

Technological Choice and Change in the Southwest Bath in the Athenian Agora

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During its five architectural phases, the Southwest bath in the Athenian Agora changes from a Greek-style bath into a Roman-style bath. This article will focus on the first two phases, when Roman elements begin to be incorporated into the traditional forms of Greek bath architecture – particularly, a hypocaust floor system and a concrete vaulted ceiling built into a traditional Greek tholos bath. After describing these architectural features and analyzing the techniques used in their construction, I will examine possible sources of influence on the design and construction of the Southwest baths. The Roman army, citizenry, and workmen could all have potentially affected the incorporation of Roman bathing technologies and building techniques into the Southwest bath. The available evidence, however, indicates that the most likely source of influence is Roman workmen, who were employed in large numbers for the numerous building projects underway in Augustan Athens.

Introduction

The building known as the Southwest bath is located outside the southwest corner of the Athenian Agora.¹ Two major roads define the northern and eastern boundaries of the bath complex and its environs. Retaining walls on the east and west sides of the site are the earliest datable architecture, dating to the fourth century B.C.E.² The first phase of the baths, however, dates to the second century B.C.E. This phase was followed by four subsequent phases, ending in the sixth century C.E.³

During Phase A, from the second to first centuries B.C.E., the Southwest bath displays architectural features characteristic of a Greek bath – a circular room built of conglomerate blocks, within which individual bathtubs were placed around the edges. Starting in Phase B in the late first century B.C.E., however, the bath begins to change into a Roman-style bath, with a hypocaust floor heating system and a vaulted ceiling built into the circular room, and perhaps the construction of additional buildings adjacent to the circular room. In the middle of the first century A.D., the Southwest bath was torn down and completely remodeled. The new building had 13 rooms, and all the elements of a Roman bath: heated floors and walls, graduated heating of communal pools, a latrine, and vaulted ceilings. The Southwest bath existed in this from the middle of the first century until the middle of the third century A.D., known as Phases C and D. After destruction in the Herulian Sack of 267 A.D., the Southwest bath seems to have functioned as a philosophical school in Phase E, from roughly the fourth – sixth centuries A.D. The building still contained baths in Phase E, however, and appears to have had a double function as a bathing establishment and an educational space.

Although the fourth century B.C. poros aqueduct line is located in the vicinity of

the Southwest bath, there is no evidence that it or any other aqueduct ever supplied the bath with water. There are, however, five wells and a Hellenistic bottle-shaped cistern that are located on the site. Remains of the drainage network were found throughout the excavation area, indicating many changes over its five architectural phases.

Phase A: second century – first century B.C.

Little evidence remains from the earliest phase of the Southwest bath, mainly due to later architectural phases that have obscured its remains. Besides the retaining walls noted above, the primary evidence for Phase A consists of a circular building 7.20 m in diameter.⁴ The circular foundation was composed of conglomerate blocks laid at angles, with their joints packed with rubble. Cuttings in bedrock to the south of the circular structure may indicate a second room or an adjacent structure, but its form and function are unclear. A wedge-shaped marble bathtub was found in the vicinity, which Shear Jr. associated with this phase of the baths.⁵ Water for the Phase A baths was most likely supplied by an elaborate cistern complex consisting of a bottle-shaped cistern, a seven meter tunnel, and a man-hole providing access to the tunnel. A well south of the circular bath building was also in use at the time.⁶

The architectural evidence for Phase A of the Southwest bath corresponds with the general consensus for Greek bathing practices and building techniques in the Classical and Hellenistic periods.⁷ Greek baths normally contained a round room with bathtubs placed around the perimeter, primarily made from cut stone. Ashlar masonry is the standard building technique. Wells and cisterns frequently supplied the water for Greek baths, rather than aqueducts. Attendants poured water over the bathers, although there are iconographic depictions of bathers



Figure 1: Phase A of the Southwest Baths, actual state. Agora PD 1833.

standing under waterspouts. Water was heated in boilers, and braziers were used to heat the rooms, in addition to the steam from hot water. While some Greek baths were located in buildings dedicated to public bathing, bathing facilities were also commonly found in gymnasia. Individual bathtubs have also been recovered from domestic contexts, and some sanctuaries included areas for bathing. The circular building built of ashlar blocks and the wedge-shaped marble bathtub found nearby support the identification of Phase A as a public bath, located just outside the

Agora.

Phase B: first century B.C. – first century A.D.

Phase A of the Southwest bath ends in the first century B.C. Shear Jr. attributes its end to the Sullan sack of Athens in 86 B.C., although there is little evidence for violent destruction. Pottery associated with Phase B architecture dates to the late first century B.C., and Shear Jr. believes that the baths remained out of use between the Sullan sack in 86 B.C. and its Phase B rebuilding. Phase B still employs the

circular room associated with the hip baths of Phase A, although the room has now been fitted with a hypocaust floor heating system.⁸ The hypocaust floor consisted of square terracotta tiles set in a bed of mortar laid over the original conglomerate block foundation. Square pilae were laid over the tiles, in order to create the heated air cavity. Square terracotta tiles were also used for the suspensura, or suspended floor on which the bathers walked. A mosaic of marble chips laid in mortar covered the suspensura.⁹ Traces of a brick-lined flue were found to the southeast of the round

room, showing the direction from which heat was transferred from a furnace to the hypocaust. The continuation of the marble chip floor through an opening in the circular foundation led to the restoration of an entry point in the southeast. Concrete debris, some with spherical curving, was found during the excavation of the hypocaust floor, indicating the presence of rubble concrete walls and a vaulted ceiling. The conglomerate blocks of the Phase A foundation were widened to 1 m thick with an interior brick lining, providing further support for the construction of a vaulted

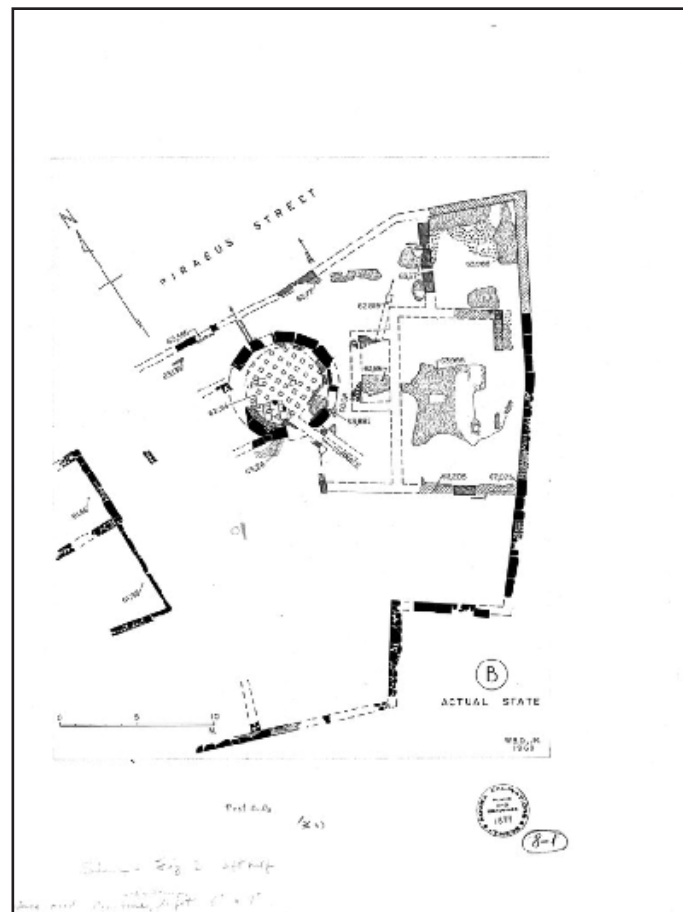


Figure 2: Phase B of the Southwest Baths, actual state. Agora PD 1834.

ceiling.¹⁰

In addition to the circular room, evidence exists for other structures in its vicinity. Remains of the marble chip flooring found in the circular room were discovered at similar levels outside the structure, primarily to the east and southeast. Although disturbed by subsequent building phases, remains of Late Hellenistic/Early Roman walls were also found in these areas, leading to the tentative restoration of rooms. The remains indicate the possible presence of two rectangular rooms, the larger one with a small rectangular niche in its western wall. A small segment of a drain was found in the north wall of the niche.¹¹

Shear Jr. believed the Phase B architectural evidence indicated the presence of a Roman-style bathhouse, with a “more up-to-date look and all the latest western amenities.”¹² He speculated that the marble chipped floor and the drain segment indicated the presence of a pool in the western niche, and that the rectangular rooms were signs of a large, communal, Roman-style bathing establishment. McCallum, however, is more tentative in his interpretation of the Phase B remains. He notes that the placement of the doorway in the circular room is problematic in its relation to the niche in the rectangular room, because the doorway opens directly onto the niche’s western wall. Furthermore, the marble chipped floor is described as being both the bottom of the proposed pool in the niche, and also as the floor level in the rectangular room, although there is only a 0.15 m difference in the elevation of these two surfaces.¹³ One would expect a greater change in elevation between a pool and its surrounding floor level. These inconsistencies make it difficult to accept the proposed restoration of a pool in the niche in the rectangular room, although the presence of the drain leading northward does argue in its favor. There is clear evidence for a Roman hypocaust floor heating system, but beyond

this innovation it is speculative to restore a pool in the poorly preserved remains to the east of the circular building. Without the presence of a communal pool, it is difficult to classify Phase B as a Roman-style bath. The function of the circular room is likewise difficult to classify. Was its function basically the same as it was in Phase A, with the addition of a hypocaust floor and a vaulted ceiling? Did the hip baths remain present around its perimeter? If there were pools located elsewhere on the premises, such as to the east in the niche of the rectangular room, it is possible that the circular room functioned as a sweat room during this phase, with bathing taking place elsewhere. On the other hand, it may have maintained its function as the primary bathing area in Phase B, with the marble hip baths still providing a “Greek-style” bathing experience.

Building Techniques

The building techniques used in Phase B show significant changes from the traditional Greek techniques of Phase A. The structure retains its traditional circular form, but new masonry techniques present different options for how to proceed within this traditional framework. The decision to incorporate Roman heating technology is perhaps the most significant impetus in the adoption of new building techniques in Phase B. Hypocaust floor heating cannot be built without the structural use of brick and mortar. Romans were familiar with construction techniques using these materials, but Greeks preferred to build with dry masonry techniques and worked stone.¹⁴ The choice to build a hypocaust thus indicated a significant change in building technique and material at Athens. The pilae were laid on terracotta tiles leveled in a bed of mortar, providing a stable base for the *suspensura*. Above the pilae, the terracotta tiles that form the base of the *suspensura* were covered with a leveling course of mortar, into which

the marble-chipped mosaic floor was set. Mortar and brick construction was also utilized to create the flue from the furnace to the hypocaust floor. The conglomerate block walls were widened with a brick lining to support a vaulted ceiling.

Although adherence to the circular room plan illustrates a degree of architectural conservatism, the various applications of brick and mortar in Phase B are strong indications of Roman influence on its design. But does this necessarily mean that a Roman architect built Phase B, or could Athenian builders have carried out a Roman design? If a Roman architect were present, would he have been able to instruct and educate Greek workmen in construction techniques that were unfamiliar to them? While the hypocaust required the ability to mix mortar and build with brick in a competent manner, the construction of a vaulted ceiling is more technically complex. It is unlikely that architects and workmen with little to no experience in concrete and vault construction could execute a project such as the Phase B baths without the guidance and assistance of experienced personnel.¹⁵ Although the archaeological evidence does not reveal the identity of the builders, the techniques and technologies present in the Phase B baths imply the presence of both a Roman architect to design the building, and workers experienced in Roman techniques to build it. If the building techniques and technologies used in Phase B imply the involvement of a Roman architect and construction workers, it is important to consider the evidence for how and why Romans would have been living and working in Augustan Athens.

The Roman Army in Augustan Athens

When considering the spread of Roman building techniques, it is important to consider the potential influence of the Roman army. For example, Lancaster

has recently argued that the technique of pitched-brick vaulting came to Greece after Roman army engineers saw its use while on Trajan's Parthian campaign in 113-117 A.D.¹⁶ While the Phase B architectural innovations in the Southwest bath occurred about a century earlier than Trajan's Parthian campaign, it is possible that the Roman military could have been involved in the dissemination of building techniques at this time as well. Unfortunately, there is little evidence regarding the presence of the Roman army in Augustan Athens. There is epigraphic evidence attesting to the presence of the Roman army in Greece during Rome's eastward expansion in the third – first centuries B.C., but the army was usually transient, rather than settled for extended periods and exerting a prolonged effect on the local population.¹⁷ If this is the case, it mitigates the potential influence of the Roman army on local populations, including technological exchange and influence on traditional building techniques. The potential influence of the military cannot be ruled out, but the archaeological and historical records do not provide evidence for its prolonged presence in Augustan Athens.

Roman Citizens in Augustan Athens

In addition to the technical aspects of the Phase B innovations, it is important to consider what is known about the Roman population of Athens at this time, since Roman citizens living or working in Athens may have influenced the Phase B innovations at the Southwest bath.¹⁸ Aside from military activities, Romans began living and traveling in the Greek world as early as the third century B.C. The activities of businessmen regularly brought Romans through Athens, especially after the appropriation of Delos in 166 B.C. As the Roman republic expanded eastwards, Roman officials began passing through Athens as well, as they headed east for administrative purposes. Roman citizens

also came to Athens for education at philosophical schools. Lastly, some Roman officials are known to have come to Athens after being exiled from Rome. By the first century B.C., epigraphic evidence attests to Roman names in the ephēbe lists, followed shortly after by the first instances of Romans holding administrative offices in Athens. Habicht believes, however, that Romans were not a strong presence in Hellenistic Athens overall. Likewise, Geagan argues that during the imperial period, Rome preferred to support Athenians in the governance of their city, rather than to become directly involved in local Athenian affairs. The offices of Hoplite General and Epimeletes gained power during the Roman period, and many of the Athenians that held these positions enjoyed strong support from Rome. In sum, while the number of Romans living in Athens may not have been high, a Roman presence was felt in Athens. Whether passing through on business, studying at a philosophical school, or living in exile, there were Romans in Athens. The Phase B innovations at the Southwest bath may reflect their will and desire as much as the changing tastes of the local Athenians.

Architecture in Augustan Athens

While the Roman army and citizenry offer interesting, if somewhat speculative, evidence into the extent of Roman influence in Augustan Athens, the architectural evidence is more forthcoming. The Augustan period was a busy time for construction in Athens.¹⁹ The Roman Agora, started by Julius Caesar, was completed during the reign of Augustus. Monumental projects such as the Odeion of Agrippa and the reconstruction of the temple of Ares were underway in the Athenian Agora, clearly visible from the Southwest bath. On the Acropolis, the monopteros in front of the Parthenon was constructed under Augustus, and the Erechtheion was remodeled to repair

damage sustained during the Sullan sack. In a recent examination of Augustan buildings in Athens, Burden argued that Augustus redesigned the heart of the city with the intention of portraying the imperial family as the rightful heirs of the Panathenaic festival.²⁰ While it is beyond the scope of this article to discuss the motives for every building project in Augustan Athens, it is difficult to dissociate the Phase B remodeling of the Southwest bath from the other architectural projects going on at the same time.

Burden's work on the building program of Augustan Athens includes substantial detail on building techniques, and even the identity of the builders. Regarding the Odeion, his analysis shows that the building was designed and laid out on a module measured in Roman feet.²¹ The monumentality of the project and the complexity of the auditorium's roof suggest to him that Roman architects were responsible for its design and present to supervise its construction. Regarding the labor force employed in the spanning of the roof, Burden believes that specially trained carpentry crews would be necessary for the work. He furthermore notes that such specialized crews of Roman builders did move freely between cities, depending on where jobs were available.²² His supporting evidence is a frieze from the Column of Trajan, which depicts a specialized crew of bridge builders. Although the Trajanic frieze postdates the architectural projects in Augustan Athens, it is reasonable to believe that such crews existed and were present in Augustan Athens. The presence of Roman architects and workmen at the Odeion, which is in close vicinity to the Southwest bath, may be more than a coincidence in regard to the new technologies built into the Phase B bath. The design and technical knowledge necessary for its hypocaust floor and vaulted ceiling may have come directly or indirectly from the Roman architects working in the vicinity, perhaps even as

close as the nearby Odeion.

Conclusion

Phase B of the Southwest bath ends around 50 A.D., when the baths are deconstructed and rebuilt on an entirely different architectural plan.²³ The new building was significantly larger, with 13 rooms spread over an expanded area. At least four rooms included pools, and there is strong evidence for graduated heating of communal pools, which is a sure sign of a “Roman-style” bathhouse. The hypocaust heating system was expanded to include three large rectangular rooms, at least one with heated walls in addition to a heated floor, and all with vaulted ceilings. The new hypocaust was built directly over the foundations of the circular room from Phases A and B, preserving its remains beneath the new building. With this reconstruction, the Southwest bath continued a transition that started from traditional Greek antecedents in Phase A, and developed into the architecturally ambiguous layout of Phase B. The construction of the hypocaust floor system is the earliest example of this technology in Athens, and evidence for concrete vaulted ceilings is also not present before this period. These architectural innovations are a sign of the increasing Roman presence in the city, and it seems likely that their construction indicates the presence of Roman workmen. These new building techniques become common in the architecture of the first and second centuries A.D., although local adaptations remain noticeable.

Athenians adopted Roman bathing habits slowly. From a technical standpoint, the Southwest bath provides an interesting case study of how the process unfolded. The first hypocaust system in Athens does not show the whole-hearted adoption of Roman-style bathing with graduated heating and large communal pools. Instead, the traditional circular room of a Greek-

style bath is rebuilt with Roman floor heating and a concrete vaulted ceiling. The ambiguous nature of Roman technology built into the form of a traditional Greek bath perhaps reflects uncertainty, or even resistance, among the population of Athens regarding Roman bathing practices. Some may have welcomed the heated floor and a new, perhaps more airy ceiling. Others may have continued to prefer the familiarity and tradition of the Greek-style bath, perhaps influencing the continued use of the circular architectural form. Judging from the later building phases of the Southwest bath, Roman-style bathing did eventually become common in Athens. Before its adoption, however, the remains of Phase B provide interesting evidence for a short period when Greek architectural tradition blended with foreign influence in form and technology.

Endnotes:

1 The Southwest bath were excavated in 1948, 1949, and 1968. The results were originally published by T. Leslie Shear Jr. in *Hesperia* 38, pp. 394-415.

2 The retaining walls are built in a 'checkerboard technique' of alternating conglomerate ashlar blocks and smaller polygonal limestone, which became popular in this part of the Agora in the early fourth century B.C. Young 1951, p. 193.

3 Shear Jr. labeled these architectural phases A – E. Phase A starts in the second century B.C., and ends in the first century B.C.; Phase B starts in the late first century B.C. and ends in the mid first century A.D.; Phase C starts in the mid first century A.D. and ends in the mid second century A.D.; Phase D starts in the mid second century A.D. and ends in the mid third century A.D. Phase E starts in the fourth century A.D. and ends in the sixth century A.D.

4 See Figure 1.

5 Agora Find ST 334. Shear Jr. calculated that 20 of these wedge-shaped bathtubs would have fit perfectly within the circular room of the Phase A baths, although McCallum notes that this would leave no room for space between the tubs. Shear Jr. 1969, 397; McCallum 2009, 37.

6 Well E 18:7 is described in *Agora Field Notebook* OO XXIV, 4606-4623. Cistern complex F 17:4 is described in *Agora Field Notebook* □□ XV, 2843.

7 General accounts of Greek baths and bathing include Ginouvres 1962; Yegül 1992, pp. 24-29; Gill 2004.

8 See Figure 2.

9 Shear Jr. 1969, 398. The square terracotta floor tiles have 0.49 m sides. The square pilae have 0.25 m sides.

10 Shear Jr. 1969, 398-399; *Agora Notebook* OO XXII, 4265.

11 See Figure 2.

12 Shear Jr. 1969, 398.

13 McCallum 2009, 40-41.

14 Greek builders did use hydraulic cement to waterproof cisterns, but rarely for structural purposes. For general accounts of Greek masonry techniques, see Camp and Dinsmoor 1984; For Roman masonry, Adam 1994 and Taylor 2003 provide excellent accounts of the architectural process.

15 Boyd 1978, 83. Architectural evidence for vaulting in Greek construction begins in the late 4th century B.C. with barrel-vaulted tombs in Macedonia, and continues in the Hellenistic period. All classical and Hellenistic evidence for vaulting is dry masonry, however, and none comes from Athens. Boyd believes the Macedonian army learned vaulting construction techniques from Mesopotamian sources while on campaign with Alexander the Great.

16 Lancaster 2010.

17 Payne, M. 1984, 25-30. Payne examined roughly 250 dedicatory inscriptions on statues to Romans erected in Greece from the third-first century B.C.

A substantial portion of the inscriptions (75%) was dedicated to military personnel, primarily for the purpose of demonstrating allegiance to high-ranking officers, in the interest of community preservation. She notes that often the recipient of the dedication would no longer be in Greece by the time the sculpture was ready for dedication.

18 For recent research on Roman citizens in Athens, see Habicht 1997; Geagan 1997; Walker 1997; Daly 1950.

19 The most recent analysis of architectural developments during the reign of Augustus is Burden 1999. Other contributions include Shear Jr. 1981, Thompson 1950, and Hoff 1988.

20 Burden 1999, 210-225. It is interesting that although Burden discusses Augustan building projects in the Agora in great detail, he does not include nor mention the Southwest bath at any point in his work.

21 Burden 1999, 82.

22 Burden 1999, 103.

23 Limitations of space prohibit the analysis of building techniques and technological developments in the later phases of the Southwest baths, which will be considered by the author in future work.

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