

London-Bahrain Archaeological Expedition excavations at Saar: 1993 season

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During 1993, the London-Bahrain Archaeological Expedition conducted a fourth season of excavations at the early second millennium settlement of Saar, Bahrain. A lower level of the temple was cleared, and a range of buildings to its north-west discovered. A new street was found opposite the temple entrance, and several of the buildings along the main street were further investigated. Further environmental research included a new programme of micromorphology and the start of research into the fish remains.

Excavations took place at Saar from January 3rd until March 10th, followed by post-excavation work until March 31st. The team consisted of: archaeologists Shahina Farid, Alison and Martin Hicks and Jennifer Kiely: assistant director and photographer Marcus Woodburn; Brian Irving, ichthyoarchaeologist; Wendy Matthews, micromorphologist; Marlies Heinz, pottery specialist; Robyn Stocks, registrar; Duncan Woodburn, illustrator; Adele Arthur, architect; Hilary Towns, site administrator, and directors Harriet Crawford, Robert Killick and Jane Moon. Our colleagues from the Directorate of Archaeology were Mohammed Jaffar, Khalil Yusuf and Ali Ibrahim. Valuable volunteer help was given

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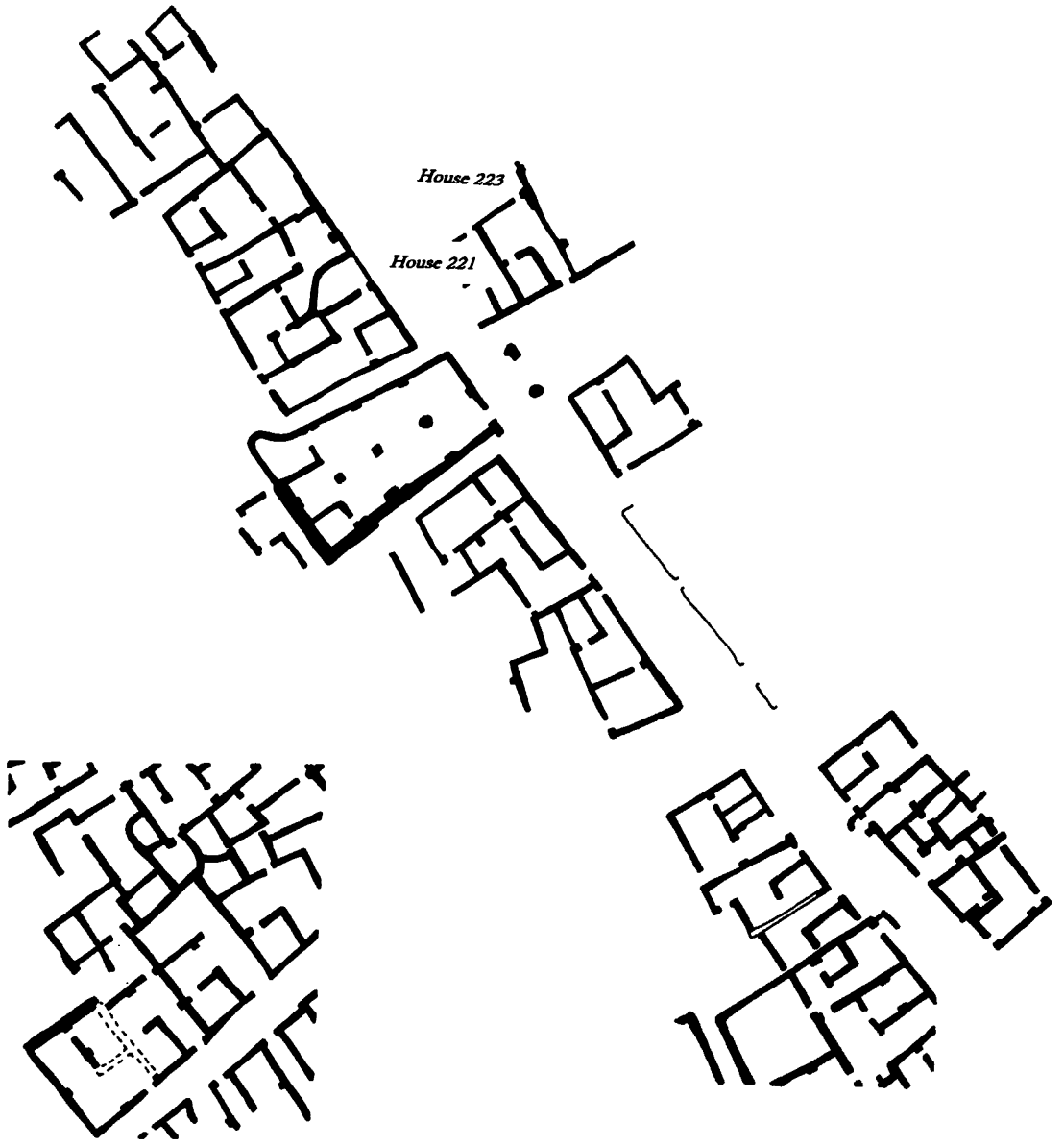


Fig. 1. Plan of Ancient Saar 1993.

British School of Archaeology in Iraq, the McDonald Institute for Archaeological Research and National Geographic Society. To these, and to all our other supporters (see p. 155) we wish to extend our heartfelt thanks.

Excavation concentrated in four areas: the temple itself (House 201, Fig. 2); buildings adjacent to it on the north-west side (Houses 202, 203, 204, 205, Fig. 6); buildings opposite the temple entrance (Houses 221 and 223 (Fig. 1) and 222 (Fig. 8)); buildings south-east of the temple (Houses 200, 210, 211 (Fig. 12) and 50 (Fig. 15)). The descriptions which follow are taken from field reports written by those supervising excavation in the respective areas, collated by Jane Moon. Marcus Woodburn offered several helpful suggestions on the text.

The temple (Shahina Farid)

Previous reports have described the general construction of the Saar temple, and its essential character as revealed in its latest phase (1). As a result of the 1993 excavations, the architectural history of the temple can be interpreted as described in the following section.

The early temple (Fig. 2)

The completion in 1992 of a sondage to bedrock beneath the temple revealed the existence of earlier occupation (2). The primary objective during 1993 for this area of the site was to complete excavation of the temple, including consolidation and preservation. A previous structure of a different plan, also revealed in the sondage, will therefore be left unexcavated.

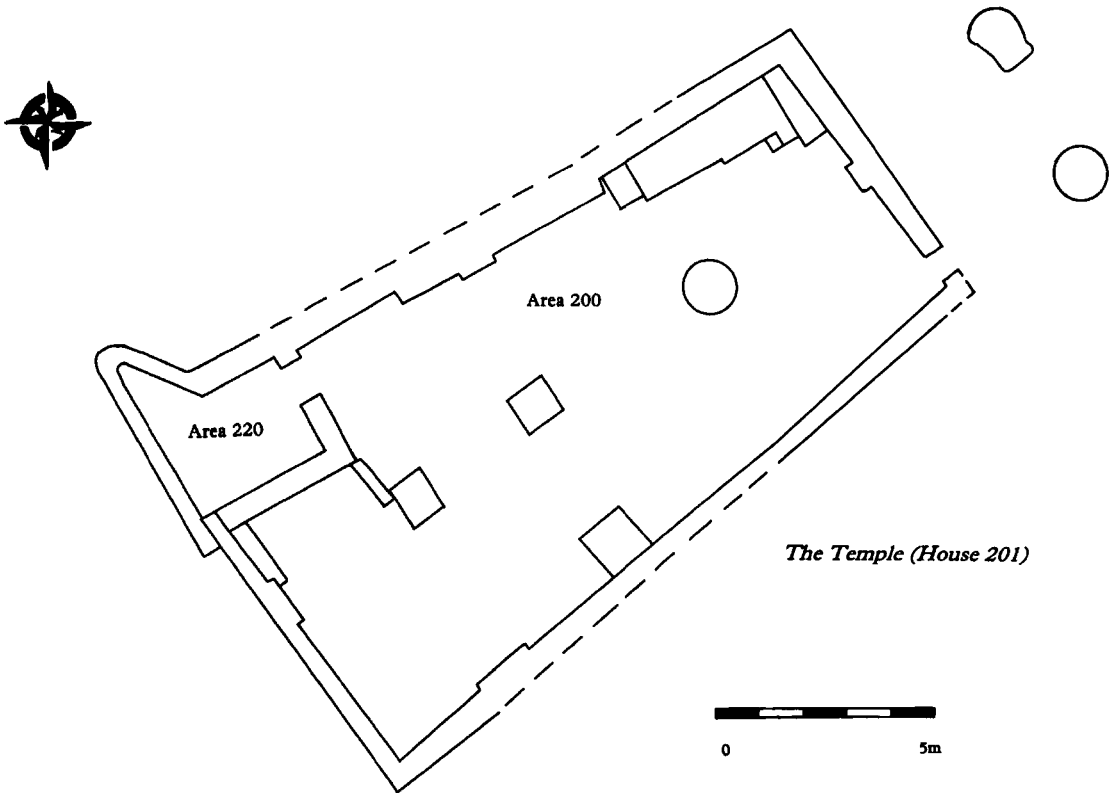


Fig. 2. The temple (House 201) at the early phase.

The earliest temple building is essentially a single, trapeze-shaped room, aligned north-east to south-west, with a small area partitioned off as a storeroom in the west corner. The construction is of limestone-rubble and mortar, and three central columns, two square and one round, supported the roof.

Three radiocarbon samples from a sondage through the temple floor have now been processed, giving a *terminus post quem* for the first human occupation of the ground below the temple of 2,370 BC, and a likely range of 2,355–1,885 BC for the first occupation level with associated architecture. The construction of the first temple post-dates this level. Full details are given in the Appendix.

The temple was entered from the main street of Saar via a doorway in its east corner. Once inside, you could turn to your right and find yourself facing a series of raised platforms in the north-east corner, perhaps bearing statues or offerings. If, however, you walked straight ahead inside the door you came to an altar built against the south-east wall, found with scorching on the table part. Proceeding further, you came to an area of large storage jars at the back of the temple: the impressions they left in the floor are still visible. The small room in the west corner was probably a store-room too.

The floors consist of a series of laminated surfaces, more trampled at the west end, reflecting greater movement in the area of the storage jars. Around the altars were several ash lenses, presumably connected with its function as a place of burnt offering. At the east end, near the entrance, the floor was of the same mortar that covered the platforms in the north-east corner, and in this were the clear multiple impressions of human feet. At least two individuals are represented, an adult and a child. Both had highly arched feet, slender

at the heel but broad at the front, with the widely splayed toes characteristic of those who habitually go barefoot. Parallel linear impressions in the same area may represent the ribs of a palm-leaf or reed mat.

The benches in the north-east corner were in excellent condition, with clean gypsum plaster (Fig. 3). The one against the north-east wall is the highest, at 1.22 m, with steps leading up to it. It is abutted by a larger platform along the north-west wall, which in turn has a small, square platform joined to the opposite end. The middle bench bore a square impression on top. On analogy with Mesopotamian temples, statues of worshippers may have stood on these platforms 'praying' on their owners' behalf. Or perhaps the statue of the deity itself stood here, with the generous area of benches needed to accommodate offerings. If so, the area was kept remarkably clean, as the plaster is in very good condition. Fragments of red painted plaster were found in the area of the benches both this season and last (3). Though clearly out of context, they probably belonged to this end of the building, as none have been found elsewhere in the temple.



Fig. 3. Benches in north-east corner of temple.

The altar against the south-east wall could only be partly exposed at this lowest level, to avoid damaging its successors above. Unlike later versions, it was completely plastered with mortar. The altar back had been demolished, probably as a result of the rebuilding of the wall behind it. It seems likely, however, that it would have formed the same crescent shape as the two surviving altars. There was a fine skim of ash over the altar table, and there seems little doubt that this area of the temple was used for burnt offerings of some kind. Ash and pieces of burnt animal bone, mostly fish, are associated with the altars.

On the west side of the earliest altar is a large, irregular hole next to the wall (Fig. 4). It is dug through the floors, and as the resulting spoil is still lying in untidy heaps around it, this probably happened immediately before the floor was covered over. The purpose of the hole is unknown, but it may have been dug to retrieve (officially or otherwise) a foundation deposit, in advance of the first major renovation of the temple.

The storage area at the back of the



Fig. 4. Hole next to early altar in temple.



Fig. 5. Jar depressions in temple.

temple had nine round depressions of around 0.7 m diameter (Fig. 5), presumably to hold heavy storage vessels. In contrast to the rest of the building, the floors in the storage area were littered with fish bones and sherds. The two depressions against the south wall of the adjacent store-room, Area 220, were flanked by stumps of two thin walls lying under mortar debris, and the floor underneath was separately plastered. This suggests that there was a shelf or cover above these two particular jars.

The curious construction of the store-room remains an enigma. There is still no obvious reason for the offset join in the south-west wall of the temple where it is joined by the partition wall which forms the store-room, though further excavation outside the temple may explain it. Equally, there is no explanation for the extraordinary hook shape of the west corner. When buildings take an unusual shape, it is often to avoid existing structures, but Area 220 looks as though it might have been constructed to *include* something. Sections through the floors, however, reveal only continuous compacted mortar flooring to the bottoms of the walls.

The second phase: major renovation

After a certain period of use, the temple was thoroughly renovated and certain changes made, while keeping the basic plan the same. The major structural alterations were the rebuilding of the long walls and, at a still later phase, the creation of another small room in the south corner.

After removal of the roof and the tops of the walls, the building was carefully cleared out, then covered with a layer of clean sand, 0.46 m thick. Drawing again on analogy with Mesopotamian practice, this was surely a ritual 'purification', as at Khafajah and elsewhere (4). The foraminifera in the sand suggest it came from near a source of fresh water (5), and there were so few inclusions it had probably been sieved.

The middle section of the north-west wall was re-built, introducing three buttresses. The south-east wall was also renewed, again introducing three buttresses, and moved inwards in the process. The internal walls of the storeroom 220 were renovated or re-built. The roof columns continued in use, presumably heightened to accommodate the new ceiling level.

The platforms in the north corner were re-modelled: the highest one, against the north-east wall, remained in use, but was much reduced in height by the raised floor level. A new, small, square platform was built onto its free end. The platforms against the north-west wall, on the other hand, were replaced by a single rectangular one (originally thought to be a trough (6)), not joined up to the others.

The store-room (Area 220) contained two large broken jars, apparently associated with the renovations, as they were left broken between floors, and covered over.

Subsequent alterations

At some point during the lifetime of this 'new' temple, when the floor level had

risen another 1.3 m., the south corner, where the storage jars had stood, was partitioned off to form a second storeroom (Area 221 (7)). The central column was reinforced and made circular, and the altar against it was enlarged to the front. The original altar, against the south-east wall, was again re-built, its crescentic back still extant.

Outside the temple

In the main street just outside the temple entrance were five circular structures, contemporary with the latest use of the temple (7). Two structures of a similar nature were found underneath, and can be considered contemporary with the original temple. One is round, the other has the plan of a square added to a semi-circle, and as such superficially resembles the plan of the central column and its associated altar in the later phase of the temple. It is not clear what these free-standing structures were for, but they are surely associated in some way with the temple and its cult. They could be 'offering tables', or have carried religious symbols, or have been some kind of focus for prayer and ritual. Or they may have been pillars to support some kind of superstructure. At any rate, they occupy a prominent position, right in front of the temple entrance, at the summit of a wide thoroughfare, which probably led up from the water-front (see below p. 148).

Buildings north-west of the temple

(Fig. 6): Houses 202, 203 and 204

(Shahina Farid, and 205 (Martin Hicks)

This season several new structures were uncovered to the north-west of the temple, and those already found were further investigated. All these buildings were entered from the street running past the back of the temple, parallel to the main street. Changes of access and use have been

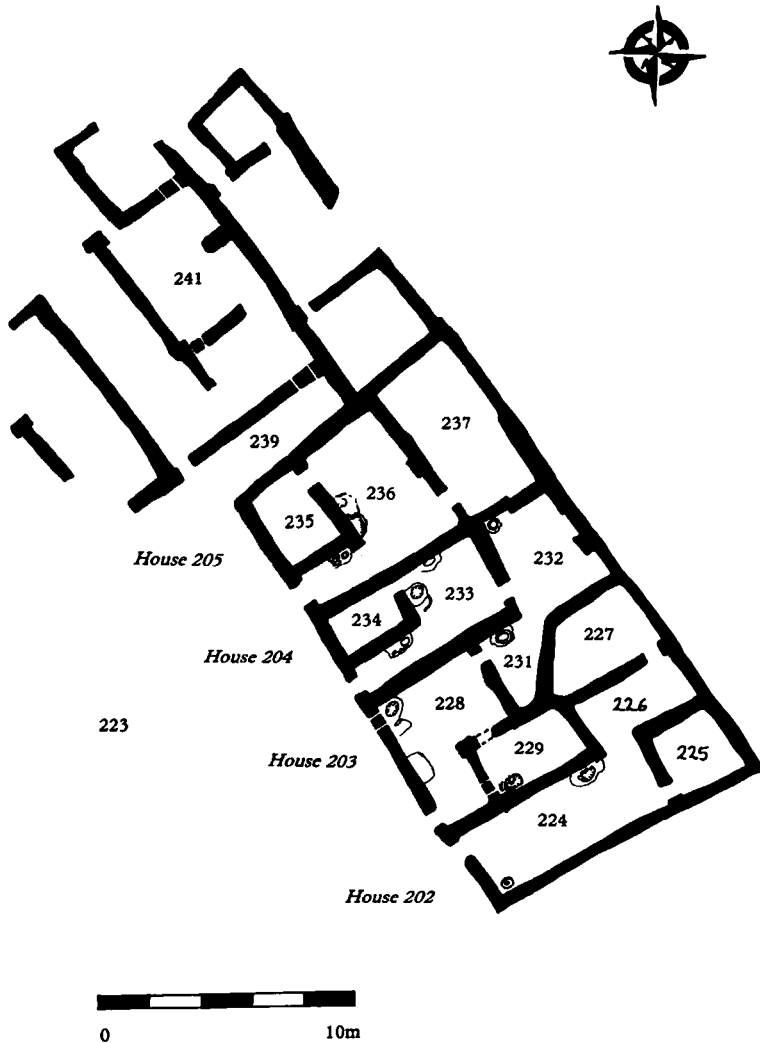


Fig. 6. Buildings north-west of the temple.

made to the various rooms over their lifetime, and in some cases it is not yet clear what the original arrangement was. Previous work in Houses 202 and 203 has been described previously (8) and is repeated here in summary form.

House 202, nearest the temple, was partly excavated by the previous expedition, and details of any post-abandonment occupation are not available at

present. At its latest floor-level, the entrance gives onto a long, narrow room (Area 224), which turns in a dog-leg (Area 226) round a small, separate room (Area 225). The back of Area 226 gives access to a further small area (227), created by building a curved wall across an otherwise larger, rectangular space, which seems to be shared between Houses 202, 203, and 204 at this stage. Area 227 is only excavated

to just beneath the building collapse, as the removal of the very rich deposits of fish debris encountered there is time-consuming. There is a pot in the south corner, and a plastered basin where you turn the corner from Area 224 to 226.

House 203 had an L-shaped courtyard (Area 228) in this last phase of primary occupation, and the usual single inner room (Area 229). In the courtyard were a basin inside the street door, and a well-preserved cooking-range against the south-west wall. The 'range' consisted of a semi-circular hearth made of ashy clay plaster, next to which are three 'tripod' legs of small stones coated with the same ashy plaster. The standard round-bellied cooking pot, so common at Saar, fits well on the tripod. Thus, two forms of cooking could take place simultaneously: a pot on the boil on the tripod, with a small fire underneath, and something else in the semi-circular hearth. This type of cooking arrangement has now been found in several houses at Saar, sometimes, as in this case, with an adjacent *tannur* as well. In addition, there was access through the back of the courtyard to Area 231, part of another courtyard, with room for a water basin right by the door, and little else.

Area 229 is the only part of the complex north of the temple to be excavated down to what is probably its first occupation floor, and shows a change of use during its lifetime. The condition of the floor in this area suggests it was unroofed at this early phase, with two doorways: a wide opening in the north-west wall, and a door in the south-west wall too. Under the threshold of the latter was a shallow bowl with a small, deliberate hole in the side, clearly a foundation deposit of some kind. Against the south-east wall was a double hearth, in excellent condition, with a tripod of the kind just described, in between.

House 204 (Fig. 7) was newly discovered

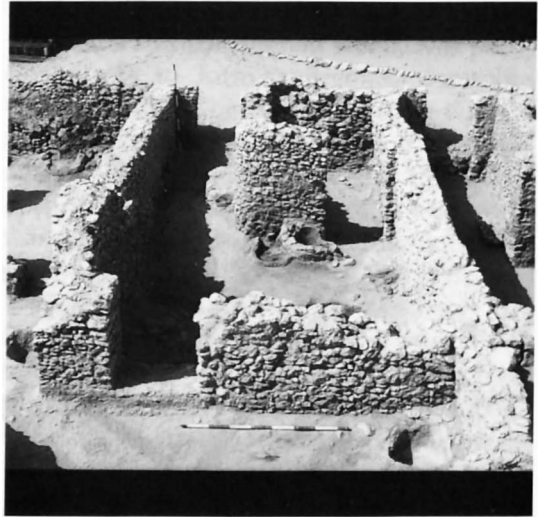


Fig. 7. House 204.

this season. Entered from the same street as its neighbours to the south, its plan is similar to houses in other parts of the town. That is, the basic shape is a rectangle with one corner partitioned off as an internal area (234), and the resulting L-shape (233) left open. As is often, but not always, the case with houses at Saar built to this plan, there is access from the back of the courtyard into a further open area (232), sometimes shared, as this one is.

The internal Area 234 had clean, compacted floors, while the courtyard, Area 233, was covered with bone, ash and shell, and was obviously an area of intense activity. There were several installations, which must have made the area very cramped: by the street door, a basin made out of a re-used jar, and adjacent basin installation. The *tannur*, and adjacent hearth with tripod, were right next to the door into Area 234, and it must have been difficult to get in or out when the fire was lit without burning oneself. In the shared rear yard (Area 232) was a plastered basin identical to that in House 203's portion.

At some point after the permanent occu-

pants of House 204 had left, and the house had begun to fill with sand, it was used for temporary accommodation or activity. There are several scoop-hearths in Areas 231 and 232, and one in 233. As there is no associated occupation level, these visitors can only have stayed a short time. They did not light any fires in Area 234: perhaps the roof was still good, and the room was more suitable for sleeping than lighting fires in, or perhaps it was inaccessible because the roof had collapsed.

Next to House 204 on the north-west side was an almost identical one, 205: during its latest primary occupation the street entrance gave into an L-shaped courtyard (Area 236), which in turn gave access to a single inner room in the left-hand corner of the building (Area 235), and to a rectangular space at the back of the house (Area 237). The latter is as yet unexcavated, but it had a door through to the neighbours in House 204. Area 237 is in fact a late addition: the wall which divides it from the originally much larger courtyard is built on a layer of sand which seals the earlier occupation of the whole building.

The latest occupation levels were investigated in Areas 235 and 236, and two distinct phases were uncovered. The inner room had a good, coherent floor, but unlike that of the neighbouring house, it was not swept clean: pottery, shells and even fish debris were found there, as well as stone tools, bronze fragments and two beads. Outside in the courtyard the floor was patchy and worn right through to the sand below in places. Although the entrance way is narrower than usual, a platform and plastered basin were built just inside on the left, and there was a semi-circular hearth of grey plaster against the south-west wall of the main yard area, with scorching and a concentration of fish-remains around it. Otherwise the outside area produced stone

tools, some intact fish-scales, and the usual scatters of pottery and bone. In the doorway to the inner room were two stearite seals.

In both areas these occupation levels were sealed by make-up for new floors, and the socket to the dividing door eventually raised. Again the inner room contained stone tools and bronze fragments, as well as a shell seal. The yard floor produced bronze and bitumen fragments, stone tools and a bitumen bead. Shell and pottery were concentrated at the north end, and the hearth continued in use, now recessed into the floor.

Crude fireplaces and traces of brief occupation in the sand fill above the final living levels suggest squatter activity similar to that of Houses 203 and 204.

As soon as the wall-tops of House 205 were exposed, and it was apparent that it represented a 'typical' Saar house-plan, the building was selected for thin-section sampling and intensive sieving. Each area was divided into a 1m grid, and opposing squares were removed so that section samples could be taken for micromorphological analysis. Material from these squares was dry-sieved in its entirety. Material from the remaining 1m squares was then dry- or wet-sieved according to the micromorphologist's recommendation. Over 1,000 buckets of deposit were dry-sieved, and 165 taken for flotation. It takes much longer to excavate a house this way, but we are confident that the results will tell us much more about the activities which went on in it than conventional excavation.

Buildings north-west of the temple: beyond Houses 204 and 205

Just beyond the front door to House 205 the street (Area 223) ends. A right turn took you down a short, blind alley (Area 239). If you walked straight ahead instead, and

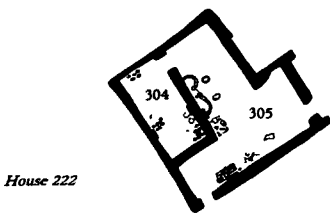
through a door in the wall opposite, you entered a complex of interconnecting rooms and courtyards not yet fully excavated, and therefore not yet coherent. What happened if you turned left at the end of the street is not yet known. Description of this area is better left until after next season: it could be either one large complex or several small ones similar to those south-west of the temple. Several pots were found on the latest surviving floor of the large square area 241.

Buildings opposite the temple: Houses 221, and 223 (Fig. 1), and 222 (Fig. 8) (Alison Hicks)

Investigation of the north-eastern side of the main street opposite the temple produced a surprise. Instead of the row of

buildings we had expected, there was a wide street at right angles to the main road. This broad thoroughfare presumably led up from the edge of the town, quite possibly from the water-front, directly to the temple entrance, before which stood the podia described above. The view as one climbed the rise would have been quite impressive.

Two houses (221 and 223) stood at the corner of the main road and this newly-discovered street, with entrances directly on to the latter. In each case, the doors led into L-shaped courtyards with an inner room to the left. Each house also had a door through the back of the courtyard. These two houses were of relatively late construction, built to fit in with an existing structure to the north-east (Area 307), which has not yet been investigated. They are not well-preserved, and had been partly exposed by the previous expedition, probably removing the south-west end. The two houses are probably contemporary with the five 'later' podia in front of the temple, and further excavation may reveal earlier structures below them. An Indus weight was found in the fill of House 223.



House 222



Fig. 8. House 222.

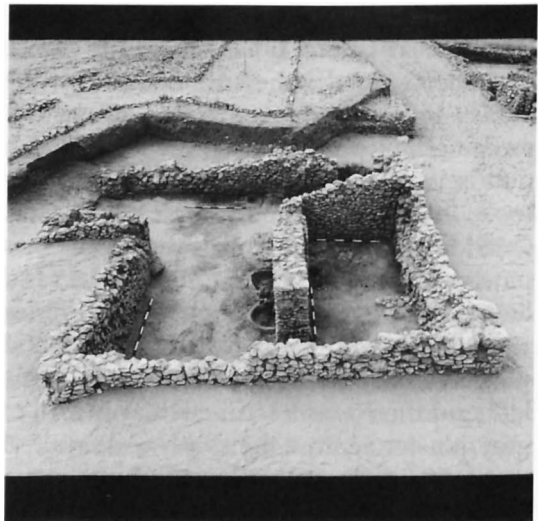


Fig. 9. House 222.



Fig. 10. Pots *in situ* in House 222.

On the opposite corner of the junction between the main street and the 'new' one, stood House 222 (Figs. 8 and 9). The plan comprised the usual single inner room and courtyard, but certain variations distinguish this house from those already found. The main doorway is tucked round the corner from the main street, rather than opening on to it. The courtyard has an eastward protrusion from its L shape, and in the corner another door led into an adjoining structure, not yet investigated.

The inner room, Area 304, had a pair of matching buttresses towards the south-east end, perhaps to support a partition. At the time it was last used, this room was certainly not a bedroom: there was no room to lie down at all. Only the uppermost floor was excavated, and this was covered with artefacts. Two pots were set into the floor against the north-east wall, with their lids nearby (Fig. 10). There were small stone platforms, areas of plaster, bases of bitumen-covered baskets, and numerous stone tools. This was clearly an area of bustling indoor activity. Among the artefacts on the floor were groups of un-

worked but very smooth pebbles. These have been noted in other buildings, but their purpose is unknown.

In the outer area, 305, the placement of internal buttresses similarly suggests there may have been partitions, or perhaps supports for awnings or shades of some kind. Three floor surfaces were excavated, and earlier ones were observed below. On the earliest of the three, a semi-circular hearth was built along the long wall of the inner room, with a tripod feature next to it. A second clay semi-circle was added to the other side of the tripod during the lifetime of the second floor (Fig. 11). There was a small pit, of unknown function, in front of each hearth. Next to the cooking area a low stone bench was built against the wall. There was another similar one just inside the doorway.

On the second floor excavated, the articulated skeleton of an animal had been deliberately buried against the south-east wall. It was an ungulate, probably sheep, and the head was missing. Similar interments have been noted in other buildings (for instance in House 5), and suggest some kind of offering or ritual.

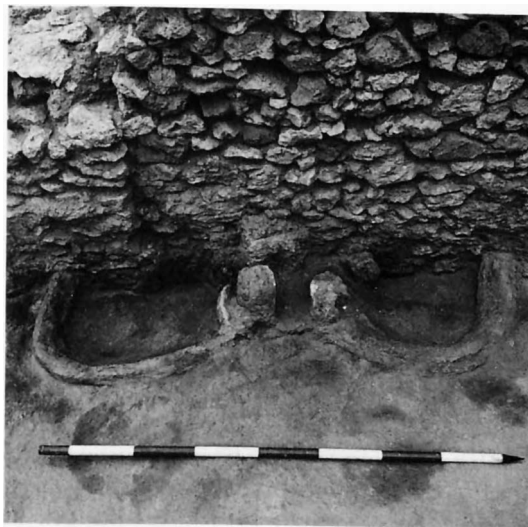


Fig. 11. Fireplaces in House 222.

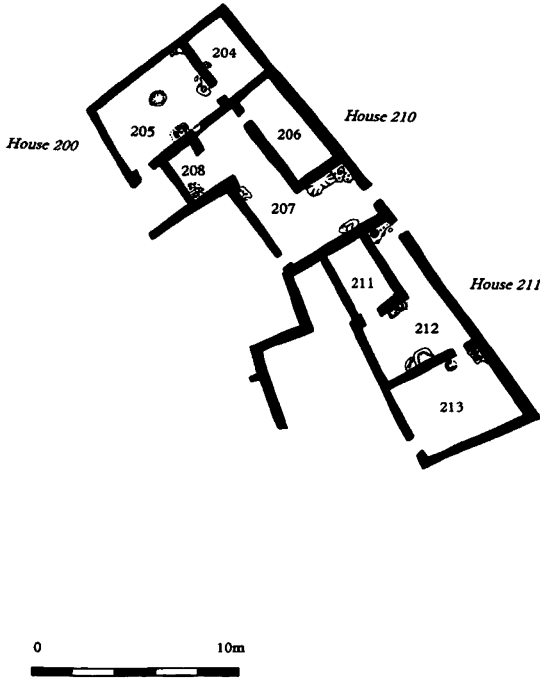


Fig. 12. Buildings south-east of the temple.

After its abandonment House 222 was used first as a rubbish dump – bits of bone and pottery were mixed with the collapse – and subsequently by squatters, who left deposits of charcoal and other occupational debris above the collapse levels.

**Buildings south-east of the temple:
Houses 200, 210, 211 (Fig. 12) and
50 (Fig. 15) (Jennifer Kiely)**

House 200

House 200 is next door to the temple on its southeast side, separated by a narrow alley. It was discovered in 1991, and thought at the time to form a single unit with House

210. Some of the fill and collapse were removed then and in the following season (9). This season all the occupation deposits were excavated.

The house consists of a rectangular courtyard leading into a single inner room at one end. Unlike most of the houses found at Saar to date, the entrance was not directly from the main street, but tucked away at the south corner of the courtyard, only accessible by going down a narrow alley and making two left-hand turns. The west wall was re-used from an earlier structure, the others constructed at the same time as the make-up for the first floor-level.

Four floor-levels were found in the courtyard (Area 205). These were ashy and patchy, as might be expected, and the higher ones were eroded at the west end. A constant feature, re-built in each phase, was a hearth with plastered tripod installation. A circular plaster basin was added in the last phase, perhaps to fit a jar into. The hearths were always next to the door into the inner room, against the wall dividing the two areas. At the primary floor-level there was a circular hearth in the centre of the courtyard too.

Another installation used throughout the life of the open area was a plastered basin with adjacent stone platform, situated inside the main entrance on the right. There was a niche in the wall beside it during the earliest phase (Fig. 13). The feature was re-built once, and a large grindstone was still standing near one corner of the later version. A stone shelf in the north corner of the yard was introduced at the level of the third floor and re-built once.

Fragments of three bitumen-lined baskets in the make-up of the first re-flooring, and areas of scorching in that for the original floor may have been related to construction work.

Two floor levels were found in Area 204,



Fig. 13. House 200: basin, platform and wall-niche.

the inner room. A large jar was set against the south-west wall, and there were several artefacts, including clay sealings and ingot fragments.

House 210

Adjoining House 200 to the south-east is House 210. This building was defined in 1990 (10). In the following season, 1991/2, the collapse and fill were removed and House 210 was found to form a distinct unit, as opposed to being part of House 200 (11).

The main entrance to House 210 was from the street, giving onto a courtyard, Area 207, with an extra area at the back (208). So the yard is Z rather than L-shaped. Directly opposite the front door is a door through the back of the courtyard. Access to the single inner room (206) was through a door opposite Area 208. Three seals and twenty sealings, mostly without impressions, were previously found in the inner room (12).

Excavation of the fill of House 210 in earlier seasons (10) showed that the internal walls of the inner room (206) were

constructed immediately before the latest surviving floor-level, the outside wall of the house being older. Also, the short wall dividing Area 208 from Area 207 was built over a pit, at a time when the house was no longer inhabited, apparently to help support House 200, which must have been still occupied. The long street wall is continuous between Houses 200 and 210, all built at the same time, but terraced into the slope of the mound.

The original shape of House 210 is not known, and there are no plans for further work. As it stands, the house is similar in plan to House 222 on the opposite side of the main street. Only the latest phase can be described, except for a small sondage in the internal room (Area 206), which showed that two floor levels were probably associated with the latest construction phase and at least one with the earlier.

A *tannur* stood just inside the street door on the right, next to an ash pit. On the left side of the entrance was another basin, of fine, white plaster. Where the south-west, back wall of the courtyard corners to form Area 208, the wall of the latter protrudes inwards; in the angle thus created was built a hearth with adjacent tripod. Round the corner, in Area 208, was a small pit surrounded by stones, including a grindstone. No installations or features were discovered in the inner room, Area 206, though a large copper hoe was found there previously (13).

House 211 (Figs. 12 and 14)

House 211 is the last, southern-most building in the row under discussion. Upon its discovery in 1991/2 the collapse and fill levels were removed (11), and a cache of sealings, several with the same impression, was found inside a pot in the inner room (14). This season the occupation deposits were removed.

Access to House 211 was by a door from

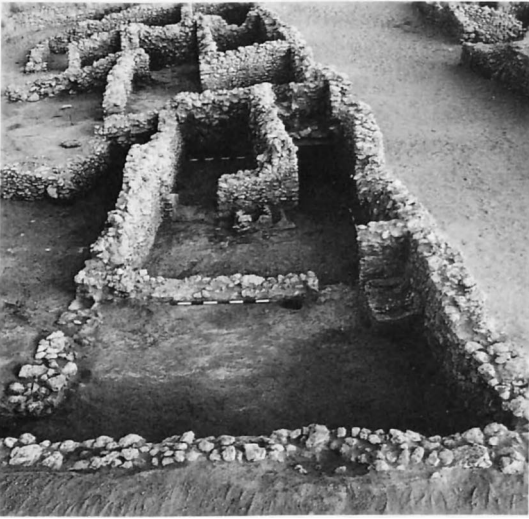


Fig. 14. House 211.

the main street, giving onto a narrow passage which leads into a square open area, the whole forming an L-shaped courtyard, Area 212. In the east corner of the yard is a door through to an open area, 213, which in turn has a doorway to the outside in its south-west corner. Access to the single inner room, Area 211, was from the opposite, west corner of the wider end of the courtyard.

Right inside the street door was a *tannur*. Six floors were removed from this narrow arm of the courtyard, and three from the main area. The slope up to the doorway from the main courtyard had increased during the lifetime of the building, and the doorway has at least five superimposed thresholds, testifying to a continual struggle to reconcile the floor-level inside the building with the rising street-level outside.

There was a basin to the right of the doorway from Area 212 through into the inner room, Area 211, again with an adjacent platform converted later into a jar-support. Against the wall opposite, by the door into Area 213, was a cooking instal-

lation consisting of a semi-circular hearth, with the remains of three plaster tripod legs. Rather curiously, this sophisticated device was replaced at the level of the second floor by a plain semi-circular scoop in the floor.

In the inner room, Area 211, one floor was removed, with a small pot set into it. It is possible that a later floor was overlooked during removal of the fill in 1991/2.

Area 213 was also an outside area, from which two floors were removed this season. They contained much bone and worked stone. The make-up for the lower floor was contemporary with the building of the north-east and south-east walls of this area: the other walls go back earlier. Tucked into the north-west corner of the room, next to the door, was a plaster basin with a stone platform next to it. A depression in the centre of the platform was

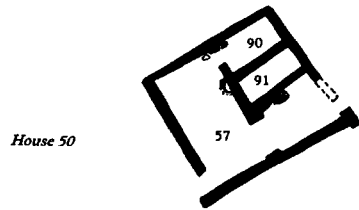


Fig. 15. House 50.

packed with shells; this feature had been repeatedly repaired and re-built.

House 50 (Fig. 15)

House 50 is separated from the row of three houses discussed above by a street joining the main thoroughfare at right-angles. It thus forms the end house of the next block fronting the main street at the bottom of the temple rise. House 50 was previously worked on in 1990 (15), and the plan exposed by removal of rubble and collapse in 1991/2 (16). The latest floor-level and a hearth were excavated at the same time. This season remaining occupation levels relating to the latest architectural plan were excavated.

The house is entered from a doorway off the main street, which gives into an L-shaped courtyard (Area 57), with another door at the back to the outside of the building. A third door, in the north corner gives access to the inner rooms (Areas 90 and 91). The long wall dividing the indoor and outdoor areas of the house thickens and protrudes at the south end, and the

presence of an internal buttress directly opposite suggests the courtyard may have been divided across at this point. The inside space is in the usual position for houses of this plan at Saar, but is divided in two. Although there is no surviving door to Room 91, it was probably reached through Room 90 at the east end, as the wall is preserved only to a very low level there.

The earliest deposit observed so far in the courtyard is floor make-up associated with the construction of the south-west wall of the building. A similar deposit in the inner rooms runs under the dividing wall. All the other walls of House 50 already existed in the same form when the house was re-modelled in its final shape.

Two patchy, grey plaster floor-levels were taken up in the courtyard, and a rectangular seal, probably made of ivory, was among the finds on the later one (Fig. 16). A third floor, the latest, was removed in the previous season, and a hearth associated with it found built against the long internal wall. Against the short one was a basin,

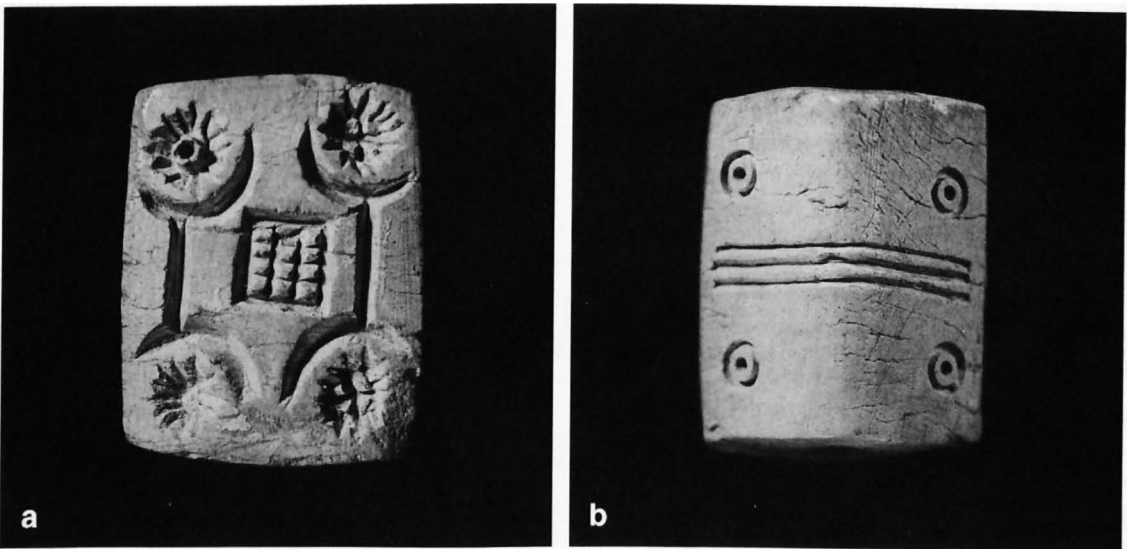


Fig. 16. Ivory seal found in House 50.



Fig. 17. Intact fish skull.

and against the north-west wall of the building was a stone shelf or work-surface. Above the floors lay the usual collapse and rubble.

Inside, the inner rooms each had two floor levels, of grey plaster. In Area 90 the upper floor was continuous with the one in the courtyard, and there was a circular feature in the north-west corner, probably a door-socket. Above the first collapse level there was evidence of the area being used as a midden before more rubble and wind-blown sand covered the ruins completely. In Area 91 the upper floor had several artefacts *in situ*, including four plaster lids, flint tools, and a metal object.

Fish (Brian Irving)

This season work began on the large assemblage of fish bone recovered from Saar. As a necessary first step, a start was made on collecting comparative reference material, and by the end of the season 52 modern fish skeletons had been curated, covering 21 of the 37 families known to be

exploited commercially in the Arabian Gulf today.

The presence of the ichthyoarchaeologist during excavation resulted in even better fish recovery than previously. Deposits particularly rich in fish were reported to Dr. Irving in the first instance, and complete scales, as well as whole heads and tails (Figs. 17 and 18), are now being recognized and lifted intact.

Micromorphology (Wendy Matthews and Charles French)

Another innovation this season was the start of Saar's involvement in a three-year micromorphology project based at the Department of Archaeology, University of Cambridge. About fifty thin-sections from occupation deposits are to be studied, along with material from Tell Brak in Syria and Catalhoyuk in Turkey. Samples for thin-section analysis were taken from selected areas inside and outside buildings, in the temple and elsewhere, and from the specially-controlled excavation in House 205 (see above). The samples are now being



Fig. 18. Fish tail.

Table 1

BM No.	Reference	Result BP	Possible calibrated date ranges (BC)	
			68% probability	95% probability
BM-2870	1512:02	3700±80	2275-2250 or 2205-1975	2455-2445 or 2355-1885
BM-2872	1516:02	3740±40	2275-2250 or 2205-2130 or 2075-2045	2290-2035
BM-2873	1533:06	4000±50	2585-2465	2865-2815 or 2695-2680 or 2665-2450 or 2425-2395 or 2375-2370

impregnated with resin and cut and ground to thin-sections in Cambridge. More will be taken next season, when preliminary results should be available.

Conclusions

The main results of the 1993 season were the completion of the row of houses south-east of the temple, the extension of the row to the north west, and the complete excavation of House 222. The environmental programme is considerably enhanced by the addition of the ichthyoarchaeologist and micromorphologist. Next season will see the continuation of both their programmes of work, the final completion of the excavation of the temple and the buildings to its north-west, and investigation of the area opposite on the east side.

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Appendix

Radiocarbon results

Three radiocarbon samples from the sounding through the floor of the temple (17) have been processed by the Department of Scientific Research at the British Museum. The calibrated results are shown in Table 1.

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