

Lavatories in Ancient Greece

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Abstract Lavatories can be classified as a characteristic factor of living standard and economic prosperity. Many remains of ancient lavatories have been found in Greece. Some of them are dated even in the Minoan era. Many references about them have been recorded in numerous ancient Greek scripts. Despite that many related archaeological finds are dated in a wide chronological range, the typical mature ancient Greek lavatory was probably formed in the Hellenistic period, which was a period of a great evolution of the ancient Greek water technology. Lavatories are found not only in private houses but also in many public buildings and sanctuaries. The features of the typical ancient lavatory are the bench type seats with the keyhole shaped defecation openings and the ditch underneath them, which is associated with both water supply or flushing conduit and sewer. The lavatory was usually situated in the area of the building most convenient for water supply and sewerage. Later, the mature lavatory's layout was spread out all around the Roman Empire, acquiring more or less monumental appearance.

Keywords Ancient technology; Aristophanes; Hellenistic period; latrine; lavatory; sewerage; toilet

Introduction

The hygienic installations, like lavatories, can be classified as factors of living standard and prosperity. Therefore they have become, and often still are, showing off elements.

Terms – Etymology. Lavatories are reported by ancient Greeks as *ἀφοδοξ-aphodos* or *ἀπόπατοξ-apopatos* but also as *αποχωρησιξ-apochoresis* (withdrawal). The term *θωκοξ-thokos* (seat, throne, chair) is also recorded. The last one is characteristic for the shape of lavatories and for the equivalent portable or fixed utensils. Such artefacts were used for defecation before the formation and predominance of the typical ancient lavatory. The term *κοπρων-kopron* probably describes a construction relevant to the current small cesspits. It was without any sewerage pipes which usually characterizes the typical ancient lavatory-apopatos. Because of that lack of sewerage *koprodochoi* and *koprotheke*s were essential as well as *koprologoi*, those who gathered the sewage. It is also remarkable that most Modern Greek words referring to defecation have ancient word roots.

Written Sources. In Aristophanes' comedies the term *apopatos* is mentioned in "Plutus" (line 1185), in "Ecclesiazousae" (326, 351, 354) and in "Acharnians" (l. 81). Its synonyms *aphodos* and *kopron* are also mentioned (Ecclesiazousae, 1059, and Thesmophoriazusae", 1.485, respectively) The sanitary paper of that era, "*spongia*" (from sponge) is reported in "Frogs" (line 487). In "Peace" (l. 9), *koprologoi* are named in a depreciatory manner, as vituperation (Hall and Geldart, 1967).

Other sources. *Kopron* is also reported in Demosthenes (25, 49) as well as in various inscriptions (i.e. IG2 1058II). The term *αφεδρων-aphedron* is written in OGI 483.220 Pergamon (Athen. Mitt. 27, 1902). *Aphodos* is reported by Hippocrates (Peri agmon, 16), who also calls it *thokos* (Epidemiae, 7,47,.84). Polydeukes refers to an immovable lavatory to distinguish it from the vessels (Bethe 1900-37: 10 and 44).

Emergence of the type and its time frame

Defecation installations of the Minoan and the Mycenaean period have been recorded. The well recorded lavatory type at Knossos Palace (Angelakis *et al.*, 2005: 212), is a very early example to be considered as one of the first links of their chain of evolution. Latrines are mentioned at scripts of the classical period, but neither public nor private ones have been found. Researchers that dealt systematically with that subject, agree on this point. However, some have argued for the existence of *kopron*-cesspit in houses of this period in Athens. Moreover, containers of clay for defecation -*koprodochoi*- are known (amides or skoramides from Athens) as well as anatomically shaped earthen seats (from Olynthus), much alike the current toilet seats. The absence of bottom at these seats, combined with the form of the lower edge, justifies their use either over cesspits or along with some other mechanism for collection and drainage of excrements. Probably they are similar to a pre-existing type of lavatories. Their existence in Olynthus that was destroyed in 348 B.C. could easily date them in the 5th century BC (Figure 1).

An on floor earthen utensil with a clay sewerage pipe was found in Olynthus. Its shape, according to the excavator, suggests that it was used along with a wooden seat or a small relevant board that was not preserved. Finally recent discoveries in Epidaurus probably represent one of the first equivalent stone samples of toilet seat, indeed a premature one. Research about the time of appearance of lavatories with this mature layout, suggests that this has probably happened in early 4th century BC. Basic issues for this hypothesis are, first the absence of lavatories in finds of the 5th century BC - however they are reported in the ancient scripts - and second the appearance of them approximately at the end of that century, according to existing documentation, in Thera, Amorgos and Delos. The number of lavatories that were found in residences and public buildings in Delos determines the importance of ancient lavatories. That society of seamen and tradesmen which had many engaging representations was logical to confront substantially a problem that deplored all the ancient cities.

The typical layout of the lavatory was formed during the next centuries in the greater Hellenic region with numerous examples. Many latrines dated in the 2nd century BC have been preserved in residences (Delos, Thera, Amorgos, Dystos, Kassope, Erythrae, etc.) and in public buildings (Gymnasia, Palestrae, etc.). The mature formation of the lavatory's features in the late Hellenistic era was followed by its spread in the entire Roman Empire. Along with that spreading, lavatories were in a way "Romanized" if that

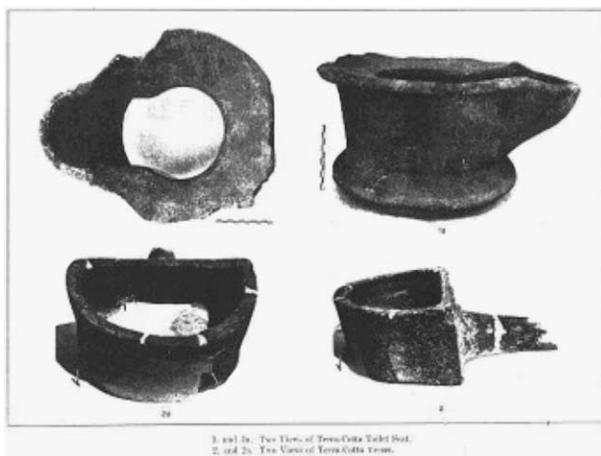


Figure 1 Earthen toilet seat and defecation vessel, Olynthus (Robinson and Graham, 1934)

term can be used. Therefore at the 1st and 2nd centuries AD lavatories are built in monumental forms and sizes.

Description of the typical lavatory

Public and private lavatories

According to the existing documentation it appears that the essential differences between private and public lavatories were mainly their size, represented by the number of defecation holes, and the existence or not of continuous water flow. There is lack of privacy since they were used by three individuals – in the private ones – up to tens of persons – in the public lavatories. It is also noteworthy that while in Thera (Figure 2) there are many public lavatories, in Delos around the private ones.

Pipe network–sewerage

The layout of the lavatory is substantially determined by the ditch under the benches of defecation. The public lavatories were usually supplied with water of natural flow. On the other hand in many cases this was combined with flow from the kitchen or the bath. In both cases the sewers define the lavatory's layout and position in the building. Moreover, the requirements of sewerage put that room in the perimeter of a building at a side adjacent to a street. The sewage was drained through ditches along the streets or even in the open spaces in cases of small houses (e.g. in Dystos). The most typical position is at the corners of the buildings, while for the residences the placement in small spaces near the entrance is widespread, particularly in Delos. Possibly it is after the cesspit's (kopron) placement by the entry of Athenian houses.

Lavatory's typical features

Peripheral ditch. The peripheral ditch usually lies along the three sides of the chamber, in a U shape, mostly uncovered. In smaller private lavatories it is mainly deployed along the two sides in an L shape. On the other hand, in the later large public lavatories it lies along the four sides (Athens, Philippoi, Asklepieion in Kos, Pergamon, Epidauros). The input of water – by flow or carried with container – comes in a way that facilitates the sewerage. The ditch is adjusted to the level of natural flow of water, either acquiring great height (Roman Agora-Athens) or after adjustment of the lavatory's floor level (Philippoi).

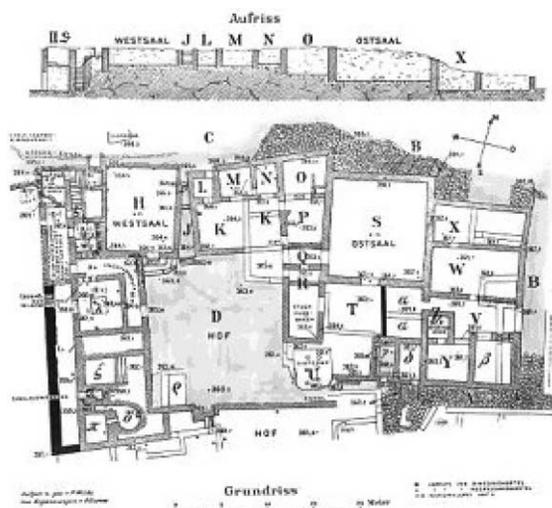


Figure 2 Small public lavatory in ancient Thera (Gaertingen von, Hiller, 1909)

Lavatory seats. The bench shaped seat is always made out of stone slabs, 10-20 cm thick. It is usually 45–50 cm wide and roughly that much higher from the floor, as a typical chair. Their length varies depending on the size of lavatory and the number of defecation apertures on each slab and their gap. Indicatively it ranges from 1.2 m in Minoa-Amorgos up to 2.3 m in the Philippoi. Under every seat, even in the simplest one, there exists a vertical slab that covers the void between the floor and seat. The supporting of seats presents interesting differentiation and typology. There are four types, all cantilevered, mostly covered except from those in Philippoi and Efessos. (Figures 3–5)

- (a) The cantilevered stone slab protruding out of the wall. It occupies the 2 of 3 sides of the lavatory of the Gymnasium in Minoa-Amorgos. The other 1/3 is supported by a stone bracket. The implementation of that type on small lavatories is obvious.
- (b) The freely supported slab over stone beams, either cantilevered or not. These beams are invisible, covered by the vertical plate which fills the void in front of the seat. It is the most typical form and the joists are roughly as high as is the seat from the floor and made mostly out of cheaper stone than the rest visible structure. In Roman lavatories it is made of small brick wall pieces. The peripheral ditch passes through their lower part.
- (c) Similar to the previous type where the stone joists protrude out of the vertical plates and have been formed as neck mouldings of benches and exedras (Philippoi - Efessos).
- (d) Finally, the type where the freely supported seat slab is also supported by stone cantilever beams which are shorter and less wide than the seat (Asclepieia of Pergamon and Epidaurus).

Defecation openings. The openings are on the seat and their intermediate distance varies. In Gymnasium of Minoa on Amorgos it is 85 cm while in the Roman Agora of Athens is just 51 cm. as the public lavatories facilitated more people, so were placed more densely. In most Roman latrines there is also dense arrangement of openings. It is also remarkable not only the shape but the ergonomics of the openings. Compared to the known earthen defecation seats of Olynthus, they show resemblance in both the keyhole shaped outline and in their slanting verges. The width of that slanting in the stone openings varies from 4 cm in Minoa to only 1 cm in Athens. There is a hypothesis that

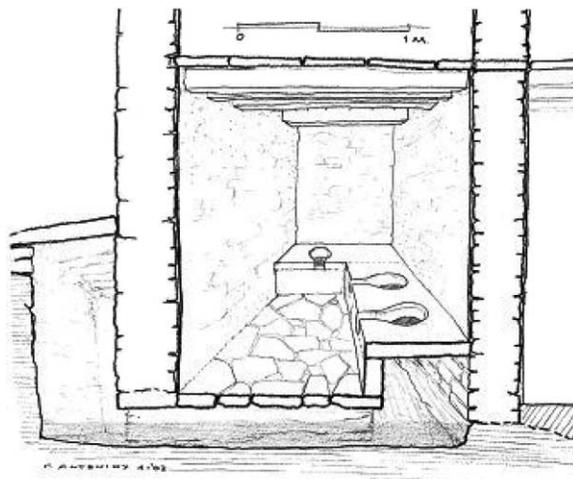


Figure 3 Restored view of Ithidiki's lavatory on Amorgos

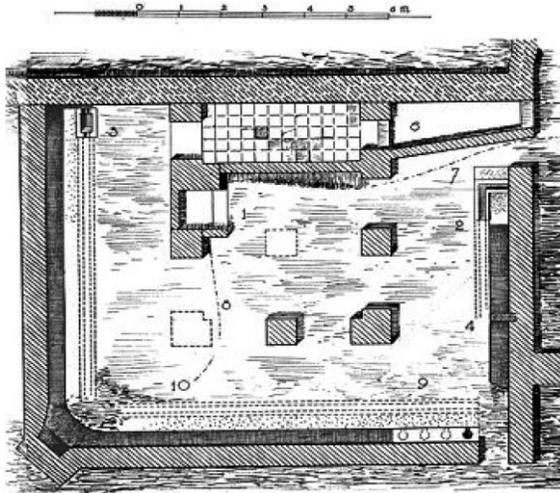


Figure 4 Public lavatory in Asclepieion of Kos (Schatzmann, 1932)

this slanting was for an earthen cover but it could be reconsidered. Another interpretation is that this slanting was curved in order to make the seat more comfortable than it would be with a sharp edge. There is much variety in the shape of the openings. The rough but more ergonomic elliptical shape found in Amorgos is formalized in the Roman period. The prolongation of the opening up to the front edge of the seat contributes to the variations. It must be noted that the form of openings remained substantially the same during the life time of that lavatory type.

Auxiliary elements. After the expansion of a lavatory other adjoining constructions were also created, like the small holes for drainage of urine on the floor of Roman Agora's lavatory in Athens and the explicit clue on something equivalent in Minoa Amorgos, 3 to 4 centuries earlier. Moreover the small peripheral half pipe ditch of continuous water flow was widely applied and was mostly used for the cleaning of *spongia*. Many lavatories had a small central swallow reservoir. In Athens and Efessos it was colonnaded like a greek katakleiston or a roman impluvium. At the lavatory of Kotyo's Stoa in Epidauros, it must be for washing the *spongia*. A similar small central reservoir exists also in one public lavatory of Thera.

The layout of the ground plan. Most ground plans have oblong shape in both public and private lavatories. At the lavatories of Athens, Philippoi, Efessos and Epidaurus there is

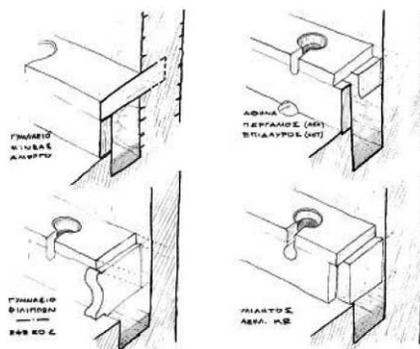


Figure 5 Formation and types of lavatory's seats supporting

also a rectangular entrance lobby. Finally at the Imperial era the ground plan became more complex and imposing.

Examples of public lavatories

Among the earliest well shaped lavatories is the small one in the Gymnasium of Minoa on Amorgos (Figure 6). It was built contemporarily with the Gymnasium at its south west corner during the mid 4th century BC (Maragou, 1986, 1987, 2002; Neudecker, 1994). Apart from its surviving roof and the benches on three sides, is also preserved the large conduit, supplied by natural flow water. A well shaped sewer was used along the south wall of Gymnasium. The small public lavatories of Thera abound all over the excavated part of the ancient city. Even though they are embodied to residences, their access was only from the communal space of streets. The ditches and sewers have been preserved but not any seats or openings.

Public lavatories have been found in the Palestras and the Gymnasium in Delos. The three lavatories at the Palestra of the Lake (Figure 7) were formed after the modification of the original classical building. The north-eastern one was probably supplied by the water from the bath. The neighbouring smaller and newer Palestra has also a lavatory. In both buildings lavatories have been placed in the perimeter, and particularly near the path of outer drainage.

The ground plan layout of the Asclepieion lavatory in Pergamon is more complicated than the usual rectangle form. In the Asclepieion of Kos the lavatory is part of a later extension of the lower portico. There it is remarkable the monolithic reservoir which also drains the water from the small peripheral half pipe, for the wash of *spongia*, to the main conduit (Figures 4 and 8).

At Ventio's Thermae in Efessos, the traditional Greek toilet typology was embodied in a typical Roman building. In the Gymnasium of Philippoi (Figure 9) the typical layout is predominant, despite the roman modification of the building. Its placement resembles the lavatory of Kotyo's Portico in Epidaurus (Figure 10).

In Athens two public lavatories dated in the Roman era have been preserved, one south-east of the Attalos' Stoa and one east of the Roman Agora. The lavatory of the Roman Agora is a mature construction of that period, built after the Agora. It is characterized by the oblong entrance lobby, the deep conduit under the benches and the central

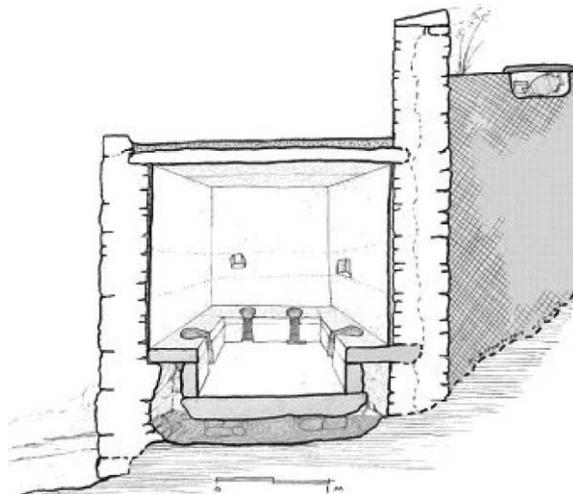


Figure 6 Restored view of the lavatory at the Gymnasium on Amorgos

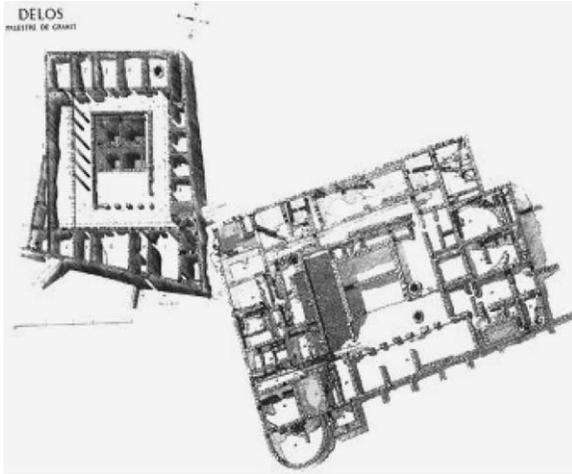


Figure 7 Recomposed ground plans of Palestras on Delos (Chamonard, 1924)

impluvium (Figure 11). It had 62 defecation openings with corresponding urinal holes on the floor (Orlandos, 1940).

Finally in Epidaurus the lavatory at the portico of Kotyo's could be possibly dated as one of the latest of this type in Greece. It has oblong plan and is supplied with water of natural flow, probably from the north-eastern baths. The elongated swallow tank in the middle, made of tiles, has a small sewerage pipe ending at the main peripheral conduit.

Examples of private lavatories

The remains of earthen fixed utensil of sewerage in Olynthus is one of the oldest known residential lavatories. Probably it was supplied by the water remaining from other household uses. The excrements were led to the street sewers, *via* lead or clay pipes. In Delos many domestic lavatories have been preserved. Their size is medium or small and their main ditch had also L plan shape (Figure 12). The small ones have the bench with the openings along one side, while the large ones are along the three sides. Most likely the seats with the keyhole shaped openings were wooden. They were discharged *via* street sewers. Because of the short of water on the island, they were flushed with water from other uses.

The resemblance of the lavatory at Ithidiki's residence, in Minoa Amorgos, with those in Delos is remarkable. On the other hand the main difference is that it was supplied with

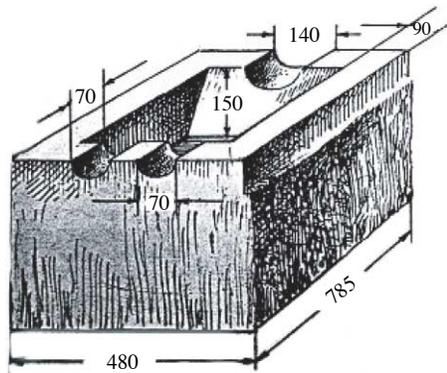


Figure 8 Conduit's end stone, Asklepieion-Kos (Schatzmann, 1932)

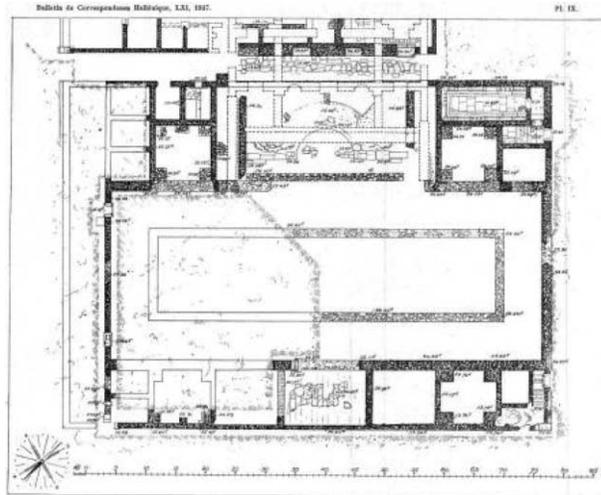


Figure 9 Gymnasion of Philippoi, ground plan (Lemerle, 1937)

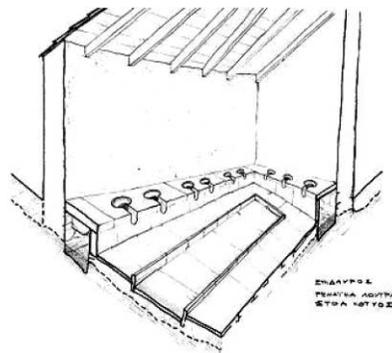


Figure 10 Restored view of the lavatory in Kotyo's Stoa, Epidaurus

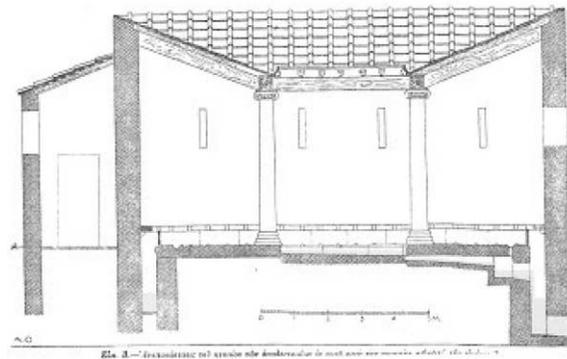


Figure 11 Lavatory at Roman Agora, Athens Restored longitudinal section (Orlandos, 1940)

water of natural flow from the conduit attached to the outer wall and operated as both adducing and abducting. Probably it carried water from drainage of buildings higher up to the inner L plan conduit (Figure 13). At a small residential lavatory in Dystos (Figure 14) there is not natural water flow and the sewage flows freely just outside the house at the sloping ground, without any conduit! In Erythrae the lavatory was placed in the corner of the atrium and was put along the narrow side of room, just opposite the door. The sewage

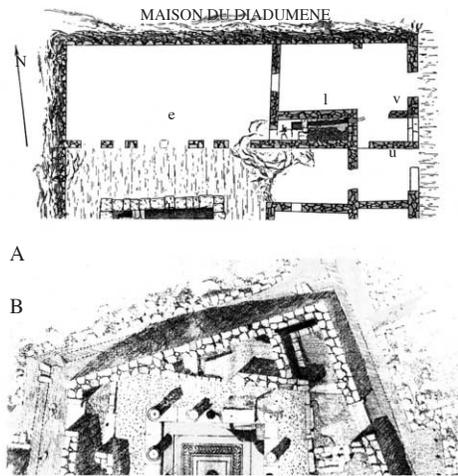


Figure 12 Delos, houses' Lavatories (a) With flushing hole; (b) L shape (Chamonard, 1924)

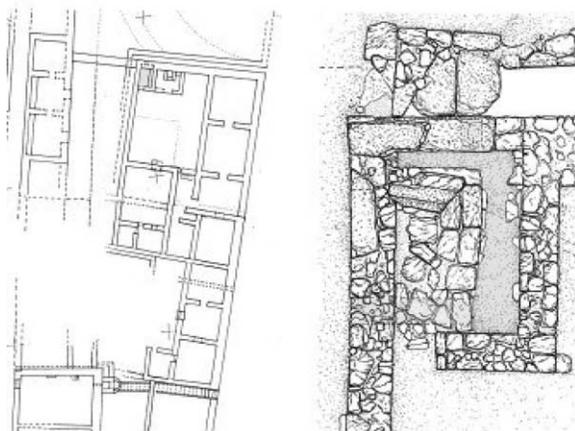


Figure 13 Ithidiki's residence-Minoa Amorgos (a) General plan; (b) Detailed plan

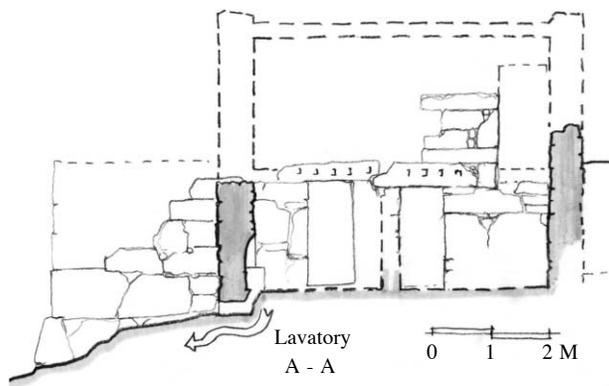


Figure 14 Dystos, Section of the house's ruins

was just led outside the house. Finally, lavatories have been also found in other ancient towns as in Kassope behind Katagogeion. Private lavatories were widespread in the Roman Empire as well as the public ones. In Ostia a lavatory was a common feature in almost every house.

Conclusion

It is obvious that the shape, the layout and the structural techniques of ancient lavatories depended on functional needs, anatomic requirements, constructional restrictions, because of the materials applied, and the presence of water. Similarities appear in most of their elements not only in examples that abstain chronologically, but also at private and public ones, rich or poor lavatories. Their usage by more than one individuals at the same time, remained during the life time of this type of toilet. Ancient lavatory differences through years are mostly resulted by the implementation of the Roman building style, not only according to the size of constructions but also to the materials. The number of users was the main differentiation between private and public ones, as it was mentioned earlier.

The appearance and evolution of such constructions are directly depended not only on the prosperity and the economic growth but also on the technological improvement. Therefore, the existence of numerous lavatories in the thriving Hellenistic societies around the Aegean and the wider region of Eastern Mediterranean was absolutely well expected. In the case of Delos, the large number of private lavatories is justified by the presence of affluent residents, tradesmen and seamen, on the island. The case of Thera is also very important, with the numerous public lavatories which, according their placement, shape and size, could be private ones. The influences from the thriving Ptolemaic Egypt should not be ignored.

Accordingly, spreading out of the henceforth mature lavatory's form by the world ruling Romans was expected. The morphological and institutional mutation of lavatory that period is justified by historical facts since during Vespasian's era lavatories contributed to the imperial funds due to the entrance fee. That construction which was shaped initially during 4th century BC and maturely formed in the 3rd century BC was spread out round the Mediterranean substantially without any particular changes.

References

- Angelakis, A., Koutsoyiannis, D. and Tchobanoglous, G. (2005). *Urban wastewater and stormwater technologies in ancient Greece*. *Wat. Res.*, **39**, 210–220.
- Bethe, E. (ed.) (1900-37). Pollux, J. *Onomasticon*. Pollucis Onomasticon e codicibus ab ipso collatis denuo, Teubner, Lipsiae.
- Chamonard, J. (1924). *Le Quartier du théâtre*: Contient V.1, V. 2, V. 3 Paris: 1922-1924, C.E.A. de Délos; 8, 1,2,3.
- Hall, F. and Geldart, W. (1967). *Aristophanes Comoediae*, Oxonii Typog, Clarendoniano.
- Lemerle, P. (1937). *BCH 61*, De Boccard, Paris, 441–478.
- Maragou, L. (1986, 1987). *Ανασκαφή Μινωαζ*. ΠΑΕ 1986, '87, Αρχαιολογική Εταιρεία, Athens, Greece.
- Maragou, L. (2002). *Αμοργός I, Η Μνωα*. Αρχαιολογική Εταιρεία, Athens, Greece.
- Neudecker, R. (1994). *Die Pracht der Latrine*, F. Pfeil, München.
- Orlandos, A. (1940). *Ο προοισμός του βορείωζ του Ωρολογίου του Ανδρονίκου Κυρρηστου κτισματοζ*. Πρ. Ακ. Αθηνων.
- Robinson, D.M. and Graham, J.W. (1934). *Excavations at Olynthus pt. 8. The Hellenic House*, J. Hopkins Press, Baltimore.
- Schatzmann, P. (1932). *Kos I, Asklepieion. Baubeschreibung und Baugeschichte*, H. Keller, Berlin, Germany.