NOTICE OF GENERAL MEETING

The seventh General Meeting of the Society for 1983 will be held in the Museum Education Building, North Terrace, Adelaide at

8.00 pm MONDAY, 26th SEPTEMBER, 1983

AGENDA

1. Apologies:

2. Minutes of previous General Meeting:
   Minutes of the previous General Meeting, held Monday 22nd August 1983 to be confirmed. A copy of these Minutes is attached.

3. New Members:
   No new members were elected to the Society for this month.

4. Papers and Journals:
   Papers and Journals received from other Societies and Organisations will be tabled at the Meeting.

5. Business:

6. Speaker:
   Margaret Anderson, Curator of the Migration and Settlement Museum will address members of the Society. The title of her address will be:-
   "Planning and Developing the new Migration and Settlement Museum."

7. A Trading Table will be held.

8. Supper.

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Of all the forms of architecture which the Romans adapted to their own purposes, the most elaborate and distinctively Roman must be the bath buildings. They are easily identified in plan by their typical compact arrangement of rooms of various shapes and in particular by the many curvilinear elements; the physical remains are unmistakeable with their pools, heating arrangements and vaulted roofs. In the baths more than in any other type of building the function of the rooms governed their form, and so to understand their development we must look first at ancient bathing habits.

As for so many of their institutions, the Romans seem to have learnt their bathing habits initially from the Greeks. The earliest record of Greek baths is from the poet Homer, and his descriptions of the hand-filled baths is supported by archaeological evidence in the Late Bronze Age bath tubs found in the palaces of Knossos in Crete and Pylos in the Peloponnese. There is little evidence from the next six centuries, but by the fifth century BC baths are to be found mainly in connection with the gymnasion, the athletic club of the ancient Greek world. The main feature of the gymnasion was the palaestra, or exercise yard, usually an open rectangle surrounded by a colonnaded portico with rooms opening off. Some of the rooms were used for teaching, since athletics formed a major part of the Greek curriculum, and the main place of education was frequently the gymnasion. Other rooms provided facilities for oiling and dusting the body for the games, and for bathing. These were usually a simple row of sitz baths, or a row of showers. If water supply was sufficient; the water seems usually to have been cold. Provision for bathing was also often made in the home, where the water may have been heated; a fifth century Attic vase shows women washing their hair and bathing at a basin. There was no soap, so washing was done with water alone, or in the case of the athletes, by promoting perspiration by exercise and scraping off the dirt and sweat with a strigil, a curved metal instrument designed for this purpose. The body was then washed, rubbed down and then oiled to replace lost moisture and give protection.

The oldest baths so far discovered in Italy are the Stabian Baths at Pompeii (Fig.1). In their earliest form of the fourth century BC they were very much like the Greek type already described. The small rooms with sitz baths were situated on the north side of a palaestra, and were supplied with water from a well over 20m deep, which was drawn by hand. Over the course of the next three centuries the baths were gradually extended, and by the end of the second century BC they had reached something like their final form, a form that we can immediately recognise as Roman. Some earlier rooms were converted into a separate set of facilities for women, while a new complex of rooms was added on the east side of the palaestra for the men. These new rooms were an undressing room (apodyterium), a moderately heated room (tepidarium), a hot room containing a hot water pool (caldarium), and a circular room which was originally a dry sweating room (laconicum) but was later converted into a cold pool (frigidarium). The women's baths were smaller and simpler, lacking the circular room, and had a separate entrance from the street.

It can be seen from the advice on building baths contained in the architectural treatise of Vitruvius that these Stabian baths were typical for their time. Vitruvius was writing about 27 BC but as he appears to have been old-fashioned in his outlook he gives us much information about architectural practice during the previous fifty to a hundred years. His instructions for the building of baths include advice on the orientation of the complex with the warm rooms to the south or southwest, on the arrangement of the warm rooms of the men's and women's baths adjoined so that the same furnace can be used for heating both, and on the most efficient way of heating the water for the different pools. Vitruvius' description of the method of constructing a hypocaust to supply underfloor heating for the warm areas agrees with the evidence from the caldarium of the Stabian Baths:

"the ground should be paved with foot and a half square tiles sloping to-
wards the furnace in such a way that a ball thrown in automatically returns to the furnace room... on these, pillars of eight inch square tiles are built set so that two feet square tiles may be used to cover them... the pillars are two feet high... they should be covered with the two feet square tiles which support the floor." (De Architectura, Bk 5)

Some of his more general comments are of interest and also apply to the Stabian Baths:

"...the bathing tub should be placed under the light so that the bystanders do not obstruct the light with their shadows... the apse for the basin should be spacious enough for those waiting to have proper standing room... the bath pool should be at least six feet wide... with the lower step and parapet taking two feet of this..." (De Architectura, Bk 5)

A', T', C' - Women's Bath
x - Sitz baths

Fig. 1 Stabian Baths, Pompeii

Other features of these early baths should be noted. The heat transfer from the hypocaust through the thick floor of the warm rooms was not very efficient, and this led to a number of problems. In the humid environment of the caldarium the water tended to condense on the ceiling, and it seems that the curved vault and corrugated ceiling of the caldarium of the Stabian Baths was designed to channel away the condensation and prevent it from dripping on the backs of the unwary bathers. Some help was obtained from braziers, but even so there were niches for clothes in the tepidarium as well as in the apodyterium. To retain heat both doors and windows had to be small, so
that the baths would have been quite dark even on fine days, as the large number of lamps found in the baths of Pompeii indicate. These baths with their hot and cold pools also required an improved water supply and better drainage facilities. In the Stabian Baths a bucket chain on a winch and later a water-lifting wheel were installed. One man operating a wheel 7m in diameter would take about 14 hours to fill a standard hot room pool of 14 cubic metre capacity, so that the economic use of water was an important consideration. Later Pompeii was given a piped water supply by the emperor Augustus, and this led to the building of a cold swimming pool in the palaestra of the Stabian Baths.

These technical problems were overcome in the middle of the first century AD bringing about a remarkable change in the appearance of the bath building. The change is vividly described by the Stoic philosopher Seneca in his letters when he compares the baths of the Republican hero Scipio Africanus with those of his own time:

"I have seen...the tiny bath, situated after the old-fashioned custom in an ill-lit corner...there are tiny chinks (you would hardly call them windows) pierced in the masonry of the wall to let in the light without weakening its defensive character. Nowadays people decry a bathroom unless it has been designed to catch the sun through enormous windows all day long, unless a person can acquire a tan at the same time as he is having a bath...in those half-lit bath houses with there ordinary plastered ceilings...there was...a healthy sort of temperature, sufficient for practical purposes, not the kind of heat that has recently come into fashion, more like that of a furnace so that a slave convicted on a criminal charge might well be sentenced to be bathed alive..." (Epistles,86)

In another letter Seneca specifically identifies the technical advances that had made this possible:

"We know that certain technical devices have only come to light within our own memory, such as the use of window glass which allows bright light through transparent tiles, and the hollow floors and tubes let into the walls of baths by which the heat is spread all around to maintain an even temperature at both the highest and lowest regions." (Epistles,90)

The invention of the wall tube was probably the most significant of these. Originally the hot gases from the hypocaust which heated the floor were vented through a hollow pipe set into the wall opposite the furnace, creating a draught which would draw the hot gases under the floor. Later the walls were lined with two feet square tiles with lugs at the corners (regulæ mammatae) to hold them away from the walls. Such tiles were also used to protect wall plaster in damp situations, and it is easy to see how this usage could have developed into a heating system in the damp rooms of a bath house. These tiles were large and heavy, and thus difficult to attach to a wall surface, especially in the curves of apses, so that their use was limited. The wall tube overcame these difficulties; as each unit was only 10cm wide and 25cm long, they could be fixed to the walls by a strong mortar helped here and there by t-shaped clamps. The tubes were 6cm wide in cross-section and often had openings in the side walls to allow greater circulation of the hot gases. The heating system worked in this way: a furnace at the back of the pool of the caldarium heated the water in a metal tank which opened into the hot pool with the bottom of the tank at a lower level than that of the pool to allow the hot water to circulate; the exhaust gases from the furnace passed under the floor heating it, and then up the banks of tubes lining the walls giving them any residual heat; finally the remaining gases were gathered together at the top of the wall and exited through a chimney. If the heat from a single furnace was insufficient, extra furnaces were installed, and most hot rooms of any size have three or more furnaces.

The importance of the heated wall cavity for the thermal efficiency of the system cannot be overestimated. The heat transfer through the thin tubes and the final surface of stucco or marble was far more efficient than through the
thick floor, and the area of the heated surface was much greater. The system was flexible allowing for a range of temperatures by the amount and placement of the tubes. The most important effect was that the walls acted as a source of radiant heat; as well as heating the air and raising the temperature of the room as a whole, heat would flow from the walls to any colder object, usually the naked bather. The effect is that experienced when standing in front of a bonfire on a cold night; the part of the body facing the fire is warmed but there is little effect on the ambient temperature - the night does not become warmer.

![Diagram of Forum Baths, Ostia]

The plans of later bath buildings show the influence of these innovations. Let us follow the daily bathing ritual with the help of the Forum Baths of Ostia the port of ancient Rome, which were built in the second century AD (Fig.2). Pliny the Younger gives us the basic elements of the bath routine: "I oil myself, I exercise, I bathe." The bather paid a small entrance fee, a quarter of an as in the first century AD when 10,000 asses per week was considered a reasonable middle class income. The most usual time for bathing was between the 8th and 9th hours of the day, roughly between 1 and 3pm, depending on the time of the year. The palaestra was open earlier and the
serious bather would take his exercise there before bathing. He usually came
attended by a slave or two, who would carry all the necessary equipment — oil
striigid, comb, linen or woollen towels — and who would take care of their
master's clothes and help with the strigilling and rubbing down afterwards.
The bather stripped in the apodyterium and took his exercise in the palaestra,
perhaps by wrestling or weight-lifting, or athletic practice of another kind,
during which he would often wear a thick cloak, the Roman equivalent of a
tracksuit. Ball games of various kinds played with a wide variety of balls
were popular with old and young alike; these included harpastum, a rough team
game played with a sand filled ball; a kind of basketball played with the
follis, the air filled equivalent of a medicine ball; and trigon played with a
small hard ball, which must have looked like three men cricket fielding prac-
tice. There was also a light ball filled with feathers, and stone bowls and a
concrete bowling strip have been found. Or one could simply bounce the ball
off the wall of the palaestra, alone or in teams, rather like squash. Some
bathers took no exercise, going straight from the apodyterium to the warm and
hot rooms and inducing their perspiration by artificial means. In the Forum
Baths there were five heated rooms; a dry slightly heated room open to the sun
for sunbathing (heliocaminus), three dry sweating rooms (sudatorium) of
various temperatures, and finally the caldarium with its three hot pools. At
some stage before his hot dip the bather would scrape off the oil, dirt and
sweat with his strigil, with the help of a slave, paid bath attendant or co-
operative friend to do his back. A story told of the emperor Hadrian, whose
successor Antoninus Pius built the Forum Baths, illustrates this point:
"He often bathed in the public baths, even with the common crowd, and a quip
of his made in the bath became famous. On one occasion, seeing a veteran
soldier whom he had known in the service rubbing his back and the rest of his
body against a wall, he asked why he had the marble rub him, and when the man
replied that it was because he did not own a slave, Hadrian presented him
with some slaves and the cost of their maintenance. But another time, when he
saw a number of old men rubbing themselves against the wall of the bath for
the purpose of arousing the emperor's generosity, he ordered them to be call-
ed to rub each other in turn." (Scriptores Historiae Augustae, Life of
Hadrian, 17)
The bather would then cool down slowly in the tepidarium before passing to the
cold frigidarium, where a dip in the cold pool would finish the routine. A
brisk rub down and possibly a massage followed, before the bather returned to
the apodyterium to dress.

Bathing was very much a social event as well as a cleansing process, and a
client would often attend his patron there, simply as a mark of respect or in
the hope of picking up a dinner invitation. There is an entertaining descrip-
tion of such an event in the Satyricon of Petronius, written about the time of
Nero. Encolpius the hero and his friends are hoping to dine with the wealthy
freedman Trimalchio. Encolpius narrates:
"We dressed carefully and told Giton, who was very kindly acting as our ser-
vant, to attend us at the baths.
We did not take our clothes off but began wandering around, or rather exchang-
ing jokes while circulating among the little groups. Suddenly we saw a bald
old man in a reddish shirt, playing ball with some long-haired boys. It was
not so much the boys that made us watch, although they alone were worth the
trouble, but the old gentleman himself. He was taking his exercise in slippers
and throwing a green ball around. But he didn't pick it up if it touched the
ground; instead there was a slave holding a bagful, and he supplied them to
the players. We noticed other novelties. Two eunuchs stood around at different
points: one of them carried a silver chamber pot, the other counted the balls,
not those flying from hand to hand according to the rules, but those that fell
to the ground. We were still admiring these elegant arrangements when Menelaus
hurried up to us.
' This is the man you'll be dining with,' he said. 'In fact, you are now
watching the beginning of the dinner.'
It would take too long to pick out isolated incidents. Anyway, we entered the
baths where we began sweating at once and we went immediately into the cold
water. Trimalchio had been smothered in perfume and was already being rubbed down, not with linen towels, but with bath-robes of the finest wool. As this was going on, three masseurs sat drinking Falernian in front of him. Through quarreling they spilled most of it and Trimalchio said they were drinking his health. Wrapped in thick scarlet felt he was put into a litter." (Bk 15)

Women too made use of the public baths. In the later period, women had different bathing times to the men, rather than the separate facilities as at the Stabian Baths. Usually this was in the morning, when the water and the rooms were not as hot, and less advantage could be made of the sun. Children and invalids or the aged also bathed at this time. Despite these conditions the women were charged twice what the men were; but from the number of hairpins and other toilet articles found in the drains of various bath buildings, this did not seem to have deterred them. The number of edicts promulgated by the emperors in the second century AD forbidding mixed bathing suggests that this was a common, if illegal, occurrence.

The baths could never have been quiet places, and certainly one could do more than bathe there. Close to nearly every public bath house in both Ostia and Pompeii is at least one takeaway food shop (thermopolium), and hawkers from these would sell their dishes in the baths like ice-creams at a cinema. Poets and prostitutes, entertainers and philosophers were common in and around the baths. Seneca again gives us some idea of the atmosphere:

"Here I am with a babel of noise going on all about me. I have lodgings right over a public bath house. Now imagine to yourself every kind of sound that can make one weary of one's years. When the strenuous types are doing their exercises, swinging weight-laden hands about; I hear the grunting as they toil away - or go through the motions of toiling away - at them, and the hissings and strident gasps every time they expel their pent up breath. When my attention turns to a less active fellow who is contenting himself with an ordinary inexpensive massage, I hear the smack of a hand pummelling his shoulders, the sound varying according as it comes down flat or copped. But if on top of this some ball player comes along and starts shouting out the score, that's the end! Then add someone starting up a brawl, and someone else caught theiving, and the man who likes the sound of his own voice in the bath, and the people who leap into the pool with a tremendous splash. Apart from those whose voices are, if nothing else, natural, think of the hair remover, continually giving vent to his shrill and penetrating cry in order to advertise his presence, never silent unless it be while he is plucking someone's armpits and making the client yell for him! Then think of the various cries of the man selling drinks, and the one selling sausages and the other selling pastries, and all the ones hawking for the catering shops, each publicizing his wares with a distinctive cry of his own." (Epistles, 56)

Along with this concern for cleanliness, there was a corresponding concern for sanitation. Either in or close to every public bath, and frequently just off the palaestra, was a public lavatory. There were two for the Forum Baths, one in the south corner of the palaestra, and one just across the street to the north near the main entrance. This latter had seating for twenty-four, and was entered through revolving doors. The Greek author Lucian, writing during the second century of the Roman empire, sums up the qualities required of a good bath in his essay Hippias, concerning the baths designed and built by the architect Hippias:

"...usefulness, convenience, light, good proportions, fitness to its site, and the fact that it can be used without risk. Moreover, it is beautified with all other marks of thoughtfulness - with two toilets, many exits, and two devices for telling the time..."

So far we have been concerned with the average city bath that could be found from one end of the Roman empire to the other. In the capital of that empire, at Rome itself, a different type arose; while the basic elements were the same the enormous scale and richness of these baths created a different world
entirely. The first of these great imperial thermae belongs to the time of Nero ("What worse than Nero, what better than Nero's baths?" wrote the poet Martial in an epigram); the best preserved are those of another bad emperor, Caracalla, who ruled 211-217 AD.

Fig. 3 Baths of Caracalla, Rome

The large bathing block (Fig. 3) was set in the centre of a large artificial platform roughly 300m square; if the plan of this is superimposed on that of the University of Adelaide and the Museum site, it extends from the Law School to the State Library, and from North Terrace to the north side of the Barr Smith Lawns. This area contained libraries and lecture halls as well as a sporting arena with seating for spectators where athletic contests were held. The rest of the space was laid out as a formal garden with fountains, walks and arbors. The central block, 220m long and 110m wide, is symmetrical about its short axis formed by the great caldarium, frigidarium and a large open air swimming pool, the natatio. On each side of these were entrance halls, dressing rooms, open exercise courts, and a range of hot rooms. To service such a vast complex there were over five kilometres of tunnels in the substructures; here the water for the hot pools was heated, the wood for the furnaces stored, and there even seems to have been a laundry service.

From the gaunt remains visible today, used every summer as the site for the Rome Opera company's summer season, it is difficult to imagine the original splendour of the Baths which made them one of the marvels of Rome, even as late as the fifth century AD. Many of the mosaic floors remain after being buried until the nineteenth century, although the only figured mosaic of victorious athletes was removed then and is now in the Vatican museum. The vaults which supported terraces for strolling or sunbathing have fallen, but some preserve fragments of their black-and-white mosaic floors. Most of the marble which once lined the walls to a height of 1.3m has disappeared in the kilns of the mediaeval lime burners or been removed to decorate the walls of Renaissance palaces and churches. The same is true of much of the architectural decoration and statuary; one of the fine columns of the frigidarium now adorns the Piazza della Trinità in Florence, while the giant statues of Flora and Hercules are part of the famous Farnese collection in the museum of Naples. Only minute fragments of the sparkling glass mosaics which once
covered most of the walls above the marble and the vaulted ceilings remain, and the painted stucco that was substituted for it in some areas has left even less evidence. We can gain some impression of what has been lost from reconstructions and drawings, but to appreciate the effects of light and space we can still wander through the frigidarium of the later Baths of Diocletian, which Michelangelo converted into the church of Santa Maria degli Angeli in the seventeenth century. Seneca, who must have visited Nero's Baths, completes the picture:

"We think ourselves poorly off, living like paupers, if the walls (of our baths) are not ablaze with large and costly circular mirrors, if our Alexandrian marbles are not decorated with panels of Numidian marble, if the whole of their surface has not been given a decorative overlay of elaborate patterns having all the variety of fresco murals, unless the ceiling cannot be seen for glass, unless the pools into which we lower bodies with all the strength drained out of them by lengthy periods in the sweating room are edged with Thasian marble (which was once the rarest of sights even in a temple) unless the water pours from silver taps... Look at the arrays of statues, the assemblies of columns that do not support a thing but are put up purely for ornament, just for the sake of spending money. Look at the cascades of water splashing noisily down from one level to the next. We have actually come to such a pitch of choosiness that we object to walking on anything other than precious stones."  (Epistles, 86)

These grand establishments were centres of rest and relaxation as well as places to get clean. They provided the urban poor with a place of escape from the troubles of everyday life, for the entrance fee continued to be small, and generous emperors with an eye to the political situation often waivered it altogether. Although contemporary Roman writers frequently condemned the baths as promoting idleness and effeminacy, if not for worse, in many ways they combined the best aspects of the Greek gymnasium with its educational overtones with the Roman passion for cleanliness; or, to quote the poet Juvenal, Mens sana in corpore sana, a healthy mind in a healthy body.

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References

The ancient sources used in this paper are:
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