CHAPTER 1

# Development of Baths and Public Bathing during the Roman Republic

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## 1 Introduction

Material remains of baths – basins, pools, terracotta, stone and metal tubs – and well-developed hydraulic systems found in Crete, Cyprus and Anatolia, such as the second millennium palaces at Knossos, Boğazköy and Zincirli, attest to the remarkable degree of technical and aesthetic sophistication attained in bathing, at least by the privileged classes of Bronze Age civilizations (Naumann, 1971: 195, 442–3; Lloyd, 1967: 78–9). Looking back to the legendary past, in Homer's world bathing in warm water was a luxurious and refreshing experience, a special reward reserved for heroes at the end of a trip or battle. In the *Iliad* men who returned from reconnaissance "washed away in the sea the thick sweat from their skins and necks" (*Il.* 10.572), and as retold by Athenaeus centuries later, after having this way refreshed themselves "they went to the polished tubs and bathed, smearing themselves with oil, they sat down to their meal" (*Deipnosophistae* 1.24 d, trans. C. Gulick, 1927, Loeb). In these aristocratic contexts hot bathing was a fairly simple matter of washing from a cauldron of hot water mixed with cold to comfortable warmth. However, already in the fifth century the conservative view in Greece criticized hot, pleasure bathing as a sign of decadence and aspired towards the frugal lifestyle of the Spartans, who supposedly only bathed in cold water ("Laconian style").

Among the ancient Mediterranean civilizations, Romans deserve to be singled out in their extraordinary devotion to bathing as a social and recreational activity deeply rooted in daily life. Bathing in public was a central event in Roman culture and a very important part of the Roman day. Demonstrating little interest in cold water bathing (unless it was a medical recommendation), Romans developed and perfected the heating and water supply technologies of baths, which changed bathing from a simple act of hygiene to one

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of pleasure. For the average Roman, who spent a considerable part of the day in the public baths, bathing was an activity which incorporated sports, games, massage, body culture and relaxation much like a social club or community center. Some of the larger baths even included quasi-intellectual facilities such as libraries and lecture halls as well as colonnades, galleries and exedrae for the exhibition of works of art. Roman baths embodied the ideal of Roman urban living. By the Late Republic, Rome had nearly 200 small baths as recorded in urban census documents (*Notitia Romae (Notitia regionem urbis)*, ca. 334–57 CE and *Curiosum urbis Romae*, ca. 357–403 CE). By the end of the fourth century CE their numbers had swelled to a staggering 856, plus ten or eleven Imperial thermae, which were exceptionally large and luxurious bathing complexes ordinarily owned and operated by the state.

What accounts for the obvious delight Romans had in their baths and the intense popularity of public bathing? There is no simple and definite answer to this question. One overarching observation is that bathing was popular simply because it had become a habit. It had become a comforting part of urban life and national identity – and the more Romans liked bathing the more likeable it became. Not to bathe would have been un-Roman. Still, why did bathing become a daily habit in the first place?

## 2 Bathing as Pleasure

We believe that among the most important reasons for the popularity of bathing is the pleasure factor: bathing is a physically and psychologically pleasing activity that relaxes the body and soothes the mind. The bathing experience – warm, clean water, shining smooth marble surfaces, steamy atmosphere, the aroma of perfumed ointments, the nudity and intimacy of massage – awakened the senses and created a state of comfort and well-being the Romans called "voluptas." A freshly bathed person felt light and optimistic. These sensory pleasures were admired aspects of baths and bathing. A fifth-century CE dedicatory inscription from a bath in Serdjilla, in Syria, is one of many that announced that the bath could bring "comfort and happiness" to the entire village (Prentice, 1901). The renovated Baths of Faustina in Miletus, in Asia Minor, were described as an "ornament" to the city where the citizens enjoying the delights provided by the refreshing bath waters "all are relieved of toils and labor" (Gerkan and Krischen, 1928: no. 339). Often these waters and their delights were identified with nymphs and *charites* (Graces), minor goddesses that protected the waters and personified beauty and charm.

## 3 Bathing as Luxury

Enhancing the sense of pleasure and delight was the sumptuous material world created by public baths. As observed by Cicero, in the first half of the first century, Romans disliked private luxuries but "delighted in public magnificence" (*Mur.* 76). The interiors of baths, decorated in fine polychromatic marbles, intricate mosaics, stucco ornament, gleaming bronze hardware and marble statuary, all under high and well-lit vaults and domes, were perhaps the most appropriate candidates for such public display of wealth and luxury. And this was a luxury that could be enjoyed by all, or almost all. Wealth in

private life was for the enjoyment of the privileged few; public baths, dubbed as "people's palaces," brought this bounty to the masses. As a rule even baths run as lucrative enterprises which charged a fee were not outside middle-class affordability. There were, however, a few like the Baths of Etruscus in Rome which must have been a small but exclusive establishment with a select clientele. Martial recommended it to a friend admiringly: "If you do not bathe in the *thermulae* (small bath) of Etruscus, you will die unbathed!" (*Epigrams* 6.42, trans. W. Ker, 1968, Loeb; see also Stat. *Silv.* 1.5). The world of material magnificence offered by public baths, especially the great thermae of the Imperial period, afforded urban populations the opportunity to escape their overcrowded and cramped living conditions and the dusty streets for a few hours a day and bathe in style. For a few hours a day the privilege of public bathing took the individual out of his shell and gave him a place among others. But most importantly, it gave him an opportunity to share the empire's wealth and, perhaps, to believe in its ideologies.

## 4 Bathing and Ancient Medicine

An important and practical explanation for the popularity of baths is medical: bathing was believed to be good for health and particular forms of bathing were recommended as cures for particular ailments. In a world that lacked the modern means of diagnosis and cure, where almost every surgical intervention risked the patient's life, it is logical that preventive medicine, as represented by thermal and curative bathing and which aimed to maintain a healthy body, was far preferred to drastic and intrusive methods of treatment (Yegül, 1992: 352–5; Fagan, 1999: 85–103).

Bathing as a therapeutic measure received its initial authority from the recommendations of the Hippocratic School of Greek medicine in the fifth century. These recommendations, often promulgated by itinerant doctors and popular medical lecturers, were largely based on empirical and sometimes inconsistent assumptions. According to the *Regimen in Health* and *Regimen in Acute Diseases*, the two fundamental treatises of the Hippocratic corpus, one should bathe more frequently in the summer than in the winter; fresh water bathing moistens and cools the body while salt (sea) bathing dries and warms it up. Bathing was not recommended in cases of strong fevers or for those suffering from diarrhea or constipation. If not taken the right way bathing could actually harm the person, but "if preparations are satisfactory and the patient welcomes the idea, a bath should be taken every day" (*Acute Diseases*, trans. in Lloyd *et al.*, 1978: 205; cf. 186–206, 272–7; see also Vallance, 1996). It is interesting to note that the Roman habit of daily bathing seems to have its roots in the recommendations of Greek medicine as do the customary exercises as a prelude to baths.

According to Diocles of Carystus, a famed physician and dietician of the fourth century, an ideal daily routine included a relentless series of morning and afternoon exercises, massage and bathing (Jaeger, 1938). The views and practices on exercise and bathing for health were introduced to the Roman world through the works of various Hellenistic writers. Of particular significance is Asclepiades of Prusa (Bursa, Turkey), a Greek physician who practiced in Rome at the end of the second and the beginning of the first century (Green, 1955). This was just the period when bathing in public was making significant gains in Rome and Italy with concomitant development of baths and

heating technology. Asclepiades employed a strict program of diet, exercise and baths and included cold water bathing in his regimen. His most influential followers, who established exercise and bathing as a quasi-scientific method, were Celsus, a medical writer of the first half of the first century CE, and Galen, a doctor from Pergamon and a physician who achieved great success in Rome during the second half of the second century CE. Both of these influential sources emphasized the benefits of hydrotherapy by specifying the nature and extent of bathing in an easy-to-understand style and in considerable detail. In treating a wide variety of maladies, they recommended bathing in close association with physical exercise, massage and sweating – activities that constitute the core of the Roman bathing routine.

It is also interesting to note that the explicit programs of bathing outlined by Galen involved a progression from cold to lukewarm to hot areas; he also recommended sweating and massage and a final plunge into the cold pool (to close the pores of the skin, to brace and energize the body). This progression roughly coincides with the tepidarium, caldarium, laconicum and frigidarium of the Roman baths already reflected in the architectural order and plan of many Republican establishments. Although we do not know to what extent the patients or the general public followed such a strict therapeutic regimen, it appears logical to assume that both thermo-mineral and regular city baths were used for curative purposes. Public baths were better equipped for treatment since even the better houses did not have elaborate bathing facilities. Nor could one get at home the professional attendants and health technicians necessary to administer the bath correctly. These points had been emphasized already in the Hippocratic corpus: "The basin should afford easy getting in and out. The patient should remain quiet and passive during the process of curative bathing; he should not attempt to wash himself, but let others do it for him" (trans. in G. Lloyd *et al.*, 1978: 204–5).

## 5 Bathing Ritual and Activities

Bathing as a social ritual occupied the larger part of the afternoon. Martial recommends the "eighth hour" (ca. 2–3 p.m.) as the best time for bathing when the heat of the baths was tempered (*Epigrams* 10.48). Since the Roman day was divided into 12 hours from sunset to sunrise (midday was the sixth hour), the length of the hours and the time to bathe varied from season to season. Patrons spent several hours in the baths, which in the shorter winter days might have necessitated artificial illumination (and explains the large number of lamps found in some bath excavations), but as a rule night bathing was rare and considered unsafe. Bathing was also enjoyed more in brightly lit interiors.

The essentials and basic routine of bathing as stated by Pliny the Younger appears simple: "I am oiled, I take my exercise, I have my bath" (*Ep.* 9.36). A wealthy person was accompanied to his bath by his servants and slaves carrying his towels, bathing garments and toilet kit; a poor person carried his own bundles. Upon arriving at the baths, one undressed usually in a special room reserved for this purpose called the apodyterium, which in some of the Republican era baths was characterized by rows of small cubby-holes to hold clothes (Figure 1.1). Putting on a short tunic, patrons normally engaged in some kind of physical exercise in an open courtyard or palaestra. It would be misleading, however, to imagine that the average Roman undertook a strenuous workout like the young

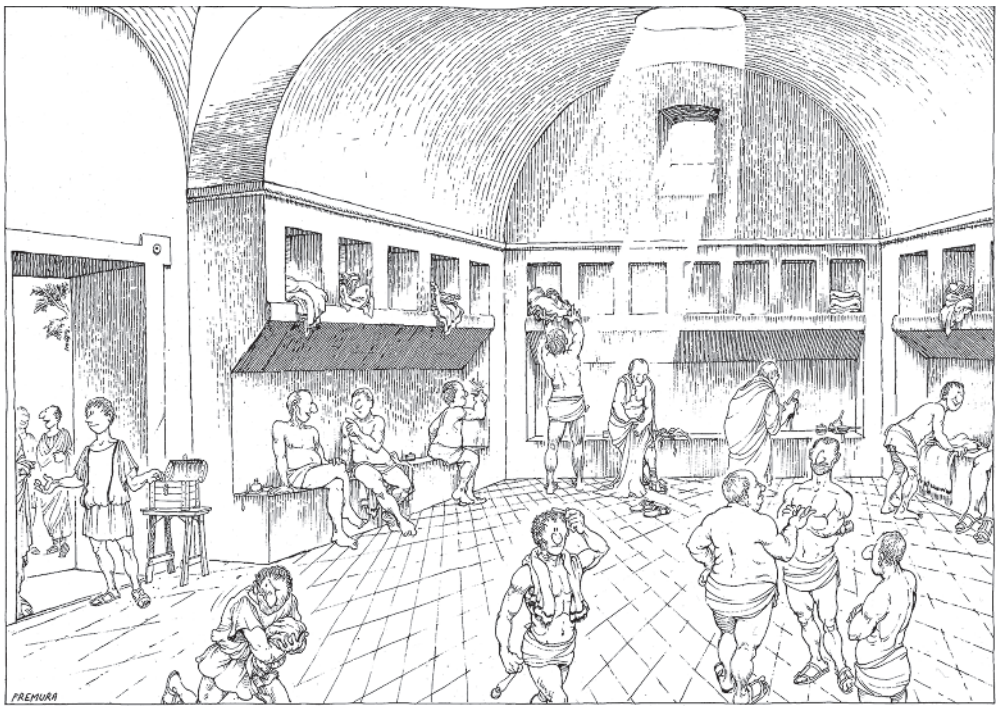


**Figure 1.1** Reconstruction of a typical apodyterium in use in the Late Republican period. Source: Pasquinucci (1988: fig. 24). Drawing by A. Fremura. Used by permission of Franco Cosimo Panini Editore.

athletes of the Greek gymnasium. Roman gymnastics in the context of bathing were often light, such as the numerous ball games intended to loosen the muscles and build up sweat – activities that appealed to all age groups and body shapes. Martial mentions no less than five different ball games for the palaestra. One, called "triple ball" (pila trigonalis) was, as the name implies, a game for three where the opponents stood roughly at the three points of a triangle and tried to confuse each other by passing several balls back and forth (*Epigrams* 12.82, 14.46, 4.19, 7.32). Among other palaestral sports, running, boxing and wrestling are mentioned but their practice was not restricted to the open-air courtyard; many of the larger baths (especially of the Imperial period) had special halls (basilica thermarum; see below) that could be used for indoor athletics. Women did participate in sports and games, though they probably preferred the lighter variety. Swimming was also a popular bath exercise but it is unlikely that any serious or competitive swimming or diving was done. With few exceptions, such as the deep lap-pool of the military baths at Isca (Caerleon, Wales; see below), even the large swimming pools, the natationes, of the thermae only reached a depth over 1.0 to 1.20 m. Most of the bathers must have enjoyed a few easy strokes, leisurely wading and splashing. The easy and inclusive nature of sports welcomed even the elderly and the less athletically inclined to participate and made the public baths a pleasure for the masses.

Time spent in the palaestra was pleasant but few were so enthused with their exercise as not to drop everything and hurry inside when the tintinnabulum, the bell that

announced the opening of the hot baths, sounded. Inside, the general order of bathing required a movement from warm to hot through a number of intercommunication rooms at varying degrees of warmth. Some bathers also spent time in one of the special rooms for sweating – the laconicum for dry heat and the sudatorium for steamy, wet heat – but identification of these spaces in actual baths is difficult. Bathing terminated in a cold plunge in one of the pools of the frigidarium. Some of the larger baths even had special sun rooms (heliocamini) with large, unglazed windows oriented west or south-west and unpaved, sand-covered floors. It must have been a pleasant experience to pretend to be at the beach and enjoy broad views across land and sea while sunbathing or immersed in a pool.

Among the most engaging of the plethora of social activities in the baths must have been the pleasure of being with friends, conversation and gossip, while perhaps enjoying a relaxing massage. Poetry reading, music and singing – not always welcome – were common. There were professional performers, too – jugglers, animal trainers, conjurors, jesters, mimes and gymnasts. Also pleasurable, at least for some, was eating and drinking, which would have added merriment to any group. A price list scribbled on a wall in the Suburban Baths in Herculaneum includes for sale "nuts, drinks, hog's feet, bread, meat and sausage" (*CIL* IV.10674). Vendors of food and drink could be found in any bath, but in Magnesia-on-the-Meander, there was a restaurant annexed to the bath which offered cheese, barley, olives, wine, fish, vegetables and a kind of "lyre-shaped" pretzel (Cousin and Deschamps, 1888: 203). The pastime engaged in the baths was supposed to be a light snack, a prelude to dinner proper, an important social event culminating the day, often taken in the company of others. Martial was a cordial host who strove to arrange a fine dinner for his bathing friends: "You will dine nicely, Julius Cerialis, at my house. You will be able to observe the eighth hour [time for bathing]; we will first bathe together at Stephanus' Baths … [then at dinner] there will be lettuce for relaxing the bowels …" followed by a long list of delectable treats (*Epigrams*, 11.52, trans. W. Ker, 1968, Loeb). A good bath called for a good dinner and public baths were the best places to invite somebody, or to get an invitation at a well-appointed household with a cook famed for his culinary skills. As mockingly narrated by Martial (*Epigrams* 2.14), some luckless characters, in order to avoid the social disgrace of dining alone, moved from one bath to another until they secured an invitation.

## 6 Ethical and Moral Concerns and Criticism of Roman Baths

Since ethical and moral concerns persisted as a topos of Roman literature, it is not surprising that baths with their luxurious and hedonistic world provided a likely subject for criticism. Their permissive and populist atmosphere could easily tolerate, or even encourage, coarse, irritating and occasionally violent behavior. The tramp, the vagabond and the ordinary lout found excellent opportunities for uncouth and boorish ways. The newly rich showed off their wealth; the half-educated subjected their victims to their grandiose literary ambitions; thieves and tricksters circled the crowd.

Seneca, a conservative writer and philosopher who lived in the first half of the first century CE, compared the well-lighted baths of his day with the dark and austere

interiors of old ones, such as the one reputedly used by Scipio Africanus, the hero of the Punic Wars:

> [Today] we think ourselves poor and mean if the walls [of our baths] are not resplendent with large and costly mirrors [made of white polished marble]; if our marbles from faraway Alexandria are not set off by rich mosaics of rich, yellow stone from Numidia [*giallo antico*, an expensive marble] … if our vaulted ceilings are not buried in glass [mosaics]; if our swimming pools are not lined with marble from Thasos, once a rare and wonderful sight in any temple … What a vast number of statues, of columns that support nothing but are built for mere decoration … Our ancestors did not think that one could have a hot bath except in darkness.
>
> (*Ep.* 86, trans. R. Gummer, 1962, Loeb)

Taken at face value Seneca's criticism is unjust. Excessive luxury for the sake of luxury may be condoned but good light and quality materials in architecture are a virtue; so is the habit of daily bathing. But Seneca was giving voice to a well-known moralizing position that disapproved of the increasing luxuries of the Empire contrasted with the frugal and modest virtues of the Republic. One should realize that writers often used the subject of bathing and baths as a metaphor in the service of other moralizing and polemical issues. Alternatively, baths could be used as literary trope to provide comical relief in describing the vibrant and unpredictable social mix of a growing metropolis such as Rome. In Plautus's plays (ca. 200–180), public baths of Rome often provide a colorful and familiar setting for courtesans, mischievous slaves and pickpockets. The popular New Comedy playwright thus provides us with some of the earliest literary evidence confirming that public bathing was widely accepted in Rome and Campania by the early second century.

The subject that attracted the greatest public criticism was the alleged immoral conduct associated with baths. The sexually permissive atmosphere tolerated in baths and spas made them the ideal playgrounds for sensual delights and questionable behavior. Sites with thermal baths and curative natural springs, such as the world-famous Baiae in the Bay of Naples, offered the greatest opportunities for misdemeanor (Yegül, 1992: 92–4, 1996: 137–62). Martial was delighted in the unrestricted opportunities for otium offered by the bewitching Baiae and described the place as a gift of nature "on the golden shore of blessed Venus" (*Epigrams* 11.80, trans. H.G. Bohn, 1897, Bohn's Classical Library). But, Seneca, the moralist, allowed himself to visit the famed spa once and denounced it as "a resort of vice" (*deversorium vitiorum*) (*Ep.* 51). Even at ordinary bathing establishments, there is little doubt that the presence of women (if mixed bathing was allowed) and nudity encouraged sexuality. Drawing on rich but often ambiguous evidence, the issues of mixed bathing, nudity and women in Roman baths elicit much scholarly debate.

The wet, hot and steamy atmosphere of baths probably encouraged a far greater degree of nudity than the palaestra where exercise garments, as specified by Martial, were clearly the norm (*Epigrams* 7.67, 4.19). A skimpy bathing costume, such as a cotton kilt wrapped around the waist or the chest (like the *pestamal* worn in modern Turkish baths), would have covered as well as exposed much in the course of washing and massage. Thus, whether men or women bathed in the nude may be a moot question; even if they had some cover, it revealed enough. A number of well preserved and remarkable

paintings from a small neighborhood bath in the Esquiline region in Rome show nude or semi-nude women bathing or attending their toilettes in the baths. One particularly graceful figure simply holds in front of her nude body a loose, flimsy bathing wrap like a veil (Barbera and Paris, 1996: 16–37, figs. 16–17, 20–3).

Despite the Romans' famed sense of modesty and propriety, mixed bathing appears to have been acceptable during some periods of the Republic, at least in some baths. Quintilian, the famous rhetorician who was active in Rome in mid-first century CE, made the point that the habit of women bathing with men (lavari cum viris) was not necessarily an indication of adultery (*Institutio Oratoria* V.9.14). But his contemporary, Pliny the Elder, contrasted the alleged virtues of the long-gone Republic with the vulgar tastes of his day (*HN* 33.153, 36.121). Martial, on the other hand, referred to the practice with a degree of approval if not apparent delight, as an unremarkable social custom (e.g. *Epigrams* 11.47).

The architecture of public baths could give us some clues. Varro, writing around mid-first century, informs us that the first public baths introduced into Rome were designed as two connected buildings, one for men and the other for women (unum ubi viri, alterum ubi mulieres lavarentur; *Ling.* IX.41.68). Vitruvius, writing a few decades after Varro, lays down the architectural rule that hot baths for men and women should be separate, but, with admirable practicality, they should share the same furnaces and service yard (*De arch.* V.10.1). We do not know which baths in Rome Varro was referring to or where they were introduced from, but the rich evidence from Campania and now from Latium largely supports his observations. Three baths from Pompeii, the Republican Baths, Stabian Baths and Forum Baths, and the Forum Baths from Herculaneum, were all double baths for men and women with shared services (Figure 1.2) (Yegül, 1992: 57–66). These baths date from the mid-second to late first century. Displaying perhaps the earliest use of the same arrangement the Republican Baths in Fregellae in Latium are dated ca. 200–175 (see below). It is interesting to note that with the advancing decades of the Empire, the double bath was almost entirely replaced by establishments with a single set of bathing facilities, such as the Suburban Baths in Pompeii (early first century CE) or the Central Baths from the same city (still unfinished in 79 CE).

Implying that mixed bathing was *de rigueur* before his time, Hadrian prohibited mixed bathing with his famed decree "lavacra pro sexibus separavit," which was ratified under the Antonine emperors but discarded under Elagabalus (*SHA Hadrian* 18.10; *Marcus Aurelius* 23.8; *Heliogabalus* 31.7). Numerous inscriptions mention "baths of men" (balneum virile) and "baths of women" (balneum muliebre) but what is meant by these designations is not clear (Yegül, 1992: 429, n. 21). If mixed bathing was banned and the architecture of baths did not allow for the separation of sexes, men and women presumably bathed at different times of the day, normally women before noon, and men after. This arrangement is confirmed by a bath inscription of Hadrianic date from Vipascum, a small mining community in Portugal: women bathed in the morning and men in the afternoon (*CIL* II.5.181). For a habit that crossed continents and centuries, and involved vast numbers and types of baths, there could have been no single mode or practice. However, these rules and regulations imposed on bathing must have varied by time and place, by the type of clientele to which a bath catered, and by one's own sense of modesty and morality.

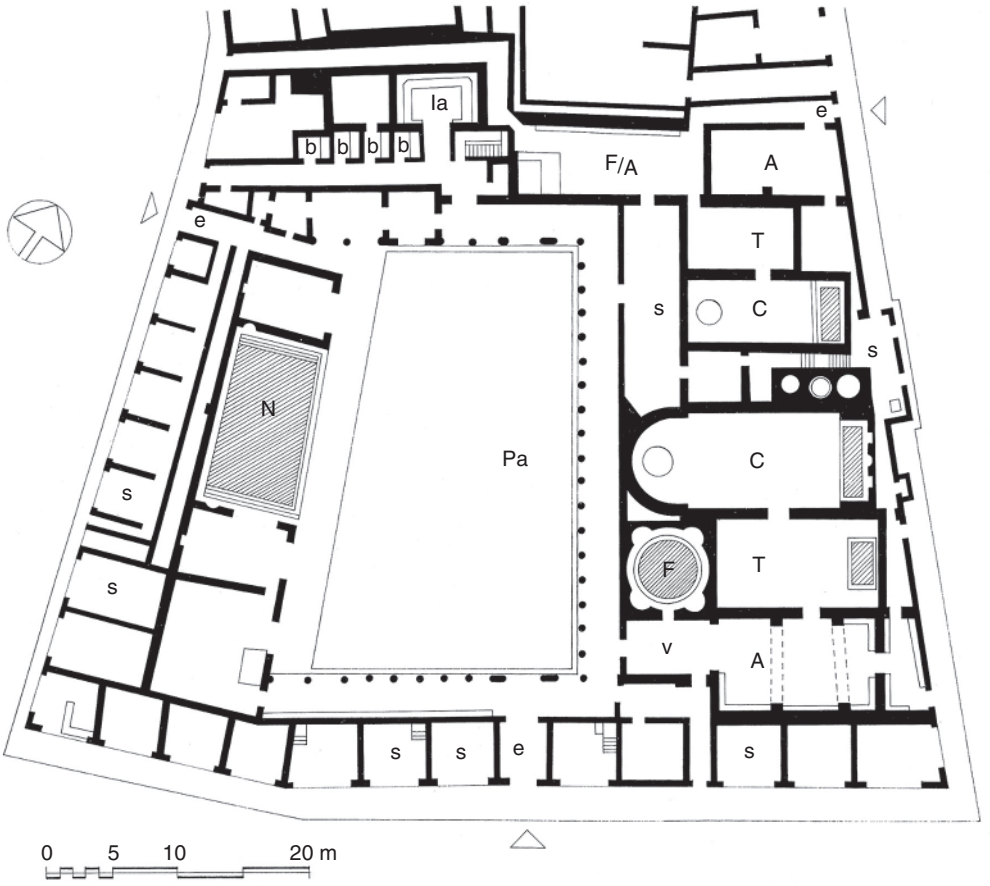


**Figure 1.2** Plan of the Stabian Baths, Pompeii, *c.* 80. A=apodyterium; b=hipbaths; C=caldarium; e=entry; F=frigidarium (formerly a laconicum); la=lavatrina; N=natatio; Pa=palaestra; S=service yard; s=shop; T=tepidarium; v=vestibule. The women's bath-suite is found in the north-east corner of the baths (hence the replication of rooms). Source: Drawing by F. Yegül, adapted from Eschebach (1979).

## 7 Baths of the Greeks

In his study of Roman bathing Fagan underlines the influence of Greek and ethnic populations of the eastern Mediterranean upon the Romans: "the arrival at Rome of larger numbers of people [during the Late Republic] from regions where public bathing had long been practiced is surely significant and may well have contributed to the growing appreciation of baths among the lower orders" (Fagan, 1999: 82) – and, of course, also in the "higher orders," the urban elite. Indeed, Romans must have first learned about public baths and appreciated bathing as a social custom through their contacts with the Greeks of Sicily and south Italy in the early days of the Republic. There were Greek baths on Italian soil dating from the late fourth and early third centuries. Their plans, such as the early third-century baths at Gela, Sicily, typically display clusters of rooms, often circular in shape with individual

hip baths with covered sides (for privacy and protection from splashing) arranged around the perimeter of the wall. Outside of Italy Greek baths of the Classical and Early Hellenistic period are characterized by the tholos type. Some of these, such as the baths at Piraeus, or the baths in the Sanctuary of Apollo at Cyrene, carved wholly or partially in soft rock, could have been known to Italian builders. It is important to note, however, that Roman baths in the subsequent centuries followed the proper Greek baths neither in plan typology nor in simple heating technology. With the exception of the second stage of the baths at Gortys in Arcadia (first half of the third century), which utilized one of the earliest applications of heating canals under the floor, Greek baths were heated by simple means, such as the use of braziers, unlike the more advanced central floor heating systems of Roman baths (see below). More significantly, they also reveal little concern for plans based on a sequencing of controlled and graded heating of spaces, the hallmark principle of Roman bath planning.

## 8 Bathing in the Context of the Gymnasium

Another important line of influence on Roman baths comes from the bathing facilities that were normally a part of the Greek gymnasium or palaestra. According to Vitruvius, our best written authority on the subject, the only element of the traditional Greek gymnasium connected with bathing was the *loutron*, either an open-air area or a special room of the palaestra equipped with elevated basins for cold water washing (*De arch.* V.11.1–2). Such cold water washing facilities have been preserved in many Hellenistic era palaestrae, such as those at Delphi in Greece and Priene in Asia Minor, where a series of marble basins are supplied with running cold water. In Delphi there is also a very large circular open-air pool in which the athletes could refresh themselves after their exercises, and perhaps even swim. Greek vase paintings provide many examples of palaestra scenes showing athletes washing around a raised, round basin (labrum) or showering under panther-head spouts (Yegül, 1992: figs. 15, 20, 21, 22). There is also a red-figure vase from the Berlin Staatliche Museum depicting women washing in cold water in what appears to be a public fountain (Yegül, 1992: fig. 19). Since athletes normally covered their bodies with oil before taking exercise, the advantages of hot water over cold in removing the muddy and greasy mixture from the skin must have encouraged hot water bathing in a gymnastic context. Vitruvius's description of the palaestra in fact includes an elaborate facility for hot water bathing. This was a semi-independent bath-suite located in a corner of the building which included a frigidarium, a warm-water room (calda lavatio) and a laconicum for sweating. A furnace servicing the suite was reached by a corridor (*De arch.* V.11.2). Writing at the end of the first century, Vitruvius was undoubtedly describing a palaestra of his own time, probably from Italy. This hypothesis is supported by epigraphic record which indicates that by the end of the Republic many of the old-fashioned gymnasia were renovated to include hot water bathing facilities; this was also in keeping with the fusion of the balnea with gymnasia and palaestrae in Campania and Latium. The gradual disappearance of traditional gymnasia and the transformation of others by the addition of fairly elaborate hot baths gave rise to confusion in the conception and terminology between a *gymnasion* and a *balaneion*; sometimes the same establishment was called by different names in two different inscriptions (Delorme, 1960: 244–5, n. 4; Yegül, 1992: 21–4). These changes, especially the growing interest in hot bathing

as a pleasurable and sensuous activity in itself, can be seen as a part of the larger trend towards individualism and love of personal comforts affecting the entire post-Alexandrian world of the eastern Mediterranean.

## 9 Italian Farm Bathing

As demonstrated by literary and archaeological evidence the Greek component occupies a solid position in the development of the baths and bathing habit in Italy. Yet this appears to be only a part of the story: there is another important local source of influence enriching the many-sided debate on the origins of Roman baths – this is the contribution of the rural or farm traditions of bathing in Italy. This pro-Italian view (not surprisingly developed by Italian scholars) traces the origins of hot bathing to folk medicine of central Italian villages (Di Capua, 1939/40; Fabbricotti, 1976: 29–11; Yegül, 1992: 50–5). Farm houses in Early Republican Latium and Campania commonly had a special room with a stove or stove-boiler combination, often shared with the farm kitchen, to induce a "good sweat" effective in curing seasonal colds and alleviating rheumatic pains. To protect the patient from the cold this "sweat chamber" was joined by another moderately heated room, which also served as a changing room, and connected to a cold-water unit, or lavatrina. Thus, such rustic bath-suites established the three fundamental elements and sequences of the proper Roman public bath: the apodyterium/tepidarium, frigidarium/lavatrina and caldarium/laconicum. The early examples dating to the second and first centuries are simple and directly heated by kitchen stove-boilers; only the bath-suites of the later farm houses and villas, such as those in the House of the Faun and the House of the Labyrinth, both in Pompeii and both ca. 70–9 CE, utilize sophisticated floor heating systems. In the latter, even the walls were heated by employing special terracotta tiles (tegula mammatae; see below) which allowed the circulation of hot gasses between the wall and its revetment. Although the practice of therapeutic bathing in an agrarian society makes sense, it is obvious from the elaborate and luxurious layouts of some villa baths – which often encompass three or four interconnected rooms in a row – that domestic bathing could not have been solely and simply for curative purposes. Rather, bathing in Republican Italy was becoming a hygienic and recreational activity catering to the rising bourgeoisie and its ideals of the good life, its cherished otium.

## 10 Heating and Water Supply Systems

The development of effective heating and water supply systems played a major, perhaps decisive role in the creation of the Roman bath. The effectiveness of these systems appeals to popular imagination even today as one of the outstanding achievements of ancient technology, nothing short of a mysterious invention whose details are somewhat exaggeratedly believed lost to modern scholarship. Of course, this is not completely true – we know quite well how the heating and water systems of Roman baths worked, and admire them for their excellence and ingenuity.

The heating of a Roman bath was achieved mainly through its floors and its walls, and rarely its vaulted ceilings; it is categorically a radiant, panel heating system. The floor heating known as the hypocaust (literally "a furnace that heats from below") was achieved by raising

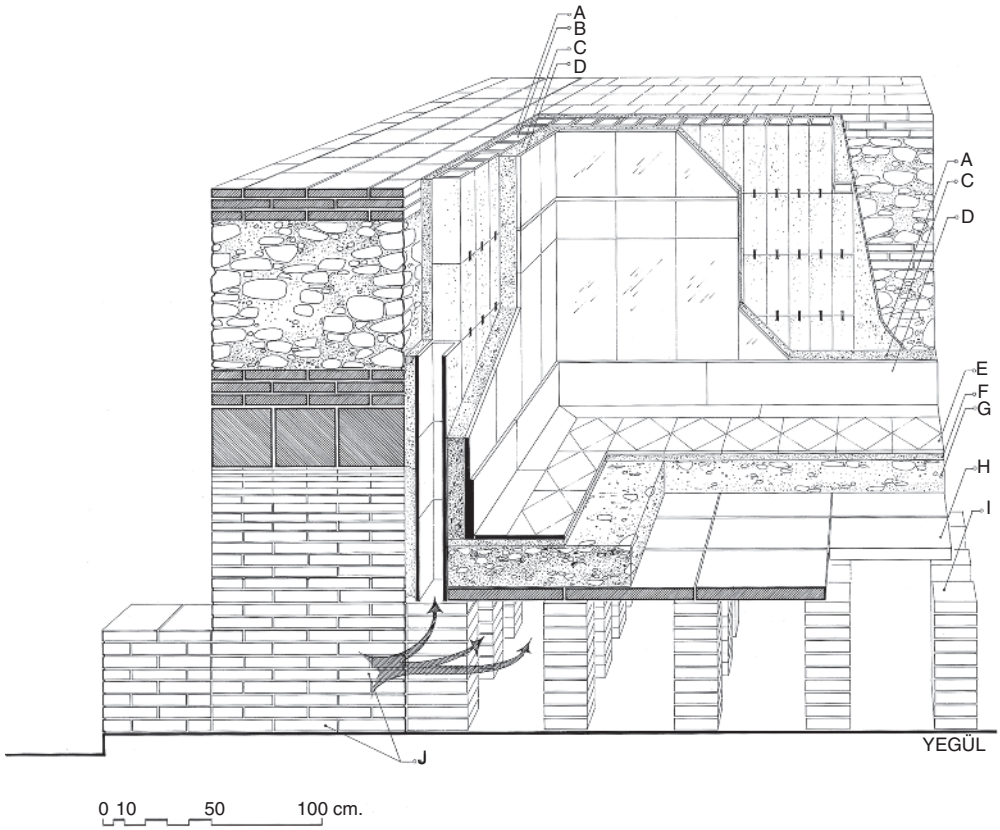


**Figure 1.3** Schematic hypocaust system of a Roman bath. A=lime mortar; B=tubuli; C=crushed brick mortar; D=marble revetment; E=floor surface; F=mortar; G=subfloor; H=bipedales tiles; I=pilae; J=opening to furnace. Source: Drawing by F. Yegül.

the floor some 70 to 90 cm on small brick or stone pillars (pilae) and circulating hot gasses generated by a furnace (praefurnium) directly connected to the hypocaust space and ordinarily stoked from the outside. The system could deliver controlled and finely graded levels of temperature to different rooms depending on the extent of floor and wall space to be heated. Although it is impossible to determine exactly when this ingenious system came to use, starting from the fifth century, the development of various primitive forms of subfloor heating can be documented throughout the entire eastern Mediterranean region, such as the Greek baths at Gortys (Ginouvès, 1959: 331–4, 1962: 185, 206–7). The true hypocaust emerged in central Italy by the beginning of the second century in the baths at Fregellae and later in the same century in the fourth phase of the Stabian Baths in Pompeii. A century or so later than its first applications, Vitruvius described the system thus:

> The hanging floors of the hot baths (*suspensurae caldariorum*) are to be made as follows: first the ground is to be paved with eighteen-inch tiles sloping towards the furnace … On this pavement, piers of eight-inch bricks are to be built at such intervals that two-foot tiles (*bipedales*) can be placed above. The piers (*pilae*) are to be two feet high … and upon them two-foot tiles are to be placed to carry the pavement.
>
> (*De arch.* V.10, trans. F. Granger, 1931, Harvard University Press; see Figure 1.3)

In order to extend the effectiveness of the surface heating or radiation generated by the hypocaust, one or more of the walls of a space were also heated. The principle of a heated wall, like a heated floor, is based on the creation of a capillary space behind the finished marble or stucco face of a wall through which the hot gasses from the hypocaust, though cooled (having given some of their heat to the floor), could circulate. Seneca talks about the "hollow walls" in baths as a fairly new discovery (*Ep.* 90.25). The method described by Seneca as "impressos parietibus tubos," or tubes placed inside the walls, recognizable by us as the tubuli system, is the most practical and advanced of wall heating systems (*Ep.* 90.25). Simpler forms of this method by using tegulae mammatae, or flat terracotta tiles with projecting corner studs, or "nipples" affixed on the wall by metal clamps, came to use by the first century in the later phases of the Stabian Baths and Forum Baths in Pompeii. There is an earlier application of a heated, hollow wall using real tubes in the baths at Fregellae dated ca. 200–180 (Battaglini, 2009). Tubuli proper, known from innumerable archaeological examples, are hollow, box-shaped tiles that could be stacked on top of each other against a wall, and form, in effect, tall, vertical tubes. Their open bottoms that are connected to the hypocaust space and holes in their sides allowed the free circulation of hot air and gasses, creating a heated wall surface. Only a few of the vertical rows were open on the top and connected to a flue of exhaust, resulting in a low draft, slow burning, economical furnace.

The furnaces of Roman baths ordinarily served the dual purpose of heating the bath rooms and heating the water used in these rooms. This was achieved simply by placing a bronze boiler over the wood-burning furnace which supplied, through a complicated arrangement of pipes and valves, hot water to various rooms, basins and pools. A separate system connected the boiler to a large roof-top tank of cold water which could replenish the boiler as it was depleted. In some baths there were series of furnaces with interconnected boilers. Vitruvius describes a basic system for a double bath (much like the Stabian Baths of Pompeii) where the same set of furnaces and boilers should effectively serve both the women's and men's adjoining baths: "Three bronze cauldrons are to be set over the furnace; one for hot, another for tepid, and the third for cold water, placed in such positions that the amount of water which flows out of the hot water cauldron may be replaced from that for tepid water, and the tepid water one would be supplied from the cold water" (*De arch.* V.10.1, trans. M. Morgan, 1914, Loeb). In the same passage he also describes a device called "testudines alveolorum" to heat and maintain the water in hot pools – normally a difficult task due to the extreme thickness of the masonry at the bottom and the sides of a pool. The testudo ("turtle") was a semi-cylindrical metal container open at one end and closed at the other. The flat metal bottom of the container came in direct contact with the fire and the open end was open to the pool itself so that a constant water circulation was maintained.

## 11 Sergius Orata and the Invention of the Hypocaust

Consideration of the early development of heating systems, especially the hypocaust, sheds light upon the nature and origins of Roman baths. The subject has particular appeal because ancient writers, especially Pliny the Elder in *HN* 9.168, credit Sergius Orata, a Campanian businessman who was active around 90–80, as the "inventor" of the balnae pensiles (baths with hanging floors), hence the hypocaust system (cf. Val. Max. IX.1.1). Orata used this system not for heating baths but for commercial oyster beds and for upper-end country

villas which he promoted. However, archaeology provides us with several instances of the use of the hypocaust system at least a century before this date. Among the early examples of the hypocaust are the previously mentioned late second-century Stabian Baths in Pompeii. Another possible contender for the privilege is Phase IV of the Greek Baths at the Sanctuary of Zeus at Olympia, dated ca. 100 by the excavators, although the archaeological evidence for the hypocaust is slim and elusive (Kunze and Schleif, 1944: 32–56, 51–6, 70–96; Mallwitz, 1972: 270–2; Yegül, 1992: 377–9). The dating of the Phase IV Olympia Baths, the last in a series of sanctuary baths used by athletes, is critical because if true, one could argue that this important technological breakthrough is Greek rather than Roman – an emotional issue. The controversy, however, seems to have settled in favor of the Italian side by the recent discovery of early second-century baths replete with a proper hypocaust and wall heating system in the Latin colony of Fregellae in Latium (Figure 1.4). Perhaps no specific example or moment should be identified as the origin or discovery of a broadly definable technology such as the hypocaust. Crude but effective versions of floor heating existed across the eastern Mediterranean as early as the first century, but it was the Romans who first exploited the system in heating their baths and shaping their bathing culture. One should also consider the input from thermo-mineral sites and spas, such as Baiae in the Gulf of Naples, which at an early stage offered technically viable models for heating baths by utilizing and controlling the naturally hot steam and gasses abundant in volcanic Campania. It is thus immaterial whether the hypocaust was "invented" or perfected by Sergius Orata as Pliny claimed, or by another practical and shrewd Campanian or Latian like him who lived several generations earlier.

## 12 Physical Evidence

The Stabian Baths of Pompeii provide us with the best preserved and most distinctive example of a Roman bath which illustrates the unbroken development from its fourth-century beginnings as a Greek *balaneion*, when the city was under Greek control, to its well-developed Late Republican phase ca. 80 (Figure 1.2) (Eschebach, 1979). The nucleus of the establishment started as a row of unheated chambers housing hip-baths supplied with water drawn from a well and heated by simple braziers. The fourth phase, late in the second century, represents a double bath for men and women arranged along a colonnaded palaestra. The bath block displays six barrel-vaulted rooms identified as the apodyterium, tepidarium and caldarium separated by a shared service yard. The baths were enlarged by adding a circular, domed laconicum in 80 which was later converted into a frigidarium by building a circular pool fully occupying the middle of the room. In the first century CE, the baths received direct running water from the aqueduct that supplied the town. The significance of the palaestra and exercise as a part of the bathing agenda was underlined by the addition of a very large swimming pool or natatio along its west side. The design characterized by a row of parallel, rectangular rooms represents an orderly movement from the unheated to heated rooms and back and defines the single-axis row-type plan loosely known as the Campanian or Pompeian type. Its usage, and technology based on back-to-back barrel-vaulted rooms, reflects structural and functional efficiency. This basic arrangement and its numerous variants remained the most logical and popular plan type in the west and the east well into the Byzantine era.

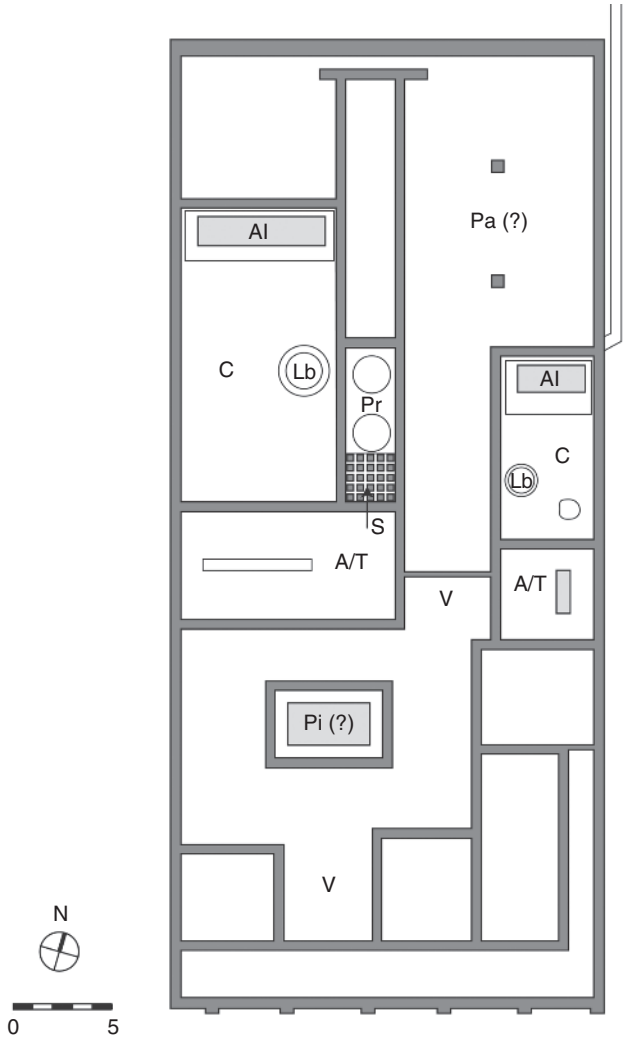


**Figure 1.4** The Republican Baths in Fregellae, restored plan. A=apodyterium; Al=alveus (tub or basin); C=caldarium; Lb=labrum (basin); Pa=palaestra; Pi=piscine (pool); Pr=praefurnium (furnace); S=service yard; T=tepidarium; V=vestibule. Source: Drawing by F. Yegül, adapted from Tsiolis (2001: figs. 3 and 4).

Besides the Stabian Baths, Pompeii and its neighbor Herculaneum provide us with no less than four or five examples of the single-axis row-type. The Republican Baths (ca. 100) and Forum Baths (ca. 80) in Pompeii and the contemporary Forum Baths at Herculaneum are all double baths with palaestrae and shared services between men's and women's sections. The Suburban Baths at Pompeii, located outside the Porta Marina and dated to the beginning of the first century CE, are one of the first examples of a new concept of design: a single row of bathing rooms (without the somewhat reduced and cramped women's section) next to the palaestra; and a caldarium with a wide projecting apse and large windows confirming an appreciation of well lighted interiors and perhaps

views of the shoreline. Another clear statement of the new taste in bath design is the Central Baths in Pompeii which were still unfinished at the time of the eruption in 79 CE. They are single baths characterized by an orderly arrangement of a row of vaulted rooms presenting a handsome window façade onto the palaestra.

Recent excavations at Fregellae, a Republican Latin colony in Latium (ca. 95 km south-east of Rome), uncovered one of the earliest and most technically advanced baths known to Roman archaeology (Figure 1.4) (Coarelli, Batocchioni and Romagnoli, 1995: 133–4; Tsiolis, 2001: 85–114; Coarelli, 2004: 73–6). Dating to the beginning of the second century, the Fregellae baths occupy a single large, rectangular city block on decumanus 1. The block is divided into men's and women's sections each composed of a vaulted apodyterium/tepidarium and a caldarium with a large, rectangular, heated pool and a free-standing, round labrum. Between the caldaria is a shared service yard with furnace-boiler combinations. A small, square room, probably a laconicum, was supported on hypocaust pillars and directly heated by a furnace. The barrel vaults of the apodyteria and caldaria appear to have been fashioned in terracotta tiles hanging from a series of transverse ribs, similar to the system described by Vitruvius (*De arch.* V.10.3). Below the cornice of the vault was a row of decorative terracotta telamones between cubby-holes for storing bathers' clothes as in the apodyterium/tepidarium of the Forum Baths in Pompeii (Tsiolis, 2006: 246–9, 2008a: 134–5; Battaglini, 2009: 354–6). Directly entered from the street, the men's and women's baths also shared a large vestibular hall, or atrium, with a shallow square pool (impluvium). The north end of the bath insula facing decumanus 2 is occupied by what appears to have been a service yard and a separate, larger, porticoed courtyard possibly for outdoor recreation. Shaped into a hard rectangular urban plot, the plan appears looser and more elementary than the tight spatial rows of the Pompeian type. However, the fully developed hypocaust system with additional wall heating by the use of simple terracotta tubes illustrates that the advanced heating technology that shaped Roman baths developed in Latium as much as it had in Campania. There is even an earlier and smaller bathing edifice on the southern end of the plot composed of several intercommunicating rooms under the existing foundations. One of these, with a large, heated pool (alveus), much like the arrangement of Phase 2, was probably the caldarium. Also like Phase 2, the main rooms appear to have been covered by terracotta vaults and floors decorated in opus signinum and beautiful opus sectile panels or polychrome terracotta with lozenges and shields. Datable to the middle of the third century, and with a simpler version of floor heating served directly by a furnace, Fregellae Phase 1 baths substantiate the leadership position of the region around Rome in the early development of Italian public baths (Tsiolis, 2006: 250–2, 2008a: 137–9; Vincenti, 2008: 408–16; Battaglini, 2009: 357–61).

## 13 Dissemination of the Row-Type Baths

Once established in central Italy the new single-axis row-type plan was introduced into northern Italy and the western provinces during the last decades of the Republic and the first decades of the Early Empire (Yegül, 1992: 66–90,

2009: 58–65). Successful adaptations of the plan emerged almost overnight in three Gallic sites: Glanum (Saint-Rémy-de-Provence), Derventum (Drevant) and Lugdunum Convenarum (Saint-Bertrand-de-Comminges), where the familiar double-zone Pompeian scheme – bath block next to the palaestra – is clearly recognized. Models for these baths must have come from intermediaries in northern Italian cities, such as the Late Republican baths at Velleia, where a small colonnaded courtyard with a central outdoor pool serves the combined functions of a frigidarium and palaestra. In Cemenelum (Nice), an important garrison town in the Maritime Alps, a cluster of three baths on either side of the town's decumanus all employ a remarkably uniform row design. Dating from the Severan age, these baths illustrate the astonishing longevity and popularity of this practical design type. Further evidence of the adaptability and change of the basic plan type comes from a group of military baths in the north-west provinces. In these examples, such as the Legionary Baths at Vindonissa (mid-first century CE) and the Legionary Baths at Isca (Caerleon, Wales, ca. 70–80 CE), the bathing halls, even the palaestrae, are arranged as a row on a strong, single axis presaging the symmetrical-axial bath planning culminating in the Imperial thermae of Rome. At Isca, there is a large, three-aisled, wooden-truss-roofed, basilical hall at the end of the main axis. This large space, and others like it in baths, is recognized as a basilica thermarum, a term that also appears in bath inscriptions. This probably served multiple functions including indoor athletic activities like a kind of roofed palaestra, convenient in cold climates.

Rome's position in the early development of public baths has been compromised by its success as a continuously occupied urban center. The city has yielded little evidence in physical remains of its many small neighborhood baths reported in the census records of the late first century. The paucity in archaeological remains, however, is partly offset by the identification of the inscribed names of at least three small baths represented on the Marble Plan (Forma Urbis), namely *[Ba]lneum Ampelidis* (fr. 47); *[Ba]lneum Caesaris* (fr. 43); and *Balne[um] Cotini* (fr. 48). A more informative example is the fully preserved *Bal Surae* (fr. 21), a bath where the row of parallel rooms arranged in a row alongside a colonnaded palaestra, with shops on one side, is a clear demonstration of the Pompeian plan type (Staccioli, 1961: 92–102; Yegül, 1979: 108–31). Although impossible to date (the Marble Plan dates from ca. 200 CE, but it is probably based on a late first-century CE version), small baths located in densely built business, commercial and residential neighborhoods, and catering to the tastes and economies of all classes, had become among the most important urban features of the growing metropolis. Whether Rome played an active role in the creation and development of public baths, or remained largely a recipient of ideas from outside, mainly from Campania and its own backyard Latium, there is little doubt that it provided a broad and fertile ground for the reception and assimilation of ideas. Starting with Augustus and continuing through the Imperial era, Rome made its incomparable and innovative mark on bath design and technology – as it did on much else on matters of art and architecture – through the creation of a remarkable series of Imperial thermae that raised the experience of bathing in public to a new dimension.

## FURTHER READING

The primary and general studies on baths and bathing in the ancient world are Brödner (1992), Yegül (1992), Nielsen (1993), DeLaine and Johnston (1999) and Yegül (2010). Fuller bibliographies on baths and bathing in the ancient world can be found in DeLaine (1988), Manderscheid (2004) and Yegül (2010). Special studies on the heating and water supply systems of baths include Rook (1978), Nielsen (1985), Manderscheid (1988), Fagan (1996) and Yegül and Couch (2003). For Greek baths and gymnasia, see Ginouvès (1959), Delorme (1960) and Ginouvès (1962). For other special subjects on baths and bathing, see Di Capua (1939/40), Yegül (1979), DeLaine (1989), Dunbabin (1989), Ward (1992), Yegül (1996), Battaglini (2009) and Yegül (forthcoming).