SURFACE SURVEY AND SATELLITE RECONNAISSANCE: RECONSTRUCTING THE URBAN LAYOUT OF MASHKAN-SHAPIR

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The recent introduction of irrigation around the site of Mashkan-shapir, together with the availability of high resolution satellite imagery, has resulted in the preservation of architectural traces which could not be recovered when the site was researched between 1987 and 1990. In spite of recent looting, these traces have allowed the identification of the location of the palace and the reconstruction of much of the street system of this city, including the connection points across the ancient canals. Moreover, the survey data recovered through past fieldwork can be related to these traces, allowing an understanding of the larger context for many of the activities at the site, especially burial and manufacturing. Together these data provide a detailed view of how an ancient Mesopotamian city was conceived—in this instance by Sin-iddinam, who transformed it from a small village to a large city by building the city wall.

When we left Mashkan-shapir at the end of the 1990 season it was in the expectation that we would be returning a few months later. Now more than two decades have passed, during which time only three archaeologists are known to have come near the site. John Russell flew over it in January 2004 and reported on the extensive looting that was present there, and late in 2009, Abdel-Amir Hamdani, the Inspector of Antiquities for Dhi Qar Province and now a PhD student at Stony Brook, visited the site together with Burhan A. Radhi, the Inspector of Antiquities for Wasit. They found evidence of looting over all parts of the site but were able to make arrangements for the site to be guarded in the future.

While we were conducting fieldwork, Mashkan-shapir was located 11 kilometres into the desert; today it is surrounded by cultivated fields and the road used by Iranian pilgrims on their way to Iraq's Shiite shrines passes immediately to its south as it did in the past.[1] The presence of a local population provides us with what we hope is the true modern name of the site. In our early publications we used the name Tell Abu Duwari. This name had been suggested by an elderly bedouin who was unable to actually visit the site, but properly belongs to a tell some 20 kilometres to the south (Adams 1981: 264, site 848). Our other candidate, Tell Naim, referred to the current owner of the land. Today it is called el-Medin—a suitable name since it is new details on its urban layout that I am presenting here.

In addition to providing a more secure nomenclature for the site, the changes in its surroundings have raised the water table from 5 metres below plain level in 1990 to very close to the surface today. This high water table, and the average 5 metre height of the settlement mound, have transformed the site from arid and dusty to damp and salinized,[2] in the process revealing extensive details of its road system and sub-surface architecture as patterns in surface salts which were absent under dryer conditions. These details have been recorded in a series of high resolution images taken by the Digital Globe Corporation between 2003 and 2011. With their resolution of 0.6 metres (Quickbird) and 0.5 meters (World View), when environmental conditions are right, these images preserve details of the layout of archaeological sites previously only possible through aerial photography (see Figs 2 and 3). At Mashkan-shapir they can be combined with the data collected while we were in the field to permit a more detailed understanding of the layout of this city than was possible before.

The site of Mashkan-shapir was chosen for exploration because its short period of occupation suggested that it might be possible to understand the overall organization of this Mesopotamian city through a combination of aerial photography, surface survey and targeted excavations (Stone and Zimansky 2004). In the event, little of the excavations were conducted, although our surface survey

[1] Older British maps consistently show an east-west track south of the site.

[2] A recent visit to southern Iraq indicates that the sites with the best surface indications are those that are heavily salinized.

https://doi.org/10.1017/S0021088900000267 Published online by Cambridge University Press

recovered some 1,400 objects which, together with architectural traces and surface scatters, allowed a quite detailed understanding of the structure of the city. Moreover, the barrel cylinders which gave us the ancient name of the site also indicated that we were looking at a planned city. The text commemorates the building of the city wall by Sin-iddinam "in order to expand its dwellings" (Steinkeller 2004b: 114), i.e. to take a small settlement and turn it into a city. Thus it was planning, not historical contingency, that placed the temple of Nergal on the southern periphery of the site.

The imagery now available provides a broader understanding of the organization of this Mesopotamian city. In spite of the looting, the presence of several modern canals of varying sizes that have been dug through the site, and the absence of any further archaeological work there, the changed environmental conditions make it possible to present a more detailed picture of how this city was organized than was previously available—an understanding that has implications for our overall view of Mesopotamian urbanism.

Imagery

Eight Digital Globe images are available for study, two of which (September 6, 2009 and February 13, 2011) show few ancient traces but are useful for demonstrating that no further looting took place between these two dates. The earliest image was taken on February 1, 2003, after the site had been surrounded by irrigation but before looting had become widespread. The damage to the site at that time covered about 2 hectares, leaving most of its 60–80 hectare surface visible.[3] It is likely that some time before a combination of heavy rainfall and high levels of irrigation had led to the salinization not only of the site but of the entire surrounding area. This resulted in the visibility of broad areas of architecture indicated by salt lines, sometimes with the walls themselves quite clear, though often parts of the room fills are also white. These salt traces are still visible in the other 2003 image, taken on July 31, but by this time the salt has been somewhat eroded, in some instances revealing details which were totally obscured by salt in the earlier image. Between these two dates the site had become the target of looters, with some 5 hectares of the site's surface covered by dense looting holes, including all of the cemetery.

There are no new images between July 2003 and February 4, 2008, by which time the site had been quite extensively looted, with 15 hectares of dense looting covering much of the central, western, and northern mounds. The southern mound, the location of the main temple, was left intact as was the periphery of the northern area and the eastern manufacturing area. In this image, architectural details show up as either dark, wet lines or light, salty lines, and the streets are especially visible, even through the looting, as wetter lines. No further looting was visible on the most recent images, taken on March 5, 2008, September 16, 2009, April 9, 2010, April 25, 2010, and February 13, 2011. These contribute less to the overall picture, though they do fill in lacunae in the plan visible in the February 2008 image.

Canals

The new imagery also allows us to solve some of the issues which we struggled with as we prepared the publication of our field work at Mashkan-shapir, one of which was how to interpret Canal B (Stone and Zimansky 2004: 12, fig. 5, 17–18). Beyond the site it was unique in being defined by a line of vegetation, which both obscured its relationship to the other canals in the area, and indicated that it was very deep. Moreover, within the site, unlike the other canals, it did not serve to separate functionally distinct parts of the site. Nevertheless it was associated with Old Babylonian baked bricks, and its exit from the site to the north-east had two mounds made of Old Babylonian baked bricks on either side. The deciding factor in our tentatively dating it to the latter part of the early second millennium occupation of the site was that our kite photograph of the intersection between Canals B and G showed no evidence that one cut the other (Stone and Zimansky 2004: 328), though this area was somewhat obscured by sand and car tracks. Now, the more recent satellite imagery makes it abundantly clear that Canal B was cut through the site long after it was abandoned. It can now be seen to run diagonally through the remains of domestic architecture now picked out in salt. The two baked brick mounds located on both sides of this canal as it leaves the site to the east are probably the remains of a water-control device, and the fact that they were built of Old Babylonian

[3] The built up area covered about 60 hectares, but the city wall surrounded a larger area.

bricks is simply because these were readily available at the site. For clarity, we have renamed the different parts of Mashkan-shapir into rough cardinal directions for this article (Fig. 1).[4]

The city of Mashkan-shapir

The new satellite imagery provides important new details of the organization of Mashkan-shapir, especially the northern palace area, the central part of the site that included the cemetery and the eastern manufacturing area. No new details are preserved in the imagery which would help us to understand the southern, religious part of the site—the location of the temple dedicated to Nergal—and the smallish area of newly visible architecture does not add significantly to our understanding of the western part of the site which was the primary focus of our limited excavations (Stone 1990; Stone and Zimansky 1994: 446–54).

The palace area

In the far northern part of the site, as far away from the Nergal Temple as possible, the outlines of a large building, at least 50 × 50 m in size (probably more like 50 × 75m) can be seen in the satellite imagery (Fig. 2). It resembles the Nur-Adad building found at Larsa (Parrot1933: 177–78; 1968: 211–12; Margueron 1970: 268–72; 1971: 283–84; 1982: figs 257–66) which was built by the father of Sin-Iddinam, the builder of Mashkan-shapir's city wall, as well as the Sin-kashid palace at Uruk (Lenzen *et al.* 1964, 1966). It is highly likely that this is the palace referred to in the written sources as the home of Kudur-Mabuk, the father of Rim-Sin and Warad-Sin.

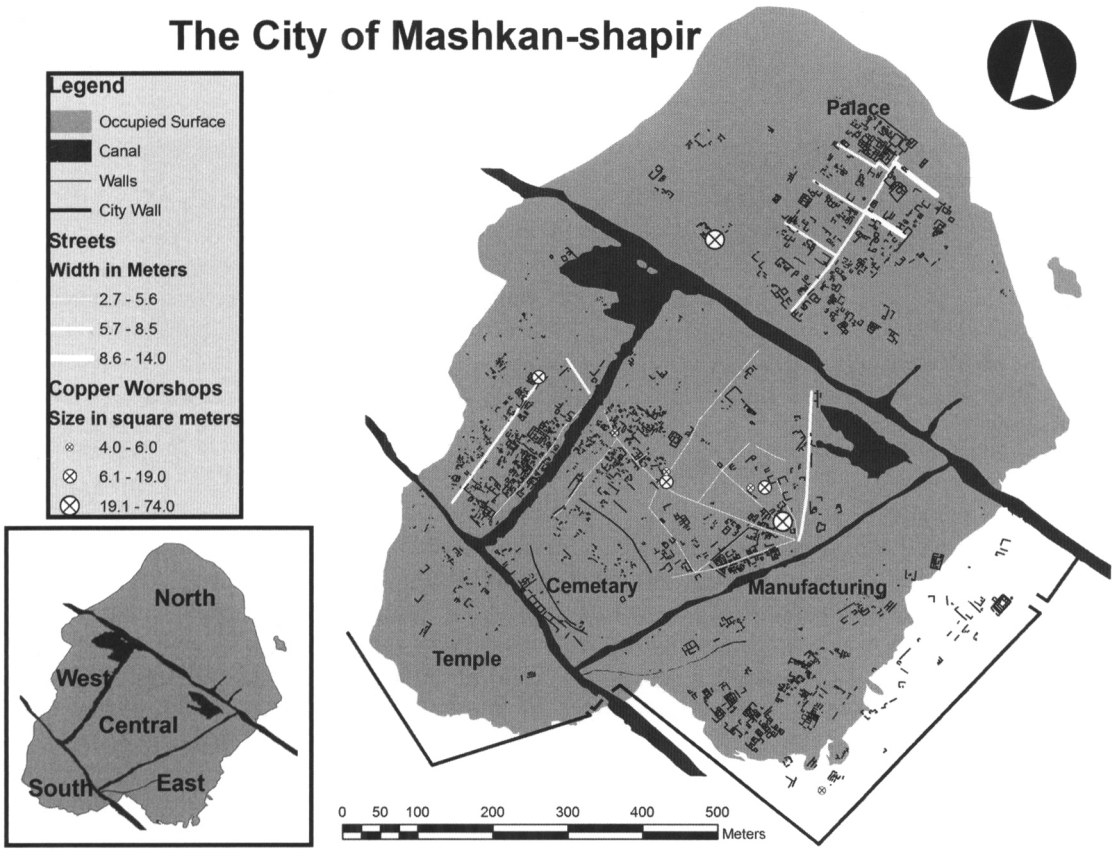

Fig. 1 Revised Plan of Mashkan-shapir combining data from recent Digital Globe Satellite Imagery, and older survey data.

[4] We realize that the actual orientation of the site does not focus on the cardinal directions, but to call the various parts of the site north-east, north-west, south-east and south-west results in greater confusion.

https://doi.org/10.1017/S0021088900000267 Published online by Cambridge University Press

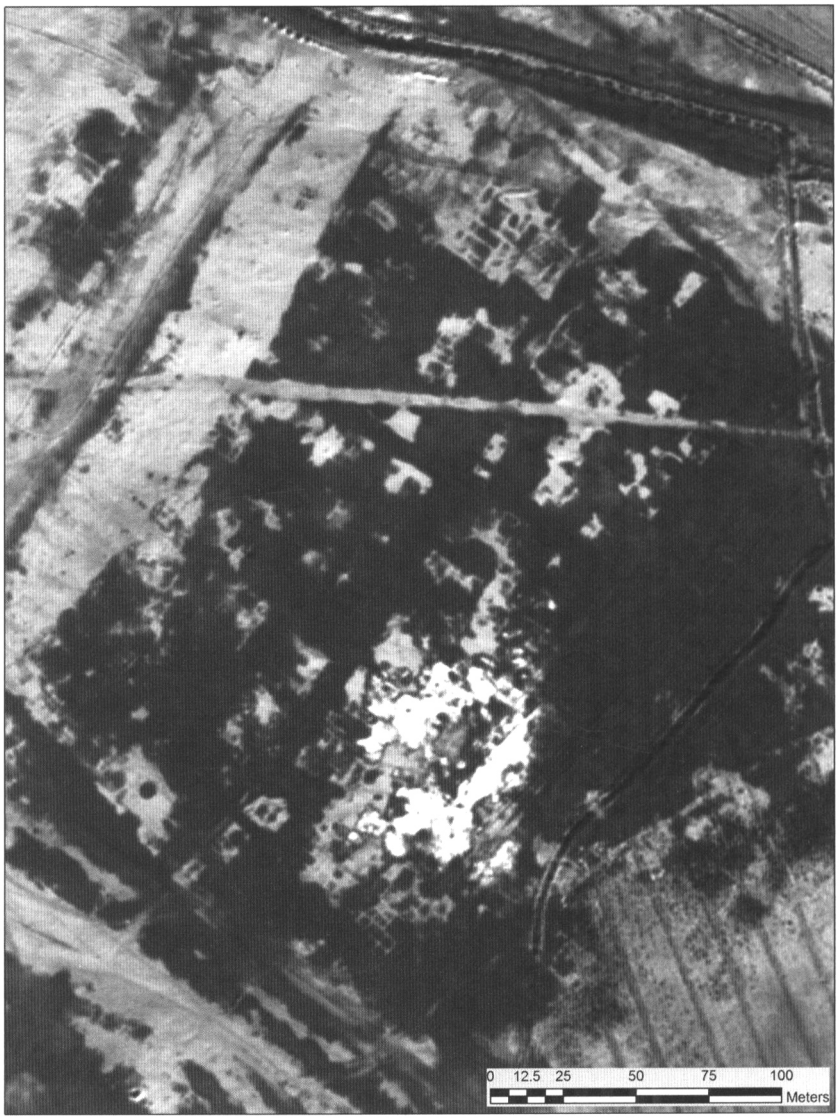

Fig. 2 Digital Globe Quickbird Image dated February 1, 2003 showing architecture in the north-eastern part of the site. Architecture shows as white lines, streets as darker areas.

Associated with the palace is a rectangular 5 ha. area where many of the architectural details are, like the palace, outlined in salt in the 2003 imagery.[5] The north-western edge of this area is bounded by a 35 metre wide band of salt than continues through the west mound and into the central mound. Since neither the surface survey notes nor our aerial photographs indicate any difference between this area and the surrounding parts of the site, this most likely reflects the modern hydrology of the area, perhaps affected by a relict water course that long preceded the building of Mashkan-shapir.

The area where the architecture is reasonably clear is noteworthy for its broad, straight streets, which vary in width from 7 to 14 metres. A main road runs from the canal that marks this area's southern boundary to the north-east side of the palace with one—and probably two[6]—cross streets forming a small-scale orthogonal grid. A third set of streets branches off to the east and west by the palace, but one of these streets appears to dog-leg around the palace while the other forms something

[5] By the time the later imagery was taken, this area had been fairly systematically looted.

[6] An area of dense salt crust obscures much of our ability to see architecture or streets to the east of the main road in this area.

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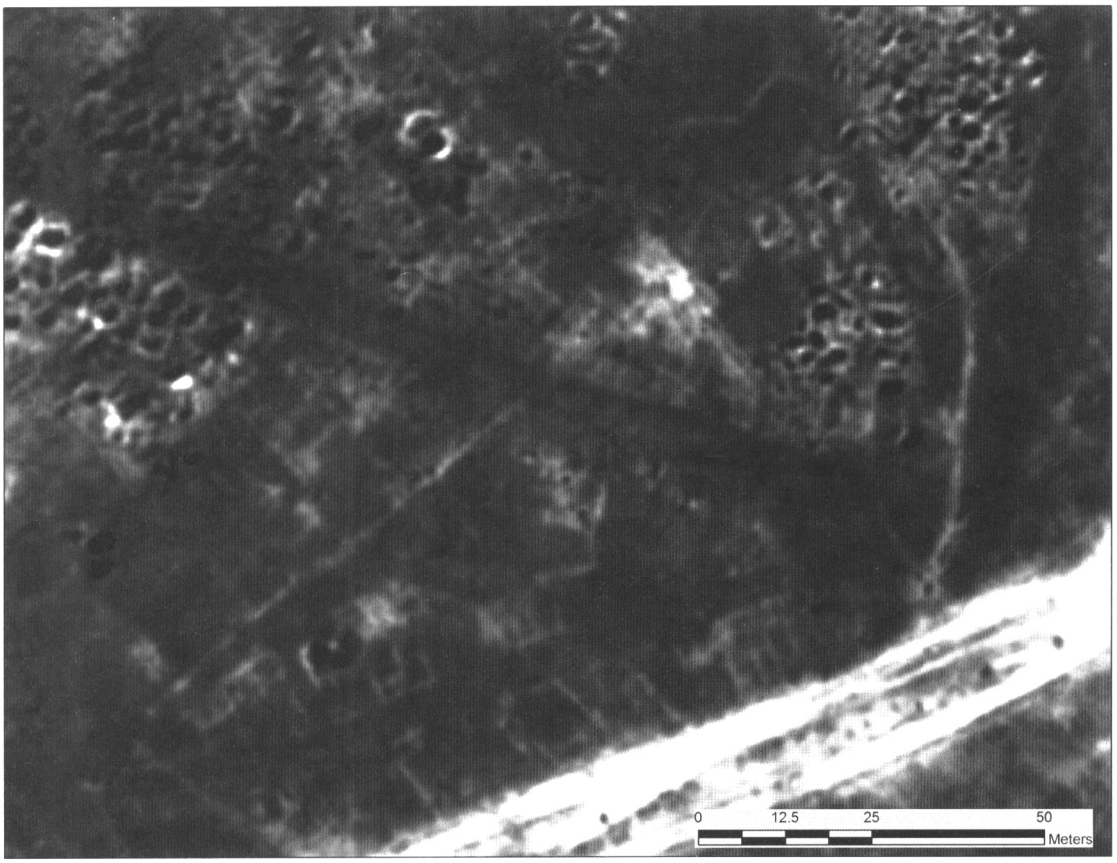

Fig. 3 Digital Globe WorldView 1 image taken February 4, 2008: Detail showing the southern portion of the central mound. Architecture shows as white lines, ancient streets as wider dark lines.

less than a right angle with the main street. This entire area appears to have been centrally planned, and it is likely that this part of the site was given over to the king and the king's men. We see little evidence for settlement in the part of the northern mound to the west—in part because it was almost completely covered with salt in the February 2003 image, and in part because of disturbance by a new track and looting in later imagery. The survey data record lower sherd densities in this western part, but artifacts including a cylinder seal and stone bowl fragments were found here—surely an indication that it was occupied.

The central mound

The organization of the central mound is quite different. Our aerial photographs taken in 1990 had alerted us to the location of an east-west street that ran across this part of the site, as well as to a long wall which encircled the northern boundary of the original settlement mound—an area that appeared to have been used for burial during Mashkan-shapir's urban floruit. Our interpretation of the latter has now been reinforced in two ways. By July 2003 the looters had moved in on Mashkan-shapir. They focused their attention on precisely the location of the early settlement area–indeed the location of the wall which we had seen in our aerial photographs coincides precisely with the northern boundary of the area of initial intense looting. Moreover, also visible in our recent imagery is a second wall which demarcates the southern boundary of this area, although it appears, both from the distribution of looting holes and from our own test excavation in the area (Stone and Zimansky 2004: 393–96) that the cemetery had been focused in the northern part.

The street system of the central mound contrasts strongly with that of the area to the north. For one thing, all of the streets are much narrower. Whereas the roads in the northern portion of the site were at least 7 metres in width, some as much as 14 metres, all streets in the central sector were

less than 5 metres, with some alleys no more than 2.5 metres in width. Also missing is the grid system. The streets in the central sector are rarely straight and even more rarely meet at right angles. Unlike the northern part of the site, these resemble the organic street systems found in excavations at Tell Asmar (Delougaz, Hill and Lloyd 1967, pl. 26), Ur (Woolley 1976, pls. 122, 124) and in later, traditional Muslim cities such as Aleppo (e.g. Marcus 1989, fig. 81). What is also clear is that the crossing point that we had identified on both sides of the western canal was not unique. The presence of streets that coincide at both sides of the northern canal and the confluence of streets by the western canal indicate that either bridges or ferry docks must have existed across the canals that separated the central mound from the northern and eastern mounds as well. Since both of these canals were recut during Parthian times, it is not surprising that we are missing any traces of docks or bridge supports there. What is missing from the plan is any indication of how access was provided to the southern mound. In both the central and the western mounds we can identify streets that head in the direction of the southern mound, and we did identify a concentration of baked bricks in the center of the south canal that might line up with the street in the central mound, but looting prior to our earliest image has prevented us from identifying more of this street in the satellite imagery.

As was noted when we conducted our surface survey, concentrations of copper fragments and cuprous slag—doubtless the surface traces of ancient copper workshops—were especially common in the central mound. The reconstructed street system shows that these were generally located at intersections between major roads, with the greatest concentration at the largest intersection where four streets come together, including the main east-west street and a diagonal street that led to the crossing point to the northern mound. Two other, smaller concentrations are located near the latter, along a very narrow street. It is tempting to speculate that these traces might represent the ancestor to the Islamic suq, but only excavations can determine whether this might be the case. Fortunately, the looting holes in this area are relatively sparse. Another large concentration of cuprous slag was found in the northern mound, away from the area where the orthogonal street system can be mapped but close to a large house; one other, small area, is found beyond the densely occupied zone, but still within the city wall.

In general, the visible architecture in the central mound appears to be domestic. Based on our sounding in the area (Stone and Zimansky 2004: 392–96), the wall traces within the cemetery area likely date to the early Isin-Larsa period, before the city wall was built, but the rest of the central mound, with the exception of areas with overlying Parthian occupation, is overwhelmingly early Old Babylonian in date. The one area where we may be looking at non-domestic housing is along the north bank of the southern canal. There, the imagery reveals much larger scale architecture, with spaces some 8×10 m in size, one next to the other, strung out along the canal bank. Their location may suggest a commercial, canal-side, occupation.

The west mound

Although the bulk of our soundings focused on the west mound, it remains somewhat enigmatic. When we were preparing the publication of our fieldwork at Mashkan-shapir we were very aware that our survey work had failed to identify the location of the palace. This in spite of the available historical data (Steinkeller 2004a) that indicated that Kudur-Mabuk—the father of the kings of Larsa, Warad-Sin and Rim-Sin—had his palace here. In desperation we thought that perhaps the palace had been built over in the post-Isin-Larsa period and suggested the western mound as a possible candidate. This area differed from the rest of the site in the high density of model chariot remains found there. Moreover, unlike elsewhere at this site and at most other sites, these included not only images of Nergal, the titular deity of Mashkan-shapir, but also of Shamash, the god of Larsa (Stone 1993). Since Kudur-Mabuk, the best-known ruler of Mashkan-shapir, was the father of the kings of Larsa, these motifs suggested a royal connection.

Our larger excavations in this area (Stone and Zimansky 1992) uncovered an area of buildings which evidenced a combination of domestic and non-domestic features. Although some had the usual entrance chambers, most had their entrances directly into the main courtyard. Domestic features included intramural graves, especially of infants, tanours and other fire installations and the usual accumulation of ceramics and animal bones in the dirt between the floors. The non-domestic

features included numerous unbaked clay sealings[7] and chunks of bitumen with impressions of reed bundles and the like. Our one readable tablet recorded a list of boat shipments,[8] which led us to opine that the area, given its proximity to the west canal, might have been concerned with the intercity shipment of goods, with the bitumen used to keep these materials dry. Two other soundings were also conducted in this area, one of which also yielded an unbaked clay sealing (Stone and Zimansky 2004: 387).

The satellite imagery adds only slightly to this picture. Two additional streets can now be identified. One is the continuation of the main east-west street from the central mound—which is very comforting given that we had already identified the baked brick features associated with the bridge or ferry that connected the west and central mounds. The other parallels the canal, and the road beside the canal which we had excavated. The two streets are some 65 metres apart. We had seen this second street in the aerial photographs which we took when we were in the field, but had misinterpreted it as an intramural wall. Its relationship to the new architectural traces visible on both sides of its northeastern end make it clear that these traces reflect another street. The one copper workshop in this part of the city is located along here.

Nevertheless, this area remains somewhat enigmatic. Although the street system is not as clearly orthogonal as that in the north, it is also less organic than that in the centre. Like the north, the architecture is quite regular and includes large, well-built houses like those tested in our Soundings 1 and 2 (Stone and Zimansky 2004: 381–90). The sealings suggest some administrative activity, and the location beside the canal, our one tablet and the many pieces of impressed bitumen might suggest a concern with intercity shipments of goods. Without more extensive excavation elsewhere at Mashkan-shapir, it is not clear in what ways, if at all, this area differed from the more clearly residential central mound.

The southern and eastern mounds

The satellite imagery contributes little to our understanding of the southern mound. Its identification as the location of the temple remains unchallenged–indeed the high mound of the temple platform is quite clear. Otherwise only scraps of architecture are visible in the satellite imagery. This is, however, one of the parts of the city which remains largely intact. The looters were apparently unimpressed with what they found in their limited probes.

Our survey and aerial reconnaissance of the eastern mound suggested that this was a manufacturing area, with separate areas focused on ceramic production, lapidary work and, probably, the manufacture of synthetic basalt (Stone *et al.* 1998).[9] Although the part of the mound closest to the east canal has been badly damaged by the construction of two new canals, the area to the south revealed architectural traces, some of which were picked up by our aerial survey, while others were visible in the satellite imagery. Although both sets of architectural traces are quite clear, unlike the rest of the city we find no common orientations and, indeed, no traces of streets. It may well be that many of the manufacturing activities took place outside, with open air artisan areas linked to buildings which likely served as both residences and workshops. On recent visits to archaeological sites in southern Iraq we noted that the far outskirts of some sites also had quite flat areas—often located in the leeward south-eastern part of the site—with significant amounts of overfired material. It may well be that what we observed at Mashkan-shapir is, in fact, a common occurrence at Mesopotamian settlements, but ignored given past tendencies to focus on the highest parts of the sites.

[7] It should be noted, however, that the majority of these were quite small and recovered from flotation. Since most other Old Babylonian domestic areas have not included flotation or sieving in their methods, it may be that unbaked clay sealings are in fact ubiquitous, but not normally recovered.

[8] Piotr Steinkeller, personal communication.

[9] We have not been able to return to Mashkan-shapir since we determined that many of the grinding stones at the site were made not of true basalt but a synthetic substitute. The survey data indicates concentrations on overfired material not associated with kiln wasters in one part of the east mound; it seems likely that these represent the place where this material was manufactured, but that can only be determined by revisiting the area.

It is also worth noting here that on a recent visit to Iraq, sites dating to the second millennium B.C. and later all have quantities of the same synthetic basalt on their surfaces, and some, like Umma, have broad scatters of overfired material next to the mound. Grinding stones at third millennium sites, like Umm el-Aqqarib are made of true basalt, identifiable by the presence of white inclusions.

Overall Organization of the City

The significance of Mashkan-shapir lies not just in its short period of occupation, which gives us a snapshot view of this ancient city, but in the fact that it was a planned city. King Sin-iddinam of Larsa built the city wall "in order to expand its dwellings". The evidence suggests that the occupied area of the site before that event was somewhere between two and five hectares, depending on whether (or how much of) the southern, religious portion of the site was occupied at that time. All of the surface Ur III to early Isin-Larsa ceramics came from the area within what we now understand as a walled cemetery, although we did also recover one clay nail with an inscription of Zabaya and two Amar-Sin stamped bricks elswhere. The Zabaya nail was found at the edge of the southern canal, which must have been the watercourse in use in Ur III and early Isin-Larsa times. The two Amar-Sin bricks were found beside the small canal that flowed through the east mound and was surrounded by ceramic manufacturing areas. It is quite possible that the latter were in a secondary context. Overall, the evidence suggests that the site was quite small before the building of the city wall, but by the time it was abandoned in the Old Babylonian period it occupied some sixty-five hectares. What is less clear is how long it took for that area to be fully occupied. Sin-iddinam did not hold on to Mashkan-shapir for long after he built the wall, and it was not until some twelve years later, early in the reign of Warad-Sin, that Larsa regained control over the city (Steinkeller 2004a). It is likely that Mashkan-shapir's urban plan was not fully developed until Warad-Sin's father, Kudur-Mabuk, had established his palace there.

When we conducted our surface survey at Mashkan-shapir, it was apparent that the canals that flowed through the city divided it into different sectors. Model chariot shields abounded in the western part of the site, but were rare elsewhere. Cuboid stones, by contrast, were found concentrated in the eastern part of the site, and the terracotta statuary normally associated with large temples was only found in the southern sector. It was these watercourses that divided Mashkan-shapir into its five sectors: north, west, south, east and central (see Fig.1)

More than fifteen years ago I argued that palaces were (except at Larsa[10]) located far from the main temples, suggesting a pattern of opposition between the sacred and the profane (Stone 1995). The new data from Mashkan-shapir, where the palace could not be further away from the temple, strongly support this suggestion. Indeed, the entire district associated with the palace exhibits a character that contrasts with the layout of the rest of the site. The northern mound contains an area at least 290×200 metres in size that exhibits an orthogonal street pattern with quite regular architecture lined up along wide avenues (Figs 1 and 2). The salt traces of these buildings are not sufficient to determine complete plans of the structures, but it seems likely that we are looking at a residential district that probably housed those with direct ties to the crown.

The central mound seems to have been the main residential area, exhibiting an organic pattern of streets with variable widths (Figs 1 and 3). It also served to connect all parts of the city as its street system led to crossing points to the northern, eastern and western mounds (and probably also the southern mound). A majority of the copper concentrations identified at Mashkan-shapir are located within this area, especially along the main east-west street, suggesting that this may also have served as the commercial heart of the city. Its southern part was occupied by the original settlement mound, which dates back to Ur III times but had an underlying Uruk component as well. Walls have been identified encircling this area at both the northern and southern sides, and, as indicated above, both field observations and the behavior of the modern looters identify this as the town's cemetery. The only architecture which does not seem residential is a series of large spaces located between the cemetery wall and the canal that separates this part of the site from the southern, religious, quarter. Since these spaces line the main canal off the Tigris River, which was located three and a half kilometres to the northwest, they may be more related to water-borne trade than residence.

The western part of the site, although the one area where we conducted extensive excavations, remains somewhat unclear. Though domestic in nature, the houses we recovered were unusual in often having an entrance directly into the courtyard, rather than through an entrance chamber.

[10] Since the inscribed bricks only indicate that the builder was Nur-Adad, not what kind of building he constructed, and since the building itself was never occupied (Margueron 1982), its use as a palace might be questioned. For example, the "Palace of Ur-Nammu and Shulgi" at Ur is suggested by Woolley to have actually been a temple, and there are aspects of the Giparku that resemble palaces (Woolley and Mallowan 1976).

Moreover, pieces of bitumen impressed with what appear to be the ropes and mats associated with bundles, the large number of unbaked clay sealings recovered,[11] and our one tablet which describes a list of boat shipments, all suggest that this area may have been involved in intercity trade. Mashkan-shapir has long been known as a centre for such trade, acting as the lynch-pin between the cities of the south and the northern reaches of the Tigris and the Diyala. None of this explains the very large number of model chariots found in this area, both through excavation and in the course of the surface survey.

There is no question but that the southern mound contained the temple of Nergal described in the Code of Hammurabi. The high mud-brick mound with numerous fragments of the kinds of terracotta statuary only found associated with temples at other sites speaks for itself. However, what kinds of buildings occupied that portion of the southern sector not occupied by this mound remains unclear. Virtually no architectural traces are visible in the satellite imagery, and the survey data were also not helpful. A further problem is that the residents of the Parthian settlements both on and near the site used part of the southern mound as a cemetery.

The survey data from the western part of the city identified it as a centre for manufacturing. The small canal lined with the remains of pottery kilns and their associated piles of wasters has been destroyed by the digging of new canals through the site, but the area to the south, where we recovered large numbers of small stone grinders, is well preserved—perhaps by these new canals. Here we see a pattern of scattered houses with open space rather than streets between them, and little continuity in orientation.

These data suggest that at Mashkan-shapir, the different roles of the city—royal administration, religion, manufacturing, commerce, and intercity trade—were each located in a different part of the city. Moreover, each of these areas, except perhaps the religious quarter, were also primarily residential in nature.

The palace city and the temple city

The separation of palace from temple is exemplified most clearly at Mashkan-shapir, but can also be seen at other sites. During the the Early Dynastic period clear separation of temple and palace is evidenced at Eridu and Kish,[12] as well as at sites contemporary with Mashkan-shapir, such as Uruk, where the Sin-kashid Palace is located well towards the edge of the site.

These data suggest that the multi-mounded nature of southern Mesopotamian cities may have reflected the underlying tension between the two major institutions of Mesopotamian cities: temple and palace. Unlike other early civilizations, such as Egypt, where royal power was absolute, data from the third millennium onwards have identified the importance of at least two institutions, the palace *and* the temple, with the assembly also playing a role. The data from Mashkan-shapir reinforces the more limited understanding of overall urban planning available from other sites in its stress on the physical separation and probable balance of power between palace and temple.

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[11] It may be that unbaked clay sealing fragments are more common in Mesopotamian sites than one might think. The vast majority of our sealings were recovered through flotation, and this is also the case for the sealings found in the ash-tip at Abu Salabikh. Most active field work in Iraq ended in 1990, at which time only a few projects were utilizing flotation, without which the smaller pieces of broken sealings may well not have been recovered.

[12] The Eridu Palace is some 600 metres to the north of the main Eridu temple. High resolution satellite imagery shows the presence of similar palaces (in this instance a trio rather than a pair) in the south-east of the mound with the Plano-convex Building, again placing these palaces 600 metres to the north of the Ingharra temple and across the river. Both sets of buildings date to Early Dynastic IIIb, based on the surface scraping conducted by the Japanese team at Kish (Matsumoto and Oguchi 2002) and an examination of the ceramics from the dump associated with the Eridu Palace during a recent trip to Iraq.

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