Chapter 9: Water supply and management in the domestic sphere

9.1 Introduction

This chapter will review the evidence for water supply and management in the domestic sphere in both urban and rural contexts. A chronological analysis of the water supply and management in urban domestic contexts will be followed by an assessment of rural housing. I will then consider to what extent water was on display in these houses, analysing whether there were noticeable differences in water management between higher and lower class houses. This will lead to an assessment of whether there were any differences between domestic water supply and management techniques in urban and rural areas.

9.2 Water supply and management in the domestic sphere in urban contexts (Gazetteer 15)

A total of 137 houses with water supply and management installations was recorded across the study area. Concentrations were found at Sbeiteh (40 houses), Dura Europos (26 houses), Antioch (20) and Zeugma (12). These concentrations reflect high levels of excavation on domestic areas in these sites, and more importantly, low levels elsewhere, and provide the bulk of our evidence for this section. The houses from Antioch include those in the suburbs at Daphne-Harbiye and Seleucia, as well as one from Jekmejeh. It must be borne in mind that as such a large proportion of the dataset comes from just four sites it would be foolhardy to presume that this sample is representative of the Near East as a whole. Future excavation may remedy this bias. Many of these houses, in particular at Antioch and Zeugma, were excavated in order to salvage their mosaics, so there is almost certainly a bias towards higher class housing here.[1] To some extent this may be balanced by the houses from Dura Europos and Sbeiteh, but it is unlikely that any of the houses discussed here represent the accommodation of the lowest classes. This will, of course, have clear repercussions on the discussion of water and status display (section 9.4).

[1] On literary evidence for lower class housing in Antioch: Liebeschuetz 1972, 92-93. On the possibility of archaeological evidence for lower class housing in Antioch: Ellis 2004.

9.2.1: 1st century BC

All the houses (13) attributed definitely to this period were excavated at Dura Europos, with the exception of one house from Jerusalem. Another house from Antioch [#451] may also have a pool dating back to this period (see section 9.2.4). All the houses from Dura Europos were fed by cisterns, which were located in the courtyards and covered with gypsum lids [Fig. 9.1].[2] Cistern use reflects the topography of the site, which is on a plateau 40 m above the Euphrates; there is no water source at the site itself, the nearest water source is found in the mountain foothills and the wadis to the south and north flow only intermittently.[3] A single ceramic pipe, part of a downspout, was recorded in these houses, which suggests that water supply was not complex (nor used for decorative purposes) in this period. The house at Jerusalem was fed by a well.

9.2.2 1st century AD

Ten houses were recorded in this period in Dura Europos (3), Dor, Zeugma, Petra, Beirut (3) and Caesarea [see section 9.2.4]. All of these houses were fed by cisterns, with the possible exception of the house at Petra. This house had a bath suite, latrine and fountain with limestone lion head spout and so may have been connected to the public piped supply [Fig. 9.2]. Although the sample is small, this house stands out for its early adoption of water for decoration and status display (see section 9.4).

The cisterns at Dura Europos did not differ in location to those from the previous period. The house at Zeugma had a more complicated water management system that comprised two cisterns (one of which had a pulley system) and a network of channels and pipelines [Fig. 9.3]. There was evidence from Dor that the domestic drainage network was connected to the municipal drainage system. The houses in Beirut, which must have been built shortly after Beirut became a veteran colony in 15/14 BC, were all arranged around a courtyard in which the cistern was located.

[2] The form of the cisterns at Dura Europos, e.g. bottle-shaped or vaulted, does not seem to have been recorded consistently, probably due to lack of excavation of these features.
[3] Allara 1988, 335-338.

9.2.3 2nd century AD

Nine houses were attributed to this period: Dura Europos (5), Zeugma (2) and Antioch (2). In this period the houses in Beirut (described above) were connected to a piped water supply. A decorative peristyle with a fountain replaced the courtyard in one of these houses. This fits with the connection to a piped network and points to the increased prosperity and social standing of the heirs of the colonisers.[4] Three of the houses at Dura Europos were furnished with two cisterns, which may point to a heavier use of water in this period, but otherwise there were no significant developments from the earlier periods.

The houses at Zeugma [#413] and Antioch began to display more decorative water features in this period. A network of channels seems to have distributed the water around the Zeugma house that was supplied, at least in its earliest phase, by two cisterns [Fig. 9.4]. The two fountains in room 4 of this house seem to have been marginally later than the cistern, so it is possible that they were added to the house when/if it was connected to a piped supply. As the pool in the House of the Calendar, Antioch [#428] was located in a colonnaded portico that was visible from the *triclinium*, it would seem clear that this was for decoration and display. As this house had a pool, rather than a fountain, it is possible that its reservoir was fed by rainwater, rather than connected to a piped supply.

9.2.4 3rd century AD

Six houses in Dura Europos, Antioch (2), Sumaqa, Ashqelon and Caesarea had water management elements belonging to this period. Of these, the house at Sumaqa was the most basic with two rock-cut, bell-shaped cisterns providing the water supply. The house at Dura Europos, the 'palace of the *Dux Ripae'*, was furnished with two bathing suites each with latrines, a basin (one of brick, one of stone) and a drainage system [Fig. 9.5]. While this 'palace' must have made use of relatively large volumes of water, it is notable that it lacked the more decorative, and arguably wasteful, water features such as fountains. It is likely that this is because cisterns, which would not supply enough water to provide for fountains as well, must have supplied the 'palace' (see below section 9.4).

The other houses had more decorative features such as fountains, marble basins and pools, which may suggest that some were connected to a piped supply. These features were

[4] Perring 2006, 29.

all in highly visible areas of the house, i.e. the *triclinium* (or visible from it) and colonnaded courtyard. Water was distributed around the house at Ashqelon in lead pipes, one of which had a bronze valve (see below section 9.4).

The House of Iphigenia [#451], Antioch showed some interesting chronological progressions in its use of decorative water features [Fig. 9.6]. The pools in rooms 1 and 4 may have dated from as early as the 1st century BC. The fountain with bronze lion head spouts in room 1, however, was not added until the 3rd century AD. With reference to the House of the Vestals, Pompeii, it has been argued that 'passive' pools of water were not as ostentatious as active fountains.[5] It seems, then, that the decorative water scheme of the House of Iphigenia became more elaborate in the 3rd century AD, maybe suggesting that it was connected to the piped water supply at this later date as well.

Changes to the water management of a house after connection to a piped supply were also seen in a house at Caesarea, where the well was filled deliberately with domestic refuse when this house was connected to the municipal water system. The cistern in this house appears to have continued in use, so it is possible that, as at the House of the Vestals, Pompeii, the piped water was used for the more decorative elements of the system, such as the pool in the colonnaded courtyard, whereas the cistern water was used for more mundane, everyday purposes.[6] Changes in the use of previous water supply facilities after connection to a piped supply have also been noted at the Casa del Granduca, Pompeii where a channel linking two cisterns in the atrium was cut after the house was provided with running water.[7]

9.2.5 1st-century BC – 3rd-century AD houses

Sixteen houses fell into the 1st-century BC – 3rd-century AD bracket and could not be more closely phased: Petra (2), Antioch (3), Beirut, Jerash, Sepphoris, Dura Europos (5) and Zeugma. The houses from Dura Europos followed the pattern of non-elaborate cistern supply seen above. The houses from Jerash, Sepphoris and Petra [#427] were fed by cisterns and did not have decorative water features, though there was a basin and a lead pipe in the Petra house respectively. Two houses from Petra [#425] and Beirut had

[5] Jones and Robinson 2005, 705.
[6] *Ibid.* 707.
[7] Sear 2004, 154.

bathhouses; the Petra example seems to have been fed by four cisterns [Fig. 9.7]. Only houses [#430 and 431] from Antioch had fountains, with three from the House of Menander [Fig. 9.8-9]. It is interesting that the Antiochene house [#429] fed by a well had a pool rather than a fountain, which may support the argument above that pools were used for display when a piped supply was not available to feed more ostentatious fountains.

9.2.6 4th century AD

Houses from Beirut (2), Zeugma, Antioch and Baalbek were recorded during this period. The Antioch and Baalbek houses were fed by cisterns and this is reflected again in the use of an octagonal pool in room 1 of the Antioch house rather than a fountain for display [Fig. 9.10]. Neither the Zeugma nor the Baalbek house appeared to have had decorative water features, so the water must have been used for utilitarian purposes; notably cisterns fed both.

The houses from Beirut were lavishly decorated houses set around peristyles and gardens. This was reflected in the use of water in the House of the Fountains [#454]. This house combined several earlier units in the *insula* into a single house plan. By the earthquake of AD 551, the house had a fountain in each of its connecting peristyles.

9.2.7 5th century AD

All three houses in this phase were from Antioch. The House of the Buffet Supper [#435] featured two fountains in the courtyard. The House of the Yakto Complex [#440] was exceptional, even in Antioch [Fig. 9.11]. This house had a bathhouse, a latrine, two fountains and basins. One of the fountains was particularly ornate with marble revetment, a marble paved pool and a semi-circular niche flanked by two rectangular niches. A complex network of ceramic and lead pipes, linked in places by junction boxes, distributed water around the house to these installations. The house had two (possibly three) cisterns (one of which was 10.72 m x 2.9 m x 0.7 m), but must also have been connected to a piped, external supply. A drainage network removed water from rooms 21 and 16 into a main drain under room 20.

9.2.8. 4th-century AD – 7th-century AD houses

All the Sbeiteh houses plus 15 other houses dated from this period in Apamea (4), Kurnub (4), Beirut (2), Abila, Antioch, Eboda, Pella and Petra. The water supply in the Negev houses (Sbeiteh, Kurnub and Eboda) was simple and apparently utilitarian, probably because they were all fed by cisterns. At Sbeiteh there was usually one cistern per house that was located in the corner of the courtyard. These cisterns were fed by rainwater from roofs conducted via ceramic pipes under the floors. One of them also may have had a pulley system to lift the water from the cistern [Fig. 9.12].[8] The volume of 26 of the cisterns here was calculated; 3 cisterns were small (up to 20 m^3), the remainder varied from 20 m^3 – 70 m^3, which is similar to domestic cisterns elsewhere in the Mediterranean.[9]

One of the Kurnub houses had a latrine that was located on an upper storey. This makes it possible that private latrines may have been more widespread than appears, but are not visible in the archaeological record due to a survival bias. This is supported by work from Pompeii that has shown that latrines existed on second floors.[10] Latrines may also have been located in stairwells leading to upper floors in a row of 2nd-century shops in Beirut.[11]

The houses at Apamea are striking because of the number of relatively small open reservoirs they contain. These reservoirs were used to feed two latrines [in #376 and 378] and a fountain [in #376; Figs 9.13-16]. This suggests that these houses were connected to the aqueduct water supply network and seems to have been part of a larger trend of urban water storage at Apamea in this period (see section 7.6.1). The House of the Console Capitals [#376] also had two limestone basins in its peristyle [Fig. 9.17]. The late 6th-century House of Consoles [#368], which was fed by a well and a cistern, did not have these reservoirs, nor again any decorative or luxurious water features.

The houses in Beirut had networks of channels and pipelines, but apparently no decorative features.

[8] Tsuk 2002c, 67.
[9] *Ibid.* 73.
[10] James Andrews (Reading University) pers. comm.
[11] Perring 2006, 30.

9.2.9 Houses with a non-specific 'Roman' date

A further 17 houses were recorded, but cannot be dated any more closely than to a general Roman or late Roman date: Antioch (7), Zeugma (7), Sepphoris (2) and Umm Qes. It is hoped that the final publication of the Zeugma houses may mean that these houses will be more closely dated in the future. Unsurprisingly two of the Antioch houses had fountains [#432 and 535] and four had one or more pools [#433, 436, 437 and 443]. The House of the Evil Eye [#437] had a latrine and bath suite. One of the Sepphoris houses [#372] was of a similar standard with a bathhouse and a pool.

9.2.10 Water supply of urban domestic houses: an overview

The evidence for connection to the urban supply network is limited and there seems to have been a high reliance on rainwater stored in cisterns (see below). This fits with literary evidence from Frontinus and archaeological evidence from other areas of the empire, for example North Africa, which suggests that it was only the wealthy that had this privilege.[12] Firm evidence for connection to a piped supply does not come until the 2nd century AD. The supply networks seem to have been quite simple, accessing only a few water points.

This is a very different picture from that at Pompeii. Jansen has demonstrated that the distribution systems inside those houses comprised three key elements: lead pipes, lead distribution boxes with taps and fountains capping the end of the pipes.[13] The reconstruction of these systems shows that the pipe entered the house and fed a number of fountains around the *impluvium*, a branch then continued through the corridor to the next courtyard (generally a peristyle) where fountains were again fed by a distribution box and taps [Fig. 9.18]. So far, 22 lead distribution boxes have been recorded at Pompeii, whereas none has been found in the East. Distribution boxes have also been found at Vaison-la-Romaine (France).[14] In addition, 112 taps, often near distribution boxes, have been found at Pompeii, in comparison to 3 from the East [Fig. 9.19]. While this discrepancy may be due partly to a survival bias as frequently lead and bronze items are robbed, it may also suggest that there was a lesser availability of piped water in the East than at Pompeii.

[12] Lohmann 1979, 178-9; Wilson 1995a. Frontinus *Aq*. 99.3, 103.2, 105.1.
[13] Jansen 2001, 29.
[14] Jansen 2000b, 122.

The majority of the houses recorded were supplied with water from cisterns (108 in 92 houses); cisterns from Sbeiteh and Dura Europos accounted for 40 and 25 of the cisterns respectively. In areas where water was not easily available, such as the Negev and Dura Europos, the houses were reliant on cistern supply. The proportional bias towards these houses in the data set and then in the cistern numbers may signal that the reliance on cistern water has been overemphasised, in particular against well water. Wells were only recorded at three domestic sites in the region: 1st-century BC Jerusalem, Roman Antioch [#429] and late Roman Apamea [#368]. In some cases, cistern water seems to have been used in conjunction with a piped supply. The link between water supply and water for display will be discussed in detail in section 9.4.

The majority of the pipelines in the internal distribution network whose material is known were ceramic: 17 out of 21. Three lead pipes were recorded at Antioch [#533 and #440] and Beirut [#452]. One of the examples from Antioch [#533] was fitted with a bronze valve. A bronze pipe was also found at Antioch [#451] exiting a pool; this may have connected with the lion head spouts that were found in room 1. The use of lead in an area where the use of such Roman building materials is very limited suggests that this was a conscious choice to build in a Roman manner. It is no surprise, therefore, to find that Antioch and Beirut were the cities where this choice was made. A similar point can be made on the use of brick, which was used for three pools in Antioch [#431, #435 and #451] and a basin in the palace of the *Dux Ripae* at Dura Europos [#403].

Three houses have been recorded in sufficient detail to make it possible to reconstruct their 1st and 2nd-order drainage systems: palace of the *Dux Ripae* [#403], the Yakto complex [#440] and Antioch S-18-K [#535]. These houses were large complexes and it should not be presumed that smaller houses also used both 1st and 2nd-order drains. In the palace of the *Dux Ripae* 1st-order drains, sometimes made of stone, led from the basins and latrines and fed into 2nd-order drains.[15] In the Yakto complex small 1st-order drains 0.08 m to 0.09 m wide originated in room 20 and were collected by a 2nd-order drain in room 21. Another drain also ran under a basin; its large size (0.4 m wide x 0.75 m deep) suggests that it was a 2nd-order drain that also undertook some of the functions of a 1st-order drain.[16]

[15] This is reconstructed from information in Detweiler 1952.
[16] This is reconstructed from information in Lassus 1938.

Finally, 1st-order drains in Antioch S-18-K originated in the *triclinium* and were collected in a 2nd-order drain along the southern edge of the eastern colonnade. *Triclinia* needed drains in order to remove wastewater from washing down the floors that have been strewn with food debris. Other *triclinia* provided with drains are known from North Africa, for example the Maison de Dionysos et des Quatre Saisons, Volubilis.[17] Another probable 2nd-order drain was also found in the northern colonnade of Antioch S-18-K.[18]

9.3 Water supply and management in the domestic sphere in rural contexts (Gazetteer 16)

A total of sixteen houses was recorded in rural contexts, most of which seem to have been villages, though some, such as the En Ya'el 'villa' and Ramat Hanadiv, may have been part of estates. The Herodian-period house at Khirbet al-Mureq was the earliest of these. It was furnished with a bathhouse and had a drain on the courtyard stylobate that let water out through a break in the western wall.[19] The En Ya'el 'villa', near Jerusalem, dated to the 2nd – 3rd centuries AD, was furnished with two bathhouses, a marble fountain and a lead pipe [Fig. 9.20].[20] Water for one of the bathhouses was provided by an open reservoir, which must have been fed ultimately by the lead pipe from the spring. Similar arrangements of baths in rural villas fed by small-scale private aqueducts are known from other parts of the Empire, for example the Baths of Pompeianus, Oued Athménia, Algeria.[21]

The remaining houses seem to be late Roman and were fed primarily by gathering rainwater using a system of pipes and channels, which was then stored in cisterns. Nine of these houses were furnished with one or more cistern(s), giving a total of 16 cisterns: Deir ash-Shamir, Horvat Hameshit, Lubiye, Khirbet al-Wad'ah, Khirbet an-Nawafleh, Villa de Jenah, Beth She'arim, Khirbet Mansur al-Aqab and Ramat Hanadiv. The cisterns varied in length from 4 m to 10.5 m, in width from 1.2 m to 10 m and in depth from 1.85 m to 9.5 m. Their capacities ranged from a reasonable 50 m^3 to a massive 700 m^3. Where recorded these cisterns were bell-shaped, including the massive cistern at Khirbet Mansur al-Aqab. As

[17] Etienne 1954, 65; Wilson 2002a, 481.
[18] This is reconstructed from information in Stillwell 1941, 33.
[19] Damati 1972, 173.
[20] Edelstein 1990, 38, 40.
[21] Poulle 1878, 453-4; Wilson 1997, 133.

noted in Chapter 7.3.1, these cisterns were similar in design and capacity to their public, urban counterparts.

At Khirbet al-Wad'ah and Khirbet an-Nawafleh it was observed that each house in the village either had a cistern or in some cases at Khirbet al Wad'ah was built above or near a cave.[22] Eight of these cisterns were located in courtyards; others were under rooms or located externally. The size of the openings is known for three cisterns: 0.45 m diameter, 0.7 m diameter (both Villa de Jenah) and 0.95 m diameter (Khirbet Mansur al-Aqab).[23]

Khirbet al-Mureq, Khirbet Mansur al-Aqab and Ramat Hanadiv were the only ones to have provision for drainage. Khirbet Mansur al-Aqab was furnished with gutters in the paved courtyard in the western wing and in the stabling area.[24] Ramat Hanadiv had two plastered drains, one draining the tower area (0.45 m wide x 0.6 m deep) and one draining the ?stable area (0.1 m wide x 0.1 m deep).[25]

None of the houses in rural contexts was recorded as having pools, basins, fountains, wells or latrines, with the clear exception of the house at En Ya'el outside Jerusalem. Only one late Roman house had a bath suite: Khirbet Mansur al-Aqab.

9.4 The use of water in domestic contexts: status and display

Recent work on Pompeii, in particular, has focussed on the use of water for display in houses.[26] Until recently it was thought that with the advent of a piped supply in the Augustan period, several houses developed innovative methods of display involving water. After the introduction of the Augustan aqueduct, gardens, for example in the House of Polybius, were decorated with fountains, pools and plants that required more water.[27] Inside houses, there was a clear link between the availability of a sufficient water supply system and the building and use of private baths in 40-20 BC. In particular, large bath suites (with separate rooms for the *apodyterium, tepidarium, caldarium* and *frigidarium*) located next to luxurious, public areas of the house were only constructed after this time.[28]

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[22] Paelumbo *et al.* 1996, 391; Amr *et al.* 2000, 239.
[23] Chehab 1957, 54-59, plan 4; Hirschfeld and Birger 1991, 103, fig. 25.
[24] Hirschfeld and Birger 1991, 93, 103.
[25] Hirschfeld 2000, 27.
[26] Jashemski 1996; De Haan 2001; Jansen 2001; Sear 2004; Jones and Robinson 2005.
[27] Jashemski 1996, 53.
[28] De Haan 2001, 42, 46-7.

Ohlig's work on the *castellum divisorium* at Pompeii, however, has shown that Pompeii had an earlier (Sullan?) aqueduct.[29] On being connected to the Serino aqueduct network in the Augustan period, Pompeii's water supply was actually reduced, which casts doubt on a simplistic link between the Augustan aqueduct and water display in Pompeiian houses. It is possible that the Augustan aqueduct did, however, provide a more seasonally reliable supply, which may explain the observed pattern. Regardless of these complications, Jansen has illustrated that the piped supply in Pompeian houses was used mainly to feed fountains in *atria* and courtyards. Work areas of houses, i.e. kitchens and latrines, were very rarely connected to the piped supply.[30] This suggests that piped water was used primarily as a tool for display and ostentation. This has also been argued for North Africa where the installation of a piped water system was not to obtain a better drinking supply, but to indicate wealth and social position.[31]

In his description of Antioch, Libanius makes similar claims:

'One can judge the wealth of our waters by the number of houses, (*sc.* in the city), since there are as many fountains as there are houses, or rather there are many fountains in each house, and indeed the majority of the workshops are also adorned in this way…With us, since everyone has a fountain within his house, the public fountains flow merely for display.'[32]

As the presence of fountains suggests that a house was connected to a piped water supply and this was rare across the East, it is likely that Libanius was actually talking about higher class housing in Antioch and overstating the number of houses that had fountains. The use of domestic, as well as public, fountains for display is illustrated by their locations within the houses. Many of the fountains were in courtyards and peristyles, with one example in a *triclinium* [#533]. These would have been highly visible and public areas of the house [Fig. 9.21]. The importance of fine views of fountains in peristyle and *triclinia*

[29] Ohlig 2001. Also see Wilson forthcoming (a) who raises some of the questions that must now be tackled for Pompeii's water supply.
[30] Jansen 2001, 37. Also see Sear 2004 on the Casa del Granduca.
[31] Wilson 1995.
[32] Libanius *Orat.* 11.244-248:
ἔξεστι δὲ τὸν μὲν τῶν πηγῶν πλοῦτον τῷ πληθει τῶν οἰκιῶν σκοπειν, ὁσαι γὰρ οἰκίαι, τοσαῦται κρῆναι, μᾶλλον δὲ καθ΄ ἑκάστην πολλαι, καὶ τῶν γε ἐργαστηρίων τὰ πολλὰ τούτῳ φαιδρύνεται... ἡμῖν δὲ διὰ τὸ εἴσω θυρῶν ἑκαστοις εἰναι κρήνην αἱ κοιναὶ πρὸς ἐπίδειζιν ῥέουσι.

has also been noted in North Africa.[33] In Pompeii, the power of fountains to display wealth and social position was taken a step further as they were often placed so as to be visible to passers-by in the street.[34]

It does also seem to be true that more houses in Antioch than in other cities were furnished with fountains (see Table 9.1). This pattern is maintained even when compared with other sites that had relatively high numbers of excavated houses (Sbeiteh, Dura Europos and Zeugma). Indeed, no fountains have been found in the houses at Dura Europos and Sbeiteh, which makes a striking contrast to Antioch and (to a lesser extent) Zeugma. In the case of Dura Europos, which had to rely on cistern supply due to its topographic location, a piped, pressurised supply necessary for spouting fountains would not have been available.

Table 9.1: Luxurious or decorative water features in urban houses across all periods.

Feature	Antioch	Beirut	Zeugma	Dura Europos	Petra	Apamea	Sepphoris	Caesarea	Kurnub
Basin	3	1	6	3	2	1	-	-	-
Pool	13	1	-	-	-	-	1	1	-
Fountain	14	2	3	-	-	1	-	-	-
Baths	2	1	-	1	2	-	1	-	-
Latrine	2	-	1	2	1	2	-	-	1

It is arguable, though that Dura Europos could have supported basins and pools, but with the exception of the palace of the *Dux Ripae* at Dura Europos, which is responsible for all of the features attributed to the site in Table 9.1, no such features have been excavated at this site. It is possible, then, that as well as there being a general paucity of water on this site, there was also less willingness to use precious water in a frivolous manner. In the palace of the *Dux Ripae* display seems to have been restricted to three brick basins and to the bath suites. These display elements were in many ways restrained in such a large and important house, in contrast to the Yakto Complex at Antioch [#440], for example. Also, the fact that two bath suites were installed as a priority over fountains may suggest that by the 3rd century (when pubic bathhouses were flourishing across the East) these were almost

[33] Wilson 2001a, 92.
[34] Jones and Robinson 2005, 700.

deemed a necessity by the owner. The presence of two latrines also points to a degree of luxury, as has also been suggested for residential district 1 in the terraced houses in Ephesos.[35]

A similar situation may have pertained at Sbeiteh. Although the site was supplied by an aqueduct, this water must have been highly prized in such a badly-watered landscape. Again the conspicuous absence of ostentatious domestic water features suggests that decorative uses of water were not high on the list of priorities for Sbeiteh's inhabitants. These examples may suggest a more reserved and cautious attitude towards water in areas where water was difficult to obtain.

Attitudes towards housing also may explain why there were more fountains in Antiochene houses. In general, houses in the East were introverted and the entrance was positioned so as to avoid the public gaze.[36] This is in clear contrast to Italian housing. It seems plausible, then, that the low numbers of display features were also related to the perceived privacy of the house i.e. the house was not an area regularly used for public display. To use one's house for display then may have been a conscious attempt to behave in a Roman manner.

Although it was noted above (section 9.2.4) that pools were used in houses that were not connected to the piped supply and so may be seen as holding a lower display value, there were still more in Antioch than elsewhere (see Table 9.1). This suggests that while they may not have been as high status as fountains, they were still associated with ostentation and display. This is confirmed by the fact that they were often in the same rooms as the fountains and were, therefore, also visible elements. Similarly, basins were located in courtyards, peristyles and bath suites within the houses.

The chronological developments of water usage for ostentation are not so clear in the East as in, for example, Pompeii, but there does seem to have been a slight increase in decorative water features over time (Table 9.2). There was some evidence for individual houses changing their use of water in response to a change in supply (section 9.2.4). The installation of private baths seems to have become more popular alongside the increase in numbers of public baths. An increase in private baths in the 3rd century is also paralleled in

[35] Wiplinger 2004-6, 41.
[36] Butcher 2003, 302-3.

North Africa where it seems to be a consequence of elites distancing themselves from public life.[37] Interestingly, private latrines became popular earlier than public ones. This may be because a private latrine would not have posed the issues of modesty that seem to have discouraged public latrine use. The numbers of private latrines were low, however, in comparison to Ephesos, for example, where there were at least three latrines in residential districts 1 and 2 in the terraced houses.[38]

Table 9.2: Luxurious or decorative water features in urban houses by century (not including unphased houses).

Feature	1st BC	1st AD	2nd AD	3rd AD	1st BC – 3rd AD	4th AD	5th AD	4th AD – 5th AD
Basin	-	-	-	1	2	1	2	2
Pool	?2	-	1	1 (?3)	2	1	1	1
Fountain	-	1	2	2	4	-	4	3
Baths	-	1	-	3	1	-	1	-
Latrine	-	1	-	3	-	-	1	3

There seem to have been relatively strong differences between status and display in urban and rural housing. The first is a general lack of a running water supply for rural housing. Houses in towns simply (though not without some expense) needed to be connected to the existing urban network in order to make decorative features feasible. In rural areas one would need to build an entire aqueduct, at considerably greater expense. Rural housing also lacked pools, basins, fountains, wells or latrines in many of the examples. While this may indicate a lower standard of living or lower amount of disposable wealth among the non-elite in rural areas than in urban centres and shows a potential division between rural and urban communities in the Near East, it may also be that the archaeological record is more evenly balanced between elite and non-elite housing in rural areas. If a more representative sample of housing from a range of classes were known from urban areas, a similar pattern may occur, i.e. a higher proportion of houses may have had only basic facilities.

[37] Wilson 1997, 133.
[38] Wiplinger 2004-6, 38-45.

Drainage systems in the rural houses were restricted to the highest-class houses that were also furnished with bath suites and had access to plenty of water. In contrast, in the urban centres there was more widespread evidence for provision of drainage systems across the region, though the most complex systems described above were associated with higher class residences such as the Yakto Complex and the palace of the *Dux Ripae*.

The house at En Ya'el, near Jerusalem is clearly different from the other known rural houses. This house does not stand out just in terms of its water supply, but also in its mosaic decoration, which has been described as displaying an 'intermingling of eastern and western iconography'.[39] Furthermore, it has been suggested on the basis of roof tiles stamped by *legio X Fretensis* that the villa may have been a soldier's residence or at the very least had a close connection with the Roman army.[40] Tiles stamped with LEG X FRET have also been found in a 2nd/3rd-century AD private bathhouse at Ramat Rahel outside Jerusalem, near the High Level aqueduct.[41]

9.5 Discussion and conclusions

This chapter has looked mainly at urban higher class housing in the East, with a bias towards houses in Antioch, Zeugma, Dura Europos and Sbeiteh, which reflects the present state of excavation and research in the area. It is possible that a more balanced cross-section is to be found in the corpus of rural housing, though the number in the sample is small. Most of the houses in the East had relatively simple water management systems that focussed on supply from cisterns and probably wells. Only the wealthier houses in cities such as Antioch and Zeugma appear to have been connected to an external piped supply. In these houses, additional features, in particular fountains, made use of the piped water to display the wealth and status of the inhabitants. The desire to use water for display was particularly strong in Antioch and where there was no connection to a piped supply, pools were used for ostentation and as status markers. To some extent the ability to display wealth in Roman terms was also affected by the nature of the water supply, so houses such as the palace of the *Dux Ripae*, which one would expect to have several decorative features, actually made restrained use of water because it must have been supplied by cisterns.

[39] Roussin 1994, 41. Thanks to Dr Adi Erlich for pointing out this reference to me.
[40] Edelstein 1990, 40.
[41] Aharoni 1962, 26.

An interesting comparison can be drawn here with the acceptance of urban and public water installations. When private installations that are associated with a Roman way of life (lead pipes, bathhouses, latrines and fountains) are added to the picture drawn in section 8.5, further subtleties of the relationship between identity and material culture can be drawn out. These features were restricted to centres with the strongest associations with Rome: Antioch, Beirut, Zeugma and to a lesser extent Apamea (Table 9.3). This must have reflected which groups of people wished to display their wealth in Roman terms, and by so doing display their desire to seem Roman and their willingness to embrace different ways of living. This was also illustrated by the En Ya'el 'villa' whose inhabitants may have had strong Roman links. Once again it seems that the crux is a willingness to make a change in behaviour that will impact on expressions of identity. It is striking, for example, that Caesarea, which displayed a strong Roman identity in the public world, did not do so in the private realm. This would seem to indicate that there was more resistance to changing private identities than public ones.

Table 9.3: Presence (x) of public and private water supply features associated with a Roman way of life in selected cities across the East.[42]

Site Name	Lead pipes (Public)	Lead pipes (Private)	*Nymphaeum*	Fountain (Private)	Bathhouse (Public)	Bathhouse (Private)	Latrine (Public)	Latrine (Private)
Antioch	X Bath	X	X	X	X	X	X	X
Apamea			X	X	X		X	X
Beirut	X	X	X	X	X	X	X	
Caesarea	X		X		X		X	
Dura Europos					X	X Palace	X	X Palace
Jerash			X		X		X	
Petra			X		X	X		X
Umm Qes	X Bath		X		X			
Zeugma				X	X		X	X

[42] Palmyra and Scythopolis have been excluded from this table as housing on these sites has not been considered in this chapter.