The role of water in Greek sanctuaries: A practical and ritual analysis of water in a case study of the sanctuaries Olympia and Epidauros

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A practical and ritual analysis of water in a case study of the sanctuaries Ὀλυμπία and Ἐπίδαυρος.

Isaiah Claeys

Cover image: Munich, Staatliche Antikensammlungen 2412 from Van Straten 1995 (Figure V90).

The role of water in ancient Greek sanctuaries in the Archaic and early Hellenistic times.

A case study of the sanctuary of Zeus at Olympia, and the sanctuary of Asklepios at Epidauros.

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Bachelor thesis

Classical Archaeology

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Leiden University, Faculty of Archaeology

Den Haag 20/12/2021 - Final version

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Chapter 1: Introduction

Water has the power to shape any society, as it lies at the root of human life. Throughout history, humanity has found new ways to acquire and accommodate for this important natural resource. This relationship between humans and water has left its traces in the archaeological record. Due to its essential role in society, humans have also ascribed different roles and concepts to water. These meanings have altered throughout time. In ancient Greece, for example, water was imbued with different functions and beliefs than those currently attributed to it in modern western societies. Especially in the context of Greek sanctuaries, places of cult-worship, the different roles and concepts assigned to water were very diverse and sometimes quite unique. Through the analysis of the water infrastructure in Greek sanctuaries, we can infer developments relating to the Greek cult, as well as developments in ancient Greek society at large. This thesis examines the roles and dimensions of water in ancient Greek sanctuaries with a focus on the archaeological remains of water management and usage, as well as the different concepts associated to it.

Two main questions will be investigated and discussed in this thesis. The main questions being: What was the ritual and practical role of water in the context of ancient Greek sanctuaries in the Archaic and early Hellenistic era, and how can we observe that role in the archaeological record? How can a case study of the sanctuaries of Olympia and Epidauros show us the different uses and concepts of water in an ancient Greek context? A few sub questions will also be treated, notably: How was water used in a ritual and purifying context as well as in a practical context in these sanctuaries? What buildings in these sanctuaries have a connection to water, and what can they tell us about the water used there?

To answer these questions, a case study on two notable sanctuaries will be presented: The sanctuary of Olympia and the sanctuary of Asklepios at Epidauros. The sanctuary of Olympia owes its fame to the festival which was held there every four years. Due to its panhellenic status, the sanctuary attracted many people from all over Greece. Therefore, this sanctuary serves as a perfect case study to see what roles water could have in a very popular and busy sanctuary, both in a ritual and an utilitarian way across the sanctuary grounds.

The sanctuary of Asklepios at Epidauros is the second case study which will be examined. This sanctuary, dedicated to the god of healing in ancient Greece, was chosen above others of its kind for its deep connection with water. It is considered to be the

most famous sanctuary of the Asklepios cult in Greece (Angelakis *et al.* 2020, 6). These sanctuaries were filled with infrastructure to accommodate for the heavy usage of water. To illustrate this, half of the fountains we know of in ancient Greece come from sanctuaries of Asklepios in the Greek period, therefore healing sanctuaries overall stand out when it comes to water use (Von Ehrenheim *et al*., personal communication, September 7, 2021).

These two sanctuaries complement each other in an interesting way. Without going into a direct dichotomy, there seem to be more cases of ritual water use at Epidauros, and more aspects of utilitarian use of water at Olympia as we will see in this thesis. However, both sanctuaries show many aspects from both ritual and practical uses of water, and provide ample opportunity to inquire into the role of water at Greek sanctuaries in a more general sense.

In a first part, a small background information chapter describes the important knowledge necessary to understand the topic at hand. This chapter will also give a small introduction to the different aspects of water treated in this thesis, notably the utilitarian role and the ritual role of water as well as a small paragraph on the previous research done on the topic. After this, a chapter on methodology, and the techniques used to try and answer the research question. Followed by that, two big chapters, each treating a case study of a sanctuary and the role water had in that sanctuary, while also looking at the infrastructure and the buildings connected to the aspects we are researching. In a final part, we will combine the results of these case studies and answer the research question by observing which activities and buildings can be found in both sanctuaries, and whether they can teach us more about this use of water in Greek sanctuaries.

Chapter 2: Theoretical Context

In this chapter, some context required for the investigation of this thesis will be provided. Firstly, the function of sanctuaries in ancient Greece will be discussed. Secondly, I will provide background information on the possible functions of water in ancient Greek sanctuaries. Thirdly, a summary of the previous research into the topic of water will be provided.

2.A: Sanctuaries in ancient Greece

Sanctuaries are a collective term for a variety of sacred places for the purpose of religious worship. They are defined as areas set aside for religious purposes, seemingly ''cut off'' from the normal profane world (Tomlinson 2016).

When dealing with sanctuaries in ancient Greece, it is crucial to understand the concept of the *temenos*. The term *temenos* designated 'a piece of land marked off from common use and dedicated to a divinity' (Pakkanen 2008, 246). These areas were believed to be in the possession of a specific deity, and sanctuaries were built on these grounds to venerate that particular deity (Balty *et al*. 2006, 1).

In these sanctuaries, there is often a holy district where altars, housing for priests, temples and sometimes treasuries can be found. Specific rules of purity and behavior apply here (Zimmerman 2006). People from all over panhellenic Greece would journey to sanctuaries. A wide variety of events occurred inside: priests performed public and private sacrifices, athletes participated in numerous sporting events, and common people came to petition the gods for healing and guidance (Frateantonio and Egelhaaf-Gaiser 2006). On certain dates, religious festivals or athletic games would be held in these places in honor of a god. Specific sanctuaries even had roles as *Asclepieia*, which were sacred healing complexes (Graf and Ley 2006). Besides their religious significance, ancient Greek sanctuaries played important roles as regional, economic and political centers (Frateantonio and Egelhaaf-Gaiser 2006). For thousands of visitors to attend these sanctuaries (Ogden 2007, 168), proper infrastructure and water management must have been crucial. This required careful planning and extensive knowledge of many different fields, including architecture, mathematics, construction and more. It is inside these sanctuaries that we wish to uncover the different aspects of water.

2.B: The practical/utilitarian aspect of water

In this part, the role of water in ancient Greece will be discussed in a general sense. Firstly, there is the practical role of water. Water is required for mundane, human actions of bathing, drinking and cooking.

All across Greece, there is evidence of sacrificial feasting (Kindt 2011, 9). Greeks came together for ritual meals and communal dining after the sacrifice of an animal, and this constituted a central part of Greek Cult. Water was needed in this context, not only to make sure the sacrificial ritual took place according to sacred laws, but also to accomplish more mundane roles like to drink, cook or to clean the altars (Dobias-Lalou 2017, A II. 26-29). In the Dossier of purity regulations at Cyrene, it is stated that if one sacrifices on the altar an animal which is not customary to sacrifice he is to remove the residue of grease from the altar and wash it off (Dobias-Lalou 2017, A II. 26-29), most likely with water.

Water was also a necessity for Greek athletes performing at sanctuaries, not only to drink, but to clean. However, athletes were not the only ones in need of basic hygiene. The visitors attending these sanctuaries had to be able to wash, bathe, and as we will see in this paper, water was also used during and after the killing and butchering of the sacrificial animals and to clean the site of the religious ritual. (Ogden 2007, 135).

Not every utilitarian aspect is strictly profane however. There are also other possible uses of water in ways that could be seen as being largely utilitarian, yet with a ritual aspect. An example of this is the washing of cult statues (Ginouvès 1962, 283–298). This gives utilitarian cleaning a ritual dimension. It is attested in ancient sources that cult statues could be washed in the sea before important events, or that they could be washed ritually (Herington 1955, 29–30). Although we know it occurred, there is still high debate on the exact context around it (Romano 1988, 129).

Another example for a utilitarian aspect having a ritual dimension is the ritual pouring of liquid on fire. This action was possibly used many times during sacrifice (Zaidman and Pantel 1992, 36). The pouring of liquid on a fire during a sacrifice served a ritual aspect, yet it also had a utilitarian use as a visual marker in the sanctuary, to show everyone there is an ongoing sacrifice. This was also used to make noise, when the water quickly evaporated when dropped on the fire. There has been no evidence of libations taking out the sacrificial fires.

2.C: The purification/ritual aspect of water:

The purificatory and ritual role of water (ritual is here talked about in the context of religious ritual) was an aspect which is at first difficult to see archaeologically, but once being aware of its presence, is actually found everywhere in the archaeological record of these Greek sanctuaries.

This ritual aspect had an extremely important role in ancient Greek society, as it relates to the concept of *Miasma*. The word could be described as a 'religious pollution' (Parker 1983, 1-8). A person was seen as impure if they committed a moral wrongdoing or interacted with anything that was already considered as impure, after which a purificatory sacrifices is done to efface an impersonal pollution, while divine anger and its effects could be washed away when it manifested itself as a disease (Parker 1983, 10). Ritual purification is the reaction to a disturbance of the religious and social order. The religious and social orders could be upset through engaging in various preordained acts: contact with a corpse, sexual encounters, contact with a woman during childbirth, contact with a woman who miscarried, committing murder outside of war, and having certain diseases to name but a few (Parker 2018, 29).

To be able to access the sacred boundaries of the *temenos*, or to participate in certain rituals or athletic games, one would need to be purified (*kathaírein*) to be released from defilement (Hippoc. Morb. Sacr. 4, 55–60). Water was the most basic and widely used purification agent (Eitrem 1915, 76-132). River water, sea water and even rain water were seen as having different properties. Firstly, sea water was favored for purifications and was a very prized cathartic water (Eitrem 1915, 76-132). This was believed to be due to the salty quality of sea water being an excellent natural antiseptic : ''The sea washes away all the evils from among men'' (Parker 1983, 226). Furthermore, water in a sacred context could be made stronger when salt was added and could have been seen as a technique to create artificial seawater, even though salt was a purifying agent on its own (Parker 1983, 227). Next, when discussing rainwater, most rainwater caught into underground cisterns was used for water consumption or ordinary cleaning of a temple or household. Water was itself contaminated for example when it was used to wash away dirt, so a connection between water made dirty by washing away dirt can be seen as the same type as water used to clean sins, and afterwards being itself contaminated (Parker 1983, 229). On the other hand, rainwater caught by the use of cisterns was used

by households, cities, and of course sanctuaries as a stable supply of clean water (Klingborg 2017). Finally, river water was seen as being the purest. Its property of being a constant downflowing water source that ran from the top of a mountain down to the sea gave it a sense of continued cleanness. Yet, when water was held up for a long period of time, like in lakes, it would go stale and gather disease according to Hippocrates (Hippoc. Aer. 7)

Purification with water could take place on a large scale, when people had to bathe to cleanse their pollution. Yet, it could also take place on a much smaller scale, where the priests performing certain sacrifices needed to dip and cleanse their hands in a bowl of water or sprinkle the sacrificial animal with laurel or olive tree branches dipped in purified water (Von Ehrenheim *et al*., personal communication, September 7, 2021).

Previous research

Traditionally, in this field of study, only the purificatory role of water in Greek religion was studied (Burkert 1985, 76; Ginouvès 1962, 327- 373; Parker 1983, 226; Von Ehrenheim *et al*. 2019, 4).

Yet, the healing aspect of water and its curative function were already proposed quite extensively (Ginouvès 1962; Boudon 1994; Lambrinoudakis 1994; Hoessly 2001; Von Ehrenheim *et al.* 2019, 4). The practical/utilitarian uses of water in Greek sanctuaries, and consequently the study of the archaeological remains like cisterns, baths, fountains and wells were studied before by academics, and make it easier to create a clearer picture of the puzzle (For remains in Olympia: Mallwitz *et al.* 1999, 186-200; Glaser 1983 for fountains; Von Ehrenheim *et al.* 2019, 4 for a general overview of previous research). Most previous research concerning the aspects of water have been focused on mostly singular monumental structures (Von Ehrenheim *et al.* 2019, 5). These include for example the sacred springs at Corinth, or the Roman fountain at Olympia. These are well documented installations, yet I disagree on their importance in the bigger picture. The aspect that water has for the common people attending sanctuaries on the other hand, can teach us a lot more, if not simply on how water shaped the lives of the people interacting with it. This might seem dramatic, but daily walks to the local well, or daily purificatory washing were all planned, integral activities in the lives of people in the past.

Chapter 3: Methodology

This thesis examines the roles and dimensions of water in ancient Greek sanctuaries, with a focus on the archaeological remains of water usage and the different concepts associated to it. In this chapter, the applied methods will be discussed and laid out.

To be clear, this is not a comprehensive treatment of the role of water in all Greek sanctuaries. Before we begin unraveling the role of water in these Greek sanctuaries, it needs to be clear that there is a limitation to which sanctuaries will be treated. I have confined myself to treat two important sanctuaries, firstly the sanctuary of Olympia, located in Elis on the Peloponnese peninsula, and the sanctuary of Asklepios in the territory of Epidaurus, which is located on the Argolid peninsula. These two sites offer very good evidence for water treatment when it comes to archaeological remains of water installations and other infrastructures as well as baths, pools and basins. I will also be treating these two sanctuaries due to their renown significance in the ancient Greek world. Their importance attracted many people to the sanctuaries (Ogden 2007, 168), necessitating a lot of water management, which we will analyze as well. In this thesis, I restrict myself to only treating the time from the Archaic period (700 BCE) to the early Hellenistic era (300 BCE). I have chosen to limit the research time frame until the Hellenistic era simply because Greek baths and other water installations became more widespread and public around this time, which makes the analysis of water in sanctuaries an easier task to an extent (Lucore 2016, 331). To analyze this topic and look at the different uses of water within the framework of Greek sanctuaries and cults, certain methods will be used and applied.

The methods applied here are firstly a view at the differentiation between the expressions of ritual and utilitarian use of water, and secondly the concepts/methods of agency and post-humanism (Diaz de Liaño *et al.* 2021, 455-459). Some of these methods are based on those used by Von Ehrenheim and her colleagues who have done extensive research on water in Greek sanctuaries (Von Ehrenheim *et al.* 2019). Agency is a concept established by Hegel and Marx, and in this context is created through the interactions between humans and the sources they extract water from or places they interacted with water. These have influenced the activities at these sanctuaries, as well as the very shape of the sanctuary. This post-humanist approach analyses the link between human beings and their relationship with the world around them (Diaz de Liaño *et al.* 2021,

455-459). Like Von Ehrenheim *et al*. (2019), I want to make clear there will not be a direct opposition between the utilitarian use of water and the sacred use. It is unlikely that a water well, used for mostly ritual purposes for example, could not also have had a profane role at times . A well or fountain can simply be used for both purposes. However, it is important to keep this spectrum of water usage in mind when analyzing these buildings to see if one use is more likely to take place then another. No idea of strict separation will take place, as profane acts could occur in sacred spaces, just as it could be the other way around (Wells *et al.* 2008, 41, 44, 109; Pakkanen 2008, 243-255). What we will be looking at however, is if a certain building or water source comes in direct contact with an utilitarian or sacred use of water, and if there are any specifications in the sources available that leans the evidence in favor of one way or the other.

Archaeological evidence is of course our main concern here. Certain locations of infrastructure such as wells and bath installations need to be taken into account. For example, it would be more logical by abductive reasoning to assess that a well close to the stadium of Olympia, and outside the main wall of Temenos, would be mostly used in a profane context, rather than sacred. On the other hand, water containers next to the entrance of the temple in the sanctuary of Epidauros, could lean more towards a purification and thus ritual context.

Furthermore, iconography, or more specifically the iconography of vase paintings will be another source of evidence. When looking at vase paintings, the descriptions and publications of their interpretations from Ginouvès (1962) and Van Straten (1995) will be employed. By analyzing iconography for our case studies, we must be aware that it is not an illustration of these two case studies, but it will be used to rather show general rites and behaviors which occurred in Greek sanctuaries. Although the depiction of vases is scarce in this thesis, this is not without reason. Vase images can be used to reconstruct ancient rituals, yet they differ from reality. Their contribution is limited due to the difficulty in recognizing when a scene takes place in a sanctuary. The illusion of depth is not something vase paintings from that time period could convey. These vase paintings were images of art, not photographs, so we will focus on the allusions to water on the imagery.

The analysis of epigraphy as well as certain ancient sources such as Greek poets or ancient historians will shed light on specific aspects of ancient Greek cult and practice in

sanctuaries. Written sources are indispensable, and we can use them in these case studies of sanctuaries or to study general behaviors. It is obvious that written texts will make it easier for us to grasp certain concepts that would be invisible in the archaeological records.

The historian and ancient writer Pausanias visited Epidauros and other places around the Greek world, giving a very good insight into how the world around him looked like. He gives his opinions and describes buildings which has helped researchers to give certain ruins names as well as clues to where an archaeological building could be situated in time and space. We must be careful though, as some writers like Pausanias write about sanctuaries which are already 500 years older than the time period we are interested in. These sources were written by ancient Greeks, for ancient Greeks. As so called ''outsiders'', if we want to truly grasp certain ideas and concepts, we need to place ourselves in the role of an ancient Greek, where as many elements of their daily lives need to be put together to understand roughly what their ideas were. These are ancient concepts and we must apply methods that fit the ancient concepts. These tools will be essential for attempting to understand Greek use of water in sanctuaries, where we look at relations between water and their potential use in their context in the sanctuaries.

Another method applied is the study of sacrificial rituals in both sanctuaries. They constitute an essential role in Greek cult, especially at sanctuaries. In this thesis, it will be assumed that sacrifices in the religious sanctuaries and sacrifices at major cities in ancient Greece were not too different from each other due to both these sacrificial contexts having a cult purpose. When archaeological sources around Greece describe a certain cult scene, it can be generally assumed scenes the likes of it were also happening in sanctuaries in Greece.

Chapter 4: Case study, Olympia

Two case studies will thus be analyzed, starting here with Olympia. The sanctuary of Olympia is a place like no other to learn about the understanding of Greek religion and evidently, the role of water in Greek sanctuaries. It is a place which appeals to the modern imagination like no other. Here we will look at its buildings, their connection with water, and the things we can learn from customs to altar practices and ritual uses of water. Most of these ritual customs were applied in special places in sanctuaries.

Greek sanctuaries, including Olympia, had a defined sacred space called the *temenos*, which means ''cut off'' in Greek (Balty *et al*. 2006, 1). Yet, that sacred space which was walled off from the rest of the sanctuary, was here named the *altis* (Mallwitz 1972, 120). The word *altis* was used to describe the sacred grove of the sacred precinct of Olympia. The sanctuary of Zeus was walled off on every side except for the north, where the mountain Kronion formed a natural barrier. It is within this *altis* that many ritual buildings were situated, like the temple of Hera, that of Zeus, the important altars, administrative buildings as well as the small Dorian state treasuries. Outside of the walled off sacred *altis*, there were other buildings without a connection to the sacred or ritual, and which were frequented by the many visitors attending the sanctuary. These buildings include the stadium, baths, *bouleuterion* and visitor accommodations.

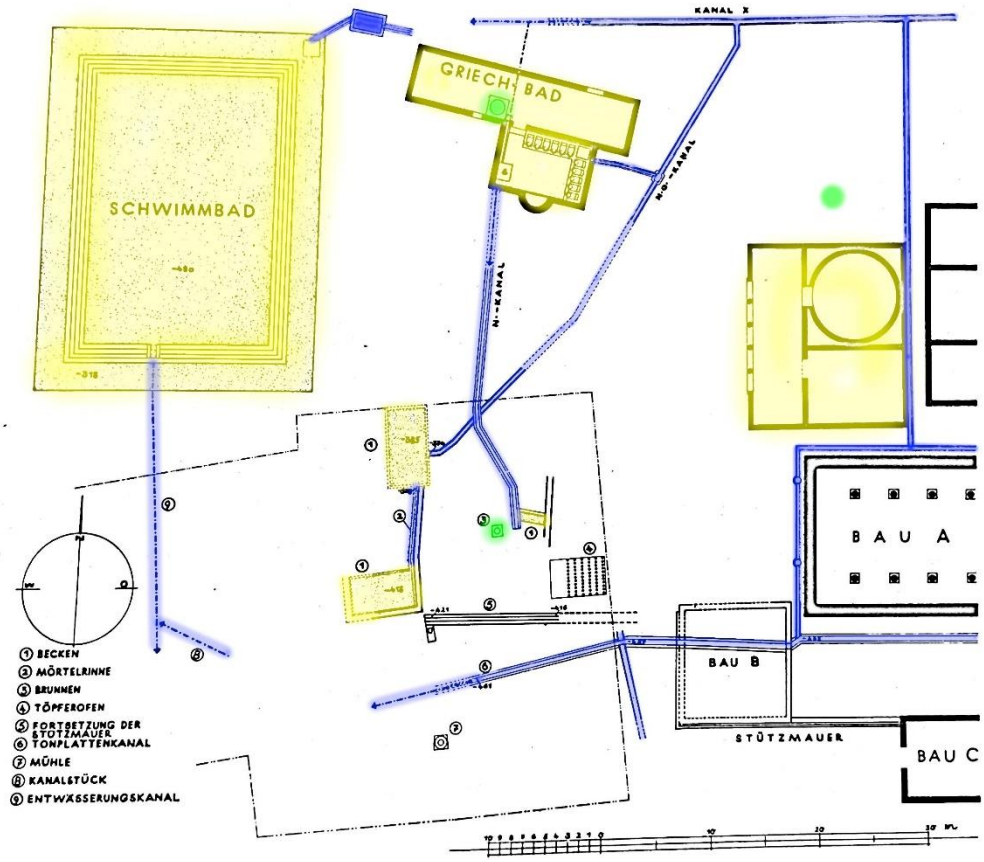
A clear distinction already comes to mind of the possible uses of water in this sanctuary. It can be assumed that the more ritual aspects of water, which were used in sacrifices, purifications before entering temples and ritual acts of cleanings, largely took place inside this sacred defined area. The more profane and utilitarian use of water, like bathing, cleaning, feasting, and watering animals and plants mostly took place outside this precinct. This comes with exceptions of course, like cleaning altars inside the altis (Dobias-Lalou 2017, A II. 26-29). The buildings that have archaeological evidence of containing water or having relations with water will be discussed next.

To begin, when entering the sanctuary from the north, the first building we are met with is the Propylon (Figure 2, 1). This building was built in the Hellenistic period. Just like any sanctuary which was considered a sacred space, purification rituals had to take place at this symbolic gate, most probably from surrounding *perirrhanteria*. Close by, the Prytaneum (Figure 2, 2) is located to the east of the Propylon. It is here that the everlasting Olympian fire was situated, but this is also the building which served as a banquet room where the Olympian victors feasted. This is supported by the many

drinking cups found in its ruins. (Mallwitz 1972, 125). The fire which burned there all year produced ashes which were mixed once a year with water from the river Alpheios by the seers of the sanctuary. This mixture of water and ash was then added to the ash altar of Zeus, near the temple of Zeus. The river water was chosen due to its binding powers which the water had due to the quantity of lime the flooded river contained during the summer (Gardiner 1925, 195; Mallwitz 1972, 126). It is still unclear why this happened, but it made the sacred altar grow every year. The location of a well nearby as well as a water basin (Figure 2, 4) shows this building consumed a lot of water, as there is also archaeological evidence of a kitchen inside the building, which supplied the lavish feasting taken place after an Olympic victory (Mallwitz 1972, 126). There is also evidence of water flowing through this building from the east to the west side, into basins, which could indicate that the building required a lot of water to accommodate for the kitchen.

Olympia also had important profane Greek bathing facilities, necessary for any big sanctuary where athletic games took place. The large pool from the classical times (Figure 1, top left), west of the Greek baths, is a 16 x 24m stone structure which used to be 1.5 meters deep. It is considered one of the earliest cold water pools that we know of in Greece (Trümper 2017, 216) and it was suitable for swimming and other water activities. Water flowed in from the south of the bath through a small channel, which is located where the ruins of the Roman Kladeos baths now stand. This water was supplied from a source a little to the south east of the pool (Mallwitz 1972, 270). In the small distance of a 60 meter radius around the Greek baths to the west, 5-6 wells with access to good water are situated nearby. Water was thus very abundant here, with the river running closely to the east of the swimming pool, with evidence of three more little pools all in this vicinity, connected by water channels.

To facilitate the understanding of the area mentioned here, Figure 1 shows the baths colored in yellow, the wells and water sources in green and the water channels or pipelines bringing water to the baths in blue. These baths were later covered or partially covered by the Roman Kladeos baths (Stripped line on the map).



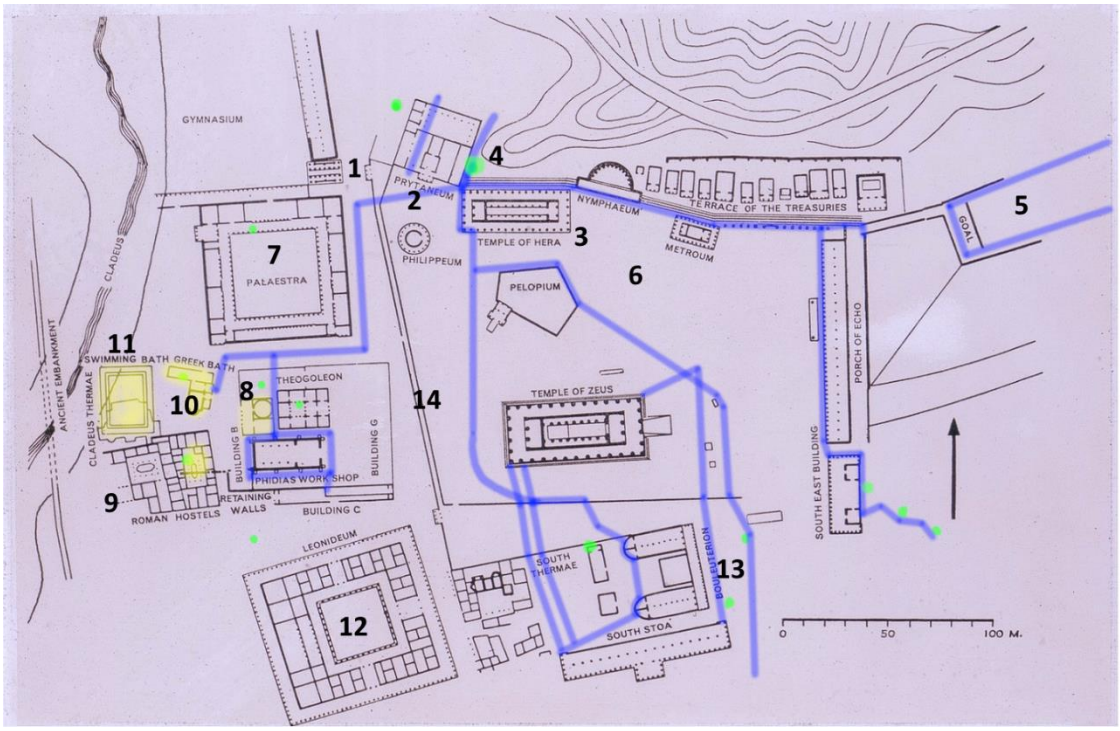
(Figure 1: Map from Mallwitz 1972, 271: The Greek baths in the south-western corner of the sanctuary around 500 BCE. Colors added by myself.)

The first thing that comes to mind is the interconnectedness of the pipelines and channels transporting water. A large water basin was located in the northern part of the sanctuary, next to the Prytaneion, from which most of these water ways would start. Most of the water in Olympia came from the 10 wells outside of the Altis, which the people depended on for fresh water as well as for cult operations (Senff 2017, 198). The wells majoritarily depended on the level of the water from the river Alpheios. Water also came from the north, from springs of the nearby hill, which was guided into a water basin (Figure 2, 4), yet, the modern understanding of these water supply systems is severely limited due to the lack of research done on the less monumental sources of water, such as wells and cisterns (Hodge 2000, 29-33).

Most of these wells can be found next to the remains of ancient roads, which probably still existed back in the Archaic and Classical times. (Gardiner 1925, 294). The most ancient well is the one north west of the Prytaneion, near the road which led into the north of the sanctuary. Another one was situated north of the Heroon, near the bath installations you see on figure 2. Two more can also be found east of the bouleuterion, which followed the line of the great southern roads (Gardiner 1925, 294). Until Roman times, when an aqueduct brought water in, most of the water came from the valley of the Kladeos which was put in this large water basin (Figure 2, 4) north-west of the temple of Hera. On figure 2 we can see that is also where most pipelines come from and diverge from to then spread around the sanctuary. These pipelines were distributed partly by 3 main open water channels, which were served to drain the Altis. Along the pipelines, stone basins were constructed at intervals along these open channel lines.

Yet, another one of these pipelines went more westward, towards the Greek baths and the swimming pool. The ground slightly sloped here so it was possible to also bring in water which came directly from the upper part of the Kladeos valley (Gardiner 1925, 295). Water was mostly unreliable in this sanctuary, especially in summer: there are accounts of people having trouble finding water and some even dying from thirst on the hot summer days (Gardiner 1925, 294). Other buildings with a connection to water include the Leonidaion, which is a very large building (relative to its time period) built around 400 BCE. It served as a sort of inn, so the use of water here was mostly profane, as in providing drinks for the visitors, cooking and cleaning of the building (Mallwitz 1972, 245-252). There is no archaeological evidence of pipelines connected to the Leonidaion, so it is presumed water was brought in from nearby wells. Some wells surrounding the Greek bathing grounds, like the one north west of the Leonidaion (Figure 2, 12) supplied the bathing facilities, at least partially (Senff 2017, 199) and could have also supplied the Leonidaion. The visitors of this large building were mostly important citizens or rich attendees, so excessive water use might have found place there when mixing the wine with water (Mallwitz 1972, 245-252).

We also have the Heroon (Figure 2, 8), called the ‘’sanctuary of a Hero’’. It used to contain an altar of earth and ashes, but was later converted into a sweat bath (Wacker 1996, 76-85). Some consider it as the oldest sweat bath in Olympia, due to the finds of heating pans which were used to create steam (Mallwitz 1972, 266-269). It is the building marked with yellow on the right of figure 1.3



1. Northwest Propylon
2. Prytaneion
3. Temple of Hera
4. Water basin
5. Stadium
6. Altar of Zeus
7. Palaestra
8. Heroon
9. Baths of Kladeos
10. Greek Baths
11. Swimming Bath
12. Leonideum
13. Bouleuterion
14. Altis Wall

Blue: Pipelines
Yellow: Baths and swimming pool
Green: Wells and water sources

Figure 2: 5th C. B.C. Olympia: Sanctuary Plan. https://library-artstor-org.ezproxy.leidenuniv.nl/asset/ARTSTOR_103_41822003530258.

The Olympic games were held every four years, in the period of the late summer (July – August), which comes with hot Greek Mediterranean weather, where excessive drinking was required daily (Kyle 2013, 23). The atmosphere at Olympia could be compared to any major Greek festival or modern sporting spectacle, with the stadium having the capacity to host around forty thousand visitors (Senff 2017, 197; Trümper 2017, 240), the water supply must have been very vast. This was however possible due to the many different locations of wells, basins and fountains, highlighted on figure 2. For hosting panhellenic games, water structures such as underground aqueducts, pipes and baths are essential to avoid the spread of disease. Outside of the *altis*, on the nearby plains, many tents were set up, and the people that did not have them had to sleep under the open skies, or in certain corridors of buildings (Perrottet 2008, 37). The festivals lasted 5 days, and visitors got the majority of their drinking water from simple earth wells which could be found all around the sanctuary. There is now proof of over 240 earth wells being excavated in the areas around the stadium and the southern area, where these tents would have stood (Senff 2017, 197).

After seeing the profane use of water, mainly in utilitarian baths and pipelines leading drinking water around the sanctuary, what of the ritual role of water? At the start of the event known as the Olympic games, we know that the officials purified themselves at the spring of Pieria (Kyle 2013, 25) as they made their way to the sanctuary. Purification had to occur before entering a sanctuary, as to not bring in any impurities from the

outside world. Secondly, we also know of water being used in a sacrificial context. Yet, this will be discussed in a later part. From the analysis of multiple maps of Olympia like the ones from Mallwitz (1972) or Schleif (1944) for example, there seems to be close to no wells situated in the sacred Altis of Olympia. The water was likely brought in from either the water channels marked in blue on figure 2 or the large water fountain above the temple of Hera.
There are, however, records of a walled well located at the southeastern entrance to the forecourt of the Temple of Zeus. It is not clear if people ritually purified themselves at this well (Senff 2017, 199). In any case, the fountain must have had a long lasting important function, since the masonry has been raised several timed during the filling of the site until the Roman Imperial Period (Senff 2017, 199). With its relative close location to the most important Temple of the sanctuary (The temple of Zeus: Figure 2, Center of the map) , there is a strong indication this well might have had a continued religious importance, and was used to purify attendees, or used in rituals.

Apart from this well, water was accessible throughout this sacred area from the open-air water channels running throughout the sanctuary. Water, especially ritual water could be found throughout the sanctuary in the form of *perirrhanteria*. These were also located at the entrance of sanctuaries (Kerschner 1996, 108). These water containers could be made out of clay, metal or stone, and were supported on a three-legged foot. They could be found in many ancient Greek sanctuaries (Kerschner 1996, 107; Fullerton 1986, 207-217), and although there is inconclusive evidence for their existence in Olympia, it can be safely assumed they were also used in ritual contexts inside the sacred *altis* of Olympia or at the entrances of the sanctuary. Their positions would mark the sacred district of the deity and in this sanctuary, they were most likely positioned inside of the *altis* as they were used as purifying basins at the entrance of temples.
Not much is known about water being used in ritual manners in Olympia, as in this sanctuary, water was used mostly in profane ways, or perhaps the evidence of its ritual use is no longer preserved in the quantities its once existed in.
People attending the sanctuary, in times of panhellenic games or just ordinary visits, had to drink water and use water for basic human necessities like cleaning, and cooking/boiling food. From the surviving evidence, we can assume that water was only used in sacred ways when dealing with sacrifices, entering sacred temples, or when people had to purify themselves around the sanctuary through the use of *perirrhanteria*.

As this sanctuary can teach us a lot about the utilitarian use of water, let us now take a look at the second case study in this Thesis, the sanctuary of Epidauros, where both profane and ritual uses of water were very abundant.

Chapter 5: Case study, Epidauros

Across Greece, many sanctuaries honored Asklepios, considered the healing god and son of the god Apollo. These sanctuaries were places where medicine was practiced, and they were essentially Greek healing sanctuaries which also functioned as medical schools and hospitals. (Christopoulou-Aletra *et al.* 2010, 259-263). It has been found that around the classical period in Greece, somewhere close to 400 *Asklepion* were active around Greece, giving their medical assistance to those who were in need of it.

The sanctuary at Epidauros is one of those *Asklepion* but has a significantly higher importance than most others of its kind, due to its mythical background. Pausanias gives us a lot of information about the sanctuary and its role in the Greek world.

Epidauros has been a sanctuary which contains evidence of being used continuously from the classical period through the Hellenistic and even Roman period, which proves its importance in the ancient Greek world. (Tomlinson 1983, 69). The cult of Asklepios at the sanctuary of Epidauros became the most important sanctuary of its kind from the 5th century BCE onwards, and was seen as the ''Mother'' and model for the many other sanctuaries dedicated to Asklepios in the Greek world. (Trümper 2014, 211; Riethmüller 2005, 1: 49-51).

Pausanias even states (Paus. 2, 26, 8) that many famous sanctuaries of Asklepios had their origins in Epidauros, took the idea and brought it to their cities. This shows that even back then, the Sanctuary of Asklepios near Epidauros was renowned throughout the Greek world.

The city of Epidauros itself is located on the Argolid peninsula near the Saronic gulf. It was an independent city until the Romans took over and made it a part of the territory of the poleis of Argos. The city was mostly known for its sanctuary which was situated around 8 kilometers from the town center.

In this sanctuary, water played a vital role. *Asclepieia* especially, required an abundant water source and water supplies for the many purposes to do with healing and purification, so they were very often placed near natural springs (Ogden 2007, 166). The sanctuary gained in popularity and importance almost certainly after the plague, which took place in Athens in the early parts of the Peloponnesian war in 430 BCE (Tomlinson 1983, 25). Major developments occurred in the 4th century BCE, and the sanctuary reached international status, proven by its buildings worthy of comparison to other major Greek sanctuaries (Tomlinson 1983, 25).

The main source of water in this sanctuary had come from the thermal springs of the nearby hill of Kynortion, which flowed water to the nearby sanctuary of Apollo Maleatas as well (Christopoulou-Aletra *et al.* 2010, 260) . These springs served even the Myceneans back in the third millennium BCE. Water also came from the sacred well near the abaton (Trümper 2014, 212), the wells near the entrance of the sanctuary, as well as the very close-by sanctuary of Apollo Maleatas, which had a very large cistern (Tomlinson 1983, 93).

Many buildings in the sanctuary relate to our research question and have a connection to the aspect of water, which was ever present in this sanctuary, no less due to it being a healing sanctuary and water being associated with health and possessing healing qualities.

This sanctuary's *temenos* was marked through boundary stones and marks, and it was an area considered to be owned by the god Asklepios (Balty *et al*. 2006, 1; Paus. 2, 27, 1; Von Ehrenheim *et al*. 2019, 6). To enter the sacred *temenos*, it was customary to purify yourself using available water at the entrance of a sanctuary, to cleanse yourself of the possible impurities you might be subjected to from living your daily life. Once this ritual was complete, you could enter the sanctuary and fulfil the purpose you were planning on doing (Parker 1983, 322).

Upon entering the sanctuary from a historical point of view, which would have been from the north, the visitor is met with the famous Propylon. The Propylon is a rectangular building which could be seen as a monumental boundary between the outside world and the sanctuary. The building announces that whoever crosses it, enters the sacred grounds of the sanctuary. As we have seen before, visitors had to purify themselves before entering the sanctuary, much like we had to disinfect our hands before entering a building during the 2020 Corona pandemic. Yet, the Greeks saw a holy aspect to the purification, and it was a necessary task to complete before being allowed to enter the sanctuary. This was due to it being forbidden to pollute the sacred grounds of the god's sanctuary.

The Propylon has another structure next to it, a well (Figure 3) , which is one of the oldest structures in the sanctuary, being dated to the 6th or early 5th century BCE (Tomlinson 1983, 46). This well's position being situated at the entrance of the sanctuary can indicate its role. Its function is unclear, yet this well could have been used for profane use as well as ritual use. The well might have had a use for travelers arriving

at the sanctuary, as well as their animals if they were accompanied by the visitors. Yet, the travelers could also purify themselves using this well to enter the sanctuary, so its function possibly has both a utilitarian and sacred use. Tomlinson mentions the possibility of there being another well nearby, which was conceivably used for the different processes of effecting cures on visitors, but it has not been found, or was completely destroyed (Tomlinson 1983, 23).

Fig. 3 : 6th or early 5th century B.C. well, South of Propylon just inside sanctuary, Epidauros, Propylon: Photograph by Maria Daniels, May - June 1990

The next building of note is the Abaton. It was a large rectangular structure which probably functioned as a bath building (Tomlinson 1983, 67). This building had a constant water supply given to it by an adjacent well, which was around 17 meters deep. This building was of much importance to the sanctuary back in its working days, because of the fact it is also the building where people came to be healed by the god Asklepios after being visited by him in their sleep. The bath and Abaton together were seen as an entity which stood central to the therapeutic aspect of the cult and sanctuary (Trümper 2014, 214). The Abaton faced the temple of Asklepion. Its relative proximity to the temple shows the Abaton created a sense of closeness to the god. The idea of this building was that visitors had to cleanse themselves to enter it, as it was also called the unapproachable building for those who did not undergo a necessary purification ritual before making their way inside (Tomlinson 1983, 19). This idea of having to purify oneself twice (Once upon entering the sanctuary, and once when entering the Abaton or certain other buildings in the sanctuary) shows us the Greeks had multiple levels of what was considered sacred, and that being in close proximity to a god required special cleansing and purification rituals (Tomlinson 1983, 19; Von Ehrenheim *et al.* 2019, 7).
A small bit to the west of the Abaton is a well shaft of a fountain house. This fountain is also in proximity to the stadium, where it was used for drinking purposes. Documentation on this fountain house is limited. Its placement behind the Abaton, away from the plaza, and close to a building connected to the stadium southwards, means this

water supply was likely for profane use, away from the ritual center, where most purifications and other uses of water likely took place.

A few more remarkable buildings with a connection to water are found throughout the sanctuary.

First of all, there is a very large cistern a hundred meters north-west of the Abaton, where water was collected throughout the year, and is dated to around the 3rd century BCE. There is evidence of water cisterns in Epidauros also collecting spring water (Angelakis *et al.* 2013, 4). Cisterns contained water all year around, and the usage of its water varied to the sanctuaries needs. Needs could include cooking, drinking, cleaning, watering the plants or giving water to animals (Von Ehrenheim *et al.* 2019, 12).

Coming back to the center of the sanctuary, one would see the temple of Asklepios, which overlooked the sacred center of the sanctuary. It was the most favored position for monuments of all kinds. The medicinal stellae, the building accounts and the official inscriptions of buildings came from this place (Tomlinson 1983, 71). This temple had a very famous inscription on it, saying ''that no one shall enter this sacred temple if they are not pure; being pure, is having a purity of conscience.'' (Ginouvès 1962, 414). A mandatory purification was needed to enter it, as it was believed that this temple, which contained the famous ivory and golden statue of Asklepios, brought mortals in close contact with the god himself (Tomlinson 1983, 19).

A long and narrow Altar of Asklepios was found in front of the temple. A paved path that is still visible today connects the altar and the ramp leading to the temple. This altar is a place where many sacrifices took place, as it was the usual locus of death and sacrifice (Risse 2008, 9). Where sacrifices took place, water was needed. The topic of sacrifice will be further explored later on, but it is evident that it required a lot of water to not only ritually cleanse the sacrificed animal and the priest's hands, but also to boil the sacrificial meat and clean the altar afterwards. (Ekroth 2007, 249-272)

Finally, the *katagogion* is a large square building between the center cluster of buildings and the large Greek theater situated at the south of the sanctuary. Built in the early third century BCE, this building was primarily an accommodation building, and presumably had two stories (Tomlinson 1983, 84). Rooms inside were used for sleeping but also for feasting, which was a very important Greek activity (Kindt 2011, 9). It is surprising this building was part of the sacred area, due to it normally being forbidden to

sleep or eat or drink if it was not done ritually in some sanctuaries (Tomlinson 1983, 85). Yet, there seems to not be any demarcation, and we know this building was part of the sacred Temenos due to the theater south of it being called part of the sanctuary by Pausanias: ''The Epidaurians have a theater within the sanctuary'' (Paus. 2, 27, 5). This building is important because of the sleeping accommodations and feasting rooms present in it, which required a lot of water for guests, for the mixing of wine and for the cleaning of the rooms after visitors had left. The water use here was thus largely if not completely utilitarian.

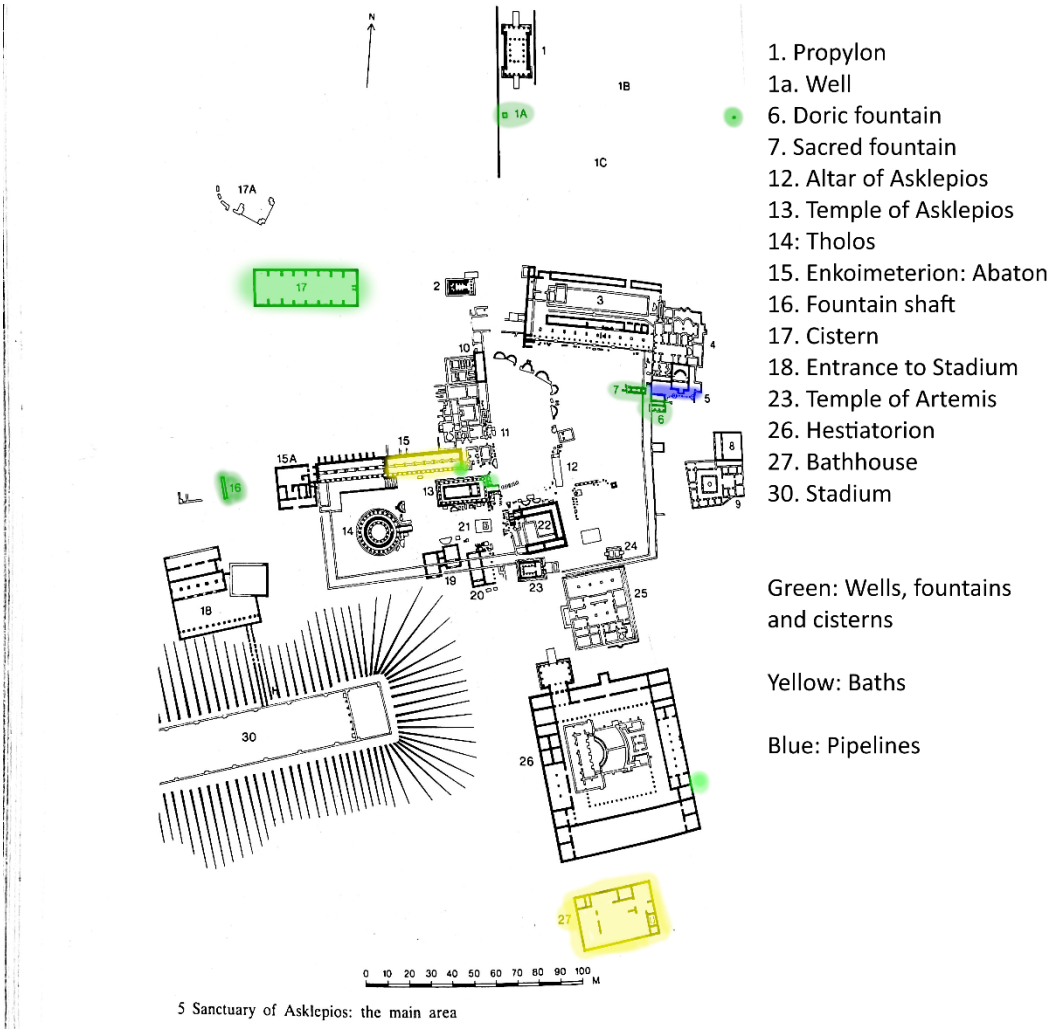
To facilitate looking at the archaeological evidence of the sanctuary, a map was added to show the different buildings and their relations to one another. This map of Epidauros is located on the page below. Several structures stand out as being highlighted with colors. The map from Tomlinson (Tomlinson 1983, 42) shows a perfect overview of the sanctuary.

The green colorations on the map are wells, fountains and underground cisterns.

-As we have seen before, the old well that met with visitors who tried to enter the sanctuary from the north has been marked as 1A, and this relative distance from the sanctuary as well as its close location to the Propylon likely means those two buildings have a shared role of greeting visitors.

-The large cistern mapped in green with the number 17 is the general cistern that was used for general water consumption in the sanctuary. This was a roofed structure, which likely preserved the purity of the water (Tomlinson 1983, 69).

-When reaching the main plaza, two fountains on the right side of the map are visible, fountain 6 and 7. Both fountains were connected through a storage chamber of water behind them, which conducted water into a draw basin. The fountain 7, which overviewed the plaza had a cult function (Tomlinson 1983, 51). I agree with Tomlinson, due to the fact this fountain overlooked the cult center of the sanctuary and its placement in the *temenos* is close to the sacrificial altars. Both fountains continued to be in use throughout the Hellenistic and Roman period, indicating there must have been a constant and reliable source of water incoming through the pipelines (colored in blue) and which most likely supplied water into the fountains from an underground aqueduct situated to the north east of the sanctuary (Roux 1961, 289-291).



(Fig 4: Original map from Tomlinson 1983 EPIDAUROS page 42, with colors added by myself.)

-In the original excavation report of Kavvadias, he mentions a sacred well placed next to the Abaton, which was later merged with the building. This well, marked in green under the Abaton (15 on the map) was not for ordinary purposes and contained sacred water, which was used in sacrifices and with which the sick could purify themselves before going to sleep (Kavvadias 1891, 18). They then tried to find a remedy to their ailment from a visit of the god Asklepios in their sleep.

This well was 17 meters deep and gave access to a constant water supply, which complies with the previous description, because it must have been used a lot by many visitors for purifying, as well as by priests for sacrificial water (Tomlinson 1983, 67).

Another very unique water source is the little green area at the entrance (right side) of the temple of Asklepios (13). A stone statue base located on the northern corner of the ramp. This stone base has a little hole on top, where the bronze statue's foot would be, which was once attached (Kerschner 1996, 111). Water was made to flow through it so that this statue had the role of a fountain (Trümper 2014, 214), which could perhaps be

the water which was needed to purify oneself before entering this holy temple. (Tomlinson 1983, 72; Ginouvès 1962, 354). After constructions of the new portico of the Abaton, a hole was made in the eastern wall, which brought water in from the sources of Kynortion (Ginouvès 1962, 354)

Now for the Yellow indications on figure 4. We distinguish two baths which correspond with the time period we are interested in. First of all, the Abaton (15), which also had a bath section where visitors could go and take a bath. In the early stages, it was only for purification and ritual bathing before people spent the night in the dormitory. Yet, an inscription at Epidauros tells us of a blind man losing his oil bottle in the bath during what seems to have been a non-ritual circumstance (Von Ehrenheim 2015, 37–38). This leads to believe that, as the sanctuary grew in popularity and size, the role in these baths had changed into a more profane dimension when the activities that were offered there became more desirable for an increasing number of participants (Von Ehrenheim *et al.* 2019, 11).

The second bath is a building complex between the famous theater and the banqueting hall. This bath building was in use in the 3rd century BCE and was identified due to the discovery of water facilities and water supply installations. An inscription with the word ''Balaneion'', Greek for bath house, is inscribed on the building (Tomlinson 1983, 84). Not much is known about this building, but it can be classified as a bath building nonetheless.

At Epidauros, around 34 dedicatory inscriptions were also made of a type of water holding *perirrhanteria* (*περιῤῥαντήρια*) present at the sanctuary from the Classical to the Hellenistic period (Melfi 2007, 148-174). *Perirrhanteria* are large basins which rest on a stand. They are described as being basin shells which vary in diameter between 50 and 100cm (Kerschner 1996, 63). These *perirrhanteria* could be found in the sanctuary's *temenos*, as well as sometimes outside of it when near a gymnasium or shrines. They were filled with water and served a ritual role, where people dipped their hand in them and ritual sprinkling of the water took place to purify people (Kerschner 1996, 63). Another type of small basin which contained water and could be found around sanctuaries was the *louterion*. Yet, these basins were used in everyday hygiene, and were primarily used for cleaning in public baths and private washrooms. They could be compared to what we call sinks in the modern days.

With all the monuments and ruins related to water covered, there is still one more thing to cover. An important source for what could be documentation of cured patients from

the sanctuary. Throughout the sanctuary, ancient stone accounts of miraculous cures can be found on stele or plaques all around the temple area (Risse 2008, 9). They talk in the third person about accounts of healing and successful miracles taking place and happening to previous visitors. Further, they give information about the names of the patients and the diagnoses of the affected body parts, and of course Asklepios's successful cures (Risse 2008, 9). Yet, only few of these stones can be used as primary sources due to the fact that a lot of them contain documentation of the god Asklepios himself healing patients of incurable diseases and ailments. Our interpretations of these stele most likely differ from the ancient concepts they were envisioned with.

Chapter 6: Results

We will now look at the results of these case studies, and what can be learned, combined, and analyzed from the two case study chapters. Even though it might have been too large of a project to look at all off the excavated sanctuaries in the Greek world as well as their different uses of water, we were still able to get more than a general sense of the activities revolving around water in these two sanctuaries. This was achieved through the analysis of their buildings in connection with water, as well as with the evidence of the usage of water in a cult context.

First of all, we found that to enter a sanctuary, or a particularly holy part of a sanctuary belonging to the god worshipped there called the *temenos*, it is required to perform a ritual purification with water. Hippocrates reported in the late 5th century BCE : ''we ourselves fix boundaries to the sanctuaries and precincts of the gods, so that nobody may cross them unless he be pure; and when we enter we sprinkle ourselves, not as defiling ourselves thereby, but to wash away any pollution we may have already contracted.'' (Hippoc. Morb. Sacr. 4, 44-60 (Translation by Jones 1981) ; Kobusch 2020, 77). Evidence of this can also be found in inscriptions above the temple of Asklepios at the sanctuary of Epidauros.

Both sanctuaries have impressive stadia located within the sanctuary itself. These were very large buildings which hosted sporting events. Religious sporting events were very important to the Greeks and were seen as a binding factor which connected all free Greek men, even in the far away colonies of the Black Sea. Even in Epidauros, the stadium hosted contests in celebration of Asklepios. In his *5th Nemean ode*, Pindar tells us about the victory of Themistios in the wrestling event held at Epidauros, which tells us Epidauros also hosted sporting events (Tomlinson 1983, 90). Both sanctuaries thus have proof of ritual athletic competition.

The question may arise what this stadium had to do with water in both case studies. The answer finds itself not only in the fact that water must have been available near any area where physical exercise took place, but also in the stadia themselves, where along all sides of the running tracks we have archaeological remains of shallow stone water channels. At certain intervals, these channels widen up to form basins where the water flows through. These basins and water channels could be used by the athletes after their sporting endeavors to cool themselves and quench their thirst, although some scholars like Mallwitz disagree and believe the water at the stadium of Olympia was unsuitable for drinking due to it getting stale and dirty too fast (Mallwitz 1972, 182). Yet, keeping in

mind the extreme weather conditions these men sometimes had to compete in, I believe it is not a farfetched idea that these water channels could also be used to drink from or at the very least be used to refresh themselves with. Similar channels can be found around the theater of Epidauros, yet these only served a drainage purpose (Tomlinson 1983, 91).

In these results, we look back on the main research question, which inquired: *What was the ritual and practical role of water in the context of ancient Greek sanctuaries in the Archaic and early Hellenistic era, and how can we observe that role in the archaeological record?*

To answer this, we now know both sanctuaries provided for the basic needs of water as well as had some more uncommon uses, which have been talked about before but are summarized here.

The profane uses of water include and are not limited to: water needed for drinking and cooking, water needed to clean rooms, accommodations, dishes and the people themselves. Water was used in bath complexes, as cold and warm water, as well as used in means to produce steam for the relaxation of muscles of the many athletes performing sports in these sanctuaries. Water could also be used for watering the sanctuary plants. Vegetation was very abundant in sanctuaries of both male and female deities, due to it being believed a sanctuary was incomplete without a sacred grove or other areas of vegetation (Ogden 2007, 58). Furthermore, giving water to the sacrificial animals as well as the animals accompanied by visitors was essential. In the case of racing games taking place in the sanctuaries, the many horses that attended the sanctuaries for chariot races as well as horse races, had to be given water too. Lastly, the water was used for cleaning stoas as well as the altars covered in blood after sacrifice(s) (Decourt and Tziafalias 2015, 13-51; Von Ehrenheim *et al.* 2019, 13).

When looking at the sacred and ritual uses of water in these Greek sanctuaries, the uses include but are not limited to: Water used in purification rituals when entering sacred areas within the sanctuary as well as at the entrance of the Temenos; water used for dipping hands before a sacrifice as well as cleansing the heads of the animals about to be offered. Water was also used in ritual feasting, ritual baths and could be placed in perirrhanteria around the sanctuary for fast cleaning of hands for ritual purposes, cleaning oneself ritually, as well as at the entrance of temples inside the Temenos,

where we distinguish an even more sacred area within an already sacred area, where one would be in close contact with the god.

On another note, it is estimated that human water consumption is around 2.5-3 liters per day on average (Finné and Klingborg 2018, 113-131; Reed 2013, 9.1). This seems not an issue at all on a personal level, yet this can become quite a large amount when thinking about the thousands of visitors attending these sanctuaries, some staying the night or several nights at a time. This brought the water supply up to hundreds of thousands of liters of water each day (Von Ehrenheim *et al.* 2019, 12). Taking into consideration that the many animals present at these sanctuaries needed around 5-10 times more water than humans on average, without bringing in the specific factors about the different species, proves that the Greeks gave great attention to the construction of water infrastructure to accommodate for the massive amounts of water usages in sanctuaries.

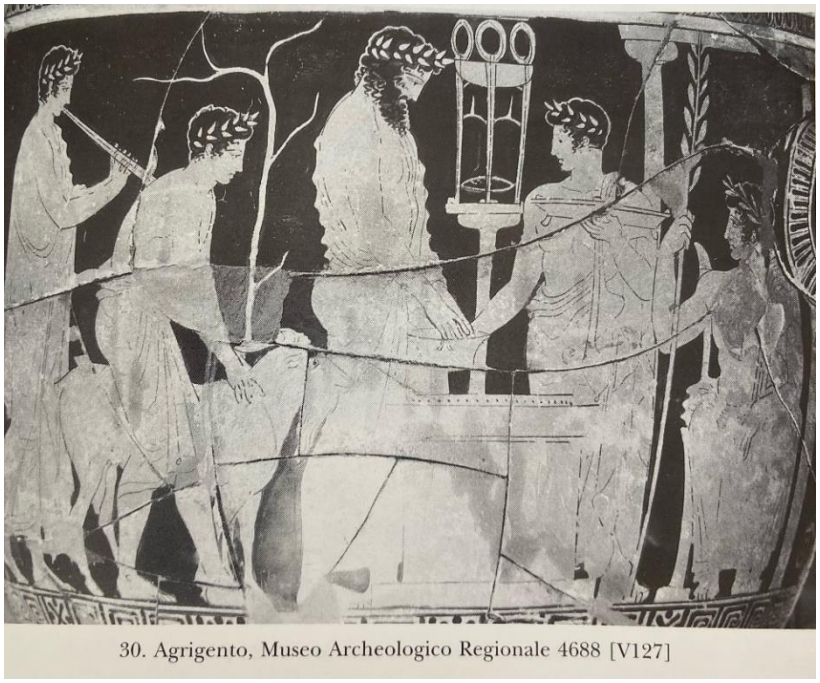


Figure 5: Depiction of the Pre-kill moment before a sacrifice. Taken from Van Straten, Hiera Kala 1995, p.390

Another practice done in every sanctuary in Greece, was the practice of sacrifice. Ritual sacrifice was an important part of cult life in ancient Greece and there is a lot of evidence to suggest these rituals took place in both Epidauros and Olympia (Parker 2011, 151). Briefly mentioned before, due to its popularity and importance in the Greek cult, it will be talked about here more in depth. Water had an important role in the sacrificial ritual, be it a simple private sacrifice or an event sacrifice like the one done at the end of the first day of the Olympic games, where athletes promised not to cheat during the festival. Sacrifices could have a purificatory role as well, where in some sanctuaries, a young pig was killed and carried all around the sacred Temenos to purify the meeting place (Van Straten 1995, 4)

There are three stages to sacrifice, which can roughly be classified as the pre-kill, the killing and the post-kill, including what was done with the carcass of the victim (Van Straten 1995, 9). Water was mostly used in the pre-kill and the post-kill process.
We know from sources like Aristophanes as well as many pottery depictions (Including Figure 5 for example), that water was used for washing the hands of the priest who initiated the sacrifice, as well as the person accompanying the priest. (Aristoph. Pax 971) This water was held in special bowls called *chérnips*, which contained purified water needed for not only the ritual washing of hands, but also for the sprinkling of the sacrificed animal as well as the public (Parker 2011, 151; Van Straten 1995, 33).
Before a sacrifice, the acolyte of the priest had to walk around the altar with a *chérnip*, which is documented already in the earliest texts of the *Odyssey* (Burkert 1985, 56; Van Straten 1995, 34; Hom. *Od*. 3. 440-450).

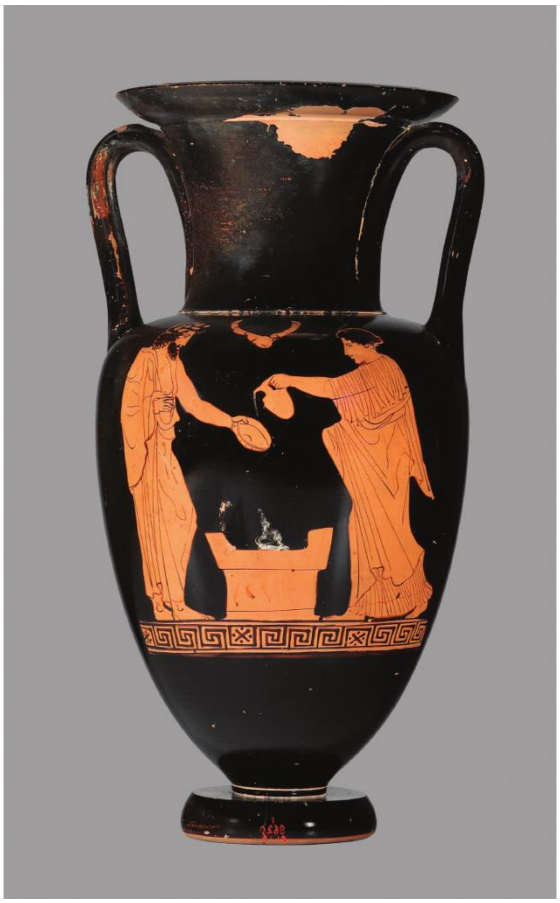


Figure 6: Man and woman making a libation at an altar. Attic red-figure amphora. 430BCE

During most sacrifices, before the killing, a libation ritual took place. This consisted of pouring liquid (in most cases, water, water mixed with wine, honey or milk) on the altar or on the ground next to it, while praying and then consuming the liquid left in the pouring cup (Zaidman and Pantel 1992, 40). This shallow bowl of canonical ceremonial shape was called a *phiale*. The male figure on the left of Figure 6 is seen holding a phiale, and pouring the liquid onto the fire below.
After this libation, the animal was sprinkled with water causing it to jerk its head which was interpreted as the animal nodding its assent: the god at Delphi said through the oracle '*That which willingly nods at the washing of hands I say you may justly sacrifice'* (Burkert 1985, 56; Zaidman and Pantel 1992, 35).

This ritual sprinkling took place when the priest or his acolyte dipped a piece of burning wood into lustral water on the altar, and used it to sprinkle the animal and public (Ogden 2007, 135; Parker 2011, 134). This representation found on a bell-krater in Agrigento dated to

around 425 BCE and imported from Athens (Figure 5) shows us this ritual of dipping the hands inside of *chérnips*, as well as a young man holding the *kanoûn*, another vessel which contains water. This vase painting (Figure 5) depicts how sacrificial rituals took place around the Greek world, where a flute player is present, an acolyte leading the animal to the altar, and the slaughtering of the animals after another acolyte walks around the altar with sacrificial water (Ogden 2007, 135). This was done to cleanse the altar ritually, where the priest then cleans his hands with water and kills the victim. We also see in sources that water could also be used in sacrifices as to cleanse the animal before the kill. Some pottery vases depict the watering of bulls (Like the vase painting found on the cover image). The head of the bull is placed above a large basin on the ground beneath him, and the priest pats the animal's head. This could be a ritual cleaning, or the priest could simply be giving the animal water. At sacrifices across Greece, it was very common, and almost even customary to pour lustral water on the heads of soon to be sacrificed animals, which was accompanied by ritual hymns and prayers (Ogden 2007, 121).

This research thus gave an in depth look at what can easily be overlooked when seeing Greek ruins and studying the ancient past. It is a topic perhaps less popular than the excavations of the Greek Athenian agora or even the sanctuary of Delphi. Yet, we cannot underestimate the impact different concepts of water had on Greek cult in these sanctuaries, where springs were seen as sacred and water could cleanse a person of the pollutions of daily activities. Quite possibly, water had more roles, perhaps on an individual level or only known and appreciated by some cults. What was done in this research is to research and structure the different types of activities performed with water in sanctuaries, which can be proven and found in the archaeological record.

Chapter 7: Conclusion

These case studies of two different sanctuaries have shown us the spectrum of water usage practiced in a Greek sanctuary. I believe these two case studies showed different priorities to water use. However, both sanctuaries show evidence of the use of water in an utilitarian and ritual way. We saw that some aspects were more important than others, or at least have more proof of their use found in the archaeological record. This thesis focused on the buildings connected to water, as well as the archaeological evidence that gave us more insight on the topic of the different aspects of water.

We once again ask ourselves: *How can a case study of the sanctuaries of Olympia and Epidauros show us the different uses and concepts of water in an ancient Greek context*?

As we have seen, the Sanctuary of Zeus at Olympia was a sanctuary which had on the left side the Greek baths and wells surrounding the holy Altis. This water was used in ways we can identify as profane, where it was utilised on one side as bath water to clean and refresh the athletes, as well as water to fill the pools and smaller baths, all connected through open air water channels. Thereafter, we saw certain buildings having the roles of inns or housing complexes, where water was used for drinking in feasts, used for cleaning of the stoa and other buildings, as well as to give water to animals, to plants, and it being used by the many different visitors of the sanctuary for cooking and boiling food, as well as then cleaning the plates afterwards.

In a second case study, we saw the sanctuary of Epidauros, where water was mostly, but not only, used in a ritual and sacred way, and the value given to that water is comparable to what it was given inside of the *altis* of Olympia. Water was in both sanctuaries used for ritual purposes like religious cleansing and purification at the entrance of the sanctuary, as well as near important temples. Water had also a cleaning role as to cleanse pollution from daily activities, in order not to pollute the holy sanctum of the gods worshipped in these sanctuaries. Water had a role given to it by the whole of Greece, where it was needed in sacrifices. Priests performed libations on the altar, dipped their hands in purified water held in special bowls called chérnips, as well as dip a piece of burning wood from the altar and sprinkling water on the sacrificial victim and the public attending the ceremony.

Water had an entirely different dimension than we attribute to it today and especially in sanctuaries, where it had an important role in cult healing, ritual cleaning and a connection to the sacred and holy. On top of that, we see more utilitarian uses which could also take place outside of sanctuaries, and even in everyday Greek homes. We

learned that due to the presence of these *perirrhanteria* located near temples, the Greeks saw the presence of water near these temples as an indication of a superior level of sacrality. This visual marker is an important aspect often overlooked, due to the fact could be transformed into steam and seen as a visual marker, like during sacrifices.

Most of these ancient concepts like ritual purification through water cleansing can still be traced in the archaeological record through vase paintings and the remains of the containers this water was held in like *perirrhanteria*, *louterion, phiale* and *chérnips* to name a few. We also see that water sources like fountains or wells were geographical markers in a sanctuary, and that water channels connected these sacred fountains, springs and baths. This can give us an idea of how the sanctuary was structured, as well as show us the boundaries of the *temenos*.

I do believe that more research, both archaeological and epigraphical, could further be done on the similarities between ancient use of water then and today. There were different cleansing techniques or different rituals attached to the consumption of water in ancient times. These concepts that were already existent in ancient cults are still reflected in some aspects of contemporary religions, like the ritual cleansing of a person with holy water when entering a church could be paralleled to the cleansing occurring when entering a sacred temple in ancient Greek sanctuaries. These parallels survived time, and this important aspect of clean water and its effects on human health continues to have applications in the present, just like it will in the future.

Abstract

Sanctuaries in ancient Greece were important religious hubs for the purposes of cult worship. Located on areas anointed as hallowed ground, the sanctuaries played important roles as regional, economic and political centres, attracting many visitors in their time.

This thesis aims to identify and structure the different roles of water in sanctuaries into two main categories. Firstly what the different uses of water are in a practical and utilitarian context, and secondly what the uses of water are in a ritual or sacred context. To analyse the roles and aspects of water in ancient Greek sanctuaries, the archaeological record of two very influential and important Greek sanctuaries is studied: the sanctuary of Zeus at Olympia and the sanctuary of Asklepios at Epidauros. The archaeological traces at these sanctuaries are investigated for traces of structures relating to water management. In addition to analysing and interpreting archaeological water management structures, the analysis of ancient written sources and inscriptions were used to further understand ancient water practices not visible in the archaeological record. Other methods like the study of sacrificial rituals in both sanctuaries provided additional insight into the role of water in cult contexts.

The results showed a wide variety of water usage, with some roles associated to water that we no longer see today in western societies. Ritual roles of water were very unique to Greek religion, and were paired with concepts of pollutions (*Miasma*). In short, water usage had ritual and sacred aspects when dealing with ritual sacrifices, purifications before entering sanctuaries and specific holy temples. Furthermore, water was also believed to have healing properties, and was used to ritually bathe and clean. On the other hand, utilitarian and profane uses of water were more predictable and mostly out of necessities. These include water used for personal needs like drinking, cleaning and bathing. Yet also some non-personal needs like washing sanctuary statues, cleaning sacrificial altars and water spent on watering plants and animals. These results give us a wider view of the dimensions waters could have had in Greek sanctuaries, especially in a cult environment.

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Figures

Cover Image: Munich, Staatliche Antikensammlungen 2412 from Van Straten 1995 (Figure V90).

Figure 1 : Map from Mallwitz 1972, 271: The Greek baths in the south-western corner of the sanctuary around 500 BCE (Colors added by myself).

Figure 2: : 5th century BCE. Olympia: Sanctuary Plan. https://library-artstor-org.ezproxy.leidenuniv.nl/asset/ARTSTOR_103_41822003530258 (Colors and legend added by myself).

Figure 3: 6th or early 5th century B.C. Well, South of Propylon just inside sanctuary, Epidauros, Propylon: Photograph by Maria Daniels, May - June 1990. Perseus Digital Library. Ed. Gregory R. Crane. Tufts University. http://www.perseus.tufts.edu (accessed April 21, 2021).

Figure 4: Original map from Tomlinson 1983 *EPIDAUROS* page 42 (Colors and legend added by myself).

Figure 5: Depiction of the Pre-kill moment before a sacrifice. Taken from Van Straten, *Hiera Kala* 1995, p.390.

Figure 6: Man and woman making a libation at an altar. Attic red-figure amphora, 430BCE. Boston: Museum of Fine Arts. Photograph taken by Museum of Fine Arts, Boston. Image from: Gaifman, M., 2018. *The Greek libation bowl as embodied object.* Doi:/10.1111/1467-8365.12383