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Going against the flow

Wells, cisterns and water in ancient Greece

Edited by Patrik Klingborg

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ABSTRACT

Despite the prevalent picture of the water supply in the ancient world as being dominated by fountains and aqueducts, the large number of excavated wells and cisterns show that these were the primary water sources for most individuals. Yet, little research has been done on their construction, function and use. This prompted the organization of the workshop *Going against the flow. Wells, cisterns and water in ancient Greece*, held at the Swedish Institute at Athens on 28–29 September 2017, and subsequent publication of the contributions in this volume. The ten papers presented here offer new evidence as well as a wide range of new perspectives on the use and function of wells and cisterns in ancient Greece. Considering the ubiquity of these installations in every type of setting during antiquity, from pan-Hellenic sanctuaries and civic centres to domestic workshops and remote farmhouses, it is hoped that the breadth of interest among the authors will allow other scholars to advance their own work further, illuminating new and exciting aspects of life in ancient Greece.

Keywords: wells, cisterns, water supply, ancient Greece, archaeology, climate, sanctuaries

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Cover illustration: section of typical ancient Greek cistern, by Patrik Klingborg

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8. Wells and cisterns in Greek literature

Abstract

This chapter explores the literary evidence for wells and cisterns through a close reading of passages where five terms (*φρέαρ*, *λάκκος*, *δεξαμενή*, *ύποδοχή* and *άγγειον*) occur. The aim is to elucidate what the literary sources reveal about the function of wells and cisterns, how they were used in the literature, as well as how the complex terminology for these installations can be understood. Following a discussion of the material it is suggested that the terminology for wells and cisterns differed because of the diverging development of these types of installations. It is also suggested that the available literary material is not representative of how wells and cisterns functioned and were used at most Greek sites, as these mundane installations rarely interested male elite authors. Instead, the evidence reflects how wells and cisterns were perceived to function in faraway and exotic places, where they could be used to contrast the Greek world to that beyond it.*

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Introduction

While there is an increasing body of archaeological material available for the study of wells and cisterns, the literary evidence remains largely unexplored.¹ Although this chapter cannot fill that gap in full, it aims to provide a preliminary analysis of the literary testimony by exploring passages where the terms *φρέαρ*, *λάκκος*, *δεξαμενή*, *ύποδοχή* and *άγγειον* occur.² Specifically, the paper is focused on what the literary sources can reveal about the function of wells and cisterns, how they were used in the literature, as well as how the complex ancient Greek terminology for these installations can be understood. Notably all five terms explored could, among other things, refer to cisterns but only *φρέαρ* could be used for well. In order to ensure as complete an overview as possible,

¹ On the archaeological evidence, see the introduction to this volume, *Chapter 1*. For a previous study based largely on literary evidence see Smith 1922 which, however, uses the words “spring” and “well” interchangeably while referring to springs with few exceptions. See also Klingborg 2017, 66–71.

² Throughout the original terms are used instead of “well” and “cisterns”, in order to not confuse the terminology further. While there is epigraphic evidence for wells and cisterns, this is not incorporated here as these texts rarely allow the nature of the installation to be revealed (see e.g. the inscription *EM 199*, discussed by Isager 2002). Klingborg (2017, 66–71) discusses probable epigraphic occurrences of cisterns.

all occurrences of the terms in the *Thesaurus Linguae Graecae* (TLG) were investigated as part of a larger study of 7,700 occurrences of water sources mentioned in the Greek corpus.³ Chronologically the paper is limited to material from the last millennium BC.⁴

The previous absence of studies into the literary evidence of wells and cisterns can be attributed primarily to three factors. Firstly, the lack of interest in wells and cisterns as water sources has inhibited research. Secondly, the inconsistent modern understanding of the words cistern and well has posed significant challenges. Thirdly, as is common in ancient Greek, the terms discussed had a wide and partly overlapping semantic range, as well as changing meanings over time and space.⁵

The first two of these issues are no longer greatly challenging. There is clearly a growing interest in wells and cisterns, and in this chapter the modern definitions used in the introduction of this volume are adopted.⁶ A cistern is thus defined as a statically situated waterproof container constructed above or below ground to store water while not having a constant inflow or outflow. A well on the other hand is an artificially created water source—usually, but not necessarily, in the shape of a shaft—dug until it reaches the water table, from which it is fed.⁷ The third issue, on the other hand, poses serious methodological challenges because it is 1) often unclear if the terms explored here are referring to a water source in a specific passage, and 2) if it is a water source, whether this is a well, cistern or other type of installation. For example, in *Theaetetus* Plato writes that “while he [Thales] was study-

ing the stars and looking upwards, he fell into a φρέαρ”⁸. Except that a human could apparently fall into the φρέαρ it is impossible to tell whether it was a well, pit or cistern—all suggested as translations by Henry George Liddell, Robert Scott and Henry Stuart Jones’ *Greek-English Lexicon* (LSJ). In other passages, especially in comedy, there is good reason to believe that the terms explored here did not reflect the usual function of the structures. In Aristophanes’ *Plutus* a φρέαρ is filled with olive oil.⁹ In the context of the play this should probably be interpreted as representing the sudden prospering of the protagonist as even his well now provided a valuable commodity rather than water. Yet, it could also be argued that the word refers to a pithos or other storage jar.¹⁰ Sometimes the context is considerably stranger. In a fragment by the 4th-century BC comedian Anaxandrides, bronze cauldrons larger than twelve-couch λάκκοι (cistern among other translations suggested by LSJ) are mentioned, but it is utterly unclear what this refers to.¹¹

In light of these difficulties, any study exploring the literary testimony for wells and cisterns must decide upon one of two approaches. The first is to assume that the terms refer to wells or cisterns in all occurrences when they are not clearly denoting something else. The second is to use only those passages where the internal evidence shows what kind of installation the word indicates.

The approach used has decisive effects. In the first approach, taking all passages into consideration allows a fairly substantial body of evidence to be studied, more than 200 passages in the case of φρέαρ. Consequently, it offers a wide range of opportunities for interpretation

³ Occurrences in the *Septuaginta* are not included in this chapter.

⁴ Since searches were limited to the period before the 1st century AD, fragments of authors found in later sources were not systematically included.

⁵ Klingborg 2017, 66.

⁶ See *Chapter 1* in this volume.

⁷ See also the definition in Karvonis’ and Fuchs’ contributions to this volume, *Chapters 4* and *7*, respectively.

⁸ Pl. *Tht.* 174a. Translated by North Fowler 1921.

⁹ Ar. *Plut.* 810. Another φρέαρ is mentioned in line 1169.

¹⁰ Note that in Athens pithoi were used significantly less in the Classical period than in Archaic times (Dibble 2017, 247, fig. 7.64; *Agora* 33, 98; Boggess 1972).

¹¹ Anaxandrides, fig. 41.11 (Kock).

and results in regards to how the water supply was arranged, functioned and used. However, because this approach is based on an insecure empirical foundation with the actual meaning of the terms being unknown, any results are ultimately uncertain.

In the second approach, on the other hand, only utilizing passages where we can ascertain the nature of the installation severely limits our body of evidence, since the texts the terms appear in were not intended to convey technical details in order to allow readers to identify structures as wells and cisterns. Analytically, this limiting of the material makes it considerably more difficult to reach significant conclusions. The demand that internal evidence secures the identification of the installations also tends to lead the evidence into suggesting conclusions in line with these demands. For example, in several passages *φρέατα* can be identified as wells because they are mentioned as drying up during droughts.¹² This does not, however, necessarily mean that wells were primarily associated with drying up. Rather, it is an effect of how we can identify wells in literary works.

Since this chapter represents a first study of wells and cisterns in the written sources, the second approach will be used. While limiting the body of evidence, this ensures a secure foundation for further studies. In order to explore these terms each occurrence is treated diachronically, highlighting what the specific passages can tell us about how these sources functioned, were used and viewed. Finally, the chapter will turn to the material on a general level, discussing what the larger body of literary evidence tells us about the ancient Greek world.

¹² Xanthus, frg. 3.6 (*FHG*); Dem. 14.3, 50.61; Arist. [*Mir. ausc.*] 834a–b.

Wells

The usual term for well in ancient Greek was *φρέαρ*. Additionally, modern lexica give *κρήνη*, *κρουνός*, and *ὕδρειον*.¹³ Of these four terms only the first is treated in this chapter. *Κρήνη*, generally viewed as referring to fountains in English, has been treated carefully by scholars in the past, and in particular its relationship to *πηγή*.¹⁴ Briefly summarized, *κρήναι* were artificially elaborated water sources with features such as built walls, stairways and roofs, while *πηγαί* were unmodified natural springs. Often a *κρήνη* was fed by a natural spring, but it could also be supplied by tapping the local groundwater table or by a conduit channelling water from a distant source. Importantly, since *κρήναι* could be supplied by groundwater (see e.g. the *κρήνη* at the Sanctuary of Athena at Tegea¹⁵) they could dry up in a similar manner to wells. All in all, the differentiation between unmodified and modified water sources primarily suggests a conceptual difference between how wells and fountains were viewed and categorized in ancient Greece compared to modern times. For the current purpose one important effect is that it is impossible to differentiate between *κρήναι*, *πηγαί* and *φρέατα* based on whether an installation could dry up.

Κρουνός is considerably rarer in the literary sources than *κρήνη* and *πηγή*, occurring only 21 times before the current era in *TLG*.¹⁶ In none of these cases is it likely that the word refers to

¹³ Linder & Walberg 1862, s.v. *brunn*; Woodhouse 1932, s.v. *well*.

¹⁴ Wycherley 1937; Tölle-Kastenbein 1985; Glaser 2000, 413. The difference between *πηγαί* and *κρήναι* can be shown by how the *πηγή* Callirhoe became the *κρήνη* Enneakrounos once modified (Thuc. 2.15.5)—once transformed the spring even had to change name as it was different in its essence.

¹⁵ Paus. 8.47.4; Glaser 1983, no. 7.

¹⁶ *LSJ* (s.v. *κρουνός*) translates *κρουνός* as spring, well-head, as a metaphor for streams of lava, perspiration and words, watercourse and a nozzle or spout, but not well as understood in this chapter.

a well. Instead, the contexts indicate that it was primarily used to describe springs or various types of flowing water. For example, the 1st-century BC grammarian Philoxenus compared the word to *ρέυμα*, which *LSJ* translates as “that which flows”, “current”, “stream”.¹⁷ Similarly, *ὕδρειον* (“bucket” or “pitcher” and “reservoir” according to *LSJ*) is rare and seems not to refer to wells. Rather it was used for vessels (e.g. *Hdt.* 3.14) and once by Polybius (34.2.6) to describe natural cavities with water in Argos.¹⁸

ΦΡΕΑΡ

In modern scholarship *φρέαρ* is viewed as the word *par excellence* for well.¹⁹ The term is translated by *LSJ* as an “artificial well” (distinct from *κρήνη*), later as “tank”, “cistern”, “reservoir” and various uses as a metaphor.²⁰ It is mentioned about 200 times in the ancient literature before the 1st century AD. Despite the large number of occurrences I have only identified nine occasions where the internal evidence indicates that the *φρέαρ* is either a well following the definition adopted here, or a water supply installation distinguishable from a cistern.²¹ The latter is

important because *φρέαρ* is attested as denoting cisterns in a small number of cases (see below).

The earliest passage providing an insight into the nature of *φρέατα* is found in the *Iliad*.²² This is the only time the word occurs in Homer.²³ In the passage it is stated that all rivers (*ποταμοί*), the sea (*θάλασσα*), fountains (*κρήναι*) and deep *φρέατα* originate from Okeanos. While not clearly describing what the *φρέατα* were, the text suggests that they tapped groundwater and presumably were distinct from *κρήναι*, making it likely that wells were intended.²⁴

Strabo 3.7). Note that Solon’s law about *φρέατα* (preserved in *Plut. Vit. Sol.* 23), while informative, is not included as the specific terminology cannot be pinpointed chronologically. Ruschenbusch (2010, 129) considers the text as such genuine without asserting that it follows the original wording. Leão & Rhodes (2015, 103–106) considers *βάθρος* and/or *τάφρος* to carry the meaning well in frg. 60b of Solon’s laws (*Plut. Vit. Sol.* 23) although not translating the terms as such. Does Plutarch’s terminology reflect the original 6th-century BC text, the revised 5th-century BC version, the wording of an author preserving the laws after the loss of the original *axones* and/or *kyrbeis* (interpreted as three- or four-sided wooden pillars with the laws inscribed on them, mounted on a vertical axis which allowed readers to turn them) (Ruschenbusch 1966, 46–47), or his own times (Blok & Lardinois 2006, 5)? See also Scafuro 2006 concerning how the laws of Solon have been determined as genuine or not. In the case of Thucydides’ (2.47, 54) narrative about the plague in Athens there is no internal literary evidence indicating that these *φρέατα* were wells, although the archaeological evidence strongly suggests as much, as no or very few cisterns are known from Piraeus dating to before c. 400 BC (cf. Klingborg 2017, 129–131). The *φρέατα* in *Diod. Sic.* 2.1.6, 2.48.2 and 2.48.3 also refer to cisterns as shown by cross-referencing with other passages in the work.

²² *Hom. Il.* 21.197. The passage is quoted in Hippon, frg. 1.6 (Diels & Kranz).

²³ It does, however, occur in *Hom. Hymn Dem.* 99 where the goddess sits down by a *φρέαρ* where people draw water, albeit without indicating the nature of the water source.

²⁴ Commentators tend to note that this is the only occurrence of the word (Richardson 1993, 69; Ameis & Hentze 1932, 71; Bull Clapp 1899, 119) and that it is described as deep (Ameis & Hentze 1932, 71; Bull Clapp 1899, 119).

¹⁷ *LSJ* s.v. *ρέυμα*.

¹⁸ *LSJ* s.v. *ὕδρειον*. In the late 1st century BC–early 1st century AD Strabo used the word as a general term for water source (see e.g. 16.1.27), including wells (15.2.3) and cisterns (16.1.27).

¹⁹ See e.g. Lang 1949; Isager 2002, 156; Saba 2012, 77. See also Stroszcek 2017, 46–47.

²⁰ Beekes renders the word as “well” and lists various words using the same stem, almost all associated with water. It goes back to a Proto-Indo-European word (Beekes 2, 1590, s.v. *φρέαρ, -ἄτος*). Frisk translates the word as “*Brunnen*” and notes that it is related to the German word *Brunnen* and that it was once identical to the Armenian word for *Quelle* (Frisk 2, 1040–1041, s.v. *φρέαρ*). Chantraine echoes Frisk concerning the etymology of the word but gives the translation “*citerne*” as well as “*puit*” (Chantraine 4:2, 1126–1127, s.v. *φρέαρ*).

²¹ *Hom. Il.* 21.197; *Hdt.* 2.108.16, 6.119.11; Xanthus, frg. 3.6 (*FHG*); *Dem.* 30.3, 61.5; *Arist. [Mir. ausc.]* 834b.1; *Hecataeus*, frg. 25.751 (*FGH*); *Diod. Sic.* 1.60.6; *Posidonius*, frgs. 26.99–109, 152 (Theiler,

In Herodotus one passage suggests that *φρέαρ* referred to a well.²⁵ In the Egyptian *logos* the author writes that towns not located along the Nile lacked water when the river receded and therefore had to rely on *φρέατα* which provided brackish water.²⁶ The lack of springs in the area and the fact that rainwater collected in cisterns would lack minerals, salts etc. indicates that the installations in this case are wells. In a second, more complex, passage Herodotus writes that “(...) Anderikka (...) is located 210 stades from Susa and 40 stades from the *φρέαρ*, which produces three kinds of substances: for from it they draw asphalt, salt, and oil in the following manner: they draw liquid with a windlass, but instead of a bucket, half a skin has been attached to the contraption. They draw it, having dipped the skin into the liquid, and then pour it into a tank (*ἐς δεξαμενήν*); thence they direct the liquid, which has been poured into a threshing-floor, onto three ways. The asphalt and the salt become solid immediately, but the oil, which the Persians call *rhadinakē*, is black and has a strong smell.”²⁷ The passage provides two important pieces of information. The first is that *φρέαρ* could be used to describe installations producing substances other than water. Secondly, the passage contrasts *φρέαρ* with *δεξαμενή*, i.e. installations receiving substances.

Roughly contemporary with Herodotus, the historian Xanthus wrote about a great drought in Armenia, Matiene, and Lower Ph-

rygia during the reign of Artaxerxes I (465–424 BC), when rivers (*ποταμοί*), lakes (*λίμναι*) and *φρέατα* dried up.²⁸ In this case the possibility of drying up suggests that the *φρέατα* relied on naturally occurring water resources or the water table, just like rivers and lakes. Since cisterns do not dry up, they can be excluded as the intended translation of the term in this case.²⁹ It is, however, possible that the *φρέατα* in Xanthus’ passage refer to springs or fountains.

During the 4th century Demosthenes and the historian Hecataeus, as well as a passage attributed to Aristotle, mention *φρέατα* in contexts where the word may designate wells. The first of two occurrences in Demosthenes’ corpus is in *Peri ton symmorion* where it is mentioned that constantly drawing water from fountains (*κρήναι*) and *φρέατα* will cause them to fail.³⁰ In the text the *κρήναι* and *φρέατα* can be viewed as a metaphor for fleet expenditure draining resources dry. Notably, during the 4th century BC the water levels in wells were falling in Athens. Such a metaphor would consequently be understood by the jury.³¹ The second occurrence of *φρέατα* in Demosthenes’ corpus is in *Against Polyycles* where the accuser, Apollodorus, states that during a year it was so dry that even the *φρέατα* dried up.³² As in the passage above, the ability of *φρέατα* to dry up suggests that they are not cisterns, but this argument cannot be used to differentiate be-

²⁵ Hdt. 2.108, but cf. 6.119.

²⁶ Asheri *et al.* (2007, 319) note that Herodotus’ interest in the effect of different types of water on the health was in line with contemporary concerns.

²⁷ Hdt. 6.119. Translated by C.J.O. Erixon. Compare to Hdt 1.179 and 4.195, both concerning the production of such substances. Hornblower & Pelling (2017, 264) suggest that this passage was a later addition. Rawlinson (1839, 93–94) noted that the same method was still used in the area during his time, as did How & Wells (1912, 114). For a more substantial comment on the process of producing the substance mentioned, see Scott 2005 (calling it tar). For *δεξαμενή*, see below.

²⁸ Xanthus, frg. 3.6 (*FHG*, quoted in Strabo 1.3.4.14). He wrote extensively on unusual geological phenomena (Roller 2018, 42). See also Pearson 1939, 109–138, in particular 116, 123. Xanthus seems to compare this drought to cases in which the sea had withdrawn from land, leaving fossils of sea creatures behind (see also Matthews 2015, 493).

²⁹ Cisterns can, however, run dry due to human overuse (Klingborg & Finné 2018).

³⁰ Dem. 14.3. For an in-depth study of the speech, see Drakonaki-Kazantzaki 2004.

³¹ Camp 1977, 250–259. Note that Camp explains the falling water levels by a prolonged drought, not overuse. See also Klingborg 2017, 129–131.

³² Dem. 50.61.

tween wells, springs and fountains. However, since springs and fountains were much rarer than wells the latter is a more likely candidate.

Φρέατα could also behave curiously. In the work *De mirabilibus auscultationibus*, attributed to Aristotle, it is related how *φρέατα* in Pythopolis, a village near Lake Ascania in north-west Asia Minor, dried up during the winter but produced plenty of water in the summer.³³ Here the naturally shifting water levels suggest that the structures were not cisterns.

In a passage preserved as a fragment in Didorus Siculus, the historian Hecataeus of Abdera, c. 300 BC, described the situation of the Rhinocolura penal settlement which was located in an unsuitable area at the border between Syria and Egypt.³⁴ One of the many things that made the location poor was that it only had access to a small water supply from *φρέατα*, and their content was impure and bitter. This description, suggesting the intrusion of minerals, is consistent with what one might expect from wells, but not cisterns.³⁵

Finally, a complex fragment by Posidonius (c. 135–51 BC) describes the curious behaviour of the *φρέατα* in the Heracleium at Gades.³⁶ The passage is recorded in Strabo, who begins by discussing why Polybius believed that the water level in a fountain (*κρήνη*) at the site changed in relation to the ebb and flow of tides.³⁷ Following this Strabo wrote that Posidonius called Polybius' story false. Instead Posidonius related an alternative version in which he described how the water levels in two *φρέατα* in the sanc-

tuary, and a third in the city, rose and fell.³⁸ According to him, if one drew water continuously from the smaller *φρέαρ* in the Heracleium then it would fail within the hour. It would then recover once water was no longer drawn. It was, however, possible to draw from the larger *φρέαρ* the whole day without emptying it—although Posidonius adds the caveat that the water levels fell in this too, as in all *φρέατα* when used. It was then completely refilled during the night. Later in the passage this filling up in the night is discussed in relation to the ebb and flow of the sea. While thorny, the passage attests key features for *φρέατα*. First of all it suggests that the word refers to wells in this case, as the water levels fall when water is drawn and then rise again. It also highlights that *φρέατα* in close vicinity can have different properties. In this case one could take heavier use than the other. The theories of the connection between the water levels and the ebb and flow of the sea also show how it was envisioned that the different bodies of water were interconnected.

Cisterns

In contrast to wells, a wide range of ancient terms were used to denote cisterns. The most frequent words in modern scholarship are *λάκκος*, *δεξαμενή* and *φρέαρ*. In addition to these there are informative passages in which *ὑποδοχή* and *ἀγγεῖον* clearly refer to cisterns. Epigraphically *ειγαν* has been shown to denote a cistern in one case and during Roman times the word *κιστέρνα*, likely to be a direct render-

³³ Arist. [*Mir. ausc.*] 834a–b. The attribution to Aristotle is outright denied by Barnes 1984.

³⁴ Hecataeus, frg. 25.751 (*FGH*, Diod. Sic. 1.60.6). Burton 1972 does not comment on the water supply in the settlement.

³⁵ Compare to Herodotus above concerning brackish water from wells in villages not along the Nile.

³⁶ Posidonius, frg. 26.99–109 (Theiler). See also Posidonius, frg. 26.152 (Theiler). Quoted in Strabo 3.5.7–8.

³⁷ Polyb. 34.5.9 (fragment in Strabo 3.5.7).

³⁸ Pliny the Elder (*HN* 2.100) further complicated the matter by describing the same spring (*fons*) as Polybius but adding that it was enclosed as a well (*puteus*). This strengthens the notion that the division between wells and fountains was not as clear-cut in antiquity as today.

ing of the Latin *cisterna*, was used by Heron of Alexandria.³⁹

ΛΑΚΚΟΣ

The most common term for cistern was *λάκκος*. It is translated by *LSJ* as a “pond” in which water-fowl were kept, as a contemptuous expression for “the Sea of Galilee”, and as a “cistern”, “tank”, “pit”, “reservoir” or a “pit” for storing wine, oil or grain. *Λάκκος* is also stated to have been used for the *Lacus Curtius* on the Forum Romanum and for a kind of garment.⁴⁰ Before the current era *λάκκος* occurs about 20 times in Greek literature, out of which eleven are relevant when discussing cisterns. These occurrences can be divided into two categories: incidental mentions and comic uses.

The earliest incidental use is found in Herodotus who discusses how the inhabitants of Zacynthus used a branch to collect tar from a pond (*λίμνη*) and then store the fluid in a *λάκκος*.⁴¹ Once enough tar had been col-

lected in the *λάκκος* they filled amphorae from this. While the *λάκκος* in this case did not hold water it shares the function of cisterns in being a static installation storing a liquid without a constant inflow and outflow. In another passage by Herodotus, *λάκκος* is used to denote a space where waterfowl were kept, presumably a pond or similar.⁴²

A passage in Xenophon’s *Anabasis* is even more curious.⁴³ In it the author relates how the Greek army arrived in a settlement which was described as wealthy, among other things because they had lined *λάκκοι* filled with wine.⁴⁴ The specification that the *λάκκοι* were lined is notable because it may have been a way to stress that they were comparable to the recently popular cisterns in Athens, and not pits, ponds or ceramic vessels.⁴⁵

Later in the 4th century BC the word was used by Demosthenes in his third speech against Aphobos, when the author noted that the man stripped his house of everything valuable, including destroying the *λάκκος*.⁴⁶ While there is no internal textual evidence showing that this is a cistern, two factors suggest it. First, the word is in singular, meaning that we are unlikely to be dealing with regular vessels, of which there must have been a multitude. Secondly, the *λάκκος* in this case should be expected to be static and built into the house, as we are told that Aphobos removed everything movable. Cisterns were also expensive

³⁹ No accents or aspiration marks are known as *εἴγων* is attested only epigraphically (*ID* 2234, line 13). See Klingborg 2017, 66, n. 425. For *μιστέρνα*, see Heron of Alexandria, *De mensuris* 1.20–22.

⁴⁰ Beekes translates the word as pond, cistern, pit, reservoir, stating that it may stem from the Indo-European word **loku-* (Beekes 1, 827, s.v. *λάκκος* 1). In Frisk’s etymological dictionary, the word is rendered as “*Wasserloch*”, “*Zisterne*”, “*Teich*”, “*Grube*” (ion. att.). The word has cognates in Celtic (Old Irish *loch*, “*See*”) and Slavic (Old Church Slavonic, *lagu*, “*See, Wasser*”) (Frisk 2, 75–76, s.v. *λάκκος*). Chantraine’s entry on *λάκκος* is reminiscent of that by Frisk, and he translates the word as “*étang*”, “*citerne*” and “*reservoir*”. He also mentions a number of derogatory terms deriving from *λάκκος*. The etymology given in Chantraine mirrors that of Frisk (Chantraine 3, 615, s.v. *λάκκος*). *Λάκκος* corresponds to the Latin word *lacus* (*OLD* s.v. *lacus*).

⁴¹ Hdt. 4.195. Compare to the *φρέα* “of three kinds”, the substance of which was stored in a *δεξάμενή* (see above). Both How & Wells (1912, 368) and Macan (1895, 145) noted that several contemporary scholars attested to the presence of tar sources in the area. The substance is sometimes translated as pitch or asphalt. A study into what substances are intended would be useful.

⁴² Hdt. 7.119. Macan (1895, 149) interprets this *λάκκος* as an artificial pond or reservoir.

⁴³ Xen. *An.* 4.2.22.

⁴⁴ Xenophon uses the word *κονιατός* for lining, often translated as cement. The word lining is preferred here as we do not know the chemical composition of the substance (see Klingborg 2017, 43, n. 245).

⁴⁵ Lee 2007, 228, interprets these *λάκκοι* as cisterns. Cisterns became increasingly popular in Athens from the beginning of the 4th century BC (Stroszeck in this volume, *Chapter 5*; Camp 1977; Klingborg 2017, 57–66, 129–131). Cf. *Ar. Eccl.* 154.

⁴⁶ Dem. 29.3. The authenticity of the speech has sometimes been questioned (Miller Calhoun 1934).

and would therefore warrant a mention in the speech.⁴⁷

Turning to a completely different context, *λάκκοι* are mentioned a number of times in Greek comedies and other humorous settings. The earliest such occurrence is in Aristophanes' *Ecclesiazusae* where a woman argues that *λάκκοι* for water should be banned in bars.⁴⁸ Presumably the passage plays on the ancient view that women were addicted to wine and therefore wanted to drink it unmixed.⁴⁹ The passage shares two important aspects with Xenophon's mention of lined *λάκκοι*. The first is that Aristophanes felt the need to specify that these were water *λάκκοι*, suggesting that *λάκκοι* in bars not necessarily referred to something related to water. Secondly, *Ecclesiazusae* was produced just when cisterns became popular in Athens. In this case, mentioning *λάκκοι* may therefore have added a humorous novelty to the passage. In another passage, a fragment of the 3rd-century BC comedian Apollodoros of Carystus, a "τοῦ λάκκου κάδος" is mentioned.⁵⁰ Since *κάδοι* are well known as vessels used to draw water it is possible in this case to connect the *λάκκος* to the water supply system.⁵¹

A passage in Aristophanes' *Nubes* is key in understanding the use of the word *λάκκος* in most other humorous contexts.⁵² In the passage a father calls his spoiled son a *λακκόπρωκτος*, which can be translated as cistern-ass. I have

elsewhere argued that the term was offensive because cisterns were viewed as passive within the framework of the water supply system because they did not produce water. Through this quality they invited comparison with individuals who were viewed as taking passive (and therefore shameful) sexual roles.⁵³ This use of the word *λάκκος* as a derogative and laughter-inducing term enables our understanding of most other passages where the word is used as a joke. This is probably why it is stated in a passage in Aeschines' speech *Against Timarchus* that the word *λάκκος* improperly provoked the people into laughter during a trial.⁵⁴

Λάκκος also occurs in two passages concerning a prostitute named Gnathaina.⁵⁵ In the first passage, by the 3rd-century BC comedian Machon, the wine given to the character Diphilos by Gnathaina is unusually cold.⁵⁶ He does not know this is because the wine was mixed with snow (implicitly, instead of water) and cries out that Gnathaina's *λάκκος* is certainly cold. This seems to suggest that the *λάκκος* stored water which was mixed with wine. At the same time, it is a sexually charged double entendre based

⁴⁷ Klingborg 2017, 72–75.

⁴⁸ Ar. *Ecl.* 154. Ussher (1973, 97) interpreted these *λάκκοι* as usually being used for wine "in any 'local'" based on Xen. *An.* 4.2.22 (discussed above), something which seems unlikely as there would have been many more convenient ways to store wine, as well as the fact that most cisterns in Athens could hold tens of thousands of litres of liquid (Klingborg 2017, 77 and nos. 1–171) which seems excessive for wine.

⁴⁹ Kelly-Blazby 2006, 29.

⁵⁰ Apollodoros Comic., frg. 1.1 (Kock).

⁵¹ On *κάδοι*, see Amyx 1958, 186–190; Brinker 1990, 66; Klingborg 2017, 88–91.

⁵² Ar. *Nub.* 1328–1330. The word also occurs in Eupolis, frg. 351 (see Olson 2014, frg. 385 K.-A., p. 123).

⁵³ Klingborg 2013; 2016; 2017, 68, 122–124. The connection to passivity is highlighted by the use of the words *δεξάμενή* and *ὑποδοχή* for cistern, both of which stem from *δέχομαι*, to receive. Previously I have focused on the use of the term as derogatory for homosexual men taking what was perceived as an inappropriate passive role, but after further considerations I now believe that it may just as well have been used to stress the inability of (in particularly vulnerable) women to take active sexual roles. Sommerstein (1982, 224) believed that it was the broad opening of the *λάκκος* which was the point of comparison. However, this is unlikely as wells usually had wider openings than cisterns (Lang 1949). The expanding shape of most cisterns could, however, have provoked comparisons.

⁵⁴ Aeschin. *In Tim.* 84.

⁵⁵ The joke in a passage by Anaxandrides (Kock frg. 41.11) is less clear. A *λάκκος* and a *φρέαρ* are also mentioned in Alexis, frg. 174.9 (Kock) and in Euphron, frg. 1.25 (Kock). In the latter passage the *λάκκος* does not seem to play a specifically humorous role.

⁵⁶ Machon, frg. 16.282 (Gow).

on *λάκκος* being used to refer to the bodily orifice (anus or vagina) of a person playing what was perceived as a passive or a submissive sexual role. Therefore, the line could be interpreted either as that the water in the *λάκκος* was cold or that Gnathaina's anus or vagina was cold. In the second passage, by Aristodemos, a soldier calls Gnathaina a *λάκκος*, at which Gnathaina asked whether this was because two rivers empty into her.⁵⁷ It is also explicitly stated that calling her a *λάκκος* was very rude. In this case too, I interpret the word is a derogatory term used for individuals adopting what the Greeks considered a passive or submissive role in a sexual relationship, and should be related especially to anal sex as it was used for both men and women.

ΔΕΞΑΜΕΝΗ

The word *δέξαμενή* was also sometimes used for cistern. Stemming from *δέχομαι*, meaning to “take”, “accept” or “receive”, it is translated by *LSJ* as a “receptacle” for water, a “tank” or a “cistern”, of the “veins”, a “vehicle” as a matter of form and generally as a “receptacle”.⁵⁸ Beside the four passages relevant here, it is securely attested as denoting cisterns in the Astynomoi Inscription from Pergamon, dated to *c.* 200 BC (see below).⁵⁹ The pre-Socratic Democritus defined *δέξαμεναι* as “containers for fluids, and the veins in the body”.⁶⁰

In Herodotus two occurrences of the term *δέξαμενή* elucidate its meaning. The first time it is the end-point of a long-distance conduit made of oxhides, thus acting as a reservoir in the terminology used here.⁶¹ The second time is more interesting as Herodotus describes a “*φρέαρ*, which produces three kinds of substances”, i.e. a well from which asphalt and salt and oil was drawn and then poured *ἐς δέξαμενήν* (see above).⁶² From here the drawn substance was poured into yet another *δέξαμενή* where it was separated. While the *δέξαμενή* in this case shares some traits with cisterns, such as being a presumably static container for fluids, the important aspect of the passage is that Herodotus clearly distinguished between *φρέατα* and *δέξαμεναι*—the former produce the liquid substance, the latter store it.

During the 4th century BC Plato used the word to refer to cisterns in a passage discussing how hot baths should be supplied with water during the winter: *δέξαμεναι* should be constructed, some under the open sky, suggesting that they harvested rainwater, and some under cover.⁶³ The water collected for those under cover seems to be envisioned as coming from the *κρήναι* mentioned in a preceding line. Later in that century Aristotle wrote that anything moist becomes black with time, as the lining in *δέξαμεναι*.⁶⁴ Such black lining has been found by archaeologists in some cisterns and reservoirs, occasionally interpreted as water lines.⁶⁵

Lastly, Posidonius (*c.* 100 BC) mentioned a *δέξαμενή* adjoined by the adjective *λακκαίος*,

⁵⁷ Aristodemos, frg. 9.4 (*FHG*).

⁵⁸ *LSJ* s.v. *δέχομαι*. Beekes mentions a large number of words stemming from *δέχομαι* including *δέξαμενή* which he translates as water collector (Beekes 1, 320–321, s.v. *δέχομαι* 1). Frisk also discusses the words stemming from *δέχομαι*, but not *δέξαμενή* specifically (Frisk 1, 373–374, s.v. *δέχομαι*). Chantraine mentions *δέξαμενή*, which he translates as “*réservoir d'eau, citerne*”, “*réceptacle*”, under *δέχομαι*, noting that the word still exists in modern Greek (Chantraine 1, 269, s.v. *δέχομαι*).

⁵⁹ *OGIS* 483, lines 203–232.

⁶⁰ Democritus, frg. 135 (Diels & Kranz). Translated by Laks & Most 2016.

⁶¹ Hdt. 3.9. For another use of *δέξαμενή* as a reservoir, see Diod. Sic. 2.9.1.2. For other liquids in *δέξαμεναι*, see urine in Posidonius frg. 24.18 (Theiler).

⁶² Hdt. 6.119. Translated by C.J.O. Erixon.

⁶³ Pl. *Criti.* 117b. Nesselrath (2006, 349) comments on suggested emendations of the passage as well as difficulties in ascertaining what water was used for what purpose.

⁶⁴ Arist. [*Col.*] 794b.

⁶⁵ See e.g. Stroszcek 2012, fig. 2. For water lines, see Klingborg 2017, nos. 15, 67, 238, 271.

presumably intended to signal that the installation was indeed a cistern. This seems to have been done in order to differentiate the *δέξαμενή* from *φρέατα*, referring to wells (as can be shown due to shifting water levels) in the same passage.⁶⁶ There were thus means to differentiate clearly between various types of water sources when so desired.

ΥΠΟΔΟΧΗ

Also stemming from *δέχομαι*, *ὑποδοχή* is translated as “reception” in *LSJ* with the secondary meanings “receptacle” and “reservoir”.⁶⁷ Of the c. 100 passages where the word occurs, two are relevant here.⁶⁸ Most of the others relate to the entertainment of guests.⁶⁹

In an often-cited passage in Aristotle’s *Politika*, *ὑποδοχαί* refers to cisterns.⁷⁰ In the passage Aristotle argues that cities should be naturally well watered, but if this is not the case, large *ὑποδοχαί* should be constructed in order to collect rainwater. This is framed within the need to ensure that the citizens should not be deprived of water during a siege. However, immediately after this passage the importance of water for the health of the population is brought up, connecting the needs in war and peace. In modern

scholarship the passage has been used to argue that a bountiful water supply was central when founding Greek cities and that cisterns were useful defensively.⁷¹ In a second passage, found in a 2nd-century BC epistle by the fictive Jewish author Aristaeas, it is described how the temple in Jerusalem was well supplied with water from a spring (*πηγή*) and *ὑποδοχείον* (a variant of *ὑποδοχή*).⁷² These latter are described as having their bottoms and walls covered with lead, being lined, and fed by countless pipes, traits identifying them as cisterns.⁷³ Moreover, the *ὑποδοχεῖα* were apparently very large, spreading over an area of about a kilometre. Presumably Aristaeas is therefore describing a system of connected cisterns. Such cistern systems are well known from the Greek world, albeit on a considerably smaller scale.⁷⁴ The use of lead to cover the surface of cisterns has parallels in Athens, Phalasarina and Samos.⁷⁵

ΑΓΓΕΙΟΝ

Αγγεῖον is translated by *LSJ* as a “vessel” for holding liquid or dry substances, a “jar” or “vase”, a “vessel” for holding money, a “pail” or “bucket”, a “sack” of leather, a “box”, a “receptacle” or “reservoir”, the “bed of the sea”, a “coffin” or “sarcophagus”, a “vessel” or “cavity” in the human body, “afterbirth”, or “plant capsule”, and later the “body” itself.⁷⁶ Among several

⁶⁶ Chrysippus, frg. 872.3 (von Arnim); Posidonius, frg. 26.108 (Theiler). See above, p. 166.

⁶⁷ On the stem see Beekes 1, 320–321, s.v. *δέχομαι* 1.

⁶⁸ Arist. *Pol.* 1330b; *Aristaeas ad Philocratem Epistula* 88–91. In a third passage (Arist. *Mete.* 349b.13–16) Aristotle discusses the nature of rivers and relates how Anaxagoras argued that rivers originated from rain that had gathered in great underground hollows, which he also calls *ὑποδοχαί*, during the winter. While Aristotle dismissed this theory, it is notable that he used the word to describe something with the ability to store rainwater, regardless of whether it was artificially constructed or not. *Αγγεῖον* (discussed below) is used in the same manner by Aristotle (e.g. Arist. *Mete.* 349b, 353b).

⁶⁹ E.g. Arist. *Eth. Nic.* 1123a; Polyb. 5.8.5; Dion. Hal. *Ant. Rom.* 7.71.3.

⁷⁰ Arist. *Pol.* 1330b. For modern references to the passage in question see e.g. Stroszcek 2021, 110; Crouch 1993, 52; Brinker 1990, 6; Camp 1977, 148.

⁷¹ E.g. Mays 2010, 15; Crouch 1993, 52; Burns 1974, 409.

⁷² *Aristaeas ad Philocratem Epistula* 88–91. For the date and author, see White & Keddie 2018, 32–38.

⁷³ For cisterns under the Temple Mount in Jerusalem, see Gibson & Jacobson 1994, 1996. Honigman (2003, 23) notes that the *raison d’être* for Aristaeas’s description of these water works is to be found in Aristotle (*Pol.* 1330b) who discusses the need for a good water supply.

⁷⁴ See Klingborg 2017, 24–26; Gibson & Jacobson 1996.

⁷⁵ Klingborg 2017, nos. 5, 37, 62, 376, 378. These were, however, only partly covered on the bottom.

⁷⁶ Frisk translated *ἀγγος*, from which *ἀγγεῖον* developed, as “*Gefäss*” and notes that the etymology remained unexplained and that no secure Indo-European connec-

hundred occurrences the word refers to cisterns only twice and in both cases the meaning can be linked to storage.⁷⁷

The earlier passage where *ἀγγείον* can mean cistern is found in Plato's *Laws*.⁷⁸ There a law prohibiting the wanton spoiling of other individuals' water sources is discussed, mentioning specifically *πηγαί* and *ἀγγεία* as examples. The proposed punishment is the cleaning of the water source as well as a fine compensating for the damage. Importantly, discussing the punishment the term *πηγαί* is still used while *ἀγγεία* was replaced with *συναγυρτόν* (collected) water. While it is not specified where the collected water comes from, the *ἀγγείον* is likely to be a cistern, especially considering that Aristotle somewhat later stressed the ability of *ὑποδοχαί* to gather water.

More importantly, *ἀγγείον* was used by Diodorus Siculus (19.94.6–8) in the most complete description of a cistern in ancient Greek literature. According to him the Nabataeans withdrew to the desert whenever they were attacked because the lack of water prevented enemies from surviving. The Nabataeans themselves, on the other hand, had prepared *ἀγγεία* which ensured a readily available supply of water. These *ἀγγεία* are described as lined subterranean structures with a small opening expanding under the surface until they were of great size. The *ἀγγεία* were then filled with rainwater, the

openings closed and hidden. With the exception of hiding them this closely reflects cisterns excavated in all areas inhabited by Greeks.

One important detail is that while Diodorus Siculus described the *ἀγγεία* in book 19 he had already mentioned them briefly in 2.1.6, 2.48.2 and 2.48.3. However, in those passages he used the term *φρέαρ*. Consequently, by the 1st century BC at the latest *φρέαρ* was used in the literature to denote cisterns.⁷⁹

The literary testimony

In regards to the terminology for wells and cisterns, it is notable that while *φρέαρ* seems to have been the only widely used word for well, a range of terms were used to describe cisterns. This difference may be due to the diverging development of the two types of water sources. Wells were an established type of water installation since Neolithic times, used throughout the Bronze Age and common by the time the first written sources appear in the Greek world.⁸⁰ Presumably this ensured that an established terminology was in existence long before there were any means to write it down. Cisterns, on the other hand, were very rare in Greek societies before the 4th century BC when they spread relatively quickly.⁸¹ It is possible that this led to several terms being used simultaneously in order to describe these essentially new water sources. This notion is corroborated by the terminology used during the 4th century BC: Xenophon (and perhaps Demosthenes) used the word *λάκκος*, Aristotle *λάκκος* and *ὑποδοχή*, and Plato *δέξαμενή* and *ἀγγείον*.⁸² Notably, all these terms are descriptive in nature. This tendency

tion has been established (Frisk 1, 8, s.v. *ἄγγος*). Chantraine translates *ἄγγος* as a general term for a container and adds that it is known in Mycenaean. The term *ἀγγείον* is considered a derivative of *ἄγγος* (Chantraine 1, 8–9, s.v. *ἄγγος*). Beekes does not mention *ἀγγείον*, but translates *ἄγγος* as vessel, noting that it may be a Mediterranean loanword and that there is a possible Mycenaean counterpart (Beekes 1, 10, s.v. *ἄγγος*).

⁷⁷ Pl. *Leg.* 845c and Diod. Sic. 19.94.6–8. In a third passage, by the 3rd-century BC comedian Machon (frg. 16.259, Gow), *ἀγγείον* may play on the same pun as the *λακκόπρωκτος* discussed above. For other uses see e.g. Hdt. 4.2.8; Xen. *Oec.* 8.11.4; Pl. *Lysis* 219e.

⁷⁸ Pl. *Leg.* 845c. The *ἀγγεία* are translated as *Zisternen* in Schöpsdau's (2011, 233) extensive commentary.

⁷⁹ The way in which the two terms were used by the author is explored below.

⁸⁰ Camp 1977.

⁸¹ Klingborg 2017, 52–66.

⁸² Xen. *An.* 4.2; Dem. 29.3; Arist. [*Pr.*] 899b; Arist. [*Col.*] 794b; Pl. *Criti.* 117b; Pl. *Leg.* 845c.

by influential authors to use different words may have caused the terminology to diverge in the following centuries. That does not, however, necessarily mean that the oral terminology for cisterns within the population of a specific community would have been as inconsistent, especially as the difference between a well and cistern was critical in terms of how the water resource could be utilized.

This difference between wells and cisterns also makes the use of the term *φρέαρ* for both types curious. According to *LSJ* the use of *φρέαρ* for cistern is a later phenomenon.⁸³ It is first securely attested, epigraphically, around 200 BC in the Astynomoi Inscription from Pergamon and in the literature during the 1st century BC by Diodorus Siculus.⁸⁴ Two questions seem particularly important: how early did *φρέαρ* begin to denote both wells and cisterns, and why? While the current material does not provide any secure evidence for the first question, the large number of cases in which the meaning of *φρέαρ* cannot be determined before 200 BC make it possible, if not likely, that at least some refer to cisterns considering the widespread use of these from *c.* 400 BC.

In regards to the second question, it is tempting to assume that the physical similarities between wells and cisterns when viewed

from the surface may have led individuals to think of them in similar terms. For example, in one passage Aristotle discusses how echoes are affected by different environments, including if a house has a *λάκκος* or *φρέαρ*.⁸⁵ While it is impossible to determine the nature of the *λάκκοι* and *φρέατα* in this case, it is notable that Aristotle describes them together as having a “narrowness and compactness”, suggesting that he perceived them as similar.⁸⁶ Yet, that does not explain why the cisterns at Pergamon, where there were almost no wells, were called *φρέατα* and *δεξαμεναί*.⁸⁷ Sara Saba argued that “The linguistic conflation might have depended on the fact that these two types of water deposits were respectively poorly and extremely well represented in town, or in other words, one term absorbed the other”.⁸⁸ But this seems difficult to accept in a legal text which would be expected to have a more stringent terminology.⁸⁹

Diodorus Siculus is more instructive in respect to the Greek terminology for wells and cisterns. As noted above, he chose the word *ἀγγεία* in order to describe cisterns used by the Nabataeans to secure water in the desert during warfare in book 19. However, in book 2 the same phenomenon had already been mentioned, but in that case the water sources were called *φρέατα* (three occurrences).⁹⁰ Consequently it seems as if Diodorus used the terms

⁸³ *LSJ* s.v. *φρέαρ*.

⁸⁴ The Astynomoi Inscription from Pergamon is a document recording a wide range of duties of the *astynomoi*, a type city magistrate usually concerned with e.g. keeping streets and sanctuaries clean. The Astynomoi Inscription from Pergamon includes regulations on e.g. the digging up of rubble on streets, construction of certain walls, and public latrines to be enforced by the *astynomoi*. In general hefty fines are prescribed for those not adhering to the law, as well as for *astynomoi* not ensuring that the rules were being followed. The preserved inscription has been interpreted to originate from the early 2nd century AD while the consensus view is that the text itself dates to the earlier part of the 2nd century BC (Saba 2012, 13–18). For Diod. Sic. see the *φρέατα* in 2.1.6 and 2.48.2–3 in relation to the the *ἀγγεία* in 19.94, discussed further below.

⁸⁵ Arist. [*Pr.*] 899b.

⁸⁶ Translated by Mayhew 2011.

⁸⁷ *OGIS* 483, lines 203–232. Both words are used three times each, without any obvious pattern, in the 30 lines concerned with cisterns. Klaffenbach (1954, 17) considers the use of the words completely synonymous.

⁸⁸ Saba 2012, 77. It is uncertain if town refers to Pergamon or towns in general.

⁸⁹ Klaffenbach 1954, 17.

⁹⁰ Diod. Sic. 2.1.6 and 2.48.2–3 in comparison to 19.94. The connection between the passages is also suggested by Oldfather 1933 (see Oldfather’s note for passage 2.1.6). It is only through the connection between Diod. Sic. 2.1.6, 2.48.2–3 and 19.94 that it is possible to conclude that *φρέαρ* refers to cisterns in the first two instances.

ἀγγείων and φρέαρ synonymously.⁹¹ Yet, comparing the eight occurrences of the word φρέαρ in Diodorus Siculus reveals a more complex situation.⁹² In one occurrence the context does not allow us to identify the nature of the φρέαρ.⁹³ Three times it is used as a synonym for ἀγγείων.⁹⁴ Twice it occurs in quotes by earlier authors; in one of these quotes the word refers to a well, and it is likely to do so in the second.⁹⁵ Once it is used in the story of the plague in Athens during the Peloponnesian War, including how the inhabitants in the city threw themselves into φρέατα.⁹⁶ Based on archaeological material, these φρέατα are likely to have been wells.⁹⁷ Finally, once the word is used to describe a named water source (Lilybaeum).⁹⁸ While not conclusive, it seems to have been considerably more common to name springs and fountains than wells.

In the end no single plausible suggestion for how and why φρέαρ came to be used for cistern can be offered here. Assuming that it was in order to give the texts variation seems overly simplistic. But regardless of the underlying reasons it is important to note that φρέαρ need not automatically denote wells in uncertain cases.

Turning away from the individual occurrences, three general aspects can be observed for φρέατα: 1) they had the ability to produce water

(although the word was used for structures producing other substances too), 2) to dry up and 3) were viewed as interconnected with other water sources. The two first aspects are largely a product of the method used here to identify passages, rendering further conclusions uncertain. The connection with other water sources is, however, interesting because it can be linked either to the general notion in antiquity that all living water sources were part of the same system or an understanding that nearby wells share water resources. Of these two, the view that all freshwater sources were part of Okeanos, as explicitly stated by Homer in the passage above, is often mentioned in the ancient literature. Similar notions are expressed in terms of how watercourses, such as the Alfeios, could traverse long distances underground to reappear far away,⁹⁹ and how the Peirene in Corinth was considered as being fed by the Upper Peirene on the Acrocorinth.¹⁰⁰ But despite this notion of interconnectedness the passages do not reflect upon *why* drawing too much water from one well would affect those nearby. This is especially notable in the detailed attention given to the wells at the Heracleium at Gades.

It is also notable that wells and cisterns are seldomly mentioned in the literature, considering the number of such installations in ancient Greece and the importance they must have played in everyday life.¹⁰¹ That almost all of the literary material was produced by elite men may have contributed to this, as it seems reasonable to assume that this group rarely, if ever, had to draw water themselves. The evidence thus supports the notion that such work was usually performed by women or low-status men. In line

⁹¹ Φρέατα clearly means cistern in the Astynomoi Inscription from Pergamon (*OGIS* 483, lines 203–232), c. 200 BC. See also Klingborg 2017, 67, 70; Stroszcek 2017, 43.

⁹² Diod. Sic. 1.41.1, 1.60.7, 2.1.6, 2.48.2–3, 5.50.6, 12.58.5, 13.54.4.

⁹³ Diod. Sic. 5.50.6.

⁹⁴ Diod. Sic. 2.1.6, 2.48.2, 2.48.3.

⁹⁵ Diod. Sic. 1.60.7 (Hecataeus of Abdera, passage discussed above) mentioning φρέατα with impure and bitter water, suggesting that they relied on groundwater, and 1.41.1 (Oenopides of Chios) saying that water in deep φρέατα is cold during the summer but warm during the winter.

⁹⁶ Diod. Sic. 12.58.5.

⁹⁷ Cf. Klingborg 2017, 129–131.

⁹⁸ Diod. Sic. 13.54.4.

⁹⁹ Polyb. 16.17.6.

¹⁰⁰ Strabo 8.6.21; Paus. 2.5.1–2. See also Robinson 2011.

¹⁰¹ About 230 wells and 160 cisterns are known from the Athenian Agora and its immediate environment (Klingborg 2017, nos. 1–156; Camp 1977, 183), 240 cisterns at Piraeus (von Eickstedt 1991, 194–237), 240 wells at Olympia (Kyrieleis 2011, 114) and 150 cisterns at the *Burgberg* in Pergamon 150 (*AvP* 1:4, 17–23). For the importance in everyday life, see Klingborg 2017.

with this, wells and cisterns are almost never mentioned in the circumstances where they would usually be found in ancient Greece, i.e. domestic or small-scale industrial contexts.¹⁰² Instead both wells and cisterns tend to appear in passages describing life in distant areas—we hear more about them in Egypt, Libya and the Levant than in Greek areas—or in the case of *λάττοι*, crude jokes presumably intended to keep the interest of the masses in the theatres, not only that of the elite.¹⁰³

This tendency to mention strange wells and cisterns in exotic contexts can perhaps be linked to ways in which Greek identity was often created in relation to that of other peoples;¹⁰⁴ from this point of view the inclusion of these installations can be seen as a way to contrast faraway places to the lands inhabited by Greeks where the world is in order. Moreover, it could be used to show how uncivilized the non-Greek population were as they often tolerate poor water. The testimony for wells and cisterns is therefore related to the way in which Greek authors in general described foreign peoples and lands by contrasting them to what they perceived as civilized, Greek, society. The wells and cisterns of the literature are thus far removed from the everyday life in Greek world where they were located, limiting their use for understanding Greek society.

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¹⁰² Klingborg 2017, 94–121.

¹⁰³ On the composition of the audience, see Roselli 2011, 197, 199; Csapo & Slater 1994, 286. A difference in terms of education between the judges and the audience can be read into a passage in Plato's *Laws* (Pl. *Leg.* 659a–c) expressing a wish that the judges would not be persuaded by the opinion of the (presumably less cultured) audience or their own lack of education.

¹⁰⁴ On Greek identity as shaped in contrast to that of “the Other”, see e.g. Hartog 2001, 80; Nippel 1996, 171–172; Hall 1989; Hartog 1988. For a contrary view, see e.g. Lape 2010, 45.

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