Chapter 8: Water supply in public bathhouses and latrines

8.1 Introduction

This chapter will look at the water management strategies in public latrines and bathhouses. In addition, I will investigate some of the cultural and religious issues concerning their use, in particular how Jewish doctrine may have affected their spread and use. Finally, the idea of choice in water installations will be considered.

8.2 Latrines [Gazetteer 13]

Public latrines have recently been receiving more attention, but comparatively little is known about those in the Near East.[1] Domestic latrines will be considered in Chapter 9. Twenty-two public latrines have been recorded in this present research; only two of these were included in Neudecker's work on Roman public latrines: Apamea [#210] and Dura Europos [#211].[2] Fifteen of these latrines were located in or close to public bathhouses (cross-referenced in gazetteers 13 and 14), three were independent structures and the urban contexts of three are unknown. This pattern reflects that across the empire as a whole: latrines were located in areas with easy access to water supply. Apamea [#210] (one of the independent structures) was sited next to a *nymphaeum* and was therefore similar in this respect;[3] no link to the *nymphaeum* has been traced, but it is highly likely that water from it supplied the latrine. Additional water for the Zeugma latrine [#217] was provided by a ceramic down pipe from the roof.[4] Similarly, the *impluvium*-type installation in the Apamea latrine provided supplementary rainwater that was channelled west to the main drainage channel [Fig. 8.1].[5]

Eight of the latrines had evidence for the gutter running in front of the seats, which was a common aspect of latrine design [Figs 8.2 and 8.4]. This small channel was 0.10 m wide in all examples where the width was recorded. Such uniformity in design features has also been noted at Italian sites.[6] At Caesarea it was proposed that the channel was used 'for washing the hands'.[7] While this has been suggested before it seems unlikely.[8] Evidence

[1] Neudecker 1994; Koloski-Ostrow 1996; Jansen 2000c.
[2] Neudecker 1994, 157f.
[3] Balty 1981, 76; Schmidt-Colinet 1984, 148; Neudecker 1994, 157.
[4] Early and Humphrey 2003, 56.
[5] Schmidt-Colinet 1984, 141.
[6] Koloski-Ostrow 1996, 82.
[7] Porath *et al.* 1998, 54.

from North Africa, as well as literary evidence, point to its use for rinsing the 'sponge on a stick'.[9] A basin (0.53 m x 0. 55 m x c. 0.15 m) set into the sunken floor at Apamea [#702] was fed by the gutter and so it is likely that this basin was used as a receptacle for the 'sponges on sticks' while not in use [Fig. 8.3]. A pipe left this basin at the base, suggesting that the water in the basin may have been drained continuously. A stone basin (c. 0.5 m x 0.4 m) on the floor in the south-eastern corner of Zeugma [#217], which was fed by the main west-east aligned ceramic water supply pipes (presumably coming from the nearby bathhouse), may also have been used to clean these sponges [Fig. 8.4]. Alternatively it may have been used as a hand basin, but it was not on a pedestal, so may have been too low. If it was a hand basin, it would be the only example from the East, which is in marked contrast to North Africa, Turkey and Italy where hand basins were common features in latrines.

The main drainage channel underneath the seats has been recorded in nine of the installations and was between 0.45 m and 0.62 m wide in all the examples [Figs 8.2 and 8.4]. The depth was recorded for five of these channels: 0.58 m at Apamea [#702: not exposed to full depth] 0.82 m at Dura Europos [#211], 1 m at Zeugma [#217], 1.75 m at Caesarea [#701], 2 m at Apamea [#210] and 2.5 m at Scythopolis [#693].[10] Presumably the greater depth of the Apamea and Scythopolis examples was due to the higher numbers of people using these facilities (see below). The Zeugma drain was plaster-lined with a tiled base and the Dura Europos drain was lined with gypsum mortar.[11] There was a 0.3 m difference in level between the north-eastern inlet and the south-western outlet of the Apamea drain.[12] At Scythopolis [#700] the drain was connected to the main external drainage system.

The number of seats has been estimated for six of these installations and varies from seven to eighteen.[13] The notable exceptions are Apamea [#210], which could seat between 80 and 90 people and is one of the largest known in the empire, and Scythopolis [#693], which could seat approximately 57 people.[14] Notches in the retaining wall on the northern

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[8] Hodge 1992, 271.
[9] Hodge 1992, 454 n. 77; Wilson 2000c, 309. Seneca *Ep.* 70.20; Martial 12.48.7.
[10] Brown 1936, 71; Schmidt-Colinet 1984, 141; Early and Humphrey 2003, 56.
[11] Brown 1936, 71; Early and Humphrey 2003, 56.
[12] Schmidt-Colinet 1984, 141.
[13] The report on the latrine from Zeugma Trench 10 suggests four seats [Early and Humphrey 2003, 55f.]; I would propose that a higher number (seven) is more likely based on a spacing of 0.5 m per person.
[14] Balty 1981, 76; Schmidt-Colinet 1984, 142.

and eastern sides of Zeugma [#217] may have supported wooden seats [Fig. 8.4]. Similar notches can be seen in Apamea [#702] [Fig. 8.2]. Circular holes in the gutter stones of Apamea [#210] may have been postholes for a bench substructure [Figs. 8.4].[15]

In general, the decoration seems to have been limited and utilitarian, though some of the latrines were more carefully decorated. Mosaics have been recorded in the latrines at #285 Jerash, #210 Apamea, #267 Antioch and #693 Scythopolis and *opus sectile* at #699 Scythopolis [Fig. 8.5].[16] Marble toilet seats (made of re-used architectural fragments) were only recorded at #693 Scythopolis.[17]

How well ventilated were these installations? A lamp found in a drain in the Caesarea latrine may point to the necessity of artificial light due to the lack of windows, though it may also point simply to night-time use.[18] With this possible exception, evidence for windows is absent from the record. Five of the six latrines, however, whose location in the ground plan of the bathhouse is known, were located by external walls, which may suggest an awareness of ventilation from windows or alternatively ease of drainage. In addition, Scythopolis [#700] was divided by a row of piers into roofed and open-air sections.[19] When discussing the latrine in the West Baths at Scythopolis [#699], the excavators noted that 'unlike the other latrines exposed at the site, this latrine seems to have been entirely roofed',[20] which may suggest that it was more usual for the latrines to have been open to the elements and so well-ventilated. This is certainly the case for the latrine with a peristyle at Apamea [#210] that was open in the centre and so would not have suffered from lack of ventilation. The excavator of the latrine at Toprak an-Narlidja [#270] noted that the latrine was placed to the north-east i.e. away from prevailing wind; it is unclear whether this was just happy coincidence or not.[21]

[15] Schmidt-Colinet 1984, 141; Early and Humphrey 2003, 55.
[16] Levi 1947, 260, pl. CXb, fig. 100; Balty 1981, 76; Schmidt-Colinet 1984, 141-9.
[17] Mazor and Bar-Nathan 1998, 14.
[18] Horton 1996, 183.
[19] Mazor and Bar-Nathan 1998, 23.
[20] *Ibid.*
[21] Campbell and Stillwell 1941, 21.

8.3 Attitudes towards latrines in the East

The chronological and geographical patterning of latrines in the East allows some insights into the attitudes towards latrines in the region. Firstly, in contrast to other parts of the empire where latrines were introduced commonly in the 2nd and 3rd centuries,[22] the majority of the latrines (13) in the East date to the 4th century or later. Only five of the latrines may belong to the earlier bracket. The latrine at Herod's Second Palace in Jericho, which was substantially earlier than the other latrines, was an anomaly for its period and area and in many ways is not comparable to the other latrines in this chapter (see below).

Secondly, 13 of the latrines came from Provincia Syria [Fig. 8.6]. This is a strangely-restricted geographical spread and does not seem to reflect a bias in research as large excavations on bathhouses have been undertaken in the other eastern provinces, particularly Judaea (see below section 8.3). Two notable exceptions in this region are Caesarea and Scythopolis, which had two and three public latrines (respectively) in the late Roman period. The lack of public latrines in Arabia is paralleled by the low numbers of bathhouses in the region (see below section 8.3) and this can probably be attributed to a lower level of urbanisation in this area.

Why does there appear to have been less willingness, if any, to accept public latrines and make a change in bathroom behaviour in the East? The answer seems to centre on the idea that public latrines represent a Roman way of going to the toilet. It appears that this Roman approach was not easily transferable into the eastern psyche. Indeed in the case of Judaea it would seem to contravene religious law directly.

There were two main problems for Jews using Roman latrines: nakedness and the disposal of excrement. Nakedness and shame were very closely linked in Judaism.[23] Nakedness was seen as a sign of poverty and vulnerability and could be used on purpose to shame people. In particular, it was a sign of disrespect to expose oneself before someone of socially higher standing. Rules on nakedness show a gender distinction: for women nakedness was exposure of any part of the body and hair (if married); for men nakedness was exposing the genitals. For these reasons, which crossed both religious and social

[22] Koloski-Ostrow 1996, 84 and fn. 9.
[23] Satlow 1997; Hoss 2005, 12.

boundaries, the use of public, communal latrines would have been an almost insurmountable issue for devout Jews.

Jewish law also dictated that human excrement should be buried in a field. Latrines, therefore, posed another problem as they 'flushed' excrement into the urban drainage system. The early (private) latrine in Herod's Second Palace [#703] seems to have presented an innovative solution to this problem [Fig. 8.7]. This latrine was particularly unusual as although it had a channel underneath the probable seating area, it had no connection to the bathhouse water system.[24] The excavators have proposed that baskets may have been placed in the channel under the seats and their contents subsequently buried.

Two Syriac texts attest to the use of baskets for the removal of excrement from latrines. The *Chronicon Ecclestiasticum* tells the story of Patriarch Athanasius I Camelarius who went out at night to the spot that the monks would go to out of necessity (i.e. to relieve themselves), and with nobody looking on, he carried off the waste in a basket on his back and threw it into the Euphrates River.[25] A similar story is also told about monks in the Monastery of Qartamain.[26] While these Christian stories do not include the requirement of burying excrement, the use of baskets in both does point to an alternative method of removing human excrement without the use of a latrine-style structure, which was probably widespread across the eastern provinces. In addition, there is an emphasis in both stories on the event taking place at night, without anybody watching. It is possible that this secrecy was to avoid being accused of striving for public approbation from undertaking an upleasant task.[27]

This explains the lack of latrines in Judaea effectively as well as making the reasons that Caesarea and Scythopolis were exceptions clearer. Caesarea, as a highly-Romanised city, accepted Roman-style latrines alongside the many other Roman cultural trappings. Scythopolis perceived itself as a Greek rather than a Jewish city (see below section 8.6) and so was more comparable to cities in Syria; therefore the problems posed by a Roman-style latrine to a Jewish population were not applicable there. This does not

[24] Netzer 2001a, 211-2.
[25] Bar Hebraus *Chronicon Ecclesiasticum* col. 263. Thanks to Jack Tannous, Princeton for suggesting these references and providing translations of the Syriac.
[26] Nau 1907.
[27] Cf. ideology expressed in Matthew 6.1: 'Be careful not to parade your good deeds before men to attract their notice; by doing this you will lose all reward form your Father in heaven.'

provide, however, an explanation for why these sites, as well as the other parts of the East, were slow to take up Roman public latrines.

It is possible that close proximity to a large Jewish community may have, consciously or not, suppressed or slowed down any behavioural change. While this may have been the case in Caesarea and Scythopolis, it is not so convincing for the sites in Syria. It has been observed that Judaizing choices are more visible in the archaeological and historical record because we have a large amount of literary evidence detailing Jewish customs, practices and law.[28] The customs and taboos of other cultural and religious groups, however, are not so clearly visible due to a lack of such supporting evidence. It does seems likely in this case, especially in combination with the Syriac evidence, that similar concerns over modesty and how to dispose of excrement may have meant that there was a greater degree of reluctance to change this behaviour than in other parts of the Empire (see below section 8.6). This subtle glimpse into the attitudes and mindsets of other groups may provide the solution to the slow spread of latrines across the East.

8.4 Bathhouses (Gazetteer 14)

In a recent architectural study of bathhouses in Roman Palestine, Hoss has shown that until c. AD 70 the bathing culture was predominantly private.[29] This seems to continue from the Hellenistic bathing tradition, evidence for which points largely to private bathhouses, with only one possible public bathhouse at Gezer (see Chapter 2.6). The public bathing culture began in the late 1st - 2nd century AD, which saw the construction of large, central city bathhouses in Scythopolis [#694], Sepphoris [#720] and Jerash [#219 and 220], which were comparable in decoration to *thermae* of other provinces. The reasons for this relatively late reception of the public bathing culture will be discussed in section 8.5. This culture flourished in the 3rd to early 4th centuries AD, when some of the larger cities were furnished with a second bathhouse. This phase also seemed to herald the fashion for thermal baths, for example at Hammat Gader. The number of bathhouses continued to increase into the 7th century AD.[30]

[28] Butcher 2003, 334.
[29] Hoss 2005. As in many other publications, little space is given over to the water supply and management of these bathhouses and where addressed a generic account is given (pp. 36-7).
[30] This pattern has also been observed by Nielsen 1993, 98, 112.

The analysis below will build on that of Hoss, in particular following her chronological framework. (The bathhouse sites are also listed chronologically in Gazetteer 14.) Given her thorough analysis of the architectural features of the bathhouses, I will concentrate primarily on the water supply of the bathhouses in Roman Palestine and the rest of the East. This approach is also in response to the fact that many bathhouse studies provide only a brief sketch of water management in bathhouses, most of which concentrate on general discussions of how aqueducts functioned and who looked after them, rather than the water supply within the actual bathhouse.[31]

Although the majority of Herodian and early Roman bathhouses were private, they are included here because an understanding of them is important for understanding the development and adoption of bathing in the East. Later private bathhouses will be discussed in Chapter 9. Hellenistic bathhouses and Jewish ritual baths (*miqva'ot*) were discussed in Chapter 2.6.

8.4.1 Period 1: Herodian and early Roman (late 1st century BC and 1st century AD)

With the exception of a possible bathhouse in Petra, which has not yet been fully excavated,[32] no public bathhouses have been attributed to this phase. All of the private bathhouses were in Roman Palestine, which means that there is no archaeological evidence for early bathhouses, neither public nor private, in Syria. This is a surprising absence given the Hellenistic background to a large number of Syrian cities (see Chapter 2.6). Literary evidence for baths in Syria in the early 1st century BC from Posidonius of Apamea (135-51 BC) suggests that this is an excavation bias.[33]

Of the 19 private bathhouses that have been dated to this period, 16 of them were located in Herod's palaces at Masada, Herodium, Cypros, Caesarea, Jericho and Machaerus. It would seem that Herod was a major influence in the introduction of the bathing culture to the East (see section 8.5). These bathhouses seem to have been relatively small (row or block type), featuring only the main rooms: *apodyterium, frigidarium,*

[31] For example: Heinz 1983; Yegül 1992. Some recent studies on the water supply of bathhouses have appeared, notably: Manderscheid 1988; Manderscheid 2000.
[32] Hoss 2005, 46.
[33] On Posidonius of Apamea see Yegül 1992, 21.

tepidarium, caldarium and *praefurnium* [Figs 8.8-9]. These reflect Italic architecture of the period, i.e. *caldarium* with an apse and *alveus* and round domed chambers with niches.[34]

There was always at least one stepped pool in the *frigidarium* of these bathhouses. Where two stepped pools were present, for example at the Cypros bathhouses, it is possible that one of these was the *frigidarium* and one a *miqveh*, though multiple pools were common elsewhere in the empire [Fig. 8.10].[35] In these examples, both pools have steps across the full width of the pool as is common in *miqva'ot*, but neither have evidence for dividing those entering from those leaving (see Chapter 2.6). It may also be possible that the difference between the pools was clientele, i.e. separate men's and women's pools. In the case of Cypros [#712], however, this is hard to argue as one of the pools is directly off the hall and one directly off the *tepidarum*, so neither would offer more privacy as separate bathing might suggest [Fig. 8.10]. These pools were generally small, which suggests that they were for individual, rather than communal use (Table 8.1 and see below section 8.5). A larger pool (10.4 m long x 5.2 m wide) was added in a later phase to one of the Herodium bathhouses [#713].

Table 8.1: Known dimensions and number of steps in Herodian palace stepped pools.

Bathhouse	Length (m)	Width (m)	Depth (m)	Maximum capacity (m^3)[36]	No. of steps
258: Cypros	2.8	2.1	2.2	12.94	7
258: Cypros	2.8	2.6	2.2	16.02	5
712: Cypros	3.4	1.5	1.8	9.18	5
712: Cypros	3.0	2.6	?	-	5
715: Jericho	3.5	3.0	?	-	8
716: Jericho	3.0	3.2	2.0	19.20	6
212: Masada	3.1	2.0	1.75	10.85	6
212: Masada	2.9	1.9	1.7	9.37	-
230: Masada	1.7	1.2	0.85	1.73	1
234: Masada	3.3	1.8	-	-	-
236: Masada	3.5	2.1	2.1	15.44	-

[34] Nielsen 1993, 103.
[35] Hoss 2005, 45.
[36] The maximum volumes presented here do not take into account the volume taken up by steps in the pools.

Individual tubs, rather than pools, and *labra*, common in Roman bathhouses, appear to have been used in the *caldaria* and *tepidaria*. In the majority of cases these were attested to only by the presence of niches in the *caldaria*. A tub in the *caldarium* at Masada [#234] measured 1.5 m long x 0.45 m wide and had rounded corners. An almost intact tub (1.45 m long x 0.75 m wide) was also found in another Masada bathhouse [#236]. At Cypros [#712] two tubs were found. One tub (1.55 m x 0.6 m x 0.6 m) was found in the corner of the *tepidarium*. Another tub, a near-complete monolithic calcite tub (2.06 m x 1.03 m x 0.5 m), was found *in situ* in the southern niche of the *caldarium* [Fig. 8.11]. This room also had a large marble *labrum* (1.4 m in diameter) in its southern niche. *Labra* were also found in the *caldaria* at Masada [#212 and #230] and Herodium [#713]. In Masada [#230] it was made of yellow quartz and fed by a lead pipe. At Herodium [#713] it was decorated with the head of Selinus. A possible *testudo*, described as a copper funnel-like device shaped like a half-cask with a pipe linking it to a heating installation, was excavated at Masada [#230].[37]

Small rainwater cisterns seem to have been the predominant method of water supply for the bathhouses at Masada and Jericho (see Table 8.2). This would not be a problem due to the low numbers of pools, their small size, and the frequent use of individual bathing tubs. In addition, it would have been topographically necessary at Masada.

Table 8.2: Known dimensions of cisterns in Herodian palace bathhouses.

Bathhouse	Length (m)	Width (m)	Depth (m)	Capacity (m^3)
212: Masada[38]	0.9	0.45	0.9	(0.36)
230: Masada	8.8	3	4.5	118.8
235: Masada	3.2	1	1	3.2

The bathhouses at Herodium may have been fed by the aqueduct, though no direct link has been attested. Indeed, a large, private bathhouse at Hammam Suleiman dated to this period was fed by an aqueduct from Ain Urtas, which Amit argues may also have been the source for the Herodium aqueduct.[39] No other details are known about this bathhouse.

[37] Netzer 1991, 253-5.
[38] It is likely that the dimensions published for this cistern represent the length and width of the cistern opening and the excavated depth, rather than an accurate measurement of the entire cistern.
[39] Amit 2002b, 261.

A second non-palace, private bathhouse at Ramat Hanadiv had an attested aqueduct supply from the Shuni springs (see Chapter 6: Gazetteer 7) [Figs 8.12-13].

This bathhouse was part of a complex that also included a farm and theatre.[40] The bathhouse was of a simple row type with an *apodyterium*, *tepidarium, caldarium* and *praefurnium*. It was, thus, similar in its layout to the palace bathhouses, but lacked the stepped pool so characteristic of them. Indeed, the pool in the *frigidarium* seems to have been a later addition and not part of the original plan.[41] The aqueduct fed a reservoir that was connected to the *tepidarium* via a stone built channel. The floor of this room sloped down to the drain under the eastern wall. It is unclear how the water travelled to the *caldarium*, but it may have been by lead pipes (since lost or robbed) or by hand. Again similar to the palace bathhouses, the *caldarium* had two niches for a bathtub (1.8 m x 0.9 m x 0.6 m) and a *labrum*.

8.4.2. Period 2: 2nd century AD

Eleven public bathhouses in ten cities (Jerash had two) are known to have been constructed in this phase. In the majority of cases they were built in places that had strong Roman associations. It is no surprise, of course, to find Antioch in the list of cities with early public bathhouses. Four of the other cities were 'members' of the Decapolis: Pella, Amman, Jerash and Scythopolis (see section 7.6.2). The propensity of these cities to take on Roman buildings has already been commented upon in Chapter 7.2.2 with reference to *nymphaea*. Scythopolis, Jerash and possibly Pella also gained *nymphaea* in this period. Three of the other places were forts or had strong military associations: Auara, En Gedi and Dura Europos. The bathhouse at Apamea was constructed as part of the renovation of the city after the earthquake in AD 115; two other bathhouses may have been constructed at this time as well (see section 7.6.1).

An early public bathhouse at Sepphoris is more difficult to explain as it is generally considered to be a Jewish city (see below section 8.5 on Judaism and bathing). The coin

[40] Hirschfeld 2000, 306-329.

[41] This is contrary to Hirschfeld's interpretation, but I argue it on the following basis. Firstly, it is of a very different build from the rest of the structure: small fieldstones and light grey mortar with light grey waterproof plaster on the inner face rather than well-dressed ashlar. Secondly, its position is clumsy within the ground plan of the room: it interferes with the central four columns incorporating two of them roughly into itself and one has to walk down the flight of steps into the room and then up some other steps to get into the pool.

evidence, however, suggests that it was portraying itself as a Greek city in AD 68 and under Trajan and by the 3rd century was claiming friendship and alliance with the Roman people.[42] The city also opposed the Jewish Revolt.[43] By the reign of Antoninus Pius, the city had gained a pagan Roman-Greek name 'Diokaisareia'. It has also been argued, on the basis of a mosaic depicting a drunk Herakles and bacchic revelry, that pagan elements were being introduced to the city by the 3rd century AD.[44] It is possible that this bathhouse represents an early phase in this introduction of non-Jewish elements into the city.

The full ground plan for most of these bathhouses is not known and they have only been subject to limited excavation, which makes any overall assessment of their size in relation to the settlement size difficult. At Apamea, Sepphoris and Scythopolis the bathhouses were located close to the main streets in the centre of the cities [see Fig. 7.42]. The bathhouses at Jerash, while not close to the main street, were still relatively central [see Fig. 7.44]. These prominent locations suggest that these bathhouses were large civic baths, rather than small neighbourhood baths and were important structures in the urban landscape.

For the same reasons there is limited evidence for the water supply of these bathhouses. By this period Auara, Jerash, Apamea, Sepphoris, Antioch and probably Pella, Amman and Scythopolis had an aqueduct supply. While it cannot at present be confirmed that these bathhouses were connected to the aqueduct supply, it is possible. Furthermore, it is highly likely that the provision of aqueduct water, which peaked in the 2nd century (Chaper 6, table 6.1), may have been one of the main, practical reasons why public baths could be introduced during this period. We know the size of only one pool from a bathhouse of this period, an octagonal pool in Antioch Bath C measuring 9.5 m x 9.5 m x 1 m [Fig. 8.14]. This pool had a significantly larger capacity (c. 70.8 m^3) than the pools in the cistern-fed private bathhouses of the earlier period. While nothing firm can be posited on the basis of one pool, if other bathhouses also required higher volumes of water for larger pools in public bathhouses, this would add to the argument that the introduction of public bathhouses was partly dependent on the provision of aqueduct water.

[42] Millar 1993, 369.
[43] Butcher 2003, 275.
[44] Millar 1993, 369; Freyne 2004.

No aqueduct supplying En Gedi has been traced so far. This bathhouse was a simple row type with a single small pool (3 m x 3 m; depth not recorded) with two steps in the corner in a room off the *frigidarium* [Fig. 8.15]. A small basin, said to be for rinsing feet, was located in the vestibule. The layout and facilities, therefore, seem to have been similar to the earlier, private bathhouses, so a rainwater cistern or well may have been sufficient for supply.

An aqueduct supply for the baths at Dura Europos was not possible due to the site's topography (see Chapter 9.2.1). In this case no pools were provided in the bathhouse, but single basins were found in the *caldarium* and *frigidarium* and three basins in room 4 [Fig. 8.16]. The basins in the *caldarium* and *frigidarium* appear to have been fed by a cistern. No dimensions were published for any of these features, but the cutting above the wall of the *caldarium* basin for the supply channel or pipeline was only 0.16 m x 0.16 m, which suggests that they were not exceptionally large. Parts of the drainage network are known, for example the basins in room 4 seem to have drained onto the floor. A large drain (0.46 m wide x 0.52 m deep) covered by gypsum slabs drained the *frigidarium*. A smaller drain also exited room 2 (0.19 m wide); this was replaced by a larger brick-built drain (0.32 m wide x 0.32 m deep) at an unspecified date. Again the lack of pools and use of basins suggests that this bathhouse was not using large volumes of water because it was supplied by a rainwater cistern.

Public baths fed by rainwater cisterns are very unusual and comparanda are difficult to find. Only one public bathhouse in North Africa, at Tiddis, seems to have been supplied primarily by cisterns.[45] The use of rainwater cisterns as the only water supply must have constrained the usage of the bathhouses, as year-round supply could not be guaranteed.

[45] Wilson 1997, 128.

8.4.3 Period 3: 3rd century AD

Twenty new bathhouses are known to have been built in this period across the Near East; nine in Palestine, eight in Syria and two in Arabia. The expansion in Syria, therefore, matched that noted for Palestine by Hoss. Two of these bathhouses tapped thermal springs. A further four bathhouses, of unclear date, in the Near East were also thermal spas [Fig. 8.17]. As the distribution map shows all of these were in Roman Palestine, which probably reflects the location of thermal springs, which of course governs where these bathhouses can be located.

Of the new sites to be provided with bathhouses, four were forts or had military associations, including both the bathhouses in Arabia: Lejjun, Hazeva, Yotvata and Palmyra. Lejjun was one of two large legionary fortresses on the east of the *via nova Traiana* in Arabia and was probably constructed for the *legio IV Martia* by Diocletian.[46] Similarly, it is tempting to suggest that the presence of a garrison at Palmyra under Diocletian may have prompted the construction of the Diocletianic Baths on this site, though the bathhouse is not near the fort. Hazeva and Yotvata, both in the Negev, were also fort sites.

Three of the other sites to get their first bathhouse in this phase had strong links with Rome: Umm Qes (Gadara), Shohba/Philippopolis and Bosra. Umm Qes was one of the Decapolis cities; it had already been furnished with a *nymphaeum* in the mid 2nd century AD. Shohba was the birthplace of the emperor Philip the Arab. It was founded as a *colonia* in AD 244 and probably enjoyed imperial patronage in its early years. The city had several elements typical of Graeco-Roman cities such as its axial plan, tetrapylon, theatre and aqueduct as well as the bathhouse.[47] Bosra had been one of the capitals of the Nabataean kingdom and became a *metropolis* in the 3rd century AD.[48] It was the headquarters of Arabia's only permanent legion (*III Cyrenaica*) and the chief city of Arabia.[49] Like Shohba, it was patronised by Philip the Arab in the 3rd century AD, which, alongside the heavy military presence, probably explains the construction of its first bathhouse.

[46] Butcher 2003, 418. The other legionary fortress was Udhruh.
[47] Butcher 2003, 233.
[48] *Ibid.* 102.
[49] *Ibid.* 118.

Three sites acquired additional bathhouses in this period: Antioch (2), Dura Europos (2) and Sepphoris. One of the Antioch bathhouses [#239] was small and may have been private or have served a limited clientele (see below section 8.4.5) [Figs 8.18-19]. The additional bathhouses in Dura Europos are thought to have served the military personnel at the site. The second bathhouse at Sepphoris was centrally located to the south of the decumanus and west of the cardo. This provision of a second large civic bathhouse at Sepphoris in the 3rd century confirms that by this period the city was displaying a mixture of Jewish and pagan characteristics.

Unfortunately, as in the previous period, only limited excavation has been undertaken on many of these bathhouses making a comprehensive reconstruction of their plans and water management strategies problematic. It is highly likely that 13 of these bathhouses received their supply from aqueducts: Hammat Gader, Beth Govrin, Palmyra, Emmaus, Antioch (2), Shohba, Bosra, Umm Qes, Kefar Nahum, Sepphoris, Acco and Lejjun. The bathhouse at Brad was supplied by a rainwater cistern, as were the two bathhouses at Dura Europos. Little is known about the bathhouses at Hazeva and Yotvata, but Hazeva was described as being of an 'En Gedi' type and there was mention of bathtubs at Yotvata. This may suggest that cisterns or wells may have been sufficient to supply these bathhouses.

In terms of internal water management arrangements, we again know little. Crucially, information on the depth of the pools has not been published. Therefore, it is not possible to test whether baths fed by aqueducts had pools with a greater capacity than those fed by cisterns. As two bathhouses belonging to this phase, Hammat Gader and Dura Europos [#243: Bath E3], have been more thoroughly published, I will use these as case studies to illustrate water management strategies in this period.

The Dura Europos bathhouse was supplied by a system of three interconnecting reservoirs fed by rainwater [Fig. 8.16]. These three reservoirs had minimum capacities of 5.95 m^3, 10.26 m^3 and 3.6 m^3 respectively.[50] Two of the reservoirs were lined with hydraulic plaster.[51] Ceramic pipelines connected at least two of them. A pipeline from one reservoir terminated in a square sinking above pool 1. Pipelines from the second reservoir

[50] Reservoir 1: 3.4 m long x 1.75 m wide; reservoir 2: 3.6 m long x 2.85 m wide; reservoir 3: 2.4 m long x 1.5 m wide. The capacity calculation assumes a minimum depth of 1 m.
[51] Brown 1936a, 94.

probably fed the *frigidarium* and the apsidal pool in the *caldarium*. Evidence for two *testudines* was excavated in the archways branching off the *praefurnia*. Wastewater from the *frigidarium* and *tepidarium* was taken from the rooms in ceramic pipelines that emptied into the same brick-lined conduit. This method was also used in the other bathhouse of this period at Dura Europos [#246: Bath C3]. The apsidal and niche pools in the *caldarium* and the *labrum* in room II emptied onto the floors, which sloped down to the collector drain in the doorway of I-II. Sloping floors directing wastewater into drains were also employed at Hammat Gader and Lejjun in this period. The main drain (0.24 m wide x 0.32 m deep) exited the building under the *apodyterium* (A on plan) and went east into the street.

As a thermal spa Hammat Gader had a more complicated water supply system that comprised two discrete systems: one distributed the water from thermo-mineral springs at the site and one distributed cold water delivered from an aqueduct around the building [Fig. 8.20]. Large volumes of water would have been needed for this lavish bathhouse. The bathhouse featured several large pools, which from the limited evidence we have seem to have been larger than most bathhouses in the region (Table 8.3). This is unsurprising in a bathhouse that specialised in providing pleasure and luxury; it was described by Eunapius as being second only to Baiae.[52] The numerous fountains spouting water into the pools (see below) would have increased this sense of luxury. In addition, water would have been needed for the tubs and basins in the niches found throughout the bathhouse. Unsurprisingly, the more easily available hot water was used in larger volumes than cold water (Table 8.3).

[52] Eunapius *Vit. Soph.* 368.370.

Table 8.3: Sizes of pools and tubs at Hammat Gader.

Room	Shape	Hot/Cold	Length (m)	Width (m)	Depth (m)	Steps	Capacity (m^3)
A - oval	Oval	Hot	20.00	8.40	1.20	4	150
A - 4 tubs	Semicircular	Cold	3.00	3.00	0.60	-	8 (total)
B	Rectangular	Cold?	3.70	5.80	1.25	4 + 3	25
C	Rectangular	Cold	16.00	7.70	1.40	4	170
C – side pool	Rectangular	Cold	3.60	2.00	1.00	-	7.2
C – side pool	Rectangular	Cold	4.20	2.00	1.00	-	8.4
C – side pool	Rectangular	Cold	3.90	2.00	1.00	-	7.8
D	Rectangular + narrow wings	Hot	42.70	8.90-3.30	1.40	3 + 2	380
D – 8 tubs	Rectangular	?	2.30	1.40	1.00	-	25.6 (total)
E	Rectangular	Hot	14.00	8.00	1.10	-	125
E – tub	Rectangular	?	3.20	2.00	1.20	1	7.5
G	Rectangular (early); oval (late)	Hot	14.20	6.80	1.20	3	100
G	Round	Hot	3.70	3.70	0.75	1	8
Total hot (m^3)							**763**
Total cold (m^3)							**259.5**

The hot water system was relatively simple and water from the springs fed the pools in rooms G, A and E.[53] Water from these pools was drained via a built channel under the western wall of room A and connected with the main drain in Area F.

The coldwater management at Hammat Gader was more complicated.[54] It was supplied via an aqueduct with a pipeline of basalt blocks from the north. It seems plausible that the plastered channel (0.6 m wide and 1.9 m deep) in the northern part of Area C could have been fed by the aqueduct in the area between the baths and the street. If this channel was for supply, its southern branch could feed Area E and the eastern branch could connect with Areas H and D. The lead pipe and three ceramic pipes in Area H would suggest that

[53] Hirschfeld 1997, 47-8.
[54] The system described here is an alternative to that presented by Hirschfeld 1997.

this northern corridor was the hub of the coldwater distribution network, which fits the interpretation of this as a service area.

In Area F, the aqueduct continued as a basalt pipeline. The excavations uncovered an 8.7 m stretch of this pipeline, made up of 18 segments (c. 0.5 m x 0.75 m x 0.75 m; circular bore: 0.4 m diameter) joined in a flange and socket arrangement sealed with lime mortar. This pipeline could have provided water for pools 305, 325 and 321 to the west of Area C as well as to Area B.

Water distribution around the bathhouse seems to have been by lead pipes, which were of a conventional type seen across the Roman Empire. They were constructed out of 5 mm thick lead sheets and were pipes of 75 mm diameter (125 mm at welded ends) with a 25 mm wide and 10 mm high ridge. The lead pipe feeding the fountains in Area D had exceptional dimensions (190 mm in diameter (outer) and 35 mm wide across the ridge) and connected with the standard size vertical pipes, as described above, in the fountains themselves [Fig. 8.21]. The five *in situ* fountains found in Area D may have been 5th-century AD additions. The lead pipe in the central baths at Bosra [#279], which is of a non-specific 'Roman' date, also fed a fountain and was larger than usual; it was ovoid in section and measured 130 mm x 140 mm [Fig. 8.22].[55] A lead pipe was also recorded at the smaller Antioch bathhouse [#239] in this period.

Fountains spouting water into the pools were also found in rooms G, A and C. They were not identical, but they all partly projected into the pool and had a 200 mm hole drilled at their base for a lead pipe, which was sealed with grey mortar. A pair of semi-circular fountains in Area C also provided drinking water. In Area A, a conduit above each niche channelled cold water to the tubs via lead pipes. Similarly, the tub in Area E was fed by a lead pipe in the northern wall.

Area D seems to have had drainage outlets to the east. Drainage from Areas G and A is supposed to have been via a curving channel to the west. The pool in Area C had a 0.4 m wide outlet towards the west whose continuation was not found. The bathtubs in Area C also seem to have had outlet points at their bases, which drained water to the west. These would suggest a missing drainage channel in Area F, possibly lost during the 5th-century remodelling when Area C went out of use. The pool in Area B, however, had only a single

[55] Personal observation.

inlet or outlet to the west towards Area F, which may have been for water supply. Taking into account the steps at either end of the pool, the pool may have had a capacity of 25 m^3 and so it is not inconceivable that water was bailed out of this pool periodically.

8.4.4 Period 4: 4th to 7th centuries AD

A total of 27 new baths are known to have been constructed in this phase, 15 in Palestine and 12 in Syria. No new bathhouses seem to have been built in Arabia. Umm Qes, Antioch, Jerash, Scythopolis and Caesarea (2) all received further bathhouses in addition to their existing bathhouse(s). Athis/Neocaesarea/Dibsi Faraj and Jerusalem did not have earlier bathhouses and were both furnished with two in this phase. Of these new bathhouses, four seem to have been smaller baths, probably with a limited clientele: Athis, Toprak an-Narlidja, Jekmejeh and Jerash. One of the Athis bathhouses was in the *principia* and so was probably restricted for use by the military. The baths at Toprak an-Narlidja and Jekmejeh were presumably used by the upper class inhabitants of these wealthy suburbs of Antioch [Figs 8.23-24]. One of the Caesarea baths [#288] was located on the outskirts of the town, outside the city walls.

The Baths of Placcus (a bishop) in Jerash seem to have been associated with the Church of St Theodore, though it is not clear if their clientele was restricted or governed by the church.[56] In this period baths were commonly built in connection with a church or ecclesiastical community. A similar bath and religious complex was built at Tebessa Khalia, Algeria in the 4th/5th century AD.[57]

Again the bathhouses in this period seem to have been supplied from a variety of different sources. Five of the bathhouses were almost certainly fed by aqueducts: Beth Yerah, Umm Qes, Caesarea (2) and Banias. Another five probably received their supply from aqueducts: Antioch, Beirut, Jerash, Jerusalem and Scythopolis. Cisterns provided water for three bathhouses at Serjilla, Ashqelon and Rama. Channels (c. 0.1 m wide) at Serjilla ran around the exterior of the bathhouse and entered small apsidal pools through windowsills [Figs 8.25-26]. Presumably water lifted by a *saqiya* or *shaduf* from the cistern was transferred into these external channels (see Chapter 5.6). A comparable external

[56] Harding 1967, 103.
[57] Yegül 1992, 319-320.

conduit system is known from the Legionary Baths, Lambaesis.[58] Rainwater formed at least part of the supply at the Scythopolis bathhouse where a covered channel collected rainwater from gutters.[59] This period also has the only attested example of a bathhouse fed solely by a well at Zenobia. Bathhouses fed by wells are also known from North Africa: Sabratha (unpublished theatre baths), Banasa (Fresco Baths) and Bu Njem (military baths).[60]

The Beirut bathhouse underwent major alterations to its layout until it reached its final phase in this period [Fig. 8.27].[61] The earlier two phases have not been firmly dated yet; they are published as 'Roman'. In its first phase, the building comprised three rooms with a small voussoired channel or drain in the eastern wall. Archaeological evidence for this phase was heavily truncated. In its second 'row type' phase, the rooms were subdivided at their eastern end, which may have opened onto a *frigidarium/palaestra*. This *frigidarium/palaestra* area overlay a series of water storage installations (of unspecified supply) and was flanked to the north by a marble-lined cold water pool (dimensions not given). Towards the end of this phase a small pool (dimensions not given) was added to the *tepidarium*.

The third phase saw the remodelling of this bathhouse in imitation of imperial *thermae*. Additional water storage installations were built to the north and south and the second phase installations were rebuilt with barrel vaults. A *piscina* (dimensions not given) was provided for the enlarged *frigidarium*. After the earthquake of AD 551 the central drain became increasingly choked and its internal level rose. It became totally blocked and was then dismantled to the north and south.

In contrast to this bathhouse, whose development is well-documented, we know little about many of the other bathhouses of this period. The known dimensions and volumes of water-holding facilities in these bathhouses are given in Table 8.4. From these data it would seem that the reservoir at Umm Qes could only have been able to regulate small-scale shortfalls in supply and must primarily have been used to provide very short-term storage. The pools apparently were not large, which follows a trend towards smaller pools and bathhouses across the rest of the eastern Mediterranean from the 4th century

[58] Yegül 1992, 216-7, 333.
[59] Foerster and Tsafrir 1992, 38-41.
[60] Wilson 1997, 127-128.
[61] Thorpe 1998-1999, 67-78.

onwards.[62] In pre-existing bathhouses small tubs were often installed in doorways or large pools divided into smaller ones, for example at the North-East Baths, Epidauros; Large Baths, Argos; Agora Baths, Delos; South-West Baths, Athens; East Baths, Delphi; Bath I, Istrus and Bath II 7 A, Anemurium.

Table 8.4: Known dimensions and volumes of water-holding facilities in Period 4 bathhouses.

Bathhouse	Feature	Length (m)	Width (m)	Depth (m)	Capacity (m^3)
Ashqelon	Tub	2.5	2.5	1.6	10
Beth Yerah	*Frigidarium* pool (circular)	2	2	0.75	2.4
Jerash	Pool	10.8	3.75	1.32	48.6
Serjilla	Pool	c. 1	c. 0.5	-	-
Umm Qes	Reservoir	3.8	1.1	1.0	4.5
Umm Qes	Basin in *caldarium*	-	-	-	23
Umm Qes	Basin in room 1	-	-	-	22

At Zenobia two ceramic pipelines with internal diameters of 70 mm and 85 mm respectively fed two apsidal pools. Stone junction boxes, presumably for either terracotta or lead pipes, were recorded at Beth Yerah.[63] The most comprehensively-known hot water distribution system is that at Umm Qes where a lead pipe fed water from the water tank to the *praefurnium*, then to the boiler and finally to an *alveus*. A boiler or tank probably covered the *praefurnium* at Toprak en-Narlidja, but no archaeological evidence was retrieved for any superstructure. A hot water tank was excavated at Athis [#261] to the south of the *caldarium*.[64] Sloping floors directing wastewater into drains facilitated drainage at Umm Qes and Scythopolis. No dimensions were given for the drain at Ashqelon, but it was described as being large enough to stand up in.[65]

[62] Nielsen 1993, 116; Yegül 1992, 326, 329.
[63] Fisher 1934, 10, 25 fn. 8; Maisler *et al.* 1952, 222.
[64] Harper and Wilkinson 1975, 329.
[65] Stager 1991, 47; Dauphin 1996, 53.

8.4.5 Bathhouses in the East: an overview

In addition to the bathhouses discussed above, a further 19 bathhouses of non-specific 'Roman' date have also been recorded: 14 in Syria and 5 in Palestine. Of the Syrian bathhouses, another is located in Dura Europos, another in Antioch, two in Apamea and a further three in Bosra. Three of the additional bathhouses in Palestine were thermal spas. At least eleven sites in the Near East, then, had multiple bathhouses (Table 8.5).

Table 8.5: Sites with multiple bathhouses in the Near East (not including Herodian palaces).

Site	Number of bathhouses	Gazetteer numbers
Antioch	5 (c. 20 from literary evidence)	238, 239, 240, 260, 723
Bosra	4	256, 279, 280, 281
Dura Europos	4	243, 244, 245, 246
Jerash	3	219, 220, 287
Apamea	3	233, 725, 726
Caesarea	3	288, 695, 711
Scythopolis	2	685, 694
Umm Qes	2	249, 276
Sepphoris	2	289, 720
Jerusalem	2	683, 690
Athis	2	261, 262

While this shows that multiple bathhouses were not uncommon, in comparison with other Mediterranean sites these are not high numbers; for example 17 are known from Ostia, 13 from Timgad, 8 from Pompeii, 7 from Athens, 7 from Ephesos and 5 from Olympia.[66] The sites in the East seem to fall into one or both of the following categories: those with strong Roman influence (e.g. Antioch, Caesarea, Apamea, Bosra) or strong military associations (e.g. Bosra, Dura Europos, Athis). At Dura Europos it has been argued convincingly that the baths were almost solely for the use of the military (see below Section 8.5).[67]

[66] Nielsen 1993, Vol. I: 38, 93, 96; Vol. II, 32, 34.
[67] Pollard 2000.

There is no consistent spatial distribution pattern of these bathhouses in the urban landscape. All the bathhouses at Jerash, Apamea and Bosra, for example, were centrally located [see Figs 7.42 and 7.44]. In contrast, at Caesarea and Athis one bathhouse was central and one not. Literary evidence for baths at Antioch shows that different baths were used by different sectors of Antiochene society; for example Libanius informs us that each of the 18 tribes had its own bathing establishment and we also have references to the 'Senate Baths' and the 'Baths of the Syrians'.[68] The location of the Baths of Diocletian on the Orontes Island, as well as baths A, B, C and D may suggest that these baths were almost exclusively for the use of the emperor and his palace entourage [Fig. 8.28].

One of the most striking features of the water management in these bathhouses was the use of cisterns for supply. It is difficult to find parallels for bathhouses supplied by cisterns across the rest of empire, whereas in the East there were several per period. In some cases, the location of the bathhouse may explain its use of cistern water. Due to topographic difficulties Dura Europos, for example, had to rely on cistern supplies. Also, Hazeva and Yotvata were in the Negev, which may have meant that again cisterns or wells were the only viable water resources.

In other cases, cultural forces may have been at work, for example Serjilla, Rama and Brad probably did not have the associations with Rome that were illustrated at Jerash, Bosra or Antioch. This may suggest that bathhouses were not such an integral part of life that their continual use was deemed necessary. Available resources may also have been a governing factor as sites, such as Serjilla and Brad, though commonly referred to as 'Dead Cities' were more akin to small towns or even large villages and therefore may not have been able to raise the capital to construct an aqueduct. In addition, if there was no other pressing need for an aqueduct, it may have seemed overly luxurious to build one solely for the use of a bathhouse (see Chapters 7.2.2 and 9.4). Bathhouses, such as those at Serjilla and Rama, also fit into the late Roman tradition of smaller pools and therefore would not need to use high volumes of water.

[68] Yegül 1992, 325-6. Libanius 11, 245, 231. Malalas 306.22-307.2; 308.3-308.5; 339.17-39.18. Ammianus Marcellinus 11,1,2.

8.5 Attitudes towards bathing in the East

This section will investigate the evidence for attitudes towards bathing in the East. The difficult relationship between Judaism and bathing will be considered. I will also discuss how bathing was perceived in general in the Near East, in particular whether it was thought to improve quality of life.

Bathhouses posed several problems for practising Jews. These problems included, for example, heating the baths on the Sabbath when one is not supposed to work.[69] In addition, there were serious reservations over the use of idolatrous statues in bathhouses.[70] By the 2nd century AD these strictures seem to have eased, for example the rabbi Gamaliel II states that a statue of Aphrodite in the baths was harmless and not idolatrous because it was only an ornament in a non-cultic environment.[71] This is an example of how it was necessary to negotiate a Jewish identity that could incorporate daily urban realities. The issues over nakedness discussed above (section 8.3) were, of course, relevant in bathing as well as in latrines; it is highly likely that one did not bathe completely naked in public baths in Palestine.[72] It is probably for these reasons that public bathhouses did not appear until the 2nd century AD in Palestine, while private bathhouses appear to have been more acceptable.

This relatively late start to the public bathing tradition in the East suggests that a willingness to change behaviour, that is to bathe in a public and communal environment, was slow to develop. Baths and bathing did, of course, persist in the East, though in the early Arab period they were mostly associated with hunting lodges or private residences, such as Qasr al-Amra, Hammam as-Sarah and Khirbet al-Mafjar in Jordan (see Chapter 11).[73] It would be interesting to know if this slow development was reflected in the number of large pools i.e. did an individual bathing tradition that may have been more acceptable in Jewish society exist for longer in the East than elsewhere in the empire? Sadly, these data are not available, but it is noteworthy that while the (private) Herodian palace baths have several Roman elements, such as the use of lead pipes and *opus reticulatum* (see Chapter

[69] Hoss 2005, 14.
[70] Dvorjetski 1999, 126.
[71] Kraeling 1956, 343-4; Yegül 1992, 322.
[72] *Ibid.* 75.
[73] See Yegül 1992, 329, 349 on the acceptance of baths as a way in which 'medieval Islamic society became the inheritor and perpetuator of Classical culture.' On the bathhouse sites and their water supply see Harding 1967, 156, 179; Schiøler 1973, 92; Yegül 1992, 339, 341.

6.3.1), the focus very much seems to have been on individual bathing in tubs rather than communal pools [Figs 8.8 and 8.29].

While it was suggested above that some of the slow spread of public bathing in Syria may have been related to aqueduct building, it is also possible that some of the reservations for a Jewish population may have had their equivalent in the pagan world of the East as well. Posidonius of Apamea (135-51 BC), for example, criticised the people of Syria for their 'soft and flabby laziness' when they altered their gymnasia into baths.[74] This also suggests that we may be missing some of the earlier archaeological evidence for baths in Roman Syria. The use of cisterns, as noted above, may also suggest that the bathing tradition did not integrate very deeply into Eastern life. It may also be evidence for non-Jewish cultural taboos in the East. It is possible that nakedness, especially in women, may also have been a cause for concern in other cultural groups. In the funerary art of Palmyra, for example, the basic female pose includes a veil; bare-headed mortal women were very rare indeed.[75] Of particular interest is a beam relief from the Temple of Bel that represents a religious procession including two groups of figures who are completely swathed in veils [Fig. 8.30].[76] This evidence may suggest that concerns over exposing the body, as shown by people, especially women, covering their hair and heads in daily life and their whole body in religious contexts, may have been prevalent elsewhere in the East.

Attitudes towards bathing, of course, focussed not just on religious or cultural *mores*, but also on how they improved daily life. Hygieia, goddess of hygiene, was popular in the East in connection with bathing, as well as across the rest of the Empire. Coins depicting Hygieia seated on a rock from which water is flowing are known from the Tiberias mint, in particular under Trajan (AD 99/100 and AD 108/109) and to a lesser extent under Commodus (AD 188/189).[77] Later coins from Tiberias, under Caracalla (AD 211-217) and Elagabalus (AD 218-222) depict Hygieia alongside the god of healing, Aesulapius. In addition, intaglios and cameos from Umm Qes (Gadara), dating to the 1st or 2nd centuries AD, were devoted to Hygieia, Aesculapius and Sarapis.[78] Coins from Umm

[74] Posidonius in Yegül 1992, 21; Thorpe 1998-1999, 75.
[75] Colledge 1976, 64, 68, 71, 85, 91.
[76] *Ibid.* 37.
[77] Dvorjetski 1999, 128; Dvorjetski 2001-2, 500.
[78] Henig and Whiting 1987; Dvorjetski 2001-2, 506. A 2nd-century AD date may be preferable for these gems given the date for the rise in bathing.

Qes, under Elagabalus, featured Herakles, to whom it was customary to dedicate spas. In addition, coins featuring the Three Graces are known from Umm Qes under Caracalla, Elagabalus and Gordianus (AD 238-244). The Three Graces or Χάριτες had a multifaceted relationship with water. As well as also being known as the Θαλλάσιαι 'daughters of the sea', which connects them with the perceived source, they were also seen as a symbol of health and are known to have been associated with Aesculapius on a relief in the Vatican.[79] A silver ring from Umm Qes, dating to the first half of the 3rd century, also featured the Three Graces as well as Zeus seated in a temple. Depictions of the Graces are known from mosaics in baths elsewhere, for example in Korykos, Cilicia; Concordia, Italy; Cherchel, Mauretania Caesareiensis.[80] The dates of these coin issues, gems and the silver ring tally comfortably with the rise of public bathing in the East and the sites they were associated with were notably famous thermal spas (see below).

Hygieia was also invoked to bestow health on the restorer and decorator of one of the Jerusalem baths and on the founder and all who bathed in the Herkleides bath at Umm Qes [#276].[81] This bathhouse also had a mosaic that depicted this deity.[82] In addition, an impressive statue of Hygieia was found in Antioch [#723; fig. 8.31]. This bathhouse also featured a mosaic depicting a bust of Tethys surrounded by fishes, which were probably allusions to water and fertility (see below) [Fig. 8.32].

From the 4th century onwards allusions to Hygieia continue. At Andarin, for example, an inscription records that the bath was called Hygieia.[83] The bathhouse at Athis [#262] had a mosaic depicting Hygieia.[84] In one of the late Caesarea bathhouses [#288], a tessellated pavement wishes Χάρις ὑγία τοῖς ὧδε 'Grace and health to those here'.[85] Although, given the conversion to Christianity, Hygieia (and 'grace') must be a concept rather than a deity in this period, the general association of bathhouses with well-being still holds.

[79] Dvorjetski 2001-2, 501.
[80] Dunbabin 1989, 21-2.
[81] Avi-Yonah 1932, 175 no. 146; Lux 1966.
[82] Lux 1966, 65.
[83] Prentice 1922, 48-9, no. 918; *IGLS* IV, 232-3, no. 1685; Dunbabin 1989, 13.
[84] Harper and Wilkinson 1975, 329.
[85] Lehmann and Holum 2000, 105, no. 97.

Other personified concepts connected with well-being are known from the 4th century onwards, such as a personification of Apolausis on a mosaic in Toprak an-Narlidja.[86] Another mosaic in this bathhouse was inscribed to the personification of Soteria, which seems to allude to the healing powers of the baths (see below).[87] Wishes for *apolausis* were also made in the bathhouse at Ashqelon, where a tub was inscribed with the (fragmentary) exhortation: εἴσελθε ἀπόλαυσον καὶ ('Enter, enjoy and…') [Fig. 8.33].[88]

Images from Antioch [#260] of Ge reclining on a sphinx, accompanied by the *karpoi* (as named on the mosaic) bringing a garland of wheat as well as images of rivers (Eurotas and Lacedaimonia) were strongly associated with fertility and the gifts of prosperity and joy that water brings.[89] The 5th-century AD poem to the Empress Eudocia from Area D in Hammat Gader combined many of these themes.[90] The ocean was described as being the life source that brings about sweet streams and springs (see above on the Three Graces coins). In addition, the River Clibanus, the source of the hot stream, was called Paean, the physician of the gods, because of the healing power of its waters.[91] Also a list of what may be statues or names of the baths was given, which included Hygieia and Galatia, a nymph associated with springs and water sources.[92]

An inscription from the baths at Serjilla says that their construction brought χάρις (grace) and ὄλβος (happiness) to the country, but also warns of the dangers of φθόνος (envy) with a wish that δόξᾰ (honour) may drive out such envy.[93] A *tabula ansata* in a mosaic floor from Caesarea [#288] said Πθόη ἐπάτωσε ; if the second word was a misspelling of ἐπάτησε, this might be a recollection of mortality: 'Decay trampled'.[94] These examples illustrate that bathhouses did not just provoke feelings of pleasure, cleanliness and fertility, but may also have held a darker side.

[86] Dunbabin 1989, 20.
[87] Stillwell 1941, .
[88] Stager 1991, 45.
[89] Dunbabin 1989, 29-30.
[90] Green and Tsafrir 1982.
[91] Dvorjetski 2001-2, 505.
[92] See Dunbabin 1989, 16 on the interpretation of this list.
[93] Butler and Prentice 1901, 62-76; Dunbabin 1989, 17.
[94] Lehmann and Holum 2000, 106, no. 98.

Protective symbols, for example, phallic symbols, swastikas and hederae, are found from across the empire (for example at Kom Trougah, Egypt; Terme di Nettuno, Ostia; Maison aux Travaux d'Hercule (mosaic surrounding a basin), Volubilis; Sant Bol de Llobregat, near Barcelona) as are grotesque figures whose deformity was used as protection against the Evil Eye (for example at Kharba/Oued Athménia, Algeria, which also had many swastikas in the adjacent room).[95] Indeed, there seems to have been a belief that ghosts and demons lived in dirty water in bathhouses.[96] Ammianus Marcellinus records that in Antioch in AD 371, for example, a young man was executed for sorcery because he had tried to heal his stomach pains by putting his hand on his body and on the wall of the bathhouse alternately and speaking the seven vowels of the Greek alphabet aloud.[97] This was, of course, in a period when there was much fear of magic and accusations of practising magic were commonplace; Libanius, for example, was accused five times.[98]

This raises some of the issues concerning the medicinal properties of bathing, in particular thermal spas. Evidence for the use of thermal springs for health before the Roman period is restricted to Herod, who bathed in the springs at Kallirhoe for pain relief before his death.[99] In a similar vein, Naaman was ordered by Elisha to bathe seven times in the River Jordan to cure his leprosy.[100] The regular use of thermal springs for health seems to have been a Roman development, which also seems to have been the case in North Africa.[101]

Unsurprisingly information from the East on ancient attitudes towards the relationship between healing and thermal baths focuses on Hammat Gader (see also above on coinage from other sites). The Pilgrim of Piacenza recounts that in the 6th century AD lepers visited the Hammat Gader baths in the evening. They were provided with lamps and incense and spent the night in the pool; if they had a dream vision during the night, they would be healthy within a week.[102] Epiphanos of Salamis also commented on healing the

[95] Dunbabin 1989, 38-43.
[96] Eitram 1915, 119-124; Hoss 2005, 20-1.
[97] Ammianus Marcellinus 29.2.28; Dunbabin 1989, 37; Hoss 2005, 89.
[98] Liebeschuetz 1972, 5, 14, 32, 33, 106; Libanius, *Orat.* I.43, 62, 98, 194, 239.
[99] Weber 1999, 440; Hoss 2005, 11.
[100] 2 Kings 5.
[101] Wilson 1997, 134.
[102] Piacenza: *Itineraria* 132 (163, 12-16); Krug 1985, 187. On other stories of lepers in the baths at Hammat Gader see Antoninus of Placentia, *It.* 7 in Köhler 2002, 302.

sick at Hammat Gader. Interestingly, he suggested that this was a trick of the devil because God could not be present where men and women bathe together.[103] This gives an additional Christian dimension to some of the religious reservations of bathing observed above, as well as confirming that mixed bathing took place at least in this period.

Healing in baths seems not to have been restricted to thermal spas.[104] A benevolent moneychanger from Antioch, for example, spent his free time caring for patients in the bathhouses of men; his wife did the equivalent for women.[105] Also in Antioch, in AD 387, the emperor Theodosius closed the bathhouses as a punishment after the Riot of the Statues, when a mob, unhappy over heavy taxation, overturned and disfigured pictures and statues of the emperor and his family. John Chrysostom criticised this punishment because the sick, old, children and pregnant women needed the bathhouses to get well.[106] John Chrysostom also commented that the urban poor and homeless used public bathhouses as a place to warm up in the day and sleep in at night.[107] These examples may be seen as evidence in the transition of bathing 'from munificence to benefit fellow citizens [in the Classical world], towards charity designed to succour Christ's poor [in the medieval world].[108]

Although the medicinal virtues of such baths were lauded in the ancient world, this use of bathhouses by the sick raises questions about how hygienic bathhouses were.[109] It would be useful to know, for example, whether the water was changed and the pools cleaned between sessions. Information on pool volumes, water storage capacities and aqueduct delivery rates to the bathhouses would, of course, be necessary in order to calculate whether this would have been possible in theory.

Fagan, using data from bathhouses in Ostia and Pompeii, has estimated that some of the bigger bathhouses there could have accommodated between 400 and 700 people per day (equivalent to 5 hours of use) all of whom would have been sharing and dirtying the same

[103] Epiphanos of Salamis *Panarion* II 7, 5; Hoss 2005, 82.
[104] Cf also John 5.1-9: The Pool of Bethesda in Jerusalem, not a bathhouse, was used for healing the sick 'for at intervals the angel of the Lord came down into the pool, and the water was disturbed, and the first person to enter the water after this disturbance was cured of any ailment he suffered from.'
[105] Berger 1982, 26; Hoss 2005, 82.
[106] John Chrysostom *Ad populem Antiochenum* PG 49, Hom. XIV, 6; Hoss 2005, 83-4.
[107] John Chrystostom *De Lazaro conciones* PG 48, 973.
[108] Ward-Perkins 1984, 140.
[109] Jackson [1999, 116] believes that they were probably beneficial and 'seldom detrimental to health'.

bathwater.[110] His assessment also brings to our attention the lack of chemicals for treating water, the fumes from hypocausts, the humidity and flies encouraged by it and the presence of *gloios* and other scrapings in the water. While there were no warnings against bathing with the sick in ancient medicinal writings,[111] a Hadrianic law did reserve special bathing times for the sick in bathhouses at Rome.[112]

In the East, an inscription from Scythopolis refers to lepers' baths:

Θεόδωρος ὁ ποιμὴν

λουτρὰ καινουργῶν νέμε[ι]

τοῖς τὴν ἄ̓κραν νουσοῦσι τῆς

λώβης νόσον

ἐν χρ(όνοις) ἰνδ(ικτονος) ζ ἔ̓τους χκβ′

'Theodore the priest allots, renewing them, the baths to those sick with the very grievous disease of leprosy in the time of the 7th indiction in the year 622 (AD 558/9).'[113]

This seems to suggest that here lepers bathed separately from the rest of the population and so bathing in this particular city could not spread the disease.[114] This inscription, therefore, may suggest indirectly some awareness of health issues and how to prevent the spread of disease.

Overall, it would appear from the deities invoked that bathhouses were related clearly in the ancient mind with health and prosperity. This is reflected in the use of bathhouses for healing the sick. There is, however, another, darker side to bathing that occasionally rises to the surface. The association of dirty water and demons may point to some suspicions against bathing. In some cases, for example at Hammat Gader, where baths

[110] Fagan 2000. The numbers are calculated on the basis of people staying in the pool for 15 minutes; when increased to 30 minutes, the number of people using the same bathwater drops to 200 – 380.
[111] Fagan 2000, 251-2, 256.
[112] Köhler 2002, 303. *SHA Hadr.* 22.7.
[113] Avi-Yonah 1963, 325.
[114] Recent research in Indonesia has shown that water for bathing and washing is an infectious source of leprosy: Matsuoka *et al.* 1999.

were used by both lepers and non-lepers, these underlying suspicions may not have been unwarranted.

8.6 Discussion and conclusions

The history of an area and site seems to have played key a role in the dissemination of bathhouses and latrines across the East. This is clear when put in the context of the urban network and its elements as a whole. Several aspects of the water supply network can be shown to belong to systems that represent one or more of the following characteristics: they display a high degree of sophistication and/or integration forming a fully-functioning water supply network; they were introduced to the East during the Roman period; they were associated with a Roman lifestyle (Table 8.6). The private components of the system will be discussed in Chapter 9.

Table 8.6: Features of the urban water supply network and what they represent.

Network component	Displays sophistication and/or integration	Introduced to the East during the Roman period	Associated with a Roman lifestyle
Reservoir	X		
Lead pipes		X	(X)
Aqueduct	X		(X)
Nymphaeum		X	X
Bathhouse			X
Latrine		X	X

It seems reasonable to assume that the presence of these features may point to the cultural impact of water supply techniques. Table 8.7 shows the distribution of these components across a selection of sites in the East that had the highest occurrence of these features [Fig. 8.34].

Table 8.7: Presence (X) of urban water supply features across selected sites in the East.

Site	Reservoir	Lead pipes	Aqueduct	*Nymphaeum*	Bathhouse	Latrine
Antioch		X Bathhouse	X	X	X	X
Apamea	X		X	X	X	X
Beirut		X	X	X	X	X
Caesarea	X	X	X	X	X	X
Dura Europos					X	X
Jerash	X		X	X	X	X
Palmyra			Qanat and spring flow tunnel	Fountains	X	X
Petra			X	X	X	
Scythopolis	X	X *Nymphaeum*	X	X	X	X
Umm Qes		X Bathhouse	X	X	X	
Zeugma			X		X	X

The lead pipe evidence presents an interesting slant here. While their absence does not 'prevent' a Roman lifestyle, their presence points to a Roman approach to construction. It seems significant that, in three out of the five sites with lead pipes, they were found in *nymphaea* and bathhouses, i.e. Roman structures that one might expect to use Roman construction techniques. The relationship does not seem to have been direct and simple, however, as *nymphaea* and bathhouses did not use lead pipes in all cases. To some extent their absence may be due to robbing, but it may also point to a higher degree of 'comfort' with more traditional construction techniques (especially as it is unlikely that the expense argument would apply so strongly here). So, as argued for inverted siphons and arch dams (Chapters 6.2.5 and 4.3), a supposedly more 'superior' technique or material is not necessarily used.

Antioch, Beirut and Caesarea are the only sites known to have every public element associated with a Roman way of life (Table 8.7). Apamea, Jerash, Scythopolis and Umm Qes had most, but not all, of the elements missing lead pipes (in the first two cases), an aqueduct and a latrine. Zeugma, Petra, Dura Europos and Palmyra had relatively low demonstrations of these elements. Two factors, environmental and cultural, seem to be at work here with differing levels of influence at individual sites.

To some extent environmental factors may have been relevant here. The absence of an aqueduct at Dura Europos appears to have reflected the site's topography, rather than a cultural choice. A lack of an aqueduct does, however, have further ramifications because without an aqueduct one cannot have a *nymphaeum*. To a certain extent, then, the paucity of elements showing a Roman lifestyle at Dura Europos may be explained by its topography.

To a larger extent, however, it is the history and 'attitude' of the sites that offer explanations for these patterns. The sophistication and Roman-ness of Antioch is no surprise; it was, after all, one of the biggest, most important cities of the Roman Empire: an imperial city with all the imperial trappings. Beirut too, while taking into account its Phoenician foundation, is now commonly accepted as a 'substantial island of Romanization' and was thought of as a place of Roman culture by contemporary writers.[115] Similarly, Herod, a famous Romanophile, created Caesarea as a Roman city in Palestine and therefore it is not surprising to find that the public 'face' of the water supply in this city had a pronounced Roman character.

Apamea had close associations with the imperial family and was renowned for its wealth and opulence in the 2nd and 3rd centuries AD, which stretched into the 4th century when the city became an important bishopric.[116] The overtly Roman monumental architecture of Jerash, a Decapolis city, has often been commented upon. The reason for the Roman-ness of Jerash has been attributed to its position in a region fought over by Seleucid Syria and Ptolemaic Egypt. In response to this struggle, Jerash/Gerasa was also given the name Antioch-on-the-Chrysoroas, thus linking it closely to the Seleucid dynasty. It has been argued that even after both states became Roman and the political nuances of its name no longer held force, Antioch-on-the-Chrysoroas still felt the need to emulate its namesake, Antioch-on-the-Orontes.[117] It seems possible that this emulation extended into the realm of water supply facilities.

The Roman-ness found at Scythopolis, another Decapolis city, may be related to its Greek associations. Although it had Jewish neighbours, the city and, notably, its inhabitants wished to be viewed as Greek, as was made clear on a 2nd-century inscription which referred to the city as '(one of) the Greek cities of Coele Syria.'[118] This non-Jewish, pagan character, in particular, probably provides the explanation for the high level of acceptance of Roman public latrines in the city that stood in stark contrast to other sites in the vicinity.

[115] Millar 1990, 8, 16, 57.
[116] Ball 2000, 161.
[117] *Ibid.* 91.
[118] Foerster and Tsafrir 1986-7, 53; Millar 1993, 6, 378.

Umm Qes (Gadara), called 'Attica in the land of the Assyrians' by its native poet Meleager, was also highly Hellenised and one of the Decapolis cities.[119] Several indigenous elements, however, persevered at this site; the name Gadara, for example, is semitic. Ball also argues that some of its architecture, for example its colonnaded street, belonged to a Near Eastern tradition.[120] This mixed background and character may explain the presence and absence of some of the water supply elements associated with a Roman way of life. Notably, latrines were the missing element.

Petra, sometime capital of the prosperous Nabataean kingdom, had acquired much of the monumental architecture of a Greco-Roman city by the end of the 1st century AD.[121] After the capital shifted north to Bosra, however, the city existed as a relatively small provincial town with little development and new building.[122] This may explain the lack of latrines on the site, which were generally a later phenomenon in the East.

There is no doubt that Palmyra had the wealth and contact with Rome and Roman ideas that would have allowed it to have the Roman-style water supply installations. It would seem, however, that the priority of the people at Palmyra was not to furnish the city with these facilities. It seems, for example, that the bathhouse and latrine may date to the Diocletianic reshaping of the city. To some extent, the lack of earlier bathhouses may be due to limited excavation off the main colonnaded area [Fig. 8.35], but the epigraphic evidence does suggest that offering to build baths was less important than dedicating a temple.[123] While it may go too far to suggest that this represents 'resistance' to Rome, it certainly shows that there were cultural preferences and that more importance was attached to certain building types.

The close military associations at Zeugma, and its proximity to Antioch, seem to explain the urban water supply elements present at the site. A *nymphaeum* may have been expected and it is possible that its absence is the result of minimal excavation, particularly of public buildings, on the site [Fig. 8.36].

While it was observed above that environmental factors played a part at Dura Europos, its military associations provide another view. The bathhouses, for example, at

[119] Butcher 2003, 113.
[120] Ball 2000, 197.
[121] Butcher 2003, 97.
[122] Millar 1993, 421.
[123] Yon 2001, 175.

Dura Europos appear to have been used mainly by military personnel. It has been argued that the public bathhouse in E3 [#243] may have been within the limits of an expanded military area and those in M7 [#245] and C3 [#246] were primarily used by soldiers coming from the nearby Palmyrene Gate [Fig. 8.37].[124] Furthermore, a recent reappraisal of the baths in F3 [#244] has suggested that they should not be dated to the Parthian period, but to a time after AD 165.[125] One of the arguments in support of this theory is that the transmission of vaulting tube technology seems to be associated with the Roman army (for example at legionary fortresses in Britain) and so a date after the city comes under Roman political control and a garrison is installed seems likely. This bathhouse evidence has been seen not as a deliberate attempt to 'Romanize' Dura, but rather as the provision of 'buildings that were judged essential for the functioning of the military' and may have had little impact on the lives of the ordinary, non-military, inhabitant.[126] At Dura Europos, therefore, a complex combination of environmental and cultural factors explains a seemingly conflicting picture of both a lack and a presence of buildings associated with a Roman lifestyle.

This chapter has illustrated that social *mores* and religious observance played a key role in the slow spread of both public bathhouses and latrines in the East. In his discussion of identity in the East, Butcher suggests that individuals can belong to more than one institution (for example religion, city state, guild etc.) that make up their identity.[127] Working on such a model, it would be possible to select which element of one's identity is brought to the fore in a particular situation.[128] It would seem from the evidence presented here that where the use and function of a particular urban water installation could develop or promote existing identities they were more easily acceptable. Similar responses to material culture can be observed in native American Indian uses of European goods 16th-century Canada. While at first it appears that contact with Europeans produced a distinct change in material culture, with European copper goods being very popular among the native tribes, on closer examination, it is clear that the goods chosen were those that fitted

[124] Downey 2000, 169-70.
[125] Pollard 2004.
[126] Downey 2000, 172; Pollard 2004, 143.
[127] Butcher 2003, 272.
[128] Strathern 1988 makes similar arguments for gendered expressions of identity.

into and supported native mythology.[129] Furthermore, the use of those goods, for example copper kettles, in a European manner was a later development and not part of the initial acceptance of the goods. This kind of response to incoming material culture appears to be typical of 'middle ground' colonisation.

It seems that willingness to change behaviour, and potentially then one's identity, was a crucial factor in which water installations were chosen. Using public bathhouses and latrines appears to have involved a complex realignment of social and religious behaviour and therefore of what was socially and religiously acceptable. In the case of public latrines in Jewish areas it would seem that the realignment required was too great to allow for any change in behaviour. At Umm Qes, for example, the Hellenistic background and identity seems to have meant that building and using a *nymphaeum* was acceptable, whereas the Jewish background and identity meant that building and using a latrine was not. In the case of Herod, the clash of his identities, Romanophile and Jew, led to the compromise where a latrine was built that looked Roman, but functioned according to Jewish law. Such a situation may create the uneasy feelings and worries over identity encapsulated neatly by Sartre's description of the struggle of such 'bad faith': 'I am not what I am and I am what I am not'.[130]

It seems that bathing, however, was more easily adapted to. This may have been a reflection of the adaptability of their water management strategies. Latrines, for example, maintained the strict design and approach to water management that is found across the Roman Empire, whereas bathhouse supply seems to have been more flexible, seeing, for example, a higher use of cisterns for supply than elsewhere in the empire.

Potentially this was also a consequence of social necessity reflecting the increasing social role of bathhouses in Roman civic life.[131] While slower than in other areas of the empire, by the 3rd century AD bathhouses had become a common and widespread part of urban life in the East; a part of life that continued to flourish throughout the late Roman period and into the early Arab period. The rise in power of the church may have facilitated some of the longevity of the bathing culture. Bathhouses were often built in connection

[129] Trigger 1985, 127, 155, 162-3.
[130] Sartre 1943, 47-70.
[131] See DeLaine 1992, 274 on the 2nd-century shift in focus away from the forum as political centre to bathhouses as a social centre.

with or as part of a church, as at the Baths of Placcus, Jerash. It seems that they were easily adaptable to the Christian ethos, for example they could be used to succour the poor. As discussed in Chapter 7.2.3 there seems to have been a strong link between Christian holy places and springs or aqueducts; it seems possible that the bathhouse may have been an extension of this association.