with prairies and savannahs and populated by animals such as Elephants and lions. According to Rapisarda (2015:28), the coastline that was available then but is now submerged would have been habitable, until sea-levels began to rise and people had to move quickly to abandon a radically changing topography that would have seen their civilisations, especially if they were inhabiting small islands, submerged completely. The effects of Meltwater Pulse 1A would have forced survivors of the

catastrophic flood to abandon their old methods of procuring food. Meltwater Pulse 1A lasted for about 1,500 years, during which local tribes adapted to changes in climate. The reinstating of the cold by the Younger Dryas 13,000 years ago, and the subsequent sudden global warming cataclysm of Meltwater Pulse 1B approximately 11,500 years ago caused groups to adapt repeatedly to fluctuating temperatures that consistently ranged from warmer to cooler, and the sea-level fluctuated with these changes. Rapisarda (2015:36) argues that Meltwater Pulse 1B coincides with the sinking of Atlantis. The author further states that Meltwater Pulse 1A appeared to have resulted in a flood of new innovations and technologies from the Middle East, and there is evidenced for great cultural advancement during this time in other areas such as China and India as well. The author states that it was the second global warming of Meltwater Pulse 1B that had two impacts of humanity. Firstly, the event appears to have resulted in an 'evolutionary leap' in technology and innovations, and secondly, it appears to have wiped out all evidence of the creation of these innovations and the societies who created them. The author goes on to explain that it is likely for several sunken civilizations to be located throughout the Mediterranean, although few will qualify for the criteria to be ordained Plato's Atlantis.

While it is unlikely that archaeologists will ever find evidence for an Atlantis that perfectly resembles Plato's imagery, the question remains to what extent technological advanced civilisations from before Meltwater Pulse 1B may have influenced his story. Rapisarda (2015:51) argues that the coincidence of climatic upheavals and technological revolutions that date to the time of Atlantis' reported submergence, authorises the suspicion that some aspects of Plato's legend may be rooted in a deeper historical truth. The author makes the connection that the areas of the earth that were subjected to the most dramatic sea-level rise catastrophes, were also those that birthed Earth's oldest civilisations.

5.2 The Genesis flood

The biblical flood of Genesis is a narrative that has been retold for new audiences many times. According to Liritzas (2019:1317), the core retellings of these stories always contain a thread of divine or natural retribution, or discuss matters of an ethical nature. The earliest recorded scripture that appears to connect with the Genesis Flood narrative are the three surviving Babylonian deluge epics of Ziusudra: Eridu Genesis (circa 16, 000 BC), Utnapishtim (*Epic of Gilgamesh*, circa 21, 000 BC) and Atrahasis (*Epic of Atrahasis*, circa 18, 500 BC), the Sumerian Kings List (circa 2125 BC), the Genesis flood narrative (circa 1450 BC), and deluges in Hesiod's *Works and Days* (circa 700 BC) (Liritzas 2019:1317).

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Figure 20. The Gilgamesh Tablet / The Flood Tablet, dating from circa 21, 000 BC (The British Museum 2022).

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Figure 21. The Atrahasis Tablet III Tablet, dating from approximately 18, 500 BC (World History Encyclopaedia 2020(b)).

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Figure 22. The Sumerian King's List, dating from approximately 2125 BC (Joy of Museums 2022).

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Figure 23. The Genesis Apocryphon, found as a part of the Dead Sea Scrolls, dating to the last 1st Century BC (Israel Museum, Jerusalem 2018).

The story of the biblical deluge has been connected by archaeologists to the Black Sea and the Mediterranean. Pre-Mesopotamian origin stories have been linked to the Pontic basin.

There is an inherent difficulty in deciding where to search for evidence of a flood that is described as global, but these two areas have been the focus for this search. The high level of significance attributed to this flood narrative in Judeo-Christian tradition has led to the creation of several scenario proposals for how the Black Sea was flooded. The two current Great Flood scenarios for the Black Sea include an Early Holocene event triggered by catastrophic Mediterranean inflow circa 7.2 ky BC and a Late Pleistocene event beginning with Caspian inflow at around 13 ky BC. Both of these hypotheses claim that massive inundation of the Black Sea basin created large-scale environmental changes and impacted prehistoric human societies in the areas surrounding the Black Sea. Both theories suggest that these flood events were responsible for the biblical Great Flood legend.

According to (Yanko-Hombach et al. 2007:91), geological and paleontological data has found that the aforementioned Late Pleistocene inundation was intense and substantial, while the Early Holocene sea-level rise event was not. The authors argue that from 16 to 13 ky BC, the Late Neoneuxinian lake that existed in the Pontic basin before the Black Sea, increased from 14 to 50 metres below current sea-levels at a rapid pace and then gradually rose to 20 metres circa 11 ky BC. During the Younger Dryas, the lake's levels dropped again to 50m. Eventually the Black Sea reconnected with the Sea of Marmara at approximately 9.5 ky BC and the inflow of water from the Mediterranean that resulted raised both the water level and the salinity of the lake during this period. According to (Yanko-Hombach et al. 2007:91), there is no evidence for any catastrophic flooding of the Black Sea in the Early Holocene, and archaeological and paleoenvironmental evidence from the region during this period also indicate no discernible changes in population dynamics that could be attributed to a cataclysmic flooding event. Furthermore, archaeological studies for the Mesolithic and early Neolithic periods in south-eastern Europe and Ukraine do not indicate any dramatic shifts in human behaviour that could be attributed to a major flooding event.

The Early Holocene Flood scenario, as explained by (Yanko-Hombach et al. 2007:13), argues that a freshwater Neoeuxinian lake existed in the Pontic basin between 14.7 and 10 ky BC. The surface of this lake had over time been drawn down to 140 metres below current sea-levels. At 7.2 ky BC, the rising postglacial world ocean caused the saline Mediterranean to break through a barrier within the narrow Bosphorous channel. As a result of this, the Neoeuxinian lake rapidly filled with saline water, in a cataclysmic event that supposedly submerged over 100,000 km² of shelf that was previously exposed, and arguably, inhabited. The authors explain that The Early Holocene Flood Scenario declares that the breaching of the Mediterranean into the Pontic basin resulted in the flooding of coastal farms, evacuation of early Neolithic foragers and farmers, and mass migration into inland Europe. This forced immigration which supposedly resulted in the communication of new methods of agriculture, as well as the memory of the deluge, which became the historical basis for the biblical story of *Noah's Ark*. Yanko-Hombach et al. (2007:94) draw the conclusion that no definitive archaeological evidence has been found to account for the dramatic cultural changes that would expected of populations that have suffered from a major flooding event.

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Figure 24. The Ponto-Caspian Great Flood basins (Yanko-Hombach et al. 2007:93).

In a 2007 study, (Yanko-Hombach et al. 2007:107) suggest that during the Lowest Glacial Maximum, the Black Sea was a semi-fresh to brackish lake of Neoeuxinian age that retained a surface level of 100 metres below present sea-level. At that time, the Black Sea was separated from the Caspian Sea and Sea of Marmara, until the warming climate of 17 ky BC. This global warming led to unprecedented levels of water discharge from the melting of the Scandinavian ice sheet, river megafloods, and permafrost melting from the Caspian Sea conducted through the Manych Spillway. As a result of this, the surface of the Black Sea rose from 100 to 20 metres below present sea-level. This channel created between the Black Sea and the Mediterranean allowed for excess discharge to cap the maximum level of the Black Sea. From 9.8 ky BC onwards. In a 2007 study, (Yanko-Hombach et al. 2007:107) state that the Black Sea fluctuated no more than 20 metres and was ultimately transformed into a semi-marine basin that was 'neither rapid, nor gradual, nor catastrophic'. The authors argue that this change occurred as a result of an oscillating connection with the Mediterranean, which allowed marine organisms to make their way into the Black Sea at around 9.8ky BC, much earlier than the occurrence of The Early Holocene Flood scenario. The authors also suggest that the initial inflow of water into the Pontic Basin may have been from a northern route, through Izmit Bay, Sapanca Lake and the Sakarya River.

Yanko-Hombach et al.'s (2014:116) investigation into the geological material recovered from the shelf areas of the Black Sea have led the authors to four conclusions. Firstly, the level of the Neoeuxinian lake prior to the Early Holocene Mediterranean transgression was only 40 metres below current sea-level, not 100 metres or more, as suggested by supporters of the catastrophic flooding event hypothesis that occurred as a result of influx from the Mediterranean. Secondly, Microfossil data from multiple shelf sites has indicated that the lake was mostly brackish prior to the Mediterranean transgression. Thirdly, the outer shelf of the Black Sea was submerged by 8.9 ka BC due to the Mediterranean transgression. Finally,

sedimentological characteristics and microfossil salinity have confirmed that the marine transgression of the Early Holocene was gradual and progressive.

The water level of the Black Sea rose gradually in an oscillating matter over the last 10,000 years to reach it's present level, but never at a rate of as much as 15 centimetres in a day as postulated by the Early Holocene Flood hypothesis. Yanko-Hombach et al. (2007:107) suggests that the average rate of increase for the Black Sea over the last 10,00 years would have been no more than 3 centimetres per 100 years, a rise in sea-level that would not have been noticed by people residing of the shores of the Black Sea, and which would not have prompted them to immigrate further inland to Europe. The authors contradict the suggestions made by other authors on this topic such as Ryan et al. (2003), who suggest that a flooding event resulted in an intensive inland migration of cultural groups from the Pontic Lowland between 8.4 and 7.2 ky BC. Discarding the Early Holocene Flood hypothesis, Yanko-Hombach et al. (2007:107) suggest that a Late Pleistocene Flood scenario has a higher likelihood for being the flood event immortalised in myth and theology, conclusive evidence is still needed to finalise the effects that this event had on the cultural groups subject to its effects. In conclusion, Yanko-Hombach et al. (2007:107) state that without compelling new information, the Early Holocene Black Sea flood can only be considered a modern legend. The authors state that this area needs to be reinvestigated with a focus on it's tangible historical values and that any unsupported assertions that the Black Sea was in any way a part of Noah's Flood are unsupported with our present level of understanding.

In contrast to the conclusions of Yanko-Hombach et al. (2007 & 2014), Liviu et al. (2009:5) argue that a rapid increase in sea-level in the Black Sea must have occurred in the Early Holocene to account for evidence found of extensive flooding in lobes of the Danube. The counter argument posed by Liviu (2009:5) states that during the Early Holocene (9,800 to 9,500 years BC), and immediately before the Black Sea reconnection to the ocean (9,400

BC), the Danube was building a ramp delta lobe that requires the contemporaneous level of the isolated Black Sea to be above 40 metres below sea-level. The author states that from investigation into the morphology of the lacustrine-marine contact and stratigraphic reconstructions, the Black Sea's surface must have been at least 30 meters below present sea-levels. Furthermore, the vertical range of values for modelled sea-levels in the Sea of Marmara and eustatic sea-level curves cannot overrule that sea-level at the Bosphorus channel was likely more than 30 metres below present levels. As a result, Liviu (2009:5) argues that a reconnection between the Bosphorus Channel and the Black Sea would have resulted in an abrupt rise in the Black Sea's surface level. The author goes on to suggest that a rapid flooding event would also allow for a significantly smaller gap between the equalizing level and contemporaneous level of the Black Sea than is supposed with the non-rapid flooding hypotheses. The author goes on to state that even minor flooding events in the Black Sea should have left sedimentological marks in the surrounding effected waterways. As an example, the authors suggest the drowning of the Early Holocene Danube delta to indicate reconnection of the Black Sea to the Bosphorus Channel. Liviu (2009:5) concludes that the transgression that led to Early Holocene flooding in the Black Sea may have been rapid, and that this fact, if proven definitively, would support known evidence of flooding in the early deltas of the Danube which suggests in itself that a rapid flooding event in the Black Sea did occur.

Supportive of the possibility for Early Holocene flooding is an article by Ryan et al. (2003:549). The authors state that evidence for catastrophic saltwater flooding in the Black Sea at 8.4 ky BC is compelling, but not altogether irrefutable. Notably, the authors task future researchers to penetrate the upper subaerial surface of the lake and to use the inferred dunes and beach deposits to reveal ages that place them below the level of the global ocean at their time of formation. Ryan et al. (2003:549) suggests that Black Sea transgressions were likely

influenced by fluctuations in climate. The authors suggest that prior to connection with the Mediterranean via the Bosphorus Channel, the Black Sea behaved like its neighbour the Caspian Sea, in that sea-levels reached highstand outflow in cold periods and lowstand in warm periods due to evaporation. Following reconnection with the Mediterranean, the authors suggest that the unconformities found extend well beyond the shelf break and the deep excavation of shelf valleys suggest that at least some of the Black Sea regressions in the earlier Quaternary were of a substantially greater amplitude than those seen in the postglacial period.

Ryan et al (2003:549) state that the Black Sea witnessed a minimum of eight marine flooding events over the past three million years, although it is impossible to ascertain that all of these events were equal to that supposedly catastrophic flooding event during the Holocene. The authors suggest that shallow boreholes located in the nearby Kerch-Taman region depict a landscape where marine deposits directly cover terrestrial soils. These soils have not been washed away by wave-like actions as expected of typical marine transgressions and is more akin to a rapid transfer of water and soils all at once. Ryan et al. (2003:549) concurs with Liviu et al (2009:5) by asking: If there is evidence for rapid flooding in areas directly downstream of the Black Sea, is it unreasonable to suggest that the Black Sea itself may have been subject to rapid flooding in accordance with the proven effects of this deluge further downstream?

The collected results for the oral and written histories of Atlantis and Noah's Flood have provided this thesis with ample evidence to objectively assess the origins of these stories and how they have changed over time, based on our current level of information. The helpful geographical information passed on by Plato concerning Atlantis has allowed authors such as Rapisarda (2015) to suggest potential origins for and location of the sunken city in detail. The general context of Noah's Flood as world-encompassing has made it more difficult to be

researched. The detailed investigation into the Black Sea and the Mediterranean by authors such as Yanko-Hombach et al. (2007) and Ryan et al. (2003), allow for greater interpretations and analysis of the biblical narrative than ever before.

6. Discussion

6.1 The flood story in Genesis

The Genesis flood story can be traced from its earliest form in The Sumerian King's List through to the book of Genesis in the *Bible*. The five testimonies of the Genesis flood story that follow have been analysed in terms of their similarities to archaeologically investigated phenomenon in terms of differences in severities and locations where applicable and their link to divine interventions and ethical issues across all five stories. The cyclic repetition of story elements and the adaptations of stories over time are then analysed as an overview. These results are then analysed against Liritzas' Model of Cultural Genesis (2019:1321) to determine any conclusions that can be drawn.

6.1.1 The Sumerian King's List

The Sumerian King's List is the oldest known origin story of the Genesis flood story. Reading the Sumerian King's List, it is stated that the origin of kingship descended from Heaven. Then, years are given for the reigns of Kings over their respective areas, with reigns lasting between 18,600 and 241,200 years. The Sumerian King's List (Livius.org 2020(a)) states:

“Then the flood swept over.

After the flood had swept over, and the kingship had descended from heaven, the kingship was in Kic. In Kic, Jucur became king; he ruled for 1200 years”.

This testimony does not offer much information to go on in terms of the connections between proven flood events in the area and this recollection. It also does not describe the severity of the event, or link the flood to any forms of divine retribution or ethical issues. The Sumerian King's list suggests only that there was a flooding event in a very distant past. An exact date for this flood based on the evidence presented in the Sumerian King's List is uncertain due to the lengths of reigns by different kings lasting in totals of hundreds of thousands of years. It can be supposed by taking the King's List at face value that the flood event that was reported occurred hundreds of thousands of years ago, an event that is nearly impossible to attempt to locate archaeologically. Assuming that the region affected by the flood was Mesopotamia, there is an unlimited number of large- and small-scale floods that have occurred in this area over the last hundreds of thousands of years, and thus far there is no archaeological evidence to confirm or deny this event in deep human prehistory. It is arguable, however, that one of the main contributions of the Sumerian King's List to this argument is its generation as a catalyst for the initial flood narrative which would be re-interpreted in the future.

6.1.2 Eridu Genesis tablet

The Eridu Genesis Tablet sees the first embellishment of the flood narrative to include elements of divine retribution. The lack of an exact time for the flood in the Eridu Genesis Tablet, and the only suggestions given to the area impacted being 'the country', it is difficult to ascertain archaeologically where and when this flood event may have occurred. While the ability to confirm this version of the flood event is still beyond current archaeological means, one connection can be drawn between the Sumerian King's List and the Eridu Genesis

Tablet: a flood occurred. The only element of the story that remains when comparing the two is the occurrence of the event, with the location and date still ambiguous.

The Eridu Genesis Tablet is the first depiction of divine retribution in relation to a flood narrative, and also offers a first glimpse at the severity attributed to the event. Divine retribution is evident in the Eridu Genesis Tablet (Livius.org 2020(b)) within the following lines:

“By our hand a flood will sweep over... the decision, that mankind is to be destroyed, has been made, a verdict, a command by the assembly, cannot be revoked, an order of An and Enlil is not known ever to have been countermanded, their kingship, their term, has been uprooted they must bethink themselves (of that)...”

The severity of the flood event is captured for the first time in human history in the following lines:

“the Flood was sweeping... for seven days and seven nights. After the flood had swept over the country, after the evil wind had tossed the big boat about on the great waters, the sun came out spreading light over heaven and earth.”

Importantly, the Eridu Genesis Tablet also details how the ‘Noah’ of the story, in this case named Ziusudra, was advised to build a boat and take several of many different types of animals with him. After the flood, the tablet states:

“He will disembark the small animals that come up from the earth!”

Several important storylines can be deduced from the Eridu Genesis Tablet. Namely, this is the first time that the flood narrative is now severe enough to last for a week and strong enough to toss a boat around on waves. The divine intervention, that the event is now attributed to ‘the assembly’ has been introduced for the first time. The repetition of a known

flood event from the Sumerian King's List has now adapted to include severity, divine intervention, and elements that would remain with this story into the future, including a man being warned of the flood event in advance, to build a boat and to take several of each animal with him onto the boat. The initial statement of the flood event in the Sumerian King's List now has a story surrounding it, if it indeed refers to the same flood.

6.1.3 The Epic of Gilgamesh

The *Epic of Gilgamesh* again leaves little information for determining when the flood event occurred. The epic's hero, Gilgamesh, is mentioned in relation to the timing of the flood in the following way (Ancient Texts.org 2001):

“He saw the Secret, discovered the Hidden,

He brought information of (the time) before the Flood.”

“It was he who reached by his own sheer strength Utanapishtim, the Faraway,

who restored the sanctuaries (or: cities) that the Flood had destroyed”

Once again, such an ambiguous reference to the flood event makes it impossible to determine the when and where to begin searching archaeologically. The severity of the event is echoed from the Eridu Genesis Tablet, this time described in the following way:

“Just as dawn began to glow there arose from the horizon a black cloud.

Adad rumbled inside of it, Blowing fast, submerging the mountain in water

The gods were frightened by the Flood, and retreated, ascending to the heaven of Anu.”

“[It lasted for] Six days and seven nights”

The *Epic of Gilgamesh* continues with the theme of divine retribution from the gods, as follows:

“The hearts of the Great Gods moved them (the other gods) to inflict the Flood.”

Furthermore, the epic goes on to describe the goddess Ishtar speaking:

“How could I say evil things in the Assembly of the Gods,
Ordering a catastrophe to destroy my people!!”

It appears that this passage both reinforces the element of divine retribution when it refers to the catastrophe being ordered, but it is possible that this is also the first evidence for issues of ethics being introduced into the string of flood narratives by the *Epic of Gilgamesh*. Ishtar’s description of ordering a catastrophe as saying ‘evil things’, may be the primitive introduction of ethical actions within this series of narratives, which would go on to later form the ethical debates that we see in Noah’s flood, later in the *Bible*. *The Epic of Gilgamesh* repeats the occurrence of the flood, its severity and the divine retribution located partly in the *Sumerian King’s List* and *Eridu Genesis Tablet*. It may also offer the first instance of ethics in these narratives. *The Epic of Gilgamesh* has embellished the story elements of a hero (this time Gilgamesh), being ordered to build a boat and how to build it in the following lines:

“Tear down the house and build a boat!

Abandon wealth and seek living beings!

Spurn possessions and keep alive living beings!

Make all living beings go up into the boat.

The boat which you are to build,

Its dimensions must measure equal to each other:

Its length must correspond to its width.

Roof it over like the Apsu.”

“It was a field in area, its walls were each 10 times 12 cubits in height,

the sides of its top were of equal length, 10 times 12 cubits each.

I laid out its (interior) structure and drew a picture of it (?).

I provided it with six decks, thus dividing it into seven (levels).

The inside of it I divided into nine (compartments).

I drove plugs (to keep out) water in its middle part.

I saw to the punting poles and laid in what was necessary.

Three times 3, 600 (units) of raw bitumen I poured into the bitumen kiln,

Three times 3, 600 (units of) pitch...into it,”

A final addition to this version of the flood narrative that would remain a staple in the story going forward is the actions of the hero releasing a bird (in this instance, a dove), at the end of the flood to check if dry land could be found. In the *Epic of Gilgamesh*, this is written as:

“I sent forth a dove and released it. The dove went off, but came back to me;”

The *Epic of Gilgamesh* recurs the themes of the flood, its severity and divine retribution. It also adds several elements to the story that will remain in future retellings, including the ordering of the hero to build a boat, instructions for building the boat, the releasing of the dove, and the potential introduction of ethics into the story. The *Epic of Gilgamesh* is a mid-point for the flood narrative story that accounts for all of the previous information given about the flood thus far and offers the foundations for where the flood narrative will branch off into the future as the story of *Noah's Ark* that we know today.

6.1.4 Epic of Atrahasis

The *Epic of Atrahasis'* discussion of the flood event is short, and confirms much of the information gathered from the previous retellings, including that the flood occurred, it was severe (a “catastrophe”) and that it was divinely created (Livius.org 2007):

“You must ... and [create a flood] .”

“... the Flood [came out (?)] ... The Flood roared like a bull, ...”

“What was Anu's intention as decision-maker?

It was his command that the gods his sons

obeyed,

He who did not deliberate, but sent the Flood,

He who gathered the people to catastrophe”

An interesting addition from the *Epic of Atrahasis* is the line:

“I shall sing of the Flood to all people:

Listen!”

In Liritzas' Model of Cultural Genesis (2019:1321), a key step of a civilisation that is rehabilitating itself after a catastrophe is cultural defragmentation, which encourages the formation of new histories, myths and legends. The addition of this line in the *Epic of Atrahasis* depicts the intention to spread and share the story of the flood with their neighbours. According to Liritzas' Model of Cultural Genesis (2019:1321), the influence of catastrophes and resultant memories of such events is spread and heavily influenced by sharing narratives with the 'External Circle', or, neighbouring groups. It is likely that if the desire to share this narrative with all people was successful, it may have become engrained in the general populace's memory as a historical event with mythological interpretations.

6.1.5 The *Bible*: Genesis chapters 6–8

The *Bible* offers the most detailed and matured retelling of the flood event to date. As the flood event narrative that most people are familiar with, all of the previous mentions of the flood event have been collectively termed as relating to 'The Genesis Flood'. The Genesis recollection of the flood event recalls its severity in Chapter 7, verse 20 (Bible.com 2010), where it states that:

“20 Fifteen cubits upward did the waters prevail; and the mountains were covered.”

This is the most descriptive line that researchers have about the severity of the flood event. The level of flooding suggested in verse 20 does suggest continuity with the previous attestations of the *Eridu Genesis Tablet* and the *Epic of Gilgamesh* that this was a catastrophe level event. Genesis Chapter 7 also offers information about when the flood occurred, how long it lasted, and how severe it was in the following lines (Bible.com 2010):

“11 In the six hundredth year of Noah's life, in the second month, the seventeenth day of the month, the same day were all the fountains of the great deep broken up, and the windows of heaven were opened.

12 And the rain was upon the earth forty days and forty nights.”

“24 And the waters prevailed upon the earth a hundred and fifty days.”

Genesis Chapter 8 offers further information about where the Ark rested in line 4 (Bible.com 2010):

“4 And the ark rested in the seventh month, on the seventeenth day of the month, upon the mountains of Ar'arat.”

The date of creation described in the *Bible* has been estimated to be around 4,004 BC. According to the dates given in Genesis, the flood began 4,359 years ago in 2,348 BC. Following this date, the flood continued for 40 days, and the excess water resulting from the flood lasted for approximately 150 days. The location of the Ark on the mountains of Ar'arat has also been instrumental in placing the search for the flood around the Black Sea. From this information, archaeologists have searched the Black Sea for evidence of flooding that could concur with the *Bible's* given dates for the event. The availability of this information has allowed for archaeological investigation into the Genesis Flood event with contentious results.

According to (Yanko-Hombach et al. 2007:91), there is no evidence for any catastrophic flooding of the Black Sea in the Early Holocene, and archaeological and paleoenvironmental evidence from the region during this period also indicate no discernible changes in population dynamics that could be attributed to a cataclysmic flooding event. In a 2007 study, (Yanko-Hombach et al. 2007:107) state that the Black Sea fluctuated no more than 20 metres and was ultimately transformed into a semi-marine basin that was ‘neither rapid, nor gradual, nor

catastrophic'. Yanko-Hombach et al. (2007:107) state that without compelling new information, the Early Holocene Black Sea flood can only be considered a modern legend. The authors state that this area needs to be reinvestigated with a focus on its tangible historical values and that any unsupported assertions that the Black Sea was in any way a part of Noah's Flood are unsupported with our present level of understanding.

In contrast to the conclusions of Yanko-Hombach et al. (2007 & 2014), Liviu et al. (2009:5) argue that a rapid increase in sea-level in the Black Sea must have occurred in the Early Holocene to account for evidence found of extensive flooding in lobes of the Danube. The counter argument posed by Liviu (2009:5) states that during the Early Holocene (9,800 to 9,500 years BC, and immediately before the Black Sea reconnection to the ocean (9,400 BC), the Danube was building a ramp delta lobe that requires the contemporaneous level of the isolated Black Sea to be above 40 metres below sea-level. Ryan et al. (2003:549) state that the Black Sea witnessed a minimum of eight marine flooding events over the past three million years, although it is impossible to ascertain that all of these events were equal to that supposedly catastrophic flooding event during the Holocene.

Divine intervention and ethical issues are highlighted and brought into the forefront with the following lines from Genesis Chapter 6 (Bible.com 2010):

“12 And God looked upon the earth, and, behold, it was corrupt; for all flesh had corrupted his way upon the earth.

13 And God said unto Noah, The end of all flesh is come before me; for the earth is filled with violence through them; and, behold, I will destroy them with the earth.”

Genesis Chapter 6 (Bible.com 2010) also cycles back to the Eridu Genesis Tablet when describing the divine intervention of God and his instructions about building the ark, as well as the types of animals which he should take with him:

“14 Make thee an ark of gopher wood; rooms shalt thou make in the ark, and shalt pitch it within and without with pitch.

15 And this *is the fashion* which thou shalt make it *of*: The length of the ark *shall be* three hundred cubits, the breadth of it fifty cubits, and the height of it thirty cubits.

16 A window shalt thou make to the ark, and in a cubit shalt thou finish it above; and the door of the ark shalt thou set in the side thereof; *with* lower, second, and third *stories* shalt thou make it.

17 And, behold, I, even I, do bring a flood of waters upon the earth, to destroy all flesh, wherein *is* the breath of life, from under heaven; *and* every thing that *is* in the earth shall die.

18 But with thee will I establish my covenant; and thou shalt come into the ark, thou, and thy sons, and thy wife, and thy sons' wives with thee.

19 And of every living thing of all flesh, two of every *sort* shalt thou bring into the ark, to keep *them* alive with thee; they shall be male and female.

20 Of fowls after their kind, and of cattle after their kind, of every creeping thing of the earth after his kind; two of every *sort* shall come unto thee, to keep *them* alive.

21 And take thou unto thee of all food that is eaten, and thou shalt gather *it* to thee; and it shall be for food for thee, and for them.

22 Thus did Noah according to all that God commanded him, so did he.”

In addition, this chapter recycles the narrative element from the Epic of Gilgamesh of the bird being released from the ark to search for solid ground in the following lines (Bible.com 2010):

“6 And it came to pass at the end of forty days, that Noah opened the window of the ark which he had made:

7 and he sent forth a raven, which went forth to and fro, until the waters were dried up from off the earth.

8 Also he sent forth a dove from him, to see if the waters were abated from off the face of the ground.

9 But the dove found no rest for the sole of her foot, and she returned unto him into the ark; for the waters *were* on the face of the whole earth. Then he put forth his hand, and took her, and pulled her in unto him into the ark.

10 And he stayed yet other seven days; and again he sent forth the dove out of the ark.

11 And the dove came in to him in the evening, and, lo, in her mouth *was* an olive leaf plucked off: so Noah knew that the waters were abated from off the earth.

12 And he stayed yet other seven days, and sent forth the dove, which returned not again unto him any more.”

The cyclic repetition of the divine retribution, ethical issues and repeating narrative elements such as the flood warning, the instructions given for building the ark, the loading of animals into the ark by number and the releasing of the dove depict continuity between this range of flood narratives from the Sumerian King’s List to Genesis. The information presented in Genesis about the time, duration and location of the flood has led archaeologists to carry out scientific investigations to attempt to gain evidence for or against the existence of the flood event, resulting in mixed conclusions.

6.1.6 Modern interpretations

The Genesis flood narrative has remained an iconic symbol in modern times. Depictions of the flood can be found on parchments dating from the 1230s, paintings from the late nineteenth century and throughout paintings and theatre in the twentieth century. A search into the movies, books and artworks that reference the Genesis flood is extensive and leaves the impact of this narrative on modern times without a doubt. A full investigation into the modern impact of the Genesis flood narrative is beyond the scope of this thesis.

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Figure 25. A depiction of the animals embarking into Noah's Ark. This image was created from ink and paint on parchment by William de Brailes and dates from AD 1230 (The Walters Art Museum 2022).

Figure removed due to copyright restriction

Figure 26. Building the Ark' by artist James Tissot, dating from 1902 (Wikipedia 2022).

Figure removed due to copyright restriction

Figure 27. A 1911 depiction titled: 'The Flood' by Leon Comerre (ArtHive 2022).

6.1.7 Social impact

The Genesis Flood is arguably one of the best documented events in ancient human history, if it can be proven. Written histories of the event are prolific and detailed. Archaeological investigation into the event has offered mixed results about whether the event occurred. The impact of either the flood event, its narrative, or both, has had a palpable social effect on the societies that have come in contact with the Genesis Flood narrative. Using Liritzas' Model of Cultural Genesis (2019:1321), it can be seen how this narrative fits into the cycle of human civilisation's cycle of destruction and rebirth and has played a central role in humanity's origin stories. The first step in the Model of Cultural Genesis is the destruction of a natural disaster. If authors such as Liviu et al. (2009:5) and Ryan et al (2003:549) are correct, this is when a flooding event occurred and marks the beginning of our wheel of cultural genesis. If authors such as Yanko-Hombach et al. (2007 & 2014) are correct, it can be safe to assume that the Genesis flood myth gained a foothold in new societies either as a result of cultural defragmentation from a disaster (whether it be flood related or not), that allowed it to gain traction throughout the masses, or it may have been introduced as result of internal / external circle relation as described by Liritzas et al. (2019:1321). In this circumstance, the saturation of the narrative would have reached a threshold in societies where cultural defragmentation was already taking place, and this would have allowed the Genesis flood narrative, which was saturating a society's external circle to seep into its internal circle and become integrated into this society's new history, myths and legends. There is clear evidence that the original flood story from the Sumerian King's List existed in the external circle for the societies living in Mesopotamia and around Sumeria. With any advent of flooding, whether large or small scale,

it is likely that the environmental circle would also support absorbing this original flood narrative. With the saturation of the flood narrative in a society's external and environmental circles, it was only a matter of time before saturation of this narrative occurred. Likely spurred on by natural disaster (or disasters of other kinds in areas where flooding is not definitively proven), it is probable that the subsequent societal fragmentation, emergence of new groups, leaders and projects and eventual cultural defragmentation, would have led to the reaching of the threshold needed to incorporate the Genesis flood narrative into the creation of new histories, myths and legends and the eventual activation of a new civilisation. Each time a society adopted this narrative into their core beliefs, additions were made, and verses were removed. It is these additions and redactions that separate the flood narratives recounted above, and which make the origin of the Genesis flood narrative traceable back to the Sumerian King's List. Archaeological evidence for flooding events and disasters in the Black Sea and in societies located in the external circles surrounding the cultures that had already adopted the Genesis flood narrative encourage the hypothesis that this societal threshold was attained in these environments and that is why this narrative spread as it did, resulting in the biblical flood narrative found in Genesis today. The location of this narrative in the *Bible*, and the subsequent spreading of Christianity has made the reach of the Genesis flood narrative carry much farther than it would have before the growth of Christianity and the efforts made to carry its message across the globe. It is beyond the scope of this essay to discuss how the Genesis flood narrative was shared in modern times after its dispersal in Genesis, but the high level of interest in and iconography of the flood today is a testament to the narrative's ongoing impact on humanity in modern times and should be further investigated by future studies.

6.2 Atlantean flood

The Atlantean Flood narrative has been popularised due to its inclusion in two of Plato's Socratic Dialogues: *Timaeus* and *Critias*. These are not the first historical documents to mention the Atlantean people, however these dialogues were the first to paint the picture of the Atlanteans as we know them in popular culture today. Originally mentioned by Herodotus in his *Histories*, and touched on by Diodorus Siculus in his *Bibliotheca Historica*, the narrative of Atlantis and the legacy of this city-state has touched the imagination of ancient authors and modern society alike. The four historical mentions of Atlantis by the three authors mentioned above have been analysed to evaluate how the narrative and interpretation of the Atlanteans has evolved over time with each new installation of their proposed history. The archaeological investigation into where Atlantis was located, how it fell, and if it ever existed will be discussed and compared against the written histories, and Liritzas et al.'s Model of Cultural Genesis (2019:1321) will be used to analyse the social impact of the Atlantean narrative and propose how it may have evolved into the mythological anomaly it is today. The severity of the catastrophe that claimed Atlantis, attributions to divine retribution and questions of ethics between all four of the scriptures will also be discussed. Where narrative elements overlap or diverge, they will be analysed in an overview and compared with Liritzas et al.'s Model of Cultural Genesis (2019:1321) to determine any conclusions relevant to the social impact of the Atlantean narrative.

6.2.1 Herodotus' *Histories*

The first historical mention of the Atlantean people are from Herodotus in his *Histories*. The description of these people in *Histories* is vastly different from the Platonic description. Herodotus describes the Atlantean people in verses 184 and 185 in Book 4 of *Histories* (University of Chicago 2022(b)):

184: “These men have got their name, which is Atlantes, from this mountain. It is said that they eat no living creature, and see no dreams in their sleep.”

185: “I know and can tell the names overall the peoples that dwell on the ridge as far as the Atlantes, but no farther than that. But this I know, that the ridge reaches as far as the Pillars of Heracles and beyond them. There is a mine of salt on it a ten days' journey distant from the Atlantes, and men dwell there.”

Herodotus makes the first reference to what we now call the Atlantic Ocean as the Atlantic Sea in Book 1 Verse 203 (University of Chicago 2022(b)):

203: “...the sea beyond the pillars of Heracles, which they call Atlantic...”

The Atlas Mountain Range exists in North Africa's Maghreb. This information allows for archaeological investigation into the truth of Atlantis to focus on the stretch of North African coast north of this mountain range. No mention is made of cities, submergence, technological advancement. There is also no accompanying story that would hint at the ethics or divine retribution of gods surrounding the Atlantean people. Mention is made of the Atlanteans living as far as the Pillars of Heracles, a comment that will remain in future retellings. This recollection by Herodotus is the only mention of the Atlanteans before the more detailed Socratic dialogues of Plato.

6.2.2 Plato's *Timaeus*

Plato's Socratic Dialogue, *Timaeus*, is one of two that describe the Atlantean people and their civilisation. *Timaeus* contains much less commentary on Atlantis than its counterpart, *Critias*. *Timaeus* offers researchers information that can be archaeologically investigated. In particular, the geography and territory subjugated by the Atlanteans is described in detail that leaves Atlantis' location both narrowed down and still ambiguous (The Internet Classics Archive 2009(a)):

“...for in those days the Atlantic was navigable; and there was an island situated in front of the straits which are by you called the Pillars of Heracles; the island was larger than Libya and Asia put together, and was the way to other islands, and from these you might pass to the whole of the opposite continent which surrounded the true ocean; for this sea which is within the Straits of Heracles is only a harbour, having a narrow entrance, but that other is a real sea, and the surrounding land may be most truly called a boundless continent. Now in this island of Atlantis there was a great and wonderful empire which had rule over the whole island and several others, and over parts of the continent, and, furthermore, the men of Atlantis had subjected the parts of Libya within the columns of Heracles as far as Egypt, and of Europe as far as Tyrrhenia.”

Timaeus describes the fall of Atlantis for the first time in written history, explaining that violent earthquakes and floods sank the island in one day and night. Plato goes as far as to explain that the particular section of the Atlantic 'Sea' is impenetrable due to the fall of the empire under the waves. The severity of the event is not extrapolated upon, except to say that it was violent. Significantly, ethics plays a large role in Plato's telling of the history of

Atlantis. Often quoting the Hellenes as being courageous and ethically upstanding, the warlike tribe of the Atlanteans is punished by both the righteous Hellenes and fate, in regards to the earthquakes and floods. Ethical issues feature prominently when Plato describes Atlantis, and authors such as Rapisarda (2015:1) have stated that it is entirely likely that this mythology was invented intrinsically to promote ethical debates. A sample of ethics from *Timaeus* include the following:

“...your country shone forth, in the excellence of her virtue and strength, among all mankind. She was pre-eminent in courage and military skill, and was the leader of the Hellenes. And when the rest fell off from her, being compelled to stand alone, after having undergone the very extremity of danger, she defeated and triumphed over the invaders [Atlanteans], and preserved from slavery those who were not yet subjugated, and generously liberated all the rest of us who dwell within the pillars. But afterwards there occurred violent earthquakes and floods; and in a single day and night of misfortune all your warlike men in a body sank into the earth, and the island of Atlantis in like manner disappeared in the depths of the sea. For which reason the sea in those parts is impassable and impenetrable, because there is a shoal of mud in the way; and this was caused by the subsidence of the island.”

Brief allusions to the Atlanteans level of advancement in warfare, subjugation of other territories and the general grandeur of their empire are core concepts about the Atlantean narrative that occur throughout subsequent narratives. The submergence of the empire and the ethics of their rulers in comparison to others also continues. Heavy on ethics and with a substantial number of geographic facts that should theoretically be able to be proven and investigated archaeologically, *Timaeus* offers a brief introduction into the Atlantean empire that will be further investigated in *Timaeus'* counterpart Socratic Dialogue: *Critias*.

6.2.3 Plato's *Critias*

Critias conveys a much more extensive analysis of the Atlantean empire according to Plato. Much of the history covers the geography and technological advancement of the Atlanteans in great detail. This information could be analysed archaeologically if physical evidence was found underwater. While some of the facts presented below by Plato concerning Atlantis are not feasible with our current level of understanding (for example, that Atlantis was larger than Libya and Asia), other pieces of information offer detailed descriptions of how the Atlanteans ran their societies and would be easily definable archaeologically if they were ever found. Rapisarda (2015:9) has shared the possibility of there being several technologically advanced Atlantis like civilisations across the North African coastline, which, during their respective era, were considered technologically advanced and fell to submergence as a result of climactic changes. The geography of the elusive empire and their degree of technological advancement is discussed at length by Plato in *Critias* (The Internet Classics Archive 2009(b)):

“... the kings of Atlantis, which, as was saying, was an island greater in extent than Libya and Asia, and when afterwards sunk by an earthquake, became an impassable barrier of mud to voyagers sailing from hence to any part of the ocean.”

“...they dug out of the earth whatever was to be found there, solid as well as fusile, and that which is now only a name and was then something more than a name, orichalcum, was dug out of the earth in many parts of the island, being more precious in those days than anything except gold.”

“First of all they bridged over the zones of sea which surrounded the ancient metropolis, making a road to and from the royal palace...”

...they made the building a marvel to behold for size and for beauty. And beginning from the sea they bored a canal of three hundred feet in width and one hundred feet in depth and fifty stadia in length, which they carried through to the outermost zone, making a passage from the sea up to this, which became a harbour, and leaving an opening sufficient to enable the largest vessels to find ingress. Moreover, they divided at the bridges the zones of land which parted the zones of sea, leaving room for a single trireme to pass out of one zone into another, and they covered over the channels so as to leave a way underneath for the ships; for the banks were raised considerably above the water. Now the largest of the zones into which a passage was cut from the sea was three stadia in breadth, and the zone of land which came next of equal breadth; but the next two zones, the one of water, the other of land, were two stadia, and the one which surrounded the central island was a stadium only in width. The island in which the palace was situated had a diameter of five stadia. All this including the zones and the bridge, which was the sixth part of a stadium in width, they surrounded by a stone wall on every side, placing towers and gates on the bridges where the sea passed in.”

“The entire circuit of the wall, which went round the outermost zone, they covered with a coating of brass, and the circuit of the next wall they coated with tin, and the third, which encompassed the citadel, flashed with the red light of orichalcum.”

“Here was Poseidon's own temple which was a stadium in length, and half a stadium in width, and of a proportionate height, having a strange barbaric appearance. All the outside of the temple, with the exception of the pinnacles, they covered with silver, and the pinnacles with gold. In the interior of the temple the roof was of ivory, curiously wrought everywhere with gold and silver and orichalcum; and all the other parts, the walls and pillars and floor, they coated with orichalcum.”

“In the next place, they had fountains, one of cold and another of hot water, in gracious plenty flowing; and they were wonderfully adapted for use by reason of the pleasantness and excellence of their waters. They constructed buildings about them and planted suitable trees, also they made cisterns, some open to the heavens, others roofed over, to be used in winter as warm baths...”

Ethics features prominently also in *Critias*, with Zeus being the god responsible for the divine retribution. As can be seen from the excerpt below, the behaviour of the Atlanteans slowly turned from ethical to immoral, and the gods decided that divine punishment must be inflicted, similarly to the god-figures covered in the Genesis Flood narrative. The Atlantean ethics covered in *Critias* include (The Internet Classics Archive 2009(b)):

“There were many special laws affecting the several kings inscribed about the temples, but the most important was the following: They were not to take up arms against one another, and they were all to come to the rescue if any one in any of their cities attempted to overthrow the royal house; like their ancestors, they were to deliberate in common about war and other matters, giving the supremacy to the descendants of Atlas. And the king was not to have the power of life and death over any of his kinsmen unless he had the assent of the majority of the ten.”

“They despised everything but virtue, caring little for their present state of life, and thinking lightly of the possession of gold and other property, which seemed only a burden to them; neither were they intoxicated by luxury; nor did wealth deprive them of their self-control; but they were sober, and saw clearly that all these goods are increased by virtue and friendship with one another, whereas by too great regard and respect for them, they are lost and friendship with them. By such reflections and by the continuance in them of a divine nature, the qualities which we have described

grew and increased among them; but when the divine portion began to fade away, and became diluted too often and too much with the mortal admixture, and the human nature got the upper hand, they then, being unable to bear their fortune, behaved unseemly, and to him who had an eye to see grew visibly debased, for they were losing the fairest of their precious gifts; but to those who had no eye to see the true happiness, they appeared glorious and blessed at the very time when they were full of avarice and unrighteous power.”

Zeus’ divine judgment is discussed following the change in behaviour of the Atlanteans (The Internet Classics Archive 2009(b)):

“Zeus, the god of gods, who rules according to law, and is able to see into such things, perceiving that an honourable race was in a woeful plight, and wanting to inflict punishment on them, that they might be chastened and improve, collected all the gods into their most holy habitation, which, being placed in the centre of the world, beholds all created things. And when he had called them together, he spake as follows...”

Critias continues with *Timaeus*’ description of Atlantis being submerged by an earthquake. The addition of attributions to divine judgement and the expansion on the ethical issues which Plato suggests is responsible for Atlantis’ fall supports the idea that the Atlantean narrative was a tool used by Plato to highlight political and ethical issues. The attribution of flood events to divine judgement is a trend that can be seen connected to other flood narratives, such as the Genesis Flood narrative. As a result, there is no definitive evidence for or against the existence of Atlantis using historical reports alone. In this historical record, the Atlanteans have begun by being described as vegetarians who live around the Atlas mountain range to the rulers of a vast empire, larger than the neighbouring countries of Europe, with a vast set of technological and ethical aspirations that are much further evolved than those of

the other civilisations during Plato's time. The Atlantean narrative received the bulk of its information from Plato, and would only receive one more installation from Diodorus Siculus.

6.2.4 Diodorus Siculus' *Bibliotheca Historica*

The *Bibliotheca Historica* adds the final installation of information into the Atlantean narrative. With no mention of the fall of the Atlantean Empire, or the submergence of the city-state, Diodorus Siculus' account of the Atlanteans focuses on two continuing elements of the narrative: technological advancement and ethics. In Book 3, Verse 54 of the *Bibliotheca Historica*, the advancement of the Atlanteans is discussed (University of Chicago 2022(a)):

“... the Atlantians, the most civilized men among the inhabitants of those regions, who dwelt in a prosperous country and possessed great cities; it was among them, we are told, that mythology places the birth of the gods, in the regions which lie along the shore of the ocean, in this respect agreeing with those among the Greeks who relate legends,”

Similarly to Plato, Diodorus Siculus discusses the exemplary ethics of the Atlanteans, also in Book 3 Verse 56 of the *Bibliotheca Historica* (University of Chicago 2022(a)):

“Now the Atlantians, dwelling as they do in the regions on the edge of the ocean and inhabiting a fertile territory, are reputed far to excel their neighbours in reverence towards the gods and the humanity they showed in their dealings with strangers, and the gods, they say, were born among them. And their account, they maintain, is in agreement -with that of the most renowned of the Greek poets when he represents Hera as saying : For I go to see the ends of the bountiful earth, Oceanus source of the gods and Tethys divine Their mother. This is the account given in their myth: Their

first king was Uranus, and he gathered the human beings, who dwelt in scattered habitations, within the shelter of a walled city and caused his subjects to cease from their lawless ways and their bestial manner of living, discovering for them the uses of cultivated fruits, how to store them up, and not a few other things which are of benefit to man...”

Rapisarda (2015:9) has called into question whether Diodorus Siculus may have used Plato as the source material for this account of Atlantis due to there being no other known source material where this information could have been retrieved. Regardless, the entries about Atlantis in the *Bibliotheca Historica* concur with the testimonies of Plato. The story of Atlantis undergoes its greatest change when it is recorded by Plato, who deviates greatly from that of Herodotus. While Herodotus’ description showcases a predominantly primitive people, Plato introduces technological advancement, empires, divine judgement and toys with ethics. Diodorus Siculus builds on Plato’s work and reiterates the Atlanteans outstanding ethics and achievements but adds little more to the narrative and ignores the flood event altogether.

6.2.5 Modern interpretations

Like the Genesis Flood Narrative, the submergence of Atlantis has been a common thread in human history in both ancient and modern times. As opposed to the Genesis Flood Narrative which has found a foothold in modern times in a biblical setting, Atlantis has aligned itself in modern fantasy and sci-fi books, films and artworks. The scope of the influence of the Atlantean flood narrative in modern times is beyond the scope of this thesis, and should be analysed by future studies. One popular example for Atlantis’ prominence in modern times

was the inclusion of a visit to the sunken city in Jules Verne's 1869 *20,000 Leagues Under The Sea*. This depiction illustrates a late nineteenth-century imagining of the ruins of Atlantis, complete with pillars and city walls.

Figure removed due to copyright restriction

Figure 28. A depiction of the ruins of Atlantis underwater in Jules Verne's *20,000 Leagues Under The Sea*, illustrated in 1869 (NeverwasMag 2022).

6.2.6 Social impact

The Atlantean flood narrative is a sparsely documented but brilliantly embellished event. With no current archaeological evidence that has been definitively linked to the submergence, or the existence of the city-state, it is curious that the event has remained in human memory until modern time and frequents popular culture to the extent that it does today. Few archaeological investigations into the Atlantean flood narrative have occurred. Pioneering this research is Rapisarda (2015), with a plethora of highly researched information on multiple facets of the Atlantis narrative. While it is uncertain whether archaeologists will ever find evidence for an Atlantis that perfectly resembles Plato's imagery, the question remains to what extent technologically advanced civilisations from before Meltwater Pulse 1B may have influenced the creation of this story. Rapisarda (2015:51) argues that the coincidence of climatic upheavals and technological revolutions that date to the time of Atlantis' reported

submergence, authorises the suspicion that some aspects of Plato's legend may be rooted in a deeper historical truth. The author makes the connection that the areas of the earth that were subjected to the most dramatic sea-level rise catastrophes, were also those that birthed Earth's oldest civilisations. Differing from the Genesis flood narrative, which was incorporated centrally into Mesopotamian, and later Christian belief systems, the Atlantean flood narrative did not feature in any culture's religious beliefs except for those of the Atlanteans themselves, as reported by Plato. Liritzas' Model of Cultural Genesis (2019:1321) can be consulted to investigate why this narrative has been incorporated into popular belief into modern times. It is most likely that Herodotus received his information about the Atlanteans (the mountain-dwelling, vegetarian group) from an external circle. The *Histories* of Herodotus recorded the available geographic and cultural information about his own society and those around him, which is likely where he learnt about the Atlanteans and recorded them first. While it cannot be ruled out that disasters, natural or otherwise may have led to the creation and circulation of the Atlantean flood narrative by Plato, the author would argue that the suggestion made by Rapisarda (2015:1) that Plato may have produced the heavily ethics-driven society of Atlantis to contrast his own, aligns perfectly with the fragmentation of societies and emergence of new groups, leaders and societal projects within Liritzas et al.'s Model of Cultural Genesis (2019:1321). According to this model, a disaster event would have triggered the fragmentation of societies and emergence of new groups, leaders and societal projects that Plato's depiction of Atlantis represent. If Rapisarda (2015:1) is correct, and Plato used the Atlantis flood narrative to evoke societal change, it is possible that as a result, he piggybacked off the societal fragmentation that may have been present in the society during his era. This also correlates with Liritzas et al.'s (2019:1321) next phase in the Model of Cultural Genesis: Cultural defragmentation, the creation of new histories, myths and legends. Following Plato's creative writing that may have been used as a catalyst for more

ethical thinking, the natural progression of society according to this model would be for the incorporation of these ideas into new myths and legends. This certainly occurred for the Atlantean Flood narrative, which was consolidated further as a legend through works such as the *Bibliotheca Historica* and later still in modern times by Jules Verne, who is only one of many creatives who reference Atlantis today. It is unclear at what point the Atlantean flood narrative saturated societies to the point of reaching a threshold of a commonplace myth, but it is likely that the story grew in popularity with Plato's greater body of work and has by default become one of his most enigmatic narratives. There is a high level of potential for the Atlantis flood narrative to be referencing a number of technologically advanced civilisations which were located on the North African coastline in ancient times that were subsequently inundated with flooding due to global warming. Rapisarda (2015:20) explains that the potential for habitation of the now submerged North African coastline, and that for this area to be uninhabited pre-6,000 BC is highly unlikely, and would be going against a housing trend in the area that persisted throughout millennia. The author further argues that the mythology packaged as Atlantis today may be telling a factual history about the spreading of revolutionary innovations from the Neolithic period, from an origin point that lies on the submerged sea bed today. Although the factual civilisation behind Atlantis may be less fantastical and idealised than the one envisioned by Plato, it is likely that these submerged groups still carried considerable sophisticated technologies for improving agriculture, building and social needs. It is unclear if the catalyst for the Atlantean flood narrative was the submergence of technological advanced Neolithic groups, or a creative display of Plato's political views and ethical morals. Regardless, it is certain that the Atlantean flood narrative has had a substantial social impact on mythology and belief in the western world since Plato's Socratic Dialogues and has become an enduring mystery throughout human history, with the potential to divulge truth about the impact of sea-level rise on human prehistory.

7. Conclusion

The purpose of this thesis is to investigate the relationship between flood narratives, sea-level rise, natural disasters and maritime archaeology. To do this, several fields of study have been analysed, including the archaeology of sea-level change and its rising impact on coastal communities in the past, the ideology of disaster and how it impacts the cultures who face rebuilding their lives and their beliefs, and the analysis of two case studies: The Genesis Flood and Atlantean Flood narratives. Maritime archaeology has welcomed a growing focus on the impact of sea-level changes throughout human history and prehistory. Investigation into how sea-level change has affected past human populations is still in its infancy.

Rather than aiming to prove or disprove whether these events occurred as we recall them in the modern narratives we see today, this investigation collects a range of evidence from the historical, mythological and archaeological fields to determine where these myths may have originated. The length of time that these stories have existed and been passed down through generations was also investigated, and Liritzas et al.'s Model of Cultural Genesis (2019:1321) became instrumental in understanding both reasons behind potential catalysts for the creation of these stories and the processes that may have occurred that encouraged these stories to spread throughout adjacent communities and stand the test of time into our modern society today. With a European focus, this thesis examined two case studies: The Genesis Flood and the Atlantean Flood narrative.

The Genesis Flood narrative consists of a range of five historical texts that point towards a specific time and place for the flood event when analysed. Archaeological investigation into this flood event focused on the flooding of the Black Sea and was inextricably linked with climate change. A contentious topic, whether the Pontic Basin flooded gradually,

dramatically, or not at all, is still up for debate. Evidence for sea-level fluctuation in the area has highlighted, however, the impact of sea-level rise on both archaeological materials and the oral histories that exist from those who lived through these events. Applying a social lens when investigating the Genesis Flood Narrative suggests that the initial experience of natural disaster contained in the Sumerian King's List may have spread via external circles to neighbouring communities where it would have saturated the popular culture of the time. If the conditions were just right, and local societies were ready to create new myths and legends (and may have experienced a similar disaster themselves), this narrative would have quickly made its way throughout further societies and eventually to the narrative of *Noah's Ark* that we are familiar with today. The additions and redactions that form this narrative make it definably traceable from the Sumerian Kings List to the chapters in Genesis. This offers researchers a unique window into the values of the communities that made these changes. When these changes are combined with Liritzas et al.'s Model of Cultural Genesis (2019:1321), societal conditions can be inferred to indicate why different groups felt compelled to accept and doctor this legendary narrative.

The Atlantean Flood narrative offers a unique set of challenges. Unlike the Genesis Flood narrative, it is not a core belief of a religion or mythology, and its main presence in history is its use as a political device to discuss ethics. As a result, the motivation to alter the narrative of the Atlantean Flood has occurred to a lesser degree over time. Plato's Socratic Dialogues: *Timaeus* and *Critias* can be considered the greater body of the Atlantean Myth. The lack of wide historical texts confirming Atlantis and Plato's dialogues heavily focused on ethics make it easy to label Atlantis a political device. The work of archaeologists such as Rapisarda (2015) have been instrumental in uncovering a deeper meaning behind this seemingly dismissible legend. Modern maritime archaeology has increased its focus on the revolutionary idea that sea-level rise may be responsible for the loss of cultural material

underwater, and the undeniable evidence supports this. Strong arguments from Rapisarda (2015:9) suggesting that more technologically advanced civilisations from the now submerged North African coast passed skills and tools down into continental Africa suggest that Atlantis may have been a settlement in this now submerged area that contained Neolithic marvels for the local people surrounding this culture. When viewed with our modern understanding of the impact of sea-level rise on these cultures, this hypothesis is entirely feasible. Applying Liritzas et al.'s Model of Cultural Genesis (2019:1321) to this theory, two catalysts for the creation and popularity of this myth become clear. The ethical backbone that features so prominently in Plato's Socratic dialogues suggests that Plato was in a social stage of cultural fragmentation, and the subsequent stage of the emergence of new ideas, leaders and societal projects. As a result of this, the subsequent stage of the creation of new myths, histories and legends saw the acceptance and popularity of a narrative that offered a symbol of the ideal society for a people who were in the midst of a societal change. Dismissing the narrative as pure fiction however, disregards our modern understanding of the impact of sea-level rise in the Mediterranean at this time. It is possible that lost legends about submerged settlements during this era were available to Plato, perhaps from both his external circle of neighbouring empires, or through tangible environmental ruins. Either way, it appears that a direct link between submerged settlements in the area of Atlantis, and the narrative of the Atlantean Flood has been lost beyond current archaeological abilities. The link is strongly suggested by authors such as Rapisarda (2015:10) and our growing understanding of the impact of sea-level rise may uncover some truth to this narrative in a way that we may not expect.

This thesis has successfully analysed the historical accounts and archaeological evidence pertaining to the flood narratives of Genesis and Atlantis. A wide investigation into the now burgeoning field of investigation into the impact of sea-level rise on maritime settlements,

and the application of the ideology of disaster through the use of Liritzas et al.'s Model of Cultural Genesis (2019:1321), has allowed clarity into the societal processes that have been responsible for the historical propagation and retellings of flood narratives that have captivated the mind and imaginations of humanity from ancient times until the present. As Rapisarda (2015) states: The myth of Atlantis is hard to die. I would expand on this and say that flood narratives are hard to die, and that perhaps this is because there is a greater truth behind them, an aspect of collective human memory in ancient times that recalls the dangers of rising seas that we are beginning to investigate today.

Future Directions

There is a large scope available for future studies into the topics covered in this thesis. As future archaeologists continue to build on the relationship between sea-level changes and submerged landscape archaeology, it becomes easier for others to understand the value of underwater research, and we come closer to revolutionizing our understanding of human prehistory. Studies that delve deeper into this relationship are likely to bring forth a plethora of knowledge about human prehistory in both an archaeological and anthropological sense and offer opportunities to better locate submerged sites and the cultural material that accompanies them. In particular, future directions that build on the information presented in this thesis include studies that further evaluate the relationship between tangible cultural material and intangible social or experiential significance, spatial studies that work to better pinpoint the locations where the Atlantean and Genesis flood narratives were likely to have occurred or believed to have occurred, studies that build on methods of evaluating the social and material impact of sea-level change on societies living within the Mediterranean coastline. Future studies should build on Liritzas' (2019) Model of Cultural Genesis and

apply it to different civilisations to further refine this methodology. Other opportunities for further studies may include those that focus on expanding the recorded history of the fluctuation of sea-level change in prehistoric and historic times, anthropological studies that use archaeological data to discern how flood narratives may have been created and how they evolved to be retold using altered storytelling mechanics by different civilisations, and investigations into why these two flood narratives continue to evolve into the modern cacophony of storytelling. It is hoped that future directions which emanate from this research will use these research questions to better illuminate the connection between the archaeological record and the surviving flood narratives, in order to better understand the lasting impact of maritime disasters on human cultural genesis in the Mediterranean from prehistory to modern times.

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