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Virtue from Necessity in the Urban Waterworks of Roman Asia Minor

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by

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Damlaya damlaya göl olur

"Drop by drop, a lake will form," goes the Turkish proverb. And so went this dissertation project: little by little quotidian efforts turned into something larger. But these drops, in fact, were not just my own efforts, nor were they always quotidian. The number of drops contributed by others is incalculable, but the impact is clear.

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ABSTRACT

Virtue from Necessity in the Urban Waterworks of Roman Asia Minor
by
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The period of Roman rule is marked by the stark transformation of cities across the Mediterranean. Aqueducts, baths, and fountains sprouted up from the prosperous conditions of the high imperial period, and with the introduction of urban forms and practices emerged a shared cultural community out of diverse peoples. Local variation of course persisted, and my dissertation project interrogates the specificity of place in this process. I examine the transformation of the cities of Asia Minor over the course of Roman rule (133 BCE – 620 CE) through the lens of topography and water management, asking how local culture and sense of place profoundly affected the form and the extent to which resources and technologies of empire brought change.

I focus on the interconnection of topography, infrastructure, and urban image in four cities: Side, Aizanoi, Arykanda, and Rhodiapolis, which represent a range of topographical situations and a shared entanglement with Roman technology and culture. I first use the evidence of topographical, archaeological, and textual records to analyze the influence and role of water in shaping the city physically, culturally, and perceptually. I next look at the forces that spurred the intensification or reconfiguration of water management and use, arguing that homogeneity in

infrastructural elements was only one aspect that contributed to urban character; their urban context and the histories allowing for their creation brought an inherently local quality to empire-wide forms. Lastly I examine how socio-political structures altered the way water was exploited and made available, considering the physical effects of water on the social body, and how seemingly ordinary encounters with the urban water network signaled deeper, more complex systems of power.

My study shows how the power of place shaped the nature of this interaction more deeply than previously considered. I call for a change in the way one thinks about regional cities and urban transformation under Roman rule. Roman forms altered the existing urban character and created forms and practices shared across the empire. However, these forms were perceived differently based on topographic and cultural landscape upon which they were imprinted; locale and locals changed the meanings.

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CHAPTER 1. Introduction

The reader, as we proceed, will find frequent mention of fountains. Their number is owing to the nature of the country, and of the climate. The soil, parched and thirsty, demands moisture to aid vegetation. The verdure, shade, and coolness, its agreeable attendants, are rendered highly grateful to the people by a cloudless sun and inflamed atmosphere. Hence they occur not only in the towns and villages, but in the fields and gardens, and by the sides of the roads and of the beaten tracts on the mountains. Many of them are the useful donations of humane persons, while living; or have been bequeathed as legacies on their decease. […] The method of obtaining the necessary supplies of water used by the ancients still prevails. It is by conveying the fluid from the springs or sources, which are sometimes remote, in earthen pipes or paved channels, carried over the gaps and breaks in the way on arches. When arrived at the destined spot, it is received by a cistern, often an ancient sarcophagus or coffin. It is common to find a cup of tin or iron hanging near, by a chain; or a wooden scoop with a handle, placed in a niche in the wall. The front is of stone or marble; and in some, painted and decorated with gilding, and with an inscription in Turkish characters in relievo.

Chandler, *Travels in Asia Minor*, 22-23.

Chandler's description of nineteenth-century Anatolia bears an uncanny resemblance to the landscape during the Roman Empire, which he would attribute to the conditions of locale and traditions of inhabitants. His observations relate the basic need to harness and regulate water, and perhaps begin to hint at the range of opportunities arising from water management problems both quotidian and more extreme. But this only touches the surface of a wider range of issues regarding water supply and usage: the aesthetic and symbolic value of water, and the role of water in shaping urban experience and urban self-perception. The period of the Roman Empire was one of resources and networks that raised water management to a high point in terms of aqueducts and drainage systems, inflow and outflow, enabling a

quantity (and quality) of cities and urban inhabitation across the empire unmatched in the west until the eighteenth century.[1] With the city as the administrative unit of empire, and its wellbeing of great interest to the imperial government, the embellishment and maintenance of a distant city in the provinces was of close interest to the powers in Rome.[2] Yet the aquatic landscape was first and foremost a local concern: constructively, in hydrologically defining urban space and character; productively, in the availability of and access to water for use and consumption; and destructively, as the ability or failure to harness and exploit this natural force was (and continues to be) central to the origin and demise of cities. While water features of varied types had long been a part of the Anatolian urban design and experience, the period of Roman rule in Asia Minor was one of intensified water management in the redefinition of cities and city life. The struggles and triumphs in these endeavors to shape the city reveal more than straightforward reactions to practical need. Although much has been written on the archaeology and technology of ancient hydraulics, the subject of water as a maker of cities and as an inseparable part of urban culture and image – common to modern architectural studies – has received less attention. In this dissertation I will argue that the hydroscape, or aquatic elements that made up the city, was a perceptible force that reflected social values, structures, and practices; adjustments in urban water usage and display demonstrated changes in a city's relation with its own self-image, with its neighbors, or with the wider network of the Roman empire. Evidence of changes to the hydroscape that

[1] Wilson 2008.
[2] Cf. Ward-Perkins 1974; Owens 1991; Mitchell 1993; Liebeschuetz 2001.

survive serves to demonstrate the sustained power of place in the reception of adopted forms and practices.

Situating the Anatolian hydroscape

This dissertation focuses not on cities, or Roman urbanism, but on water *and* urbanism, how water stimulates or enables urbanism. Water is thus the key issue, in the way that it creates, that it shapes cities and citizens, whether as a civilizing influence or the visual focus of an open space. Water might be a force already present and plentiful in the landscape, and further manipulated for its beauty and utility, or it might be brought into the city to produce a different kind of effect. Either way, water comes to shape cities physically, technologically, economically, and aesthetically. One can thus find the effect of water on the urban shape of the city, on its plan and occupation of land; on the urban and cultural amenities of the city, in the distribution of baths and fountains that shaped inhabitants' daily routine; and in the city's self-image, its myth and culture as perceived in local aquatic features.

As a region with deep traditions in hydraulic projects evident, for example, in the second-millennium BCE Hittite capital of Hattusa or in later Urartian works, Asia Minor serves as a good example to study the cultural and aesthetic interest in water as well as the varied solutions toward water management problems (Fig. 1). After successive waves of conquerors and empires, inhabitants of the land retained a sense of connection to the life-giving and destructive forces of water based in the necessity of the resource and rooted in the topography of place, used as an

expression of societal values. Of course, this is hardly a phenomenon restricted to Asia Minor, as the water sanctuaries in Gaul and Britain serve as a case in point. But in Asia Minor one can follow a longer dialogue between local traditions and Roman impact, from the Hellenistic period and strongly into Late Antiquity,[3] long after the Western Roman Empire suffered the loss of provinces and extent of urban living developed at the height of Roman rule. The chronological span of Roman Asia Minor, from 133 BCE – 620 CE, from the establishment of Roman power in Asia Minor until the destruction or decisive decline of cities after invasion or natural disaster, was a time of new directions in urbanism and water management due to changes in political, economic, and social structures. In areas already urbanized, especially those Hellenistic metropoleis along the coasts, Roman rule brought a monumentalization of space more starkly ordered than before, perhaps best exemplified in the city of Ephesos and the State Agora in particular.[4] In general, cities with long traditions of "Anatolian choice" urban plans, more flexible in approach to terrain and setting, underwent a distinctly Roman ordering of public spaces and visual devices, as manifestations of new social demands resulting from connectivity to the Roman empire.[5] Perhaps most dramatic a change came in the transformation of non-urban communities of the mountains or plains, most often through the establishment of Roman veteran colonies that brought political and

[3] For the phases of interaction and influence of Rome in Asia Minor, cf. Ward-Perkins 1973; Hanfmann 1975.
[4] On the potency and impact of Roman urban forms on the local urban body, cf. Rogers 1991.
[5] Yegül 2000; Parrish 2001.

commercial control of the region and encouraged the local elite to adopt Roman practices and spaces that would bring the wider community more into the Roman fold.[6] Overall, Roman rule in Asia Minor, from both imperial and local initiative, provided the measure of peace, wealth, and networking to give expression to local pride as well as the greatness of and loyalty to the imperial house, which would turn into a stiff competition between cities through the medium of the built environment.

Underlying the built environment, of course, was a network of pipes and channels whose presence was made known through monumental forms such as the bath or nymphaeum, or through the practical level of urban sanitation. Within the timeframe in question, under varying degrees of imperial involvement, waterworks projects trickled in, proliferated, withered, and were repaired before meeting their eventual end. Roman rule brought the security to enable extramural waterlines, the practices of a bathing culture, and the resources for practical infrastructural need that kept the empire running smoothly. Once water was brought to a city via aqueduct, perhaps linked to the construction of a bath, the city was faced with a commitment to maintain or further develop this hydraulic system. Whereas cisterns and other methods of harvesting and storing water had provided a comfortable urban existence in the past, the expanded control and use of water in the Roman city brought the entity of water a new aesthetic and architectonic sensibility, and a new range of expressions for self-image, often linked with the beneficence of the emperor. Yet the hydroscape was never static in either components or composition, for changes in

[6] Cf. especially Mitchell 1993.

taste and the burdens of maintenance resulted in reconfigurations and alternate expressions. So while during the Early and High Empire water management allowed cities to boast proud monuments of imperial power as a way of gaining stature regionally and within the wider empire, in later times the aging infrastructure and weakening central government both required and afforded local considerations to come to the fore, such that by Late Antiquity the aquatic landscape of cities of Asia Minor bore a palimpsestic picture of civic ambitions and local interests.

Through the solicitation of local elite or the presence of Roman officials and veterans, entanglement with the Roman Empire had the potential to bring real and tangible change to a city of the provinces, and the hydroscape is particularly important in this respect, as a realm where a fine (if not permeable) line divided necessity and luxury.[7] Within the cities of Asia Minor, I will show how water shaped the physical form and practices of urban space, how it was made perceptible through a variety of means in the manifestation of a city's image, though its presence could be discerned through additional signals: in modes of hygiene and sanitation, in certain industries, or most noticeably, in breakdowns of infrastructure, as experienced today. Throughout, encounters with water – as a natural source, an elaborate piped-in display, or potentially destructive storm run-off – visually or otherwise, provided discreet, sometimes subconscious understandings of a city's makeup and place within the wider Mediterranean world. As such, in this study I will ask how and why water was made perceptible, and thereby explore the

[7] For the process of Imperial building and local initiative, cf. especially Mitchell 1987.

relationship between natural (non-man-made, but still augmented) landscape and formal urban system of waterworks for clues to how the presence and manipulation of water tempered city life for its inhabitants. An investigation into how water enabled and encouraged urbanistic undertakings, and how the management of water provided opportunities for those involved, thus seeks to untangle and elucidate the strands in the triangulation between aesthetic, socio-political, and symbolic/ideological elements of the Roman built environment.

Studying the Anatolian hydroscape

The starting point for this investigation lies in the ruins of the ancient cities, as well as the number of well-researched sites in Asia Minor as comparanda – in the pipes, basins, channels, and other elements of infrastructure that made up the hydroscape of the urban sphere. Information on this arrives from observations during site visits, excavation reports, and less formal write-ups. Together, these components form the basic framework for understanding urban experience in ancient times, in a diverse range of styles and typologies. But in order to make sense of the meaning and relevance of waterworks within the urban sphere, insight must also come from other material.

Four cities of Roman-era Asia Minor with varying heritage, Side, Aizanoi, Arykanda, and Rhodiapolis, represent a range of topographical and hydrological situations (port, river, spring, and dry city, respectively) and a shared entanglement with Roman technology and culture. The sites are well-disposed for my study as

sites with different types of landscape settings and natural water features. They share parallels with other sites that were similarly situated on the sea, on a river, at a spring, or without a water source, respectively, in the way that similar waterscapes led to shared urban forms. These sites have been sufficiently excavated and/or surveyed to provide a good understanding of urban transformations from the early imperial period to late antiquity, and suggest that the restrictions or opportunities engendered by the natural waterscapes were overcome through Roman technologies to reshape the urban form. Yet this alteration was tempered by local interests to retain a sense of place so that in Side, for example, experience of the seaside setting came to be encountered more through visual material within the enclosed built space – colonnades and sculptural programs – than in vistas of the topographical setting itself.

Material culture from these sites and regions also provide essential clues for reconstructing ancient hydroscapes. As frequent travelers beyond the limits of a given city, coins provide another official version of societal interests, with local mints adhering to imperial demands yet still preserving a degree of freedom to express their values on coin reverses. Instances of local water gods and other aquatic themes thus express objects of civic pride and concern and provide input a sense of specialness or uniqueness to the city. For a sometimes less official, more local outlet, works of sculpture and two-dimensional representations such as funerary markers can come from a wider set of creators, and thus give a more broad-based view of interest and attitudes toward water. Whether specific to a site or a comparison piece

from elsewhere, these works help flesh out our understanding of inspiration for and reactions to the presence of water in the urban sphere.

Finally, ancient texts are invaluable for providing a view of both isolated instances and generalized information on the role of water in Roman society at various points in time and space, with clues about ancient attitudes and expectations about water in the urban environment. Epigraphic sources, on the one hand, provide an up-close view to local socio-political conditions, with an official version of the origin, purpose, and benefactor of an urban work. In addition, they provide clues about monuments and users now vanished, and despite the ubiquitous "epigraphic habit" of the Roman Empire, the very act of engraving a message in stone signals the value of the object for it society – as seen in the case of the snake fountain in Sardis, whose inscription records the movement of the fountain to a social space more relevant than its former placement, as discussed below.[8]

From preserved manuscripts, Vitruvius and Frontinus offer rare insights into the practical, technological, and administrative concerns of water management, while traveling authors such as Strabo and Pausanias often refer to the significance of rivers and springs to places across the empire. Pliny's letters to Trajan, meanwhile, provide a remarkably direct look into the imperial involvement with provincial cities, as well as the often-differing hydraulic and urban priorities between central government and urban community. In a more personal and specific way, the

[8] The inscription from Sardis, marking the allotment of water to various associations (Buckler n.17), is another good case in point, marking the extent of water use by different groups to indicate levels of power within the network of a locality.

recorded words of the Sophists speak of water features in gushing language, and while some inscriptions provide a dry account of a fountain's benefaction, others speak in first person or otherwise give vivid glimpses into the urban and social context of the water feature.[9] Overall, the issue of urban amenity, local community, and imperial intervention is a recurring theme in the ancient texts, from Aelius Aristides' orations that praise and seek the favor of the emperor, to the panegyric of Procopius that present an idealized Christian emperor Justinian and his concern for the welfare of the empire's inhabitants. Though these represent elite views and stress the good brought by Roman rule, they regardless provide information on the motivations for and possible receptions of projects linked to the urban hydroscape.[10] Berman's work on Thebes has shown the import of place stemming from the literary construction of the city, and how an imagined past acted on current topography.[11] Whether directly addressing water or not, instances of its mention or consequences of its fact denote a certain awareness, however taken for granted, of the presence of water in the life of the city, and confirm the immediacy of its management upon the social body.

Approaches to water and urbanism

Scholars of Roman architecture and urbanism in general have long since

[9] Cf. The repair of the agora fountain at Aphrodisias (Merkelbach and Straube 1998, 236, or the harbor mole with basin in Smyrna (*ibid*. 511).
[10] For example on Aristides, his aims, his use of convention and topos, cf. Oliver 1953.
[11] Berman 2015.

come to understand the experiential qualities of the ancient urban setting, in the creation of space and in the fashioning of the city around a given place. Among earlier works, Frank Brown has underlined the ritual aspect in shaping the built environment, while William MacDonald has shown the city as a collection of architectural markers that positions an individual within urban space and society.[12] Fikret Yegül, furthermore, has explored street experience to illustrate the effects of the accumulated built environment, with attendant memories and meanings, on the individual passing through.[13] Overall, this branch of scholarship has opened up exciting opportunities to think about the city in terms of architectural space and the body, putting the human factor – along with ambitions and responses – back into a landscape of stone and concrete.

For architectural meaning that contributed to ideas of civic identity and memory, or expressed themes of Romanism or other cultural movements during the age of the Second Sophistic, scholars have demonstrated the possibilities for display of local values within an empire-wide framework. Susan Alcock in particular has discussed the use of local landscape, monuments and memory in cities of the Eastern Mediterranean to negotiate imperial rule.[14] Harmanşah's work on Iron Age Anatolia has furthered the appreciation of landscape as endowed with memory, palimpsests of

[12] Brown 1961; MacDonald 1986.
[13] Yegül 1994. As with MacDonald's work, this owes much to the experiential analysis put forth in Kevin Lynch's seminal study, *The Image of the City* (1960).
[14] Alcock 2001; 2002.

human activity and ecological processes.[15] The power of the built environment is made clear by Diane Favro, who shows its role in inspiring an urban ideal for Augustan Rome, while Yegül has underlined how urban images in the provinces could combine imperial influence with local expressions.[16] This issue of civic identity appeared not only in architecture, but also in more portable forms such as coinage and literature.[17]

Processes of urban memory and civic identity were still in play during the late antique period, and have been addressed by an ever-growing body of edited volumes.[18] These works offer a corrective to the harsh view of decline with more nuanced readings of the literary and archaeological evidence, showing evidence for flourishing within an unevenly developing political, economic and cultural setting. In examining the shifting urban landscapes, these works reveal the changing relations with the Empire, and new problems or opportunities that arise for local agency, municipal action, to make a mark.

Any investigation into the Roman city brings forth questions of patronage as well as the implications of building projects. Focusing on the role of the emperor as patron, Mary Boatwright has studied Hadrian for the import of patronage across the

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[15] Harmanşah 2013, esp. 29. Cf. also Spirn 1998 on landscape as something composed of multiple contexts, interacting or independent, with varying degrees of related patterns, intersecting, interlocking, perhaps continuous (171).
[16] Favro 1996; Yegül 2000, cf. entire volume edited by Fentress and also Ng 2007; Gazda etal. 2011.
[17] Howgego etal. 2005; Goldhill 2001.
[18] Christie and Loseby 1996; Lavan and Bowden 2001, 2003; Krause and Witschel 2006; Dally and Ratté 2011.

Mediterranean in the efficient running of empire.[19] Studies by Edmund Thomas and Arjan Zuiderhoek, on the other hand, also discuss the role of the local benefactor, and the delicate balance between ennobling one's city and paying respect to Rome.[20] From a more technical point of view, James Anderson has demonstrated issues of manpower and material production, and also their implications, in the realization of a building project – a question that Ramsay MacMullen had investigated in greater depth for the eastern provinces.[21]

Looking specifically at elements of the hydroscape, traditional scholarship has been primarily interested in the technological issues of Roman waterworks, which have been given thorough treatment but continue still as new discoveries come to light.[22] These studies also deal with water as an element of life, need and hygiene, the basic building block of communal life. Another current, with increasing overlap with technical studies, is a body of works that examine managerial as well as socio-economic aspects of waterworks. The Frontinus Gesellschaft and Deutsche Wasserhistorische Gesellschaft in particular have been at the fore of research, with symposium proceedings covering a range of locales and issues of water management.[23] Other scholars have examined the role of water in the Roman city, and the political or cultural impact stemming from even the basic practical

[19] Boatwright 2000. Cf. also Eilers 2002.
[20] Thomas 2007; Zuiderhoek 2009; cf. also Mitchell 1987.
[21] Anderson 1997; MacMullen 1959.
[22] Cf., for example, Hodge 1992; Evans 1997; Wilson 1998; Wikander, ed. 2000; Levan etal 2007; Oleson, ed. 2008.
[23] Frontinus Gesellschaft 1987; Crouch 1993; Haan and Jansen 1996; Jansen 2001; Ohlig etal. 2002; Wiplinger 2006; Ohlig 2008.

applications of storing and consuming water, as they often had an immediate tangible effect on the urban body.[24] This approach also considers the ideological aspect of urban water supply, used as a visual and kinetic element of expression, an architectonic design element of urban display. Often this is broached in terms of typology, which has revealed not only the variation of forms over time and space, but also the adoptions and adaptations to cultural activities associated with these architectural spaces for different messages by their benefactors, as well as their role in the creation of a shared (but not homogeneous) Roman culture across the empire.[25]

For the realm of Asia Minor the existing scholarship provides a solid basis with which to examine themes of urbanism, patronage and urban waterworks. The presence of Rome in the region has received attention in the works of David Magie, Barbara Levick, and Stephen Mitchell, while more recent investigations have gone into more depth with problematized themes of local agency and imperial cult, for example.[26] In addition, archaeological investigations have allowed scholars to update their views on the urban environment and processes of transition.[27] These works reveal Asia Minor to be a unique region of the Roman Empire, a product of its

[24] Crouch 1993; Bruun, ed. 2000; Koloski-Ostrow, ed. 2001; Crouch 2003; Kosso and Scott, eds. 2009; Weiss 2011; Rogers 2013.
[25] For baths, Yegül 1992 & 2010; Fagan 1999; for fountains, Glaser 1983; Dorl-Klingenschimd 2001; Uğurlu 2009; Longfellow 2011; Richard 2011; Jacobs and Richard 2012.
[26] Magie 1950; Levick 1967; Mitchell 1993; for more specific studies, cf. Friesen 1993; Burrell 2004; Yildirim 2004.
[27] Cf., for example, Parrish, ed. 2001; Groh 2006; Radt, ed. 2006; Landstatter and Pülz 2007.

heritage and resources, and while it would be unproductive to paint a simplified narrative of a unified region, one can draw overarching themes and connections for the cities of the Anatolian peninsula.

My study will contribute to this understanding of Roman interaction with the provinces by showing how the power of place shaped the nature of this interaction more deeply than previously considered. I will be focused in my search for water to demonstrate the specificity of locale – specifically the hydroscape – for these sites and its impact on urban transformation. I call for a change in the way one thinks about regional cities and urban transformation under Roman rule. Roman forms linked to the hydroscape, whether a hidden infrastructural element or a flashy fountain, altered the existing urban character and created forms and practices shared across the empire. However, these forms were perceived differently based on topographic and cultural landscape upon which they were imprinted; locale and locals changed the meanings.

Methods, questions, and goals

In order argue for the power of place and hydroscape, it will be necessary to flesh out three issues surrounding the interconnection of water and urbanism in the cities of Roman Asia Minor, as a shaper of cities and citizens. The first sub-argument harnesses the power of text and archaeological remains as evidence of perceptions and changes to the built environment and natural setting. The objective is to clarify the influence of water on the urban shape of the city, on its plan and

occupation of land; on the urban and cultural amenities of the city, in the distribution of baths and fountains that shaped inhabitants' daily routine; and in the city's self-image, its myth and culture as perceived in local aquatic features. Water, as a force sometimes already present and plentiful in the landscape and further manipulated for its beauty and utility, was in other cases brought into a city to produce a different kind of aesthetic and practice. And though water is a powerful force of nature and would have encouraged a certain path of urbanism depending on its local character, its presence in the urban sphere was carefully managed by actors – those with the power of urban development, the poets of water – who used water flows to create an urban stage of pleasing aesthetics, local identity, and imperial presence. As aquatic elements made up the city in varying and changing ways to reflect social values, structures, and practices, an examination of adjustments in urban water usage and display at the level of the individual locale, as a network within itself, will demonstrate changes in a city's ties with its own self-image, with its neighbors, and with the wider network of the Roman empire.

The second sub-argument tackles the question of homogeneity in the built environment. Given the framework of existing literature and available information, this dissertation will explore the tangible realities of Roman rule in the hydroscape and their impact in shaping cities and urban experience. This study gets to the question of an "ecumenical" Roman city described by MacDonald, asking: *how did local constraints, attitudes toward, and applications of the basic necessity of water shape social spaces within the urban environment?* I ask about not only the

monumental displays and crafted spaces as discussed by MacDonald and Thomas, but also the amenities of infrastructure. Water, as a liquid that by definition takes the shape of its container, assumes the flow and form of its manipulator, and here becomes the analytic tool to trace shifting spaces and practices of contact and interaction of the social body as the individual actors played out their own stories to give meaning to their membership of a place and wider community. Whereas studies on urban water often approach the material by typology, I will bring the dispersed elements of waterworks back into the network and setting of the city, in connection with one another, asking: *how did constraints of geology and geography, and conditions specific to people and place, allow for a degree of homogenization with the Roman urban experience?*, and within this process of homogenization, or koine described by Ward-Perkins and Ratté, *how did regionalism find expression?* Or looking at the project as a whole, *how did the aesthetics and accessibility of aquatic displays adapt to changes in the realities of urban water management and socio-political structures?*

Central to this study is the value of water itself, as a tangible reality of Roman rule with no small impact in shaping the city and urban life. I will explore the conjunction of topographical elements with the formal urban system of waterworks to question how the presence and manipulation of water tempered city life for denizens physically, culturally, and perceptually; how actions involving water management, stemming from social need, could become opportunities for social representation. As a local resource, water could serve as a marker of place; but in

more arid climes, a precious and sometimes imported good. It will thus be useful to look at approaches such as that of Kaika, who discusses the interrelationship between urbanism, forces of nature, and commoditization.[28] Along this vein, water use might serve in the act of conspicuous consumption, though only if the association of water and expenditure can be registered by the viewer, depending on the concerns of society. For this issue, approaches to display and benefaction, and to the urban experience of public space, will generate relevant parallels to ancient understandings of or responses to the makeup of the city, and how water was enjoyed. Where our archaeological evidence bypasses this subjective human response to water, I will not hesitate to interpret the sense of the evidence, and reconstruct this sense of sheer joy and gladness water brought to urban life.[29]

The third sub-argument contends that hydrologic constraint (shortage, overabundance, untamed) on a large or small scale was key for the opportunity to restructure the urban image through certain agents and performativity. The implementation of large-scale water schemes implies great resources and organization, or at least connection to a system characterized by such. The Roman Empire is often established as the bringer of urban benefit through technology and control of materials and manpower. While this may be a generalization, one can concede that the adoption of aqueducts and more advanced water systems enabled a degree of urban infrastructure that structured urban spaces and stages, in large

[28] Kaika 2005. Cf. also Tuan 1977 on the power of senses in giving a sense of space, in causing pause to make a locality the center of some meaning.
[29] Water, like the building material of marble, can be appreciated as a status symbol (cf. especially Thomas 2007; O'Sullivan 2011).

gathering places and more intimate settings, expressing loudly (in visual displays) or implicitly (in associated activities or conditions) the agency behind the amenities. Unlike street networks, waterworks were not comprised of visibly contiguous physical spaces, but of connected components more flexibly rearranged over time, its manipulation accessible to a broader range of benefactors, from grand to more modest works. In this shaping of the urban landscape, waterworks could be perceived in flowing water, in a range of activities, or in the very physical maintenance of the city – all concerns of elite and non-elite alike. A study of the large-scale nature of hydraulic works builds on the study of Thonemann on the Maeander Valley, which examines the relationship between inhabitant and geography. His themes include the production of space, the production of nature, the spatial dimension of productive relations, and the production of social practice in dialogue with nature.[30] These avenues of inquiry untangle how inhabitants saw and utilized the conditions of their surroundings.

It is possible that repeating patterns of waterworks in provincial cities indicate the infrastructure's role in bringing people in line with a "Roman" way of life, through the accommodation for and display of water within the urban fabric.[31] In some places tenacious traditions held sway, perhaps reinforcing social structure through the creation or continuation of spaces of activity that formed the outward manifestations of power relations within and beyond the city. The question then is

[30] Thonemann 2011.
[31] Cf. Revell 2009 on the archaeology of urban public buildings, inscriptions, and statuary as diagnostic of cultural change and Roman identity.

one of varying degrees of access or visibility/perceptibility, and with that, legibility. Bekker Nielsen's study of northern Anatolia shows how vision unified space in creating imagined landscapes by combining objects and regional features, such as on coinage.[32] Whether distributed across residential quarters or marked by bathhouses at the entry points of the monumental urban sphere, points of access to water serve as an analytical tool – similar to Kaiser's study of Roman street networks[33] – to provide a better understanding of the process of continual urban transformation: the factors behind the changes, the alteration of meaning associated with points of access and aesthetic, and also the reintegration of water-related items, practices, and ideas in later periods.

In examining juncture of the hydroscape and the city, this dissertation makes the following contributions: it brings old data into new light, into new juxtapositions, which is important in attempts to regain ancient worldviews; it makes new connections out of scattered sources, with a synthesis that forms the basis for fresh analysis of the data; in all this, a rich text of written word and topography comes to light, holding up to greater scrutiny the connections between natural setting and urban social character which have been missed or marginalized. Armed with such an analytical toolkit and field of evidence but aiming to go beyond it, this study begins with water, moves from there to the agents of the city, and then to the agency of water. The narrative moves from site to site and pulls out to the worldview to frame

[32] Bekker Nielsen 2014, 18.
[33] Kaiser 2011.

local developments within the vignettes of the larger cultural, historical, and political landscapes.

Chapter 2: Water as a shaper of cities lays out the groundwork and evidence which the subsequent chapters further analyze, introducing the sites and their connection to their hydroscape as examples of the larger phenomenon of urbanism, identity, and water in Anatolia. I lay out the evidence of topographical, archaeological, and textual records and argue that these can be read as manifestations of the city-hydroscape relation and provide insights into ancient values of urbanism and setting. I ask how the conditions of locale encouraged an urbanism of water, or how an urbanism of water created a new hydraulic landscape in the city. This involves a new analysis of different geological/topographical settings (sea, river, plain, mountain) for the influence and role of water in shaping the city physically, culturally, and perceptually; as well as water as an element of urban design.

Chapter 3: City as a shaper of waters is concerned with the forces which spurred the intensification or reconfiguration of water management and use, as an aesthetic and architectonic element, as an opportunity for expression and consumption within the city, all based in technology, patronage, and outside influence. I argue that homogeneity in infrastructural elements was only one aspect that contributed to urban character; their urban context and the histories allowing for their creation brought an inherently local quality to empire-wide forms. In bringing together comparative case studies, Chapter 3 brings a fresh analysis to the use and

changes to the water system in terms of technology and timing, and behind these acts, the sources of initiative and influence, and finally, Asia Minor typologies.

Having taken two rounds of analysis on the set of case studies, in *Chapter 4: Water and city as shapers of societies* I take one final round of analysis that builds upon the prior two and trace the developments and continual urban transition from High Empire to Late Antiquity, examining how socio-political structures altered the way water was exploited and made available, considering the physical effects of water on the social body, and how seemingly ordinary encounters with the urban water network signaled deeper, more complex systems of power. Chapter 4 argues that hydrologic constraint was key for the opportunity to restructure the urban image through certain agents and performativity. The reappearance of constraints and restrictions in the hydroscape in late antiquity further underscores the interconnection between place, water, and people, as forms of power shift while settings and accumulated memory persist.

As a final discussion, *Chapter 5*: *Conclusion: urban space and the hydroscape of Roman Asia Minor* pulls together the sub-arguments of the above chapters to underscore the changeability of the hydroscape, its impact on ancient inhabitants, and its impact on our understanding of socio-cultural processes, both past and present.

CHAPTER 2. Water as a shaper of cities

Plato conjectures that, after the deluges, three kinds of communities were established; the first on the heights of the mountains, consisting of a simple and savage race, who had taken refuge there through dread of the waters, which overflowed the plains; the second, at the foot of the mountains, who regained courage by degrees, as the plains began to dry; the third, in the plains. But a fourth, and perhaps a fifth, or more communities might be supposed to be formed, the last of which might be on the sea-coast, and in the islands, after all fear of deluge was dissipated.

Strabo 13.1.25

By Strabo's reckoning, the topographical location of a settlement was dictated by the fear of powerful forces of water, or rather, the inability to control them. References to the unpredictable and at times destructive qualities of water appear frequently in ancient texts, along with the attempts of human intervention to render it harmless, if not also beneficial. Strabo takes Plato's train of thought, that different locales breed different kinds of people (from simple and savage to mild and civilized),[34] and relates how those who dared to settle in less familiar geographies profited from the gains to be had in the pairing of land and water. The settlers' daring and ingenuity turned a potentially precarious situation at the juncture of land and water into a vibrant mode of life. The landscape, in this sense, possessed a sense of agency in the development of its inhabitants. And water, above all, held a role in shaping the city: its physical form, its cultural expressions, and sense of place. Water, in varying forms and quantities, in turn served as an element of urban design, in

[34] Referencing Plat. *Laws* 677-679.

dialogue with those making the best of their terrestrial conditions to create meaningful urban spaces.

The natural presence of water never ceased to be an integral factor in the setting of a city, as well as a continual concern for its inhabitants and ruling bodies. While a reliable water supply may not have always been consciously noted on an everyday level, it certainly was a point of pride for a city, as evidenced in the epithet of "Argos the watered," and claims of well-watered cities such as Corinth, Hierapolis, and Antioch.[35] Conversely, a lack or overabundance of water could be an unfortunate condition and signal poor site selection or management. Regardless of whether water was scarce, in surplus, or happily in between, the geographical setting and natural supplies had a direct impact on how social bodies constructed their built environment in relation to bodies of water, whether seas, lakes, or rivers, natural or artificial. A natural setting could be augmented for greater aesthetic, practical, or economic gain, and desired conditions could be created by conducting water through canals, tunnels, and pipes to a certain place and form, equally shaping the form and concept of the city.

In order to better understand the ongoing dialogue between the Anatolian city and its waterscape, the ways in which changing conditions of locale encouraged an urbanism of water, or how an urbanism of water created a new hydraulic landscape in the city, this chapter examines the archaeological and textual records for insight into ancient values of urbanism and setting. It first examines the link between myth

[35] Strabo 8.5.8 on "Argos the watered"; Paus. 2.3.5 on Corinth; Strabo 13.4.14 on Hierapolis; Lib. *Or*. XI.244 on Antioch.

and inhabited space, as foundations and local cults frequently stemmed from aquatic themes. Then, it looks at the different hydrological settings of cities in four case studies: Side (port), Aizanoi (river), Arykanda (spring), and Rhodiapolis (waterless). In this, I use the categories suggested in the treatise of the late third-early fourth century sophist Menander Rhetor, whose chapter "how to praise a country" spells out the proper way to glorify a place in the traditions of Greek orators before him.[36] His categories of utility and pleasure are useful in showing how water in various and shifting forms impacted the built environment, economy, cultural and religious practice, and ultimately, urban image. Throughout I argue how, within the process of urbanization, a city came to be defined more by its built material presence than the topographic landscape – however – even when artificial features dominated the natural setting, they were still a product of the opportunities inspired and engendered by natural setting.

The agenda-driven nature of literary evidence and the spotty state of archaeological remains demands caution in attempts to reconstruct ancient attitudes and approaches to the land; however, I argue that the evidence of text and ruins can be read together as manifestations of the city-waterscape dialogue. I aim at a simultaneous reading of evidence that is often considered independently by separate disciplines: literary, philological, and archaeological. Conventions and topoi in literary genres persisted throughout antiquity, referencing the physical landscape as

[36] Menander Rhetor I.2.

an expression of the qualities and character of its inhabitants.[37] Dio draws attention to and breaks this trend in his critical address to the people of Alexandria, in bluntly stating that his praise of their water is aimed precisely at the water alone, and not to boost the Alexandrians' reputation, lest they be unduly proud.[38] An awareness of the biased use of landscape and topographical features in other works hardly renders them unusable, but rather lends further insight into ancient attitudes toward the physical world. In addition, gaps in the survival of these sites, or the extreme transformation of landscape over time, need not bring investigation to an end. Though human and nature can alter the land significantly, the forces of nature themselves change little; even when they are exacerbated by human action they often have an indelible trace. Water continues to follow the laws of science, and patterns of erosion, deforestation and other processes such as silting can be both simulated and qualified through coring and other tests.[39] Furthermore, the actions of humans in making their place within the landscape have changed fundamentally little over time. A phenomenological approach, one using sensory experience to read a landscape and place the individual squarely and irrevocably in that landscape, can allow for a deeper interpretation of the site and interactions between inhabitant and land.[40] An effort to regain the sense of agency of the landscape on the body can thus bring

[37] As in Menander Rhetor Treatise I, Book II (cf. Clarke 1999, 296); and the rules of Asiatic orators (Saradi 2006, 50).
[38] Dio XXXII: *To the People of Alexandria*.
[39] Cf. Strang 2004, 113f.
[40] Cf. Tilley 1994; 2008, 271ff.; Norberg-Schulz 1971; 1979, especially his use of Heidegger's 'Dasein' dwelling condition.

greater understanding to the often-scanty remains of ancient cities and give relevance to the siting of their structures within the terrain.

Water, deity, and community

But him Apollo's self caught swiftly up
Out of the blazing fire, and to the winds
Gave him, to bear away to Lycia-land;
And fast and far they bare him, 'neath the glens
Of high Telandrus, to a lovely glade;
And for a monument above his grave
Upheaved a granite rock. The Nymphs therefrom
Made gush the hallowed water of a stream
For ever flowing, which the tribes of men
Still call fair-fleeting Glaucus. This the gods
Wrought for an honour to the Lycian king.

Quintus Smyrnaeus, *Posthom.* trans. Arthur S. Way, IV.4-12

As celebrated in this fourth-century CE take on the Homeric epic, the waters of the Glaucus River in Lycia were a gift from the gods in honor of the noble hero's death during the Trojan War. The waters reportedly sprang from the very grave marker of Glaucus, their continual flow serving as a reminder to inhabitants of their great ancestor and the favor of the gods.[41] This tradition is not unique to Lyica, as a random flip to nearly any passage of Pausanias is likely to contain some mention of a local body of water in the Greek world (or a foreign comparison), and with that, a discussion over the origins (geographical and temporal/mythological) and naming of that spring, river, or other aquatic feature. This particular emphasis of Pausanias on

[41] Cf. Robert 1980, 377 for a fuller discussion of Quintus Smyrnaeus.

the tradition of place may be linked to the trend of memory and identity shaping in the Second Sophistic discourse, but it gets across the associations given to bodies of water as links with the past and their continued value in Roman times. The deities and mythological figures linked to bodies of water contributed to a city's identity and also shaped its engagement with the land in local rituals and processions.[42] The symbolism, sacredness, and miracle of water as the ultimate and priceless condition of life were repeatedly expressed – often through the agency of the nymphs – in ancient art, literature, and culture.

Forerunners and overlay in Roman Anatolian cult

The sacredness of aquatic features had already been firmly established during the time of the Hittites (c. 1600-1200 BCE), manifested in cult spaces around pools both within citadels (e.g., Hattusa, Sarissa, Zincirli) and extra-mural locations (e.g., Eflatun Pinar, Yalburt, Ivriz).[43] At Eflatun Pınar near Beyşehir a spring was harnessed to be the center of a cult space (Fig. 2). The construction of a dam allowed the creation of a pool, 30 by 35 meters, with a seven-meter wide statuary group on the north end.[44] Amid a flat plain, mountain gods, sun-disks, and other deities towered over the pool, probably crowned by two colossal statues of a god and

[42] E.g., Paus. 8.41.1-3: the River Lymax falls into the River Neda by Phigalia, reportedly the site where Rhea cleansed herself after giving birth to Zeus; the boys of Phigalia cut off their hair in honor of the river.
[43] Cf. Dorfer, Herking etal. 2011; Okse 2011; Burney 2004; Erbil and Mouton 2012. Cf. Also Harmanşah and Johnson 2013, 22.
[44] Burney 2004, 78.

goddess, who rose from the waters which were the source of life.[45] Topography inspired cult space and practice, in the marking of mountain springs with relief carvings (Akpınar, or Niobe at Sipylos; Karabel) or enhancing sacred pools,[46] which carried on from Hittite times.[47] These would find post-Hittite successors in cult spaces such as at Lagina, around Tyana, at Ilion, and even the later Balıklıgöl of Şanlıurfa or the Monastery of Saint Mary of the Spring in Constantinople. Water in the form of weather was also worshipped through the Luwian weather god Tarhunt. The importance of a deity manifested in rainfall, thunder, and lightning, beneficial or catastrophic, retained in Roman times a great relevance to the many mountain or agricultural communities who worshipped a local deity originating from Tarhunt,[48] as with Zeus Solymeus of Termessos, or a certain Metr(e)odoros, son of Zeus, to whom sacrifices were brought in hopes of rain at Dorylaion.[49]

The Hittites and their Iron Age successors tended to be rooted more in land-based networks than the later sea-going Greeks and Hellenized peoples along the coasts of Anatolia, who gave new relevance to the gods of the sea, invoked for protection from the natural forces that brought trouble to maritime activity and

[45] Burney 2004, 79. He argues that earth and water played a dominant role in Bronze Age Anatolian religion; Erbil and Mouton 2012 argue that this sacred pool was an important station for the pilgrimage of the Great King during cultic festivals (70).
[46] Okse 2010, 219f; cf. also Harmanşah 2013 on landscape and memory linked to water and cult.
[47] Özkaya 1996 argues for the continuation of cult from Hittite to Iron Age, in the example of Fountain C at Midas city, for Cybele, and other spring cults; Tiryaki 2006 argues for a Bronze Age connection to Greco-Roman cults in spring cults of Lycia
[48] Talloen et al. 2004, 435-6. Cf. also the cult of Zeus at Selge and Sagalassos, Zeus Olbios at Diocaesarea; cf. also Yegül 2011 on Anatolian deities and water.
[49] Merkelbach and Stauber 1998, Vol. 3, 297, No. 16/34/01. Ca. 175 CE.

seaside cities. Of the twelve Olympian gods, it is notable that one of the principal deities, Poseidon, held dominion over the seas, and the presence of his cult is especially attested on the Aegean coasts. The prominent sanctuary of Poseidon Helikonios at the Panionium near Priene was an important communal gathering place for the Ionian league until Persian conquest of Ionia (540 BCE), though its Hellenistic and Roman phases did not enjoy the same extent of prosperity.[50] Occurrences of the many cults of Poseidon tend to appear in more Greek-rooted outposts such as Ionia,[51] though altars and more fragmentary evidence in inscriptions and ancient texts across Anatolia do suggest a widespread worship of Poseidon as a non-principal deity of a city.[52] In Anatolia, the syncretism of the Greco-Roman pantheon with traditional deities often linked the forces of the sea with other deities. Rather than Poseidon, one finds sea-based cults centered on Apollo and Athena, as at Side; Aphrodite Euploia, as at Kaunos and Knidos;[53] and Apollo, as in the Delphinion at Miletus.

The relevance of Poseidon comes across more strongly in his capacity of 'earth-shaker.' In a land frequently beset with earthquakes, worship for appeasement from this destructive force was no small matter, just as appeal to the emperor after an

[50] Cf. Lohmann 2005.
[51] E.g., in Teos (Paus. 7.24.5); Miletos (Strabo 14.1.3); Mylasa, with epithet Osogoa (Paus. 8.10.4), but called Zeus Osogo in Strabo 14.2.23.
[52] As at Kyzikos, ca. 40 C.E. (Merkelbach 1998, Vol. 2, 11, No. 08/01/03) or Side (Bean 1965, 41, No. 140).
[53] At Knidos, *Euploia* was reportedly the newest epithet of Aphrodite there (Paus. 1.1.3). The spring located near the terrace of her sanctuary, a welcome source of fresh water near the sea, was outfitted with seating and altar in creating a space for ritual (Love 1972; 1973).

earthquake was common practice. Ancient authors were well aware of the link between earthquakes and fluctuations of water, in the dropping or raising of water tables, the disappearance or eruption of springs, the shifting of riverbeds, or even the sinking of cities such as Aperlai, and above all the legendary Atlantis.[54] Exactly how they viewed the mechanics of such natural events is less important than their respect for and awareness in the powerful forces of nature, as perpetuated by Poseidon.

Deities rooted in place

During the Greco-Roman period the worship of anthropomorphized landscape elements became visible in iconographic depictions and present in cult spaces. The figure of the river god gained special prominence, having shifted from pre-Roman representations with bull attributes or horns, to an anthropomorphic form more generic across the Empire–though with room for personal characteristics and attributes during an era when cities took to flouting self-glorification and civic pride.[55] But before their manifestation in human form, the rivers and springs were alive in myth and ritual.

Sanctuaries continued, as in Hittite times, to be centered on actual springs and rivers, but in Greco-Roman times piety also came to be directed at the

[54] Pliny *NH* 31.30.5 on the spring in Caria that turned to saltwater; cf. also Strabo 12.8.18 on earthquakes at Apamea-Celaenae and worship of Neptune. On Aperlai, cf. Aslan 2010, 182f.

[55] Boyce 1958, 69; for a thorough discussion of river and sea gods on coins, cf. Imhoof-Blumer 1923. Cf. also Aelian *Hist. Varia* II.XXXIIII, Of the Images of Rivers, which relates that rivers are sometimes as men, sometimes as oxen. More recently, Sauer 2014.

anthropomorphized aquatic element. Nymphs received praise at Oenoanda,[56] and the springs of Daphne near Antioch on the Orontes were a point of pride for the city, eliciting marvel for their purity, volume, divinity, and of course pleasures.[57] The sanctuaries of river gods, like that of the Eurymedon at Tymbriada near its headwaters, set in a cave above the river, gave locals an outlet of worship and pride. The path to the site, reached by masonry bridge over the Eurymedon River, still in place, brought the devotees into the presence of the water and gave them an understanding of this force of nature through the human form of the deity on the keystone of the bridge, as well as the near-life size statue in the cave.[58] The cult of the Maeander at Thebes by Mount Mycale, or the sanctuary at the confluence of two streams outside of Pergamon, likewise brought inhabitants from surrounding cities to confront the divine aspect of the local river or spring.[59] Given the rural nature of these cult spaces, survival of the evidence is less common, though I imagine the discovery of offering inscriptions to river gods such as the Timeles near Heraclea Salbace and the Meizoares in Lycia broadly hint at widespread cult activity.[60]

During the second century CE, river gods became a regular feature on coins of local mint, often linked to foundation myths, helping to give basis to claims of

[56] Stenton and Coulton 1986, 15. Springs were also devoted to Leto and Apollo.
[57] Lib. *Or*. XI. 240-242.
[58] Kaya and Mitchell 1985.
[59] For Mycale, Thonemann 2011, 296; I.Priene 362. For Pergamon (Cybele?), Mellink 1973, 187: an augmented natural cave with ancient conduits at the spring, rock-cut ledges for votives, Hellenistic and Roman features.
[60] Timeles: Sheppard 1981, 29, with inscription "Sacred River" and image of river god reclining as on coins of Heraclea; Meizoares: Iplıkçioğlu 2001, 130. Cf. also dedications to Aneinos at Anazarbos (Sayar 2000, 48 No. 53), to Meles for delivery from plague (Petzl 1982, 265 No. 766), to Hermus (Petzl 1982, 266 No. 767).

civic importance and heritage.[61] Louis Robert's study of the cities of Asia Minor and their territories, backed by correlating evidence in inscriptions and ancient texts, highlights the intentions of cities in minting certain images. In some cases the reclining river god holds the image or attribute of the city god or goddess: an issue from Aphrodisias depicts the Timeles River holding the local, archaic cult form of Aphrodite, while a coin from Aspendos shows the Eurymedon holding shrines of the city goddesses, thus connecting city local deities with sacred topography.[62] Mythic past was also referenced in the figure of the river god: on coins of Amisos, local authorities chose not to depict the Halys or Iris, the grandest or closest rivers to the city, but the lesser Thermodon, which was more notable for its connection to the legends of the Amazons.[63] At Apamea-Celaenae (modern Dinar), coins depicting the Ark of Noah, referring to the landing of the ship at Apamea after the flood, speak to the integration of local populations in the creation of a shared past, much in line with the synchristic trends of the Second Sophistic.[64] The timing of this proliferation in the second century CE falls in line with the larger boom of representing river gods: in sanctuaries, baths, and nymphaea across Asia Minor. These images, in three dimensional sculpture, relief, and coin imprint, generally share a common recognizable god type of reclining old man, bearded with long hair, but holding an attribute specific to the city, such as the local cult image. To include nature in its symbolic and iconic form was one answer to the increasing trend of the

[61] Cf. Robert 1975.
[62] Robert 1980, 87.
[63] Robert 1980, 201.
[64] Zwingman 2014, 171.

homogenization of urban space, as well as the growing estrangement from elements of topography, that came with the monumentalization of the built environment.

Cities rooted in cult ritual

Mythologized or monumentalized water elements at times provided the basis of urban development, as Robinson argues for Corinth in the growth of the Roman city around the Peirene fountain, a place central to the legendary past and then made to be the central iconic monument of the urban space.[65] So potent was the nymph in shaping the city's identity that generations of Corinthians, down to Imperial and Late Roman times, continued to augment the famed fountain's architectural form in the heart of their city. Likewise, river cult practices which were not kept in rural or wild spaces could stimulate urban development, such as at Pessinus in Phrygia, where the intermittent Gallos River was canalized to allow for the construction of a monumental colonnaded thoroughfare and surrounding urban and sacred spaces.[66] The desire to monumentalize this city as an urban jewel of Galatia, starting during the reign of Augustus, required the control of but also the recognition and respect of hydrological conditions. In colonnading and connecting the riverbed to the dominating imperial temple complex at the southwest of the site, local topography was embedded in new imported religious space, altering concepts of sacred landscape to a global aspect with local relevance. The continuing value of the river,

[65] Robinson 2011, 180.
[66] Stoops 1984, 2; Waelkens 1984, 77-141.

as reflected in myth of Attis and Cybele and in the title of her priests the Galloi, was not diminished with the Roman architectural imposition, but firmly continued through Imperial times, as evidenced in representations on civic coinage.[67]

Cities of the sea

Besides the city's other blessings the sea is set most beautifully all about it, forming curving bays, contracting into narrow straits, and spreading into a great open sea; and thus it makes the city exceptionally beautiful, and offers the quiet shelter of harbours to navigators, thereby abundantly providing the city with the necessities of life and making it rich in all useful things.

Procopius, *Buildings*, 1.5.2

Although ancient authors were well aware of and forthright about the physical danger and power of the sea, and Plato warned against the danger of its corrupting force,[68] the sea still comes down in ancient texts with glowing repute as an urban setting. Whether in epic poetry, panegyric, or geographical and historical prose, the sea is shown to bring good to seaside cities on several levels. Procopius's remarks on the setting of Constantinople, as part of a lengthier account of the capital's urban glory, maps out the sensibilities of appreciation for seaside locales. In evoking great admiration for the aesthetics of Constantinople's waters (which come across here as manipulated around the landmass of the city), as well as the means of livelihood and engagement with the wider world they provide, Procopius voices values held in common with other cities of the sea around Asia Minor that he knew

[67] Waelkens 1971; Devreker 1984, nos. 27, 127.
[68] Plat. *Laws* 4.704; Strabo 7.3.8; cf. also Aristot. *Pol*. 7.1327b.

and others further afield. The disparaging remarks of Libanius on seaside settings, notably in his oration that elevates Antioch while denigrating her rival metropolis Constantinople,[69] shows a sensibility at odds with the general trend, and can be seen as stemming from the common trope of equating inhabitants with place, and judging one based on the other. As a whole, the evidence suggests a celebration of the sea on both aesthetic and practical grounds, and in the following section, anchored in the example of Side, I analyze the range of worth reaped by a seaside position, as well as the modes of urban engagement at such a dynamic junction between landmass and sea.

Bordered on three sides with seas, Anatolia is a land with much coastline and many opportunities for seaside settlements. This coastal topography was oriented toward Rome and the sea-borne trade of the Mediterranean world, a position more significant in the first few centuries CE than earlier or later times when power was rooted in the wider Mesopotamian sphere and cities were oriented eastwards along the Persian Royal Road and later routes. During the height of the Roman Empire, the cities of the sea were often the most developed urban spaces (as in Ionia, Pamphylia, Cilicia, Lycia), able to work beyond the limits of local resources through their engagement with outside forces and influences. Harbors brought traders and soldiers and, with them, cultural concepts of Hellenism and Roman practices, often resulting in physical manifestations of these ideas to serve these temporary dwellers. Parts of these cities were in this sense places of transit in addition to settlement, serving in a

[69] Lib. *Or*. XI. 36-38: according to Libanius, coastal cities must fear inundations by the sea, the sorrows of shipwrecks, and nautical vulgarity that destroys town morals.

generic mode the waves of visitors that came to the shore. Yet beyond this liminal space a settlement more meaningful to local inhabitant could continually affirm its character in both celebrations of the traditional and in adaptations of the foreign forms of cultural exchange that came from the sea.

It must be noted at the outset, however, that the seaside did not always readily present welcoming topographical conditions upon which to settle. Concerns for potable water,[70] productive surrounding land,[71] and the often-steep coastlines of Asia Minor provided challenging terrain for settling a sustainable community and creating a coherent urban plan. Nevertheless, the cities of the sea whose inhabitants worked to overcome shortcomings of site, or which were naturally (or providentially) gifted with the requisite resources, gained for these labors an urban quality perhaps in keeping with the words of Strabo and Plato of the higher character acquired through enterprising and skill. Indeed, within these settings arose cities of gutsy layout and harmonious ordering whose highly developed built environments during the High Empire were well enunciated by the somewhat overblown rhetoric of the Second Sophistic.[72] Ultimately, water was one of the factors to be considered

[70] Cf. Constantinople, deficient of local springs and aquifers (Crow 2012, 117), as highlighted in Libanius' contrast of Antioch and Constantinople (*Or*. XI. 240-248). Cf. also Vitruvius' anecdote (II. preface) of Dinocrates and Alexander, where excellent sources of water and dynamic urban design did not make a good city because there were no fields for agriculture.

[71] A point made clear in Plat. *Laws* 4.704 as well as Vitr. 2.preface, with Dinocrates' ambitious scheme to shape Mount Athos into a city. The contest between Athena and Poseidon on the Athenian Acropolis also comes to mind.

[72] cf. Aristides *Smyrnean Oration* XVII.10ff; *Concerning Concord* XXIII.19ff.

in the choice for a site; sometimes the factor of defense trumped the amenity of water, as in waterless mountain sites, such as Selge, chosen for greater security.

Utility

During times of instability and dangerous waves (maritime or seasonal), the city on the coast could become the end of the road, a stopping point to movement from inland. But during the Roman Imperial period, control of the sea and coasts brought closer connections and entanglements across the Mediterranean, with increases in trade and the movement of soldiers that could result in urban bloom, thanks to the movement of goods, funds, and ideas passing through. The development of harbor facilities and horrea, as at Patara and Andriake, often stemming from imperial interest in the economic well-being of the empire,[73] restructured a city's relationship with its setting, giving it a maritime outlook yet often also the affluence to build up urban space in a way that enveloped off the city from the larger seaside setting.

From a Roman point of view, the availability of military harbors and stations was of key interest for the business of empire. In Rough Cilicia especially, maritime activity was linked to military connection to Rome and Italy since the time of the Roman Republic and the campaigns to drive piracy or enemy agents out of the Mediterranean. This maritime commerce and military interaction would come to

[73] As in the case of Hadrian and the cities of Andriake and Patara (Boatwright 2000, 123; Brandt and Kolb 2005, 47). Cf. also the Neronian lighthouse at Patara (Jones 2008).

affect the building methods of the region in a way that did not occur in Ionia, for example, which came arguably more enmeshed within the Roman cultural sphere.[74] In creating hubs of influence in Rough Cilicia, benefactors initiated the spread of architectural types that were observed and re-employed by local workshops, amounting over time to a standardization of design.[75] At Elaioussa Sebaste, an active and profitable harbor encouraged building projects that expanded beyond the traditional promontory, onto the mainland, with harbor-related works and baths which displayed the patently western opus reticulatum construction (and its prestigious early link to Italy) geared towards visitors of the harbor area. Porticoes stretching from mainland to promontory, with views out to the waters, celebrated the seaside setting.

In some cases the sea was all a city might have to gain from an otherwise less than suitable locale. Dio claimed that Byzantium neglected its land for the fruitful sea,[76] while cities like Phaselis, a valuable Lycian port with three harbors, had limited cultivable land to draw on for their livelihood.[77] Instead, physical and intangible imports enabled growth in the built landscape stemming from wealth and benefits linked to maritime networks rather than the surrounding land. Often these sorts of sites, limited in land, were also limited in water sources;[78] a notable

[74] Cf. Spanu 2013, 102.
[75] Spanu 2013, 102; cf. also Hoff 2013, 155: like the itinerant stone masons from Selge to Cilicia, it is possible that bath builders were itinerant specialists, not locals; Spanu forthcoming.
[76] Dio 35: *Delivered in Celaenae in Phrygia*.
[77] Grainger 2009, 15-16; Atila etal. 1993, 430.
[78] Cf. Beaufort 1818, 9 on the scarcity of water around Patara.

exception is Ephesos, which enjoyed the benefits of both sea and surrounding land. Despite the wide breadth of surrounding sea, the limitations of potable water imposed different values on the two different types of water, though availability would change during the first two centuries of Roman rule. At the small town of Aperlai, a harsh terrain and lack of water was overcome with cisterns; it could thus provide passing ships not only with water filling services but also involvement in its murex dye production, which also required the use of water.[79] Until the construction of aqueducts, these cities lived with cisterns and an economy of water usage tailored to availability. But the imagery of water and maritime themes that came to appear on civic coinage and other media marked a change in affluence and cultural interests, with a greater recognition, demand, and acceptability for water-fueled activities, such as bathing and gymnastic competitions. This would amount to the ability to expand or reshape the city with a greater spatial flexibility of the hydraulic landscape, as will be discussed in Chapter Three.

Pleasure

In ancient literary sources, the praise of an illustrious city for its beauty is de rigueur, and while the beauty of the built environment can readily be attributed to the wealth and ambitions of benefactors such as Herodes Atticus, credit for what gives beauty to a locale was more nebulous. Praise for Constantinople, whose picturesque

[79] Vann and Hohlfelder 1998: 450ff: key to Aperlae's success in cisterns, water filling stations, murex production.

quality is repeatedly noted through the centuries, comes across at times as a trope for the glory of the emperor and empire, and for the foresight and wisdom in making urban decisions.[80] In the case of Aelius Aristides' Smyrna, setting and urban accessories are praised together, as complements of each other, the natural (but augmented) features of the central navel-like harbor and bordering Meles river dictating urban growth: "The sea, the rivers, and the suburbs are worthy of one another and of the city, as if they had been allotted to the city not more by chance than by choice."[81] These orations served not only to praise the adopted hometown of the orator, but also at times sought to win the generosity of benefactors, above all the emperor, by striving to prove the worth of the city and the merit of further benefactions, as after the earthquake of 178 CE.

As for less illustrious cities, perhaps with more modest resources or less evocative physical settings, one finds a wide range of urban solutions to meet a variety of topographical conditions. The composition of the urban elements, arranged often in response to functionality, also reveals sensitivity to the surroundings for greatest urban advantage, often with theaters facing out to the water and thus perhaps indicating a sense of value in locale.[82] At Andriake, for example, buildings cluster around the edges of the harbor, and while this harbor city of Myra itself lacks a theater, the arrangement of the city itself becomes a sort of cavea around the spectacle of the harbor activities. Similarly, at Nicomedia, overlooking

[80] Cf. Procopius and Malalas; Cameron 1996 on Procopius.
[81] Aristides *Or*. XXIII.21. Cf. also *Or*. XVII.19.
[82] As inferred at Sagalassos, where the one-story high theater façade allowed for a view of Alexander's Hill, an important site in the city history (Waelkens 1993, 47).

the Gulf of Astacus, the slopes of the upper city encouraged the grid of the lower city to break into a pattern of branches, allowing terrain to mold the occupation of land for harmonious results.[83] In the more dramatic seaside settings along the south coast of Asia Minor at Rough Cilicia, the value of a port with protection from incursion led to a striking urbanism of outcroppings and harbors where a coherent urban plan had to be worked from the land at some cost. At Iotape, for example, the natural harbor and great rocky boundary was an ideal setting for control of sea and coast; the wadi running through the central area, vaulted over in places, brought another form of water in into contact with the city.[84] The situation of the bath at the cove in Iotape, where a grotto is also found, evokes a sense of pleasure in the placement of Roman bathing practices in a setting well-suited to sea bathing (Fig. 3).

SIDE: a harbor city

The city of Side is located along the southern coast of the Anatolian peninsula, on a small landmass jutting out into the Pamphylian Sea (modern Gulf of Antalya) near the mouth of the Melas River (modern Manavgat Çayı). This position provided a good harbor at a point of contact along the east-west trade routes of the Mediterranean. Thus connected to the wider world through trade and sea traffic, Side received its first major wave of colonization in the seventh century BCE (though Eusebius claims foundation as early as 1405 BCE) with settlers from Kyme in

[83] Bekker-Nielsen 2008, 24. Cf. Libanius *Or*. LXI; Saradi 2006, 50-51.
[84] Huber 1967.

Aeolia, according to Strabo and Arrian.[85] The extent of the settlers' adaptation to new surroundings comes across in Arrian's claim that, upon arriving, they forgot their native Greek tongue. Their non-Indo-European language, reflected in the name 'Side' (meaning 'pomegranate'), was present until the Hellenistic period, at which time the city fell successively under the rule of the Ptolemies and the Seleucids before gaining brief autonomy with the Treaty of Apamea in 188 BCE.

Roman rule did not come immediately to Side. During the first century BCE Side was under the sway of Cilician powers, its harbor home to Cilicia-based pirate activity and a strong slave trade that would continue under the Romans.[86] Roman intervention came with Marc Antony in 36 BCE, when he assigned the city to client king Amyntas of Galatia. But Side was not under direct Roman rule until 25 BCE as part of establishment of the province of Galatia, and only later became part of the double province of Lycia and Pamphylia in 73/4 CE.

The city of Side, as defined by coastal topography and fortification walls, amounted to 45 hectares of land on a promontory of brecchia bedrock, with a harbor at the northwest part of the promontory end.[87] Urban development from the late Hellenistic times onward has obscured earlier Hellenistic and classical traces, but the slight bends of the main road most likely relate to earlier features. The area between the harbor and theater is the least excavated, as it has been overbuilt in modern times

[85] Strabo 14.4.2-3; Arr. *Anab*. I, 26. On history of Side, cf. Mansel 1963, 1-15; Mansel 1978, 1-19; Nollé 1993; Hellenkemper and Hild 2004, 373f.
[86] Hellenkemper and Hild 2004, 374.
[87] Cf. folding plan in Mansel 1978. On the topographical and urban situation of Side, see Mansel 1963, 17-26; Mansel 1978, 21-34; Hellenkemper and Hild 2004, 380f.

(in 1895 by Turkish immigrants from Crete and most recently by tourist facilities), but it most likely contained the classical city.[88] In Hellenistic times the city expanded eastwards, with a defensive wall erected in the third or second century BCE. Major avenues led from the main gate at the northeast to the center of the city, and from there, through the promontory to the southwest edge, to the harbor and to the probable primary cult locale. Later insulae in the eastern part of the city reflect Hellenistic predecessors,[89] set off the main artery of traffic through the city as it firmly leads to the sea, toward where worship and work were oriented.

Not much survives from the late Hellenistic or early Roman periods. During these times, the city was probably supplied with water from cisterns, wells, and nearby springs.[90] Sometime within that timeframe, structures were built in the location of the Temples of Athena and Apollo at the southwest tip of the promontory, most likely precursors of the later temples, and likely part of a renewed movement of Hellenization. A niched monument with statuary, dedicated to Vespasian in 71 CE, was also erected during this period, midway along the main urban artery from gate to sea.[91] This engagement with the imperial house suggests an increased importance of the city within the Empire, or at least in relation to the emperor. The monument anticipated the creation of the new province of Lycia and Pamphylia by a few years

[88] Mansel 1963, 15.
[89] Mansel 1956.
[90] Hellenkemper and Hild 2004, 383; Lanckoronski II. Plan von Side: X. Can also be inferred by the later house courtyards equipped for collecting rain water (Mansel 1956, 16). Many ancient wells were cleared during excavation (Mansel 1956 ArchAnz2).
[91] Mansel 1962.

later, after which the built environment of Side blossomed into a landscape of marble, or at least marble-revetted surfaces. During this time, the monumental city center arose in the eastern half of the walled area and came to take an orientation away from the sea, though certainly not detached from it.

During the Antonine period the theater was erected in the center of the city, at the narrowest section from wider eastern part to the promontory. Supported by a system of vaulting, the theater does not utilize a natural rise in topography as did many theaters in Asia Minor, but was built up from the ground in a much manner more similar to theaters of the Roman west, to dominate the urban skyline with its height and mass. Also unlike many theaters in Asia Minor, the theater of Side does not take advantage of the view, though its construction method, rather than obeying terrain, would have allowed it flexible placement and alignment. The theater turns its back on the sea, the place from which Sidetans supposedly first arrived, instead faces the urban spaces of the eastern quarters, greeting those entering from the land in an embrace of the cavea. In this respect, there is more of a link to the Pamphylian plain than to the interconnecting sea.

During the second half of the second century and into the beginning of the third, the main avenues of Side were monumentalized with porticoes of Corinthian colonnades. These passages connected urban spaces also transforming during this period. At the northeast land entrance of the city, the Hellenistic fortified gateway, no longer functional as defensive architecture, was embellished with marble features for a statement of splendor, as at the court of honor at Perge. Across from the gate

courtyard and atop a series of steps, a monumental façade nymphaeum created a gathering space, making an architectural event out of the entrance.[92] A basin fifty-two meters wide, backed by three stories of columns, niches, and aediculae, was fed by spouts in the three large semi-circular niches, its water having traveled by aqueduct from over thirty-five kilometers away (Fig. 4). Sculpted parapets along the front of the basin depicted mythological scenes, including the important Epibaterion festival of Artemis at Side (Fig. 5).[93] Other plaques with the words "Hieros" and "Oikumenikos" with imagery of flowers, victor's crown, and pomegranate, celebrated the games of Side, the athletic side of a sacred ceremony, and a time for public benefaction and pride. Depending on the situation, this nymphaeum, with strong message of urban self-glorification, was the first or last impression of the urban landscape. For those arriving, water became a guide to movement within the city: at its entrance, along main streets, at places of rest or congregation, and eventually, at the sea.[94]

Inside the city walls, the entry area split into two colonnaded avenues: one heading south about 200 meters toward the state agora (Building M with 'Kaisersaal,' a form of civic shrine for the Imperial family and cult) and to an area that would later become the episcopal center of Christian Side. The importance of this street is marked by the addition of a side canal along the bottom of the east colonnade (Fig.

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[92] For nymphaeum, see Mansel 1963, 53-60; Verzone 2003.
[93] Scenes include: Amymone and Poseidon, Demeter and serpents, Ares, Aphrodite and Eros, Selene and Endymion, Athena at the festival of the Epibates, and the punishment of Ixion in the presence of a river god (Melas?).
[94] Compare with, for example, Ephesos, Perge, Antioch ad Pisidia, Sagalassos.

6). With a width of 0.66 meters, behind plaques 0.70 meters high, the canal may have been connected to the overflow of the nymphaeum to carry its water to the sea.[95] Similar to the central street canals at Perge, this canal provided a continuity of aquatic awareness while moving through urban space, a dose of refreshment in the hot months, and a lively visual interest amid the hustle and bustle of the street scene.

The other main avenue, heading southwest, stretched past the insulae toward the civic agora, theater, and monument of Vespasian. Just inside the agora, a fountain outside the annular vaulted latrine provided the compliment to the great nymphaeum at the start of the road, as a punctuation mark in one's movements westward through the city, where the great sweep of the monumental latrine, with a veritable constant run of water inside, represented a harder aspect of water's utilitarian use. The colonnaded road skirted around the theater's northern end and headed to the southwest tip of the promontory. Along this stretch of colonnades another raised side canal, 0.55 meters wide and 0.75 meters high, accompanied the steps of the passer-by.[96] As in the western avenue, the flow of water connected with the visual and experiential axis of water from the great nymphaeum, providing perhaps an intuitive understanding of the aquatic infrastructure following the same path: two-thirds along the route lay the largest baths of the city. Erected in the early third century, the baths extended daily urban ritual westwards, not only for bathing in the high imperial fashion but also for public meetings. With repairs in the

[95] Mansel 1978, 21-23; 93.
[96] Mansel 1963, 18; Mansel 1978, 23.

following centuries, the bath remained in use into the sixth century as a major urban center.[97]

Past the large bath was a cluster of sacred spaces. The colonnaded road ended at the Temple of Men(?). This semi-circular temple, dating to the beginning of the third century,[98] is the latest in this area. The temple presents to the frame of the colonnaded street a profile view of its raised front steps, directing attention and pointing to the larger temples of Athena and Apollo to the west. These probably stood amid a temenos space with related cult structures and offerings. Though excavation has revealed earlier levels, the standing remains date to Antonine rebuildings.[99] The temples lay near the harbor and created a vector out to the sea, bringing inhabitants to the shore, while also guiding the sailors into the safety of the land, through contact with the aquatic element. Just north of the temple area, the harbor was no less monumental than the central city spaces, enveloped on three sides with porticoes. This harbor, partially artificial with breakwater, brought traffic and economic gain only through constant care.[100] At its southeast corner lay the Harbor Baths. These baths served the sea community from the earlier part of the imperial-era building boom in the second half of the second century, with later repairs to extend its use into Late Antiquity.[101] The role of the baths to serve those who endured month-long sea voyages can be seen in many examples, and particularly at

[97] Mansel 1978, 231-232; Foss 1996, 38.
[98] Mansel 1963, 87-89.
[99] Alanyalı 2013, 127; Mansel 1963, 82.
[100] Robert 1948, 69-76; Foss 1996, 24.
[101] Mansel 1963, 148; Mansel 1978, 221, Foss 1996, 38.

the Ephesos "Harbor Baths," which similarly provided hygiene and succor for those who had suffered long and dirty travels – and with water tangibly "civilized" bath-goers into respectable inhabitants of land. The row type form of the bath marks regional ties with the southern coast, while its location on the harbor, and as the first (known) bath of Side, reflects the use and clientele of the bath: the diverse crowds stopping in as they traverse the Mediterranean, enjoying the shared culture of the empire at ports-of-call.

Two forces bound the entire city together. One was the hydraulic infrastructure. It was most likely during the second half of the second century, as water-consuming structures were being erected, that a long-distance supply network was built, coming from nearly thirty kilometers away, atop bridges and through tunnels, reaching the city at the northeast land walls and turning inward.[102] Coins from the reign of Alexander Severus provided a stylized reminder of this hydroscape: the city goddess, with mural crown, holds a pomegranate and sits over the river god Melas.[103] Thanks to the presence and control of natural forces, Side was well supplied to accommodate a number of fountains, baths, and water features that steadily increased over time. From the grand nymphaeum at the east, down avenues to the great baths at the west, water flowed through the city to connect spaces and activities made possible through opportunities and connections engendered by the sea.

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[102] On the aqueduct of Side, cf. Izmirligil 1979; Grewe 1994; Büyükyıldırım 1994, Nollé 1993.
[103] Nollé 1989, 49 (SNG v. Aulock 4825).

The second force binding the city together was that of ritual. Attested as early as the second century CE, the Epibaterion festival celebrated the link between Side, the sea, and its patron deities. The annual festival, marking the resumption of the shipping season and celebrating the arrival and disembarkation of the deities at Side, brought the movements and focus of the inhabitants along a formalized processional path for a long-steeped tradition, uniting (and inspired by) the city's hydroscape.[104] Beginning at the edge of the promontory at the sacred space of Athena and Apollo, the procession followed the colonnades to the theater, where the Sidetans gathered before continuing along the colonnades again, ending at the nymphaeum. There, a sculptural relief panel depicting Athena and ship reconfirmed the source of the city's success,[105] just as the nymphaeum itself seemed to be the fount of the city's water, the place from which structures to the west gained their flow. While the festival may have been engrained in the memories and movements of Sidetans, the representation on the relief provided a vision of this act year round to locals and visitors alike. Similarly, coins from the second century depict Athena with her foot on bow of ship, as protector of seafaring.[106] The connection between seaborne topography, deities, civic identity and urban prosperity were inextricable.

Even after the urban boom of the Antonine and Severan periods, inhabitants of Side continued to develop the urban landscape, profiting from the importance of the harbor on an imperial level, as reflected in coins during the reign of Maximinis

[104] On the Epibaterion, see Mansel 1978, 134; Nollé 1993, 8. Bean 1965, 44 No. 146.
[105] Nollé 1993, 109-110.
[106] Nollé 1993, 109-110.; SNG PfPs 4, Pamph 657.

Thrax (235-238).[107] After the Gothic siege of 269, Side gained new aquatic features as old ones were repaired: the grand nymphaeum was brought back to use in the mid third century, and Bryonianus Lollianus repaired the aqueduct line.[108] Around this time, and probably as part of the same project, the space outside the civic agora entrance was embellished: the construction of cistern H1 connected with the Monument of Vespasian to create an enclosure of fountains (Fig. 7).[109] On the south exterior wall of the cistern, a fountain with four aediculae and three pools stretched along the side of the colonnaded road; turning the bend, a semicircular fountain pulled movement along to the next segment of colonnaded street. The aquatic elaboration of the street passage at this juncture emphasized the retained importance of the theater-agora area as institutions and as public places for beneficent demonstrations by leading citizens.

During the fourth century, the city continued to develop, with the modification of the Great Baths on the avenue towards the temples, work on the harbor,[110] and by the beginning of the fifth century, a set of walls to enclose the western half of the city. This concentrated the urban space within, though areas outside such as the Great Baths continued to function.[111] This defense wall brought further enclosure to the fountains at the civic agora entrance: with the creation of a

[107] Robert 1948, 74 (BMC Lycia, Pamphylia, 161, no.112); Nollé 1989, 54 (SNG v. Aulock 4828).
[108] Mansel 1978, 94; Foss 1996, 26-27; Nollé 2000, 398-408
[109] On these fountains, see Mansel 1963, 66-70; Mansel 1978, 108-119.
[110] On the harbor, cf. Knoblauch 1977.
[111] See Mansel 1963, 70; Mansel 1978, 111-119; Foss 1996, 35-36; Hellenkemper and Hild 2004, 384-389.

gate between cistern H1 and the Vespasian monument beside theater, the monument was converted into a fountain to complete the space with flowing water. Where the harbor had once formed the northwest corner of the walled city, a collection of flowing fountains now did. The city continued to do well in the fifth and sixth century: the theater remained in use (possibly with naumachia), the Great Bath retained its splendor, the Harbor Baths as well as the hydraulic infrastructure remained in use. In addition, the baths north of the agora may have been erected during this final urban bloom, a bloom marked by a strong water culture.[112] The great ecclesiastical complex in the southwestern part of the city included a cistern and probably a bath.[113] Other waterworks appeared; cistern H2 was added to the water system next to H1 to help manage the extended infrastructure.[114] Fountain gg, midway along the main avenue between the gate and theater, had an open water canal that gave passers-by a sense of water between the great nymphaeum (possibly reworked as "Forum of Arcadius"[115]) and the fountain court outside the agora. Fountain hh, with courtyard and pool, was built next to the decommissioned Temple of Men(?), and provided refreshment for those coming down the road from the theater to the basilica, which had grown up around the ruins of the temples of Athena and Apollo. Taken as a whole, late antique Side appears to have had as many (if not more) water features along its streets than its high imperial forerunner. The

[112] Mansel 1963, 154-155; Mansel 1978, 232-239; Foss 1996, 35.
[113] Mansel 1963, 169; Mansel 1978, 257-285; Foss 1996, 40.
[114] On Late Antique waterworks, see Mansel 1963, 169-172; Mansel 1978, 286-291; Foss 1996, 39
[115] Hellenkemper and Hild 2004, 382.

association of some of these examples with the church and with Christian imagery raises questions about the topography of Christian Side and the importance of place, which will be further explored later, but the continuity of sacred space at the tip of the promontory near the harbor does suggest a retained connection to the sea.

In the preceding examples, I have brought to light a general pattern which emerges of the sea shaping the city, whether expressed in the clustering of structures around a harbor, in the more ambitious ordering of streets and spaces according to vistas, or in the city's image of itself, as a privileged player with access to distant and prestigious cosmopolitan centers, especially Rome. The increased pace of monumental urbanism during the Roman period, with the creation of distinct spaces linked by an urban armature, allowed for this in some cities, while in other cases it seems to have inspired a gesture away from the seaside. Side, as well as others like Miletus, with inward-looking colonnaded enclosures, seem to have had at least within these enclosures its urban plan turned away from its seaside settings, though certainly not from maritime opportunity. Nonetheless, cult places perhaps reveal the revered value of the sea. At Side and Miletus, the temples of Athena and Apollo, and the Delphinion, respectively, indicate the retained sense of place-based identity in the evidence of temple dating and festivals. As Roman means and modes of urbanism encouraged a more homogenous urban landscape,[116] a local sense of place and capacity of "reach" emerged from sources other than the urban setting. Statuary,

[116] cf. Ratté 2001, 123 on international style.

in the round and relief, as well as civic coinage, provided the chance to express city pride.[117] The rituals of the city also gave the opportunity for procession around the seaside, thus reaffirming community and reiterating the character of place that informed the practices of the inhabitants on a daily level.

Cities of the river

Enchanted by its situation, its air and water, Valens built the following buildings in the city of the Anitochenes. First he built the forum, where he undertook a great project [...] Valens reconstructed the conch of the Kaisarion, and erected vaulting to cover the winter torrent known as Parmenios, which flows down from the mountain through the center of the city of Antioch.

Malalas *Chron*. 13.30

A city on a river can often be a divided city, with an impulsive force of water flowing through it, at times unpredictably overreaching its bounds. But as a vector, a river can also give the city a sense of direction and movement. A happy instance is the setting of Smyrna: "indeed, the Meles [River] is not erratic, nor such as to wander off its course, but it is like a sort of lover of the city, who does not dare to be farther apart from it; for it has, I think, a ceaseless love for it, stretching itself, as it were, beside the city's leg."[118] And it is this aspect of rivers – naturally well-behaved or otherwise effectively controlled through engineering works – that brings praise to an urban setting, as with Antioch in the Chronicle of Malalas. There, repeated efforts to control the Orontes River and tributaries aimed to create a stable flowing body

[117] Cf., for example, Nicomedia and the common use of maritime themes in self-perception (Bekker-Nielseon 2008, 24).
[118] Aelius Aristides, *Smyrnean Oration II,* XXI.15.

around which the city could build systematically. In time these struggles would lead to impressive urban results that reaffirmed the city's title "Queen of the East," brimming with water features in varying degrees of natural and artificial.[119]

Anatolia is a land rich in rivers. These flow along the major valleys, connecting east and west, as well as north and south to link interior to the Black Sea and Mediterranean, of varying navigability. The rivers of this land have been tended to by successive empires and states, most recently in the modern hydraulic projects that have submerged the sites of ancient cities which once flourished from the waters of those riverscapes (e.g. Zeugma, Allianoi). Rivers have served as boundaries and for communication, as well as the key to agricultural bounty and wealth.

From the Roman-centric point of view, the ultimate river city was Rome, tied to the blessings and burdens of the Tiber River. The Tiber had set Rome and Roman power on the map, based on the will of the gods at foundation, in harboring the safety of her founder Romulus. Aldrete's study of the Tiber reveals the accepting attitudes of the Romans towards their often destructive river, finding that the frequent floods, though potentially devastating, did not keep the city from rapid recovery, especially as the elites were sheltered from the worst effects. Furthermore, the possibilities of urban renewal after the flood, along with religious scruples, kept the Romans from pursuing preventative measures.[120] This tolerance for tribulation within a general scheme of environmental beneficence goes far to explain the urban

[119] De Giorgi 2007 on water management; Malalas on undertakings of Agrippa, Valens; Procopius 2.10.6 on regularizing the Orontes.
[120] Aldrete 2007, 237ff.

life and renewal of cities set within an earthquake-prone land. The glory to be gained in refilling the tabula rasa was a further opportunity brought through disaster.

Rivers flowed through many cities of the Roman world, but the fact that the city was founded along a river did not necessarily mean that the urbanistic potential offered by this aquatic element was realized. Elsewhere in the Empire, especially in the river-crossed Gaul, cities cropped up along rivers,[121] yet while these western rivers were important in the development of a city as a port to the wider world and perhaps had a role in local religions, they were not as heavily a focus of urban design as those in the East.[122] They may have been just as much manipulated and acted upon to change urban experience, but seemingly not with an eye to monumentalization as found in the East.[123] Cities of the river in the East, as I argue below, possessed an additional dimension in the way they engaged with locale, in creating at dynamic urban interplay with flowing waters.

Utility

It hardly needs elaborating that many powerful cities and capitals of empires throughout history have been located on a river. As mentioned earlier, rivers deeply penetrated landmasses, provided the means of transportation, commerce and trade,

[121] Cf. Bedon 2008: the creation of cities in Gaul near waterways, along with the destruction they could bring and difficulties of crossing, resulted in a constant battle with water, and a preoccupation and development of ways to live on such lands.
[122] Cf. Goodman 2007: in Gaul, rivers served as urban boundaries, on the very perimeter of the urban center or completely outside of it, though secondary urban agglomerations would arise during the High Empire.
[123] Cf. Rogers 2013, esp. 117.

and a source of irrigation.[124] Whereas Pausanias details the personal (mythological) lives of streams, Strabo, in his geographical work for the advancement of empire, is careful to note the practical features of waterways in the growth of Empire.[125] In the Roman West, rivers were integral in expanding Roman power as opportunities to connect province to the wider Empire and disseminate culture. In the East, and Asia Minor in particular, such connections and processes were often already at work. Cities in the Maeander River valley, for example, were already exploiting the waters of the region for connectivity when navigable, and refining irrigation works that brought agricultural wealth. Under Roman rule, the further connection and rise of local families saw an increase in wealth from the land, including the production of high-value goods such as the wool and dying processes of Hierapolis.

In addition to serving as a conceptual and productive source of urban being, water also provided the physical form of a city and its territory. Strabo draws attention to this arrangement: "So also the rivers, and particularly the Maeander, are the actual boundaries of some nations, but take their course through the middle of others, rendering accurate distinction between them difficult. The same may be said of plains, which are found on each side of a mountain range and on each side of a river."[126] The topographical features delineated settlements from one another, but also brought them together as a shared boundary, sometimes a shared resource tied

[124] Cf. Robert 1980 on discussion of 2nd-3rd century civic coin imagery: prows and ships appear with river gods in boasts of a navigable river, while other depictions point to the richness of surrounding lands.
[125] Campbell 2012, 47f.; cf. Hanson 2011, 244 on the complementary road and river systems in connecting Roman Anatolia.
[126] Strabo 13.4.12.

up in water rights. A river makes a valley, and in that, a natural pathway of communication and connection.

Though a river might not have flowed through the urban spaces here in question, nearby rivers were exploited for territorial wealth in agriculture, industry, and transportation, whose source was not forgotten as images of water deities graced the urban amenities such as baths made possible through such wealth (e.g.: Perge, Miletus). The place names of cities, such as Magnesia-ad-Maeandrum (Maeander River) in contrast to Magnesia-ad-Sipylum (Mount Sipylus), underscores the orientation of these cities towards the major source of water rather than other topographical features in the assertion of local value and self-perception.[127] The settlement areas created by the Maeander River, plain and delta were seen as gifts of the river, much like the way the fertile lands of Egypt were gifts of the Nile.[128]

The role of water in the city of Antioch on the Orontes comes across clearly in the oration of Libanius, even if in exaggerated terms. The orator describes how the setting of Antioch allows the city to avoid the troubles of a seaside city, but still hold the benefits of access to the sea, enjoying both harvest from the sea and supplies from inland.[129] Waterways were crucial in this respect: just as the Meles was a lover to the city of Smyrna, the lake near Antioch is called an ally and the river's course a helpmate to the city, bringing profit in produce for consumption and commerce with ease of transport, while imports from every land allowed Antiochenes to "reap the

[127] cf. Thonemann 2011, 24-25.
[128] Thonemann 2011, 295; Hdt. 2.10; Xen. *Hell*. 3.2.17.
[129] Lib. *Or*. XI. 39-40; 260.

fruits of the whole world."[130] An abundance of available water in the city allowed for an elaborate urban waterscape boasting plentiful public and private baths, fountains in residences and workshops. With this wealth of water, the Antiochenes reportedly lived without fearing the lack of water and thus without fights at the public fountains ("which is a nuisance to many a wealthy town"), instead competing in lavish displays of water: "we, however, all have our fountains inside our houses, and the public ones are for show."[131] The ability to provide sufficient water to a city's inhabitants would remain a hallmark theme of civic beneficence and urban pride through late antiquity.

Pleasure

Rivers and streams brought visual and urbanistic benefits to a city if properly handled; if not, these waters and their seasonal fluctuation could create an urban dead space (as in the Los Angeles River, formerly). The Tiber River, despite its repeated deluges, remained a popular vista for the elite urban houses within Rome, a substitute for the much-coveted sea- or lakeside villas.[132] Ancient sources hint at the value given to waterways both in the countryside and within the city; though the praise to river cities in panegyrics may have been inspired by the profitable qualities of the river, other passages indicate the pleasures of the urban waterway. [133] The

[130] Lib. *Or*. XI. 260; 264-265.
[131] Lib. *Or*. XI. 244-247.
[132] Campbell 2012, 331ff.
[133] Cf. examples above; Pliny, Ep. 1.III; 2.VIII.

creation of water channels in central spaces, mimicking miniature rivers, as at Perge and Antioch in Pisidia, further indicate the appreciation of water flow within city spaces, and the efforts benefactors were willing to go to in order to achieve it by artificial means.

Not all waterways could be thoroughly controlled, such as seasonal torrents, but accommodations could be made for such violent flows, which in the process could create a dynamic urban setting. Strabo lived in two such cities, his hometown Amasya and also Nysa with its library, and in describing them separately he reveals similarities in their settings.[134] Both were cities divided in plan, yet given a lively coherence over their gorges through bridges and, in the case of Nysa, the entire length of a stadium. Yet the topographies of these two cities were very different from one another: a gorge in the case of Amaseia, a river valley with subterranean hydrology in the case of Nysa. The flow of water was much more visible in Amasya as the city developed along the sides of the river, while at Nysa the flows of water, which were more seasonal and torrential, were built over with impressive vaults, such as those that supported the stadium.

Beginning with Augustan monumentalization, the intermittent river that flowed through the town posed a problem. Rivers can be an urban asset, but are also a great liability; at Pessinus, there was the burden of the flood liability without the benefit of a regularly flowing river, as the bed was dry for most of the year. The solution was to monumentalize it in a way that works for flow of both water and

[134] Amaseia: Strabo12.3.39; Nysa: Strabo 14.1.43.

people. The canal system was begun during the time of Augustus but continued to be added to through the third century, reaching a total length of 500 meters, 11-13 meters wide. The structure was edged on both sides with several steps and quay walls, and in one section a series of pedestals contributed to the embankment.[135] This work was monumental but also practical for the containment of water and porticos for shade. It was more than passage architecture; an element at once for movement but also pausing and gathering. At other cities such as Olympus and Selinus, bridges and embankments regularized–even monumentalized–the movement of people and water into a fixed plan of urban space and hydroscape.

In the case of Amastris, the improper management of the city's drainage spoiled the potential beauty of the river. Pliny the Younger complains of this fact, highlighting in the process how the river holds a prominent position in parallel with the colonnaded street.[136] A remedy to this situation, with the help of Roman administration, would glorify both city and emperor, following a wider pattern of benefaction and urban enhancement across the empire. I would imagine this kind of colonnade-canal pairing would be refashioned elsewhere, as at Antioch on the Orontes, where the colonnades themselves are even likened to "rivers in flood," and the connecting alleys "streams," all connected to canals and the Orontes.[137] The division of the river created an island that separated the new city from the old city,

[135] Strubbe 2006, 108; cf. Devreker and Waelkens 1984, 77-141; Claerhout 2008, 66-69.
[136] Pliny, *Letters* XCIX. Marek 1989, 380: At Amasra deresi near the museum are remains of riverbed works. Structures can be found up this dere such as the theater and "Roman bedesten."
[137] Lib. *Or*. XI. 201.

but was connected by five strong bridges, according to Libanius: "while the water makes our city two, the bridges refuse to allow it to be two, but link the newer to the older city, like a foal to its dam."[138] Another way "water" made Antioch whole, or "one" metaphorically at least, was the huge number of baths this city had, and how much the city enjoyed their baths, as gathered from Malalas and French excavations. The connection between place, past, and water is clear, in this recurring urban motif of water and the passage of people as well as time. Asia Minor was, after all, the home of pre-Socratic philosophers such as Thales and Heraclitus–the former of which claimed water to be the basic element of life, the latter attributed with the phrase "you cannot step twice into the same stream."[139]

During the period of Roman rule, the cities of the river or river valley were no less affected than the port cities to the waves of prosperity that began with Augustan peace and imperial rearrangements of lands and movement. The tradition of euergetism with the wealth of landowners and those tied to Rome resulted overtime in the transformation of these cities into cities of glorified and exciting water forms, with flowing water as the visual lingua franca of urban prosperity – a point of pride that held tenaciously into later times. With the increasingly available resources and opportunities (as well as incentive) to pipe in water from distant locations by the aqueducts of the Imperial era, cities came to incorporate more and more water elements in the urban sphere as signifiers of wealth, competition, and belonging. At Perge most notably, water issued forth from a statue of the river deity

[138] Lib. *Or*. XI. 208-209.
[139] As recorded in Plato *Cratylus,* 401d and 402a.

Kestros, continuing as a canal down the center of the main avenues, enlivening the space between colonnaded porticos and providing atmospheric benefits. A shorter version was added to the main entry of Pisidian Antioch, while at Side colonnades were lined with panels to create open channels of the water. This desire for a flowing body of water, and the ability to implement its course, led to the creation of a new trend in urban space set within the drive of civic competition and value in urban appearances.

AIZANOI: a river city

The city of Aizanoi, located in western central Anatolia, was distant from the urbanized centers closer to the coast. This was a region of agricultural focus, remaining so throughout Roman rule, as reflected in the local nomenclature as well as origin stories.[140] Pausanias suggests that the city was founded by settlers from Aizania in Arcadia, the city of Azan, son of Arcas and the nymph Erato. It was Arcas who reportedly introduced agriculture to his land, after learning it from the chthonic deity Triptolemus.[141] This heritage well suited the agricultural bounty around Aizanoi, and provided a useful element in the fashioning of urban identity.[142] Pausanias also praises the cave of Steunos where the Aizanians supposedly settled,

[140] Levick 1987, 260.
[141] Paus. 8.4.1-3.
[142] Also suggested in another understanding of 'Aizanoi' refering to the fox and hedgehog to bring famine to an end: Steph.Byz. s.v. Azanoi; Levick 1987, 260; Cox etal. 1988, xvii.

about three kilometers from the later city,[143] but in fact excavation reveals a different story: settlement on the hill eventually occupied by the Temple of Zeus goes back as far as the fourth millennium BCE.[144] This location, aside the Penkalas River (modern Kocaçay), a tributary of the Rhyndacus (modern Adırnas Çayı), would become the center of the Roman city, having served important irrigation needs long beforehand.[145] The river, with slight gentle bends, divided the city into two; on the southeast side the Artemision and long colonnaded avenue were developed, while on the northwest side the elevated Zeus Sanctuary and abutting courtyards abutted the river.[146] Further to the north lay the Bath-Gymnasium and even further north, the theater-stadium; the theater took advantage of the natural rise in topography to set the cavea.

During the Hellenistic period, as part of the Pergamene and Bithynian kingdoms, Aizanoi began a process of urban conversion.[147] From the settlement near the river, sightlines and axes pointed to the sacred cave of Meter Steunene further up the Penkalas, and a temple of Zeus was erected around the start of the second century BCE. With the Attalid bequest in 133 BCE, rule of Aizanoi fell to Rome, and while Rome did not have a strong direct presence in the area, the process of Hellenization that had begun under powerful kingdoms continued its course. Excavation has revealed the scale of urban projects: the construction of terraces on

[143] Paus. 10.32.3.
[144] Prehistoric layers: Lochner 2010, 23-24 .
[145] On the river, cf. Robert 1981; Naumann 1989.
[146] Cf. plan in Rheidt 2010, fig. 6.
[147] On Hellenistic Aizanoi, cf. Rheidt 1999, 237f.; Lochner 2010; Rheidt 2008; Rheidt 2010, 170ff.

the hill over the Bronze Age levels, the erection of a bouleuterion, agora, and theater. This was furthered under Augustus, who made great efforts to integrate central Anatolia with the rest of the empire through a shared Hellenized culture, trade networks, and major sanctuaries, as seen in the urban development of Pessinus, Ankara, and Pisidian Antioch.[148]

By the Julio-Claudian era, an orthogonal urban plan was laid out east of the river, which was fitted with quay walls around this time for a regularized flow.[149] As at Pessinus around the same time, this taming of the riverbed allowed for a tighter interaction between built space and hydroscape, nudging the river in places to align with the urban features. Over the course of the first century CE, Aizanoi was fitted with the requisite urban features: Doric colonnaded plaza fronting the Penkalas, new bouleuterion, theater-stadium, Artemis Temple, and residences. A notable peak in this urban transformation was the completion of the Temple of Zeus during the end of Domitian's reign (c. 92 CE).[150] The temple courtyard, engulfing the prehistoric and Hellenistic layers of the hill, reasserted the hill as a focal point of the urban plan, aligned still with the river. A fountain at the southwest corner of the temple plateau, built around the turn of the second century CE, marks an early example of the

[148] Mitchell 1993, 81ff; Jes 2002, 50f.
[149] Rheidt 1999, 244; Jes 2002, 52; on quay walls, Naumann 1989; Rheidt 1993; 1997.
[150] Redating of temple: Posamentir and Wörrle 2006; Jes, Posamentir and Wörrle 2010.

monumental fountain type eventually found across Asia Minor,[151] and an interest in bridging the gap between river and monument with water features.

The pace of urban construction increased during the second century CE, especially during the second half of the century as Aizanoi increased its connections within the empire. Notable in this movement is Marcus Apuleius Eurykles and his benefaction (among many) of Bridge 4 (connecting to road running north of the Zeus temenos) after his return from Athens in 157 (Fig. 8).[152] This step in urban growth was followed by a series of structures built by the distinguished families of Aizanoi:[153] the heroon, bath-gymnasium, Bridge 1 (connecting to the colonnaded avenue), Bridge 2 (connecting to the Round Building area), and Bridge 3 (connecting to the Doric Courtyard), the Round building, and a colonnaded street ending with an archway. Taken as a whole, the accumulation of these structures redefined the monumental nature of the city.

During this period Aizanoi probably received its major water line, as suggested in the inscription that relates imperial involvement in the water supply. Dated to the reign of Antoninus Pius, this infrastructural project may also have involved the dam further up the Penkalas, past the sanctuary of Meter Steunene, which served as flood control but was also at a high enough elevation to supply the

[151] Von den Hoff 2009, 454ff.
[152] Cf. Kearsley 1987; Levick 1987, 157; Hoffmann and Rheidt 1991, 324; Wörrle 1992, 337ff; Rheidt 1993; Rheidt 2010, 179f.
[153] Cf. Naumann 1980, 137; Naumann 1983; Naumann-Steckner 2010, 103f.; Rheidt 2010, 170ff.

city with water (Fig. 9).[154] It is notable that one of the most impressive Roman dams in Anatolia was located at Aizanoi; its vaulting, sluice gates, and technical construction amount to a rare and impressive show of engineering, one comparable to the Hittite dam projects in terms of scale, but owing much to the technological advances of a connected Empire, as well as imperial funding, most likely. The extra supply of water created by the dam was necessary to feed not only the large bath complex but also other aquatic features that cropped up, such as a possible fountain along the main road heading north, at the northeast entrance to the Zeus Temple courtyard.[155] Similar to the earlier fountain on the southeast corner of the Zeus Temple hill, the fountain flow created a continuity of water presence between the river and the baths.

Developing on both sides of the banks of the Penkalas during the Imperial period,[156] the city found integration and connection across the river and different orientations of sectors. Bridges emphasized the foci of the city:[157] Bridge 1 connected the city to the cult area of Meter Steunene, which was further emphasized by the monumental arch and colonnaded street that began at the Artemision, along a sightline to the extramural sanctuary. Bridge 2 connected the Round building with

[154] Naumann 1980, 137; Cox et al. 1988, 6, no. 10; Rheidt 1993, 290-1: dam most likely linked to project of quay walls.
[155] Naumann 1983.
[156] Rheidt 1999, 242-4: settlement shift in Hellenistic times focused around Sanctuary of Artemis; in Roman times, development of other bank and Temple of Zeus; in Julio-Claudian times, orthogonal system imposed on east bank.
[157] Rhiedt 1999, 248: first stone bridge built in 157 AD (Bridge 4), Bridge 2 followed thereafter. Cf. also Rheidt 1992, 328; 1993 on study of Aizanoi bridges and topography, aquatic iconography, and Antonine quay walls.

the opposite bank. Bridge 3 connected the street axis of the eastern side, a link from the colonnaded avenue from which it branched, with the Doric Courtyard and monumental center on the west. Bridge 4 connected the Artemision with the agora. These bridges are in a general way comparable to the two or three bridges crossing the gorge at Nysa. In Aizanoi, by encompassing the space south of the Zeus temple temenos and fronting the Penkalas, the agora greatly increased the footprint of the monumental urban center and created a link between Zeus temple and river. In moving between the urban features, the river was repeatedly seen and crossed, anchoring urban experience in the process. As at Side, ritual procession connected the urban elements together, as well as with extra-urban features. From the Zeus Temple the route went over Bridge 4, down the colonnaded avenue and across Bridge 1, down along the river to the sanctuary of Meter Steunene.[158] The Penkalas was a firm presence throughout the procession, and coins from the reign of Hadrian and Antoninus Pius reflect this centrality of the river for the city.[159]

During the third century, the economic systems that sustained the wealthy benefactors and their urban contributions suffered with the financial crisis eventually addressed by Diocletian's Price Edict. As a result, urban spaces also suffered:[160] by the middle of the century the theater-stadium was abandoned, followed by the abandonment of the nearby bath-gymnasium. As the urban extents drew in back towards the river, a bath appeared within an earlier masonry structure at Meydan

[158] Rheidt 1992, 18.
[159] Robert 1981, 350ff.
[160] Cf. Naumann-Steckner 2010, 109-111; Rheidt 1999; Rheidt 2010, 180.

Kiran. Yet despite this reduction in size, the city continued as a functioning urban space, with the bouleuterion converted into a theater or odeion. Urban structures remained in use into of the fifth century; bridges continued to connect the banks of the Penkalas, and renewed colonnaded streets show a continued interest in urban appearance and public space.

By the sixth century, the urban fabric of Aizanoi shows a distinct change in attitudes to urban priorities. As public buildings turned into quarries for building materials, many new churches arose in the city and country.[161] The use of spolia in the quay walls suggests the continued upkeep of the riverside into later periods, and thus the continued value in spaces along the Penkalas.[162] The late antique colonnaded street near the Round building (possibly converted into a chapel) took up the alignment of Bridge 3 to stay connected to the Zeus hill complex on west bank, which by now contained a church inside the Zeus Temple. The bath at Meydan Kiran functioned as a bath perhaps until its Justinianic conversion to a church.[163] By the end of the sixth century, Aizanoi was still a city around a river, but the urban nodes which the bridges and avenues connected had become markers of Christianity.

In the examples above I have shown how investment in an urban river, through choice or necessity, contributed to the landscape of the built environment, to ritual, and to a connection with place. Sometimes the river directly shaped the city;

[161] Rheidt 2010, 182; Niewöhner 2006.
[162] Naumann 1989.
[163] Naumann-Steckner 2010, 109-111.

sometimes the river was shaped so as to create a specific urban image, as in Rome. Waters may not have always shaped the contours of cities set away from the river, but were regardless integral to their foundation and continued inhabitation. An appreciation for and acknowledgement of the importance of water in the city's success can be noted in the built urban environment, in the aquatic-themed imagery or in the creation of artificial waterways. Such urban additions were only made possible by the careful management of the local hydroscape, and arguably would have tempered the inhabitants and activities of those spaces. It was during the Roman imperial period that cities became more urbanistically engaged on both sides of their rivers or waterways (as in Nysa), spurred on by urban growth and through infectious ambitions of engineering and urban enhancement. Through sightlines, iconography, and procession, the river retained its importance and remained a connection to the perceived past of the city and its worship.

Cities of the spring

You occupy the strongest site and the richest on the continent; you are settled in the midst of plains and mountains of rare beauty; you have the most abundant springs and a soil of greatest fertility, bearing, all told, unnumbered products, both wheat and spelt and broad-eared barley white; and many are the droves of cattle and many the flocks of sheep you tend and pasture. And as for rivers, the largest and most serviceable have their source here….

Dio, *Delivered in Celaenae in Phrygia*, 35.13

Strategic location at the spring of a major river could also bring renown, as with the head of the Maeander at Apamea-Celaenae in the interior of Anatolia. This

city, with its former history as Persian *paradeisos*, or enclosed park, retained its importance in Roman times for its central location and emporium setting, as praised by Dio. The mixed nature of this meeting spot, reportedly visited by Phrygians, Lydians, Carians, Cappadocians, Pamphylians and Pisidians,[164] was arguably an important contact zone in the interior for the spread of cultural and technological ideas. Just as the sea and river afforded cities a measure of connectivity with the wider world, so too did the sites of springs that constituted the connected dots along road systems, benefitting from an exploitable water supply and fertile surrounding land. Though their urban spheres were not necessarily directly engaged with notable bodies of water, these cities of the spring nevertheless had to deal with pressing water issues for irrigation, flood control, household use, and so forth. The extent of these aquatic sources, I argue, had an impact on the occupation of the land in creating opportunities to refashion the hydrology of the locale to better suit the needs of its inhabitants.

Utility

The common presence of springs around mountains and foothills widely encouraged settlement on the slopes, augmented by the creation of terraces. In many cases, such cities were settled not only for the presence of springs and the control of surrounding watered land, but also for defense. Sagalassos, home of a fierce Pisidian people, provides a good example where the karstic geology provided around fifty-

[164] Dio 35. 13-14.

five springs within close range to the city.[165] This provided a source of water for the Hellenistic fountain house, and the local hydrology allowed for the cultivation of crops as well as a flourishing ceramics production center, a situation shared by other cities of Pisidia.[166]

The spring waters at Hierapolis of Phrygia were both a blessing and blight, and eventually the city's burial shroud. The city enjoyed plentiful water for baths and general consumption, but more importantly gained riches from the properties of the water ideal for dyeing wool.[167] The calcareous spring water, upon petrifaction, was also useful in creating stone divisions in fields,[168] and later in the creation of water channels in the post-classical city.[169] Yet the waters of Hierapolis are the tip of the iceberg of a much larger subterranean hydrogeological phenomenon. The region around Denizli is dotted with caves and springs that connect through the faults and fractures of karstic geological systems.[170] It is at Hierapolis that these waters come to the surface most spectacularly. Tyana similarly gained wealth and power from its well-watered location, not only in production but also as a node along the main road through Cappadocia.[171] For these cities of the spring, a reasonable and generous source of water was a potential source of greater standing, and a means to connect with wider landscapes of the empire.

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[165] Waelkens 2016.
[166] Martens 2008, 259 on Sagalassos; Bracke 1993, 15 on Pisidia.
[167] Strabo 13.4.14.
[168] Vitruv. VIII.3.10.
[169] Arthur 2006, 36.
[170] Cf. Özler 2000, 1171f.
[171] Berges and Nollé 2000, 10f.

Pleasure

Concern for water shaped the development of these cities of the spring, which often adopted a sloped, terraced layout in harmony with the deep structure of the site and thus better able to cope with the elements of nature, in particular the collection and passage of water. At Sagalassos, the harnessing of local and more remote springs allowed for abundant water display, which by the High Imperial period reached a level of sophisticated urban organization and unification. This can be seen in particular in the aligned fountains of the upper and lower agora, which appear from below in a continuum, and would have experientially felt as such when moving up the city. From the axis of the lower colonnaded street, the fountain at the lower agora visually led to the Hadrianic fountain on the terrace above; a small niche fountain on the side of the terrace wall connected the two in passage.[172] In a sense, one could say that the line of water formed the line and axis of city streets and in a way reflected the abundant nature of springs from high up at the base of the great rocky massifs dominating the city, down to the more gentle hills below. For the cities of the spring, a source of water was not just a means of gaining greater standing, but also a mode of displaying it.

[172] Waelkens 2016.

ARYKANDA: a spring city

The ancient city of Arykanda is located in eastern Lycia, twenty-five kilometers from the Gulf of Antalya. Perched atop five terraces on rocky slopes with Şahinkaya rising behind, Arykanda possessed a naturally defensible location overlooking the Valley of the Arykandos River (modern Aykırı Çayı) that allowed crucial communication between coastal and inland Lycia. This positioning, as well as the cedar woods surrounding the area, provided the city with wealth and a connection to the wider world. Evidence for settlement goes back as far as the Chalcolithic Age, and its Luwian name, meaning "the place near the high rocks" points to a long settlement history.[173] Pliny's citation of Thracian origin with Milyae settlers suggests an unawareness of or unease with indigenous populations and traditions, linking the place instead with a people more known to the educated class of the early imperial period, or it may stem from local agency wishing to appear more firmly embedded in the Hellenic world.[174] At any rate, the long range of occupation was due to the abundant water sources around the city. Springs lay to the west and east of the city; a system of rock-cut canals, the earliest dating perhaps to the fourth century BCE, conveyed their waters to the settlement, while cisterns also collected rain water.[175] Cisterns ensured that water would not be lacking should the connection to a spring fail, and may also have served as distribution centers.

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[173] For city history and setting, cf. Knoblauch and Witschel 1993; Hellenkemper and Hild 2004, 457- 459; Bayburtluoğlu 2004, 123-148; Bayburtluoğlu 2005.
[174] Pliny NH 2.25; Steph.Byz. claims an older founding.
[175] Knoblauch and Witschel 1993, 254f.: the canals can be compared to similarly dated ones in Limyra and Myra; Bayburtluoğlu 2005, 38; 122ff.

During the Hellenistic period, Arykanda was focused on the northwest part of the site around the commercial agora, with residences to the west on cliff terraces.[176] The agora area, with shops, civic spaces, and Temple of Helios, also contained a large cistern south of the bouleuterion (Fig. 10).[177] The shops were carved into the bedrock, as were the canals that channeled wastewater underneath the stairs of the Temple of Helios and southward off the terrace.[178] The drainage of water was as important as the harvesting of water; improper management of excess water could destabilize the terraces and structures atop. The Hellenistic city, balanced between collecting and dispelling water, achieved harmony by working with and adding to the natural structure of the topography.

During the Roman imperial period the city expanded to the east, notably with the construction of the theater–and possibly the stadium as well–during the second half of the first century CE. Nestled and terraced into the slope, these structures mark a continued awareness of site maintenance needs, as well as the potential of the landscape for aesthetic gain, in vistas and visual foci. Like the theater design itself, these urban additions followed Hellenistic traditions, though with a suggestion for coming change. Around 73 CE, honors were given to Vespasian,[179] not unlike in Side, anticipating the establishment of the province of Lycia et Pamphylia. From this time onwards, with new connections to the networks of the Roman Empire, public works were undertaken and the city saw further changes.

[176] Cf. folding plan in Bayburtluoğlu 2005.
[177] Bayburtluoğlu 2005, 126.
[178] Bayburtluoğlu 2005, 95-96.
[179] Şahin 1994, 17 No. 15.

The greatest urban development came in the second century, notably with an increase in imperial connection, as evidenced in the construction or rededication of the Temple of Trajan ('Sebasteion') around 96-99 CE.[180] The Great Bath-Gymnasium also rose during this period, stretching the urban bounds into the east necropolis. Supplied by the Başgöz spring and a water reservoir to the west,[181] the Bath featured windows that framed impressive vistas out to valley; its large size and position ensured that, as a water instillation, it was prominently visible from across the site (Fig. 11). The Bath's setting in the eastern necropolis is an example of the mixed-use nature of Lycian necropolis space as places of display. With the increased range of infrastructure, the nymphaeum may be linked to the construction of the baths.[182] Its location west of the lower agora formed a node between the Hellenistic city center and the expanded sectors to the east. The development of the lower agora area under Hadrian, including the construction of the odeion may have been spurred on by the addition to the hydroscape.

In 141 CE an earthquake struck Lycia, bringing destruction to many cities in the region. Arykanda, like the other cities that suffered, recovered in part thanks to the great benefactor Opramoas of Rhodiapolis, who gave 10,000 denarii.[183] At the theater a new skene went up, perhaps in tandem with development in lower agora, and forming a monumental backdrop for the theater orchestra but also for the spaces

[180] Şahin 1994, 18 No. 16.
[181] Bayburtluoğlu 2005, 123, 127ff.
[182] Bayburtluoğlu 1988, 189; Dorl-Klingenschmid 2001, 257; Bayburtluoğlu 2005, 124-125.
[183] Hellenkemper and Hild 2004, 457.

below, similar to the layering of fountains on terraces at Sagalassos. The urban shift to the eastern slope included urban residences,[184] and while there was space to expand eastward, it required further pacification of landscape and water. A torrential stream bed divided the most eastern part from the rest of the city; two or three bridges reconnected the urban plan into something more coherent, with a system of terraces that followed the contours of the slopes, and rock-cut stairways to bridge level differences.

Altogether, the city was anchored to its dramatic setting by carving into the bedrock and terracing with great polygonal masonry walls. In order to successfully cling to this locale, water management was of utmost importance, and the solution was to run channels under stairways and streets, from any area of catchment, and dot the city with cisterns large and small, integrated with the network of springs to collect and then utilize water in a productive or pleasant manner. Arykanda provides a good example of this awareness and precaution, in the stadium that forms a large terrace toward the top of the city that could take floodwaters or falling rocks instead of threatening the buildings on lower terraces,[185] and the sunken court of the lower agora may have also served as a catchment off the theater and stadium. Concerns of water collection and disposal resulted in urban design that brought together utility with aesthetic. The system of connected terraces with orderly plans, with rock-cut channels for inflow and outflow, visually contributed to the built environment, with cascades of water that flanked steps linking one terraced space to another.

[184] Bayburtluoğlu 2005, 142.
[185] Bayburtluoğlu 2005, 109, citing Delphi and Priene as other examples.

The third century saw continued upkeep of the urban sphere, as evidenced in repairs to the nymphaeum.[186] After suffering another earthquake in 240, Arykanda saw some improvement in fortune. Under Gordian III (c. 242-244), the city was granted its own mint. The measure of affluence in the city can be measured by the erection of five more baths: the Bath house with Inscriptions in the residential or workshop area west of riverbed, the Fifth Bath on west bank of riverbed across from Great Baths, and the Sixth Bath adjacent to the house with a peristyle. In addition, latrines were inserted around this time along the southern end of the Temple of Trajan courtyard, three meters below the temenos level. This took advantage of the canals running along the street, draining from the nymphaeum above, leading then south, out of the city.[187] In the fourth century the ranks of baths were added to with the Naltepesi Baths at entrance to the city, and the Terrace Bath between the agoras. Although housing shifted to less-affluent rock-cut residences after the 240 earthquake,[188] the placement of these aquatic features suggests a continued use of widespread urban spaces and a retained value in the culture of water-related practices.

Arykanda remained a vibrant urban setting into the late antique period: the commercial agora and Hellenistic cistern remained in use through the fourth century,[189] with the addition of cisterns; the Terrace Bath was used into the mid-sixth century. Remains from the Bishop's Palace at the southeastern part of the city

[186] Bayburtluoğlu 2005, 125.
[187] Bayburtluoğlu 2005, 76.
[188] Bayburtluoğlu 2005, 152.
[189] Hellenkemper and Hild 2004, 458.

provide a suggestion of urban affluence: the atrium contained a central fountain and a fountain or water clock, a bathroom and toilets. The drainage canal of the house joined up with that of Bathhouse VI,[190] perhaps hinting at an infrastructural link between Church and hydroscape. At some point during the fifth or sixth century, a great fire destroyed parts of the city. By the sixth century, inhabitants relocated to an area to the southeast, known as Arif, leaving the site of Arykanda to fall into obscurity.

Cities of the spring, regardless of the disadvantages of topography or geographical setting, possessed a natural advantage for urban success and urban transformation, Like port cities, they were nodes along the path of trade and communication, as I have shown above, and thus a local source for the dispersal and flow of cultural and technological ideas. Springs could allow for the alteration of the hydroscape on a significant scale, with the addition of water features across the site, and therefore the wider incorporation of water-related practices in daily life.

Dry cities

And the regions round Orcaorci and Pitnissus, as also the plateaus of the Lycaonians, are cold, bare of trees, and grazed by wild asses, though there is a great scarcity of water; and even where it is possible to find water, then wells are the deepest in the world, just as in Soatra, where the water is actually sold. But still, although the country is unwatered, it is remarkably productive of sheep; but the wool is coarse, and yet some persons have acquired very great wealth from this alone.

[190] Bayburtluoğlu 2007, 2f.

Strabo 12.6.1

In parts of central Anatolia, large swaths of land and low annual rainfall entailed a different outlook towards water. The strong examples of urbanism of the region through the Iron Age had dwindled by the classical period, such that by the Roman period recent traditions of urbanism had shallow roots; colonies and connections to imperial estates led to productivity in profit and cultural dissemination. Within these spaces, the importation of Roman urban trends and water culture emanated from provincial centers such as Ankyra and Pisidian Antioch, where visitors there on trade, religious function, and so forth viewed the amenities and presumably returned home with new ideas. Dry cities were not necessarily insignificant cities, as Strabo makes clear for the productive land of Lycaonia and neighboring regions.[191] In instructing how to praise various locales, Menander Rhetor shows how even a dry and waterless city can be praised.[192] Under Roman administration the restrictions imposed by local conditions were overcome in part by solutions enabled by Empire to allow for a degree of adopted Roman urban trends, as I demonstrate below. Cities along the coast or in places of more urbanized tradition could also be waterless by nature, but made watered by design. With or without aqueducts, these cities were able to take part in the imperial culture of bathing and waterworks that marked an up-to-date city thanks to the careful curating of waters.

[191] Important also for their positions along major roads, such as Mazaca/Caesarea, which Strabo decries as unfit to be a settlement for lack of both water and walls (12.2.7).

[192] Menander Rhetor I.2: these are " 'fiery after the fashion of the aether and the heavens' since the heavens are fiery and dry."

Utility

A settlement at a place without easy access to water was sometimes necessary in order to occupy land within a hostile region (in terms of either environment or neighbors), in other words, for strategic reasons. This pattern can be found in long-occupied sites such as Selge and Termessos, in the wave of settlements that came in Hellenistic times to mark the claims kingdoms, as with Attalid outposts such as Melli (or Seleucid Laodicea in Phrygia), and in subsequent Roman colonies aimed at pacifying the region, such as Cremna. At these sites the careful use of cisterns afforded a measure of water collection and storage, and dry conditions required a cautious and systematic use of available water for a wide range of activities.[193] Mazaca (modern Kayseri), a city derided by Strabo as "not adapted in other respects by nature for the settlement of a city, for it is without water, and unfortified," held an important position along the east-west trade routes.[194] By the high imperial period, under a new name of Caesarea, the city did well regardless of Strabo's criticism, and only continued to gain importance during the Byzantine and Seljuk periods.

By the sixth century CE, watering the dry cities of southeastern Anatolia became a battle cry in the contested space of the border of the Sassanian Empire. The accounts of Procopius detail the works of Emperor Justinian in bringing and

[193] For Termessos, Kürkçü 2011, 2012, 2013, 2014; for Melli, Vandeput and Köse 2001.
[194] Strabo 12.2.7.

storing water in these cities as a means of protection in times of siege, and also in claiming the city as a Roman/Byzantine space. At Dara (Modern Oğuz, Mardin), inhabitants had formerly gone without springs, conduit or cisterns, instead having two options: "either to take a vast deal of trouble in order to obtain drinking-water at all, or to perish of thirst" (an unlikely extreme).[195] Procopius goes on to report other exploits of the emperor in bringing water to eastern Anatolian cities without springs: constructing cisterns and digging channels to collect rain water at Rhabdios, and also at Cyrus, which with the introduction of a greater water supply became a flourishing city.[196] At Constantina, where "the city had been without water from early times, and the inhabitants always suffered from thirst and from the great difficulty of obtaining water," Justinian brought water to the city with an aqueduct, allowing for the creation of "ever-flowing" fountains, thus earning him the title as founder of the city.[197] Justinian's actions in these cities, according to Procopius, were much more than projects for the good will of the people. The importation of water in the creation of Roman/Byzantine urban spaces with updated practices regarding water was a way to put this marginal space of empire into greater stakes.

[195] Procopius 2.3.24-25.
[196] Procopius 2.4.12; 2.11.4 for Cyrus.
[197] Procopius 2.5.9.

Pleasure

At Selge, the preciousness of water is still felt by the modern-day village, even after the intervention and aid of the state hydraulic works directorate.[198] The spring on the side of the ancient settlement (tellingly called Kıral Suyu or "king's spring" today) still provides limited water, but much coveted for its quality; the voids of the cisterns within the ancient urban space would eventually have been supplemented by the flow of aqueducts to allow for fountains and other Roman urban amenities. Likewise, the plateau upon which the Roman colony of Cremna developed made use of cisterns in public and residential spaces. Yet the needs of the city to showcase Roman urban practice in public waterworks and bathing necessitated the difficult construction of a siphon aqueduct and water-lifting device.[199] The great effort to mirror the water culture found in other Roman cities, though on a more economic level, must have been all the more impressive at the initiation of these waterworks.

RHODIAPOLIS: a cistern city

The city of Rhodiapolis is located on an outcropping 250 meters high, three kilometers from the sea in southeast Lycia.[200] The city was thought to have been founded by Rhodian settlers in the seventh century BCE, but excavations have

[198] Cf. Büyükyıldırım 1994, 175f.
[199] Owens 1991.
[200] On the setting and history of Rhodiapolis, see Bean 1978, 146-148; Hellenkemper and Hild 2004, 825ff.; Huber 2006; Çevik, Kızgut, and Bulut 2007; Çevik 2008; Çevik, Kızgut, Bulut 2010.

uncovered Geometric pottery from the eighth century BCE.[201] The city's older name of Wedrei/Wedrenehi is attested in the Classical period on Lycian inscriptions and coins. As a member of the Lycian league in the second and first centuries BCE, with its own city mint, Rhodiapolis probably enjoyed a certain degree of urban growth, but evidence has been obscured over time. The majority of the ruins date to the period of Roman rule, which came late to Lycia: annexation to the Roman Empire in 43 CE by Claudius, and combination with Pamphylia to create a double province under Vespasian.

The outcropping of Rhodiapolis is geologically not conducive to hold or issue ground water, though natural resources of water are present in the outskirts, near rock tombs to the southeast and north, around which there were also dwelling areas. There is one fountain structure still flowing with water to the west of the city.[202] This distribution of water sources outside the city center, closer to tombs and houses, was an inherent weakness to the otherwise well-fortified outcropping, but possible to overcome through careful planning and construction.

The center of the city is marked by the theater built into the slope, its cavea looking out south to the open plaza space.[203] This sector, complete with cylindrical cistern, has provided rare evidence for the Hellenistic levels of Rhodiapolis,[204] and suggests an impressive approach to urbanism already by that time. Urban

[201] Çevik, Kızgut, and Bulut 2007. Though Theopompus (F103) would push an earlier foundation date, with the city named after Rhode, daughter of early-Iron Age figure Mopsus.
[202] Murphy 2006, 159f.; Çevik 2008, 12.
[203] Cf. plan in Çevik, Kızgut, and Bulut 2010, fig. 2.
[204] Çevik etal. 2010, 32-33, 35.

development becomes most evident in this sector and the city as a whole during the second century CE. Dating to this period are the public buildings and the works of local benefactor Opramoas that created an irregular plaza south of the theater. This space, holding the tomb of Opramoas and Meeting Hall, was bordered by the Opramoas Stoa to the west and the Two-Story Stoa to the south and west. The Two-Story Stoa opened on the bottom level to the Agora terrace, which was the end point to the main street from the monumental west gate, and an important urban junction. The details of its structure are as important as its location: the Agora terrace contained four large barrel-vaulted cisterns (Fig. 12). The creation of the monumental urban center went hand in hand with concern for the sustainability of its hydroscape. Because of the organic ties between the upper and lower terraces, they have been dated together to the first half of the second century.[205] Further discussion of Opramoas will occur in following two chapters, but let it be noted here that this increased level of contact with the imperial house and other cities through the local elite connected a small city like Rhodiapolis with a broader horizon, which was in turn made manifest in urban forms.[206]

Urban development of the second century appeared across the city, notably following the cistern-terrace structuring system. The creation of barrel-vaulted cisterns created flat surfaces on which to build along the slopes of the outcropping. This can be seen in the area of the Round Temple, Asklepeion and Library, which

[205] Çevik 2008, 16.
[206] Cf. Paterson 1991 for the connection between elite mobility, urbanization and settlement change.

are also notable as being early examples of these typologies in Lycia.[207] Connective architecture–stepped streets, colonnaded porticoes, and a monumental arch between the Asklepeion and Sebasteion–created flowing human movement between these spaces supported by water features.

Less tightly connected to the city was the Large Bathhouse, also dating to the second century. This was set on the eastern most part of the urban center where gentler slopes allowed for the creation of a large complex with the help of terracing containing four large cisterns (Fig. 13).[208] The Bathhouse was the first public building reached when entering the city from the southwest, providing a favorable impression from down the slopes. A fountain on the cistern façade suggests other cisterns in the city may have functioned similarly, though no fountains have been identified in the city so far.[209] The ability for a dry city like Rhodiapolis to maintain a sizeable bath reveals the keen interest in a wider water culture, and the willingness to funnel efforts and resources to attain it, as well as the ability to do much with little water – to use water efficiently.[210] Excavation has revealed the ongoing value placed in this structure and practice, in repair work from the third and fourth centuries, and continued use into the Byzantine era, though with altered uses.[211]

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[207] Çevik etal. 2010, 40.
[208] Özsait, Labarre, Özsait 2009.
[209] Çevik etal. 2010, 45.
[210] On the general use of water in roman baths, and their remarkable ability to exist and function with very little water (as in Rhodiapolis or Egypt), cf. Yegül 2010, 97-98.
[211] Çevik 2008, 15.

Despite the lack of an aqueduct or local source to feed the city, inhabitants of Rhodiapolis developed a way to keep the city well-watered. During the Roman imperial period the majority of the cisterns were constructed in tandem with the terracing projects to monumentalize the urban center.[212] Cisterns were tied in directly to terrace structures and served structures below through the exploitation of gravity, as in the Large Baths, Agora, and Building G, and few cisterns did not also serve as terrace substructures.[213] Calculations have estimated that the combined cisterns could supply 5,000 people for five months.[214] It is difficult to presume whether or not the system of terrace-cisterns was actively perceived on an everyday level. The creation of catchment surfaces for winter rain was an indigenous means of water management that informed Roman systems. Yet the ability for the city to thrive on an otherwise dry outcropping, using cisterns notably different in construction and technology from those of the Hellenistic period, was a testament to the growth that was possible through the exchange of ideas and technology of the Roman Empire.

Streams outside the settlement area may have also supplied drinking water in antiquity.[215] This suburban hydroscape also prompted building projects, mainly residential, but also the Small Baths to the northeast, the furthest major structure from the city center. Built after the fourth century, this bath brought urban amenity

[212] Cf. Murphy 2006, though more recent excavations have revised some claims.
[213] Çevik etal. 2010, 35.
[214] Çevik 2008, 14; Çevik etal. 2010, 45-46.
[215] Çevik etal. 2010, 45.

away from the city center,[216] and may be related to the development of villas away from the city center.

Security concerns during the early Byzantine period resulted in a shift in focus from civic center around theater to acropolis around basilica church. Fortifications went up west of the theater, incorporating the late antique settlement of mortared rubble two-story houses and large cisterns, as well as a church. Elsewhere in the city, workshops were built over Roman structures. In this period only the houses retained their same function, as the city center contracted and other structures were altered in function. Despite altered urban space, the city did well and had a high population at the beginning of the sixth century, which would fall during the next two centuries due to plague and Arab raids.[217] And during this time of continued high population, though urban structures may have been repurposed, terraces continued to perform their task of supporting levels and structures, and it might be supposed that the cisterns within those terraces likewise continued to serve the residents.

In the examples above I have shown that the lack of water did not preclude participation in the water culture that appeared across the Roman Empire. Local conditions may have required participation to take on an altered form, but notable is the apparent desire to negotiate the local hydroscape to fit the needs of urban planning and urban practices. Caution must be used, of course, not to impose modern

[216] Çevik etal. 2010, 41.
[217] Çevik etal. 2010, 38.

Western culture's high water use expectancy in analyzing the effectiveness of low water use in antiquity. People then were accustomed to living with less water, and were able to use it efficiently and effectively (as in Roman baths). While these dry cities may have been problematic to a modern inhabitant, the variance of cultural criteria would have rendered these locales far less problematic to ancient inhabitants.

Topographical determination or topographies of determination?

From the inland people we differ in the abundance of supplies, from dwellers of the coast, in the decency of our conduct. Whatever is a credit to both of these classes, we too possess; whatever is to their discredit, we avoid. So while they are partly superior and partly inferior to each other, we are on the winning side with both of them and on the losing side with neither.

Libanius *Or*. XI, 39-40

The words of Libanius on Antioch echo those of Strabo and Plato in affirming the link between locale and characteristics of inhabitant, that conditions of topography and the presence of water encouraged different patterns of social spaces and practices. Looking at it another way, one might consider that topography determined the limits of human occupation, but human agency could overcome such determinations.[218] Thonemann argues that, for the inhabitants of the Maeander River Valley, economic relationships, social structures, cultural identities and ritual behavior were specifically affected by their physical situation that enabled mobility, encouraged interaction, and marked boundaries, but that regionality is a human

[218] While our subject is Anatolia, perhaps the most dramatic demonstrations of this phenomenon have been demonstrated in Roman presence and urbanization in North Africa; cf. esp. Wilson 1998.

construct based in human activity and not the landscape.[219] Yet there is a balancing act in this equation, I would argue: the region, in providing and restricting, influenced, inspired, and shaped human activity. When the conditions of topography changed due to altered hydrology through natural force/disaster, communities learned to alter their engagement with aquatic forces and use of water through both Roman and indigenous traditions.

The examples above have demonstrated that geography, in providing (or withholding) resources to create spaces of urban practices (in building material, land type, water), affected and shaped human life and human settlement. But these restrictions, or some of them, could be overcome by human ingenuity, experience, and resourcefulness. During the Roman rule of Anatolia, resources were available unlike before in the form of funds and technology, paired with cultural desire to alter the landscape in the creation of a monumental urban space enhanced with water. This chapter has argued that, combining indigenous traditions with Roman influence, the dialogue between city and aquatic landscape took a more aggressive turn on the side of the city, with new means and impetus to shape water to the ends of producing and displaying wealth, hygiene, and recreation. The effect of water on the built space became one of order and disconnect from raw sources, instead visually and experientially consumed in forms linked with imperial or local prominence, but in visual representations that highlighted the features special to locale.

[219] Thonemann 2011, xiii-xiv.

The next chapter will examine how these cities, through the attitudes and opportunities brought about by a Roman Empire, underwent alterations of the urban landscape through elements of water management. The modes of engagement with water and resulting aquatic expressions are diverse, and revealing something of urban values and power relations once the greater wealth, motivation, and opportunities arrive over the course of Roman rule.

CHAPTER 3. City as a shaper of waters

The Grecian cities are thought to have flourished mainly on account of the felicitous choice made by their founders, in regard to the beauty and strength of their sites, their proximity to some port, and the fineness of the country. But the Roman prudence was more particularly employed on matters which had received but little attention from the Greeks, such as paving their roads, constructing aqueducts, and sewers, to convey the sewage of the city into the Tiber. In fact, they have paved the roads, cut through hills, and filled up valleys, so that the merchandise may be conveyed by carriage from the ports. The sewers, arched over with hewn stones, are large enough in some parts for waggons loaded with hay to pass through; while so plentiful is the supply of water from the aqueducts, that rivers may be said to flow through the city and the sewers, and almost every house is furnished with water-pipes and copious fountains.

Strabo 5.3.8

The passage of Strabo has an eerily familiar resonance to it, conjuring up images of mid-century cities blooming in the California desert, or the landscape of concrete riverbeds and freeways that link Los Angeles to its port or sprawl. It goes without saying that all cities are artificial creations altering the natural landscape, yet some cities make a greater imprint upon the land than others. While certain cities of the ancient world appear as if they emerged harmoniously from the land (such as Termessos, evocative but no less artificial), others (such as Pergamon) grew on more starkly reshaped terrain to match the image of those holding power. Strabo's praise of Rome, in particular the urbanistic achievements of Agrippa, underscores Roman ingenuity and practicality in creating a new standard of urban life unrestrained by topographic setting (that was manipulated and obliterated), which was linked instead to comforts and consumption thanks to an authority who held vast resources, a

particular interest in urban functionality, and the technical know-how to achieve these ends.

Looking into such matters of human intervention, this chapter is concerned with the forces that spurred the intensification or reconfiguration of water management and use, as both an aesthetic and architectonic element, as well as an opportunity for expression and consumption within the city. This chapter examines questions of water supply that lurk behind the elaboration of the hydraulic landscape: technology, chronology, and sources of initiative and influence. I then examine the element of accessibility and the relationship of components in the water system within the extent of the urban network, focusing on questions of water usage: practical applications and hygiene, cultural and religious matters, as well as the creation of typologies. Finally, I seek to mark the elements of the hydroscape particular to Asia Minor and its sub-regions. In order to grapple with these questions and problems, this chapter will examine the archaeological evidence of structures and infrastructures as makers of urban space and activity. Actions to alter the local hydroscape, on a large or modest scale, reveal something of the adaptability but also the unchangeability of local culture in Asia Minor. An examination of the evidence from these spaces and practices will reveal individuals taking part in the dialogue between city and water, and tease out the different levels (local, imperial) at which this dialogue occurred in solving environmental problems that affected the use and supply of water in the urban sphere. This chapter argues that homogeneity in infrastructural elements was only one aspect that contributed to urban character; their

urban context and the histories allowing for their creation brought an inherently local quality to empire-wide forms.

Water supply: benefactions, technologies, and timescales

At a time when Herodes was governor of the free cities of Asia, he observed that Troy was ill-supplied with baths, and that the inhabitants drew muddy water from their wells, and had to dig cisterns to catch rain water. Accordingly he wrote to the Emperor Hadrian to ask him not to allow an ancient city, conveniently near the sea, to perish from drought, but to give them three million drachmae to procure a water supply, since he had already bestowed on mere villages many times that sum. The Emperor approved of the advice in a letter as in accordance with his own disposition, and appointed Herodes himself to take charge of the water-supply.

Philostratus *VS* II.1.3

As the account of Herodes Atticus suggests, Roman imperial power brought the potential to improve a city's water supply through the intervention of Roman officials. In the case of this benefaction for Alexandria Troas, the costs far exceeded the initial estimate, drawing the wrath of officials governing Asia Minor for channeling the moneys of many cities to fund a single urban project. The magnanimity of Herodes Atticus saved the situation, as he volunteered to finance the remainder of the project in the name of his son. The actions of the super-wealthy Herodes Atticus highlight the involvement of imperial and aristocratic forces in the monumentalization and irrigation of urban spaces, in the wish to ennoble a city of glorious past, and in the glorification of himself and his family in the process.

Though the second century CE was a watershed for the construction of aqueducts across Anatolia (as in the example above), the presence of sophisticated

urban water systems in Anatolia dates back as far as the Hittite cities in the second millennium BCE. With cities and fortifications located on raised outcroppings of land, Hittite powers constructed dams, channels, and pipelines to supply water to palaces, sacred precincts, and urban fountains.[220] The importation, storage, and drainage of water required technical skill (perhaps learned from Mesopotamian neighbors) and resources, as is well demonstrated at Sarissa in central Anatolia near Sivas, where the creation of dam and levees with causeways leading to the city allowed for water storage, while pipes carried water from a lake several hundred meters away to feed the urban fountains and other prioritized buildings, constituting the longest known Hittite supply line.[221] With the fall of Hittite power, maintenance of the waterworks was not upheld; sites were abandoned or destroyed, and water technologies obscured. But in part this tradition was carried on in the Urartian cities of eastern Anatolia, who also further contributed to the technology of waterworks during the first part of the first millennium BCE.[222] In western Anatolia, hydraulic technology was far from absent, as the resources of kingdoms to facilitate the creation of waterworks continued in power bases such as the Lydian Empire. Ancient authors hint at the man-made nature of the Gygaean Lake (Lake Coloe) near Sardis; some report it to have been created for flood control of the fertile Hermus valley.[223]

[220] Cf. Strobel 2013; Mielke 2011, 175ff.
[221] Hüser and Kapmeyer 2007.
[222] Cf. Belli 1997; Öziş 1994; 1996.
[223] Strabo 13.4.7.

In so wresting productive land from the unpredictable destruction of water, the Lydian hydraulic project to reportedly turn an unruly floodplain into a manageable lake near Sardis bears similarities to the Mycenaean works of the second millennium BCE which aimed to control flooding and use water productively; these great works of dams and canals would later be seen as the feats of Herakles, the hero of hydraulic improvements.[224] This theme linking water and power would continue and reach a notable level with the power and resources of Hekatomnid dynasty and Hellenistic kingdoms. In these works, it is possible to observe the actions of those in power and their efforts to improve the waterworks of a subjugated city for productive gain, for the spread of culture, and to create an image of power.[225] By the Hellenistic period, fountains existing at spring sites or linked there by pipelines were common features of Anatolian city limits and sanctuary spaces, as at Labraunda, Ariassos, Selge, and Miletus. At Ephesus in particular, piped-in supplies from two or perhaps three pre-Roman aqueducts allowed for the creation of fountains along the main routes of the city and supplied the burgeoning hydroscape: the fountain at the theater, the fountain on the lower Embolos, and the Heroon Fountain.[226] Pergamon likewise reached a sophisticated level of water management in Hellenistic times, with long-distance aqueducts by the early second century BCE to supply the Attalid

[224] Salowey 1994, 78; Robinson 2011, 156.
[225] Compare to the evolution of the Peirene Fountain of Corinth, where interventions at the springs to reshape the natural landscape likely reflect the centralization of an urban ruling structure in the mid-eighth century BCE, corresponding to the rise of the Bacchids (Robinson 2011, 127). Cf. also Agusta-Boularot 2001 on the connection between fountain building and authority in Greece in general.
[226] Thur 1999; Uytterhoeven 2013, 142.

palace, the great city fountain, the gymnasium, and several dwellings including Bau Z.[227] The power of Hellenistic kingdoms was felt inland in regions such as Pisidia, where cities strategic to a kingdom's rule were given special treatment, as with the early aqueduct system at Sagalassos to supplement the spring-fed Doric fountain. The rock-cut channels followed the hillside contours from a high enough initial elevation to be able to supply the Hellenistic parts of the city.[228] Further east, client kings undertook hydraulic feats as a show of benevolence and power, such as Antiochus I Theos of Commagene, who not only epigraphically proclaimed his appreciation for the natural hydrology of Arsameia on the Nymphaeios River, but also saw to the urban water supply.[229] Yet within these cities, well-watered or not, cisterns remained in operation through the Roman period with ongoing importance for a diversified, reliable water supply system.

By the time of the Attalid Bequest in 133 BCE, at which point the control of parts of Anatolia began to shift to Roman hands, many cities of Anatolia already possessed some degree of urban water infrastructure. Altogether, the extent of these waterworks added to the favorable impression which Romans of the late Republic held of the cities in Asia Minor for their general wealth, evidenced in the words of Catullus: "let us fly away to the famed cities of Asia."[230] These famed cities likewise attracted the ambitions of Roman officials and the temptation to mismanage the

[227] Garbrecht 1987; Garbrecht and Fahlbusch 2004; Uytterhoeven 2013, 141.
[228] Waelkens 1993, 38; Owens 1995, 91. Compare also to Attalid involvement in Ariassos or Termessos.
[229] Petzl 2013, 132f.; thanks to Georg Petzl for drawing this to my attention.
[230] Catullus 46.

provinces, as Cicero decries in his words against Dolabella and Verres.[231] The nature of this poor governance, plus the chaos wreaked by civil wars of the late Republican period, would amount to limited outside hydraulic investment between the time of the Attalid Bequest and the rule of Augustus.

While the coming of Roman power did not introduce water technologies for the first time to the cities of Anatolia, it is equally worth noting that the beginning of Roman imperial rule did not come with the immediate implementation of the technologies and typologies that Roman architecture had to offer. In fact, the flow of innovations went both east- and westward.[232] Just as the innovation of Roman concrete construction was a slow process that developed unevenly over space and time, one finds similar patterns in the development of water technology, which I argue can be analyzed through the categories laid out by Lancaster for concrete construction: evident need, economic ability, and social, cultural, and political acceptability.[233] These factors, along with technical ability, appeared in varying combinations across Anatolia, and tempered the pace and extent of waterworks to suit locale. Efforts to increase the availability of water through aqueducts or other means reflect the care taken to balance the level of demand, and in doing so marks the chronological and spatial bounds of aquatic needs within a locale.[234] In increasing the consumption of urban water through technological and funding opportunities, I will demonstrate, local and outside agents addressed the aquatic

[231] Cf. Cicero, Against Verres; Letter XVIII.
[232] Ward-Perkins 1973, 883ff.; 1981, 292ff.
[233] Lancaster 2005, 21.
[234] Richard 2011, 48; Garbrecht 1986, 16.

landscape in proactive as well as reactive ways to optimize the urban experience within a setting of inter-city rivalry and civic competition, in so far as urban hydraulics were concerned. The following four case cities present different aspects of infrastructural growth, and together amount to a fairly representative sample of urban experience under Roman rule. While this section discusses benefactions, the figure of the benefactor is not always known. Because of this, the issue of patronage will be discussed later.

AIZANOI: infrastructure of the early imperial period

Aizanoi, set in the Anatolian interior near modern Kütahya, was a river city. Impositions caused by water were turned into opportunities: the taming of the Penkalas River with dam, quay walls, and bridges served a range of needs, from irrigation to urban infrastructure to aesthetic order. The exploitation of the river for agricultural production might be assumed from the time of early settlement in the working of the land, but its systematic management would be more fully realized during the Roman Imperial Era.

Quay walls were set up along the Penkalas, in tandem with the regularized urban form, during the first half of the first century CE.[235] In shaping the contours of the Penkalas, a structured relationship was achieved between the city and its river, which further shaped urban developments. Already during the first century CE,

[235] On quay walls, cf. Rheidt 1992, 1997, 1999; Jes 2002, 52; Jes, Posamentir and Wörrle 2010, 84.

Aizanoi had some sort of water system in place–at least in a localized way–to feed a fountain at the southeast corner of the Zeus Temple platform. Described as comparable to the Flavian Meta Sudans in Rome or the smaller second-century fountain at Alexandria Troas, this fountain suggests some sort of predecessor to the later water supply system, and would be one of the largest and earliest monumental fountains in Asia Minor.[236] Destroyed during the Flavian construction of the Zeus Temple temenos to provide space and materials, the fountain probably dates to the early first century CE and was situated in the temenos of the earlier Zeus Temple.[237] Roughly contemporary with another public square with fountain element to the southeast (the "Dörischer Säulenhof"),[238] the fountain marks the first of undertakings to monumentalize the city. If these early works date to the Julio-Claudian period, they amount to an impressive Early Roman hydroscape. At this point the question of Roman involvement or impact comes into focus: the fountain was built over a Late Hellenistic settlement which Rheidt has shown to display an imported technology of wall building, a wooden piling system normally found in the Roman West and associated with the Roman army.[239] This importation of technology, perhaps along with the Roman builders themselves, as late as the mid-first century BCE, marked a precedent for Roman presence in the efforts to solidify control of the region through urbanization. The Meta Sudans-like fountain less than a century later suggests an

[236] Von der Hoff 2009, 455f. 2011, 126ff. On the Augustan Meta Sudans in Rome, which can be compared to the Aizanoi fountain, cf. Longfellow 2010.
[237] Von der Hoff 2011, 127ff.
[238] Rheidt 2010, 169-187; Von der Hoff 2011, 127-128.
[239] Rheidt 2001: 264; Rheidt 2009: 1223; Von der Hoff 2011, 128f.

ongoing in-flow of Roman technology and typology. The construction of the fountain, if undertaken by a member of the local elite, falls into the trend of benefactions of built works and games that earned certain locals Roman citizenship as Claudii.[240]

This early introduction of waterworks with Roman connection fits into a larger trend in Anatolia, beginning with Augustus and continuing into the Julio-Claudian period. During the Augustan period (27 BCE – CE 14), greater interest was taken to integrate parts of Anatolia into the Roman Empire for ease of administration and gains of profit. This was particularly true of the relatively few Augustan-period colonies. The designation of provinces and capitals was a piecemeal operation and would continue to change over the following centuries, in the process changing the fortunes and opportunities of certain cities. During the Augustan era, with the creation of colonies for retired veterans across Anatolia, hydraulic projects sprang up throughout the region. The colonies of Pisidian Antioch and Kremna received siphon aqueducts that allowed for urban amenities familiar to the settled veterans.[241] Elsewhere, cities with existing water supply systems experienced an increase of aquatic features within the city: at Ephesos, the monumental Pollio aqueduct fed a fountain near the upper agora with demonstrated local links to Rome. Using words, building forms and materials, the aqueduct bridge spanning the river by the road to Magnesia, and the monumental Polliobau fountain, revealed how C. Sextius Pollio

[240] Levick 1987, 262; IRG IV, 581; Jes, Posamentir and Wörrle 2010, 84.
[241] Cf. Owens 2012. Pisidian Antioch: dates to early first century CE, fed the fountain on the Decumanus; the Kremna aqueduct is similar to that at Antioch.

was appointed by Augustus to supervise the construction of the Aqua Throessitica.[242] Urban prosperity and upgrades were in the air elsewhere: in Aphrodisias, under C. Julius Zoilos, freedman of Augustus;[243] or in Sagalassos, where evidence for an earlier bath (c. 10-13 CE), would mark the oldest bath of Roman type in Asia Minor, based on Campanian forms.[244] Pipes traversed Sagalassos to provide some public access to water, but also gave direct access to water to the houses of the rich; this prosperity may be linked to the city's new connection with Perge as import-export harbor around this time,[245] and thus its wider connection to the world. The manifestation of urban renewal or expansion in Anatolia took both Greek and Roman forms,[246] but either way came through links with the authorities in Rome.

The Julio-Claudian era saw the continuation of growth initiated under Augustus: the investment in urban hubs and commercial nodes, as well as disaster relief. One finds at this time aquatic spaces created in tandem with Roman imperial urban investment. In Pessinus, the urban program begun under Augustus resulted in an aqueduct as well as the monumental central canal that brought the imperial cult temple into connection with the hydroscape.[247] The sigma fountain at Diocaesarea was part of the enlargement of the sanctuary of Zeus Olbios, on the north side of the

[242] Richard 2011, 53; Kirbihler 2007, 30; I. Ephesos II, 405; I. Ephesos VII.1, 3092.
[243] Ratté 2002, 19.
[244] Waelkens 2013.
[245] Waelkens 2016.
[246] Compare to Augustan waterworks in the West, which are limited (Robinson 2011, 202).
[247] Vermeulen 2009, 115.

Decumanus at the urban center.[248] Disaster relief also played a part in the expansion of urban water networks: the earthquake of 17 CE was followed by petitions to the emperor Tiberius, whose aid ultimately resulted in the aqueduct and expanded hydroscape at Sardis. In consolidating the network of cities within the empire, efforts were also made to strengthen the functionality of these cities: Patara was favored as a major port, and benefited from this position with an aqueduct under Claudius and baths under Nero, the latter marking the earliest Roman type in Lycia.[249] The erection of a lighthouse under Nero further emphasized the importance of the city based on its hydroscape. While the early imperial period did not bring immediate and complete change in the hydraulic landscapes across Anatolia, it is clear that trends were gaining momentum. The addition of external officials, altered boundaries, and external water sources brought with them Roman imports. In the case of Ilion, with its late Republic/early Imperial style bath,[250] one thinks of Strabo's claim that the inhabitants of the Troad lost their native tongue and names under the reign of the Romans, surrounded by the Roman colonies of Alexandria Troas, Parion, and Lampsacus.[251] Water systems, as enormously expensive undertakings that were little visible or glamorous, were less sought-after by local donors. It was more desirable to write one's name across nymphaea than subterranean pipes, so, as with many roads, much of the real and costly hydraulics were paid by the Imperial system.

[248] Dorl-Klingenschmid 2009; Wannagat 2005; Hellenkemper 1980.
[249] Işkan and Baykan 2013, 98.
[250] Cf. Aylward 2006.
[251] Strabo 12.4.6.

At Aizanoi, a second transformation of the hydroscape came during the Antonine period with the construction of a dam south of the city (now nearly superimposed with a modern dam). On the one hand, this lessened the danger of flooding damage and regularized the flow to the embanked river within urban space. At the same time, the elevation of the dam was higher than the bath being erected around this time in the northern part of the city, and may have provided the water supply.[252] An inscription from the reign of Antoninus Pius (139-161) celebrates the bringing of water to a now-unidentified location. The inscription makes reference to the whole imperial house, perhaps in dedication, and highlights the wish of the officeholder Lucius Claudius Severinus to connect infrastructural improvements with the imperial house.[253] Severinus came from the same Claudii family mentioned above, who were by this time one of the wealthiest families of Aizanoi. This individual also had marriage ties through his daughter Severina Eurykles to the Ulpii, an elite family of Aizanoi who gained citizenship under Trajan. His involvement in projects for both an aqueduct as well as a bath is telling of the intentionality and interconnectedness of the built hydroscape.[254]

Another facet of this change to the hydroscape and one's interaction with it was the building of four bridges across the banks of the Penkalas.[255] This gained momentum in 157 with the dedication of Bridge 4 (connecting the east side of the

[252] Naumann 1980, 137.
[253] Cox 1988, 6 No. 10.
[254] Naumann-Stecker 2010, 104.
[255] On bridges, cf. Hoffmann and Rheidt 1991; Wörrle 1992; Rheidt 1993.

city with the street running northeast along the Zeus temenos) by M. Ulpius Appuleius Eurykles, a member of the wealthy and well-connected Ulpii family.[256] This urban benefaction, similar to that of Severinus, in turn encouraged other wealthy locals to undertake benefactions in the city. Urban transformation came about, then, from those with power through imperial connections and spread to those with local means, perhaps in hopes of gaining imperial favor like the others. This process of emulation can thus be seen as a continuation of euergetism, which had existed in Hellenic poleis long before Roman influence. The difference is that the local oligarchy is now defined by its connection to Roman imperial power.

During the third century there were further adjustments to hydraulic infrastructure, scaled down to fit the lessened means of the landed elite, which had taken a hit in the general economic decline by the mid-third century. With the curtailment of the Bath-Gymnasium by the mid-third century and its abandonment by the late fourth century, the masonry structure at Meydan Kiran closer to the city center was converted into a bathhouse, amounting to a smaller, more concentrated footprint of the city's hydroscape of structures served by water.[257] But this continued to include the infrastructure of the river and its route through the city. Repairs to the quay walls and dam involved the use of spolia, in both routine repairs but also in the raising of the level of the walls,[258] perhaps in response to a bad flood, or in

[256] Cf. Kearsley 1987, Wörrle 1992.
[257] Naumann-Steckner 2010, 111.
[258] Rheidt 1992, 290f.

anticipation of a catastrophe; one thinks of the climate changes in the late antique period that brought altered patterns of rainfall.[259]

The overall picture of benefactions, technologies, and timescales in the hydroscape of Aizanoi bears the distinct mark of imperial connection, though not in direct intervention. Aizanoi kept the river at the center of urban development and also expanded the hydroscape to gain components of an urban water supply system not unlike those early fountain components in the earlier years of the Roman Empire. I have argued the river and region may have drawn in Roman interest, with a course of development bearing a narrative and forms similar to those known to other topographies, until local benefactors and agents were in a position to take initiative for a place-specific urban shape through bridges, urban connections, and iconography.

ARYKANDA: holding tradition amid infrastructural expansion

The hydraulic infrastructure of Arykanda was a stark necessity from the initial settlement of the site. The Hellenistic terraces and structures necessitated a series of rock-cut canals for both water supply and drainage, but the latter was especially important in order to assure the stability of constructions on the sloping terrain. This is visible in the carefully planned water system of the commercial agora, complete with large cistern and canals for both water supply and drainage. This

[259] Cf. McCormick et al. 2012.

system of controlling the hydroscape was sufficient for the needs of the city until the adoption of more water-intensive practices during the Roman period.

First notable in that respect is the erection of the great bath-gymnasium, probably at the end of the first or beginning of the second century. This may have coincided with the construction or restoration and rededication of a temple to Trajan, with the bath perhaps carried out by governor L. Julius Marinus Caecilius Secundus on behalf of the emperor.[260] The bath, situated at the eastern part of the city, was supplied by the Başgöz spring, whose water was transported in an open channel at ground level as well as through a section of underground rock-cut channel.[261] The nymphaeum may also belong to this period, and would have been a good visual companion to the Trajaneum from below, as at Sagalassos, and may have lured development around the lower agora.

It is possible to compare the development of the hydroscape at Arykanda to wider trends from the end of the first century through the early second century, which saw the enrichment of Lycia and elsewhere. An early aquatic feature of the city is an inscribed column drum giving honors to Vespasian, and was linked to a work of architecture at the site of the later nymphaeum, thus indicating the steps taken to monumentalize that part of the city.[262] By the time of the Flavian dynasty (69-96), the aristocracy of the provinces enjoyed greater activity and connection to the emperor than before, especially when it served the latter's interests. In the case of

[260] Şahin 1994, 18 No. 16; pg. 25 No. 24.
[261] Bayburtluoğlu 2005, 123-124.
[262] Şahin 1994, 17 No. 15.

Anazarvos, a city on the Cilician plain, this resulted in a temple to Domitian along with the construction of an aqueduct.[263] The unique title of the imperial cult, "Dionysus of the Goodly Crops," suggested the link between divine emperor, infrastructure, and bounty. There was also urban monumentalization undertaken by Roman officials, such as that of Sextus Frontinus as proconsul of Asia in 85 or 86. His works in Hierapolis were part of post-earthquake urban renewal and included the city gate, latrine, and the Nymphaeum of Tritons.[264] These amounted to a water-fueled entrance to the city center that touted the splendor of the city. Contemporary works in Cilicia and Lycia reflected Roman presence and interest in the urban and suburban landscapes: the great tunnel at Seleucia Pierea; the aqueduct at Elaiussa Sebaste where Roman-era baths feature opus mixtum construction; the Olympos baths in Italian/Cilician technique;[265] the Baths at Selinus;[266] and the Baths of Titus at Simena. This concentration along the coast reflects the maritime contact between locale and the Romans. But inland Lycia was also impacted: the aqueduct at Balboura with nymphaeum, and the aqueduct at Oinoanda with bath. Some projects during this time were repairs or updates to earlier works: repairs to the Claudian aqueduct at Patara, now serving multiple baths;[267] repairs to the Hellenistic fountain

[263] Gough 1952, 95; Casagrande Cici 2013, 142.
[264] D'Andria and Arthur 2003, 72f.
[265] Parman 2006, 96ff., baths may be linked to Romanization; perhaps Roman guards were quartered in Olympos.
[266] Hoff 2013, 146f.: the river was channeled in order to allow for the building of a large bath, a case of controlling water to enable urbanization.
[267] Brandt and Kolb 2005, 47.

at the harbor of Kaunos;[268] updates to the Doric Fountain at Sagalassos.[269] In Ephesos, the construction of the Imperial cult center of Domitian spurred on water-based projects: the Apsisbrunnen, Hydrekdocheion, and Domitiansbrunnen.[270] The ability and desire to reinvest in infrastructure speaks to confidence in urban fortunes and reaffirmation or urban aesthetic values.

Many of the trends continued through the Trajanic era, as one finds in Arykanda. By the early part of the second century, the Roman Empire held its greatest reach under Trajan (r. 98-117), an emperor known for practical works. During this time military and commercial ties continued to influence urban growth within Anatolia as well as the hydraulic landscape that underpinned the cities. During the imperial period the Roman presence flourished again through the intermarriage of Romans/Italians with Anatolian landholding families, such as the Tiberii Claudii of Sagalassos, who dedicated their fountain at the stadium around 116.[271] In Bithynia the presence of a large Roman/Italian community was linked to the benefactions in Prusias ad Hypium for the restoration of the Domitianic baths and the construction of a sewer.[272] The desire to take part in this dialogue of urban water expansion was strong but not always achievable, as the failures in Pliny's letters point out, or in Dio's inability (due to conflicting local attitudes and politics) to beautify Prusa with colonnades, fountains, as well as fortifications, harbors and

[268] Mellink 1972, 180-181.
[269] Waelkens 1993b, 47.
[270] Mellink 1960, 67.
[271] Richard and Waelkens 2013, 85: the fountain dedicated by the siblings west of the theater was propaganda at a prominent location, in a novel exedra form.
[272] Bekker-Nielson 2008, 97ff.

shipyards.[273] The letters of Pliny the Younger, as imperial governor of Bithynia and Pontus, provide the most personal evidence of this trend. While he served as a check on misconduct and ineptitude on the one hand: "the inhabitants of Claudiopolis are sinking (I cannot call it erecting) a large public bath,"[274] he also suggested and enabled certain projects, as with the Amastris covered canal.[275] Under the person of the emperor, governors and others representing the capital could bring real change to a city in the provinces.

In Arykanda, imported typologies continued to appear over the course of the second century. The tombs themselves reflect the growth of wealth for lumbermen, who made up a nouveau riche class and travelled to Italy and elsewhere. These inhabitants brought back home the ideas encountered abroad and introduced to Arykanda, for example, housing on the peristyle model.[276] These luxurious houses would spread over the western part of the city, further and further south of the commercial agora, in search for space, along the same levels of the lower city and great bath. By 141, the city was considerably developed, and after being damaged by earthquake, garnered from Opramoas 10,0000 denares in relief fund.

Further demands on the water supply increased throughout the third century, with the Bathhouse with the Inscriptions and Bath V (and the latrine?), the latter bath

[273] Dio Chrysostom *Or*. 45. 12-14.
[274] Pliny the Younger *Ep*. 48.
[275] Pliny the Younger *Ep*. 99-100.
[276] Bayburtluoğlu 2005, 144.

supplied by a terracotta waterway from the nymphaeum.[277] The following century three more baths joined the urban system: Bath VI at the Peristyle House near the Basilica, the Naltepesi Bath and the Terrace Bath. These may have been supplied by the spring of Aygırçay, which was conveyed by the same infrastructure as the Başgöz spring to supply the bath at Naltepesi, to the lower terraces of the city, and the fields of the inhabitants.[278] This may represent a resurgence in infrastructure after the earthquake in 240, and marked the urban focus around the area that would develop into an episcopal center. The smaller baths may have had smaller demands on the water supply system, but their total number gives an impression of a rich hydraulic landscape, composed of both interconnected and localized systems.

By the fifth or sixth century, the presence of infrastructure to feed the water features in the Bishop's palace underscores the continued value and care of the hydroscape. The drainage from the palace joined with the drainage of Bathhouse VI, having come from the eastern villa and Trajaneum after turning south at the Large Basilica.[279] The area around the commercial agora also continued strongly (even if less monumentally) during late antiquity, and may have received water at this time from the third line of Arykanda, which transported water from the spring west of Bağbelen in a terracotta pipeline to the uppermost structures of the city.[280] But cisterns also are found in great number in this late antique occupation; the large

[277] Bayburtluoğlu 2010, 16.
[278] Bayburtluoğlu 2005, 123-124.
[279] Bayburtluoğlu 2007, 3. Bayburtluoğlu 2007b, 7.
[280] Bayburtluoğlu 2005, 123-124.

Hellenistic cistern south of bouleuterion also remained in use until the 5th or 6th century.[281]

The urban plan of Arykanda was built for the natural flow of water (mainly its dispersal) and also around the flow of water. The torrential streambed to the east divided the urban center from the necropolis; the addition of urban features on the eastern side such as the great bathhouse brought an increase of traffic, and was solved with two or three bridges.[282] The placement of buildings within the hydroscape was dictated by drainage or the supply of fresh water or grey water; the drainage canal of the shops in the commercial agora is a good example.[283] Thus the latrine was placed below the temple of Trajan, catching water from the canals of the street, and draining, along with the waters of the nymphaeum and terrace bath, out of the city north of Naltepesi.[284]

Located high among the deep valleys that cross the Tauruses, Arykanda was a city of springs. Like other cities with abundant water, it received water from the mountains and required firm attention to clean and effective water discharge. A counter-example is found in Strabo's description of Smyrna, where a lack of drains beneath the roads created filth in the streets, especially with rain.[285] As cities piped in greater quantities of water during the Roman era, topographies like that of Arykanda prevailed in terms of drainage concerns as others caught up in their quality

[281] Bayburtluoğlu 2005b, 7.
[282] Bayburtluoğlu 2005, 54-55.
[283] Bayburtluoğlu 2005, 95-96.
[284] Bayburtluoğlu 2005, 76.
[285] Strabo 14.1.37.

of drainage to accommodate increased volumes of water. In the case of Arykanda, I have demonstrated, the hydrology of the site allowed for a rich implementation of bathing for an extended period of time, seemingly without major imperial intervention, but through the accumulated works of the elite who built their wealth by tapping into imperial infrastructures of trade and politics.

RHODIAPOLIS: overcoming barriers to urbanism during the high empire

The shift in the technology of creating vaulted sub-spaces that occurred between the Hellenistic and Roman periods across the ancient world marked a huge shift in urban possibilities at Rhodiapolis. Rather than an aqueduct, vaulted cisterns allowed the city to enjoy the urban amenities of a Roman city – by Pausanias' terms, at least, which necessitate running water.[286] As the outcropping of the city center was not geologically conducive to springs or wells, the closest sources of water to the site were in the southeast valley and northern necropolis valley area, the latter marked by a vaulted fountain structure and pool.[287]

The cylindrical cistern of the late Hellenistic period was not technologically complex (the extraction of earth from the ground and lining), nor was the terracing system found at the level of the theater stage (the in-filling of earth behind a terrace wall).[288] The later construction of side-by-side barrel vaults set into the terrain

[286] Paus. 10.4.1, refering to Panopeus which he does not consider a city, for lack of government offices, gymnasium, theater, market place, or water from a fountain.
[287] Murphy 2006, 159; Çevik 2008, 12; Çevik, Kızgut and Bulut 2010, 45.
[288] Çevik, Kızgut and Bulut 2010, 35.

required more engineering skill, functioning both to hold water and to support structures on top. The period of this development coincides with the time of Opramoas in the mid-second century; some structures can be more readily connected to his efforts, as with the agora that is connected by the two-story stoa to the plaza with his monuments above. This terrace sits atop four cisterns. Also dating to this period is the Asklepeion, atop two cisterns; the bath, atop four cisterns; and Building G, atop three cisterns.[289]

While the cistern-based hydroscape was partly forced to follow the features of the outcropping, within this set of restrictions it was still cleverly laid out for maximum gain. This is most evident with the placement of the bath. On the one hand, there may not have been other placement options closer to the city center, but its position at the foot of the outcropping provided the benefits of unobstructed access to daylight and also a higher pressure of water from standing at a lower level than the other sources.[290]

The excavators have estimated that the capacity of the cistern system was roughly 7,000 cubic meters of water, enough to support 5,000 people for a period of five months without renewal.[291] These cisterns, barrel-vaulted rectangular chambers placed side-by-side, were built partly into the cut-away bedrock and partly of built-

[289] On cisterns, cf. Huber 2006, 8-9; Çevik, Kızgut and Bulut 2010, 45.
[290] Çevik, Kızgut and Bulut 2010, 41.
[291] Çevik 2008, 14; Çevik, Kızgut and Bulut 2010, 46.

up walls of mortared rubble covered in plaster.[292] The vaults were built of bricks and reflect a typical Roman construction material of the second and third centuries.[293]

The expansion of urban monumentality, underpinned by these structures, has been linked to the growth of elite competition that politically played out in senatorial titles or other important political ties; Opramoas was not a senator himself, but made known his family relationships with senators.[294] Rhodiapolis thus fits into the trend of infrastructure during the Hadrianic/Antonine period. Hadrian (r. 117-138 CE) is particularly known for his benefactions and visits to the cities of Asia Minor, which further fueled the pace of civic competition in monumentalizing urban space. This was an era marked by celebrations of the local while contributing to the continued upkeep/investment of empire (such as the Andriake granarium complex[295]). Additions to the hydraulic landscapes of Anatolian cities ranged from major to superficial. Some cities only by this time received their first major aqueduct, and with it, the means to create water displays and monumental baths, as in the case of Alexandria Troas.[296] The undertaking of this expensive project was framed as an almost pious duty to these esteemed cities of the east.[297] Other cities which already enjoyed the extra water supplies of an aqueduct saw the expansion of water system at this time, in the addition of baths or fountains while striving to outdo rival cities in urban opulence – as in the erection of the Perge upper aqueduct that feeds the

[292] Çevik, Kızgut and Bulut 2010, 45.
[293] Çevik, Kızgut and Bulut 2010, 47,
[294] Patterson 1991, 166.
[295] Brandt and Kolb 2005, 47.
[296] Öztaner 1999, along with aqueduct built by Herodes Atticus.
[297] Philostr. VS. II.1.3.

Hadrianic fountain.[298] During this time, typologies became even grander, with vaster bathing spaces of the bath-gymnasia, in urban positions that sparked new development – as in the Hadrianic baths at Laodicea ad Lycum,[299] at Sagalassos,[300] and those at Patara and Tlos. Fountains also took on greater elaboration, serving as urban events, as at Andriake, Iasos, Magnesia ad Maeandrum, Sagalassos, Selge, and Xanthos. Sometimes the price to take part in this civic competition was too high, but as a high priority for the city's denizens, creative means were found to be able to afford the latest necessities of urban living. In Aphrodisias, locals tried to evade priesthoods and the benefactions they require, and applied to the emperor to take funds from gladiatorial games to build the aqueduct.[301]

The cities of Anatolia continued to enjoy the wealth and stability of the Antonine period (138-192). Picking up from trends begun earlier in the century, baths and monumental forms reached their peak of splendor.[302] Multiple large baths were erected within cities: in Ephesos, the Vedius Gymnasium[303] and East Bath-Gymnasium rose to serve the needs of the bustling metropolis; as did the SW baths and NW baths at Anazarvos;[304] at Laodicea ad Lycum a bath-gymnasium near the Syrian gate and baths at the southwest served the less central spaces of the city;[305] Sardis likewise saw the opening of the imperial Bath-Gymnasium and Bath CG at

[298] Büyükyıldırım 1994, 123f.; Albek 1972.
[299] Bejor etal. 2004, 165f.
[300] Waelkens and Talloen 2004, 424.
[301] Reynolds 2000, 17f.
[302] Cf. Thomas 2007.
[303] Cf. Steskal and La Torre 2008.
[304] Casagrande Cici 2013, 151 (but notable is absence of the bath-gymnasium type).
[305] Bejor et al 2004, 180f.

the outskirts of traditional urban bounds; these baths pulled urban development toward the city's edges.[306] The expansion of a city's water system also allowed for the creation of more elaborate water displays, as with the exceptional aqueduct at Aspendos and the impressive nymphaeum; the castellum aquae at Hierapolis around the same time as the basilica baths and large baths;[307] and a nymphaeum, fed by the last major aqueduct to be built at Pergamon, as reflected in the praise of Aristides as well as civic coinage.[308]

Wealthy families often enjoyed the role of patron in these works, and continued to bestow waterworks and other urban amenities onto cities of their region: Opramoas and the cities of Lycia; the Plancii Magniani in Selge and Perge, the Claudii and Ulpii of Aizanoi, etc.[309] Thonemann suggests that, in the Maeander River Valley at least, an increase in regional mobility through inter-city ties with other elites encouraged the decline of the pre-Roman model of citizenship exclusive to one city; social circles came to expand beyond the Maeander Valley by the end of the second century.[310] A patron may have focused on more than just his or her city of origin, with a fervent desire to bejewel an adopted city. This trend of expanded social circles applied to larger parts of Anatolia, and connected often in some way with Rome. In the example of Opramoas and his benefactions, the emperor is shown

[306] Bricker 2016.
[307] D'Andria and Arthur 2003, 36; 62; 192.
[308] Aristides LIII, *A Panegyric on the Water in Pergamon*; Jones 1991, 115f.: this type can be seen as in dialogue with the coin minted by rival city Ephesos under Antoninus Pius, celebrating the enlargement of the water system, and therefore also the water flowing through the city.
[309] Cf. Brandt and Kolb 2005, 73; Mitchell 1974.
[310] Thonemann 2011, 236f.; 267.

as the greatest benefactor, with the final honor. Opramoas thus positioned himself and the Lycian League into loyal ties with the emperor, resulting in senatorial ranks for many.[311]

Urban growth was not limited to the second century. As in the rest of Anatolia, at Rhodiapolis too, revisions to the bath in the third and fourth centuries, as well as the erection of a small bath in the fourth century, speak to the continued upkeep of infrastructure. The placement of the small bath away from the city may have been set to take advantage of the natural stream flow,[312] and marked an expansion of the hydroscape with less emphasis on the central urban core. By the (sixth?) century, the hydroscape had been reduced to the cisterns at the acropolis, perhaps linked to power of church, and the settlements around the streams in the valleys below.

The cistern system of water management at Rhodiapolis was a type that never became obsolete. Even during the high empire, cities that adopted aqueduct systems still held fast to reservoirs. Aristotle had advised that cities make use of natural supplies of water in pools and springs, or otherwise construct reservoirs for rainwater to supply the city in case of war.[313] During the Roman period, reservoirs continued to be a common occurrence in many cities of Anatolia, less so in fear of war but as a back-up measure. At Termessos, a city without aqueduct, Apollonios

[311] Kokkinia 2000, 250.
[312] Çevik, Kızgut and Bulut 2010, 41.
[313] Arist. 7.1330b.

boasted of his commissioned works to supply water to the city through an interconnected cistern system.[314] Similarly, at Parion, wells continued to be used in tandem with the aqueduct.[315] The centrality of cisterns comes across in decrees for their safeguarding, as with the astynomoi law of Pergamon;[316] the central location of wellheads in cities, as at the Andriake plaza;[317] or the prominent location of a spring at the city entrance, as at Syedra. The rising star of Rhodiapolis came with Roman imperial influence, I have shown, but was of a kind of urban development easily maintained into subsequent centuries. The cisterns were a basic idea of storage, but their execution required something beyond basic construction. Cistern cites like Rhodiapolis would become increasingly important in later centuries as upkeep of more sophisticated water management techniques became unmanageable.

SIDE: the ongoing need for port and potable water

During the Roman Imperial period the plain of Pamphylia was both fertile and highly urbanized, with the cities of Attaleia, Perge, Aspendos, and Side spaced along the rivers that watered the plain and emptied into the Mediterranean.[318] The sea and the port, which gave Side a link to the wider world and the prosperity to take part in it, shaped the space of the city, as I have discussed in the previous chapter. And yet, this seemingly natural boon of a harbor was only as stable a condition as

[314] TAM III/1 no. 16, c. 160s CE.
[315] Keleş et al. 2014.
[316] SEG 13,521; Garbrecht 1987, 20; Saba 2009.
[317] Marksteiner 2006, 72; Çevik 2010, 57f.; Çevik etal 2011, 63.
[318] Cf. Foss 1996, 2ff.

the ruling power: the build-up of shifting sands had to be continuously cleared to keep the harbor functioning.[319] The hydroscape of urban amenities that developed over time likewise functioned only through repeated acts of upkeep.

As the city expanded, the wells and cisterns that appear to have made up the earlier components of the water supply system were expanded with the relatively late construction of an aqueduct during the Antonine era. That Side operated without significant piped-in resources for roughly two centuries as a major city of a Roman province (starting in 25 BCE) highlights that belonging to the Roman Empire did not necessitate the immediate incorporation of new technologies, but also that the Empire in its early phase was not always characterized by urban homogeneity. Although patronage is difficult to pin down for the construction of the aqueduct, that it coincided with the Nymphaeum (and possibly the Harbor Baths) around a time when Lucius Verus called on Side as part of his campaigns against the Parthians is notable for imperial connection,[320] even if locally initiated.

All the more notable is this link when considering the impressive engineering of the aqueduct, which stretches roughly thirty-five kilometers along the Melas River to the northeast.[321] From the Dumanlı spring (now submerged beneath the waters of the modern Oymapınar Dam), the aqueduct path went through rock-cut tunnels and atop ashlar arcade bridges at a steady decrease in slope to the city of Side. The

[319] Cf. Robert 1948.
[320] Nollé 1990, 256: a coin during the reign of Lucius Verus shows involvement in war against the Persians (also in issues under Trajan and Septimius Severus), with themes of victory and quadriga. Cf. *SHA* Verus 6.9 on his itinerary east.
[321] On the aqueduct, cf. Mansel 1978, 79-91; İzmirligil 1979; Nollé 1993 11f.; Büyükyıldırım 1994, 195f.; Grewe 1994.

section tunneling through the massive rock cropping was achieved in the manner of a qanat, and with great precision to ensure that teams starting at either end would meet successfully in the middle. Beyond the rocky section, twenty-two aqueduct bridges conducted the channel to the city. The most impressive remains are those of Kirkgöz, forty-four ashlar arches, 335 meters long and 12.5 meters high at the center, marching across a valley to an impressive effect. This aqueduct, which led to a castellum divisorum north of the agora, brought an estimated flow of 67,000 cubic meters per day, enough for perhaps 34,000 people.[322] While the expert tunneling through rock can be found in pre-Roman examples, the long arcades carrying aqueducts or bridges mark a Roman expertise and the interchange of ideas and technologies.

Though Side received an aqueduct in the Antonine period, monumentalization continued into the third century, as evidenced in the Great Baths. This puts Side in comparison with trends during the period of the Severans (193-235), when many cities of Anatolia continued to experience urban growth that had begun during the prior two centuries. Changes to provinces and capitals brought further change to the region, and cities that experienced a rise in status often found architectural expression of this rise in the city. Anazarvos, for example, took on the title of Metropolis of Cilicia Pedias under Septimius Severus, which may have inspired the construction of the little West baths and the North baths.[323] Fountains continued to be a popular urban addition, and the fountain list inscription from

[322] Atila, İzmirligil and Şakar 2010, 50.
[323] Cassagrande Cici 2013, 151.

Sardis, dating to the Severan era, suggests the range of fountains that dotted a city by this period. Fountains rose in Ariassos, in Hierapolis at the temple of Apollo, at a central crossing in Laodicea ad Lycum, in Olba, Stratonikea, and two at Perge; at Sagalassos and Ephesos fountains were repaired, remodeled, and updated.[324] All together, these suggest an intense desire to keep the urban sphere grand through the amenity of water. The growth in agonistic contests, moreover, kept the need for gymnasiums high. Farrington argues that the foundation of gymnastic festivals coincides with the enhancement of existing baths, as at Oinoanda, and the construction of new baths, as at Perge and Aspendos, in addition to other general public monuments.[325] Baths likewise rose at Antiocheia ad Cragum, Byzantium, Iotape, Aphrodisias,[326] and at Pergamon, a small bath.[327] For many regions, as Mitchel argues for Pamphylia and Pisidia, the trend of alliances made (often in marriage) between local elite and imperial types, begun the prior century, created a shared sense of values by the third century.[328] This can be seen also in manifestations of water culture and urban features, where the benefaction of hydraulic installations and the promotion of their use served all involved: inhabitants, aristocracy, and the imperial power whose name was often attached, be it in dedication or more directly in cult worship.

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[324] The Doric fountain at Sagalassos (Waelkens 1993b, 50); at Ephesos, the Hydreion at Memmiusbau (Dorl-Klingenschmid 2001, 185; Foss 1979, 24, 78; Scherrer 2000, 96-98).
[325] Farrington 1984, 120.
[326] Mellink 1974, 127; 1975, 219.
[327] Mellink 1980 514. This would stay in use until the fourth century.
[328] Cf. Mitchell 1999.

At Side, the theme of urban and hydroscape improvement linked to eastern campaigns appears again in the mid-third century. An interest in the harbor as part of the imperial naval infrastructure is evident in the coins of Maximinis Thrax (235-8) and Gallienus (253-268), which depict the harbor of Side.[329] In 260 Side served as a naval center for campaigns against the Sassanians.[330] Evident in the coinage issues is the pride of the Sidetans in their harbor and in their involvement with the empire; in serving imperial interest, local interests were also served.

Attention was directed towards the hydroscape of Side after the attack of the Goths in 269. The aqueduct line must have received damage, for its disrepair provided Bryonianus Lollianus with the opportunity for its restoration shortly thereafter, around 270. Evidence of repairs is found throughout the aqueduct.[331] The benefaction of Lollianus is most likely linked to the construction of the cistern H1 and the three connected fountains north of the agora. At this time the cistern façade received monumental treatment opposite the agora entrance, furnished with Roman copies of classical statuary.[332] In gratitude for his generosity, each of the four neighborhoods of Side honored Lollianus and his wife Quirinia Patra. Lollianus was a local man of equestrian rank. He served in the higher offices of governor or vicar and then held the honorary title of ex-praetor.[333] His wife came from a family of

[329] Nollé 1989, 54: SNG v. Aulock 4828 and 4857; Nollé 1990, 257.
[330] Nollé 1993, 91f.; Hellenkemper and Hild 2004, 374.
[331] Mansel 1978, 79-94.
[332] Mansel 1963, 66-69.
[333] On Lollianus' background, cf. Foss 1996, 26ff; Carrie 1979; Nollé 2001, 398-410.

senators. Foss notes that his high position exempted him from serving in the local council, which thus allowed him to better conserve his family fortune and contribute it to Side as he pleased.[334] The quarter of the Megalopylitai honored Lollianus as ktistes, founder, and went as far as to place his statue beside "the sanctuary of the nymphs" to enjoy the sight and sounds of the flowing what which he had brought to the city.[335] That a statue might find the sensorial effects pleasing is telling of the general appreciation for urban water features.

The conditions of Side compare to larger third century trends: a slew of natural disasters, man-made ravages and other crises marked the course of the third century, and may have slowed the pace of urban building, but also necessitated urban renewal as means allowed. In addition, the creation of the Tetrarchy and the concentration of attention and resources to the Tetrarchic capital at Nicomedia brought a shift in roads and communication hierarchy.[336] Amid this turbulence, large and small baths continued to rise, as in Anemurium, Arykanda, Syedra, as well as at Korykos.[337] Fountains also continued to be a priority of urban design, as with the additions in Side, and Pisidian Antioch (Aelius Probus nymphaeum).

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[334] Foss 1996, 26.
[335] Bean 1965, 26, No. 116; Foss 1977, 163ff; Merkelbach and Stauber 1998, 143 No. 18/15/01, 2; Nollé 2001, 398-407. Cf. also the Inscription of the Tetrapolitai (Merkelback and Stauber 1998, 143 No. 18/15/01, 1), and that of the Diosbomitai (Merkelback and Stauber 1998, 143 No. 18/15/01, 3)
[336] Ramsay 1890, 74.
[337] At Korykos, with a previously unknown water source was utilized by imperial official (Merkelbach and Stauber 1998, IV 199).

By the fourth century the harbor of Side was again the focus of urban renewal. Around 338-350 the governor Flavius Areianus Alypios underwrote the work on the harbor, and was subsequently honored as ktistes.[338] Similar benefactions (and resulting honors) are found elsewhere: in Corinth an honor is found for the harbor there, dating to c. 353-358.[339] In Smyrna, the governor Venetios updated the harbor; an epigram compares his works with those of the founders Theseus and Pelops.[340] For the case of the Ephesian Harbor,[341] Kokkina argues that rather than the Roman imperial state enforcing works of infrastructure, provincial actors used rhetoric and the monumentalization of infrastructure to set a moral obligation of the emperor to get involved in construction and maintenance.[342] Hadrian is on record for making the harbors more navigable at Ephesos,[343] but subsequent upkeep is attested in the third century with honors for a prytanis for the cleaning of the port.[344] Both locals and non-locals had something to gain from a functional port.

The northwest harbor of Side may have been prepared around this time for war in the east.[345] The port of Side was notorious for requiring constant upkeep, as reflected in an epitome of Diogenianus: "for me it's the port of Side; one says it for the difficult things without result, as the proverb: you wash a brick; because the port of Side, scraped clean, is refilled anew by the effect of the winds and the flows, and

[338] Bean 1965, no. 54; Nollé 1993, 347, No. 64.
[339] Nollé 1993, 347.
[340] Merkelbach and Stauber 1998, 511 No. 05/01/19.
[341] I.Ephesos 11 no. 23, c. 160s.
[342] Kokkinia 2014, 180-196.
[343] I. Ephesos 12 no. 274.
[344] I. Ephesos 17/1 no. 3058.
[345] Nollé 1993, 347.

that it is also difficult to enter to anchor there."[346] Early Western travelers observed this problem first hand, and took note of the neglect of the harbor.[347] The effort required to maintain the port must have made outside intervention welcome, and gave Side in return a stake in wider imperial movements, not to mention the benefits of custom tolls.[348]

Amid this context of investment in port infrastructure comes other expansion in the hydraulic infrastructure and the spread of fountain installations across the city: in the synagogue court, in the converted Vespasian Monument north of the Agora, and in the atrium court and other spaces of the ecclesiastical complex. The investment and increase in the water supply system can be also seen in the addition of the cistern H2 beside H1, which coincides with the appearance of fountains gg and hh, as well as the Agora baths. This maintenance (water line pipes renewed with channels of mortared rubble)[349] enabled the Great Baths and other water features to remain in use into the sixth century.[350]

Again, Side compares to larger trends in Anatolia, this time during the fourth through sixth centuries. The fourth century brought further changes to Anatolia and the Empire as a whole; the move of the capital to Constantinople was paired with changes in administration and the start of effects of religion on the urban space. The

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[346] In Robert 1948, conserved in a manuscript of Vienna of 1851, Corpus paroemiographorum graecorum, II, p. 45, no. 52.
[347] Cf. Beaufort 1818, 150-152; Lanckoronoski 1890, 134-135.
[348] Nollé 1991, 334, Nr. 12, on the Sidei Koryphei, similar to harbor customs at Ephesos.
[349] Hellenkemper and Hild 2004, 383.
[350] Mansel 1963, 143-148; Mansel 1978, 221-232; Foss 1996, 38.

roads to Nikomedia that had gained importance under Diocletian also lead to Constantinople, while roads rooted in connections to Rome faded in comparison.[351] By the time of the move of the capital from Rome to Constantinople, traditions of civic elites holding offices were giving way amid urban recession.[352] With administrative restructurings, Governors were best situated to enact urban benefaction and restoration. The writings of Pliny and Dio Chrysostom suggest that cities were not efficient or reliable administrators regarding public funds or building projects, leading to a change where the governor had the right to interfere in a city's program and was in fact responsible for benefactions, especially in the fourth century.[353] The free government of Asian cities was being replaced by central control. Examples abound: in Ephesos urban restoration was carried out by governor L. Caelius Montius including the refurbishment of the old Marnas aqueduct, the transformation of the Heroon, Hellenistic Fountain at the theater, and also possibly the adaption of an exedra into a fountain on the Arkadiane Street;[354] at Miletus, the rich Milesian Makarios and governor Tatianis repaired the Faustina Bath, which was renamed for the former;[355] a proconsul repaired the aqueduct at Tralles;[356] at Assos a governor had an aqueduct constructed.[357] The Late Roman tendency, when local benefactors were replaced by official government funding, was the insertion of

[351] Ramsay 1890, 74.
[352] Whittow 2001, 151.
[353] Lewin 2001, 30ff. Cf. Dio Chrys., *Or*. 45; Plin., *Ep.* 47, 48, 99.
[354] Richard 2011, 75; 225.
[355] Merkelbach and Stauber 1998, 132-134. Date c. 364.
[356] Merkelbach and Stauber 1998, 204. Date c. 340/350.
[357] Merkelbach and Stauber 1998, 625. Date c. 360/370.

governors into many of the roles formerly occupied by wealthy citizens, and also brought a measure of control through centralized government. The ability to provide a city with water and aquatic amenities remained a point of pride and a priority for civic officials, as exemplified in the capital city of Constantinople, where the aqueduct of Valens delivered water to the city in a monumental fashion. Baths also continued to be built, even if with smaller dimensions and less public access: at Anemurium, the Terrace Baths at Arykanda, the Harbor Baths at Kelenderis, the small baths at Limyra, at Nicomedia, at Syedra, the bath in PN at Sardis. Water appeared elsewhere in refurbished fountains, as in those at Ephesos mentioned above, or the refurbished sigma fountain at Diocaesarea (with addition of latrine) during the renovation of the North Gate.[358] The repair or addition of these baths and fountains to the pre-existing hydroscape marks a conservation of infrastructure that continued to power certain cultural practices and facets of urban identity.

The fifth and sixth centuries saw a degree of urban renewal within many cities of Anatolia. The archaeological record provides evidence of this fact over a span of time, while the written record gives the greatest weight to the works of Justinian (r. 527-565). The theme of landscape change linked to eastern rulers is an old one,[359] as discussed above, and was carried on by Roman emperors well through the time of Justinian, who, according to Procopius' accounts, effected historical

[358] Wannagat 2005, 148-9.
[359] Cf. Purcell 1987.

change through his personality and restorative activity, often focused on the hydraulic landscape.[360]

Looking at the wider picture, one finds an increase in or return to the use of cisterns, as at Pergamon or Sagalassos.[361] Yet there is also evidence for construction or repair more widely – or rather, redesign for greater water conservation: aqueducts in Anazarvos, Nicaea, and Ephesos; baths at Anemurium, Hierapolis, Nicaea, Prusa,[362] embellishment at Ephesos,[363] and renovation at Miletus[364] and Smyrna.[365] Fountains received particular attention as part of the larger program to keep up the appearance of late antique cities: at Aphrodisias, the Fountain of Gaudin[366] and repair of the Gate of the Nymphs; at Ephesos, the insertion of a fountain into the Celsus Library;[367] alterations to the Nymphaeum at Laodicea ad Lycum;[368] and the transformation of the Sagalassos Doric fountain into a reservoir.[369] At a smaller scale, Bishops' Palaces–such as that at Arykanda–[370] provide good examples of elite housing during late antiquity as an arena for status and power, with lavish water use

[360] Cameron 1996, 110.
[361] On Pergamon: Mellink 1993, 127: Hellenistic-Roman houses in Pergamon each had one or more rock-cut cisterns. In the Late Antique and early Byzantine era the water supply came from large cisterns located at large intervals. On Sagalassos: Waelkens 2016.
[362] Merkelbach and Stauber 1998, vol. 2, 144. These are hot spring baths.
[363] Merkelbach and Stauber 1998, 312. A project of a proconsul.
[364] Merkelbach and Stauber 1998, 136. A project by Hasychios.
[365] Merkelbach and Stauber 1998, 508; 509: repair of the Bath of Agammemnon, c. 570; 512: renovation of a latrine, c. 570.
[366] Merkelbach and Stauber 1998, 236. A project by the governor, c. 450.
[367] Merkelbach and Stauber 1998, 310.
[368] Merkelbach and Stauber 1998, 278.
[369] Waelkens 1993b, 53.
[370] Bayburtluoglu 2007, 2-3: pipes supplied lesser and larger fountain with basin at atrium. Bathrooms and toilets, drainage joins up with bathhouse VI.

not so different in spirit from earlier periods, though often smaller in scale and theatricality.

Altogether, I argue that Side provides an example that transformations to the hydroscape may not have always come through direct imperial intervention or funding, but they were certainly closely linked to Side's position on the global stage thanks to its seaside locale. And while the transformation may not all be based on imported technologies, the impetus and the ability to employ them usually linked the work in some way to the capital. Though harbor works may have been specific to locale on the sea, the rest of the elements of the hydroscape were not site-specific and thus might appear to support the idea of urban homogeneity. However, the urban context of these elements was what gave meaning to the hydroscape.

Looking at the wider timeframe of Roman power in Anatolia, is it possible to chart a rough pattern for these waves of aqueducts, fountains, and baths? As Coulton argues, the construction of aqueducts was able to take off in Anatolia not only from Roman know-how but through urban expansion that could take place under peaceful conditions.[371] Similarly, Richard argues that aqueducts and the supply network can be considered retroactive signs, presupposing a combination of technology and wealth.[372] I would agree with this for most cities, but take more caution when thinking of colonies and port cities. In these cases, I argue that infrastructure enabled and colored the pace of settlement and development. And while Coulton pins the

[371] Coulton 1987, 82.
[372] Richard 2011, 51, going off of B. Shaw (1991).

motivation for aqueducts in the spread of the bathing habit, the example at Rhodiapolis shows that baths did not always require aqueducts. Aqueducts and other sophisticated water systems were not entirely the response to a need, but also valuable as symbols of Roman presence or power.

Water usage: components and accessibility in the urban network

Now our chief advantage is that our city has an abundant water supply […] Every public bath takes its fill from the river, and of the private baths some take the same quantity, while others take not much less. Any man who can draw water for his bath after other people have done so, draws it with confidence. He has no fear that, if he continues the practice in midsummer the place will be called 'dry as a bone' through lack of water. So far from his desire to bathe being thwarted by lack of water, even the man who has not ever much desire to bathe is induced to do so by the water itself. So every quarter of the city has a profusion of private baths which beggar description. Their beauty exceeds that of the public baths exactly as their size is smaller, and there is much competition among people in the neighbourhood that each of them should be the possessor of the most beautiful of them.

Libanius *Or*. XI. 244-246

As discussed above, the heightened development of urban water systems stemmed in part from the increased social, cultural, and political acceptability of water usage, in activities and practices that consumed more water on a daily basis. The passage of Libanius on Antioch, though perhaps exaggerated, suggests how a vibrant water culture might take off if resources are abundant, how the abundance of a resource inspired its use where before desire was curtailed, and how competition for resources was transferred to competition of its use for splendor. Of course, not every city was as well-watered as Antioch, but still, across Anatolia cities came to pipe into remote sources that brought greater quantities of water into the urban

sphere than before Roman rule. These greater quantities responded to existing needs, but also generated new ideas and possibilities for the use of water. This section examines the components of the water system and the structures that made up the hydroscape: typologies, functions, placements, and accessibility. Who did these elements serve, and how?

The most integral component to connect the hydraulic network was the system of pipelines or channels that ran through the city. These may not have been readily visible, though their presence would have been felt through elements of water supply and drainage, and even as the guiding principle for urban layout.[373] Supply lines would have been evident from the string of aquatic features connected to their line – from street-side fountains to residential facilities – as evident even in Hellenistic Ephesos on the Embolos. This might have been an ongoing process of adaptation, as at the colonnaded street of Perge, which saw the progressive growth of pipelines from the central canal to shops and possibly houses behind, thereby expanding the range of places benefiting from the one source at the nymphaeum uphill.[374] Only those places lying at below the elevation of the local reservoir or aqueduct terminus could benefit from the urban network; the wealthy residents of the Hanghauser at Ephesos gained from the Aqua Throessitica or Pollio aqueduct and thereafter began to embellish their homes with more water features.[375] The rock-cut channels of Sagalassos were high enough to supply the Hellenistic parts of the

[373] Cf. Waelkens 2006, 329.
[374] Richard 2011, 152.
[375] Uytterhoeven 2013, 140.

city,[376] but by the early first century CE pipes traversed the expanded city to provide some public access, and also give direct access to the houses of the rich.[377] At Pergamon, the expansion of the pipelines between 200 BCE and CE 200 came to feed the great city fountain, the gymnasium, several dwellings, and also Bau Z, the public peristyle structure converted into a bath during the early first century CE.[378] When the supply network served the wider city, it also served the wealthy, which was good incentive for hydraulic benefactions.

Practical applications and hygiene

The concentration of people living together in urban conditions necessitates an attention to hygiene for inhabitants to hold a certain standard of living. This requires sufficient water for human consumption, for the cleaning of body and living area, the disposal of waste, and the cleaning of public spaces. As cities grew in population during the Roman period, the need for practical-purpose water may have risen beyond what traditional water supply systems such as cisterns and wells could offer. The daily needs of an individual are not so high, but it becomes a question of urban density and the limits for traditional water harvesting. Beyond the collection of water, just as important was the management of water flow in the urban sphere, which if unchecked could cause structural damage through flooding or if stagnate

[376] Waelkens 1993, 38; Owens 1993, 91.
[377] Waelkens 2016.
[378] Cf. Garbrecht 1987; Garbrecht and Fahlbusch 2004; Uytterhoeven 2013, 141.

could be a risk of disease such as malaria.[379] The balance for the full network was both to use water and to make water usable, through careful manipulation of its path and reuse.

Perhaps the most accessible component of the urban system was the public fountain, open along roadways, entries, or junctions for drawing water and creating ambiance. Public fountains enjoyed a rich history in Anatolia, from Hittite monuments onward, as at Old Smyrna[380] or Labraunda. But these were generally rooted in the hydrology of the natural landscape, not straying far from the spring that fed them, as with the Sagalassos Doric Fountain. As a result, this sometimes kept the fountain outside of cities, as at Ariassos and Selge. But with the increase in pipelines that could transfer water elsewhere (so long as the source was at a higher level than the terminus), the choice of where to stage an urban event in the form of water was in the hands of the builder, and the trend of fountains at the agora or other public space became common.[381] Fountains provided water for those filling vessels at its spouts. Even a cistern or other self-sufficient domestic water management system did not preclude the importance of fountains. Their quality of water, often better than that stored in a cistern, made it more desirable for drinking at home and in public. Wear marks and adjustments to make fountains more usable for water collection

[379] As in the case of Kaunos, cf. Mackil 2004, 505f.
[380] Cf. M. Akurgal 1996.
[381] Cf. Agusta-Boularot 2001; Crouch 1993, 192.

appear at Laodicea ad Lycum,[382] attesting to the very real value of publically available water within a space of unequal private water availability.

Bath buildings constituted the largest components of the urban water network. Though private baths existed before the period of Roman rule, examples are few, simple, and modest, for hygienic purposes, as at Priene, Tarsus, and possibly Nagidos.[383] Public baths, as large structures, often had to be built where space allowed. In some cases a bath might take over for earlier predecessors within the urban center, as at Miletus,[384] Sagalassos,[385] or Pergamon. More often, they were developed away from the dense urban core, which could then attract urban development through the extension of water supply to that area (as well as the shops and public spaces that went along). There was also a tendency for baths to cluster at the gates (where space was plentiful), allowing visitors the chance for refreshment upon arrival to the city. Similarly, positions near ports were common, as at Side, Ephesos, and Elaiussa Sebaste, to serve those coming from the sea. Even at Aspendos the baths may have been placed to be near the former course of the Eurymedon River, with its important harbor that brought the city wealth.[386] Regionally, one finds other trends for urban placement: in Cilicia many baths are

[382] On the Fountain of Caracalla at Laodicaea with addition of basins encroaching on the street, cf. Richardson 2011, 143.
[383] Uytterhoeven 2013: 141; Rumscheid 2010, 123-124.
[384] Yegül 2011, 19-20; 2014, 316. What is most remarkable about the Capito Baths is the early 2nd c BC gymnasium which is located on the same block, joining the Roman bath along its south side. This Hellenistic building clearly must have supplied a direct model for the planning of the bath-gymnasium: cf. Yegül 1992; Tuchelt 1974; Kleiner 1968.
[385] Cf. Waelkens 2013.
[386] Köse 2010.

located by the water,[387] while in Lycia many baths have positions with an impressive view over the terrain.[388] These latter baths were nearly uniform in pattern of plan with parallel, barrel-vaulted rooms, which takes an Italic form (compare to the Stabian baths at Pompeii) whose elements of design are not previously known in the region. The construction of the baths in local Hellenistic techniques, however, gave local character, as did the addition of windows in the apse.[389] This visually connected interior activity to exterior setting, embedding imported forms and practices into the local Lycian landscape.

The placement of latrines was dictated by the suitability of high-traffic locations and the ability to take advantage of run-off from other water installations. Latrines were placed where water flowed: next to nymphaea, as at Hierapolis, Magnesia, and Arykanda; near baths or as a part of baths, as at Sardis and Ephesos; or along the overall water line, as at Side.[390] The latrines formed the balance between the water-consuming and water–providing structures; all of which made up an urban network connected underground by pipes and above ground by traffic between nodes of the hydroscape.

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[387] Onurkan 1967, 71f.: proposes that in Cilicia sea was used for bathing, but followed by hot baths, inferred from close proximity of some baths to shore. Cf. Anemurium, Iotape, Selinus.
[388] Cf. Tlos, Arykanda, Trebenna; on the last, cf. Çerik and Varıkivanç 2004.
[389] Farrington 1984, 120.
[390] Mansel 1978, 152. Latrine on side of Agora, with niche (fountain) in middle of semicircular design.

Matters of religion, culture, and display

In reporting on the items of interest in Ionia, Pausanias presents the dual nature of bathing as a social sphere and as a place of piety: "In the land of Lebedus are baths, which are both wonderful and useful. Teos, too, has baths at Cape Macria, some in the clefts of the rock, filled by the tide, others made to display wealth. The Clazomenians have baths (incidentally they worship Agamemnon) and a cave called the cave of the mother of Pyrrhus…"[391] From this passage comes the sense of connection between water and ritual, religious or otherwise – a pairing seen in baths and fountains, natural or engineered. This passage also hints at the longer tradition of baths at seaside locales, provided for by the natural elements, as discussed for western Cilicia above. Fountains were often inspired by religion, as locales of the nymphs (as discussed in Chapter 2). Robinson has argued that the Cyclopean Fountain of Corinth was formed to be read as a cave or grotto, a setting of the deities.[392] Part of this process was based in the pairing of civic identity and sacred landscape; the cave appeared as the natural ideal, a trend in literature, art and architecture during the late Republic and early Empire, which saw the creation of artificial grottoes.[393]

From the explicitly sacred character of an architecturally elaborate fountain, or the perhaps large but mainly utilitarian (e.g., the Doric Fountain at Sagalassos), urban fountains in Anatolia came to take on a theatricality that sometimes sacrificed

[391] Paus. 7.5.11.
[392] Robinson 2011, 152f., 163.
[393] Robinson 2011, 198.

utility for aesthetics, as in the case of the Hadrianic fountain at Sagalassos.[394] In addition to fountains, other water features such as baths had the potential to become centers of pleasure: visual, aural, haptic pleasure, arenas of display. This trend was tightly linked to civic competition and euergetism and is particularly visible in the cities of Pamphylia and Pisidia. The Hadrianic fountain at Perge responded to by the Antonine fountain at Side and the Antonine fountain at Aspendos, and then the turn of competition returned to Perge with the Severan fountains. The cities of the Maeander River Valley also provide good examples: the Flavian aedicular nymphaeum at Miletus, the Flavian fountains at Ephesos (Apsisbrunnen, Hydrekdocheion, Domitiansbrunnen), the long Flavian nymphaeum at Hierapolis. The fervent desire to erect an elaborate fountain and prove the city cutting-edge is not so very different from the urban embellishment that takes place in the modern cities of Anatolia, in particular with water displays fashioned as rocky falls, which appear with variations across many towns.[395] The ancient fountain facades were outlets for socio-political statements either local in character, showing links to the imperial world, or a mix of the two.[396] The C. Laucanius Bassus Nymphaeum in Ephesos, for example, the earliest example of decoration of a façade nymphaeum, is

[394] Waelkens 2016.
[395] In Turkish, "şehir girişlerine şelale": Niğde, Aksu, Duzce, Amasya, Ankara, Şanlıurfa; Eskişehir Şelale Park
[396] Richard 2011: 247. The 'local' included local deities, mythology, festivals, and prominent public actors; the 'exterior world' featured private benefactors and their status in the empire-wide sphere, and the hierarchy of civic body to the empire with imperial iconography.

replete with local aquatic imagery, a celebration of the hydroscape.[397] The Nymphaea at Hierapolis, on the other hand, collectively feature references to the local hydrologic landscape and myth on its frieze, and also creates a link of imperial cult and local religious traditions through iconography and location.[398] The show-stopping nymphaea of Asia Minor both responded to and anticipated major spaces and centers, forming one of the loudest components (visually and aurally) of the hydroscape, as elaborated in Yegül's analysis of street experience in Ephesos and the interrelation of fountains.[399] In these water nodes, water became a luxury building material as much as marble, to inspire awe and reverence.[400]

Appearing on a similar but parallel course to public fountains was the trend of private fountains. Over the course of the Roman period the expansion of urban water networks allowed for a degree of private water features unprecedented in earlier times, growing from functional to aesthetic and luxurious.[401] In addition to the example of the waterworks in the Hanghauser at Ephesus, which gradually increased from the early first century CE to mid-second century,[402] others can be counted. Water basins have been found in the peristyle courts of houses in Perge,

[397] Rathmayr 2011, 147.
[398] D'Andria 2011, 156, 168.
[399] Yegül 1994.
[400] For more on the use of water as a luxury material, see Commito 2016, on Aphrodisias and the dispension of water, like local olive oil and marble, in benefactions for self-aggrandizement. The aqueducts, used by industry, also fed back into urban wealth and benefactions.
[401] Uytterhoeven 2013, 142.
[402] Uytterhoeven 2013, 143.

Metropolis, and Pergamon; the peristyle of a house in Side included a fountain.[403] Extension of the urban lines were in the interest of the elite for both the expression of euergetism and for the opportunity to bring that network into their domestic setting,[404] as indicated above, depending on spatial and elevation limitations. Private fountains were thus often a reminder of the status quo: the elite who enjoyed the water feature often had social links to the individual responsible for the urban supply or upkeep, and for this social connection enjoyed a connection to the urban supply network – a fact probably not lost on those visitors calling on their patron or peer, when taking in the delights of the water feature in the prime space of the peristyle. Other, less exalted features of pools and basins existed which were not connected to the running water line, and embellished private spaces with more static forms.

Over the course of Roman rule in Asia Minor, the number and size of baths in a given city came to outweigh the necessities of simple hygiene and education and served a wider range of cultural needs. Arykanda is a good example, with six public baths, a city known to its excavator for "favoring their comfort, pleasures and delights." [405] Baths served as an outlet for recreation and education, housed institutions of ephebes and gerousia, and were also arenas of imperial propaganda.

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[403] Uytterhoeven 2013, 143: on Perge and Metropolis, Abbasoğlu 1996, 78-81; Zeyrek 2002; Aybek etal. 2009, 84-86; on the house of the consoles at Side, Mansel etal. 1956, 39-46; Mansel 1963, 157-152; on Bau Z and the Attalos House at Pergamon, Bachmann 2004, 225; 2010, 183.

[404] Uytterhoeven 2013, 146:the extension of the Madradağ aqueduct by Marcus Aurelius in 170 must have created new opportunities for private house owners in the city quarter below the gym, including the water-consuming features in the houses west of the lower agora, such as the peristyle house III with its early 3rd c bath.

[405] Bayburtluoglu 2005, 9.

Baths also provided spaces for administrative and cultural organizations, and were adaptable to suit social needs of time and place.[406] In areas such as Cilicia, baths became the preferred adopted Roman cultural complex, as opposed to the theater.[407] The prevalence of baths large and small in Cilicia speaks to the desirability of the Roman bathing culture within those indigenous communities.[408] Private baths also increased in number from the first century CE onward, thanks to the extension of the public water network,[409] and grew from strict utility to the display of status. In private baths local elite were influenced by Italian bathing style, hence their sense of "being Roman" and "civilized" was enhanced, something not lost in the public role of the elite house.[410]

On the whole, I have shown that water systems built under Roman rule brought more water to more people; more volume to growing urban settings. It may not have been strictly necessary for increased populations, but was certainly part of the same movement that brought people to the city.[411] Of course, baths were also in the country and did not per se define urban culture, but the greater number of baths in the cities offered greater luxury and opportunities. The transformation of the hydroscape in built form reshaped urban experience by creating spaces around water and putting water as both the backdrop and basis of urban nodes. The sensorial

[406] Cf. Yegül 2010.
[407] Hoff 2013, 145; cf. Also Farrington 2008, 247.
[408] Rauh etal., 2009, 295.
[409] Cf. Wiplinger 2002.
[410] Cf. Uytterhoeven 2011.
[411] Cf. Patterson 1991.

impact of water elements across the urban zone formed part of the basis of navigation, understanding, and identity-formation in the city.

Toward an Anatolian hydroscape

My native city, Amaseia, lies in a deep and extensive valley, through which runs the river Iris. It is indebted to nature and art for its admirable position and construction. It answers the double purpose of a city and a fortress. It is a high rock, precipitous on all sides, descending rapidly down to the river […] Within the rock are reservoirs of water, the supply from which the inhabitants cannot be deprived of, as two channels are cut, one in the direction of the river, the other of the ridge. Two bridges are built over the river, one leading from the city to the suburbs, the other from the suburbs to the country beyond…

Strabo 12.3.39

In the cities of Roman Asia Minor, where the built environment served as the arena for inter-city competition and presentation of imperial beneficence, the manipulation of natural bodies of water or the construction of artificial bodies altered the urban setting to produce something specific to place, as this dissertation argues. This trend is in part built on pre-existing types of urban landscapes, as in the case of Amaseia, where the riverscape was connected by canals and bridges for admirable effect. In some cases, colonnaded streets were placed beside naturally flowing waters, as at Pessinus, discussed in Chapter Two. The enjoyment of running water could border on hyperbole, as in the case of Apollonius' experience of Tarsus: "nowhere are men more addicted than here to luxury [….] a stream called the Cydnus runs through their city, along the banks of which they sit like so many water-fowl. Hence the words which Apollonius addresses to them in his letter: 'Be done with getting

drunk upon your water.'"[412] The aesthetic of the river city continues to pervade the region today, as at the modern cities of Eskişehir, Amasya, and Kastamonu, where urban development takes a view to the rivers running through the cities. In other ancient cities, artificial productions created cascades, rivers, and pools in the midst of colonnaded marble envelopes. These constructions sometimes followed the trends in Rome or elsewhere around the Mediterranean, but on the whole I argue that these large-scale displays of static or slow-moving water are unique to Asia Minor, and in that respect mark an important local attitude toward the possibilities of water in the city, whether water was naturally present or not. Yet equally important to the forms, I argue, were the conditions behind the construction of such elements, the links to wider imperial spheres, and the spatial flexibility of water that enabled and resulted from these projects.

Local typologies, developed

It has been discussed above how the inhabitants of Anatolia had a rich tradition of water culture from which to draw, some more buried and obscured than others, though perhaps alive in memory or imagination. Hittite examples such as the pools at Eflatun Pınar and Yalburt, the latter certainly remodeled and used, were known in Roman times, at least to some extent, locally. [413] More recent works of the Persians in *paradeisoi*, as at Apamea Kelanai, Sardis, Magnesia ad Maeandrum, and

[412] Philostr. I. VII.
[413] On Yalburt: Özgüç 1988, xxvi; Harmanşah and Johnson 2012, 22.

Daskyleion, survived in text and presumably memory, if not actual remains.[414] The legacy of the Hekatomnids and Attalids, pioneers of urban planning,[415] was still present in the urban forms of their prior holdings by the time of Roman rule. The adoption of increasingly elaborate water features might thus seem as a natural development rather than something imposed from outside.

The nymphaea of Anatolia are noted for the particular richness of their aedicular facades as well as the great variety of dimensions.[416] The development of the pi-shaped monumental fountain during and beyond the later half of the second century provided the arena for statuary and epigraphy, referencing local themes, including deities, myths, games, and prominent persons.[417] Richard has asked why the aedicular façade held such popularity in Anatolia: was it linked to the increase in self-representation, the desire to provide an architectural setting for the display of statuary, or were complex statuary programs the result of the increased complexity of the facades? Which came first: the frame or the contents? Richard finds that aedicular architecture, with columnar display that placed statues in a hierarchical grid, was a tool to both exhibit and build social, political, and cultural order.[418]

In the Roman-era cities, displays of static and slow-moving water became major urban features that structured–and also responded to–movement in the city. At

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[414] At Apamaea Kelainai: Xen. *Anab.* 1.2.7-9; at Sardis: Xen. *Ec.* 4.21; Plut. *Alc.* 24; at Magnesia: SIG I^3 no. 22; at Daskyleion, Xen. *Hell*. 4.1.15-16. On Anatolian water culture, cf. Yegül 2011.
[415] Hanfmann 1975, 28.
[416] Richard 2011, 95.
[417] Cf Richard 2011 [Elite toolkit] 83-84.
[418] Richard 2011 [elite toolkit] 87.

Aphrodisias, a large pool (175 x 25 meters) in the middle of the South Agora was encircled by porticoes and a grove of palms, following along similar lines of the lush gardens with water features of paradeisoi (or the Hellenistic Levant), but also those of the early imperial capital. As part of the early Imperial urban expansion, the South Agora and pool created not a polis-oriented space for the running of civic business, but one of showcase,[419] the new mode of defining a city in the Roman period. A similar pool, though not as large, has been recently excavated in the North Agora at Laodicea.[420] At Tlos, a pool in the center of the stadium (72 x 8.3 meters) was also an important urban hub, surrounded by a u-shaped colonnade.[421] The waters of the pool, fed by a fountain at the northern end of the stadium, stretched towards the overlook out to the valley below, creating a visual vector that formed the spine of the city between acropolis and terraces of agora, theater and palaestra. The pool, in addition to serving an aesthetic function linked in to locale, also inspired more regular use of the space otherwise reserved for the specific activities linked to the stadium.

In addition to pool the canal was a recurring feature across Anatolia. The canal at Pessinus, an example of an early imperial project, likewise structured urban image (as discussed in the previous chapter). The addition of an arch to the canal in the early third century further helped define urban movement, vistas, and waypoints, and was thus brought to compare with the Hadrianic arch and fountain at Perge that

[419] Ratté 2002, 25.
[420] Şimşek 2014.
[421] Korkut 2010, 3; Korkut 2011, 457.

marks the top of the long canal running down the main street.[422] The canal, or euripus, was a form stemming from the actual Euripus in Greece, a strait of turbulent waters. The replication and taming of this eastern space in Rome was full of symbolism, appearing first during the late Republic for spectacles and most famously with Agrippa as part of public gardens in the Campus Martius, connected to the Stagnum.[423] The large artificial lake of Nero's Golden House in Rome was even more non-directional. Yet the canals at Perge, Antioch, Side, and elsewhere, were decidedly different and much smaller than the Roman euripus built for spectacle and attraction outside the thick of the urban center, I would argue: these narrow running bodies of water were tightly woven into the movement of the urban plan, serving as surrogate waterways in a region where such bodies of water were so revered, appreciated, and utilized.

Imperial involvement

The preceding investigation of the overall timeline for hydraulic developments in the cities of Anatolia puts into perspective the extent achieved in the larger metropoleis such as Ephesos as well as the smaller towns such as Rhodiapolis. The patterns I have drawn out of technological timing give physical substance to the ties between these cities and Roman political and cultural/commercial spheres. These patterns also belie the underlying need (inherent

[422] Waelkens 1984, 96.
[423] Malissard 1994, 85-86. On first public euripus, cf. Pliny 8.96: M. Aemilius Scaurus in 58 BCE.

or imposed), possibility, and acceptability of changes to urban waterworks. It is well recognized that hydraulic traditions in Anatolia already had much to offer, that the influences of building technology and typology flowed both east and west, and that one of the main Roman contributions in the development of hydraulic infrastructure was the creation of economic ability *plus* new modes of social/cultural acceptability and desirability.[424] The spatial and chronologic dispersal of intensified waterworks thus gives a picture of imperial influence at the level of infrastructure, in places below surface level, where traditional patterns of urban life were deeply altered due to the spatial and cultural frameworks imposed by the hydraulic network.

One mode of imperial involvement was through the presence of the army in Asia Minor, which was more of an exception from a widespread phenomenon in the East or the West; the relative rareness of the army made its influence special and exceptional when it did occur.[425] From early on in the Roman aim to consolidate power (cf., for example, Cicero's letters), to later repeating campaigns to fight back threats from the east, the Roman army passed through, utilized, and settled in urban spaces of Anatolia. The Claudian-era monument outside Amastris provides a good example of soldierly presence,[426] as a potent image of imperial forces when approaching the city from the land. Urbanization in Rough Cilicia has been linked with the presence of Roman soldiers around 52 and 62 CE under the client king Antiochus IV of Commagene, and in the second half of the third century when

[424] Cf. Ward-Perkins 1973; Richard 2011, 86; Longfellow 2011.
[425] Cf. Millar 1997.
[426] Sakaoğlu 1987, 188.

soldiers were present to maintain order in the region.[427] The intensification of the water infrastructure could stem from the needs of the Roman army, the skills of the army,[428] or, perhaps, the active attempt to Romanize the region in colonies.[429] Yet this is not to say that, when there was no army present, communities were less enthusiastic or technologically able to undertake hydraulic projects.

There were also other avenues with which the imperial household would get involved in Anatolian waterworks projects.[430] One mode was disaster relief, which was no minor thing in Anatolia, a land prone to seismic activity. Damage to the city of Dara by its river was remedied by the engineering skill of Justinian's builder Chryses.[431] Another mode was investment in imperial infrastructure and economic regeneration, as Boatwright argues especially for Hadrian.[432] Numerous aqueduct inscriptions attest to the involvement of the emperor: Aizanoi, Aphrodisias, Patara, and more.[433] The tendency for local donors to bypass hydraulic projects, as mentioned above, is countered in few cases, as at Ephesos, where the Pollio aqueduct indeed served as a billboard for its benefactor. Schüler's study of Lycian aqueducts from the first century, which were often benefactions of the emperor or governor, suggests a sort of construction policy, a process of innovation tied to

[427] Cf. Onurkan 1967, 74f.
[428] Lancaster 2009, 2010, 450: vertical vaulting and baths, aqueducts; 464: Parthian influence through and in military-type projects.
[429] Cf. Levick 1967, Magie 1950, Mitchell 1987.
[430] Cf. MacMullen 1959, Boatwright 2000.
[431] Procopius, *Buildings* 2.3.1
[432] Boatwright 2000, 17.
[433] For Aizanoi, Cox 1988, #10; Aphrodisias, Reynolds 2000, 17ff.; Patara, Iskan and Baykan 2013, 96.

politics.[434] Other projects expanded the use of waterways for navigation and commerce, as at Ephesos and Andriake[435] The Roman provinces of Anatolia, as rich jewels in the crown of empire, served the emperor best when infrastructure was best serviced.

Urbanism and spatial flexibility

The sites of water-based activities were infrastructurally connected to one another and thus served to bind the components of the city together in an armature of experience.[436] Aristides gives an indication of this interconnectedness in his description of Smyrna:

> The whole city is like an embroidered gown […] Everything as far as the seacoast is resplendent with gymnasiums, market places, theaters, temple precincts, harbors, and natural and man made beauties, competing with one another. Nothing is without adornment or use. There are so many baths, that you would not know where to bathe, and there are streets of every kind, some deep in the city, others at its limits, each keeping the others from being the fairest, and springs and fountains for every house, and more than for every house, and avenues like market places, intersecting one another four times to receive the sun.[437]

Water features served as urban connectors, but also inter-urban connectors, as with the nymphaeum at the junction of the Sura, Andriake, and Myra roads. These were three facets of the same urban entity: ritual, commercial, and civic, and the roadside fountain connected them hydraulically, as did the canals cut into the rocks between

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[434] Schüler 2014.
[435] I. Ephesos 247: Hadrian made the harbors navigable by diverting the Cayster River, which had been causing harm.
[436] Cf. MacDonald 1986; Yegül 1994.
[437] Aristides on Smyrna, XVII.10-11.

Myra and Andriake.[438] Like the canals at Perge, Pisidian Antioch, and Side, colonnades along the river at Antioch ad Orontes were punctuated by plazas and fountains.[439] The stacking of fountains atop terraces at Sagalassos gave the same kind of visual effect to pull one through space.

On the one hand, the increase of aqueducts during the Roman period allowed for an increased spatial flexibility.[440] But how did this really differ from water supply and fountains of pre-Roman urban settings? Richard suggests examining the hydraulic impact of Roman additions – utilitarian characteristics as well as the hierarchization of supply networks.[441] He finds a trend of nucleation and monumentalization rather than spatial distribution and plainness, as part of a series of landmarks throughout the city. The water supply was concentrated rather than dispersed; this less flexible method of a large-scale urban water supply – often a first for many cities – can be seen as a means for self-representation by the builder or adherence to tradition, perhaps both.[442] Richard thus argues that the trend in Anatolian monumental fountains was not as widely distributed across space due to 'functional conservatism,' the tradition of large drawing points, as opposed to smaller distributed fountains for greater convenience – which he attributes to the desire to display status, power, and euergetism in a single grand display of a

[438] Çevik 2010, 56; for fountains and nymphaea as connectors of urban experience, cf. MacDonald 1986.
[439] Kondoleon 2000, 9.
[440] Richard 2011, 48; S. Agusta-Boularot 2001.
[441] Richard 2011, 86.
[442] Richard 2011, 89.

fountain.[443] But I argue that one should also consider smaller fountains less obvious in the record or altered by late antiquity – as attested in the Sardis fountain list but nowhere in the archaeological remains. The smaller fountain links connecting the larger fountains should not be discounted, though there is something to be said for the intended effect of large stand-out fountains – the desire to control meeting places, the consumption of water, and the visual consumption of the benefactor's position.

We see the trend from practical access and storage to display and surplus – as at Pisidian Antioch, where the fountain at the end of the aqueduct was converted (probably during the time of Hadrian's visit) from protected plain fountain house to uncovered water reservoir with ornate display of colonnade.[444] From the second century CE onward, monumental fountains were increasingly inserted into agoras, for visual regularization and the enclosure of space, and also built outside of public centers along the major streets, where fountains became participants and backdrops to thoroughfares, in dialogue with the built surroundings.[445]

More than the possibilities and limitations of pipes and basins and spigots supplying water within the city, accessibility to water was also affected by legislation. Despite what might have seemed an endless supply gushing from monumental fountains, water use was monitored, as seen in the Sardis fountain inscription that lists the amount of water to be delivered to eighteen fountains around

[443] Richard 2011, 157.
[444] Owens and Taşlıalan 2008, 309.
[445] Richard 2011, 195-199.

the city.[446] As in Rome, there were also controls on the quality levels of water distributed, as the inhabitants understood that different quality ranges could be used for different activities.[447] Richard suggests that this knowledge would affect spatial behaviors and movement patterns based on the needs of the consumer – cooking and drinking, or artisanal use and cleaning, for example.[448] This concern for water quality is also seen in the Astynomoi inscription from Pergamon, which sets out regulations to keep out activities that would compromise the cleanliness of the monumental fountain.[449] Another example from Kibyra in the second century CE reports official letters on regulating the water supply. The reply of the emperor (probably Marcus Aurelius) was copied and set up next to a bath in the city so that a certain group who had been ignoring regulations might be brought into line and not disturb the safety of the urban water supply. There follow fragmentary lines on the distribution of water between the bath building and private houses, to farmers, and to animal herders. This inscription is the first such known document not only in Asia Minor but also in the Roman Empire and provides valuable insight into attitudes of water regulation; one can compare it to the reflection of Vitruvius' discourse on water management, which represents a model centuries earlier than at Kibyra.[450]

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[446] Buckler and Robinson 1932, No. 17.
[447] Cf. Paus. 10.35.9 on Stiris in central Greece, where wells were few with poor quality water, suitable for washing or giving animals to drink; their own drinking water had to be brought from a spring four stades down from their rocky site.
[448] Richard 2011, 129.
[449] Richard 2011, 214.
[450] I. Kibyra, no. 19; Hall 1985. 190. New evidence for a water law inscription has appeared at Laodicea: "Ancient 'water law' unearthed in Laodicea," Hürriyet Daily News, 21 August 2015.

In overcoming the hydrological limitations of a city, the social order of water distribution was just as important as the physical, infrastructural order. The social order, though altered with the waves of external affairs, was one rooted in the conditions of tradition and physical space; the urban context and the histories allowing for the creation of the built hydroscape created something not homogenous but still shared by the cities of Anatolia, with an ordering of their cities and daily movements that both took from their own past and was shared across the Mediterranean.

CHAPTER 4. Water and city as shapers of societies

When Melas and Arevanias brought to the place a colony from Argos and Troezene, they drove out the barbarous Carians and Lelegæ. These, betaking themselves to the mountains in bodies, committed great depredations, and laid waste the neighbourhood. Some time afterwards, one of the colonists, for the sake of the profit likely to arise from it, established close to the fountain, on account of the excellence of its water, a store where he kept all sorts of merchandize; and thus it became a place of great resort of the barbarians who were drawn thither. Coming, at first, in small, and at last in large, numbers, the barbarians by degrees shook off their savage and uncivilized habits, and changed them, without coercion for those of the Greeks. The fame, therefore, of this fountain, was acquired, not by the effeminacy which it is reputed to impart, but by its being the means through which the minds of the barbarians were civilized.

Vitruvius 8.12

The passage of Vitruvius makes clear the civilizing properties of water and commerce: in response to the claim of Strabo that the water of Halicarnassus made men more effeminate,[451] he counters that the practices associated with water are more potent than the properties of the water itself. It was not by some magical chemistry of the water, but in the commercial enterprise that the well-watered place inspired; habits rooted in the presence of water held the power to reshape the very nature of a people. This passage also gives insight on the mode of Roman rule without coercion. Imperial Roman presence in Asia Minor was marked by the pursuit of efficient (and profitable) rule, but also carried with it a civilizing mission to parts that had not already been brought into line by Greek colonists and traders, Alexander's grand mission of Hellenization, or successive waves of Hellenistic

[451] Strabo 14.2.16: "and here is the fountain called Salmacis, which has the slanderous repute, for what reason I do not know, of making effeminate all who drink from it."

rulers. Not only did the Romans seek to create a common ground of civilized/Hellenized/Romanized subjects, but also good imperial subjects for the smooth functioning of empire. A re-civilizing campaign of sorts, an indoctrination of the inhabitants of Asia Minor cities, could occur through the curation of the hydroscape – that same civilizing presence of water that had reportedly converted barbarians in the distant past. Water, as in integral part of human settlement, becomes inseparable from the socializing and civilizing missions that go along with settlement, from law, administration, trade, and commerce. Practices associated with the presence of water ranged from the rituals of bathing to the competitive patronage of urban water features, placing individuals as both consumers and agents of water management in the development of local forms and the incorporation of imported forms.

Over the course of Roman rule, as I have aimed to show above, the dialogue between city and waterscape shifted to something increasingly artificial: water sources were brought in from farther distances, as piped-in supplies made possible through sometimes enormous effort but perhaps limited gain, and with continual demands for upkeep, which gave rise to trained, professional crews. There became possible a disconnect between natural and built hydroscapes, which could be ordered according to the desires of builders. But by the time of Late Antiquity the toll of urban culture on the environment, as in deforestation, was exacerbated by natural disasters such as earthquakes. Paired with the increasing needs of infrastructural upkeep, the city-waterscape dialogue found the city increasingly on the reactive side,

forced to adjust urban practices and amenities as resources allowed or required. Yet amid all this, the concept that the availability and accessibility of water lay at the heart of urban life held fast, and great efforts were undertaken to maintain Roman Anatolian cities as watered cities. As I have discussed in the previous two chapters on the various ways in which water inspired urban image and practice, and the manner in which hydroscapes were altered to accommodate shifting modes of water consumption and urban expression, this chapter will further analyze issues that have arisen in the earlier chapters on the wider significance of changes to the hydroscape: initiatives and intentions, outcomes, and what was at stake in the dialogue between citizens and hydroscape as conditions shifted over the centuries. I argue here that hydrologic constraint (shortage, overabundance, untamed) on a large or small scale was key for the opportunity to restructure the urban image through certain agents and performativity. The reappearance of constraints and restrictions in the hydroscape in late antiquity further underscores the interconnection between place, water, and people, as forms of power shift while settings and accumulated memory persist.

Though the aquatic dialogue occurred with clearest focus at the level of urban monuments, there was a much wider range of products from the city-water dialogue which fostered connected communities and landscapes, in religious, economic, and cultural needs linked to aquatic systems. In creating and intensifying water infrastructure, patrons created opportunities beyond the immediate intentions of a given project; the creation of a fountain that praised the emperor and local benefactor, for example, might just as well have also become an arena for local

action in its association with given activities, although perhaps quotidian. In examining the continual urban transition from early Empire to Late Antiquity, I inquire how socio-political structures altered the way in which water was exploited and made available, considering the physical effects of water on the social body, and how seemingly ordinary everyday encounters with the urban water network signaled deeper, more complex systems of power.

Conditions of place as initiative for change

So we have no free fights around our public fountains, as to who will draw water before his neighbour, which is a nuisance to many a wealthy town. There they push and jostle around the fountain, and there is weeping and wailing when bowls are broken and at the injuries received around the springs. We, however, all have our fountains inside our houses, and the public ones are for show.

Libanius *Or. XI.* 247

As the passage of Libanius suggests, the scarcity of resources could be a nasty condition that exposed the limits of civility. While Libanius may be exaggerating to make his own city of Antioch seem all the more grand for its plentiful water, he does touch on the issue of water as civilizer – or rather, the inverse – the lack of water as destroyer of social etiquette which could undermine the underpinnings of functional urban living. However, this tendency to fight at the fountain, reportedly a condition of many wealthy towns, highlights the effects of constraint on a place. Yet constraint could also open the door to opportunity, I will demonstrate, and in both well-watered and dry locales, the means to bring water to a city or street corner signaled power and technical ability. In time, benefactions of

aquatic amenities became a common social expectation, and no amount of fighting at the fountain could distract from the benefits a donor obtained or hoped to obtain from their fountain. The row might continue, but up on the fountain's brow, the praise of the benefactor would stand inscribed.

Constraints of place

Before the installation of continuous offtake water systems afforded by aqueducts, expectations of water supply and use were based in the realities of the locale. Across Anatolia, the great variety of topographical conditions inspired different yet roughly equivalent attitudes toward and applications of the basic necessity of water. In its collection and consumption, water shaped social spaces within the urban environment as well as expressions and understandings of place and civic identity. Tilley, in his work on phenomenology, discusses how locales crafted by human occupants draw from aspects of landscape to create significance that is fundamental to everyday experience, one rooted in the basic elements of earth, water, stone, wind, heavens, and so forth.[452] The rhythms of the seasons and land fit into the flow of life. Yet Tilley also asserts the dynamic quality of the relationship between landscape and inhabitant, as altering one another successively and thereby enriching the symbolism of the locale. The careful channeling of run-off at Arykanda through the streets and stairways, the gathering of water at wells in Side, or the Astynomoi inscription at Pergamon were such fundamental actions which allowed these cities to

[452] Tilley 1994, 26.

be inhabited and provided an urban character of collective ownership and self-sufficiency that functioned in rhythm with seasonal cycles, in tune with the conditions of place.

One often finds in Anatolia a "perched" settlement pattern as described by Strabo at the opening of Chapter Two: elevated occupation aside the plain as a measure of protection, followed by an eventual spreading down to lower land.[453] This is well-exemplified in the region of Pamphylia, where the creation of poleis in reaction to an increased threat from outside resulted in the inhabitation of outcrops, and later the surrounding land, such as the iconic example at Sillyon.[454] This latter trend would not emerge until the Hellenistic period and later, as seen especially in the city of Perge, and to a lesser extent at Aspendos. Yet in these two cities, the later shift to lower land did not encompass new sources of water supply; at Sardis as well, the urban growth northward beyond the acropolis spurs did not correspond with traditional sources of water.[455] The urban shifts at these sites stemmed from the greater ability to control water flow and its delivery (intake and drainage), leading to a greater spatial flexibility of urban spaces, and a greater ability to make use of land.[456] Like the cities of the Maeander River Valley and Rough Cilicia, these cities were still often close to water for use and transport, but out of danger of inundation; this brought some accessibility to the wider world, but also sufficient space for

[453] For an example of "perched" settlements, see Thonemann 2011, 10 for the Maeander Valley.
[454] Grainger 2009, 23.
[455] On Perge and Aspendos, Grainger 2009, 29; on Sardis, Bricker and Rautman 2014.
[456] Cf. Richard 2011b.

goods from the land.[457] These cities can be seen as emerging not only from a lessened threat of wild peoples, but also a lessened threat of natural forces, through the greater control of the hydroscape. The example of Sardis comes again to the fore, in the reported flood control projects of King Gyges that created the Gygaean Lake,[458] thereby bringing hydrologic order (and agricultural productivity) to the valley. The case of Lydian Sardis shows a balance between the security advantage of a hilltop (perched) location and the relative ease of water control that comes with flatter land, as a transition move from the mountains to the plain described by Strabo at the beginning of Chapter Two (13.1.25).

But some volatile settings could not be overcome: even in Hellenistic times and beyond, cities kept to the hillocks and spurs of the Maeander Valley to avoid flooding, and small settlements within the fertile flood plain were viewed with derision as backwards.[459] The negative impact of water made the cities vulnerable to, among other ills, malaria. This can be seen in Rough Cilicia and the southern coast, where there is historical evidence to suggest outbreaks of malaria during the Roman period due to environmental changes such as deforestation.[460] In the case of Kaunos, the silting of their harbor did not spell the demise of their city, but a new opportunity in the productive capacity of the rich alluvial soil.[461] This is a rare positive outcome

[457] Thonemann 2011; cf. again the examples of Perge and Aspendos, with minor ports on the Kestros and Euremydon Rivers, respectively (Grainger 2009, 23); Köse 2011, 147 on Aspendos harbor.
[458] Strabo 13.4.7.
[459] Thonemann 2011, 10-11 on the Prieneans' attitudes of plain-dwellers, or 'Pedieis.'
[460] Rauh 2009, 286, citing de Zulueta 1973; Grmek 1994; McNeill 1992.
[461] Mackil 2004, 505.

of environmental changes altering the hydroscape; the loss of a productive harbor came with a consolation prize in self-sufficiency perhaps.

Over time, new applications of indigenous and Roman engineering reshaped local physical conditions, serving in part to encourage a homogenized imperial urban experience that reshaped local attitudes. It was the development of hydraulic technology achieved during the Roman Empire that allowed the high degree of urban settlement, one not matched again until the eighteenth century.[462] But in some cases, such as rocky Termessos or dry Rhodiapolis, conditions of geology and geography could not be completely mastered, so that certain traditions and attitudes abided, with the selective adoption and alteration of imperial urban ways.[463] Regardless, in many cities of Asia Minor, new or altered social spaces were carved out as part of the changing international relations of the Roman Empire.

Intentions for social spaces

As Tilley discusses for landscape inhabitation, in overcoming topography and associated local constraints, new spaces were forged that allowed for or encouraged altered modes of engaging with place and altered expressions of locale. A city came to be defined by its changing and dynamic built spaces in relation to the natural landscape. An example can be found in Libanius' evocative if somewhat

[462] Oleson 2008, 311f.
[463] Cf. Weiss 2001, who argues that the adoption and adaptation of technologies and forms varied widely, with a variety of strategies for managing technological developments and the imperial presence that often accompanied them.

skewed account of how water and architecture inform urban life in Antioch, where he employs water and streams as metaphors in describing the social importance of colonnades:

> The colonnades are like rivers in flood, the alleys like streams leading off them. Those facing the mountain lead you to the delights of its lower slopes, while those running in the opposite direction lead you to another uncovered street, built up on either side, as canals, which have been constructed for the purpose, connect one river with another. […] The conclusion I wish to draw from my lengthy account which has been confined to the colonnades, is this. In my opinion, the most pleasant feature of cities, I would go so far as to say the most beneficial too, lies in social intercourse and association. Indeed, where you have this in plenty, there you have a real city.[464]

The quotidian, unscripted actions of urban life were shaped by the spaces that framed them; when these spaces involved water, the result was all the more dynamic. The Orontes naturally provided the wealth of water for Antioch, but it still had to be wrestled into a form conducive to urban living and embellishment: regularized, flood-controlled, etc. Luckily for Antioch, numerous imperial benefactions helped the urban image develop: the accounts of Malalas, though of questionable veracity, provide an indication of the way Antioch was bestowed. Malalas cites aquatic dedications from Julius Caesar, Agrippa, Tiberius, Caligula, Domitian, Trajan, Hadrian, Commodus, Septimius Severus, Probus, Constantine, Valens, Theodosius, and Justinian.[465] One particular and important aspect of Antioch's relationship with water was the great number of public baths. The number of baths, as well as their opulence to out do one another, would have informed the urban image of Antioch

[464] Lib. 11.201-213.
[465] Malalas 9.14; 10.9-10; 10.18; 10.50; 11.9; 11.14; 12.2; 12.22; 12.33; 13.3; 13.30; 13.40; 17.19.

and allowed for plentiful bathing activity. The connotations of these baths with the imperial house, furthermore, created a context for the bathing culture.

Looking elsewhere, in some places the instigation to amplify infrastructure and waterworks came with industrial/commercial boom. At Andriake in Lycia, the establishment of the city as the port for Myra brought it imperial attention in the case of its granarium (with plaza atop a cistern), a benefaction from Hadrian.[466] In terms of the hydroscape, the East Baths marked the eastern-most Roman building at Andriake and formed a social hub of the city, bookended by the West Baths near the Agora.[467] Seawater exploitable in the form of a harbor made possible the piped-in water, but also necessitated the need to supply amenities to those calling on the port. At Ephesos too, the construction of the Vedius Bath in the mid-second century was a major project at a strategic part of the city for traffic and industry. As the fourth bath to be built in the city, it expanded a bathing culture already present in the city; its donors Publius Vedius Antonius and his wife were responsible for many structures in Ephesos, such as the odeion, another important public space.[468] His dedication of the bath structure to Artemis, to Antoninus Pius, and to the city of Ephesos gives perspective to the pride of place and respect of deity amid the imperial landscape.

In other places, the spur to increase waterworks came in the opportunities afforded by the aftermath of disaster. In Lycia the earthquake of c.141 damaged

[466] Marksteiner 2006, 72; Çevik 2010.
[467] Çevik and Bulut 2014, 246.
[468] Steskal and La Torre 2008; IvE 431 and Iv438; M. Steskal, "Zu den Stiftungen des M. Claudius P. Vedius Antoninus Phaedrus Sabinianus und ihrem Echo in Ephesos," *Tyche* 16 (2001), 177-88.

many cities in the region and called for massive rebuilding, allowing for the Hellenistic influences already at play to expand in monumentality for a more Roman urban form.[469] At the head of this campaign, among others, was the great benefactor Opramoas of Rhodiapolis, who provided funds for the construction or repair of structures that served various practices of civic life, including bath buildings and oil, temples, stoa, theater, festivals, and public funds.[470] As a post-earthquake response, this kind of infrastructure for activity spaces approached the level of urban water supply in terms of importance.

Yet as spaces for social life were shaped, obstinacy to characteristics of locale held firm to temper the result. In Ephesos the introduction of aqueducts, beginning already in Hellenistic times, was strengthened in Augustan times, and further added to through the second century,[471] allowing for the city to become the bustling metropolis it was, with water needs ranging from recreation to industry. In supplying the city to enable its growth, the expansion of the hydroscape also changed the social spaces of Ephesos, not in erasing what was, but in adding to and reframing the city. The creation of fountains along the main arteries running through the Ephesos created spaces for pausing and gathering, as well as the (perhaps unconscious) consumption of imagery. The Nymphaeum of C. Laecanius Bassus, for example, contained a sculptural program inspired by local aquatic elements. Here, the proconsul's benefaction from c. 78-79 depicted two river gods, understood to

[469] Wuster 1996, 153.
[470] Çevik 2008, 20; IGR III no. 739 = TAM II 905.
[471] Öziş 1999, 406ff.

symbolize the Marnas and Klaseas Rivers that supplied the fountain.[472] This issue of local tradition gained special impetus under Hadrian, as Boatwright has argued, as the emperor's championing of local traditions gave civic leaders the choice to take Roman conventions with their own during an increasingly homogenized empire. Overall, the two occurred side by side, in the celebration of local culture and pasts with the adoption of political and legal standards.[473] Emanations of local pride would come to a head during the Severan period, in visual media and coinage in particular. Ando has shown how questions coming from the capital itself on provincial administration, geographic boundaries, and regional structures brought changes in the public sphere and civic identity.[474] Rather than posing an identity crisis of sorts, this provided cities with the opportunity to overcome conditions through the consumption of technology.

This study has been concerned to show the interconnectedness of place, hydroscape, and people, and why this connection matters. Scholars of Roman architecture and archaeology have already shown the need for multivalency in approaching the material culture of the Roman Empire.[475] And the same appreciation for multiple interpretations of space must be given here too. In the case of Rough Cilicia, members of the survey project sought to assess the level and nature of assimilation of local elites into Greco-Roman cultural ways. By studying local cultural patterns rooted in urbanism (through epigraphy, political, social and

[472] Cf. Rathmayr 2011, 136.
[473] Boatwright 2000, 38.
[474] Ando 2010, 18; 21; 34.
[475] Cf. Favro 1996; Ossi 2009, 88.

economic organization, architectural design, craft technologies, and religious material) one is better able to note the diffusion of imported Greco-Roman culture into traditional behavior, and thus better appreciate the transformation of urban experience during Roman times.[476] Overall, scholars find an impressive speed of urbanization in the region, shaped by local population, outside imperial control, and go-between agents, all amounting to the most prosperous time for the region.[477] And yet within this adoption of Roman ways, the proliferation of the bathhouse though the scarcity of other Roman urban forms such as the theater suggests that city leaders tailored the upgrade of Cilician cities to fit local traditions and local modes of hierarchy.[478] The emphasis on water culture is an interesting development, as it was a realm of improvement where there was perhaps room for starker change.

Though hydroscapes changed with often-high levels of human intervention, conditions of place were never forgotten. In the case of Sardis, the connection with the once wealth-giving Pactolus River was never lost, as evidenced in the mid-sixth century CE epigram that has an anthropomorphized Sardis speaking in first person about its rivers.[479] The placement of elite houses and palace grounds atop terraces off the acropolis slope throughout many periods at Sardis, moreover, provided sightlines to the Gygaean Lake and surrounding tumuli. This view, enjoyed previously by the Lydian kings, was one of power over the natural environment and the ability to craft great works, to shape earth and water in the image of authority.

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[476] Rauh et al. 2009, 261.
[477] Rauh et al. 2009, 284.
[478] Hoff 2013, 145.
[479] Foss 1976, 109: Macedonius Consul, *Anthologia Graeca* IX.645 (c. 550)

Baths for a city: Rhodiapolis vs. Arykanda

A brief comparison between the bathing cultures of Rhodiapolis and Arykanda illustrates the range of solutions in overcoming hydrologic and topographic constraints of site. Both of these rugged Lycian sites could boast of bathing facilities, but site conditions tempered very different results. While Rhodiapolis had two baths, Arykanda came to possess six baths over the course of the city's history. Of course, a number of factors account for this difference: histories of urban wealth; regional importance; population sizes; sustained wealth; imperial connections, among others. For Arykanda, a problem of water flow down the slope was harnessed to supply many baths across the site of a larger size than that of Rhodiapolis. With a series of benefactors less well known than Opramoas, baths drew out urban development at Arykanda. At Rhodiapolis, the tenacity to build a bath without a source of flowing water shows the importance placed in the institution, and is put into clearer context with the major benefactor Opramoas, whose gifts sparked post-earthquake urbanism all over Lycia, and especially in his hometown. Even if not directly responsible for certain works, his gifts created momentum in euergetism, and the creation of two baths (despite the exceptionally arid location), below the level of the civic spaces, again drew out development, here creating further connection between activities in the civic spaces atop the hill and residential areas below.

Urban image and performativity

And all other sources of contention have died out in the cities, but this single rivalry holds all of them, how each will appear as fair and charming as possible. Everything is full of gymnasiums, fountains, gateways, temples, handicrafts, and schools [...] Indeed, the cities shine with radiance and grace, and the whole earth has been adorned like a pleasure garden.

Aristides *Or*. XXVI. 97

The rule of Rome, according to Aristides' panegyric to Rome, created conditions whereby the overcoming of traditional problems such as water scarcity meant that civic efforts turned to focus on inner- and intra-city issues, not in the competition of territorial warfare, but in efforts to showcase water in their overall competition for urban embellishment. Rival cities waged a lively battle in stone and water display, striving to outdo one another to garner titles and the right to hold games. It was within this context that emerged much of the patronage of urban waterworks from a variety of outlets, be it civic government, local aristocrat, or imperial grant. These forces were responsible for both primary and secondary hydraulic installations and their placement within the urban fabric. Even leading up to and after the period of Roman rule praised by Aristides, the dialogue between city and hydroscape is marked with the objective to shape urban image. In examining the water usage and practices sprinkled throughout the city, I show how the power of images and urban social rituals worked together to inform one's understanding of the intensified, altered hydroscape.

Agents of urban spaces

Major urban benefactions had long been the purview of rulers in Anatolia, though the power of the Hellenized polis brought individuals to bestow gifts on their city as a social obligation. As the socio-political climate shifted between the Hellenistic and Roman periods, there was continuity in this model, but also the greater opening of opportunities to be a benefactor. A shift during the second century BCE saw the increasing bond between holding a public office and making benefactions. Dmitriev's study has shown how benefaction practices were long linked to the relations between cities and royal dynasties, and did not change drastically under Roman rule. What changed was the importance of status. An individual's status outweighed that of his city, but with the application of universal citizenship in 212, status was fixed on local notables as part of the "Roman administrative machine."[480] New opportunities for power and patronage began in Hellenistic period and gained momentum under Roman rule: women gained access to the role of benefactor, as with Phila, daughter of Apollonios, a stephanephoros of Priene. She built a water supply to the city "from her own resources" in the early first century BCE.[481] Benefactions by women continued to increase as women, like men, began to be referred to as descendants of distinguished officeholders and benefactors.[482] The changing nature of status under Roman rule also brought with it chances to marry into Roman lines and gain access to the Senate. This coupling of

[480] Dmitriev 2005, 43ff; 304; 327.
[481] Dmitriev 2005, 54; I.Priene 208, 4-9.
[482] Dmitriev 2005, 184.

wealthy Anatolian families with Italian families led to powerful outcomes in many cases: the Plancii, the Claudii, and others who were responsible for urban waterworks benefactions in Perge, Aizanoi, and elsewhere.

In the East, direct links between urban promotion and Roman authority are relatively few compared to the West, and were concentrated in particular areas. Some of these were official colonies, others were based in trade and commerce or religious cult: in Pisidia, in the Taurus Mountains in the south, the Troad in the northwest, and selectively in the central highlands and toward the Black Sea. This colonial exceptionalism answers partly how cities in places less likely to develop in a culturally Roman fashion so enjoyed the amenities associated with Roman culture. As in the West, these instances where Rome served as a direct political and cultural presence brought subsequent waves of influence, including in the realm of transformations to the hydroscape.

Pompeiopolis in Paphlagonia is an example of a settlement rooted in intentions for regional development. Barat argues that the city, founded in the first century BCE, was a catalyst for the dispersal of population in Paphlagonia and cereal agriculture in the valley, where the number and concentration of sites is incomparable to earlier times, and with notable amenities such as aqueducts.[483] The foundation of the city during the final throes of the Roman Republic marks the interest of Roman control in widespread links to trade and landholding. Similarly, in Lycia a connection has been made between the appearance of baths and aqueducts

[483] Barat 2013.

with processes of updating to reach international standards. The link lies between elite mobility and public buildings; the disruption of rural population and traditional patterns of land settlement during Roman rule meant an increase in urban population that matched the scale of these buildings.[484] To draw the line between whether infrastructure met a need or anticipated or created need is an interesting but ultimately fruitless line of pursuit.

The shift from intra- to inter-urban competition for Anatolian cities during the Roman period can be explained in part by signal theory, where monumental civic architecture holds a role as benefaction and as communication to rivals. Wandschneider argues that wealthy individuals used their benefactions to signal to the oligarchs (not so much the demos as in the Hellenistic period) as elite families dominated political offices.[485] The benefactions were multivalent, signaling the socio-political landscape both within the city and in the empire at large.

The Column of Trajan in Rome provides one view of imperial politics toward the provinces and the benefaction of Roman power in terms of technological know-how and implementation. Infrastructure appears in images of ports and soldiers at work; their efforts not only ensured domination but also the prosperity of the empire and the communities they touched.[486] The textual echoes in Pliny's panegyric to Trajan contain the same topoi; they can also be read back into earlier imperial politics of the first century CE. Of course, ports were also prominently featured on

[484] Patterson 1991, 169; for a good and detailed study of the same phenomenon in Pisidia/Pamphylia, see Waelkens 2002b.
[485] Wandschneider 2015, 76ff; Zuiderhoek 2009, 133.
[486] Cf. Hölscher. 2015.

coinage, reflecting local agency using the same language of images as the Roman imperial power, as mentioned in Chapter Two.

In western Rough Cilicia development through trade and commerce led to the adoption of external architectural and urban forms in the region, with evidence for agents that elucidates the process of urban and infrastructural development. While imperial dedications gave due recognition to Roman authority, local elites received at least as much attention in architectural and epigraphic demonstrations. These honorees seem to have been the landholders who held office and council positions, and left evidence of their titles in inscriptions throughout the town, especially in baths which would have been hubs of elite social activity, rather than theaters with larger numbers of the demos, as mentioned above. Rauh and his team have determined that while society in western Rough Cilicia took on Roman appearances, traditional hierarchies survived and flourished in the urbanization of their cities, benefiting from the symbolic power of architecture.[487]

Similar to the development of Pompeiopolis and Cilicia, Aizanoi is a good example of a city developed so as to spur on regional development in Phrygia, from Hellenistic times onwards. This came through cult involvement, in Attalid support of a Zeus more Hellenic than Anatolian, and in building projects that brought hellenistic appearances and spaces to the city.[488] Before the city became Roman in the socio-cultural sense of the term, it became Pergamene, complete with a social

[487] Rauh et al. 2009, 291; 296; cf also Salmeri 2003, as well as Yegül 2003, for the same issue of culture change in Cilicia through baths.
[488] Rheidt 2008, 109f.; 111f.

structure of local elites realizing the power of external connections. By the Roman period, the urban development which had been set in motion during the first two centuries BCE reached its full extent through a more complete integration of local benefactors with the powers and potential of the Roman state, as well as more complete integration of city and river.

The power of visuals

The use of urban space as a sign of power goes back in Anatolia to the age of Hittite centers. During the subsequent transformations of the Iron Ages, building programs emerged from and promoted political discourse and collective identity, as Harmanşah has shown for Anatolia.[489] His work on the founding and building of cities during the rise of new capitals and changing political landscapes (c. 1200-850 BCE) reveals the social production of urban space forming through spatial practices, landscape history, and architectural technologies. Similarly, Rogers' examination of the hydroscape of Britain under Roman rule provides a good example of the manipulation of the earth and water in producing a land more suitable to imperial rule through both outside and local agency.[490]

The intentionality behind the form of urban benefactions is telling. Agusta-Boularot's study of fountains in Greece, under the patronage of the Attalids and then the Romans, reveals a late transition from modest to decorative forms. The

[489] Harmanşah 2013.
[490] Rogers 2013, esp. 220f.

connotation of monumental fountains with tyrants and aristocrats kept benefactors from building big until the first century BCE, when Roman authorities finally dared to construct monumental fountains, though on a modest scale. By the beginning of the second century CE, former connotations either lost their relevance or could be co-opted by new builders, and fountains took on elaborate forms to represent the imperial family and dynastic fountains.[491] In Anatolia, by the second century CE one finds increasing ostentation, begun earlier with nymphaea from Miletus and Hierapolis, and represented in numerous examples: the nymphaea at Arykanda; in Ephesos, the nymphaeum Traiani,[492] the Straßenbrunnen near the Magnesian Gate; the cascading Bakıcak nymphaeum at Keramos.[493] These nymphaea played urban roles as connectors: the Arykanda nymphaeum set along a road in the eastern part of city, on axis with the expansion that includes the prytaneion, the state agora, the odeion – it was a pivot point from the commercial agora to the northwest – and north of the Temple of Trajan; at Keramos there was a connection between the earlier temple and the Bakıcak cistern, which served as buttressing for the raised topography and faced out to the city.

Important additions to the image of the city took into account considerations of the existing form. Over time new monuments were forged with sightlines to

[491] Agusta-Boularot 2001, 230, as seen in the nymphaum of Herodes Atticus in Olympia or that in Larissa of Argos.
[492] Mellink 1960, 66.
[493] Spanu 1997. This represented the use of new building technology, through the dedication of a certain Lykisos whose nephew dedicated the balaneion – a family affair to monumentalize the city after the major urbanization efforts of the Hecatomnids in the 4th century BCE.

highlight parts of the pre-existing fabric, as at Pergamon with the link between the Trajaneum over the Selinus River to the Red Hall.[494] At Pergamon, research has shown that the street system and drainage system were the first constructed elements at the founding of the city, as an important precaution to settle the slope with stability, often in parallel lines, but other times diverging to meet with topography.[495] The integration of later structures across this system of water conveyance nodded to the control of the hydroscape as well as the important role played by water. The Red Hall complex stretched across the river over an impressive vaulted canal; as a temple for the gods of Egypt, the presence of water was important for the ceremonies of this foreign yet cosmopolitanized cult. The so-called Temple of Serapis at Ephesos also bears the remnants of water features, probably cult-related. The following examples provide further evidence for the creation of social spaces by a range of agents through the medium of water. At the level of the monument itself, the choice of form provided wide opportunity of expression. Richard's study on the "elite toolkit" of Roman Asia Minor reveals the decidedly internal character of aedicular facades: they may have stemmed from imperial social, political, and cultural contexts, and their visual language was wide-ranging, but they expressed a local viewpoint that marked the relationship between elite benefactor and city.[496] From the setting to the design of the benefaction, meaning was assigned and acquired through visual cues.

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[494] Nohlen 2004.
[495] Gates 1994, 247; 1997, 292.
[496] Richard 2011, 85. Cf also Yegül 2000, 148ff on the continuation of Anatolian traditions and the urban realm.

At Ephesos, dedications by proconsul Calvisius Ruso to Domitian would have allowed Ruso to engage in dialogue with a select group of elites with ties to Italy and iconographical as well as architectural knowledge.[497] The mythical Polyphemus and Odysseus scene of the fountain shifted from a domestic context of the imperial Roman domus to a public street, but viewers probably made general references to Greek cultural heritage of Ephesos.[498] Each fountain example remained a unique expression of the individual patron, showing a sense of experimentation and awareness of disparate regions, and thus a dialogue between emperor and subjects, Rome and the provinces.[499]

A decade or two later, Tiberius Claudius Aristion, the wealthy Ephesian, built along the same route two grand fountains, both to Artemis Ephesia, Trajan, and the city: the Straßenbrunnen near the Magnesian Gate and the Nymphaeum Traiani on Curetes Street.[500] These are the first known monumental fountain types built by a private individual at his own initiative and expense.[501] The type had just cropped up in examples of the proconsul C. Laecanius Bassus, with his façade nymphaeum in Ephesos and monumental nymphaeum in Miletus. In each of these cases, placement was key, flaunting the waters of the fountain at strategic axes and vistas, in conjunction with pre-existing symbolic markers such as the Heroon of Androkles,

[497] Longfellow 2011, 65.
[498] Longfellow 2011, 74.
[499] Longfellow 2011, 211.
[500] On the Straßenbrunnen, Dorl-Klingenschmid 2001, 187; Scherrer 2000, 72; Quatember 2006; Longfellow 2011, 79-80; on the Nymphaeum Traiani, Dorl-Klingenschmid 2001, 188-9; Quatember 2006; Longfellow 2011, 77-95
[501] Campagna 2011, 215.

the mythic founder of Ephesos.[502] Such instances of euergetism, Campagna finds, were undertaken by the most high-ranking citizens of the city and used as a means to raise the image of their city.[503]

At Aphrodisias, urban transformations under Zoilos during the Augustan era were essentially Hellenistic in character but made possible through his connections to Rome as well as the favorable conditions of Roman rule. But with the second generation under Tiberius, as Ratté argues, there began a change in attitudes to the built environment, and in this, the emergence of a Greco-Roman city: the pool of the South Agora can be seen more as a great urban embellishment than as a meeting place (as a traditional agora), as such spaces already existed in the city, though they were no longer as central to civic life.[504] The frame of colonnades surrounding the pool area was more important than the activity within, with civic competition and urban embellishment more telling than the activities within places of government meeting. This matches the trend found in the studies of Waelkens and Zanker where open squares were closed off from streets as showcases for the power of the Roman State and officials, as well as places for the elite to show their status through monuments.[505]

At Pessinus, as discussed earlier, the construction of the monumental canalization system was started under Augustus to contain the waters of the seasonal Gallos River and carried on, with additions, through the third century. The canal was

[502] Campagna 2011, 217.
[503] Campagna 2011, 222-223.
[504] Ratté 2002, 14; 24-25.
[505] Zanker 2000, 35; Waelkens 2002, 333.

built in tandem with the monumental temple and theater complex that stood parallel to the quay walls after a westward turn. The erection of the temple complex bears traces of the interaction of local notables, while the temple itself, introducing the imperial cult, exerted great influence on the development of the city. The temple dominated the city from its hill, determining the spatial organization and monumental character of the town, perhaps in rivalry against capital city of Ankyra.[506] The control of water in this space made it possible to develop on such a scale, a fact that must have been remembered during seasonal flows through the canal.

Sagalassos is a site where the expansion of the water system, in tandem with the urban fabric, is evident and insightful. The water system of the city dates back at least to the Hellenistic period, as mentioned earlier, but as the city expanded in the subsequent centuries additional pipelines were needed. Archaeological investigation of the local springs and supply lines has revealed a system that grew over time in response to different needs.[507] With the addition of water-consuming amenities such as the second-century bathhouse or Hadrianic nymphaeum, new water lines were established to feed the growing demand and expectation for water in the urban realm. New water lines also allowed inhabitants to expand the bounds of urban residences, from the upper city near the Hellenistic fountain house to the middle and lower city,[508] not so unlike the urban expansion of Arykanda. The development of the

[506] Strubbe 2006, 120ff.
[507] Waelkens 1993, 38ff.
[508] Waelkens 1993, 45; 1990a.

hydroscape is paralleled in the development of designs for the fountains at Sagalassos and their contribution to urban space. Richard has demonstrated the shift from simple covered fountains to dynamic façade fountains that became spectacle events along the street;[509] one might compare this to Robinson's discussion on the evolution of architectural design in Corinth fountains.[510] These increasingly elaborate fountains played functional and symbolic roles in the course of urban experience and the effort to maintain a cutting-edge urban appearance. New or refurbished fountains contributed to the dialogue of the streets and plazas; as burbling side diversions or confrontational screens, the insertion of fountains into the preexisting order complimented the existing urban image while furthering its claims of belonging to the larger world community. Since these monumental columnar façade fountains of the high imperial period looked fairly similar with their coded imagery, their iconic and recognizable features – aedicular features and all – connected and combined them into one urban imagery, from Alexandria Troas to Sagalassos and beyond.

The power of performativity

While it may be good and well to discuss a city's reorganization with infrastructure and amenities, without feet on the ground to experience and take ownership of it, the discussion is hollow and tells little about the experience of the

[509] Richard 2008.
[510] Robinson 2013.

city. For the ancient world, this is particularly challenging, but a passage of Philostratus helps to illustrate the materiality of ritual:[511]

> ...For it appears to me that ships are in need of men and men of ships, and that men would never have thought about the sea at all if they had not had a ship; and men are kept safe by walls and walls by men; and in the same way I consider a festival to be not only the meeting of human beings, but also the place itself in which they have to meet, and the more so, because walls and ships would never have come into being, unless there had been men's hands to build them, while these places, so far forth as they are deprived of their natural and original characteristics, are by the hands of men spoiled; for it was owing to their natural advantages that they were held worthy of being made into meeting-places; for though the gymnasiums and porticoes and fountains and houses have been all created by human art, just like the walls and the ships, yet this river Alpheus with the hippodrome and the stadium and the groves, existed, I suppose, before men came here, the one providing water for drinking and for the bath, and the second a broad plain for the horses to race in, and the third provided just the space required for the athletes to raise the dust in as they run along their races, namely a valley a stadium in length, and the groves around supplied wreaths for the winners and served the athletes who were runners as a place to practice in. For I imagine that Hercules considered these facts, and because he admired the natural advantages of Olympia, he found the place worthy of the festival and games which are still held here.

There is a chicken-and-the-egg aspect to place and ritual, of place creating ritual and ritual creating place, echoing my argument that hydroscape shaped urban development just as urban development shaped the hydroscape. And so it went for the activities that occurred in these urban spaces, responding to topography and tradition as well as innovation.

As another means to recapture ancient experience, Paliou's study of built space utilizes the nonverbal communication approach to show that urban spaces were full of diverse messages relayed through sight, smell, and hearing, to relate identity, status, wealth, power, expected behavior, and other human co-action. Visual

[511] Philostratus, *Life of Apollonius of Tyana*, II.VIII.XVIII.

clues are made up in many ways: shape, size, scale, color and material, and spatial relationships (prominence, centrality, and exposure).[512] These clues triggered social bodies to form associations and follow expected social behavior, thus promoting the interests of the agent behind the built space. At the human level, Kaiser's discussion of an urbanism of acculturation applies for waterworks as it does for street networks. He described urbanism as an arrangement of space to reinforce social structure, in settings that structure social ritual and engrain associated values.[513]

Perge is a good example where the accumulation of water features over time came into contact with ritual. There, processions went past the theater-stadium complex, with the theater as a station of procession, and onto the main processional street where complexes built by benefactors made an impact on those taking part in the movement, weaving together a succession of parts.[514] Fountains punctuated this movement: at the theater façade,[515] at the entry of the city,[516] at the Severan plaza outside the South Bath,[517] and where the main street ends at the foot of the acropolis.[518] Between the latter two, the main canal connected these spaces and

[512] Paliou 2014, 92.
[513] Kaiser 2011, 202.
[514] Öztürk 2004, 204. For a similar experimental tour of Ephesus where water and nymphaea were featured as one of the important links and way stations of urban experience, see Yegül 2001.
[515] Nymphaeum F1: Dorl-Klingenschmid 2001, 226; Lanckoronski 1890, 47-55; Mansel 1975.
[516] Nymphaeum F4: Dorl-Klingenschmid 2001, 230-1.
[517] Nymphaeum F2: Dorl-Klingenschmid 2001, 229; Longfellow 2011, 185f; Mansel 1975.
[518] Nymphaeum F2: Longfellow 2011, 156ff; Dorl-Klingenschmid 2001, 228; Mansel 1975.

movement, altogether providing the play of water for both ritualized procession and the unscripted movement of an individual walking along the main route of the city.

At Sagalassos, the spaces of the city collectively served as a means to encourage Roman socio-political unification in the region, with strong emphasis on monumental architecture and urban structures as advertisement to visitors and inhabitants. In the process of urban transformation, local elite shifted from constructions of self-advertisement through local tradition glorifying self and city's past, to works announcing self-promotion for civic prestige showing membership with the ruling class that glorified the gods, emperor, city, and self;[519] this boiled down to the adoption of Roman ways for social mobility. The dissemination of the image of the city and its inhabitants occurred through performance, particularly in the regular influx of visitors for festivals and games. The second-century bath, made possible through the expansion of the water supply system, has been determined to be larger than necessary for the population size. Archaeologists have posited that the additional space in the bath would have accommodated incoming crowds for neokoros festivals held in Sagalassos.[520] Curating a backdrop to such religious and agonistic festivals legitimized the right to hold them and reaffirmed the city's regional status.

Zuiderhoek's study of benefactors in Roman Asia Minor finds a pattern of benefactions: public cults that fostered communal ritual; edifices for the magistrates; and socio-cultural buildings such as baths and stoas that fostered the collective life of

[519] Waelkens 2002, 73.
[520] Martens, Richard, and Waelkens 2012.

the polis.[521] The extent to which water amenities and their related activities made a mark on the lives of inhabitants in cities of Anatolia can be seen in the mania for baths, and the necessity of having a sufficient water supply for regularly occurring activities. And how this mark – the perception of baths – changed according to the dominating culture and ideology of the time can be seen in the admonition of philosopher Apollonius of Tyana, as recorded by Philostratus, who lashes back against popular appeal for bathing facilities:

> At any rate when the people of Antioch were shut out of [the baths] because of the enormities committed there, he [Apollonius] said: 'The Emperor, for your sins, has granted you a new lease of life.' And when the Ephesians wanted to stone their governor because he did not warm their baths enough he said to them: 'You are blaming your governor because you get such a sorry bath; but I blame you because you take a bath at all.'[522]

During the high imperial period, baths became a talking point for the voice of the people, and restrictions on what had become an expectation, a basic right in an updated Roman city, could rally the people and cause the authorities to respond. Apollonius' philosophical attitudes anticipate later Christian ideologies against Roman bathing practices.

Self-reference at Side

The city of Side can here be highlighted as an example of the urban fabric informing activity, and vise-versa. Epigraphic evidence and images from the site enrich an understanding of its urban spaces; the self-awareness in the written and

[521] Zuiderhoek 2009, 102.
[522] Philostratus, *The Life of Apollonius of Tyana* I.I.XVI. Cf. also Yegül 2000, 146.

visual media points to an intentionality to frame the city's image in popular imagination. Inscriptions outlining festivals, referring to both benefactors and victors, placed the city and the actions of its inhabitants in a narrative and purpose. Through the placement of inscriptions of festivals, locals-only games, regional games, records of the completion of the temple, and the arrival of the cult statues from the sea (the Epibaterios),[523] monuments connected viewers to both the sea and the man-made hydroscape. Much of this material stems from the second half of the second century: the colonnaded canals of the main streets came into being around the same period as the renovated Temples of Athena and Apollo, as well as the Epibaterion festival that celebrated the temples and presumably took place in part along those colonnades. The Severan period saw the creation of both the nymphaeum, baths, and festival of Touesianus that celebrated the arrival of the deities as depicted on the nymphaeum.[524] Once again, the built environment provided echoes of activities and beliefs upheld by the Sidetans.

Continued activity in the hydroscape of Side in Late Antiquity shows continuity in urban focus but change in activity spaces. With the repairs by Lollianus and the creation of cisterns and fountains, emphasis on the hydroscape continued into the fifth and sixth centuries, though altered. The peninsula tip was refashioned with the Harbor Basilica AA, using the space and stones from the sanctuary of Apollo and Artemis.[525] The conversion of neighboring Temple of Men with fountain

[523] Bean 1965, 44-66: no. 145, 146.
[524] Bean 1965, 46.
[525] Alanyalı 2013, 127.

hh gave greater emphasis to this Christianized space. Elsewhere, water features took on religious identity through their context, as with the Synagogue fountain, the aquatic complex at basilica, and residential fountain gg. The continuation of water display in late antiquity, in the change of scale and outlet, speaks to shifting socio-political landscapes.

Shifting dialogues in Late Antiquity

In addition to his original gifts the emperor Anastasios again sent other gifts to all tax-payers in his state. In every city of the Roman state he carried out a variety of building projects, including walls and aqueducts; he dredged harbors, constructed public baths from their foundations and provided much else in every city.

Malalas, *Chronicle* 16.21

With the waves of changes in socio-political structures as well as in the realities of urban water management, with increases and the decreases of water supply, the accessibility and aesthetics of aquatic elements in Late Antiquity were adapted to better suit the realm of possibility, and not the fantasy of a passed golden age. But the theme of imperial infrastructural benefaction was no less important in Late Antiquity, as exemplified by Malalas' account of Anastasius (r. 491-518). Ruling later that century, Justinian (r. 527-565) would be even better known for his infrastructural efforts as a means to strengthen his empire. The reappearance during Late Antiquity of constraints and restrictions that affected the workings of urban hydroscapes, both natural and human processes, brings into focus that which was at stake in the dialogue between city and hydroscape as conditions shifted over the centuries. In the breakdown of systems I demonstrate how important the smooth

functioning of infrastructure was to an urban community and to an empire based in the unit of city. But I also show how important the smooth functioning of an empire and a city was to the maintenance of the hydroscape. A look into late antique hydroscape is thus valuable for the study and assessment of those from earlier periods.

Civic and cult ways, restructured

In terms of urbanism, scholars have long asserted that the semblance of uniformity began to dissolve from the third century onwards with a series of upheavals from which new forms of urbanism emerged.[526] Trends of civic office holding and idealism in euergetism shifted;[527] the decline of the curiales as a class, now assumed by the new position of governor, affected the ability of individual civic leaders and prominent citizens to practice euergetism.[528] A fourth-century government restructuring, centered on Constantinople, entailed a smaller municipal budget and difficulties to build new or maintain existing urban structures and infrastructure. The governor rather than city councils took responsibility for the undertaking and cost of public works (and hence received credit in inscriptions). But during the fifth century, leading members of the urban elites rose as municipal officers and worked in tandem with the governor to enact urban projects funded by

[526] Cf. Christie and Loseby 1996, 1ff.
[527] See overview in Waelkens et al. 2006.
[528] Lewin 2001, 30ff.

diminishing municipal funds.[529] In general, the importance of individual benefactors, as civic leaders, diminished as government and church replaced the pattern of classical euergetism. Jacobs and Richard postulate that within this shift the church and local bishops had a role in water supply and fountains; they certainly provided daily necessities to their congregation. The growth of the church brought a major change to the care and keeping of cities and hydroscapes. When an individual provided a city with water where nature fell short, new place-making was enabled and praise was due. This took multiple forms, and by the time of Christian emperors, worship of water deities came to be increasingly shifted to the person of the emperor or his civil servants who, as agents of God on earth, provided for his people.[530]

Jacobs' study on the initiators of late antique construction works teases out their motivations and also reviews aesthetic concerns as well as the changing internal organization and social priorities of cities. Among the agents of imperial court and central administration, governors and city officials, civic elite, and bishops, she finds motives ranging from self-representation, religion or economics, and necessity.[531] Overarching this structure of agents and motives were legal codes; alterations or additions to the law code responded to needs arising from late antique conditions.

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[529] Jacobs and Richards 2012, 31.
[530] Cf. Saradi 2006, 59: by the sixth century, panegyrics such as those of Procopius of Gaza, encomia of Choricus of Gaza, and the works of Procopius of Caesarea praise the image of the city in reference to its benefactor, an image no longer depicting individual civic spirit, but rather, dependence on benefactions from the emperor or bishop. Cf. the inscription recording the renovation of Faustina Bath in Miletos by Hesychios, thanks to the goodwill of God (Merkelbach and Stauber 1998, 136).
[531] Jacobs 2013, 5.

One law under Constantine called for the exemptions of mechanics, geometricians, and architects from personal liturgies, who among other tasks "show the discovered courses of water, and its behavior by skillful leveling."[532] By being exempted they were given time to teach others their skills. The importance of technology and know-how was necessary not only in the building up of hydroscapes during the Roman period, but also for its upkeep and repair during Late Antiquity. Technology was not lost or stagnating, though opportunities to implement it were limited or more seen in military contexts, as at Dara. Aqueducts and water systems were often neglected, not as well repaired as before, for lack of funding.

At Aphrodisias, the possible palatial residential complex southwest of Temple of Aphrodite, near the bouleuterion, reflects the change in Aphrodisias from a Roman to Byzantine city. [533] Features of the western portico, apsidal hall, opus sectile and fresco, hypocaust bathroom, latrine, and triconch unit of dining or reception suggest the importance of the structure as a place of selective meeting and important for the socio-political structuring of civic life. Similarly, at Sardis, the proliferation of water features in the elite houses that also included reception spaces speaks to the use of water as mode of display.[534] Uytterhoeven's study has revealed that the late antique period bore continuity of domestic water features from earlier periods; houses from this time included pools, nymphaea, and cascades, but also

[532] Justinianic Code X.LXVI 10.66.2
[533] Erim 1986, 71.
[534] Rautman 2008, Bricker 2016.

utilitarian aspects for collecting rain water.[535] These spaces of elite residences were part of the practice of reception; in that sense they marked the interiorization of waterworks in the late antique city.

Though many water features took on an internalized aspect, water features also remained an important element in the public urban sphere, sometimes even as a means of reclaiming spaces formerly pagan. At Hierapolis the nymphaeum at the Temple of Apollo was renewed in the time of Constantine II (r. 337-340), utilizing material from a more modest Flavian-era fountain. The temple and cult were subsequently restituted cult under Julian (r. 361-363); though the temple was subsequently destroyed in the fourth century, the mighty walls of the nymphaeum suggests that the façade remained standing, though redone, no longer creating a pagan space.[536] As at Sardis, Ephesus, Xanthos, and Perge, Hierapolis enjoyed wealth through the fifth and sixth centuries, when power was held by the church and wealthy elite; it was during the following centuries, when power was thinly-stretched, that major urban investments ceased.[537] The city of the nymphs would eventually be enshrouded by her calcareous waters that had once been her boon and source of wealth.

[535] Uytterhoeven 2013, 147.
[536] Ferrero 1999.
[537] Arthur 2006, 51.

The reappearance of restrictions

The lack of functioning infrastructure could inspire social trouble within the city, as I have shown in cases above: fights at the fountain where water was scarce, or riots at the baths of Antioch and Ephesos when they failed to provide as usual. In late antique times this risk was present, particularly in the capital where the flow of water was essential for keeping peace. Malalas reports that under Justinian an earthquake damaged many structures in Constantinople and the supply line ceased to function, resulting in the closure of the baths and murders at the fountains.[538] Procopius in his *Secret History* mentions the gross incompetence of Justinian which exacerbated the situation: the emperor's privileging to build structures over the sea and in the suburbs over civic water supply, reportedly "in order to effect the destruction of human beings."[539] Elsewhere Procopius accuses him of folly in trying to rival the power of the sea in breakwaters.[540] Though biased, this account gives some indication of expectations held for the emperor to provide for his subjects the necessities of water, especially after disaster, and also gives an idea of the imaginings of abuse that accounted for times when the emperor was simply unable to respond as expected.

Aside from aging infrastructure another major force behind challenges of urbanism in Late Antiquity include climate change resulting from the environmental

[538] Malalas 18.147.
[539] Procopius, *Secret History*, 26.23-25.
[540] Procopius, *Secret History*, 8.7-8.

impact of Roman imperial practice and urbanism.[541] Many cities suffered the effects of earthquakes that struck the Eastern Mediterranean with particular ferocity during the late antique period. From the mid-third through the sixth century, earthquakes, tsunamis, and changes to the water table resulted in much damage to cities during this time that is widely observed today. Repeated earthquakes struck Ephesos in 358, 365, and 369, which damaged the water supply and hindered its full repair.[542] These were particularly disastrous for the lack of funds to respond to the disasters, unlike the outpouring of gifts that followed the first and second century earthquakes around Sardis or in Lycia – whether by emperor or local benefactor.[543]

The jolting of land during an earthquake was disastrous in an immediate way, but also disastrous was the slower pace of shifting land, often through the accumulated actions of humans cultivating the land. Attempts to partly control the Maeander River and plain remained an ongoing preoccupation throughout Roman rule, for the potential gains from the fertile land and for the concerns of shifting fluvial conditions that altered the landscape from river to alluvial fill and obstructed movement along the waterway. In the area of Miletus, hydraulic works undertaken in the mid-fourth century CE aimed to restore the area after destruction from the wandering river Maeander. The oration of Himerius compares this feat to the canal-building exploits of Cyrus the Great, but while the deeds of Cyrus were hubristic,

[541] Cf. Hughes 1994; Purcell 1996.
[542] Richard 2011, 75; 225: epigraphic documents suggest that the water supply network may have been already damaged by the first wave of cataclysms and was partially repaired; cf. Scherrer 2006; Landstatter and Pülz 2007, 398.
[543] For more on emperors' responses to natural disaster, cf. Jones 2014.

those in Miletus were construed as good and beneficial, indeed necessary.[544] But the site of Pompeiopolis did not rally to changing landforms as successfully. Once a beacon of Romanism in the region, the city was abandoned during Late Antiquity, likely due to ecological changes expressed as heavy rain, landslides, and higher levels of the Amnias River, all rendering the hills no longer livable.[545] Such natural disasters harkened back to earlier fears of deluge, as in Seneca's discussion of a fated flood;[546] or in the Christian inscription at Anazarvos from Psalm 46 that addresses moving mountains and troubled waters.[547] An awareness of nature's disastrous side, which must have been present at all ages, was now coupled and exacerbated by the insecurity of being unable to rebound, and a need for self-sufficient measures. Studies of the late antique environment have revealed a spell of famine ca. 350-450, corresponding to a higher number of water economizing methods in Anatolian settlements, followed by nearly two centuries of wetter conditions and then another drought cycle with great impact on socio-economical structures.[548] These fluctuations made adjustment difficult.

As urban water systems aged and broke down, through natural disaster or outside attack, the means to repair aqueduct systems was limited by economic means, and reservoirs took on a greater importance in serving the town and becoming part of

[544] Thonemann 2011, 317ff; Himerius Or. 25.73-95.
[545] Summerer 2001, 11: other possible reasons include decreased inhabitation after epidemics and wars, or changes in economy and supply that drove inhabitants to rural areas.
[546] Seneca, *Naturales Questiones* XXVII.
[547] Gough 1952, 102.
[548] Izdebski etal 2015.

the urban landscape. At Pisidian Antioch, the conversion of a large building (probably the bouleuterion) in the city center marked a shift in urban priorities from civic meeting space to practical need – especially as meeting spaces were elsewhere by then, such as ecclesiastical contexts.[549] In fifth- and sixth-century Pergamon there was a concerted return to cistern use. As seen in reference to the Astynomoi inscription, Hellenistic and Roman houses in Pergamon each had one or more rock-cut cisterns, but inhabitants enjoyed fresh flowing water from a number of fountains in the city. In the late antique and early Byzantine era the Pergamene water supply came from large public cisterns located at intervals.[550] This trend of water management challenges brought with it a return to facing the limiting conditions of a site, but also a new way of addressing it, as Rhodiapolis had done centuries before. This 'cisternization' of cities was paralleled by the internal 'cisternization' of baths, where larger communal pools were converted into smaller tubs, as discussed further below. This was the same sort of response to problems of lessened water supply, and also reflects Christian repulsion to communal pool use.

Reprioritization, reduction, reuse

Faced with a variety of forces that broke down urban structure at varying rates of destruction, inhabitants and outsiders took initiatives to restructure urban components to best serve city life, reshaped by the realities of the late antique world.

[549] Özhanli 2011, 93.
[550] Mellink 1993, 127.

This came from a restructuring of physical elements, but also a restructuring of expectations and mindset. Pickett has laid out the changes in cultural attitudes that went along with the adaptations to urban water structures during Late Antiquity: a shift away from consumption for display and extravagance toward collection and storage, and the consumption of water for utility and industry.[551]

The use of water in urban ritual can be approached from the study of 'activity spaces' as outlined by Lavan for Late Antiquity: "human activities in their total material setting" beyond mere buildings.[552] He cautions against labeling buildings as having single-use functions such as baths and civil basilicas, particularly in Late Antiquity. He also raises awareness that activities not bound within distinct architectural settings are often overlooked, so written evidence for street rituals does call for a fresh look. The goal here is an historical reconstruction of human action together with the functions of buildings and artifacts, considered together with text.[553]

As for changes to the physical system, part of this initiative came from the upper levels of government, as high as the emperor. Legal codes placed the common duty to restore or construct ports, aqueducts, and walls in the hands of many, while later codes put bishops in charge to keep public works in repair.[554] Practical measures to support the upkeep of baths can be seen in the ruling to have shops

[551] Pickett 2016; Izdebski etal. 2015, 15.
[552] Lavan 2003, esp. 184.
[553] Cf. also Lavan, Swift, and Putzeys 2007 on issues of space and materiality.
[554] Justinianic codes: the former, 8.11.7, under Gratian, Valentinian, and Theodosius; the latter, 1.4.26, under Justinian.

within the porticoes of the Baths of Zeuxippus in Constantinople pay part of their income toward the repair and lighting of the baths.[555] The person of the emperor intervened to restore many baths across Asia Minor, as well as the empire: at Andriake, Theodosius II (r. 408-450) repaired the East Baths. This port city was the main harbor of the region and remained so through the sixth century, as Justinian helped rebuild it after an earthquake that occurred during his reign.[556] At Miletus, an early sixth-century epigram mentions the donation of Hesychius for the restoration of the Baths of Faustina with aid from revenues gained from 'newly hardened land' reclaimed from Maeander wetland, a project linked back to Constantinople.[557]

The figure of Justinian looms large in the literature on late antique infrastructure works, despite his negative portrayal in the *Secret History* described above. The major source on Justinian's involvement with waterworks is *The Buildings* of Procopius, which is often read as conventional propaganda for the emperor based in his good works for his subjects.[558] Pickett has argued how Procopius is no mere exalter of aquatic infrastructure, but an innovator of hybrid literary genres who in the course of his work reveals shifting ideologies and practices of late antique water management, using conservative language while expanding on the range of waterworks elements traditionally associated with an emperor.[559] The

[555] Justinianic code 8.11.19, under Theodosius. But in a general way baths were often coupled with rentable property and shops for revenue even in the high imperial period; even the great imperial thermae had shops.
[556] Çevik and Bulut 2014, 237ff.
[557] Thonemann 2011, 315; I.Milet VI 1.341.
[558] On Procopius' presentation of Justinian as builder, cf. Elsner 2007.
[559] Pickett 2016b.

passages dealing with water management, in both water overabundance and scarcity, often revolve around major socio-economic consequences and thus weave a cause-and-effect dialogue for empire and infrastructure.

As it was for the emperor, disaster could become an opportunity for government officials as well. Some twenty years after the Goths sieged and damaged the Temple of Apollo at Didyma in 262, which was then serving as a fortress, the proconsul Festus restored the fountain structure of the water source that had saved the besieged. His benefaction, written in first person to have the water speak, changes the identity of the source from that of Pythias to that of Festus.[560] This change also brought a change in – and a new writing of – local history. The praise of water, brought by either divine or mortal agency, took on great popularity in late antiquity, as evidenced in epigrams such as that at Pisidian Antioch, in an inscription to celebrate the upkeep of the nymphaeum.[561] In Side, disaster spelt opportunity for local elite, as in the case of Bryonianus Lollianus and his wife. After the Goths attacked the city in the 260s the repair of the aqueduct by Lollianus earned him honors and statuary, as discussed in Chapter Two. The opportunity to reconnect elements in the hydroscape, I argue, was also the opportunity to reframe the message proffered by such elements.

[560] Merkelbach and Stauber 1998, 108 n. 01/19/37.
[561] Mitchell and Waelkens 1998, 227f.

Bath buildings, often large structures with high demands for upkeep, took on new or revised roles in many cities across Anatolia.[562] While aging infrastructures may have led to a curtailment of many baths, it is important to note that baths as a civic institution changed during the late antique period. Some were planned with a greater conservation of water while others altered room usage. By concentrating resources on smaller baths, the practice of bathing was able to thrive through the fifth century in many places, as in Anemurium, where a bathing culture lasted until the breakdown of the aqueduct system in the sixth century.[563] At Sardis, the great pool of the Bath-Gymnasium was transformed so that its surrounding niche fountains were turned into small non-flowing pools before becoming completely dry as benches.[564] As they became increasingly drier, bath complexes transferred some rooms over to dry spaces, including meeting rooms and sculpture galleries as in Aphrodisias or Kremna.[565] In implementing practical solutions to shortage, such curtailment also shaped new practices.

Baths made suitable meeting spaces. At Sardis the boule and gerousia are recorded as having met in the marble court of the bath-gymnasium; new political roles may have justified selective maintenance on the structure.[566] At Sagalassos,

[562] On the shift and change of bathing and bath design in late antiquity, cf. Ginouvès 1955; Yegül 1992, esp. 321-323.
[563] Russel 2002, 222.
[564] Yegül 1986, 72ff.
[565] Smith 2007, 207: 'dangerous' pagan statuary could be recycled in a 'neutral' setting of the bath; Mitchell and Cormack 1995, 154ff.: the baths at Kremna were converted in the mid-third century into a sculpture gallery using heirloom pieces from the city, perhaps under the initiative of a local aristocrat.
[566] Rautman 2011, 23; Yegül 1986, 171 n. 6 on the restoration of the Marble Court.

spaces for bathing were curtailed as the bath-gymnasium was converted by the end of the fourth century into places that housed council space, communal dining, and meeting spaces. Yet the sections reserved for bathing continued to be used until the late sixth or even seventh century.[567] Excavation around Sagalassos reveals a still thriving city during this period, with elaborate reconstruction after an early fifth-century earthquake, but with fewer functioning aqueducts.[568] Still, the monumental appearance of the city was maintained into the sixth century due to efforts to restructure urban water use.

The continued importance of the bath, as an activity space and as an urban component, is notable in the case of Kelenderis. A major harbor of Cilicia, the now-landlocked bay was close to a famous spring at Soğuksu. A bath dating to the fourth or fifth century sat at the head of the bay; a mosaic from the second half of the fifth/first half of the sixth century bears a striking harbor scene including ships, warehouses, arcades, and the bath with its three-arched windows.[569] In the actual city space, the agora abutting the bath and pool was equipped with wells in the Roman era, including a well larger than needed for the needs of the agora, built for communal use.[570] This suggests a concern for water supply at a phase earlier than many cities. Yet the prosperity of the city, as seen in the rich agora basilica mosaics

[567] Waelkens 2006, 627.
[568] Waelkens 2016.
[569] Zoroğlu 1993, 189ff.; 1994; Z. Friedman and L. Zoroğlu, 2006.
[570] Zoroğlu 2003, 14f.

from the fifth/sixth century,[571] suggests the gains that continued to be reaped from the seaside locale with port.

For some bath structures, a new life came with an altogether different purpose. As large spaces with some degree of water infrastructure still intact or repairable, baths made prime candidates for housing industrial activities. At Anemurium the practice of bathing was contained in smaller luxurious spaces while the large baths were turned over to industrial production pottery or flour-milling, as well as limekilns.[572] Other elements of urban waterworks also went towards industrial work: at Hierapolis the aquatic infrastructure was used to power stone mills by the second half of the third century; at Ephesos the plumbing of the previously elite residences of the Slope Houses was utilized for a stone mill in the late sixth/early seventh century.[573] With these hubs of industrial activity, even if removed from the classical urban image, one sees the thriving of technology; the loss of baths shows not an urban failure, but as with industrial works it can indicate flourishing production with a different sort of urban face.

In many cases, the water supply for the baths was altered during the late antique period, often with the use of cisterns. This change reflects the alteration of the hydroscape in general: while in a number of cities aqueducts were repaired or even built anew to continue to deliver flowing water, in many cases cities turned to water supply methods practiced before the age of aqueducts: namely, wells and

[571] Zoroğlu 2008, 29ff: including one of female holding a Zebra!
[572] Russel 1980; 2002, 224.
[573] Hierapolis: Grewe and Kessener 2007, Ritti et al. 2007; Ephesos: Mangartz 2007.

cisterns, as also discussed above. Cisterns were also used in conjunction with, and fed by, aqueducts to secure the water supply. As discussed earlier, in some cities cisterns and wells never went out of use, but were supplementary to the aqueduct as a diversified and safe method of water supply. Pickett has argued that cisterns came into a new light in late antiquity, as a project now worthy of the emperor, as elevated as the construction of churches or baths or fortifications – on par with items contributing to the image of the city.[574] At Anemurium, the breakdown of the aqueduct in the sixth century, probably due to earthquake around 580, was followed by the construction of wells.[575] Wells also come into use at Sardis when the water supply system was stressed.[576] Cisterns proliferated and increased in scale starting in the fourth century, expanding from domestic contexts to dramatic vaulted civic works, often utilizing pre-existing structures.[577] The goal was to economize water supply and consumption and optimize the use of ground water and rainwater, categories of water previously ranked lower than spring-fed aqueduct deliveries.[578]

The diachronic analysis of Jacobs and Richard on urban water supply in Asia Minor provides a look at the issue of water shortage. They found that the establishment of major public fountains would have been a high priority in the repair of supply lines. But if there was a risk factor in its use, diversification and storage

[574] Pickett 2016b.
[575] Russel 2002, 222.
[576] Rautman 1995.
[577] Izdebski 2015, 15.
[578] Hippocrates, *Air, Waters, Places* 8.8; Vitruv. Book 8; Pickett 2016b.

capacity were increased.[579] At Sagalassos, as elsewhere in Anatolia, the conversion of fountains into reservoirs marks a shift in attitudes toward water collection and use, one less reliant on a continual central system. The Doric Fountain was altered to serve as a castellum aquae to distribute more locally the diminished water sources; cisterns now first appeared in the Antonine fountain, while a new drainage system in the upper agora, with new pipes and setting tanks, shows a continued demand for infrastructure in these spaces.[580] The Doric fountain and Antonine nymphaeum, as well as converted northwest heroön, were high enough to supply lower-lying areas with a degree of flexibility.[581] After an earthquake in the sixth century, which probably damaged the aqueducts, other methods to supply the city with water were made, utilizing water harvesting techniques and cisterns.[582]

But the period of Late Antiquity did not spell the decrease of water features all around. At Ephesos, the number of fountains existing during Late Antiquity was significantly higher than during the Roman period; this included old fountains that had been repaired as well as newly built fountains with large cistern capacity.[583] This trend can be compared to the change in appearance for late antique cities, which moved away from classical tenets but were no less full of civic life. Jacobs' work on late antique spaces shows the ongoing importance of civic spaces to cities of Asia

[579] Jacobs and Richard 2012, 63.
[580] Waelkens 2016.
[581] Jacobs and Richard 2012, 67; Martens 2008.
[582] Waelkens 2006, 627.
[583] Landstatter and Pülz 2007, 400.

Minor through the fifth century, with continuing renovation, reshaping, and redecorating.[584]

Common in this era was the conversion of existing monuments into fountains. A prime example of this late antique phenomenon is the conversion of the Library of Celsus after its partial destruction by fire, probably with the 262 earthquake. It lay in disuse until its aquatic reconstruction in the late fourth/early fifth century, with the promotion of the Embolos Street as the main urban center.[585] Just as the Library façade had served before, the fountain took on a prime visual location as the punctuation mark at the bottom of the Embolos. Other monuments were also transplanted to become monuments through dismantlement and transportation to a highly visible location. At Aphrodisias, 'Gaudin's Fountain,' southeast of the theater, was created from a temple façade and large basin behind, with more accessible drawing basin in front.[586] The new life for a formerly pagan structure came through the defacement of the goddess in pediment center. Jacobs and Richard stress that the phenomenon of conversion stems not from a lack of resources and funding – certainly not the case in Constantinople – or to move large volumes of water. Rather, they found that converted fountains were often not very user-friendly and easy to draw water from, but were placed at key locations and junctures within public space.[587] The motivation, it seems, was that of rebranding.

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[584] Jacobs 2012, 144.
[585] Jacobs and Richard 2012, 14; Thür 1999b, 107.
[586] Jacobs and Richard 2012, 17; M. Collignon 1906, fig. 2; Smith, 1996, 23–27; Ratté 2002, 117–47.
[587] Jacobs and Richard 2012, 21.

Urban water features, structures that flaunted the material of water, also amplified a medium already utilized to gain prominence and meaning: statuary. When fountains were converted out of existing structures, they inherited statuary or else did not have suitable spaces to incorporate it. The transfer of statues was a method of populating late antique fountains; in Side, this was already happening by the late third century. At Aphrodisias, the Hadrianic Baths became a collecting house for statuary from throughout the city; the change in location served to change the object's message.[588] At Ephesos, baths and nymphaea held onto their sculpture and also added secondary sculptures such as those of contemporary donors.[589] This was also the case at Sagalassos, where sculptural groups were preserved as impressive visual landmarks holding onto relevance in late antique Christianity.

At Constantinople, scholars have identified concerted programs to shape urban image through statuary.[590] The repurposing of statuary in the new capital by Constantine finds later echoes, specifically in the case of the bronze serpent tripod from Delphi, which he placed in the hippodrome as one of the spina.[591] Around the same time in Sardis, the district capital of Lydia, a fountain of gilded bronze serpents, once a visual center point of the urban environment, rose again in a new context within the bath-gymnasium. Though the snakes do not survive, the inscribed base provides enlightening details for an act of spoliation not so different than that in the

[588] Smith 2007
[589] Auringer and Rathmyer 2007; Aurenhammer and Sokolicek 2011, 44.
[590] Bassett 2004; 2007.
[591] Interestingly enough, the Serpent Column in Constantinople was reportedly transformed into a fountain at a later date. Cf. Majeska 1984 255f.; Bassett 2004, 2007 on Constantinian display and urban construct.

imperial capital:

These are the snakes which were once seen by everyone passing by, above the fountain in the middle of the public road. Basiliscus, who held office of judge there, set them up, wound round with brazen scales, reddened with gold from their necks to their heads, sending up the streams of the fountain from below to their mouths.[592]

According to the inscription, a certain Basiliscus, governor of Lydia, re-erected a fountain that had previously enjoyed high visibility "in the middle of the public road." During this period the inhabitants of Sardis, as those in many cities of Asia Minor, clung fiercely to civic pride and met the ongoing force of urban transformation by giving new life to elements that had fallen into decay or disuse. In shifting attention from the outdoor street scene to the still-flourishing enclosed bath-gymnasium, the benefactor provided not only a new aquatic outlet in a more relevant social setting, but also the memory of previous town experience and a reminder of the city's former public water heritage.[593]

Even without grand displays of water and expansive baths, the curation of the diminished hydroscape was still vital. At Sagalassos, the city's aqueducts may have gone out of use with the earthquakes in the first half of the sixth century. Sometime after that, a water channel ran across the lower agora through defunct shops transformed into dwellings.[594] Though humble in comparison to earlier works, this drain still would have required effort to build, and marks part of a systematic

[592] Yegül 1986, 171 n. 7.
[593] An entwined serpent fountain was also found in the palaestra at Herculaneum, thus giving a comparable context for date and impressively composed setting. Yegül, 1993, 379.
[594] Waelkens, Pauwels and van den Bergh 1995, 30.

approach to supply and drain the city without the help of external supply. City life had to continue in one form or another.

Return to the 'norm' at Aizanoi

Recent scholarship has done much to dismantle the previously monolithic view of late antique urban decline in part by showing the ongoing prosperity that appeared, albeit in a different form. Yet from another view, Vanhaverbeke and others have cautioned against applying to all occupied areas the idea of a Hellenistic and Roman boom followed by decline. In the settlements surrounding Sagalassos, for example, one can consider, rather than decline, a return to a 'normal' state of affairs.[595] This is also a useful approach for the settlements of Phrygia, which went from little-urbanized before Roman rule to host a number of large cities, and again by Late Antiquity settlement patterns returned to smaller sizes spread across the land. And so it appears for Aizanoi, a city made good for the euergetism of its landowning elite, and thus faced with diminished resources when that class took to the countryside.[596]

The city was already transitioning into its late antique form in the third century, as seen in the abandonment of the main theater-stadium bath. The shift to the smaller bath at Meydan Kiran, repurposed from an earlier building, allowed the bathing habit to continue, closer to the urban center. Similarly, the theater was

[595] VanHaverbeke et al 2007, 642.
[596] Niewöhner 2006, 240, 252f.; 2007, 100ff.

replaced with the space of the odeion near the Zeus Temple.[597] Diocletian's edict on maximum prices from 301, a copy of which was inscribed on the macellum in the agora, was not enough to quell the tide of certain urban deterioration; the aristocracy were financially hurt and could not afford the upkeep of public buildings.[598] Around the time of Justinian, the Meydan Kiran baths were converted into a church.[599] This was a period of limited urban renewal in Aizanoi, as seen in the columned street south of the Penkalas River. At this time churches were built in the city but also in great number in the countryside.[600] The Christianization of Aizanoi came with a Christianization of the Phrygian landscape.[601] Settlement again returned to a water supply system rooted in the conditions and limitations of place, as reflected in the seventh century *Life of Theodore of Sykeon*. In this account, the flooding near Pessinus after violent rains is kept away from the city through the miraculous intervention of the saint.[602] As in centuries and centuries before, the characteristics and actions of the hydroscape were something that belonged in the realm of the divine. And even in an era of general scarcity of water, in an irony of nature, there were times when there was too much of it to invoke divinity's help to take it away. Once again, constraints in the hydroscape paved the way for opportunity, this time in the form that served the Christian identity of the area.

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[597] Rheidt 2010, 180.
[598] Rheidt 2010, 180.
[599] Naumann-Steckner 2010, 109-111; cf also Naumann 1982, 184; 1983b, 197; 1984, 379ff; 1985, 311ff. For general discussion on the transformations and demise of baths in late antiquity, see Yegül 1992, 314-349.
[600] Niewöhner 2006, 248; Rheidt 2010, 182.
[601] Cf. Mitchell 1993.
[602] Waelkens 1984, 102; The life of St. Theodore of Sykeon, 88-192.

CHAPTER 5. Conclusion: urban space and the hydroscape in Roman Asia Minor

Isaura, city of the thousand wells, is said to rise over a deep, subterranean lake. On all sides, wherever the inhabitants dig long vertical holes in the ground, they succeed in drawing up water, as far as the city extends, and no farther. Its green border repeats the dark outline of the buried lake; an invisible landscape conditions the visible one; everything that moves in the sunlight is driven by the lapping wave enclosed beneath the rock's calcareous sky.
Consequently two forms of religion exist in Isaura. The city's gods, according to some people, live in the depths, in the black lake that feeds the underground streams. According to others, the gods live in the buckets that rise, suspended from a cable, as they appear over the edge of the wells, in the revolving pulleys, in the windlasses of the norias, in the pump handles. In the blades of the windmills that draw the water up from the drillings, in the trestles that support the twisting probes, in the reservoirs perched on stilts over the roofs. In the slender arches of the aqueducts, in all the columns of water, the vertical pipes, the plungers, the drains, all the way up to the weathercocks that surmount the airy scaffoldings of Isaura, a city that moves entirely upward.

Italo Calvino, *Invisible Cities*, Thin Cities 1, 20.

Just as the invisible landscape of the fictional city of Isaura conditioned the visible one, so too did the invisible landscape of hydraulic infrastructure condition the urban landscapes of cities in Roman Asia Minor. The invisible landscape was more than a system pipes and aqueduct tunnels, however, but an intangible network of benefactors and relationships that extended beyond the limits of the city. One can say, then, that two forms of urban identity existed: one from the setting itself, in the water table and landforms that shaped a way of living, and another from the implementation of technology and built systems that reshaped urban spaces as the agents behind the change who sought to move the city upward in terms of status and innovation.

Over the course of this dissertation I have examined questions of water supply (in terms of topographical features, technology, administration, and economics), water usage (in terms of aesthetics and display, recreation, hygiene, religion, and symbolism), and changes in the former affecting the latter, to chart patterns in power relations and argue for the primacy of locale. As local-imperial relations differed from city to city depending on civic status and claims to heritage or identity, one finds a variety of values manifested in waterworks. Through careful study of the archaeological and architectural material I have examined the creative power of the hydroscape in the cities of Roman Asia Minor, and uncovered the impetuses for developments and changes in water aesthetics and accessibility – such as the shift of water display to enclosed spaces or the transformation of public monuments into fountains – in relation to shifting conditions and authors of water management.

The cities of Side, Aizanoi, Arykanda, and Rhodiapolis have provided valuable case studies to examine the influence of water – in varying settings – on the urban shape of the city, and on its cultural practices, and on its self-image. In these cities and those across Asia Minor, Roman rule brought the prosperity and incentive for water management that openly boasted, in fountains and baths, local wealth, regional stature, and links to the emperor. This show of connectivity came with a process of urbanization whereby a city came to be defined more by the built landscape than its topographical landscape, though the hydroscape lay at the root of the city's opportunities. At Side, and many seaside cities, urbanism was shaped by

the sea and harbor, yet often visually cut off, connected through imagery and ritual. In the case of Aizanoi and similar river cities, urban engagement with the river increased during Roman times with the increased efforts of monumental city planning. Spring cities such as Arykanda, like cities of the sea, often served as nodes of trade and communication, and enjoyed a degree of wealth in cultural and technological ideas that, combined with the wealth of flowing water, resulted in the often-significant transformation of the hydroscape. At Rhodiapolis, the lack of fresh-flowing water did not hinder the adoption of Roman forms and practices linked to the hydroscape.

In all these cities, diachronic patterns reveal the importance of imperial connections in the expansion of the hydroscape, as in the case of Aizanoi, with initiatives of local benefactors to make place-specific meaning. It was connectivity to empire that allowed local donors to accumulate wealth, as in Arykanda, so that the hydroscape upgrades did not necessarily require direct imperial intervention. By the period of High Empire, local traditions in cistern water collection held fast, but the implementation of new vaulting systems over these cisterns was just as important as the implementation of aqueduct lines to bring a water culture to cities such as Rhodiapolis. This method of cistern use would outlast the more sophisticated aqueduct lines as funds for maintenance dried up throughout the late antique period. Yet Side, like some large cities, retained during this time the ability to care for its complex hydroscape so long as the city, thanks to its seaside locale and harbor, held an important role in the wider world stage.

Asia Minor during the Roman and Late Roman periods was a region both united by a certain degree of similar backgrounds and traditions, yet still fully individualized in terms of place and practices. I have argued how the differences and similarities in how the broadly-defined culture of the Roman empire took root in these microcosms and reshaped their sense of place through the element of water, and in the way Roman technologies and typologies were adapted to suit locale, augment our understanding of the degree of homogenization and adaptability of what is commonly pegged as Roman, of modes of local agency, and the level of overarching distinctiveness of a demarcated region such as Asia Minor.

As a final note, a passage from Arundell's travels around the Maeander River Valley in 1833 provides a keen sense of the continuity between ancient and more modern times in the benefactions of waterworks and infrastructure by the powerful, for the sake of signaling power and for the sake of creating smoothly flowing connections:

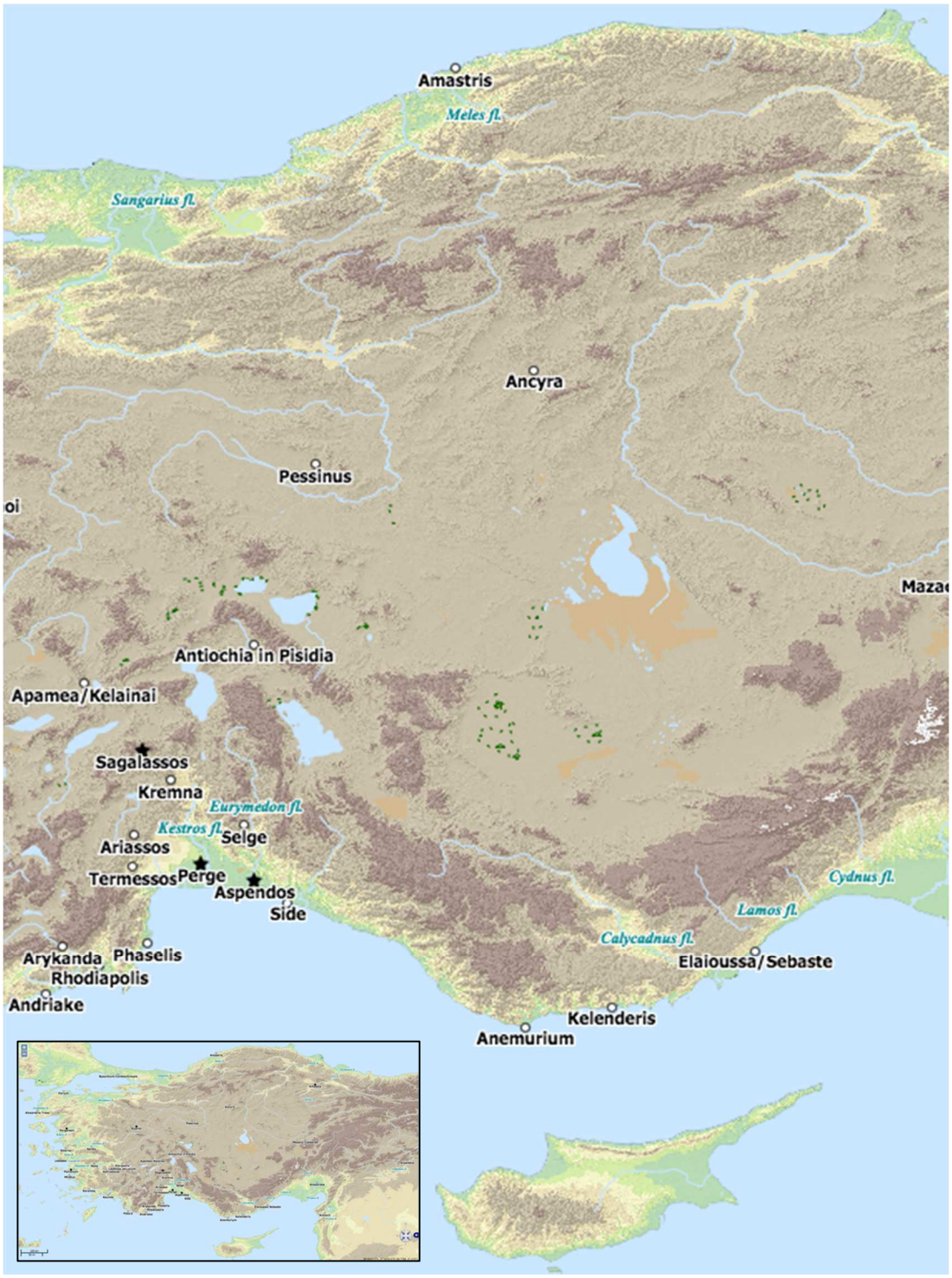
> It was ten minutes after twelve when we arrived at Cush, or Cusk. Mr. Dethier and Kyriacos had proceeded, and were waiting for the slower advance of the buffalo chariot. At twenty minutes after one we passed a watercourse with a few houses, and at ten minutes before two a fountain. At twenty minutes past two was another cafe; at thirty-five minutes past two another, and fountain; and at twenty minutes before four, another, and houses. I particularise them so minutely in order to show the attention paid by Cara Osman Oglou to the safety and comfort of travellers, as they approach the seat of his government, for the fountains as well as cafes have been built at his expense. The road all the way was excellent, though ancle deep in dust.[603]

[603] Arundell 1834b: 216.

Water, as an entity essential to life, holds its currency regardless of the time or place. In a modern world increasingly awakening to the powers of global warming and the effects of the anthropocene, the local hydroscape has much to tell.

FIGURES

Figure 1: Map of Roman Asia Minor. Ancient World Mapping Center. "À-la-carte". <http://awmc.unc.edu/awmc/applications/alacarte/>


Amastris
Meles fl.
Sangarius fl.
Ancyra
Pessinus
Antiochia in Pisidia
Apamea/Kelainai
Sagalassos
Kremna
Eurymedon fl.
Kestros fl.
Selge
Ariassos
Termessos
Perge
Aspendos
Side
Cydnus fl.
Lamos fl.
Calycadnus fl.
Elaioussa/Sebaste
Arykanda
Phaselis
Rhodiapolis
Andriake
Kelenderis
Anemurium

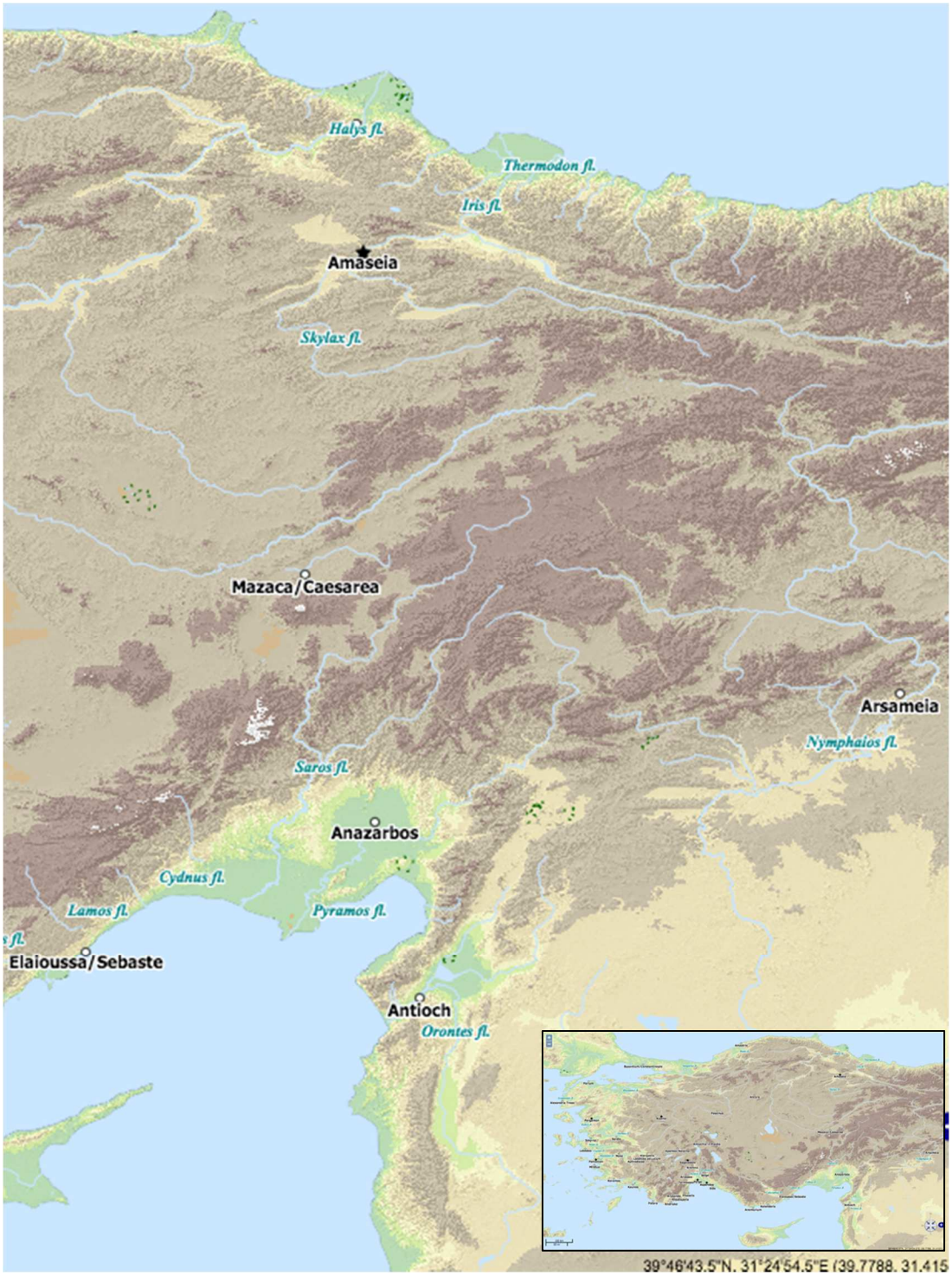

Halys fl.
Thermodon fl.
Iris fl.
Amaseia
Skylax fl.
Mazaca/Caesarea
Arsameia
Nymphaios fl.
Saros fl.
Anazarbos
Cydnus fl.
Lamos fl.
Pyramos fl.
Elaioussa/Sebaste
Antioch
Orontes fl.
39°46'43.5"N, 31°24'54.5"E (39.7788, 31.415

Figure 2: Eflatun Pinar

Figure 3: Iotape, with bath, cove, and grotto (not visible, in right corner)

Figure 4: Side. Nymphaeum

Figure 5: Side. Nymphaeum parapet scene with Epibaterion scene

Figure 6: Side. Eastern colonnaded street with side canals

Figure 7: Side. Converted Vespasian monument; at right, cistern exterior with fountains

Figure 8: Aizanoi. Bridge 4

Figure 9: Aizanoi. From sanctuary of Meter Steunene; modern dam at top left sits above ancient dam

Figure 10: Arykanda. Hellenistic cistern in commercial agora, view to southeast

Figure 11: Arykanda. Great Bath-Gymnasium from lower agora, view to southeast

Figure 12: Rhodiapolis. Row of barrel-vaulted cisterns under agora terrace, view to northeast

Figure 13: Rhodiapolis. Large Bathhouse with cisterns, view to east

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Journal Abbreviations (using AJA conventions)

AA = Archäologischer Anzeiger

AASOR = Annual of the American Schools of Oriental Research

AJA = American Journal of Archaeology

ANMED = ANMED. Anadolu Akdenizi Arkeoloji Haberleri

ANRW = Aufstieg und Niedergang der romischen Welt

AnzWein = Anzeiger: Österreichische Akademie der Wissenschaften, Wien, Philologisch-historische Klasse

AS = Anatolian Studies

AST = Araştırma Sonuçları Toplantısı

AW = Antike Welt

BCH = Bulletin de Correspondance Hellénique

HSCP = Harvard Studies in Classical Philology

IstMitt = Istanbul Mitteilungen

JNES = Journal of Near Eastern Studies

JRA = Journal of Roman Archaeology

JRS = Journal of Roman Studies

KST = Kazı Sonuçları Toplantısı

ProcBritAc = Proceedings of the British Academy

SNR = Schweizerische numismatische Rundschau: Revue suisse de numismatique

ZPE = Zeitschrift für Papyrologie und Epigraphik

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SEG = *Supplementum Epigraphicum Graecum.* Leiden, 1923-1971.

SIG = *Sylloge Inscriptionum Graecarum*, W. Dittenberger, ed., 3rd edn (Leipzig, 1915-21).

SNG PfPs = *Sylloge Nummorum Graecorum, Deutschland: Pfälzer Privatsammlungen*. (Munich, 1992 - 2001).

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