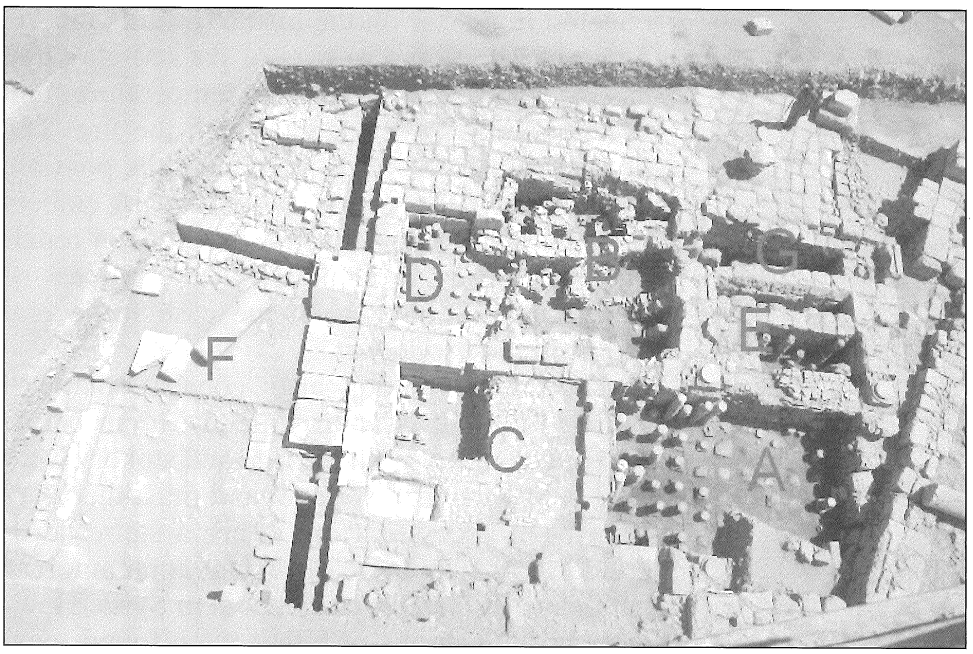


2. Overview of bathhouse in unit MO/1 as it appeared in 2004.

dicate what type of fuel was used. Also a minor area adjacent to the anticipated location of the furnace was excavated in order to obtain more information about the activities that took place in relation to the heating of the bathhouse i.e. a possible system for heating water, storing of fuel, access to the furnace, etc.

Shortly after the excavation had begun, the furnace was discovered in the expected location, as the uppermost preserved stones were visible a few centimetres below the surface level. The stone paving in the majority of the mosque payer-hall had been removed long ago, possibly following the event that caused the mosque to go out of use, therefore only a few centimetres of hard clay, used as sub floor packing in the mosque, had to be removed before the upper part of the furnace was visible.

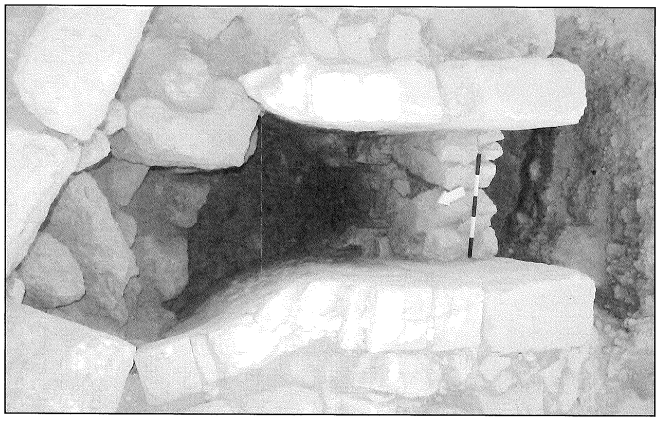
During the excavation of the area it became clear that the furnace and the stoking area had been filled up in one event. This was evident from an examination of the material used for the fill, which consisted of a combination of fist-size stones, pebbles, ceramic sherds and soil. A few coins were found in the fill, all dating to the early Islamic period, indicating a *terminus post quem* for the fill, and thereby for the construction of the mosque (see section on coins below). The fill was positioned directly upon a layer of ash, which was naturally deposited while the bathhouse was still in use.

The absence of a stratum between the ash and the fill indicates that the furnace, and thereby parts of the bathhouse, were in use until the construction of the mosque.

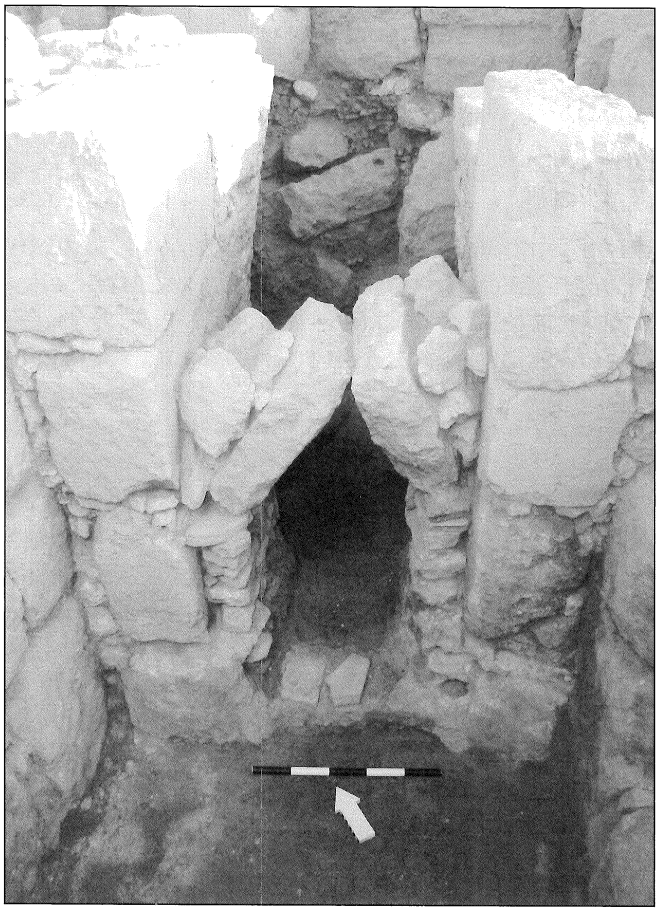
It was established in the previous report on the bathhouse (Barnes *et al.* 2006) that the southern part of the building continued to be used as a bathing facility, while the northern half was rearranged to facilitate industrial activity. By excavating the furnace this has now been cemented and it is possible to suggest that a deliberate decision was made to shut down the bathhouse in order to accommodate the mosque.

The physical appearance of the furnace was altered by the construction of the mosque entrance wall to the prayer hall, as this was dug into the bathhouse sub floor system and thereby disrupted the connection with *hypocaust* room A. A substantial part of the furnace is preserved, however, it has been possible to reconstruct the complete layout of the structure.

The furnace consists of small square tiles (**Figs. 3 and 4**). The stoking hole was constructed from large rectangular stones with smaller stones set diagonally towards each other at the top of the hole, forming the shape of a reverse V. Due to the relatively haphazardly appearance of the entrance stones, they were at first believed to part of a wall collapse. It was not until the entrance was partly excavated that it became apparent that it was a deliberate construction. It was recognized from the sub floor room G (**Fig. 2**) in which a similar structure marked the



3. Vertical perspective of bathhouse furnace.



4. Oblique view of bathhouse furnace, looking north from stokery.

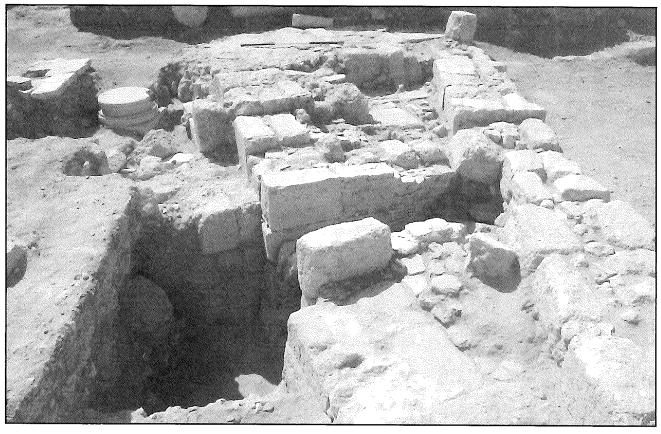
entrance to the *hypocaust* system. Based on the information obtained by excavating the furnace it was clear that room G must have served as a second entrance to the *hypocaust* from which it would be possible to clean the installation by removing the deposited ash, and when necessary conduct required repairs.

Seen from above it has the shape of a bottle (**Fig. 3**), with the narrow part being the stoking hole and opening into a rounded shape as it gets closer to the *hypocaust*. The furnace is covered in plaster on the inside towards the *hypocaust*. The floor consists of packed clay that has been hardened by the high temperatures and in some areas direct contact with the fire. The floor slopes downwards from the hole, possible constructed in this way to avoid glowing embers from falling into the stokery. No signs of repair or rebuilding were identified in the process of excavation, as have been the case in several rooms in the *hypocaust*.

The stokery floor also consists of hard stamped clay. It is approximately 10cm below the furnace floor. Both furnace and stokery were well below the ground level and must therefore have been accessed from either a staircase or a ladder, as was the case in the contemporary bathhouse in Halabiyya-Zenobia in Syria. However, no indications of either were found, possible because only a limited part of unit MO/4 was excavated in order do as little damage to the mosque floor as possible. Furthermore, a storage facility for fuel must have been located in the near vicinity of the stokery in order to minimize the efforts of transporting fuel to the furnace. As stated above, a layer of ash was found at the bottom of the furnace as well as in several *hypocaust* rooms. A high quantity of small pieces of charcoal was collected, which indicates that the primary source of fuel was wood.

The Service Area

The small area that was excavated adjacent to the furnace revealed several interesting though very disrupted features (**Fig. 5**). These included what has been interpreted as a stone paving and a tile construction containing a terracotta pipe leading from the furnace towards the west. One can suggest that it was intended for carying cold



5. Area excavated adjacent to furnace in unit MO/4.

water from a cistern to a metal boiler situated on top of the furnace.

A general assessment of the area stretching between the *hypocaust* and south to the *macellum* leads to the conclusion that it all belonged to the bathhouse service area. Several walls and features clearly belonging to an earlier occupation than the mosque are partly visible. A tentative proposal seems appropriate regarding the layout of the service area suggesting an open courtyard with several storage rooms for commodities that were needed in the bathhouse, and perhaps also a living quarter for bathhouse staff. A narrow alley leads from the *cardo* to the west between the *macellum* and the bathhouse. There would most likely have been an access route from this to the bathhouse service area through which fuel, commodities and other supplies would have been transported.

Unit MO/1
The Frigidarium

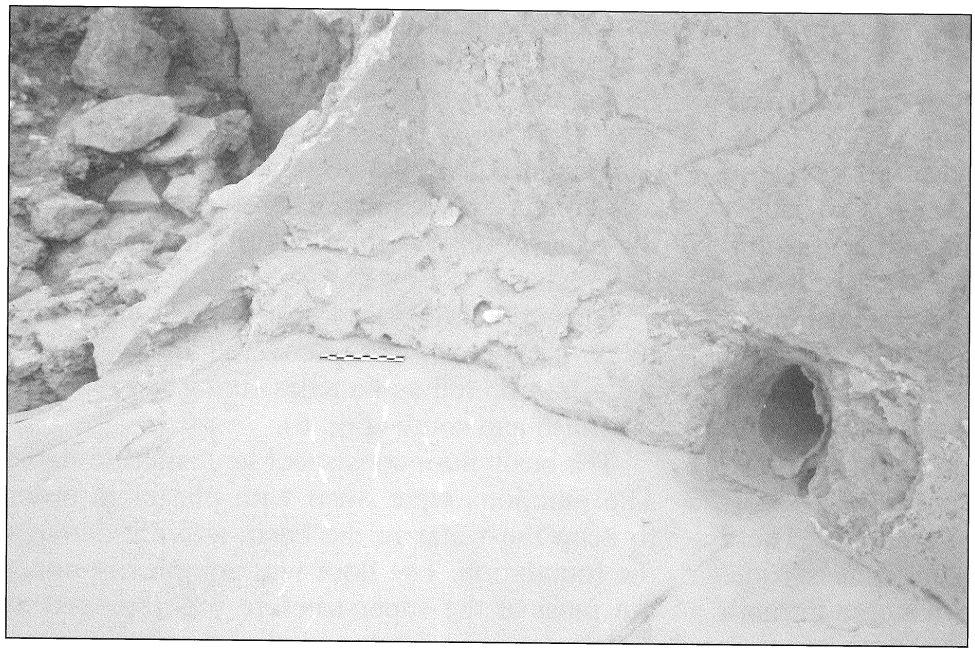
One of the major objectives for the 2005 and 2006 seasons was to locate and obtain a better understanding of the size and architectural layout of the cold water area. The *hypocaust* room D has previously been defined as a small *tepidarium* (Barnes *et al.* 2006). In a classic bathhouse layout, the *frigidaium* and *caldarium* would be connected through the *tepidarium*. Therefore it was possible to be estimate that the *frigidarium* was positioned either to the north or east of the *tepidarium*. The northern part appeared to be the most likely location, since the area to the east contains only a narrow strip between the bathhouse, the line of Roman period shops, and the pedestrian walk. The eastern part of this area was excavated during the 2004 season, but without any concluding results. Therefore the focus of the excavation was the western part of the area (defined as F in **Fig. 2**).

During the two seasons of excavation, a relatively large basin was uncovered and two walls were interpreted as benches lining the basin to the north and south (**Fig. 6**).

The basin floor consists of large marble slabs. The junctions were lined with plaster in order to keep the water in the basin and not damage the foundation. The floor was completely intact but most of the superstructure was removed in the process of accommodating the area for the mosque. Therefore no indications of pipes that would have provided the basin with water have been preserved, as these most likely would have been situated in the walls. A small lead drain that leads from the basin to the adjacent sewer was identified running below the southern bench. The drainage hole is very small and could therefore easily be blocked to contain the water in the basin (**Fig. 7**).

The excavation of the fill in the basin revealed that it was filled up in one event. The artefacts found in this context were substantially different from the material utilised to fill the *hypocaust* and the furnace. The concentration of large material such as major potsherds and tiles were

6. Fully excavated basin in frigidarium.



7. Lead drain leading from basin in frigidarium to east running sewer.

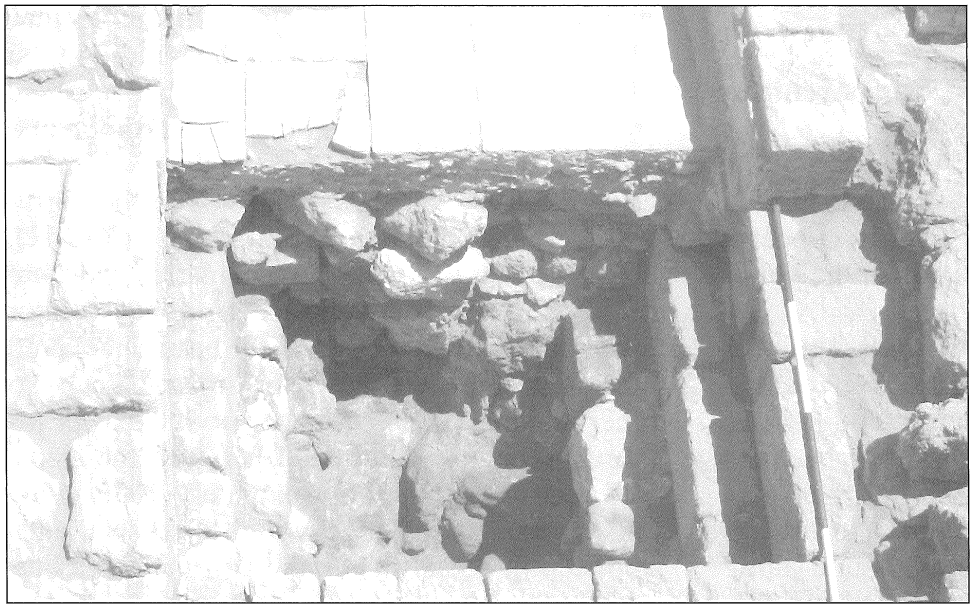
much lower that elsewhere and a large quantity of coins and jewellery was uncovered. Approximately 1000 coins were recovered from this context. The large quantity of smaller artefacts might indicate that the content of a sewer was used to fill the basin.

The basin in the *frigidarium* has been interpreted as an integrated part of the original bathhouse layout, and there are no indications of major repair phases that would have involved a modification of the floor. Consequently the floor and floor-foundation held a sealed context with a substantial chance of containing material that could prove useful in dating the construction of the bathhouse. Therefore a sondage was dug into the basin by gently loosening and lifting the floor slabs in the westernmost part. The removal revealed a very solid foundation as the marble slabs were inserted in topmost 20cm of fine cement, followed by another 20cm of course cement, which again was on top of several metres of boulders, fist sized stones, and hard packed clayish soil. The foundation mirrors the basis usually applied in the construction of Roman roads. It was expected that there would be some evidence of earlier use of the area, but it appears that the foundation continues to bedrock. It was not possible to complete the excavation of the sondage as the bathhouse foundation-walls were built in steps and the space in this sondage became increasingly limited (**Fig. 8**).

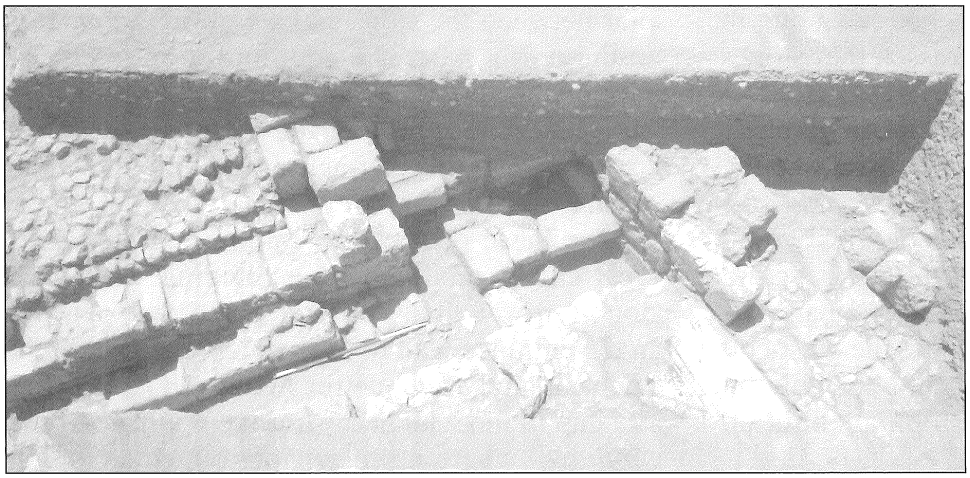
A great deal of useful information was obtained from this sondage. The massive foundation makes it clear that the bathhouse was of considerable height, since the step-like substructures would have been able to support a substantial weight. It was possible to retrieve valuable material in relation to dating the building from the sondage. Firstly, a single coin of the Philadelphia/Amman city type from the first quarter of the third century (Catalogue #5430) derived from the top most layer of cement. Secondly, numerous small ceramic fragments were found in the foundation fill, none of these dating to later than the third century. This sets the construction of the bathhouse earlier in time than previously estimated. It has been established above that the building was in continued use until the construction of the mosque, which indicates that it had a history of use stretching from the third century to the seventh; a span of some 400 years.

Unit MO/17
The Trench

The final area that will be dealt with in this report is a trench leading from the *frigidarium* towards the west, conducted in order to examine the extension of the building in this direction (**Fig. 9**). Some of the main features that were uncovered are two north-south running walls; one of these certainly belonging to the bathhouse and a mosaic floor laid out between the two. The continuation of the sewer running towards the *cardo* was found. It continues approximately four metres into the trench, where after it turns



8. Sondage in basin in frigidarium. Note the step-foundation of the bathhouse walls.



9. Trench stretching eastwards from frigidarium.

south towards the *caldarium* room A. Lastly, a pebbled area interpreted as being paving was located stretching from the sewer towards the south.

Based on this trench it is not possible to determine the extent of the bathhouse towards the west. The mosaic floor could be the pavement of an alley running between the bathhouse and an adjacent building, but it seems more likely that it is a floor inside the bathhouse, possible in a narrow corridor leading from one part of the building to another.

In the forthcoming season (2007) the trench will be expanded towards both the north and the south and this will hopefully facilitate a better understanding of the various features mentioned above.

Some Concluding Remarks on the Late Antique Bathhouse

The 2005 and 2006 seasons of excavation have revealed several important elements of the bathhouse architecture. Firstly the location of the *frigidarium* as well as the *tepidarium* has been established, together with the furnace and service area. Secondly, it has been proven that the span of the building in time as well as dimensions was much more substantial than initially believed.

The bathhouse is oriented north-south with the cold water area situated towards the north, where the shadow would have facilitated a naturally lower temperature than in the warm *caldarium* orientated south. Also a second entrance to the *hypocaust* from the service area has been identified. What remains is a further examination of the western part of the bathhouse as stated above and to establish the relationship between the bathhouse and the shops facing the *decumanus* towards the north. Hopefully, some indications of the position of the entrance will

be exposed in this process.

The Mosque *Qibla* Hall, West End: Architecture and Occupation Record (IS)

Continued investigation in 2005-2006 of the west end of the *qibla* hall of the mosque has led to a number of interesting discoveries concerning the architecture and occupation of the building.

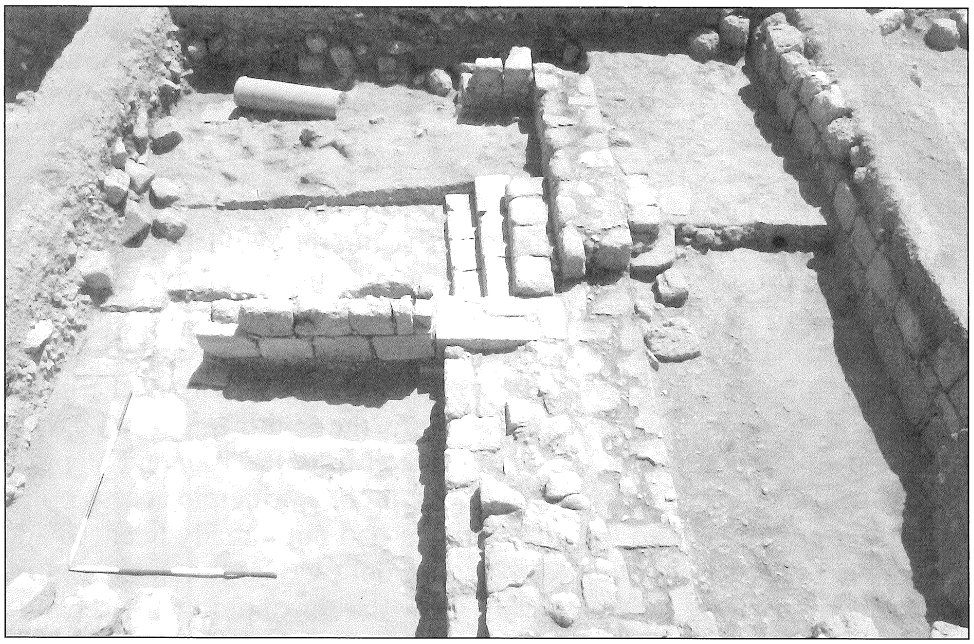
Further excavation of the western entrances to the mosque hall revealed more pier foundation bases and remains of another modification wall blocking one of the entrances between piers. The piers no longer remain but their plan is indicated by a line of holding mortar on their foundation bases, similar to those found along the east half of the entrance wall, and pit fills could be traced where trenches had been dug in antiquity to retrieve the well-dressed pier stones after the mosque fell into disuse (**Fig. 10**).

Only one collapsed column drum remains of the double colonnade in the west half of the *qibla* hall, while column foundation bases survive with mortar on top where columns would have stood. For the first time while excavating the *qibla* hall we found remains of a square pillar preserved above floor level – at the west end of the north colonnade – confirming the column rows in the hall terminated with pillars built up against the outer mosque wall.

The discovery of a *miḥrāb* located at the western end of the *qibla* wall, reported in 2006 (Barnes *et al.* 2006), in addition to the central *miḥrāb*, had caused speculation whether its purpose might be associated with the building west of the mosque's *qibla* hall and possibly accessed from a west entry to the mosque. Further excavation has confirmed a stepped entrance is located in the west wall of the mosque in the northwest corner of the hall i.e. unit MO/14 (**Fig. 11**). Three steps, approximately two metres wide, are preserved inside the hall leading down to floor level, and two steps have so far been uncovered outside in the laneway west of the mosque. No other features of the entrance survive except for mortar remains on the wall between the steps. The mortar outline, approximately 60cm wide and up to 150cm long, would have secured a doorstep in place. Inside the hall the steps butt against the pier mentioned above, enclosing the pier between the steps and a wall in the *portico* to the north. After the addition of an inter-pier filling wall, the pier would have been enclosed on all sides, accounting for preservation of the first course of this pier at the west end of the hall entrance wall.

The basic plan of the colonnaded hall at its west end is modified by a dividing wall. This double-row wall begins against the back of a pier in the entrance wall to the hall and runs south for approximately five metres in unit MO/15. There is a gap in the wall at the north colonnade of the *qibla* hall where it presumably butted a column on either side, while its southern termination, and whether it continued to the *qibla* wall, is unclear. Two courses of the wall are preserved: a

10. Looking south into qibla hall from courtyard in unit MO/15. A partition wall located toward the west end of the hall can be seen on the right.



11. Unit MO/14, containing west end of entrance wall to the mosque hall, behind which is a stepped entrance in the corner of the hall leading to a laneway west of the building.

course at floor level, which at its north end sits over the foundations of the entrance wall, and a deeper foundation course below the level of the paved floor inside the hall. If the wall is not contemporary with the original build of the hall it was certainly a well constructed modification which appears to divide the west end of the hall into a separate space (**Fig. 10**). Together with the division at the other end of the hall, there is reasonable evidence to suggest partitioning of space into areas used for different purposes in the mosque hall.

The state of preservation immediately to the east of the dividing wall (in MO/11 and MO/15) is similar to that of the *qibla* hall in general: a mass of broken roof tiles representing the remains of collapsed and salvaged roofing materials, and isolated patches of stone paving of the original floor. A compact yellowish layer of subfloor packing extends throughout this part of the hall, butting up against the entrance foundations and the above-mentioned dividing wall. Finds recovered were comparatively few.

Excavation of the small area west of the partition wall has revealed a different picture to the rest of the hall. The area was covered throughout with largely undisturbed tumble stone in which the pattern of the collapsed entrance blocking wall between piers in MO/14 was visible. Approximately twenty of the tumble stones display incised markings which are possibly masons' marks made when the stones were originally dressed prior to their re-use as *spolia* in construction of the mosque. The markings cover the whole face of the stone, ranging in size from the smallest building stones to the largest (80 centimetres).

Finds recovered mostly comprise ceramics, including roof tile fragments, a little bone material and a few glass beads. In 2006 two complete ceramic oil lamps were recovered in the *qibla* hall. Preliminary analysis suggests one is a ninth or tenth century type, which was found at floor level close to the *qibla* wall in unit MO/11, while the other appears to be later still, possibly Middle Islamic, and was found by the dividing wall in MO/15. Ceramic sherds of Hand-Made Geometric Painted Ware have also been found at floor level in the west end of the *qibla* hall, adding to the evidence for activity in the Middle Islamic period. Such later ceramic material has only been recovered from the west end of the hall demarcated by the dividing wall and may be associated with a later occupation phase of this part of the building. Further stratigraphic and finds analysis is needed before this occupation record is better understood.

Continued investigation of the laneway on the west side of the mosque reported in 2006 (Barnes *et al.* 2006) revealed a stamped-earth walking surface in the street. It butts the mosque and GO enclosure wall on its west side and is well-levelled along the part of the street so far excavated (**Fig. 11**). The GO outer enclosure wall displays a different construction to the mosque walls, suggesting it was not built at the

same time and probably post-dates the mosque. A section excavated through the walking surface and deposits below shows no layering, indicating a uniform fill material was laid and levelled. More work is needed in this important laneway to establish its construction history and the relationship between the mosque and the adjacent GO buildings.

The Mosque's East Entrance and Shops (IS)

In 2005-2006 excavations continued along a row of shops built between the cardo street and the mosque, uncovering two more shop units and a large stepped entrance in the east wall of the mosque (**Fig. 12**). The steps are semi-circular in plan increasing in radius with each step down. Three steps are fully preserved and mortar remains indicating an uppermost step no longer in place. Another distinct mortar line, approximately 2.5 metres long, on the mosque wall indicates the placement of a wide entrance threshold that no longer remains. In plan the bottom step – the largest step – measures 4.73 metres along the mosque wall and 2.57 metres in radius, and rests on an earth platform built against the east wall of the mosque. Large, curved stones were used to form the round plan of the staircase, each step consisting of eight to ten stones 20-25 centimetres in height.

The staircase was part of an imposing entrance leading up from the *cardo* to the east *portico* of the mosque's courtyard, approximately two metres above *cardo* street level. Since the platform on which the semi-circular steps are built is also higher than the level of the pavement and *stylobate* of the street, more steps probably existed to provide access to the platform from pavement level, but none of these structures survives. The rounded step entrances of the late ninth century mosque of Ibn Tulun at Fustat/Cairo may be an obvious parallel in terms of appearance, but there is no direct evidence that the circular stepped entrance of the Jarash mosque is not contemporary with the foundation of the mosque, which has been provisionally dated to the early eighth century in the reign of Hisham (105/724 -125/743) (Walmsley 2005). At some point the central doorway in the north wall accessed from the south *decumanus* was blocked up, at which time the rounded stepped entry was without doubt a principle access point to the mosque, if it had not already been, in addition to a smaller doorway at the north end of the east wall. Only the threshold of the secondary eastern entry is preserved, but judging by the arrangement of the rounded stepped entrance, it also was probably reached by steps from the side platform.

12. Semi-circular steps of the mosque's main east entrance, built over side access platform (looking west).

A small sondage excavated in the outer platform on the south side of the main stepped entrance showed that a foundation trench was dug in the earth fill of the platform at some point in order to construct a wall that functions as both retaining wall for the platform along its southern edge and as the wall of the northern booth (H) of shops butting the east side of the mosque. This shows the platform may have been reduced in size to provide space to build shops and explains why shop H is so close to the stepped entrance, which it almost butts against. This pattern of construction of shops in valuable space in the centre of the town follows a trend of commercial expansion in the Early Islamic period which utilized the porticos and pavements of the main streets of Jarash for new market buildings.

In 2005-2006 two more shops were excavated (G and H, in MO/9), representing the north end of the mosque row of shops. The front of these shops along the whole row no longer survives, so the arrangement of their entrances and facades can only be conjectured, but likely incorporated the *stylobate* as seen in shops elsewhere in Jarash. Shop G appears to be very narrow and its south wall is poorly preserved, which may instead be a dividing wall within a larger shop unit. In both shops, after removing successive layers of tumble stone deriving from the east mosque wall and the shop walls,

we encountered compact yellowish clayey soil indicating remains of floor level. The plan of booth H is better preserved. It is made up of north and south side walls which butt against the east mosque wall and contains a number of divisions or container bins built of single rows of stone in the hard clayey earth of the shop floor. In the north side of the shop a less well-built rectangular bin feature that belonged to a later construction phase was removed, below which a fine group of five complete pottery vessels were found *in situ*, inside one of the original shop floor storage bins (**Fig. 13**). The group consists of four casseroles, two of red ware and two of grey ware with white-painted wavy-line decoration, and one small jug of red ware with white-painted wavy-line decoration typical of ceramic production at Jarash in the eighth centuries. The vessels were found in the last days of excavation in 2006 and have not yet been fully studied, but their discovery appears to confirm use of the shop in the first half of the eighth century. Other finds in shops G and H were scarce; mainly ceramic sherds, some bone and glass, and a foot of a marble statue. Also attesting to activity in shop H was a fire-pit in the southwest corner, full of ash and made out of a large storage jar placed upside down, its lower half missing.

GO – Excavations West of the Congregational Mosque (KD)

Following the survey and clearance work conducted in 2004 and reported in the previous issue of *ADAJ* (Barnes *et al.* 2006), actual excavations of the GO area commenced in the 2005 season. The discovery of a narrow laneway and parallel wall just outside the southernmost part of the western mosque wall in 2004 prompted the delineation of two half excavation units (i.e. 5 x 10 metres) in western extension of unit MO/13 and MO/14. These units, termed GO/1 and GO/2 respectively (**Fig. 1**), were opened at the beginning of the 2005 season. In the 2006 season GO/1 was extended south to constitute a full unit within the overall excavation grid, while particular aspects were explored in the slightly more complex GO/2 unit.

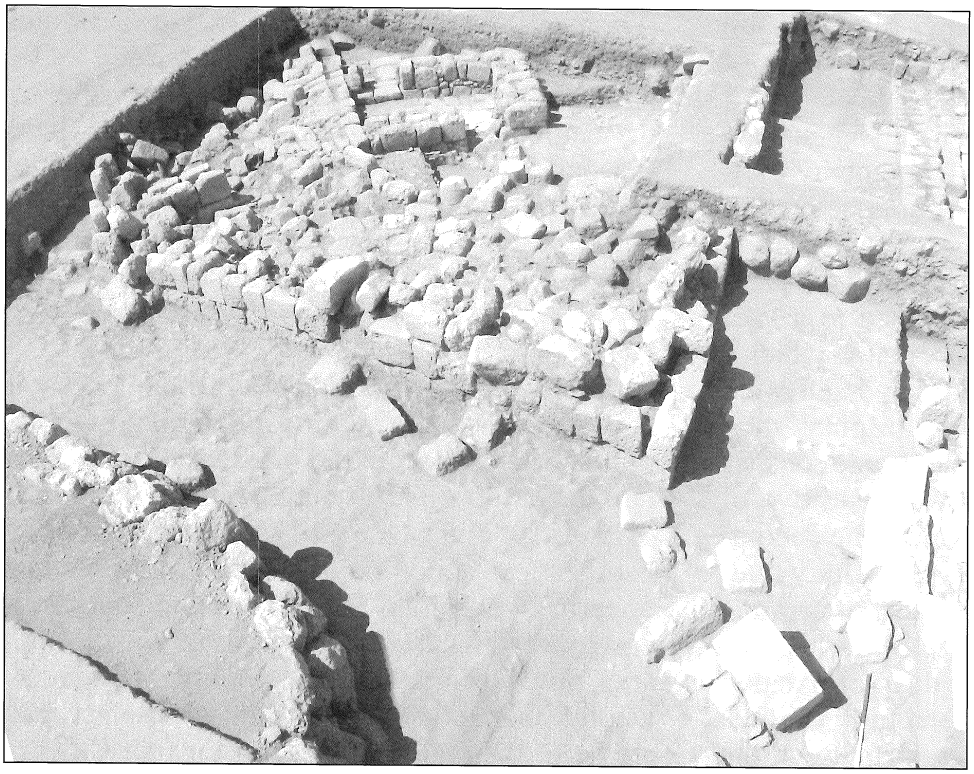
13. Ceramic vessels found in-situ in booth in Islamic period shop.

GO/1

Shortly after excavations were commenced, it became clear that a significant amount of stone tumble was present in the otherwise highly contaminated topsoil. The tumble consisted mostly of well-cut limestone ashlars, some of which had become quite porous due to exposure. The uppermost examples ran in a curving band from east to west in the southern part of the excavated area, and the curvature was quickly identified as a solid doubled coursed wall 1 – the westward return of the wall identified in unit MO/13. As work progressed, and the high density of tumble clearly deriving from architecture became more ubiquitous throughout the unit, the conviction that we were dealing with a substantial complex related to the mosque increased.

A second wall 2 was discovered running northeast-southwest and bonded to the western end of wall 1. This was breached by the bipartite threshold of a doorway, dividing the visible interior of the building in to two rooms. At the point where wall 2 bonds with the building's perimeter wall, another thinner wall 4 extends in a sharp angle into the western baulk (**Fig. 14**). Practically nothing of this addition can currently be explored without extending excavations further west, as there is currently little to report. It is nonetheless worth noting because the interior of this 'room' seems to have been faced with monochrome painted plaster, some which remains in situ. The plaster is, however, quite decayed and until the excavations are extended to include more of this room, these observations can be considered no more than preliminary.

The discoveries in unit GO/1 and GO/2 were from the outset seen to be closely related and their division into excavations units completely arbitrary. In order to better understand the rather limited impression of the building that the two half units yielded, the northern baulk of GO/1 was taken down to the level of the two units



14. Oblique view of the GO area looking northwest. The bracing wall of the terrace is seen in the lower left corner. The square unit in GO2 can be seen in the top of the image, with the drain area immediately below it.

on several occasions. In the strip occupied by the baulk, a circular dark and moist patch was discovered just outside the room found in GO/2 (**Fig. 15**). This room is further discussed below, but seems to have had a function related to water. The patch was therefore tentatively interpreted and excavated as a drainage pit. The drain is actually located in both unit GO/1 and GO/2, but because of the difficulties in dividing this singular feature between two different excavation units, an arbitrary extension of GO/1 secured the association of this feature to that unit.

The upper strata of the presumed drainage pit had a high density of ceramic sherds and broken bricks and tiles (including *pilae* from a *hypocaust* system). Some of these may have originated from the brick lining of the pit, but many of them were clearly waste material. Upon the decrease in density of this material, the soil became moister and was replaced by a polychrome deposit, with small patches of red, yellow, black and grey with seemingly very low organic content. The upper levels of the pit were lined with reused bricks; a standard means of isolating a pit, yet the lining appeared to stop at roughly the same level as the patchy soil.

In the yellow deposit the remains of a standing bread oven or *ṭābūn* wall was discovered, a significant part of which had survived. The feature was extremely fragile and the material of its walls quite porous. In the upper deposit, a number of fragments of the *ṭābūn* itself were discovered. Under these were deposits of dark grey and white ash, which contained modest amounts of ceramic and bone material. A cavity, which was presumed to be the oven's fire-box, was discovered below this stratum, but since no poker hole was found, this requires further investigation to confirm.

Only the northern half of unit GO/1 was excavated in 2005. The following season, excavations were extended southward to comprise the entire unit. Roughly 0.1 metres below the surface a row of stone was discovered running east-west through the entire square. This was identified as a wall 6. The area south of wall 6 was excavated in two spits, the upper being a light brown sandy soil with numerous cultural remains and the lower being a darker, more compact and moist soil almost void of material culture (**Fig. 14**). Following some excavation of this area, it was determined that both layers constituted part of the original fill, and that the wall constituted a bracing wall, retaining the soil of a large artificial platform or terrace. The wall itself leans slightly southwards and is not made of the same quality masonry as the actual architecture. What appears to be the return of this terracing wall

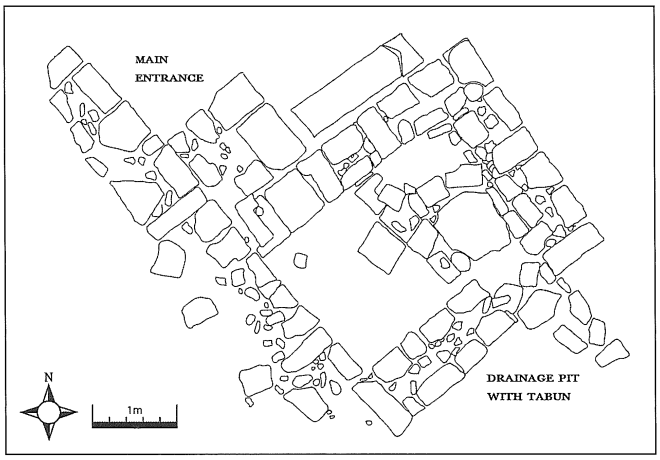
was identified as standing freely south of the excavation area.

The remainder of the square, i.e. between walls 3 and 6, was also excavated. From the outset, the deposits on the north side of wall 6 were darker than the fill behind the bracing wall. The darker deposits correspond to those discovered north of wall 3 in 2005. The upper stratum was full of material, especially ceramic and bone, whereas the lower constituted a cleaning locus. This is currently thought to have been a walking surface or laneway between the GO complex to the north and the terracing to the south.

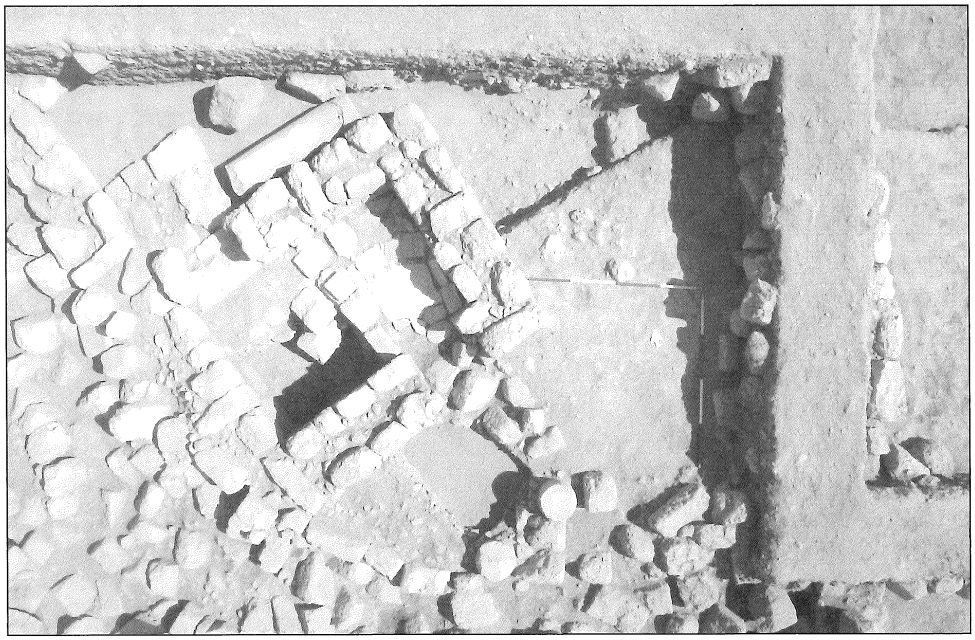
GO/2

This excavation unit lies in direct northerly extension of GO/1 and contained the same post-usage contamination and extensive tumble in the upper deposits that were found in the sister unit. Among and below the tumble a number of walls were identified, from which the tumble is believed to derive – especially the eastern perimeter wall 6 of the building (originally discovered in unit MO/14). Upon removing the tumble two well-preserved Corinthian capitals were located on a yellowish walking surface, and a reused column was found further towards the west.

West of the tumble area and situated centrally in the excavated area of GO/2, a squared building unit was identified (**Figs. 15 and 16**). The centrally exposed structure consists of four multiple coursed walls 1-4. So far the height of the eastern wall 1 and the northern wall 2 stand two courses high; their coursing consisting of a double row of ashlars interspersed by single perpendicularly set dressed stones. The southern wall 3 also stands two courses high, however, unlike the above mentioned walls the coursing consists of a double row of dressed stones with a rubble fill between them. The western wall 4 runs from the northwest corner of the excavation unit and southeast into the southern baulk. The exposed coursing of the wall is badly preserved; however, this wall is broader and built of larger stones than the other three walls. Wall 4 thus not only constitutes part of the square building unit, but continues further northwest to perform additional delineating functions. Removing unit GO/1's north baulk, it was also discovered that wall 4 and the pierced wall of GO/1 either are the same or bonded to one another. Whereas walls 1 to 3 are bonded and constructed as a single whole,



16. Plan of square building unit in GO/2.



15. Square building unit in GO/2.

they seem to butt the larger wall 4, indicating that the square unit was a subsequent addition to the building proper.

The small square unit has a substantial doorway in the northwest corner (**Fig. 16**). The entrance is formed by a large stone step extending roughly a metre outside the structure itself. It includes a tap-hole and a threshold where the door originally would have been. In the southeast corner of the structure there is a breach in wall 3. This was identified by removing a large dressed stone placed diagonally in the gap along with a loose fill. The gap may indicate a secondary opening made for drainage or maintenance, and is consistent with the reported drain pit just outside.

The surfaces in the structure were clearly different from the surrounding deposits. At the same level of the entrance threshold a yellowish hard stamped surface was unearthed. In the room's eastern end an almost complete *tegula* tile was retrieved. Taking its context into consideration, it is unlikely that this tile originally roofed the structure; a notion which is corroborated by an otherwise complete lack of *tegula* fragments in the internal deposits. Under the tile, a number of reused marble slabs with remains of plaster between them were discovered. The marble slabs were of varying sizes and colouration and set on the level surface of a presumed floor. The room had been internally divided by a row of stones separating the eastern part with marble slabs from the western earth-stamped part. Plastering was also found on the row of stones that divided the room. This suggests that the marble slabs once covered the stones. The marble paving and the discovery of large storage jar fragments might indicate some kind of water use, storage or production area, however, this room's exact function remains elusive.

These discoveries were all the result of the 2005 season. The work conducted here in 2006 constituted a more focused archaeological investigation of two aspects. The first sondage was laid out in the southernmost quadrant of the square room. The sondage extended across half of the earth-stamped surface and constituted roughly a quarter of the room. The quadrant was excavated in a number of loci, but consisted almost entirely of a packed fill layer with a high density of natural limestone inclusions. Included in the sub-surface packing was some ceramic as well as bone material, the most noticeable of which was an almost intact Umayyad oil lamp with a pseudo-Greek inscription. By the end of the season, a depth of 0.55 metres below the original stamped surface had been reached.

The second sondage extended northeast between wall 1 and the northern baulk, and was dug into what is perceived as a hard stamped earth walking surface dating to the early Islamic period. This sondage had two primary objectives: 1) To identify earlier walking surfaces related to the GO building; and 2) to ascertain whether wall 1 was dug into the identified walking surface using a foundation trench, or whether the extant surface butts against the wall, thus superimposing it. This sondage yielded a decent amount of ceramic and bone material, including a well preserved sherd of *Kerbschnitt* ware, dating the strata to the later eighth to ninth century. Also discovered was an iron poker. Although the soil in immediate proximity to the wall was less compact and slightly moister than the rest of the sondage, no foundation trench was identified. The hydrated soil should rather be seen as deriving from moisture moving along the walls in winter, whereas the lack of compactness has something to do with the fact that one does not walk so close to a wall. However, even though it seems clear that the hard stamped earth surface butts wall 1, at a depths of approximately 0.3-0.4 metres, no earlier surface has been identified yet, and the only indication of occupation prior to the architectural features was the fact that wall 3 clearly had been constructed on top of the *ṭābūn* installation.

A Selection of Identifiable Coins from the 2002-2006 Seasons (AW)

The excavation of the mosque and underlying bathhouse between 2002 and 2006 has resulted in the recovery of 1378 coins or coin-like objects. Nearly all are of copper alloy, most of which are very small and/or excessively corroded. Ultimately, it will not be possible to reliably identify many of these. What follows, however, is a list of preliminary identifications focusing on significant coins from an historical and/or stratigraphic perspective.

The 29 coins published here break down into six groups:

1- Roman Imperial: one city coin of the third

Abbreviations

Album and Goodwin:	Album, S. and Goodwin, T., 2002. Sylloge of Islamic Coins in the Ashmolean, vol. 1, The Pre-reform Coinage of the Early Islamic Period. Oxford: Ashmolean Museum.
DOC 1:	Bellinger, A.R., 1966. Catalogue of the Byzantine Coins in the Dumbarton Oaks Collection and in the Whittemore Collection, vol. 1, Anastasius I to Maurice, 491–602. Washington D.C.: Dumbarton Oaks.
DOC 2.1:	Grierson, P., 1968. Catalogue of the Byzantine coins in the Dumbarton Oaks collection and in the Whittemore collection, vol. 2, Phocas to Theodosius II, 602–717. Washington D.C.: Dumbarton Oaks.
Qoussous:	Goussous, N.G., 2004. نمّيات نحاسية أمويّة جديدة من مجموعة خاصّة مساهمة في إعادة نظر في نمّيات بلاد الشام. عمّان، البنك الأهلي الأردني.
	Rare and Inedited Umayyad Copper Coins Amman: al-Bank al-Ahli al-Urduni.
Ilisch:	Ilisch, L., 1993. Palästina IVa Bilâd aš-Šâm I. Sylloge Numorum Arabicorum Tübingen. Tübingen: Ernst Wasmuth Verlag.
Pottier and Foss:	Pottier, H. and Foss, C., 2004. Le monnayage de la Syrie sous l'occupation perse (610-630): Coinage in Syria under Persian Rule (610-630). Cahiers Ernest-Babelon, 9. Paris: CNRS.
Spijkerman:	Spijkerman, A., 1978. Coins of the Decapolis and Provincia Arabia. Jerusalem: Franciscan Printing Press.
Numbers given below placed within brackets refer to the published specimen number to be found on the referenced page preceding.	

century AD minted in Philadelphia/ 'Ammān (finds catalogue number 5430);

2- Byzantine: twelve coins from ca. 512 to 627 AD (cat. nos. 70, 74, 77, 87, 89, 96, 357, 1804, 1807, 1837, 1854, 2260);

3- One Sasanid drachm, although of an irregular type (cat. no. 368);

4- A possible imitation of a copper follis of Justin II and Sophia, perhaps produced during the Sasanid occupation of Bilād ash-Shām in the early seventh century (cat. No. 682);

5- Pre-reform Islamic: five coins from the second half of the seventh century AD (cat. nos. 92, 99, 354, 358, 1870);

6- Post-reform Islamic: nine coins from the eighth century AD, probably the first half (cat. nos. 73, 79, 94, 173, 227, 296, 435, 438, 4528).

At this point no significance can be drawn from the types or the relative frequency of coins in each group, but they are important in fixing a provisional chronology for the construction and use of the bathhouse and mosque.

Catalogue

70
MO/0 (Surface find).
Æ follis, Justin II and Sophia, Constantinople.
Obv: Justin on l, Sophia on r, seated facing on double throne, nimbate, Justin holding globe with cross; Sophia holding cruciform sceptre; marginal inscr, DNIVST-
Rev: large M; to l, A/N/N/O; to r, X/II (= 576/7); above, cross; beneath, B (officina); in ex, CON.
Diam: 25mm, thickness: 3mm, wt: 12g.
Axis: 220°
Ref: DOC 1: 213 (42b.1).

73 (**Fig. 17.A**)
MO/3.1 (Surface soil).
Æ fals, post-reform Islamic.
Obv: in centre, لله within circle; marginal inscr, first *Shahāda*.
Rev: in centre, bird ('duck') within circle; marginal inscr, second *Shahāda*.
Diam: 14mm, thickness: 4mm, wt: 3g.
Axis: –
Ref: Ilisch 46 (564-566).
Date: early eighth century AD (Ilisch: around 90s H.).

74
MO/5.1 (Surface soil).

17. Selection of coins.

Æ follis, Heraclius, Constantinople.
Surfaces very pitted (especially obv.) and coin cracked.
Obv: no surviving image; marginal inscr, dNhRA-
Rev: large M; to l, A/N/N/O (O small and drifting into exergue on l.); to r (obscured), II (611/2) or III (612/3); beneath Δ (officina); in ex, CON.
Diam: 25mm, thickness: 3mm, wt: 6g.
Axis: 180°
Ref: DOC 2.1: 276 (70c.2 or 71c).

77
MO/5.1 (Surface soil).
Æ follis, Anastasius I, Constantinople (large module).
Surface corrosion, worn.
Obv: bust facing r; marginal inscr, DNANAS-TA-
Rev: large M between two stars; above, cross; beneath, Є (officina); in ex, CON.
Diam: 34mm, thickness: 5mm, wt: 18g.
Axis: 180°
Ref: DOC 1: 21 (23i.2).
Series date: 512-518.

79 (**Fig. 17.B**)
MO/5.3 (disturbed soil near surface).
Æ fals, post-reform Islamic, Tabariya.
Obv: first *Shahāda* in triple circle; round point top line r.
Rev: second *Shahāda*; bird above; marginal inscr, '*Bismillah*, minted this fals in Tabari[yah]'; all within a circle.
Diam: 22mm, thickness: 2mm, wt: 4g.
Axis: 0°
Ref: Ilisch 30 (308).
Date: early eighth century AD (Ilisch: around 90s H.).

87
MO/3.1 (Contaminated topsoil).
Æ half follis, Heraclius (?), Constantinople (?)
Very corroded.
Obv: probably three standing figures (Heraclius, Heraclius Constantine, and Martina).
Rev: large K; to L, A/N/N/O; rest obscured; above, monogram.
Diam: 23mm, thickness: 3mm, wt: 5g.
Axis: 350°
Ref: DOC 2.1: 291 (96 bis) or 294 (104), dated 616/7 or 626/7.

89
MO/3.6 (disturbed soil near surface).
Æ follis, Justin I, Constantinople.
Obv: Bust facing R; -VSTINIVS-; worn.
Rev: large M; to l, star; to r, cross; above, cross; beneath A (officina); in ex, CON.
Diam: 31mm, thickness: 4mm, wt: 18g.
Axis: 180°
Ref: DOC 1: 40 (9a).
Series date: 518-527.

92
MO/3.7 (mosque building collapse).
Æ fals, pre-reform Islamic.
Corroded.
Obv: imperial image holding globe with cross on l.
Rev: large M; to l, O; beneath, A (officina); in ex, line with vertical ends.
Diam: 22mm, thickness: 3mm, wt: 4g.
Axis: 140°

Ref: similar Goussous 250 (84)
Date: ca. 660–680AD.

94
MO/5.4 (disturbed soil near surface).
Æ fals, post-reform Islamic, Tabariyah.
Obv: first *Shahāda*.
Rev: second *Shahāda*; palm to r; marginal inscr. (partial), '[minted in Tabari]yah'; all within beaded circle.
No mint name, no date.
Diam: 17mm, thickness: 3mm, wt: 3g.
Axis: 150°
Ref: Ilisch 32 (345-48).
Date: mid eight century AD (Ilisch: ca. 120s H.).

96
MO/1.105 (bathhouse surface).
Æ follis, Heraclius, class 3.
Clipped, corroded, overstruck on earlier coin.
Obv: Three standing figures, Heraclius (centre), Heraclius Constantine (r.), and Empress Martina (l.) standing facing and holding globe with cross in r. hand; two crosses either side of Heraclius' head; no marginal inscr.
Rev: Garbled.
Diam: 28mm, thickness: 2mm, wt: 3g.
Axis: indistinct.
Ref: DOC 2.1: 288-90 (89-91) with overstrikes, dated 615-24.

99 (**Fig. 17C**)
MO/1.105 (bathhouse surface).
Æ fals, pre-reform Islamic.
Clipped, folded.
Obv: standing figure; to l, staff.
Rev: small m
Axis: indistinct.
Diam: 18mm, thickness: 3mm, wt: 3g.
Ref: Goussous 241 (57)
Date: ca. 660-680AD.

173 (**Fig. 17D**)
MO/3.9 (post-mosque debris).
Æ fals, post-reform Islamic, Tabariyah.
Obv: centre, 'Allah is one, Allah the eternal'; marginal inscr, first *Shahāda* + 'without equal'.
Rev: centre, second *Shahāda*, palm to R; marginal inscr, '*bismillah* [minted this] fals in Tabariyah'.
Axis: 300°
Diam: 19mm, thickness: 2mm, wt: 3g.
Ref: Ilisch 32 (341)
Date: 730s AD (Ilisch: ca. 116 H.).

227
MO/4.5 (post-mosque debris).
Æ Fals, post-reform Islamic, Tabariyah.
Obv: centre, 'Allah is one, Allah the eternal'; marginal inscr, first *Shahāda*.
Rev: centre, second *Shahāda*, palm to R; marginal inscr, '*bismillah* minted [this] fals in Tabariyah'.
Axis: –
Diam: 24mm, thickness: 2mm, wt: 3g.
Ref: Ilisch 32 (341)
Date: 730s AD (Ilisch: ca. 116 H.).

296 (**Fig. 17E**)
MO/1.52 (bathhouse final phase).
Æ fals, post-reform Islamic, uncertain mint of the Jund al-Urdunn.
Large, thin flan.
Obv: first *Shahāda*, within triple serrated circle.
Rev: second *Shahāda*; marginal inscr, '[*bism*]*illah* minted this –', all within single serrated circle.
Axis: 170°
Diam: 26mm, thickness: 1mm, wt: 3g.
Ref: Ilisch 26-38; perhaps Baysan or Tabariyah; see esp. p. 30 (290), from Tabariyah.
Date: first half of the eighth century AD (Ilisch: ca. 80s H; al-Walid to Sulayman).

354 (**Fig. 17F**)
MO/1.108 (bathhouse final phase).
Æ fals, pre-reform Islamic, imperial figure.
Obv: imperial figure enthroned, crowned, holding staff with cross l; all in beaded circle.
Rev: m, pellets between legs; to r. and l, garbled letters; garbled letters in exergue.
Axis: 350°
Diam: 19mm, thickness: 2mm, wt: 4g.
Ref: fals of the 'Pseudo Damascus Mint'; Album & Goodwin 87 pl. 39.
Date: ca. 660-680AD.
Comment: The 'Pseudo Damascus Mint' is one of three uncertain and unexplained seventh-century mints in Bilād ash-Shām, the other two being the al-wafa lillah (الوفا لله) mint and the Tanukh mint. While the Tanukh mint was clearly located somewhere in north Syria, Tony Good-

win suggests that the other two were located in the Jund al-Urdunn (Album & Goodwin 2002: 87, 90, 96). Stylistically, however, these southern coins seem to belong to the Jund Dimashq, perhaps the products of a mint at Adhra'a, Busra and possibly even al-Jabiya, the first Muslim capital in Bilād ash-Shām.

357
MO/2.13 (disturbed context).
Æ follis, Heraclius.
Overstruck on earlier coin.
Obv: as cat. no. 96.
Rev: large M, to L. A/N/N/O (O straying into ex.), to r, ЧIIII (618/9); beneath Є (officina); in ex. CON; all within a circle.
Axis: 200°
Diam: 28mm, thickness: 3mm, wt: 8g.
Ref: DOC 2.1: 289 (89d for officina, 91 for year).

358 (**Fig. 17G**)
MO/1.149 (fill of bath hypocausts).
Æ fals, pre-reform Islamic.
Clipped.
Obv: standing imperial figure holding cruciform staff on l. and r. sides; cross above head; all in beaded circle.
Rev: m, cross above, beads between legs; to l, N; wavy line above; to r, Є with wavy line above; in exergue, nine pellets; all within beaded circle.
Axis: –
Diam: irregular 19-23mm, thickness: 2mm, wt: 4g.
Ref: fals of the 'Pseudo Damascus Mint'; Album & Goodwin 87 pl. 39.
Date: ca. 660-680AD.

368
MO/1.60 (bath hypocaust fill).
AR (?) drachm, Sasanid, Khusraw II.
Corroded.
Obv: Bust of king facing r, bearded, long curly hair, pearled ornamentation, and with winged crown surmounted by star and crescent; name HUSRUI to r; enclosed in broken double circle; three star-crescent combinations to r, l, and base.
Rev: Sasanid fire altar and two attendants; traces of inscr. (illegible); enclosed in triple circle with star-crescent combinations top, r, l, and base.
Comment: The coin surface shows extensive red and green corrosion, and appears to be made through the application of a thick silver coating over a base metal core; a possible imitation/counterfeit coin of the extensive Khusraw II series.

435
MO/5.11 (mosque surface/collapse level).
Æ fals, post-reform Islamic.
Corroded.
Obv: centre: first *Shahāda* in beaded circle; possible marginal inscr. or striations?
Rev: centre: second *Shahāda*; to r, palm; all in a circle; marginal inscr. (obscured).
Axis: 150°
Diam: 17mm, thickness: 2mm, wt: 1g.
Date: eighth century AD, perhaps from Filastin (al-Ramla mint).

438
MO/3.15 (mosque debris).
Æ fals, post-reform Islamic.
Corroded, cracked.
Obv: traces of marginal inscr; traces of outer circle.
Rev: centre, palm tree; marginal inscr, second *Shahāda* ('Muhamm[ad rasul Alla]h'); all within circle; struck off-flan.
No date, no mint.
Axis: –
Diam: 15mm, thickness: 2mm, wt: 2g.
Ref: Ilisch 46 (567-570); Goussous 434 (567).
Date: late Umayyad (mid eighth century AD).

682 (**Fig. 17H**)
MO/5.15 (mosque construction fill).
Æ follis, Justin II and Sophia, 571/2 or 574/5 (?).
Worn, corroded (especially rev.).
Obv: Justin on l, Sophia on r, seated facing on double throne, he holds globe with cross, she cruciform sceptre (no cross between heads); marginal inscr, dNIVTI (S missing).
Rev: large M; above, cross or monogram; to L. A/N/N/-; to r. (obscured) ЧI (but probably ЧI/II = 573/4); beneath, Є (officina); in exergue, faint lettering perhaps NIKO (reversed) or CON?
Axis: 150°
Diam: 28mm, thickness: 4mm, wt: 13g.
Ref: DOC 1: 209 (32e or 33e, but with a cross between the heads of Justin II and Sophia) or 211 (36e or 27d), but see the following.

Comment: The blundered legend, abnormal die axis and style of the coin's obverse (note especially the near-absence of a halo on the two imperial figures) may suggest an issue now ascribed to the period of the Persian occupation of Syria and perhaps minted in Hims circa 614-25AD (Pottier & Foss 38 classe Vs4). The only difficulty with this coin is its weight of 13g; known Syrian issues in this class are lighter in weight (9.87g, σ = 1.9g.), but this specimen would fit within two standard deviations from the norm. A similar coin to the one published here was found at Afamia with the same Є officina and same year attribution, but lighter in weight.

1804
MO/1.83 (fill in bath drainage system).
Æ follis, Maurice Tiberius, Theoupolis (Antioch).
Corroded, chipped.
Obv: Bust facing wearing crown with trefoil ornament; in l. hand: eagle-type sceptre; marginal inscr, dNmAUΓI CNPAUT.
Corroded on lower and left sides.
Rev: large M; to l, A/N/N/O; to r, regnal year X/IIII (= 595/6).
Above cross, beneath officina Γ, in ex. THEUP.
Axis: 0°
Diam: 27mm, thickness: 3mm, wt: 11g.
Ref: DOC 2.1: 343 (166b).

1807
MO/1.83 (fill in bath drainage system).
Æ follis, Maurice Tiberius, Nikomedia.
Clipped.
Obv: Bust facing, holding globe with cross; inscr. obscured.
Rev: large M; to l, A/N/N/O; to r, regnal year II (= 583/4), but perhaps II/I or II/II; beneath B (officina); in ex. NIKO.
Overstruck on earlier follis from Theoupolis (Antioch).
Axis: 180°
Diam: 30mm, thickness: 4mm, wt: 12g.
Ref: DOC 2.1: 324 (92b).

1837
MO/1.86 (fill in bath drainage system).
Æ half follis, Anastasius I, Constantinople (large module).
Corroded.
Obv: bust facing r. (very corroded).
Rev: large K, to l, cross; to r, officina Γ.
Axis: 180°
Diam: 28mm, thickness: 4mm, wt: –.
Ref: DOC 1: 23 (24d).
Series date: 498-518.

1854
MO/1.183 (fill in bath drainage system).
Æ follis, Justinian 1, Constantinople.
Corroded.
Obv: bust facing R; inscr. obscured.
Rev: large M between two crosses; above cross; beneath Є (officina); in ex. CON.
Axis: 180°
Diam: 30mm, thickness: 3mm, wt: – .
Ref: DOC 1: 79-80 (29).
Series date: 527-38.

1870
MO/1.183 (fill in bath drainage system).
Æ fals, pre-reform Islamic, imperial figure.
Obv: imperial figure enthroned; to l, eagle (?) on stand; all in beaded circle.
Rev: m with pellets between legs; to l, O/N, to r, pellets (?); above cross; beneath exergue line; no mint; all in plain circle.
Axis: 190°
Diam: 17mm, thickness: 2mm, wt: 2g.
Date: ca. 660-680AD.

2260 (**Fig. 17I** – reverse only)
MO/1.301 (fill in bath drainage system).
Æ half follis, Maurice Tiberius, probably Nikomedia.
Corroded.
Obv: bust facing, helmeted (?); inscr. ONm- (worn and obscured).
Rev: large K; above, cross; to l, A/N/N/O; to right, XU (= 596/7); beneath B (officina).
Axis: 160°
Diam: 20mm, thickness: 4mm, wt: 5g.
Ref: DOC 1: 329 (116).

4528
MO/4.71 (fill of bathhouse furnace).
Æ fals, post-reform Islamic, Ludd.
Corroded, pitted.
Obv: first *Shahāda* within beaded circle; traces marginal inscr.
Rev: second *Shahāda* within beaded circle; mar-

ginal inscr: 'Mint (of) Filasṭin Ludd' (unclear).
Axis: 250°
Diam: 22mm, thickness: 2mm, wt: 2g.
Ref: Ilisch 24 (212-213).
Date: probably the first decade of the eighth century AD.

5430
MO/1.366 (sub-floor packing of bathhouse).
Roman city coin, Elagabalus (218-222), Philadelphia.
Obv: bust r. laurate.
Rev: chariot featuring domed canopy resting on four pillars, drawn r. by four horses; countermark.
Axis: 180°
Diam: 22mm, thickness: 2mm, wt: 2g.
Ref: Spijkerman 256 (Philadelphia 46).

Chronological Notes

The securely provenanced coin FCN5430, recovered beneath the paving of the pool in the frigidarium, shows that the construction of the bathhouse must postdate 222AD. That conclusion reasonably complies with the late third century date proposed for a major remodelling of the plaza located at the south tetrakionia (Kraeling 1938: 114, dated 293-305), with which the bath may have been associated.

Next, many coins from bathhouse surfaces and hypocaust fills belong to the seventh century, from Heraclius to pre-reform Islamic coins of the imperial image type (ca. 660-680). However, the fill in the bathhouse furnace produced a post-reform coin from Ludd, dated to the 700s AD (FCN4528), and a second post-reform Islamic coin (FCN296) originating from an uncertain mint of the Jund al-Urdunn but of a type dated by Lutz Ilisch to sometime in the reign of al-Walid and/or Sulayman. As, again, these coins originate from very secure contexts, the construction of the mosque must post-date ca. 720. This agrees with the date already proposed for the foundation of the mosque some time in the reign of the caliph Hisham ibn Abd al-Malik (105/724-125/743) based on architectural comparisons (Walmsley and Damgaard 2005).

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GHAWR AṢ-ṢĀFĪ SURVEY AND EXCAVATIONS 2006-2007

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Introduction

Survey and excavations begun by the Hellenic Society for Near Eastern Studies and the Department of Antiquities of Jordan in 2002-2004 in the Ghawr aṣ-Ṣāfī, resumed in a new collaboration with the University of Adelaide during December 2006 and January 2007. Additional support came from the Palestine Exploration Fund and Aramex.

Survey

Survey work continued on the foundations set during 2004 by mapping current archaeological activity in the area, plotting newly discovered as well as previously known archaeological sites, and contributing a number of new layers in the Geographical Information System (ArcView GIS 3.1) initiated in 2004 (Politis *et al.* 2005: 313).

Surveying was carried out with a Topcon GTS-230 total station theodolite, kindly lent to us by the Baladiyyat aṣ-Ṣāfī, and a number of hand-held GPS receivers. We also added to our collection of aerial photographs. High-resolution 1:30,000 1992 aerial photographs from the Royal Jordanian Geographic Society and obtained by Dr. Konstantinos D. Politis (permit reference 16.1/1/2/17, 1417/1/, 27/5/1996), were rectified and ground co-ordinated previously (Politis *et al.* 2005) (**Fig. 1a**). During this season additional aerial photographs from the Royal Jordanian Geographic Society were available to be incorporated into the Geographical Information System. They included high-resolution 1: 25,000 colour aerial photographs in digital format taken in 2000, and high-resolution black and white aerial photographs taken in 1953 (permit reference).

Given the amount of new sites discovered, examined and plotted, together with the of widespread illicit excavation in the region, the practicalities, logistics and urge of a longer-term survey project in the wider area of Ghawr aṣ-Ṣāfī were assessed.

This work is ongoing, and this is the reason why GPS data is not presented here. They are nevertheless available from the authors upon request.

The Co-ordinate System

Following the 2004 season, all measurements and co-ordinates for archaeological survey and plotting were taken and recorded in longitude latitude decimal degrees by Garmin and Magellan GPS 12 channel receivers, using the WGS84 datum. All data is re-projectable to other systems, such as the Palestine Belt Grid (Universal Transverse Mercator Zone 36), and the more accurate Jordanian Grid System (applied by the Royal Jordanian Geographic Centre), once maps for the southern Dead Sea region are available.

Survey Summary

Detailed survey continued in Ghawr aṣ-Ṣāfī region via GIS/GPS with the objective to map in unrecorded areas, locate integral features and identify the communication network (**Fig. 2**).

In the course of the survey three Neolithic sites were located east of Ghawr aṣ-Ṣāfī, just north of Wādī al-Ḥasā.

The most significant of the sites was located on a plateau at the intersection of Wādī(s) al-Ḥasā and Ḥamrat Suwayf. The ancient occupation seems to cover a relatively small area of the plateau, approximately 4-5 hectares. Illicit excavations have exposed well-preserved rectangular structures some standing over 1.5 metres (**Fig. 3**) and with step-like features. Many worked flints