LEVANT SUPPLEMENTARY SERIES
VOLUME 10

UMM AL-BIYARA

Excavations by Crystal-M. Bennett in Petra 1960–1965

Edited by Piotr Bienkowski

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Front cover image: View of Umm al-Biyara from the Petra valley (photo courtesy of Stephan G. Schmid)
Back cover image: Crystal Bennett with workers on Umm al-Biyara, 1960 (photo courtesy of Peter Parr)

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Foreword

Piotr Bienkowski

After Crystal-M. Bennett died in 1987, the year my first son was born, I was asked by the then British Institute at Amman for Archaeology and History (now the Council for British Research in the Levant) and her son Simon if I would be prepared to undertake the preparation of the final reports on her excavations at the Iron Age sites of Umm al-Biyara, Tawilan and Busayra in Jordan. I was asked, I think, because I had worked with her at Busayra and Tawilan in 1980 and 1982 respectively, had contributed a preliminary report on one of the areas at Tawilan which I had supervised, and had spent time in Amman with her in 1981 preparing some of the material for publication (mostly drawing pottery and preparing final section drawings); in the event she died before she had managed to begin proper analysis of any of the sites towards final publication. I was, therefore, familiar with the material, and had, moreover, started work a few years previously as a curator in a British museum which would give me institutional backing in the enterprise.

I accepted the invitation: but little did I know that it would take the best part of 23 years for me to complete the task, by which time my eldest son would be fully grown, marking the project timescale in a biologically measurable way. The final report on Tawilan was published in 1995, and that on Busayra in 2002 (only through the generosity of The Shelby White-Leon Levy Program for Archaeological Publications, which allowed me a three-year sabbatical from curatorial duties to complete the publication). Now the publication of this volume on Umm al-Biyara, the third and last site, brings the project to an end: this too has been facilitated by The Shelby White-Leon Levy Program for Archaeological Publications, which allowed the employment of a part-time research assistant, Katherine Baxter, who has contributed some of the chapters.

In my naivety, in 1987, I had estimated it might take five to seven years to publish all three sites. But of course life is wild winds and stormy seas: you can never anticipate what is going to happen and how life will change. Simple things like moving home, having children, changing jobs, and life's usual dramas and tragedies take their toll and eat into schedules. Those are all reasons why so many excavations are not published by their original excavators. Taking on an old excavation is no easier.

I remember that when I was preparing my preliminary report on an area at Tawilan, following the last season of excavations there in 1982, Crystal Bennett told me that I could be as rude as I liked about previous seasons' work and the state of the evidence. I have always borne that in mind as I have prepared her material for final publication, being critical (though not, I hope, rude) where I felt it was necessary in order to understand what the evidence could tell us and what it never would: I have always felt she supported me in that critical stance. The fact that I have devoted 23 years of my life to preparing Crystal Bennett's material for final publication is testament to my admiration for her and what she achieved by excavating these three sites, often through immense hardship, political difficulties and personal sacrifice. She was a true pioneer, and a great woman: determined, fun to be with and enormously supportive. Umm al-Biyara is where it all started, the site that captured her imagination and led her to open up the Iron Age of Edom to archaeological understanding. It is therefore perhaps fitting that it is with Umm al-Biyara that the task I took on in 1987 comes to an end. Thanks to Crystal for the inspiration: it's been quite a ride.

Acknowledgements and Chronology

The excavations at Umm al-Biyara in 1960, 1963 and 1965, directed by Crystal-M. Bennett, were carried out under the auspices of the British School of Archaeology in Jerusalem (now the Kenyon Institute, Jerusalem, where the finds are housed). Funding came from the British Academy, the École Biblique et Archéologique Française, Crystal Bennett herself, and one contributor who wished to remain anonymous. Piotr Bienkowski would like to thank Simon Bennett for facilitating access to his mother's archive on Umm al-Biyara.

Grateful thanks are due to the then Director of the Department of Antiquities of Jordan, the late Dr Awni Dajani, who gave permission for the excavations, and to his personnel for their assistance. In her preliminary report (Bennett 1966a), Crystal Bennett expressed profound gratitude to the late King Hussein of Jordan and the Commander of the Royal Jordanian Air Force for authorizing the transport by helicopter of the excavated finds, and to the Royal Jordanian Army which supplied tents for the use of the excavation. The hard work of excavating the site – indeed of walking up it each day carrying supplies, especially water – was undertaken by bedouin workers from the Bedoul tribe of Petra and the Sa'idiyyin tribe of the Wadi Arabah.

Piotr Bienkowski would like to thank the following for their assistance in the preparation of this final report: Katherine Baxter, Ulrich Hübner, Peter Parr, John Powell and Stephan Schmid. Many thanks to Eveline van der Steen for compiling the pottery and small find figures, and the maps used in Chapter 10.

Omar al-Ghul wishes to express his gratitude to Piotr Bienkowski for giving him the opportunity to re-publish the ostracon and include it in this book. He also thanks Ali Omari and Mahmoud Alwan, both from the Faculty of Archaeology and Anthropology, Yarmouk University, Jordan, for helping him with the digital processing of the images in Chapter 6.

The research and the compilation of the manuscript for this final publication were made possible through a generous grant from The Shelby White-Leon Levy Program for Archaeological Publications.

The excavation teams for each season comprised:

1960: Crystal-M. Bennett (Director)

1963: Crystal-M. Bennett (Director), with occasional visits from Ahmed Shishtawi (Department of Antiquities representative), and Père Roland de Vaux, who came in the final week to draw plans and help pack up the camp after storms and torrential rains prevented further work

1965: Crystal-M. Bennett (Director), Muhammad Murshed (Department of Antiquities representative), Dennis Sykes (architect), Père Roland de Vaux (plan drawing), and Clara Podesta Wilmart (student)

Chronology

The chronological system used in this report is as follows:

Iron II: *c.*1000–539 BCE

Persian period: 539–332 BCE

- Iron II/Persian period: *c.*732–332 BCE, refers to late Iron II/Persian pottery which cannot yet be further divided with confidence

Hellenistic period: 332–63 BCE

- Early Hellenistic: 332–200 BCE
- Late Hellenistic: 200–63 BCE

Roman period: 63 BCE–CE 324

- Nabataean period: *c.*100 BCE–CE 106; the starting point of 100 BCE is based on the fact that diagnostic Nabataean pottery and coins start at about that date, and it is currently impossible to identify earlier material as distinctively 'Nabataean'
- Early Roman period: 63 BCE–CE 135
- Late Roman period: CE 135–324

Mamluk period: CE 1250–1516

Late Islamic (Ottoman) period: CE 1516–1918

Note: for the difficulties of Iron Age chronology in southern Transjordan, and the inapplicability of the Iron IIA/B/C terminology on current evidence, see Bienkowski 1995.

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1. The Site and its Exploration

Piotr Bienkowski and Katherine Baxter

Environmental setting

The sandstone massif of Umm al-Biyara (35° 25′ 30″ East/30° 19′ 30″ North, Palestine Grid Reference 191970) rises 300 m from the Petra basin in southern Jordan, and is the highest mountain overlooking Petra from the west, at 1158 m asl (Figures 1.1–1.3).

Petra lies in the ash-Sharah mountains, at an average elevation of 950 m asl, in an arid zone *c.*100 km north

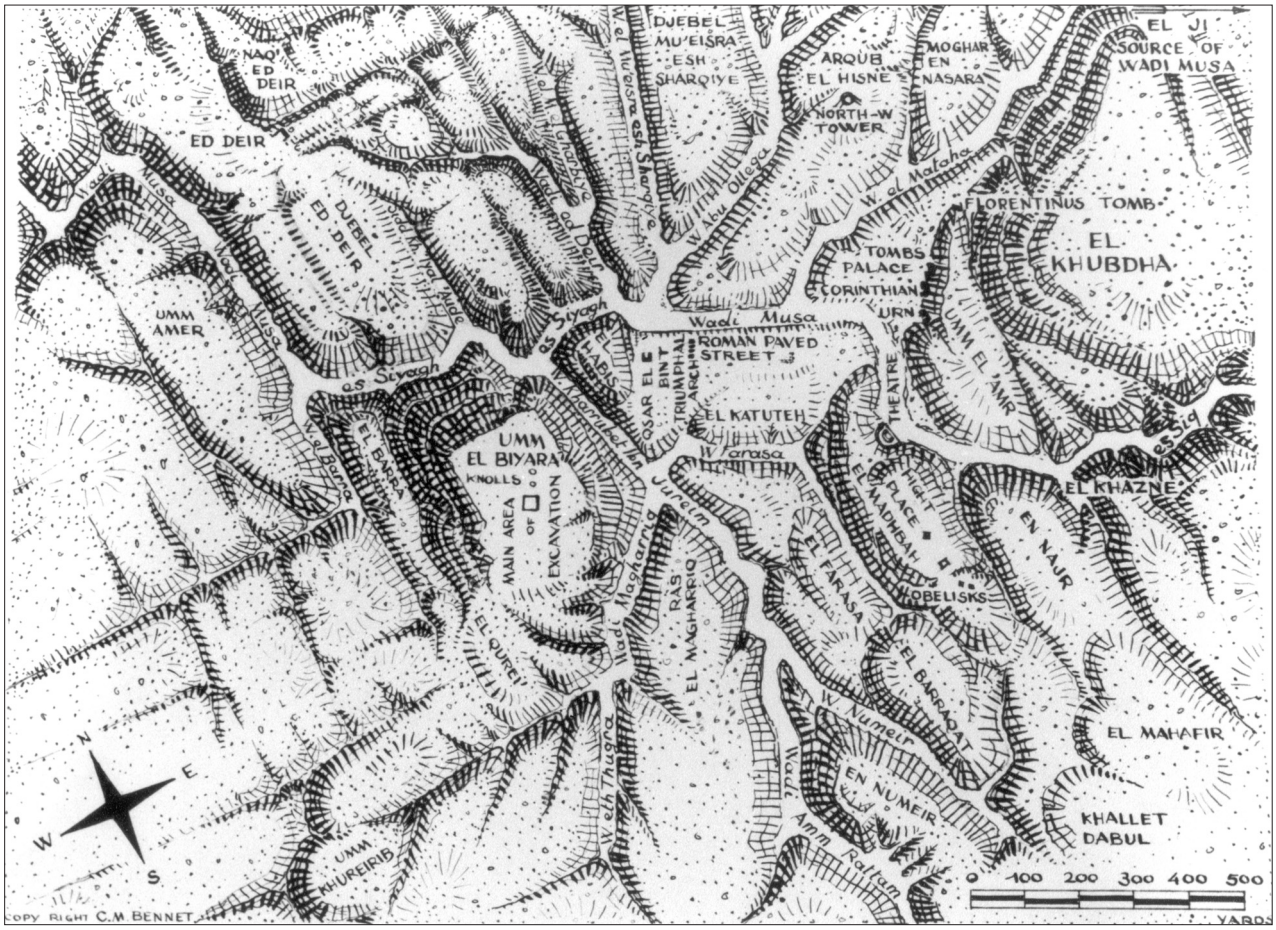


Figure 1.1. Topographical map of Petra, showing Umm al-Biyara and surrounding wadis

Figure 1.2. Umm al-Biyara looking west, across the Colonnaded Street

Figure 1.3. Umm al-Biyara looking west, across the Wadi Musa

of the Gulf of Aqaba and 200 km south of Amman. Geologically, the area of Petra city occupies a down-faulted block of sandstone of Cambrian to Ordovician age (Rum Group; *c.*540–470 Ma), which overlies, unconformably, volcanic rocks (Araba Complex) of Late Neoproterozoic age (*c.*550–540 Ma) (Powell 1989a; Ibrahim and McCourt 1995).[1] The characteristic pink-red and white Rum Group sandstones extend southwards from the Dead Sea to the southern desert (Wadi Rum area). The volcanic rocks and earlier formed granitoids outcrop from just west of Petra southwards to the east side of the Gulf of Aqaba and along the coast of the Red Sea. The main stream bed, the Wadi Musa (and the Siq), follows the trace of major joints and faults in the sandstones, now widened through erosion (Jaser and Bargous 1992). It is this major joint–fault system that provided a route in antiquity through the sandstone mountains (which otherwise formed a natural barrier to communication and travel between east and west), made the Petra area ideal for settlement and facilitated the caravan trade between Arabia and the Mediterranean coast from the 1st millennium BCE on.

Water was plentiful in the valley, though not on the mountain tops. The Petra basin, as noted above, is a down-faulted block located between two parallel ridges of Rum Group sandstone running roughly north–south about 1.5 km apart and coming together at their northern and southern ends to form a natural basin. Wadi Musa flows into this basin, fed by the Ayn Musa spring east of Petra; the spring issues from the base of Cretaceous (Cenomanian) limestones that receive winter rains along the edge of the escarpment east of the city – rains which occasionally cause damaging floods (Ortloff 2005). The Petra region belongs to the Mediterranean climatic zone, with average annual precipitation of around 200 mm. Most rainfall is concentrated between October and April (up to a maximum of 69 mm/month in January) and is mainly of orographic origin (al-Weshah and el-Khoury 1999, 170). Seasonal mean temperatures at Petra vary from 6 °C in January to 22 °C in July. The maximum summer temperature may reach 39 °C, while the minimum winter temperature is slightly below 0 °C. Dominant winds in the area are from the west and south-west. The annual average sunshine duration is 8.6 hours per day, ranging from 11.6 hours in summer to 5.6 hours in winter. The annual average relative humidity is 49.9%, ranging from 62% in winter to 45% in summer. Periods of drought are common: according to a 396-year-long dendroclimatic reconstruction of October–May precipitation based on two chronologies of *Juniperus phoenicea*, seven droughts of three or more years each occurred between 1600 and 1995 CE in southern Jordan (Touchan *et al.* 1999).

Precise climate data for the Petra area in antiquity is unavailable: a meteorological station was installed in the Wadi Musa area only in 1984 (al-Weshah and el-Khoury 1999, 170). In general, with measurable fluctuations, with the beginning of the Holocene period *c.*10,000 bp the climate in the Petra area seems to have become warmer and wetter. The climatic warming led to increasingly arid conditions similar to those of today, although it seems that the area was more densely forested and vegetation more varied (Kouki 2002, 152; Baierle 1993; conveniently MacDonald 2001; MacDonald *et al*. 2004, 16–18). Evidence from the Negev suggests that the 1st millennium BCE was a period of low rainfall in this area of the southern Levant (Goodfriend 1990; Goldberg 1995).

Umm al-Biyara is separated from the Petra basin by Wadi Thugra to the south and Wadi Siyagh to the north. At the foot of Umm al-Biyara Wadi Thugra turns east to join Wadi Siyagh, which is a continuation of Wadi Musa (although that eastern extension of Wadi Thughra is alternatively called Wadi Maghariq and then Wadi Kharrubat Ibn Jurayma). Wadi Musa, having run directly east–west across Petra, becomes Wadi Siyagh, turns to the north-west and descends towards Wadi Arabah. To the west, Umm al-Biyara is skirted by Wadi Quray, which also runs towards the Arabah.

Access to the summit of Umm al-Biyara is difficult: 'Its frowning crags are impregnable, without track or foothold. There is only one way up made by hand, an inclined plane, which in its existing worn state takes two hours to climb' (Horsfield and Conway 1930, 379). This single route, on the south-east side, is known to have been used by the Nabataeans. The south-east face of the mountain has several Nabataean rock-cut façades at different levels (conveniently mapped in Ortloff 2005, 96, fig. 1). To the left of a large crow-step tomb is a gorge where the rock-cut Nabataean processional way began. This is the main modern access to the summit (Lindner 1989b), and runs along the Nabataean staircase and ramps and beyond, negotiating Nabataean steps, ledges, and scrambles over rocks. During the 1990s this route was cleaned up and made more accessible for tourists, making the ascent considerably easier, but prior to that it was regarded as dangerous, and a 'sheer and sustained grind' (Morton 1956, 28 n. 9):

> Only vestiges of this trail remain today after two millennia of exposure to the erosive effects of wind and rain, and the location of its every obliterated twist and turn is necessary to avoid becoming hopelessly and dangerously lost. In one area the path has collapsed down the mountain side leaving the climber faced with a perpendicular rock wall some eight feet in height over which he must scramble or be boosted at considerable peril to his bones. The difficulties of carrying food, water, and a few archaeological tools to the summit of this near perpendicular peak can be appreciated only by those who have attempted to scale it even when unencumbered! (Morton 1956, 27).

Nelson Glueck (1935, 82) suggested that during the Iron Age, prior to the construction of the Nabataean steps, the summit was accessible only by means of an extremely steep trail.

The summit of Umm al-Biyara is a flat trapezoidal plateau approximately 5.5 ha in area that slopes steeply from west to east, creating a difference of level of about 10 m (Figure 1.4). The sandstone is bare of soil on the

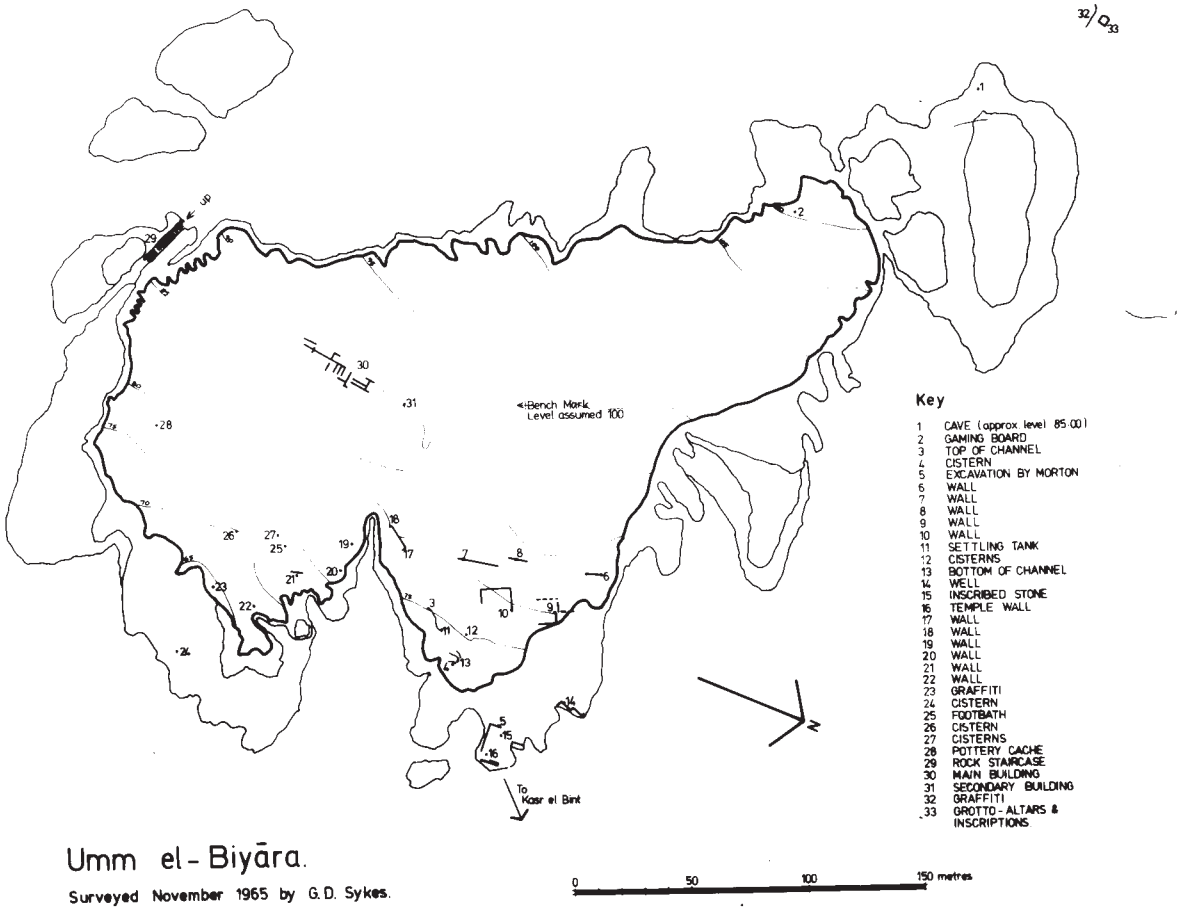


Figure 1.4. Survey of the summit of Umm al-Biyara (carried out in November 1965 by G. D. Sykes)

highest point on the north-east corner and at the western and southern edges; elsewhere it is covered by sandy, rocky soil which is more than a metre in depth in the central and eastern parts (Morton 1956, 27–8). Today, its vegetation comprises juniper, *Pistacia*, wormwood, broom, desert sage, sea squill and *Phlomis*. All the major Nabataean monuments of Petra are visible from the edge of the summit in all directions, particularly from the eastern edge overlooking Wadi Thugra. To the west is a stunning view towards Wadi Arabah.

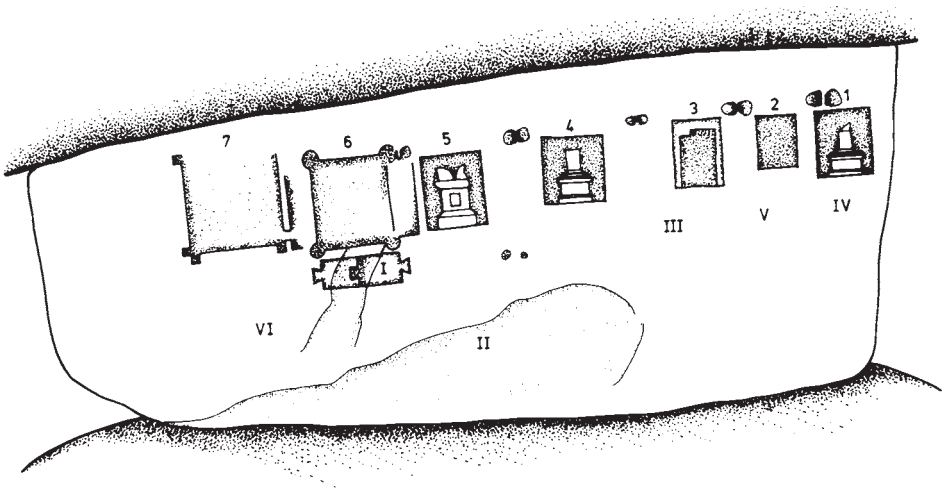
The Iron Age settlement is located near the central part of the summit. On the eastern edge of the plateau, near eight rock-cut piriform cisterns associated with rock-cut rainwater channels, are the ruins of a Nabataean building (Bennett 1980; see Chapter 11). At the north-west corner of the plateau, on a lower level, is a Nabataean cave sanctuary beneath a rock overhang, with a series of seven votive niches and inscriptions in Greek and Nabataean and graffiti on the walls (Figure 1.5). On the steep south-west slope, opposite the summit of Jabal Harun, is a Christian petroglyph formed of a rectangle with a cross, and, below, the outlines of two feet, a snake and an unreadable character with a small cross (Lindner 1989c).

Previous work and identification

The first archaeological fieldwork on the summit of Umm al-Biyara was undertaken in 1929. Iron Age pottery associated with walls and foundations was collected on the surface by George Horsfield and Agnes Conway as part of the Petra Exploration Fund Expedition funded by Lord Melchett (Horsfield and Conway 1930; Horsfield and Horsfield 1938). They were the first to identify this pottery as 'Edomite Iron Age' (Horsfield and Horsfield 1938, 4 n. 1).

Nelson Glueck undertook restricted soundings on the summit, in collaboration with Agnes Horsfield (*née* Conway) and R. G. Hoad in March 1933 (Glueck 1933, 13–14; 1934, 77), and alone in 1934 (Glueck 1935, 82). The soundings yielded a large number of sherds, especially sherds of large storage jars, which Glueck identified as 'Edomite' Iron Age pottery; he published no other results.

William H. Morton carried out further survey and minor soundings in 1955. He found 'Edomite' pottery, particularly storage jars, associated with a 'jumbled heap of irregular sandstone blocks' near the centre of the plateau (the location of Bennett's later excavations), but recognized no wall lines (Morton 1956, 29). He also commented on a particular



Umm el-Biyāra - Grotto
Altars nos. 1 - 7, Inscriptions nos. I - VI
Drawn May 1980 by S.M. Balderstone.

0 50 100 cm
(true elevation)

Figure 1.5. Nabataean cave sanctuary (or 'grotto') on Umm al-Biyara, with seven votive niches (drawn in May 1980 by Susan Balderstone)

concentration of Nabataean pottery associated with the foundation lines of the Nabataean building on the eastern edge, which he interpreted as at least 13 separate buildings of some strategic importance (Morton 1956, 29–31; see Chapter 11), and on some Byzantine and Islamic sherds. What intrigued Morton most were the many groups of rock drawings, especially depicting ibex and camels but also a peacock, distributed over the summit, which he dated to the post-Nabataean periods (Morton 1956, 32–6; see also Lindner 1989c).

Umm al-Biyara and the Sela' identification

As a result of his work in 1933–4, Glueck stated categorically that Umm al-Biyara was to be identified with biblical Sela' of the time of Amaziah of Judah. The Hebrew word *sela'* simply means 'rock' or 'cleft of rock': as a word it appears about 65 times in the Hebrew Bible, but only in seven passages as a probable place-name (Fanwar 1992). In two of those passages Sela' refers to an unidentified place on the Amorite border (Judges 1:36) and an unidentified place in Moab (Isaiah 16:1). The remaining five passages, cited in full below, refer to a place in Edom, two of them specifically to a place conquered by Amaziah, king of Judah (*c.*796–81 BCE), who took 10,000 Edomites ('men of Se'ir') prisoner and threw them from the summit of the rock, which was renamed Joktheel (Starcky 1964). Nevertheless, it is not absolutely clear that the other three passages, especially those from Jeremiah and Obadiah, refer to Sela' as a proper name or if it is the same place referred to in relation to Amaziah (Bartlett 1989, 52). Glueck notes that 'there must have existed during the Early Iron Age in eastern Palestine numerous sites built on more or less isolated prominences and known by the name "Sela'"' (Glueck 1939, 26).

> He killed ten thousand Edomites in the Valley of Salt and took Sela' by storm, and called it Joktheel, which is its name to this day (2 Kings 14:7).
>
> But Amaziah took courage, and led out his people, and went to the Valley of Salt and smote ten thousand men of Se'ir. The men of Judah captured another ten thousand alive, and took them to the top of a rock and threw them down from the top of the rock; and they were all dashed to pieces (2 Chronicles 25:11–12).
>
> Let the desert and its cities lift up their voice, the villages that Kedar inhabits; let the inhabitants of Sela' sing for joy, let them shout from the top of the mountains (Isaiah 42:11).
>
> 'For I have sworn by myself, says the Lord, that Bozrah shall become a horror, a taunt, a waste, and a curse; and all her cities shall be perpetual wastes.' I have heard tidings from the Lord, and a messenger has been sent among the nations: 'Gather yourselves together and come against her, and rise up for battle!' For behold, I will make you small among the nations, despised among men. The horror you inspire has deceived you, and the pride of your heart, you who live in the clefts of the rock [Sela'], who hold the heights of the hill. Though you make your nest as high as the eagle's, I will bring you down from there, says the Lord. 'Edom shall become a horror; every one who passes by it will be horrified and will hiss because of all its disasters' (Jeremiah 49:13–17).
>
> The pride of your heart has deceived you, you who live in the clefts of the rock [Sela'], whose dwelling is high, who say in your heart, 'Who will bring me down to the ground?'

> Though you soar aloft like the eagle, though your nest is set among the stars, thence I will bring you down, says the Lord (Obadiah 3–4).

Already in the 4th century CE, Eusebius of Caesarea equated Sela‘ with Petra, although he did not list the term Sela‘ at all, but identified Petra with Jechthoel/Jechthael/Joktheel (Klostermann 1904, 142–3) (note that the Septuagint translates Sela‘ as ‘Petra’: Bartlett 1989, 51). The word ‘petra’ of course means ‘rock’ in Greek, and there is an argument for identifying the place-name *Petra* in the classical authors, in at least some references to the Nabataeans, specifically with Umm al-Biyara (see Starcky 1964 for full discussion and references).

The 12th-century CE Arab geographer Yaqut mentions a place in Wadi Musa called Sela‘, undoubtedly a reference to the Crusader castle called Sela‘ on al-Habis, a mountain in Petra next to Umm al-Biyara (quoted in Starcky 1964, 891; see Horsfield and Conway 1930, 377).

The equation of biblical Sela‘ specifically with Umm al-Biyara had been suggested, prior to Glueck, by Phythian-Adams (1934, 191–2). Horsfield and Conway (1930, 377) had first identified al-Habis as Sela‘, but later they accepted Glueck’s Umm al-Biyara-Sela‘ equation (Horsfield and Horsfield 1938, 5 n. 1), as did Morton (1956, 27). Glueck regarded this equation as ‘now archaeologically substantiated’ as a result of the large number of ‘Edomite’ sherds found on the summit (Glueck 1934, 77 n. 1a; 1935, 82). This was the accepted opinion at the commencement of Crystal Bennett’s excavations at the site in 1960 (Bennett 1966a, 374–5).

Bennett’s excavations (see below) found no occupation at Umm al-Biyara that could be dated as early as the period of Amaziah (early 8th century BCE), and it has since been generally accepted that Umm al-Biyara should not after all be identified with biblical Sela‘ (see Bartlett 1989, 52). Of course, as is clear from the passages cited above, the Hebrew Bible does not mention an actual occupation of Sela‘ in the period of Amaziah. Furthermore, the Jeremiah passage perhaps is to be associated with Bozrah (modern Busayra), to the north, suggesting that the modern Sela‘ near Busayra, a rocky outcrop with evidence of Iron II and Nabataean occupation, might be equated with biblical Sela‘ instead (first suggested by Seetzen 1854–9, I.425, III.19; and Hartmann 1910, 150; for surveys see Hart 1986; Lindner 1989a; 1992, 143–4). More generally, the biblical references appear to describe what the biblical writers recognized as a characteristic of the Edomites: living on ‘the top of the mountains’, ‘in the clefts of the rock’, with a ‘nest as high as the eagle’s’ or ‘set among the stars’ – that is, on isolated sites set on mountain tops. This is certainly true of Iron II sites in the Petra region (see Chapter 10).

The ancient name of Umm al-Biyara is therefore unknown. The modern Arabic name for the site, Umm al-Biyara, is of unknown origin and date: nevertheless, most Arabic place-names do not antedate the 14th to 16th centuries CE, when the bedouin tribes arrived in this area (Bailey 1984, 42). ‘Umm al-Biyara’ means ‘mother of cisterns’, and presumably refers to the numerous rock-cut piriform cisterns, originally plastered, on the summit (see description and estimate of capacity in Morton 1956, 31–2). Ortloff (2005, 100) mistakenly refers to the presence of intermittent springs on Umm al-Biyara but (having translated the name of the mountain wrongly as ‘mother of the springs’) through an error of transmission has probably confused springs with the cisterns whose location he illustrates (2005, 96, fig. 1). Although the date of the cisterns is uncertain, they are suggestive of the Nabataean reservoirs described by Diodorus Siculus:

> reservoirs lined with stucco … the mouths of which they make very small, but by constantly increasing the width as they dig deeper, they finally make them of such size that each side has a length of one plethrum (19.94.6–7).

Morton (1956, 32) also observes that the cisterns are located in or adjacent to the important Nabataean building on the eastern edge.

The Bennett excavations

In 1958, while taking part in excavations at Petra directed by Peter Parr (Parr 1960), Crystal-M. Bennett became interested in the Iron Age ‘Edomite’ site of Umm al-Biyara (see Appendix 2). At the time, little was known of the Edomites. The earliest study of them, based entirely on biblical references, had been by Franz Buhl (1893), but other than surveys and soundings by Glueck as part of his survey of eastern Palestine in 1932–4, and Morton’s soundings, no systematic archaeological work had been undertaken on them. No ‘Edomite’ site had yet been properly excavated. The generally accepted synthesis of Edomite archaeology was that of Glueck, which was based entirely on his interpretation of his survey results; he postulated a thriving Edomite kingdom from the 13th century BCE on, and an occupational gap from the end of Iron II to the Hellenistic and Nabataean periods (i.e. *c.*6th–4th centuries BCE) (*passim* in Glueck 1933; 1934; 1935; 1939; 1971; see Sauer 1986).

Prior to working with Parr on his Petra excavations, Bennett had studied archaeology at the Institute of Archaeology in London, directed two excavations at Roman sites in England, and participated in Kathleen Kenyon’s pioneering excavations at Jericho in Palestine in 1957 (see Appendix 1). Umm al-Biyara was to be her first solo excavation in the Near East, at the age of 42. She was to go on to excavate two more ‘Edomite’ sites, Tawilan (Bennett and Bienkowski 1995) and Busayra (Bienkowski 2002), making the Edomites archaeologically visible for the first time, and her name would become synonymous with the archaeology of Edom (Bienkowski 1990).

Bennett directed excavations at Umm al-Biyara for a total of 16 weeks in 1960, 1963 and 1965 (the first two-week season in 1960 formally still as an offshoot of Parr’s Petra project, following the end of his fieldwork season in

Figure 1.6. Crystal Bennett's excavations on the summit of Umm al-Biyara in 1965

November). She had two primary aims in excavating the site (Bennett 1966a, 376):

1. To confirm or deny the identification of Umm al-Biyara as biblical Sela‘.
2. To obtain a group of stratified Edomite pottery, to confirm or deny Glueck's chronology.

Only these two objectives were pursued, and other than a brief survey of the remains of the Nabataean building on the eastern edge of the mountain (see Chapter 11 and Bennett 1980), the research deliberately did not touch on the Nabataean remains.

Fieldwork started on 19 November 1960, with Bennett working alone with 10 bedouin workmen for two weeks, locating visible wall lines and excavating seven small and well-spaced soundings. Four of these were towards the centre of the plateau, one was at the south-east corner of the mountain, and two were in what came to be known, because of the profusion of Nabataean remains, as 'Nabataeans' corner'. Two of the soundings yielded Iron Age pottery: the first contained storage jar and cooking pot sherds dated by Palestinian parallels to the late 8th/early 7th centuries BCE, while the second was in a concentration of sherds in the centre of the plateau, and revealed numerous drystone walls constructed on bedrock and associated entirely with Iron II pottery. It was primarily the fact that the pottery discovered in the soundings dated later than the period of the biblical references to Amaziah and Sela‘ (early 8th century BCE) that convinced Bennett to undertake two further full seasons of excavation (5 November–9 December 1963; 8 October–10 December 1965). The second of her 1960 soundings (Petra Trench XVII) was her starting point in the centre of the plateau, and she excavated northwards from there (Figure 1.6).

As a result of the site's difficult access even donkeys were unable to reach it, and all water, equipment, supplies and finds had to be carried by hand (or transported by helicopter, which Bennett arranged with the Jordanian air force through her close friendship with the Jordanian royal family). Water was brought up three times a day by one man with a jerry can, which, according to Bennett's 1960 notebook, cost more per day than the entire wages of her 10 workmen. Bennett lived in a tent on the summit of Umm al-Biyara for the whole of the 1960 and 1963 seasons, not once coming down, accompanied at night by between one and six bedouin workmen; their tents were prey to the violent winds that sweep across the summit. These difficulties and the consequent prohibitive costs led to

Bennett's decision that the excavations could not continue beyond the 1965 season. Nevertheless, she acknowledged that she had not succeeded in defining the full extent of the settlement (Bennett 1966a, 378). She excavated *c.*700 sq m in three seasons' work: but a narrow sounding near the western edge of the plateau revealed walls and an oven, suggesting that her excavations uncovered only between one-third and a half of the whole site. At the time of its occupation the settlement would have extended at least as far as the eastern edge of the southern knoll, to the south of which there is a shelving of natural rock.

Bennett published only one formal preliminary report on her excavations at Umm al-Biyara, in French (Bennett 1966a; Bennett 1964 was a short note following the first two seasons, and Bennett 1966b a similar note at the end of the third season). In that report the architectural and stratigraphic description was selective, focusing in detail on only one group of buildings excavated during the 1965 season. She went on to excavate Tawilan in the years 1968–70 and 1982, and Busayra in the years 1971–4 and 1980. After that single preliminary report on Umm al-Biyara, she did no more work on the site (except for some surveying in 1980: see Appendix 1), and no research towards preparing a final report prior to her death on 12 August 1987 (for a brief biography of Bennett, see Bienkowski 2004; also Appendix 1 here). After her death, responsibility for producing final reports on all three of her 'Edomite' excavations passed to one of the present authors (PB). Since then, final reports have been published for Tawilan and Busayra (Bennett and Bienkowski 1995; Bienkowski 2002), and her excavations at Umm al-Biyara have been re-evaluated and summarized (Bienkowski 1990; 1992b; 1993).

In summary, Bennett's excavations at Umm al-Biyara revealed an unwalled site consisting of drystone houses with long corridor rooms and small square rooms leading off. In the main area of excavation the houses were built against a single long wall that ran the length of the excavated area. The occupation was evidently domestic, judging from the quantity of loom weights and spindle whorls. A large number of deep cisterns, presumably forming the water supply, were found cut into the summit, but it is not clear whether they are Iron II or Nabataean in date. Bennett concluded that the main area of the settlement was destroyed by fire, although the evidence seems to point more towards localized burning events during the occupation rather than wholesale destruction by a single conflagration.

The original objectives of the excavation were not achieved directly. Nothing was found to confirm or contradict the identification of Umm al-Biyara with biblical Sela' (Bennett herself preferred the equation of modern Sela' near Busayra with the biblical place-name: 1966a, 375–6), and the ancient name of Umm al-Biyara remains unknown. The clay impression of the royal seal of Qos-Gabr (see Chapter 5) found in one room for the first time gave a clear date of the early 7th century BCE for the associated 'Edomite' pottery, within the late Iron II period, which was a substantial revision of Glueck's then current synthesis. But the second aim of the excavation was to find stratified pottery, whereas Umm al-Biyara is essentially a one-period site: the typical stratigraphic sequence is floor (on bedrock, slate or packing), abandonment and collapse. In one part of the site, however, there are indications of two phases of occupation, with the earliest occupation on bedrock followed by fire and then by a final occupation re-using the same walls (see Chapter 2). This was overlain by abandonment and collapse, as in other areas. The evidence suggests that the final occupation came immediately after the fire, and not after a period of abandonment. Bennett had implied that the re-use might date to the Hellenistic period, but the pottery throughout is homogenous Iron II. Probably as a result of her wish to find real stratigraphy, Bennett created three 'phases' of construction based on the group of buildings excavated in the 1965 season that formed the core of her preliminary report (Bennett 1966a). Nevertheless, she admitted (Bennett 1966a, 380–81) that it was impossible to determine the relative order of her Phases 2 and 3 with regard to Phase 1 – it is in fact clear that her three 'phases' could not be separated much chronologically, represent a single period of occupation, and really were more imagined than real (see also Bienkowski 1990, 92–5, for a critique of Bennett's phasing). There is no sequence of stratified Iron II pottery at Umm al-Biyara.

At the time of its excavation Umm al-Biyara, as a relatively inaccessible mountain-top 'Edomite' site, was unique. It is no longer so thanks to the extensive surveys and soundings in the Petra region undertaken by Manfred Lindner and the Naturhistorische Gesellschaft Nürnberg (*passim* in Lindner 1989a; 1989b; 1989c; 1992; 1997). Since the mid 1980s they have discovered a series of Iron II sites in the Petra region, both on mountain tops and in other settings, and have greatly expanded our knowledge of the nature of Iron II settlement in this area. Umm al-Biyara now appears as a typical mountain-top site of the Petra area: relatively inaccessible, with conglomerations of long rectangular rooms, piriform cisterns, entirely domestic material culture, and a paucity of painted pottery (see Chapter 10 for more details and discussion). Nevertheless, despite the passing of nearly half a century from the commencement of fieldwork by Crystal Bennett, Umm al-Biyara is still the first of the Petra mountain-top sites to have been excavated and published in final form.

Terminology

The terminology used by Bennett for recording her excavations at Umm al-Biyara was essentially very simple: the only horizontal division was 'trench', followed by a number in Roman numerals (e.g. A.XX), and the only vertical division was 'layer' or 'level' (these terms being used interchangeably, depending on which site supervisor was writing the notes), followed by a number in Arabic numerals (e.g. A.VI.7). After the 1965 season 'room' numbers, with Arabic numerals, were allocated

retrospectively, and these room numbers could incorporate several trenches.

Walls were given context numbers (e.g. Wall A.IV.4), but if they ran through more than one trench they were allocated a different context number within each trench. For the purposes of this report, for convenience of reference, all the walls have been renumbered in a sequence using Arabic numerals, with a single number for each wall irrespective of how many trenches it ran through (e.g. Wall 4, which incorporates the original Walls AV.3, A.VI.3 and A.VII.8) (see Table 2.1 for renumbered walls with original wall numbers).

Features were sometimes given context numbers (e.g. A.XX.17), but were not always numbered. Occasionally features are mentioned in the site notebooks but not numbered; sometimes they are numbered in drawings but not always; and at times numbers recorded in the notebooks and in drawings do not correlate.

Problems of excavation, recording and publication

Umm el-Biyara was excavated in 53 trenches which ranged in size from 3 m × 3 m to 7 m × 6 m. The trenches were Trenches Petra XVI–XVII, A.II–A.VIII, A.X–A.XIII, A.XX–A.XXIV, A.XXX–A.XXXV, A.XL–A.XLIII, A.XLIII.1–A.XLIII.7, A.XLIV, A.XLIV.1, A.XLV–A.XLVII, A.XLIX, A.XLIX.1, A.L, A.L.1–A.L.3, A.LI, A.LI.1–A.LI.4, A.LII. At the beginning of the 1960 season, Umm al-Biyara was still part of Peter Parr's Petra project. The first two trenches, Trenches Petra XVI and XVII, are therefore part of the Petra numbering sequence (Petra XVIII is recorded only as the locus of the bronze bowl discovered during the 1960 season: see Chapter 7). There is no explanation in the site notes as to why the other 51 trenches were numbered in the way given above, or why there are missing numbers in the sequence. The subdivision of many trench numbers into numbers with decimal points further complicates the numbering and, more significantly, serves to illustrate the kind of assumptions the supervisors were already making about the site before it had even been excavated: that certain rooms and areas were offshoots or subsections of larger complexes. Once the overall site plan was established after the final excavation season in 1965, a simple and much more useful sequential room numbering system (Rooms 1–40) was implemented, in which, importantly, each room was given equal weighting without any presumption of relative 'importance'.

Most walls were exposed only when excavated properly, so were not visible from the surface. But once a sizeable wall was uncovered it seems that Bennett chose the locations of subsequent trenches to correspond with the line of the wall, presumably hoping it would lead to other adjoining walls and structures.

Apart from the restricted (and ultimately unfulfilled) aims of the excavation, there are other problems with analysing the data from this site. Bennett directed excavations at Umm al-Biyara in the days before formal context sheets were used, and she and the other site supervisors simply wrote descriptions in site notebooks. These notebooks can be difficult to interpret: layers are often uncorrelated, with no notion of context or relationship to other layers, features or walls. Drawings are frequently unlabelled, leaving much information about layers and finds unusable. Section drawings are sometimes incomplete or unlabelled. Even the layer descriptions themselves are often recorded in insufficient detail to be of any use. Sometimes layers were recorded in great detail, sometimes in a brief sentence and other times not at all. Notes on several of the trenches could not be found – trenches Petra Tr. XVI and Petra Tr. XVII, A.XIV, A.XV, A.XVI and A.XVIII.

Furthermore, excavators often did not recognize that layers in adjacent trenches were actually one and the same, and surfaces identified with walls, and sometimes the walls themselves, were frequently unnumbered and unrecorded. Although the majority of finds, and many features, were recorded as coming from a specific trench and can usually be pinpointed to a context within that trench, what the site supervisors failed to record was the location of these finds *within* their trenches (bearing in mind that trenches could be up to 7 sq m and span multiple rooms). On some occasions finds and features could not even be placed with any certainty in a specific room or on a definite side of a wall. This has made plotting accurately the distributions of finds and features very difficult, and it should be borne in mind that most of the distributions produced in this volume are only useful indicators of occupation up to trench level.

The amount of detail that the notes on trenches recorded also varied considerably, depending both on who was recording the data and at what point in the season those particular trenches were being excavated. Descriptions and sketches are more detailed on pages filled with Crystal Bennett's handwriting, but entries from other excavators on site indicate that her site supervisors were fairly inexperienced. Furthermore, in the early part of each season detailed section drawings were produced for nearly every trench, and additional notes and thoughts were recorded vigilantly; as the season progressed, however, these details became less frequent.

It is also often difficult to make sense of the trench and context numbering system, especially when numbers were not clearly allocated to all exposed features. The numbering system itself is logical, with the trench number in Roman numerals followed by the context or feature number in Arabic numerals: e.g., A.XII.7. At times the authors of this report have had to attach numbers to features and contexts retrospectively where none previously existed. In these instances the numbers will be written in italics and preceded by the letter R. For example, the foundation trench in Trench VI would be written *R.VI.9* (since the existing numbering sequence only runs up to 8). A further problem arises when investigating walls that run through

more than one trench, as their numbers may (or may not) change in each trench. This can make describing certain features very complicated. Similarly, each 'room' was allocated a room number from 1 to 40 after excavation, but the boundaries of these rooms were not defined, leaving several areas adjoining or encompassing rooms without obvious numbers.

The excavated pottery and small finds were stored at the end of the excavations in the British School of Archaeology in Jerusalem (now the Kenyon Institute), where they are still curated. Bennett seems to have retained much of the pottery, even body sherds, but a very large proportion of it was not numbered, making it impossible to allocate it to any context. One of the authors (PB) systematically rationalized the pottery in the year 2000, discarding all unnumbered body sherds.

Since Umm al-Biyara was the first 'Edomite' site to be properly excavated, there was no existing corpus of Iron Age pottery from southern Jordan which Bennett could use for comparison – indeed, one of her objectives at Umm al-Biyara was to excavate a sequence of Iron Age pottery. As with her later excavations at Tawilan (Bennett and Bienkowski 1995) and Busayra (Bienkowski 2002), she did not intend to produce a record of phased pottery assemblages from stratified loci, which is now standard practice; rather, her objective was to produce a 'type series', preferably divided chronologically. As at Tawilan and Busayra later, no record was kept of the total amount of pottery excavated in each context, or of the total amount of pottery representing particular types. No attempt was made to reconstruct whole vessels.

Some of the Umm al-Biyara pottery was later studied as part of two doctoral dissertations of students who worked with Bennett at later excavations (Oakeshott 1978; Hart 1989).[2] For the purposes of this report, it has been impossible to reconstruct ceramic contexts rigorously: the publication of the pottery in Chapter 4 is therefore a presentation of the Umm al-Biyara type series, as Bennett originally intended.

For the purposes of publication we considered dividing the site into three areas and presenting each individually, which would correspond neatly with the three seasons of excavation. This might, however, give a misleading impression that the site could be divided spatially or by activity area, whereas the evidence suggests that the whole site is essentially one contemporary unit, so any divisions would be artificial. In this report, therefore, the site will be analysed as a whole.

This chapter, and parts of the report which follows, are critical about the methods of excavation and recording that Crystal Bennett employed at Umm al-Biyara. That objective critique is necessary in order to highlight how these problematic issues affect the nature of the conclusions we can reach. Nevertheless, it is crucial to point out what a difficult undertaking this archaeological excavation was in the early 1960s: Petra had none of the comfortable transport, subsistence and accommodation infrastructure that makes tourism and archaeological work so easy there in the 21st century. Even the path up Umm al-Biyara has been cleared and the Nabataean staircase, ramps and steps restored. Crystal Bennett was truly a pioneer, working in difficult, isolated and often dangerous conditions, occasionally stranded on the summit lacking water, partly self-financed, and uncovering an unknown material culture. That determination saw her through comparable difficulties in her later excavations at Tawilan and Busayra (Bennett and Bienkowski 1995, 16–17; Bienkowski 2002, 45). It is impossible to fully understand the evidence from Umm al-Biyara without appreciating and acknowledging Bennett's drive and what she was up against. Accordingly, Appendices 1 and 2 in this report provide more of that background, both to Bennett's character and career and to the stories of excavating Umm al-Biyara in the early 1960s. They are an integral part of the story of Umm al-Biyara itself.

Notes

1. We are most grateful to Dr John Powell of the British Geological Survey for his invaluable assistance with the geological description here.
2. Neither of these studies was definitive. Although Oakeshott was the first to attempt a typology of pottery from Edom, her thesis was produced before the excavations at either Busayra or Tawilan were completed, so there are many gaps. Hart attempted to create a chronological sequence of pottery from Edom, but did not yet have the final analysis of the stratigraphy from Busayra, the only excavated site which had any sort of stratigraphic sequence. He based his chronological sequence on his interpretation of the stratigraphy of Busayra Area D, which was subsequently found to be wrong (Bienkowski 2002, 207).

2. The Stratigraphy

Katherine Baxter

Introduction

The excavated area of Umm al-Biyara covers 700 sq m, less than a third of the whole site. At the time of its occupation the site would have extended at least as far as the eastern edge of the southern knoll (Figure 2.1), to the south of which there is a shelving of natural rock.

Crystal Bennett's notebooks reveal no overall methodology of how the site was to be excavated. Walls tended to be exposed only when excavated properly, so, apart from a few visible wall lines on which the first season of excavations focused, they were not visible from the surface. On uncovering a sizeable wall Bennett apparently placed subsequent trenches so that they would correspond with its line, presumably in the expectation that this would reveal other adjoining walls and structures. Surface pottery was thrown away, as was 'surplus' pottery found in the occupation levels.

The difficulties of interpreting Bennett's recording system have been highlighted in Chapter 1. The original wall numbering system makes describing overall trends very complicated, and gives the misleading impression that walls were subdivided. For this final report walls have therefore been renumbered in a simple chronological sequence for the purpose of clarity, but the original or retrospective context number has been added in brackets if a specific section of the wall is being discussed. Table 2.1 summarizes the wall numbering system, and the new wall numbers are shown in plan on Figure 2.2.

In the notebooks the excavation areas were divided into trenches, although the boundaries of each trench were not always specified. A site plan with trench numbers was produced shortly after completion and published in Bienkowski (1990), but again the boundaries between trenches were not marked (Figure 2.3). Room numbers were sometimes allocated on site, but at some point after the completion of the excavation in 1965 a new set of room numbers (1–40) was retrospectively assigned to the site; these ran from south to north and replaced the old room numbers. These post-excavation room numbers are used as the basic site divisions in this report (Figure 2.4). For clarity the room numbers and corresponding trench numbers, as far as can be deduced, are listed in Table 2.2. However, exact boundaries between rooms are difficult to define.

Phases of occupation

In most trenches there was evidence of only one level of occupation; consequently the stratigraphy is fairly straightforward. The typical sequence seems to be bedrock, occupation on bedrock or on a floor contemporary with the buildings (Phase 1), and collapse and/or accumulation after a period of abandonment (Phase 3). There were a few instances of reoccupation, where the original walls had been re-used with a later surface level (Phase 2). Nevertheless, even this reoccupation appears to have occurred within the same period, so the site as a whole can be said to consist of one continuous level of occupation dating to the late Iron II period. Bennett argued that there may have been a re-use of the site in the Hellenistic period (Bennett 1966a, 382–3, 402), but the pottery from safe contexts throughout the site dates to Iron II. Only one piece of Hellenistic pottery was attributed to Phase 1 in the excavation notebooks, but it was not registered in the finds register and is more likely to be from a contaminated level. Hellenistic sherds were recorded from post-occupation levels in Rooms 15 (trench A.XIII ext) and 18 (trench A.XXXIII), but in practice it is difficult to distinguish Hellenistic pottery in Petra and Bennett may have been referring to particular forms of Nabataean pottery, which were found elsewhere on the site.

Orientation	Original wall number	New wall number
S–N	A.IV.4	1a
	A.II.4	
S–N	A.XX.3	1b
S–N	A.XLI.13	1c
	A.XLIII.5	
	A.XLV.2	
S–N	A.XLIII.4.4	1d
	A.XLIX.1	
	A.XLIX.1.7	
S–N	A.LI.6	1e
	A.L.2.6	
E–W	A.II.5	2
	A.II.4?	
E–W	A.V.10	3
S–N	A.VII.8	4
	A.VI.3	
	A.V.3	
Mix	?	5
E–W	*R.XII.3*	6
S–N	A.X.6	7
E–W	A.X.5	8
E–W	A.XXI.3	9
E–W	A.XX.5	10
	A.XXI.4	
S–N	A.XXII.6	11
	A.XXII.12	
E–W	A.XX.8	12
	A.XXII.4	
E–W	A.XXX.9	13
	A.XXXI.2	
E–W	A.X.3	14
	A.X.III.6	
S–N	A.X.4	15
E–W	A.XX.6	16
S–N (square)	A.XXX.3	17
E–W (square)	A.XXX.4	18
E–W	A.XXX.2	19
	A.XXXIII.4	
S–N	A.XXX.5	20
S–N	A.XXXV.1	21
	A.XXXIII.9	
E–W (square)	A.XXXIII.8	22
S–N	A.XL.2	23
	A.XLIII.3	
S–N	A.XL.4	24
	A.XLIII.2	
S–N	A.XL.10	25
	A.XLVIII.18	
E–W	A.XLIII.4	26
E–W	A.XLVIII.4	27
E–W	A.XLIII.5.3	28
	A.XLIII.2.6	
	A.XLVIII.3	
	A.XLVIII.17	
S–N	A.XLIII.6.2	29
	A.XLIX.2	
E–W	A.XLIX.10	30
S–N	A.XLVIII.16	31
curved	A.XLIX.6	31a
S–N	A.XLVIII.14	32
E–W	A.XLVIII.1.2	33
E–W	A.XLIII.3.6	34a
	A.XLV.1	
E–W	A.XLVI.3	34b
S–N	A.XLIV.1.14	35
	A.XLV.4	
S–N	A.XLV.1.5	36
	A.XLV.1.6	
	R.XLVI.18	
E–W	A.XLIV.1.4	36a
S–N	A.XLVI.7	37
	A.XLVI.9	
	A.XLVII.5	
S–N	A.XLVI.10	38
	A.XLVII.3	
curved	A.XLVI.11	38a
E–W	A.XLIV.1.24	39a
E–W	A.XLIV.1.23	39b
E–W	A.L.1.5	40
	A.L.2.7	
S–N	A.L.I.4	41
	A.L.6	
	A.L.2.4	
E–W	A.L.16	42
E–W	A.L.15	43
S–N	A.L.5	44
E–W	?	45
E–W	A.L.I.2.2	46
E–W	?	47
S–N	A.LI.2.1	48
E–W	?	49
E–W	A.LI.2.4	50

Table 2.1. Numbering of excavated walls at Umm al-Biyara

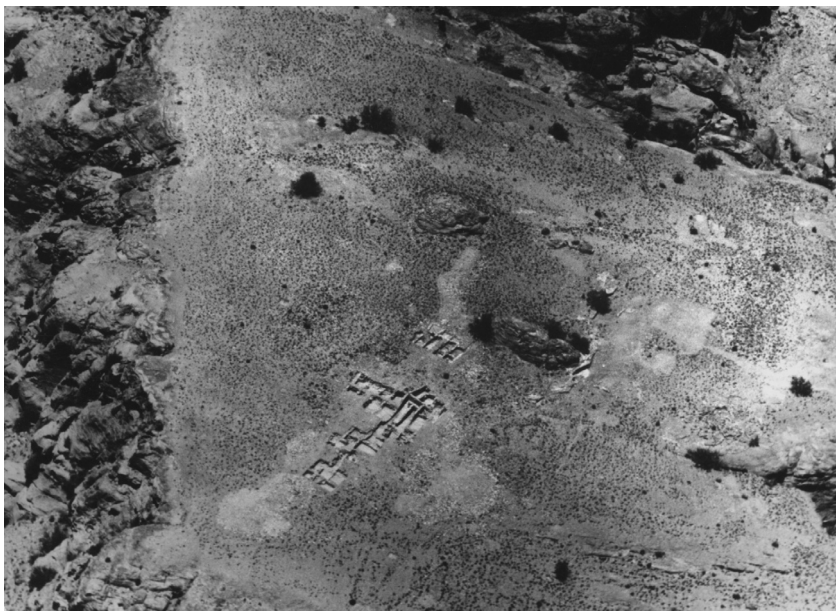


Figure 2.1. Aerial view of the excavated site at eastern side of the southern knoll

Room number	Trench number
1	A.VI
	A.VII
2	A.VIII
	A.V (south)
3	A.IV (east)
	A.III
4	A.II
	Petra Tr. XVII (south-east)
5	A.V
6	Petra Tr. XVI
	Petra Tr. XVII
7	Petra Tr. XVI
	Petra Tr. XVII
8	A.XII
9	A.XI
10	A.X
11	A.XIII
12	A.XX
	A.XXI
13	A.XXII
14	A.XXX
	A.XXII
15	A.XIII ext
16	A.XXXII
17	A.XXX
18	A.XXXIII
19	A.XXXIII
Corridor area south of Rooms 20–22	A.XXXV
	A.XXXII
20	A.XLII
	A.XLVIII (south)
21	A.XL
	A.XIII.1
22	A.XLIII
	A.XLI
23	A.XLIII.2
	A.XLIII.5
24	A.XLVIII
25	A.XLVIII.1
26	A.XLIX
	A.XLIII.7
27	A.XLIX.1
	A.XLIII.6
28	A.XLV (east)
	A.XLIII.3
	A.XLIV (east)
29	A.XLV (west)
	A.XLIV (west) or A.XLIV.1
30	A.XLVI (east)
	A.XLVII (east)
31	A.XLVI (west)
	A.XLVII (west)
32	A.L.1
33	A.L.2
34	A.L
	A.L.3
35	A.LI.2
36	A.LI.2 (south)
37	A.LI.1
	A.LI.3
38	A.LI.3 ext
39	A.LI.2 ext
40	A.L ext
Area to the west of Room 27 (room number not assigned)	A.XLIII.4
Area ‘B’ (location unknown)	B.I
Area to the west of Room 37 (room number not assigned)	A.LI.4

Table 2.2. Room and trench numbers at Umm al-Biyara

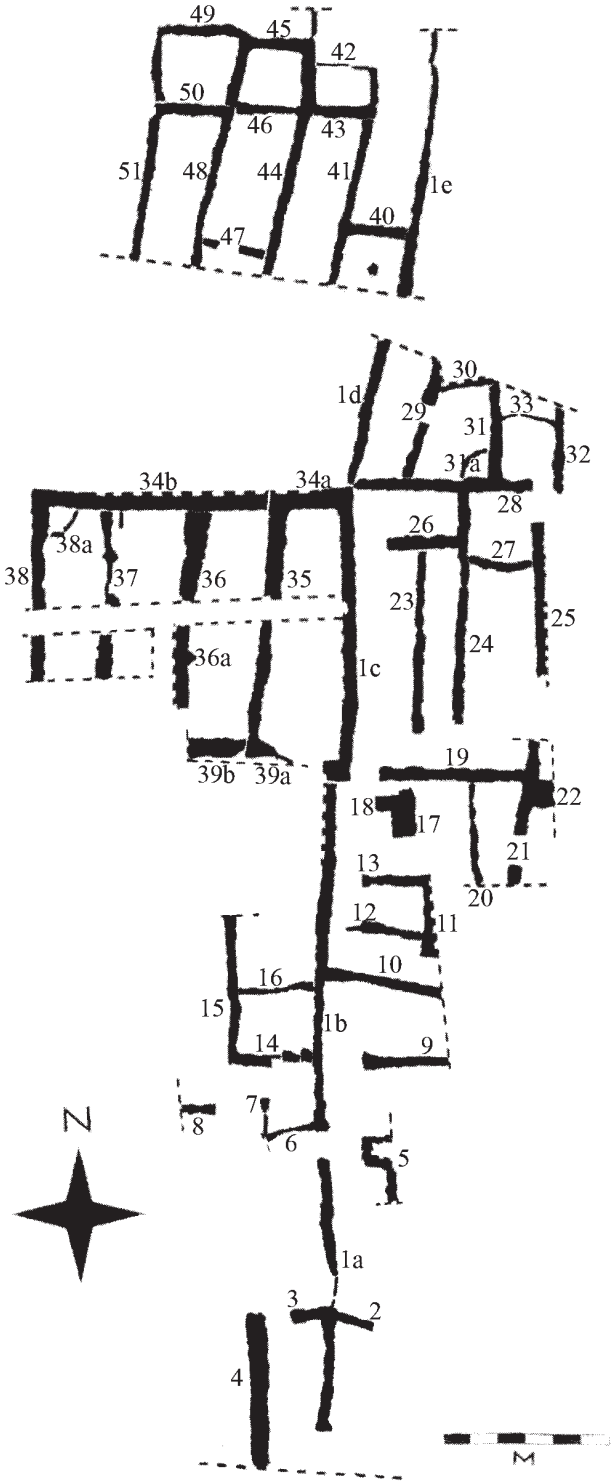


Figure 2.2. Plan of Umm al-Biyara showing wall numbers

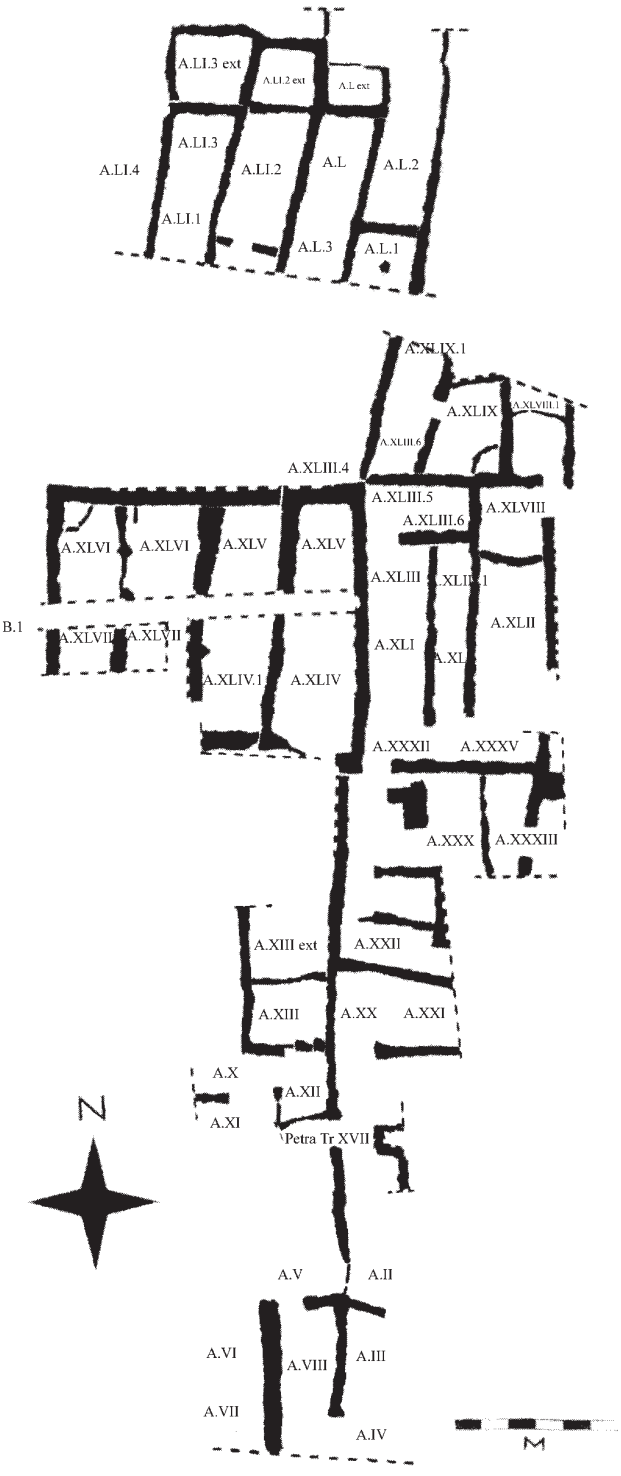


Figure 2.3. Plan of the site showing trench numbers. Trenches A.LI.4 and B.I have been added retrospectively

Phase 0

Bedrock across the plateau is made up of Palaeozoic sandstone, and was reached in all trenches except A.L.ext, A.X and A.XI, which were not fully excavated. In many of the trench site notes bedrock was not explicitly mentioned or assigned a context number, but it is clear from the cross sections that it was actually reached.

The bedrock slopes down from west to east across the plateau, a problem which had to be overcome by the people who built and occupied Umm al-Biyara. It explains the use of packing to even out surfaces and the cutting of the bedrock in Phase 1. It may also account for the eastward lean of walls described in the excavation notebook (estimated 10°). No exact depths of bedrock

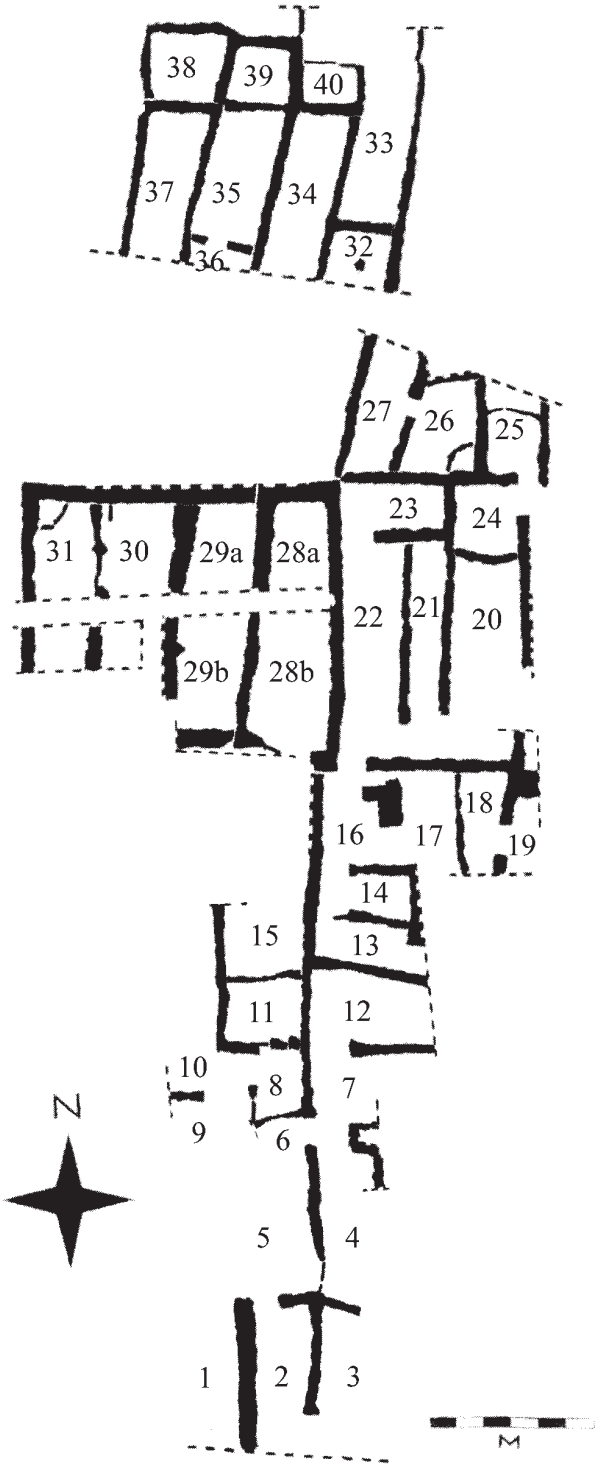


Figure 2.4. Plan of the site showing room numbers

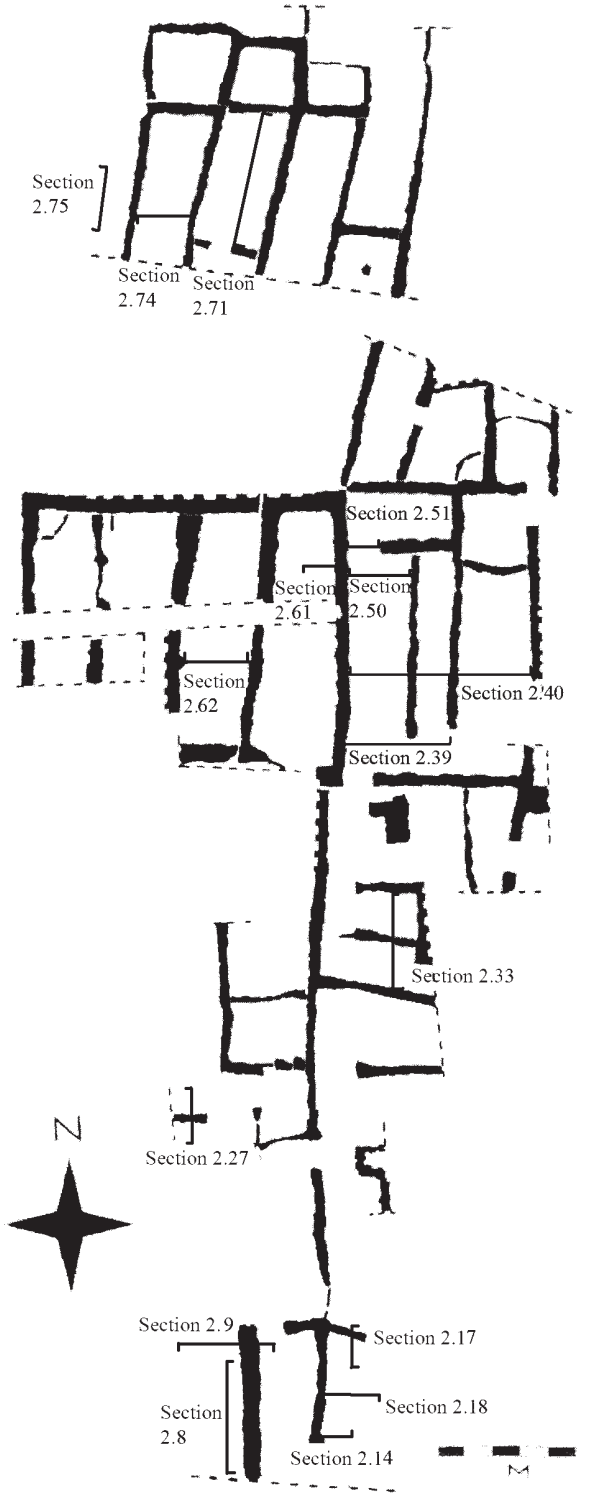


Figure 2.5. Plan showing positions of sections

were recorded, but the cross sections, when scales were used at all, show that bedrock was generally reached at a depth of just over 1 m. Crystal Bennett, in her personal diary of the 1960 season, complained how disappointed she was that bedrock had been reached so quickly in the earlier trenches.

Phase 1

Phase 1 was the main period of building and occupation of Umm al-Biyara. The majority of walls, associated surface deposits and finds belong to this phase, in the earliest levels directly overlying the bedrock. The evidence for Phase 1 occupation is presented here room by room (Figure 2.4).

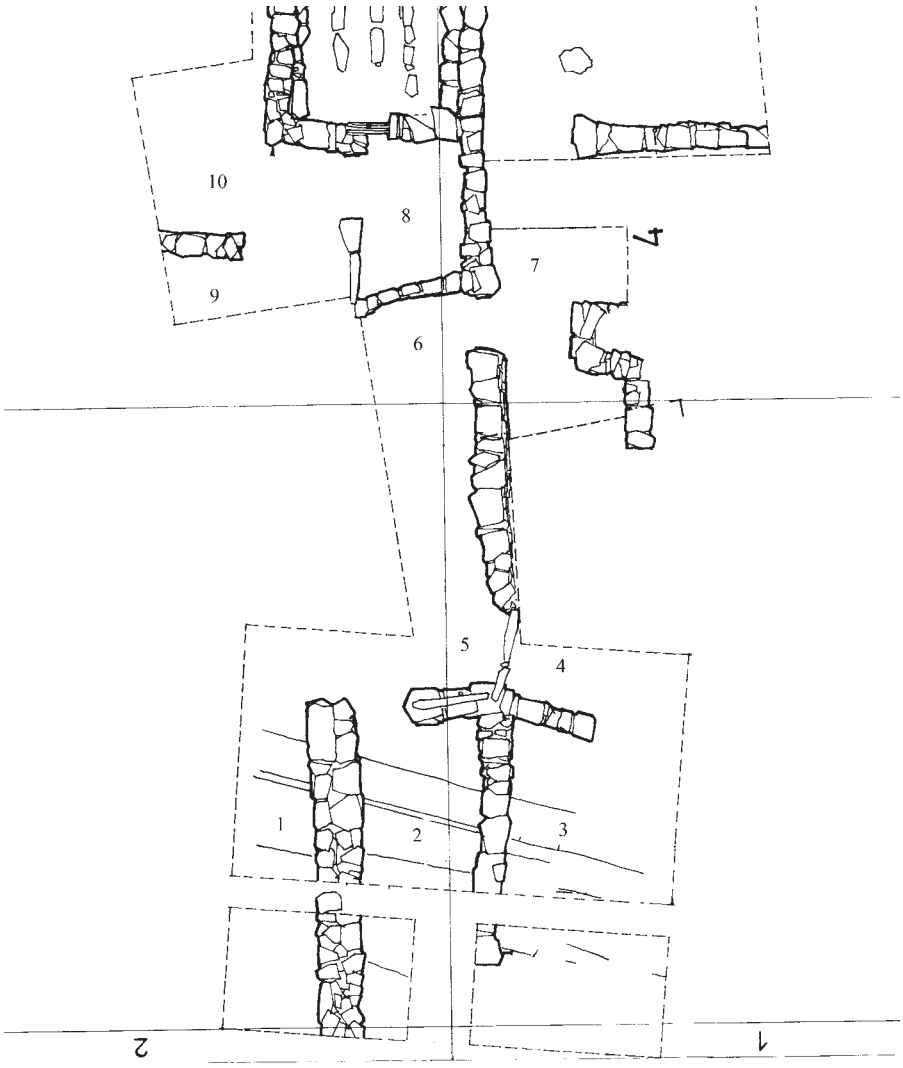


Figure 2.6. Detailed plan of Rooms 1–10

Figure 2.7. North-facing photograph of the excavation early on. Trench A.VII is in the foreground (left) with trench A.VI behind, making up Room 1. Wall 4 is visible in the centre, with the Wall 3 'blocking stone' right of centre

Figure 2.8. Trench A.VII (Room 1) facing south, showing the surface of A.VII.5

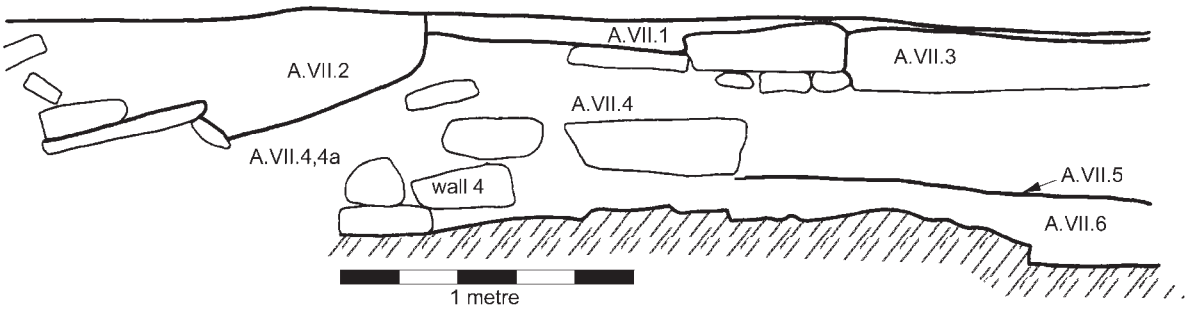


Figure 2.9. Section of trench A.VII (Room 1 south), east-facing. A.VII.1: topsoil; A.VII.2: pit of slate chippings; A.VII.3: soft, sandy brown soil; A.VII.4: building stone collapse; A.VII.4a: brown earth; A.VII.5: surface of decomposed stone; A.VII.6: reddish-brown hard earth with slate. Notes: On the section drawing in the excavation notebook the level A.VII.5 was marked as being above the collapse of building stone (A.VII.4). This must have been marked in error, and it has been rectified in this drawing as being the level below the collapse

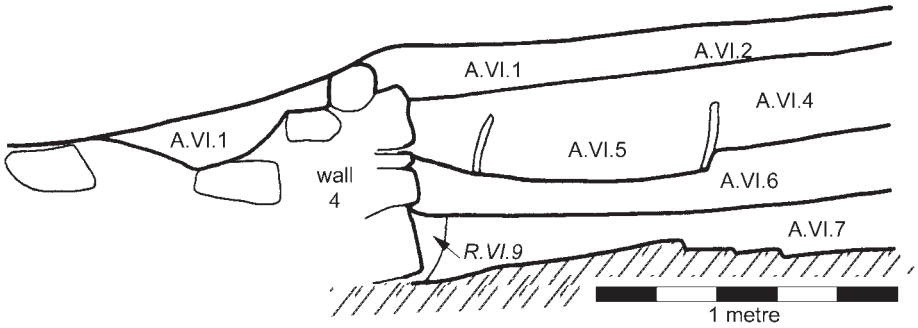


Figure 2.10. Section of trenches A.VI and A.VIII (Room 1 north), south-facing. A.VI.1: topsoil and stone; A.VI.2: slate chippings; A.VI.4: soft, sandy brown earth; A.VI.5: taboun; A.VI.6: slate chippings; A.VI.7: brown earth with slate chips; R.VI.9 foundation trench

This does not represent the order in which the trenches were excavated, which of course is of no consequence to the history of the site, and several trenches are examined together if they all make up the same room and demonstrate the same stratigraphy. The succession does, however, roughly follow the post-excavation sequence of room numbers 1–40, which were allocated from south to north. The positions of the section drawings referred to within the text are shown in Figure 2.5.

Rooms 1–10

Rooms 1–10 lie to the far south of the excavated site (Figure 2.6). Room 1 is the area in the extreme south-west (Figure 2.7), separated from Room 2 to the east by Wall 4, which runs north–south (A.VII.8, A.VI.3 or A.V.3), parallel to the main axis wall which runs through the whole site (Wall 1a), but is not bonded to any other walls. Wall 4 was constructed of medium-sized roughly cut blocks, the gaps between which were filled in with smaller stones. In the south of the room the wall was built directly on bedrock. A contemporary surface of decomposed stone overlaying hard coagulated slate (A.VII.5 and 6) was visible (Figure 2.8), with many Iron Age II pottery sherds. Running alongside Wall 4 (A.V.3) north was a layer of slate chippings (A.VI.6) which was clearly contemporary with this wall as they ran together, but the extent or exact position of this layer was not recorded. The brown earth directly underneath the chippings (A.VI.7) was cut for a foundation trench (*R.VI.9*) for the wall; this is a method of construction distinctly different from that used for the southern section of the wall, which rests directly on the broken up bedrock. The slate level (A.VI.6) runs almost to the top of the existing Wall 4 (A.VI.3) on the north side of the room. These levels are shown on the section drawing Figure 2.10. Above the slate level (A.VI.6) was a layer of sandy brown earth (A.VI.4) in which was found a taboun (A.VI.5) with very soft fill in the middle of Room 1 (Figure 2.11). A small patch of black soft earth was uncovered on the west side of the room directly on the broken-up bedrock. In the site notebook Bennett suggested that this might have been the result of charring where tea-making took place by those constructing the wall in antiquity.

To the east of Wall 4 (A.VII.8), in Room 2, there are no slate chippings at this level. The east wall of Room 2 is the beginning of the north–south 'spine wall' (Wall 1a), which was of solid construction with a terminal stone at the southern end. The spine wall forms the main axis wall of the whole excavated site, although it was constructed in different stages and is not completely continuous. In

Figure 2.11. Trench A.VI (middle of Room 1) facing south, showing taboun

Figure 2.13. Trench A.VIII (Room 2) looking towards the west, showing the recess in Wall 4

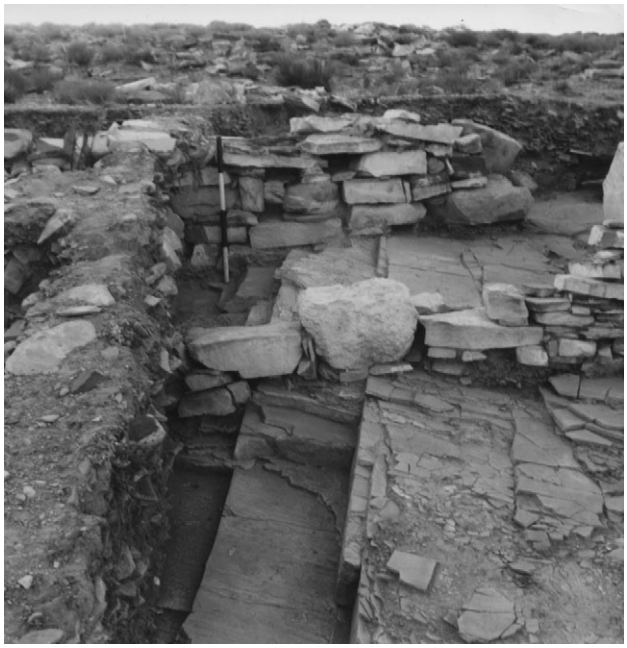


Figure 2.12. Rooms 3 and 2 facing west, showing Wall 1a in the centre and the bedrock cut into steps (A.III.6) in both rooms running underneath the wall

Figure 2.14. Photograph facing north-west looking over trenches A.IV (foreground) and A.III (Room 3). The ranging pole is positioned in the north end of Room 2 (trench A.VIII), behind Room 3

the north of Room 2 the bedrock has been cut. This cut runs from Wall 4 at the west side (A.V.3) to Wall 1a at the east (Figure 2.12), and emerges and continues on the other side of Wall 1a in Room 3 (A.III.6). Directly above the bedrock was a level of gritty reddish-brown earth (A.VIII.4) containing many slate chippings, but no pottery. This brown earth was recorded in the south of Room 2, but with no mention of slate chippings. There is a continuation of Wall 4 (A.V.3) northwards composed of rough blocks or slabs of sandstone which are of uneven size but in general fairly substantial, ranging from 0.5 m × 0.14 m to 0.75 m × 0.25 m to 0.72 m × 0.05 m. This continuation was 0.82 m wide with an existing height at excavation of 0.8 m. It was founded on a base of brown earth and sandstone slate-like chippings, which could be the disintegration of the natural bedrock. An interesting feature 1.88 m south of the northern extremity of Wall 4 (A.V.3) is a gap or recess in the wall (Figure 2.13). This unusual feature also appears in trench A.XXII (Room 13) in Wall 1b (A.XX.3). In the site notes

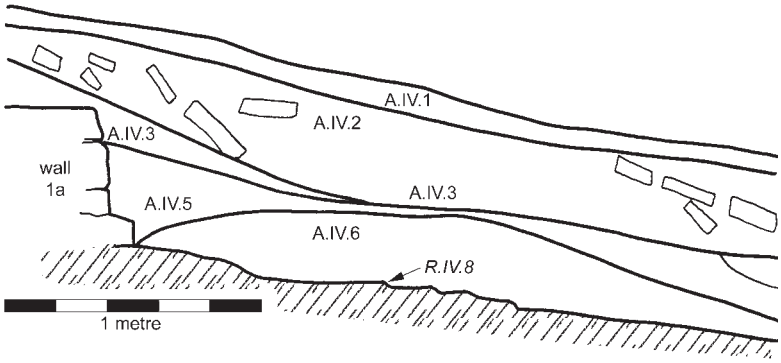


Figure 2.15. Section of trench A.IV (Room 3 south), north-facing. A.IV.1: topsoil; A.IV.2: stones; A.IV.3: soft earth under stones; A.IV.5: dirty soft earth; A.IV.6: reddish brown earth with slate chips; R.IV.8: slate-like surface or bedrock surface

Figure 2.16. Surface level (R.IV.8) of trench A.IV (Room 3 south), west-facing. The southern end of Wall 1a can also be seen embedded in the soil to the right of the ranging pole

Figure 2.17. Trench A.III (Room 3 north), facing north-west. Walls 1 and 2 and the slate floor have been excavated (A.III.4)

Bennett suggested that such recesses could have been used to hold oil lamps.

To the east of Wall 1a is trench A.IV (Room 3 south), shown in Figure 2.14. Hard coagulated earth with slate chippings (A.IV.6) directly above the bedrock has been cut to insert Wall 1a (A.IV.4). The section drawing of this trench in the field notebook (Figure 2.15) records a 'slate-like floor' (*R.IV.8*) lying directly on the bedrock, underneath the hard earth, but this is not described in the level notes nor was it originally assigned a context number. There is, however, a photograph showing the surface level (Figure 2.16). It is likely that what the excavators thought was a slate surface was in reality the bedrock itself. In the soft earth (A.IV.5), and against Wall 1a (A.IV.4), many bones and pieces of pottery were found, including bowl rims. The only sherd registered was a fragment of an orange-buff ware bowl. In the north section of Room 3 (Figure 2.17) there was a broken slate surface (A.III.4). From Wall 1a, in the west side of the room, the bedrock was cut in very straight lines (A.III.6), and continued in this manner into the eastern half of the trench, forming a continuation of the cut bedrock in Room 2 described above. Although it is not described as such in the notes, from a section sketch in the notebook (Figure 2.18) it appears as though the bedrock has been carved into a step-like structure descending south from Wall 2 (AII.5), the north wall of Room 3 (Figure 2.12). This cut bedrock contains a fill of brown earth and slate chippings (A.III.7). It is recorded that in the south of the trench a soft patch of earth forms a pit under slate chippings (A.III.5), and bones were found in this pit. Unfortunately, there is no further information on this feature apart from its inclusion in two section sketches of trench A.III (Figures 2.18 and 2.19). The bones were not recorded in the finds register and their current location is unknown: indeed, it is likely that they were discarded.

Wall 2 (A.II.5) runs from west to east and divides Room 3 from Room 4. It was built against Wall 1a on its east side

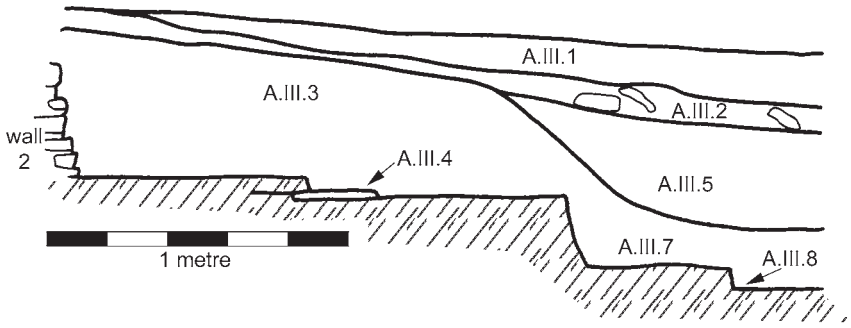


Figure 2.18. Section of trench A.III (Room 3 north), east-facing. A.III.1: topsoil; A.III.2: loose stones in soft earth; A.III.3: small slate chippings in earth; A.III.4: broken slate surface; A.III.5: soft, gritty earth; A.III.7: fill of brown earth and slate; A.III.8: cut of bedrock

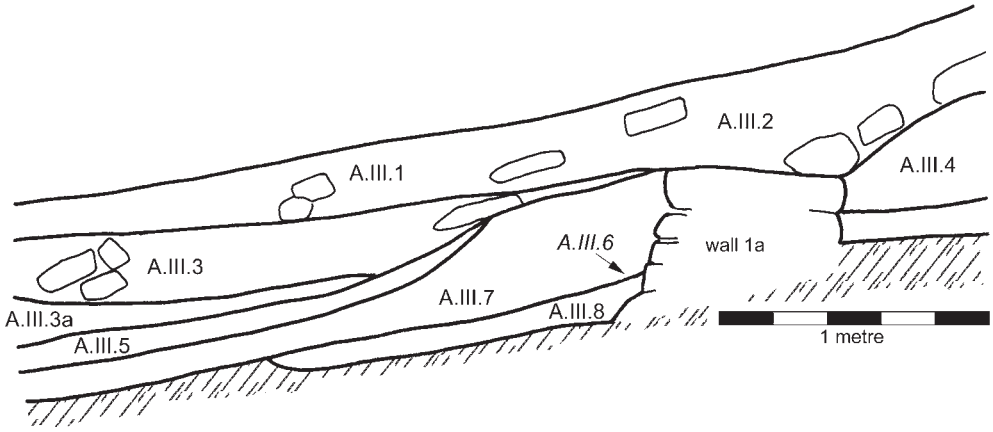


Figure 2.19. Section of trench A.III (Room 3), south-facing. A.III.1: topsoil; A.III.2: loose slate stones; A.III.3: small slate chippings; A.III.3a: brown gingery earth; A.III.5: soft dirty earth; A.III.6: bedrock cut straight from Wall 1a; A.III.7: fill of brown earth and slate; A.III.8: cut of bedrock with some fill as A.III.7. Notes: On the section drawing in the excavation notebook the wall is marked 'Wall A.II.5' but this must be a mistake as this wall runs east to west and this is a south-facing section further south in the trench than the wall. The wall should be Wall A.II.4 (Wall 1a) and has been marked as such in this drawing. On the original section drawing new numbers were assigned to the levels retrospectively, but they do not correlate with any other information in the notebooks; they are in fact linked to Bennett's original 'phases' of occupation. The original context numbers have therefore been used

opposite the point that Wall 3 (A.II.4) was built against the same wall on the west side. This reinforces the hypothesis that the main north–south Wall 1 was constructed first, and other walls were constructed later, branching off from this main axis wall. Wall 1 was constructed of smaller stones at its southern end, but from the point where Wall 2 (A.II.5) was built against it, its construction completely changed and north of here it was made up of large retaining stones (Figure 2.20). It was originally recorded in the site notebook that all of these walls were built on a surface of slate, but later it was concluded that the surface was in fact bedrock. A note was made in the excavation notebook that slate chippings were found in this area together with charcoal, but it is impossible to say exactly where this level lay. During excavation Bennett speculated that these small slate chippings could be where blocks were squared off for construction further north, although there does not appear to be any supporting evidence for this activity. To the north of Wall 2 (A.II.5), in Room 4, there were two levels directly overlying the slate floor (A.II.7) showing evidence of occupation: a layer of broken slate and earth containing charcoal (A.II.6) and, underneath this, a layer of gingery earth containing bone (A.II.6a).

To the west of Wall 1a, Wall 3 (A.V.10) runs from east to west and aligns with Wall 2 (A.II.5) to the east. Although Bennett notes that Walls 2 and 3 (A.II.4 and A.V.10) belong to the same 'house' and are of the same construction, it is clear from the site notes that the west end of Wall 3 in trench A.V was made up of one large stone (shown in Figure 2.20), which Bennett labelled on the cross section as a possible blocking. It is recorded that Wall 3 (A.V.10) was earlier than both Walls 2 (A.II.5) and 1a (A.II.4), but this is unsubstantiated. The one large stone making up Wall 3 (A.V.10) protrudes from the main axis Wall 1a (A.II.5), so these walls were probably built together. Wall 2 (A.II.5) was built against, and thus later than, Wall 1a (Figure 2.21).

Rooms 6 and 7 were excavated as Petra Tr. XVI and Petra Tr. XVII, but unfortunately no site notes were found in the archive for trenches A.XIV–A.XVIII, nor were they labelled on the site plan (Figure 2.3). Two photographs labelled 'A.XVII' were, however, found in the archive (Figures 2.22 and 2.23). Two further photographs labelled 'A.XVIII' also came from the archive (Figures 2.24 and 2.25), but as there are no notes describing these trenches and they are not marked on any plan it is difficult to position these photographs with any certainty.

Figure 2.20. (left) Rooms 3 (left) and 4 (right) looking west, showing Wall 2 (A.II.5) in front of the large slabs of Wall 1 running north. The end of the 'blocking stone' of Wall 3 (A.V.10) can be seen behind Wall 2 in the same alignment

Figure 2.21. Wall 3 (A.V.10), made up of a large blocking stone

Figure 2.22. Trench A.XVII (Room 6) looking north, showing the construction of Wall 6

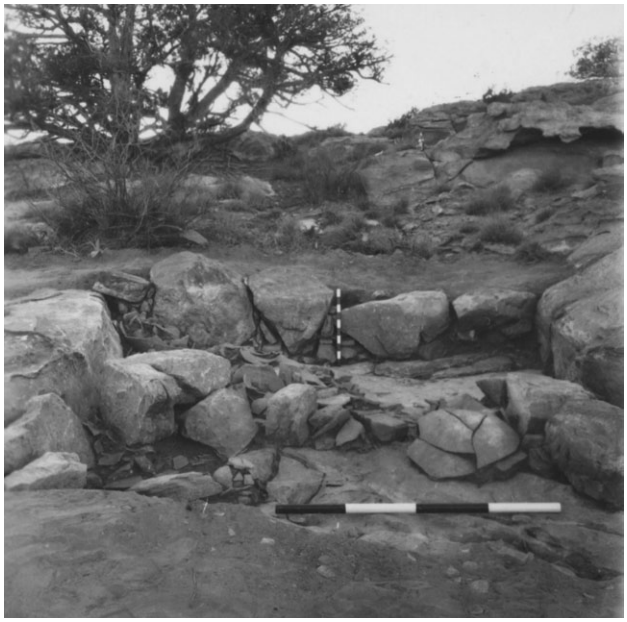


Figure 2.23. Trench A.XVII (Room 7 south) looking north. The gap between Walls 1a and 1b can be seen on the left, and Wall 5 stands on the right

Rooms 8, 9 and 10 lie to the west of the main axis wall, at this point labelled 1b, which appears again after a gap in construction just north of Petra Tr. XVII. Room 8 was fully excavated but the boundaries of Rooms 9 and 10 were not reached. Room 8 is enclosed by Wall 14 (A.X.3) to the north (Figure 2.26), the main axis Wall 1b (A.XX.3) to the east, Wall 6 (*R.XII.3*) to the south, and partially by Wall 7 (A.X.6) to the west, leaving an entrance space leading directly from Room 10. In Room 9 a surface of hard coagulated earth and slate (A.XI.3) was uncovered, which correlates exactly with context A.X.10 in Room 10. There is one photograph of trench A.XI (Room 9) in the archive (Figure 2.27) showing a bowl in the collapsed wall (presumably Wall 8). This may be the almost complete bowl (Reg. 6, illustrated in Figure 4.1:5) mentioned in the notes as being found in the hard coagulated earth (A.XI.1) under a jumble of large stones (A.X.2). A foundation trench (A.X.11) in Room 10, located on the north side of Wall 8 (A.X.5), was cut to a depth of 0.25 m into the bedrock, as shown in the section drawing Figure 2.28. A black ashy patch in the north-west corner directly above the bedrock was also visible. In the west section of the trench, north of Wall 8 (A.X.5), are the remains of a collapsed wall, which

Figure 2.24. Trench A.XVIII; precise location unknown but presumably part of the Room 6 and 7 complex

Figure 2.26. Room 8 (trench A.X/A.XIII) looking north, showing the uneven construction of Wall 14 (A.X.3)

Figure 2.25. Broken pottery in trench A.XVIII

Figure 2.27. Trench A.XI (Room 9), showing a bowl in the collapsed wall, presumably Wall 8 (A.X.5)

seems to be contemporary with Wall 8 (A.X.5) since it was constructed in exactly the same way, with slab slate varying in depth from 0.03 to 0.14 m. There was no evidence of a wall to the south of Wall 8 (A.X.5), or any associated surface. In the southern complex of Rooms 1–8 (trenches A.II to A.XII) large uneven blocks of stone which make up the total width of the walls are regularly used. It is difficult to see how further courses could have been placed on top of these; this may be why Bennett believed they may have been blocked doorways.

Rooms 11–19

Rooms 11–19 extend north to the mid-point of the excavated site, following the axis wall (Figure 2.29). Room 11, north of Wall 14 (A.X.3), is roughly square in shape and is bounded by walls on all four sides. Wall 14 (A.X.3) had an existing height of 1.44 m at the time of excavation and is recorded in the site notebook as being made up of 10 sections of limestone slate at the west end, although the fact that it was limestone was questioned in the site notebook; it would certainly be more likely that sandstone was used, as it was readily available. This may

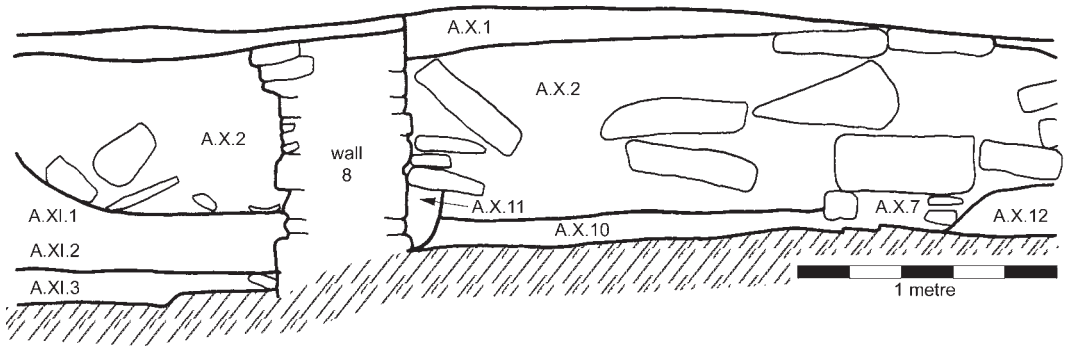


Figure 2.28. Section of trenches A.XI and A.X (Rooms 9 and 10), west-facing. A.X.1: topsoil with loose stones; A.X.2: collapsed stones; A.X.7: gritty gingery brown earth; A.X.10: hard earth and slate; A.X.11: foundation trench; A.XI.1: hard earth; A.XI.2: hard earth under fallen stones; A.XI.3: hard earth and slate

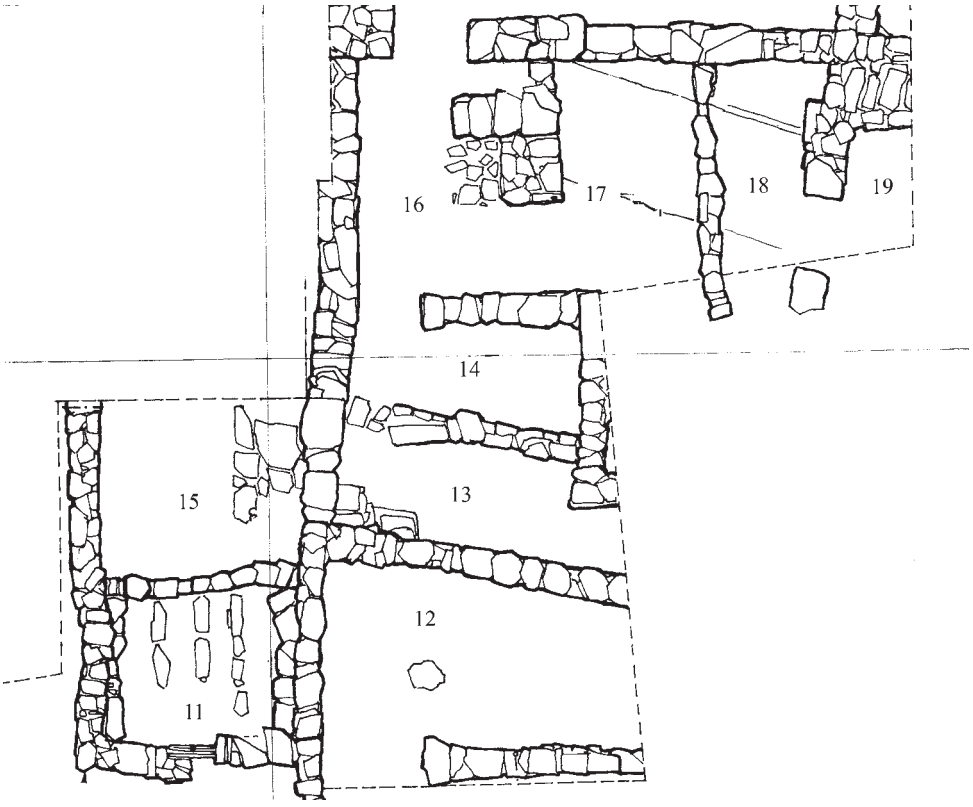


Figure 2.29. Detailed plan of Rooms 11–19

have been the original entranceway, as otherwise the room would have been completely sealed (see Chapter 3 for discussion). A 'small offset' approximately 0.25 m wide (A.XIII.3) recorded in the site notebook was built against Wall 15 (A.X.4), which runs north to south at the west end of Wall 14. Burnt patches (A.XIII.14) are recorded under a layer of gritty brown earth (A.XX.19) between Wall 1b (A.XX.3) and Wall 14 (A.X.3), associated with a 'bench' on the west, representing an earlier wall. The so-called bench runs to the north, but this feature is not described in any detail. A feature running north to south which appears on a photograph (Figure 2.30) labelled 'sleeper walls' runs under the Phase 2 Wall 16. These 'sleeper walls' are also illustrated in plan on Figure 2.29. Presumably this feature is linked to the channels in Room 15 (A.XIII.16), but there is no further information.

The area north of Wall 16 (A.XX.6) was excavated as an extension to trench A.XIII (Room 15). It is enclosed on the west side by the continuation north of Wall 15 (A.X.4), and similarly to the east side by the continuation north of the central spine Wall 1b (A.XX.3). Wall 16, to the south, was built against these walls and thus was constructed later (see Phase 2 below) to divide the space into the two smaller Rooms 11 and 15. Three channels, a, b and c (A.XIII.16), running north to south were cut into the bedrock, run under Wall 16, and are contemporary with a paved surface (A.XIII.10) stretching across the north part of the room. The paved surface can clearly be seen in Figure 2.31.

Figure 2.30. Trench A.XIII (Room 11) looking south-east, showing the north–south-running 'bench' feature of phase 1

Figure 2.31. Room 15 (trench A.XIII ext) facing east, showing the paved surface (A.XIII.10) and Wall 1b. Rooms 14, 13 and 12 (left to right) are behind

Black burning (A.XIII.11) ran up to Wall 1b (A.XX.3) and there was burnt earth in channel b (A.XIII.15b). Two of the channels contained pottery (A.XIII.15 a and c), but no further details on the pottery were recorded.

The central Wall 1b (A.XX.3) was constructed of fairly even long blocks approximately 0.1 m deep, and comprises nine courses directly on bedrock. Thinner slabs 0.02 m in depth were packed between courses. Wall 10 (A.XX.5), built against Wall 1b (A.XX.3) and running west to east, was much more unevenly built with rougher, smaller stones. This wall runs through trench A.XXI (the eastern part of Room 12), but the eastern boundary of the trench was not reached during excavation, as can be seen on Figure 2.29. Where Wall 1b (A.XX.3) intersects Wall 10 (A.XX.5) its construction changes; long slabs are used with smaller stones between the three courses, and the bedrock itself was used as part of the wall. At this intersection the disintegrating bedrock has been cut to insert larger slabs which run under Wall 10 (A.XX.5). Small blocks have been built up against the bedrock underlying Wall 1b, which forms the lower part of the wall. There was an overlying slab that runs into Wall 1b (A.XX.3) to the west, which helped to form the 'roof' of a recess that appears in the wall, a feature type which was also observed in Wall 4 (A.V.3). Wall 9 (A.XXI.3) runs parallel to Wall 10 (A.XX.5) to the south, making up the southern wall of Room 12, but again its eastern end was not reached during excavation. The walls of this area can be seen in Figure 2.32. Instead of Wall 9 being built against Wall 1b (A.XX.3), there was a gap for access against the latter, and six stones were uncovered within this gap (A.XX.17) embedded in the black earth overlying bedrock. A hole in the bedrock (A.XX.18) measuring 0.6 m × 0.4 m in plan and 0.21 m deep was uncovered 1.25 m east of Wall 1b (A.XX.3) and 1.1 m south of Wall 10 (A.XX.5). The bedrock was blackened around the hole (A.XX.12), suggesting that this feature was probably a hearth. Blackened soft earth (A.XX.14–15) was also evident above the bedrock in Room 12, but it is impossible to determine its location in relation to the hole as this information was not recorded. A photograph labelled 'A.XXI' (Figure 2.33) shows a blackened patch of earth which was presumably this feature. The cutting of a hearth into the bedrock also indicates that the bedrock was probably the surface level.

The bedrock in trenches A.XX, A.XXI (Room 12) and A.XXII (Room 13) was certainly cut through to insert Walls 11 (XXII.6) and 10 (A.XXI.4), and the top of the hard coagulated earth level south of Wall 10 (A.XXI.4) corresponds with the level of the bedrock to the west of Room 12. Bennett suggested that the bedrock here was hacked through to ensure a more solid surface for the 'floor', but this practice is not otherwise attested for laying surfaces elsewhere on the site. This hard compact earth (A.XXI.13) was probably the earliest surface, and was overlaid by black soft earth (A.XXI.12) along the wall lines, and a patch of black ashy earth (*R.XXI.15*). A later floor surface (A.XXI.5a) may have been used with the same walls (see Phase 2 below). These levels are illustrated in the section drawing Figure 2.34.

North of Wall 10 (A.XXI.4) is another separate complex of walls, with Room 13 directly to the north. Wall 12 (A.XXII.4) runs west to east and, from the plans, seems to be built against Wall 11 (A.XXII.12), which runs from south to north on the east edge of the excavation. Wall 11 (A.XXII.12) was bonded with Wall 13 (A.XXX.9),

Figure 2.32. Rooms 13 (foreground) and 12 (behind), facing south-east, showing the complex of walls. Wall 1b, part of the spine wall, runs from top right to bottom left in the photograph

Figure 2.33. Trench A.XXI (Room 12), showing a patch of black earth (A.XX.14–15), probably associated with a hearth cut into the bedrock (A.XX.18)

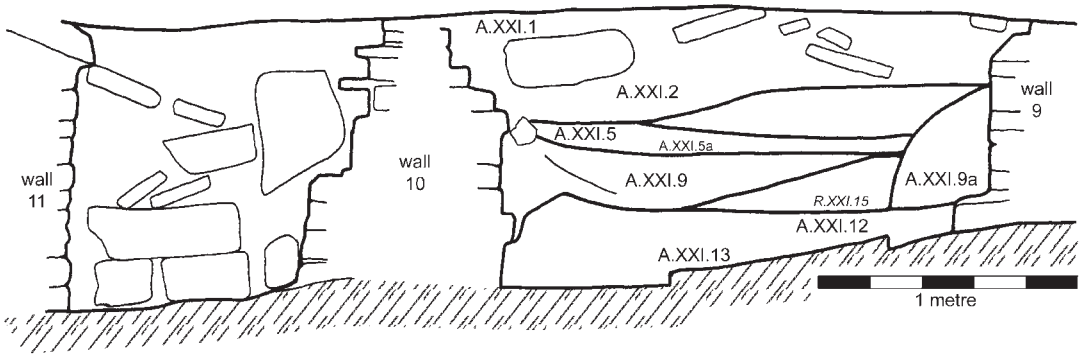


Figure 2.34. Section of trenches A.XXII and A.XXI (Rooms 12 and 13), east-facing. A.XXI.1: topsoil; A.XXI.2: stones and topsoil; A.XXI.5: soft browny black earth and stones; A.XXI.5a: surface of slates; A.XXI.9: hard brown earth; R.XXI.15: black earth; A.XXI.12: black soft earth; A.XXI.13: very hard gingery brown earth

which ran parallel to Wall 12 (A.XXII.4) but further north. Foundation trenches to the north and south of Wall 12 (A.XXII.4) were uncovered (A.XXII.10–11). Possible foundation trenches for Wall 13 (A.XXXI.2) and Wall 11 (A.XXII.12) were also found (A.XXII.23–24), the former showing traces of burning. A burnt patch near Wall 13 (A.XXII.22) and a patch of charcoal (A.XXII.13) in the brown earth (A.XXII.5) to the north of Wall 12 (A.XXII.4) indicate localized burning in Phase 1. Hard brown earth over the bedrock contained Iron II sherds and may have been used as a surface, or packing for a surface (A.XXII.15). The remains of a plastered surface (A.XXII.25), with underlying packing over bedrock (A.XXII.25a), were discovered near Wall 11 (A.XXII.12), but the exact location and extent of this feature is unknown.

Room 14 is bounded by Wall 13 (A.XXX.9) to the north, which was bonded with Wall 11 (A.XXII.12) to the east. Wall 13 (A.XXX.9) turns through 90° to run north at the west end according to the trench XXXI notes, but this is not shown in the main plan. Wall 12, built against Wall 11, is the south wall of Room 14. Rooms 16 and 17, north of Room 14, are not fully enclosed rooms in themselves, but are rather two sides of one open-plan area. The area is bordered by the main axis Wall 1b on the west and partially by the north wall of Room 14 to the south (Wall 13). The walls in this area have an unusual formation when looked at in plan compared with the rest of the excavated site. Wall 19 (A.XXX.2) runs west to east and was built against Wall 21 (XXXV.1) at its east end. According to the site notebook, it was made up of blocks 0.18 m thick and 0.97 m long, with an average width of 0.45 m. Six courses were excavated, the lowest resting on the bedrock, with smaller stones between courses. Wall 19 (A.XXX.2) runs right across the trench but Bennett wrote in the field notes

Figure 2.35. Trench A.XXX looking north-west, showing possible blocked doorway in Wall 19

Figure 2.36. Trench A.XXX facing north-east, showing the truncated walls in the centre of Rooms 16 and 17, labelled on the back of the photograph as a 'queer platform'

that it gives the impression of being broken at some point to construct a doorway (Figure 2.35). Although it is written in the site notes that the north–south Wall 17 (A.XXX.3) was built against Wall 19 (A.XXX.2), in the context notes it states that they do not join up (at least in the uppermost courses) and on the sketches they are illustrated as being separate constructions. Wall 17 (A.XXX.3) was built of 10 courses on bedrock, and roughly alternates thin slabs of 0.03 m with thicker blocks of 0.14 m, a construction method different from that of Wall 19 (A.XXX.2), except possibly for the lowest courses. This maze of walls leaves in plan a large square area (Rooms 16 and 17) with a section of three truncated walls in the centre (Figure 2.36), illustrated in plan on Figure 2.29. The stratigraphy of trench A.XXXII (Room 16) was made up of slightly burnt, soft clay (A.XXXII.13) and sand deposits (A.XXXII.13a) overlying the bedrock. The east wall of Room 17 is Wall 20 (A.XXX.5), which ran south from 19 (Wall A.XXX.2), but the southern end of the wall was not reached during excavation. There is no description of this wall in the notes, but Bennett suggested it may have been a secondary partition wall, which indicates it was built against, and was therefore stratigraphically later than, Wall 19 (A.XXX.2). A quern stone (Reg. 26, not illustrated, but see catalogue in Chapter 7) and a clay spindle whorl (Reg. 37, Figure 7.3:23) were found in Room 17 in a yellow-brown earth level (A.XXX.10) to the west of Wall 20 (A.XXX.5), which Bennett recorded as a surface level contemporary with the surrounding walls. Evidence of ashy levels (A.XXX.11–14) associated with burning was also found just on the east side of Wall 17 (A.XXX.3), but this activity appears to have been localized.

Rooms 18 and 19 were excavated as one trench, A.XXXIII. Room 18 lies east of Wall 20 (A.XXX.5) and is enclosed on the north by Wall 19 (A.XXXIII.4). Wall 21 (A.XXXIII.4) ends to the south of the trench in a doorway, the pillar of which was well made in 12 uniform courses. Bedrock was reached in two areas (A.XXXIII.14 and A.XXXIII.18) and no packing material was uncovered. Very soft brown earth (A.XXXIII.12) was found in the angles of Walls 20 (A.XXX.5) and 19 (A.XXXIII.4), over which lies harder brown earth (A.XXXIII.11). Black soft earth was found in the south-east corner of the trench (A.XXXIII.10). Thirty-five shells – one of two major clusters of shells found during excavation – were found in black earth against Wall 19 (A.XXXIII.4). A taboun (A.XXXIII.6a) was found embedded in very soft earth (A.XXXIII.6) against the junction of Wall 19 (A.XXXIII.4) and Wall 20 (A.XXX.5) (see Figures 2.37 and 2.38). Sherds of a pot were found embedded at the south end of the outer wall of the taboun. The stone blocks of the taboun appear to be burnt and a bowl (Reg. 32, illustrated on Figure 4.3:15) was found in the taboun bowl (A.XXXIII.6b). A note in the site notebooks observes that the taboun seemed to have been unevenly placed on a bed of stones. The area at the north of the room against Wall 19 (A.XXXIII.4) was excavated in the last season in 1965, when reddish hard coagulated earth (A.XXXIII.17) was found overlying bedrock (A.XXXIII.18).

Four levels of burnt clay and general burning (A.XXXII.3–6) were uncovered in the area to the north of Wall 19 (XXX.2), the lower corridor area linking to Rooms 20–22 (but without its own assigned room number). All registered finds in these contexts – a weight (Reg. 96, Figure 7.2:27), a pierced *Cypraea annulus* shell (Reg. 97,

Figure 2.37. Trench A.XXXIII looking north-west, showing blackened earth and a taboun

Figure 2.38. The taboun area, facing west

not illustrated, but see catalogue in Chapter 9), and bone inlay (Regs 98a and 98b, Figure 7.2:7) – were recorded as being partially burnt. A continuation of this corridor area, north of Room 18 and south of Room 20, was excavated as trench A.XXXIV, although this was not marked on the original site plan. Here there was black burning to the south and east (A.XXXIV.4, 6 and 7) overlying bedrock (A.XXXIV.5). Various finds were discovered in the collapsed stones (A.XXXIV.3), including a cut stone (Reg. 78, Figure 7.4:3), a piece of decorated bone (Reg. 84, Figure 7.2:14) and a stone grinder (Reg. 89, Figure 7.2:21).

Rooms 20–24

The complex of walls to the north of Wall 19, comprising trenches A.XXXII, A.XLII, A.XL, A.XLIII.1, A.XLI, A.XLIII, A.XLIII.5, A.XLIII.2 and A.XLVII, is quite distinctive and self-contained. Four parallel walls running south to north create long rectangular rooms (Rooms 20, 21 and 22), and shorter west–east cross-walls produce square-shaped rooms at the north end (Rooms 23 and 24) (Figure 2.39). A section drawing of the extreme south of Rooms 21 and 22 (trench A.XXXII), just north of Wall 19, can be seen in Figure 2.40. This area was not assigned a separate room number.

A section drawing based on a sketch in the excavation notebook (Figure 2.41) details the main contexts across Rooms 20–22. Room 20, the easternmost rectangular room, is enclosed by Wall 25 (A.XL.10) on the east side and Wall 24 (A.XL.4 or A.XLIII.2) on the west, with a wall inserted between the two forming the northern Wall 27 (A.XLVIII.4). A hard-packed clay surface (A.XLII.9) with an underlying earth make-up deposit (A.XLII.9a) lies directly over bedrock (A.XLII.10), but the exact location of these features was not recorded. Just south of Wall 27 (A.XLVIII.4) a clay surface was uncovered (A.XLVIII.8), which lies on top of another level of clay (A.XLVIII.8a) directly over bedrock (A.XLVIII.4). A section of a pink clay bowl (Reg. 208, Figure 4.1:23) was found in the clay level A.XLVIII.8a. A large amount of pottery was found under the collapse of the building stones (A.XLII.2), which Bennett suggested might indicate a sudden flight from danger, as there are many complete but badly shattered pots (Figure 2.42). The pottery was made up of large storage jars, high-necked jugs of fine ware and fairly fine bowls. According to the field notes, Bennett began to think that trenches A.XLII and the eastern part of A.XL (Rooms 20 and 21) represented a pantry for the 'house', or a storehouse for pots. Similarly, a large quantity of loom weights was found (Figures 2.43 and 2.44), particularly in A.XLII.4 (Room 20), where they appear to have been laid out in rows in the underlying clay, perhaps to dry, and sealed by the later fall of the stones and the large storage jars. Bennett postulated that the storage jars could have held water for making the loom weights. These loom weights were unbaked, so the inhabitants left the settlement without finishing them, leading Bennett to suggest that this could indicate that the inhabitants of Umm al-Biyara left suddenly and unexpectedly; but there is no further evidence for this theory. It was mentioned in the field notebook that the loom weights began to crack once exposed to the dry air after excavation.

To the west of Wall 24 (A.XL.4) is Room 21, which is a very long thin area further enclosed by Wall 23 (A.XL.2 or A.XLIII.3) on the west side and Wall 26 (XLIII.4) on the north, leaving it accessible only from the south. Bennett raised the possibility that this could be a cul-de-sac passageway between houses – meaning that, if this was the case, according to Bennett in her marginal notes, the

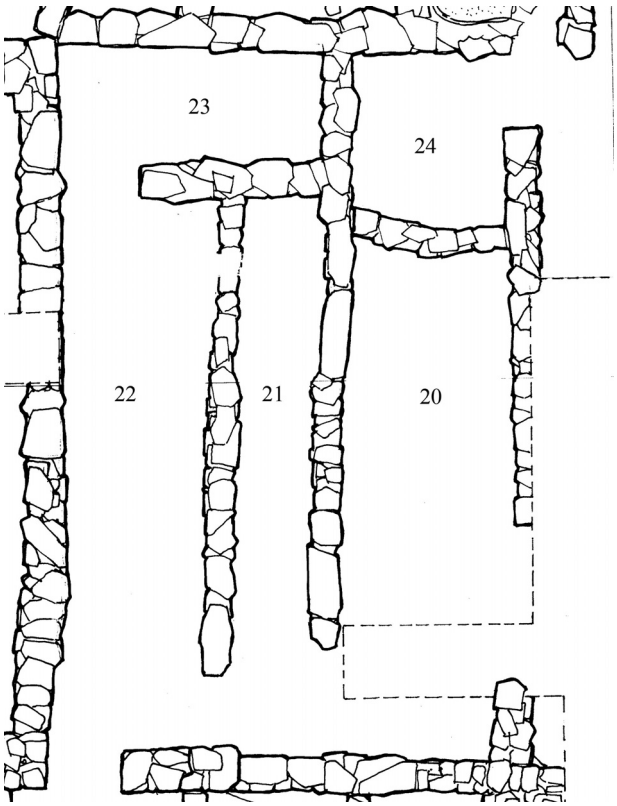


Figure 2.39. Detailed plan of Rooms 20–24

exteriors of the 'houses' were badly constructed and the interiors were much finer. Wall 24 (A.XL.4) was constructed of eight courses, the lowest of which was very solid and well built in trench A.XL. As the wall extends southwards it was noted in the site notebook that seven courses (presumably meaning the smaller upper courses) were missing, but it continues southwards as a thick wall. Wall 23 (A.XL.2) was very roughly built of thin slate slabs approximately 0.03 m deep. Soft fine earth (A.XL.9 and A.XL.12) lies directly over the uneven bedrock (*R.XL.16*). There was an abundance of clay in this room – contexts A.XL.8, A.XL.7, A.XL.6, A.XL.5, A.XL.3, A.XL.1c, A.XL.1b and A.XL.1a are all Phase 1 and are described as brown clayey earth, which has accumulated particularly against Wall 24 (A.XL.4) and in the north-west corner of Room 21 (A.XL.15). Bennett wrote in the marginal notes: 'Is this clay a deliberate store belonging to the original occupation?'

To the west of Wall 23 (A.XL.2) lies Room 22 (Figure 2.45). Again, it is a long rectangular room bounded on the west side by the axis Wall 1c (A.XLI.13 or A.XLIII.5), to the east side by Wall 23 (A.XL.2 or A.XLIII.3) and partially on the north side by Wall 26 (A.XLIII.4). Wall 26 (A.XLIII.4) extends from the east, leaving a gap at the north-west side which provides access to Room 23 to the north (Figure 2.46). The room was excavated in two trenches: trench A.XLI in the south (Figure 2.47) and trench A.XLIII in the north. Bedrock was reached at three points throughout the room (A.XLI.11, A.XLI.25, A.XLIII.17). Evidence of Phase 1 surfaces includes a clay surface (A.XLI.6) over bedrock restricted to a square metre within the extreme south of trench A.XLI, a surface (A.XLI.18a) overlying hard compacted earth (A.XLI.19) intended to level out uneven bedrock, and the bedrock itself used as a contemporary surface (A.XLI.25) in the centre of trench A.XLI. No surface immediately over bedrock was found in the north of the room. Underneath the clay surface (A.XLI.6) was a hole with 'black burning' containing pieces of bone inlay (Reg. 39, Figure 7.2:4), a pottery lamp (Reg. 36, Figure 4.8:8) and two bronze fragments (Reg. 41, Figure 7.1:13). Only the lamp was recorded as burnt in the finds register. In the central part of the room, in the baulk between trenches A.XLI and A.XLII, a patch of soft earth (A.XLI.19a) was discovered within the hard compacted earth (A.XLI.19). In this were found three intact and three fragmentary unfinished loom weights (Reg. 114, not illustrated, but see catalogue in Chapter 7).

Directly over bedrock or the earliest surfaces are many levels showing evidence of burning right across Room 22 (Figure 2.48). In the extreme south of the room, in the baulk between trench A.XLI and A.XXX.2, the earliest level reached was an uncontaminated burnt level (A.XLI.22) in which were discovered two spindle whorls (Regs 169 and 170, Figures 7.3:19 and 7.3:11), half a limestone quern (Reg. 181, not illustrated, but see catalogue in Chapter 7), a stone grinder (Reg. 183, not illustrated, but see catalogue in Chapter 7) and an incomplete lamp (Reg. 184, Figure 4.8:9). None of these were recorded in the register as being burnt. Directly above this was another level of burning

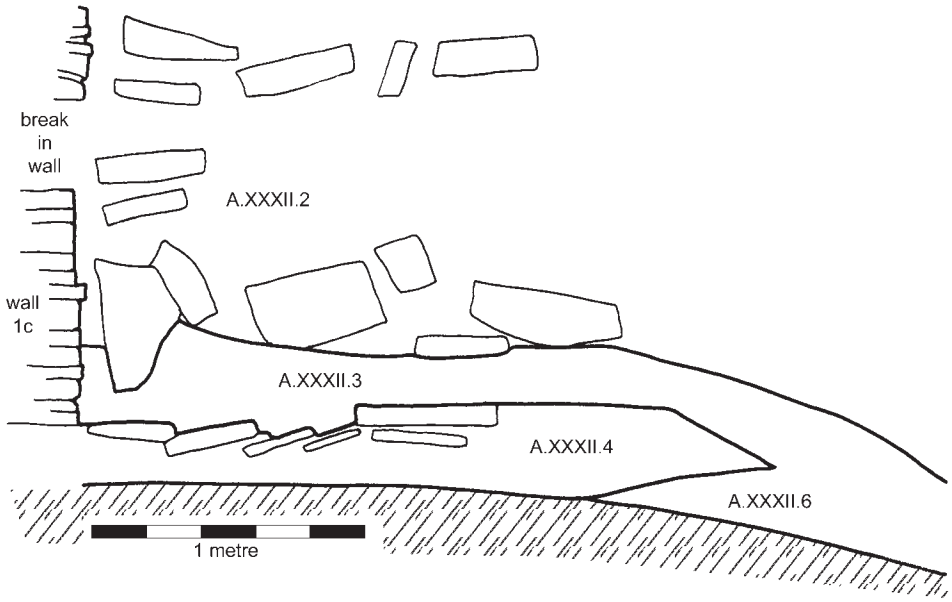


Figure 2.40. Section of trench A.XXXII (Rooms 21 and 22, extreme south), north-facing. A.XXXII.2: collapse; A.XXXII.3: burnt clay; A.XXXII.4: brown clay; A.XXXII.6: black burning. Notes: Context A.XXXII.5 (burnt clay under A.XXXII.4) was not marked on the section but was described in the notes

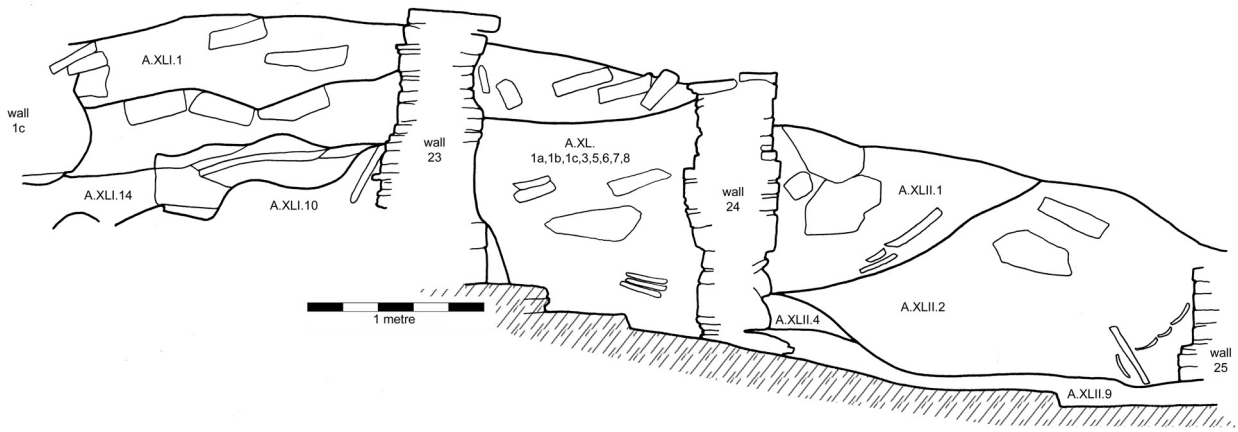


Figure 2.41. Section of trenches A.XL and A.XLII (Rooms 20, 21 and 22), north-facing. A.XLI.1: clayish earth and collapse; A.XLI.10: burnt earth and wood; A.XLI.14: brown earth and burnt beam; A.XL.1a, 1b, 1c, 3, 5, 6, 7, 8: clay levels; A.XLII.1: sandy soil; A.XLII.2: collapse; A.XLII.4: damp clay earth; A.XLII.9: hard-packed clay surface. Notes: The section drawn in the excavation notebook had no context numbers assigned to it apart from the wall numbers. The context numbers given here were matched to the section drawing by the descriptions, although they did not always correlate perfectly

(A.XLI.21) in which a badly burnt stone grinder was found (Reg. 182, not illustrated, but see catalogue in Chapter 7). North of this area black burning (A.XLI.5) was evident on the surface of the clay floor (A.XLI.6); this context also contained a burnt shell (Reg. 51, not illustrated, but see catalogue in Chapter 9). Over bedrock (A.XLI.11) was a level of burnt earth, wood and soot (A.XLI.10) in which was found the Qos-Gabr royal seal impression (Reg. 50) (see Chapter 5). Another burnt level (A.XLI.9) above this contained mixed pottery and a burnt spindle whorl (none of these were registered). Burnt earth also ran directly over bedrock against Wall 23 (A.XL.2). In trench XLIII there was also evidence of burning, with brown burnt earth and pieces of burnt beams (A.XLIII.13). One photograph (Figure 2.49) shows a distinct patch of burning in the north-east corner of trench A.XLIII, although this is not specifically mentioned in the field notes. Within this level were a great many finds: a group of six unfinished loom weights (Reg. 118, not illustrated, but see catalogue in Chapter 7), four shells (Reg. 119, not illustrated, but see catalogue in Chapter 9), a bone spatula (Reg. 120, Figure 7.3:27), a bone needle (Reg. 121, Figure 7.2:2), bone inlay (Regs 126 and 122, Figures 7.2:9–10) and a fragment of bone (Reg. 123, Figure 7.2:15). None of these finds was recorded in the register as being burnt. This burnt level (A.XLIII.13) was overlaid by a stony level (A.XLIII.12)

Figure 2.42. Trench A.XLII (Room 20), showing some of the fragmentary pottery

Figure 2.43. Trench A.XLII (Room 20) facing north. Loomweights in situ can be seen on the left side

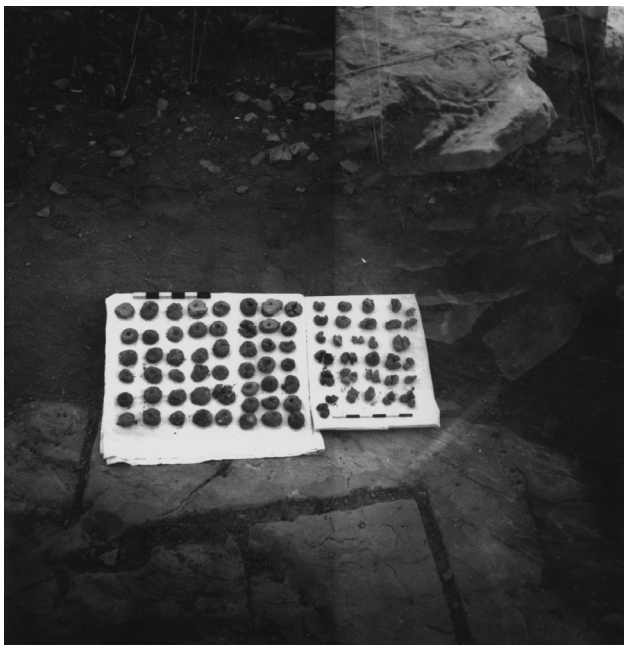


Figure 2.44. Loomweights found in trench A.XLII (Room 20)

Figure 2.45. Room 22 looking north-east, showing Wall 23 with the narrow Room 21 behind

and then a brown sandy hard compacted level with pieces of burnt wood (A.XLIII.11). A patch of bright orange clay was uncovered in this level, which seems to be the same as the clay found in context A.XLI.19a, and the site supervisor suggested in the field notes that this could represent either a roof fall or a deposit of clay for making loom weights. Black, burnt soil (A.XLIII.9) was found in the south-west corner of trench A.XLIII under the burnt level A.XLIII.8. This black burnt earth runs along Wall 1c (A.XLIII.5) and forms a trench approximately 0.25 m wide. It reaches as far down as bedrock and so is associated with Phase 1. Figure 2.50 shows this burning and the remains of a burnt beam. After the excavation was completed Bennett claimed that the charred remains of wooden looms were found in two rooms (Bennett 1966b, 124), presumably Rooms 21 and 22. There are no references to looms in the site notebooks, and there was no evidence that the burnt wooden beams were anything other than roof beams, but it remains

Figure 2.46. Room 22 facing north, showing the gap in Wall 26 used as an entrance, and a complete dish in situ in the foreground

Figure 2.47. Trench A.XLI (Room 22 south), looking south

possible that the presence of so many loom weights in this area results from looms burning *in situ*. A cross section of the north of trench A.XLIII (Figure 2.51) shows the levels discussed above. On the original drawing it is noted that there was disintegrated burnt bedrock under Wall 1c (A.XLIII.5), indicating that the Phase 1 burning extended right down to bedrock in this area. In the extreme north of the room, in the baulk between trench A.XLIII and trench A.XLIII.5, the first levels over bedrock (A.XLIII.17) are burnt earth (A.XLIII.16) and brown earth (A.XLIII.15).

Figure 2.48. Room 22 looking north (trench A.XLIII), showing evidence of burning

Room 23 is a square room to the north of Rooms 21 and 22 which was accessed through the break in the north wall of Room 22, Wall 26 (A.XLIII.4). It is bounded on the east and west by Wall 24 (A.XLIII.2 and A.XL.4) and Wall 1c (A.XLIII.5) respectively. Its northern boundary, Wall 28 (A.XLIII.5.3), is recorded in the notes as having a south-easterly alignment, although on the published plan it is east–west, and was built at its west end against Wall 1d (A.XLIII.4.4), which extends to the north-east. The southern end of Wall 1d (A.XLIII.4.4) was built against the northern end of spine Wall 1c (A.XLIII.5), and forms a continuation of this wall, albeit one shifting to a north-easterly orientation, as shown on the site plan (Figure 2.3). The bedrock in Room 23 (A.XLIII.2.5) was overlaid by brown earth packing (A.XLIII.2.4 and A.XLIII.2.7) intended to level out the uneven bedrock, on top of which slabs were laid (*R.XLIII.2.8*), which would have been the original surface level (part of A.XLIII.2.4 and A.XLIII.5.7). These levels are shown on the section drawing Figure 2.52. The pottery found in this level was noted as being of a much higher quality than most pottery found at Umm al-Biyara, although it was still Iron II. Directly over this surface level was a layer of pebbly earth (A.XLIII.2.3) containing the remains of burnt wood, and in the north-west corner of the room levels of dark brown sandy and blackish damp earth with stones (A.XLIII.5.6, A.XLIII.5.5 and A.XLIII.5.4) were found.

Room 24 lies to the east of Room 23 and directly north of Room 20, making up the north-east corner of the complex comprising Rooms 20–24. It is bounded on the west side by Wall 24 (A.XLIII.2) and on the east side by Wall 25 (A.XL.10). Wall 27, inserted between these two walls (and built against them both), provides the southern boundary

Figure 2.49. Patch of burning in the north-east of trench A.XLIII (Room 22), between Walls 26 and 23

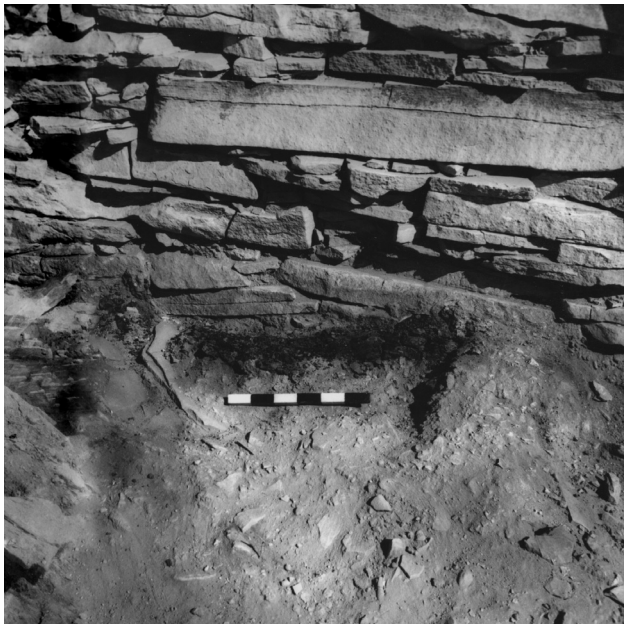


Figure 2.50. Burnt beam and burning against Wall 1c in the north of Room 22 (trench A.XLIII)

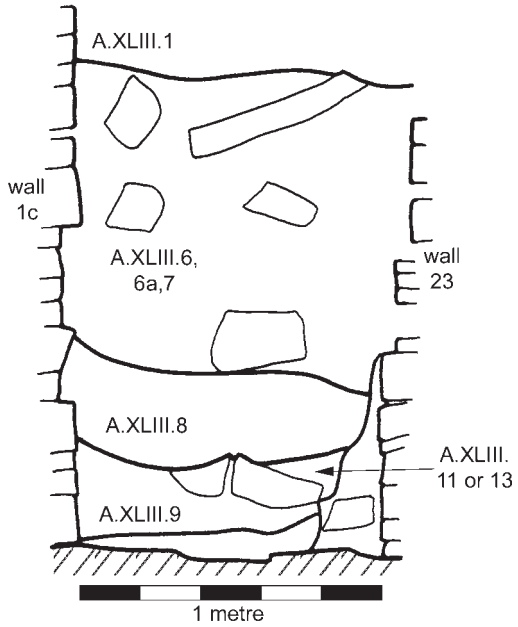


Figure 2.51. Section of trench A.XLIII (Room 22), north-facing. A.XLIII.1: loose brown earth and collapse; A.XLIII.6: piece of hard brown surface; A.XLIII.6a: loose stones, brown earth and surface; A.XLIII.7: stone slabs; A.XLIII.8: black soil with burnt wood and stones; A.XLIII.9: black burnt soil; A.XLIII.11: brown hard earth with burnt wood/beams; A.XLIII.13: burnt earth with pieces of burnt beams

of this room. Wall 28 (A.XLVIII.3) initially extended only halfway across the north side of the room; later an eastward extension was built against it on the same alignment which almost entirely enclosed the room (this extension of Wall 28 is XLVIII.17). Wall 25 (A.XL.10) extends from the south only half-way up the room, leaving a large opening in the north-east corner. All of these walls were constructed directly on top of bedrock (A.XLVIII.10, A.XLVIII.19). In the area south of Wall 28 (A.XLVIII.3) there was evidence of surface material (A.XLVIII.15), described in the site notes as looking like cement, with one piece in particular resembling a corner piece (Figure 2.53). Slate-like paving (A.XLVIII.9) was also uncovered in this room, but the only indication of the locations of these surfaces within the room is a numbered sketch in the field notebook (unpublished) and the site photographs referred to above.

Rooms 25–27

Rooms 25–27 lie to the north of Rooms 23 and 24 (Figure 2.54). Room 25 lies to the north-east of Room 24, with the south wall of Room 25 (Wall 28) built, as noted above, as an extension to the western half of the north wall of Room 24. This south wall extends only half-way across the room, leaving access to the east; in fact the entrances of Rooms 24 and 25 almost open into one another. Bounding Room 25 to the west, Wall 31 (XLVIII.16) was built against Wall 28 (A.XLVIII.3), and is recorded as being badly burnt, although the exact location of this burning is not specified. A small blocking wall running east–west, Wall 33 (A.XVIII.1.2), was inserted between the east Wall 32 (A.XLVIII.14) and Wall 31 (A.XLVIII.16), and was plastered on the southern side (Figures 2.55 and 2.56). Wall 31 (A.XLVIII.16) also shows traces of plaster where this blocking wall abuts it. The plastered area is shown in plan on Figure 2.54. Wall 33 (A.XVIII.1.2) has clay and stone packing between stones and, from the two sketched plans in the field notebook, seems to comprise two large boulders,

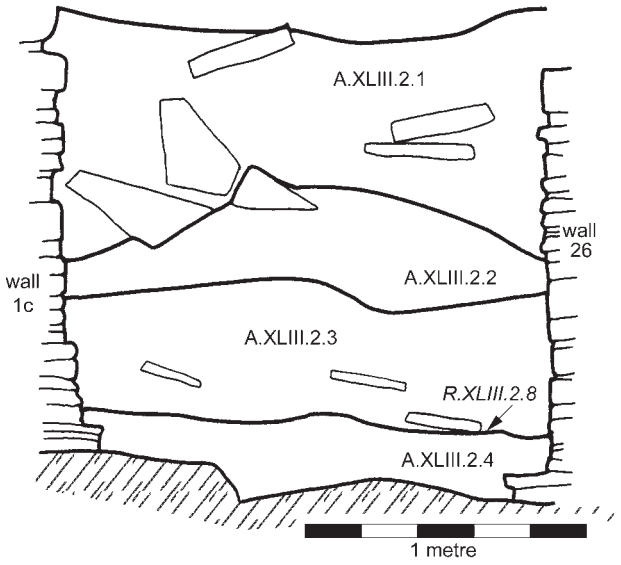


Figure 2.52. Section of trench A.XLIII.2 (Room 23 south), north-facing. A.XLIII.2.1: earth and loose building stones; A.XLIII.2.2: black earth with stones; A.XLIII.2.3: pebbly earth and burnt wood; R.XLIII.2.8: surface slabs; A.XLIII.2.4: packed brown earth and sandy soil

Figure 2.53. 'Cement'-type plastering in trench A.XLVIII (Room 24)

although this is not described in the notes. Bedrock was reached in two areas of Room 25, but the location of these areas within the room, or even whether they were north or south of the blocking wall, was not recorded. In one area there are 'channels' (A.XLVIII.1.7) above bedrock (A.XLVIII.1.8). A broken surface level (A.XLVIII.1.6) containing 'Nabataean and Roman sherds' (which were not described or retained) and the remains of a plaster surface (A.XLVIII.1.5) were both found, but how these relate to each other or to the 'channels' is not known. Surface A.XLVIII.1.5 was very badly broken, particularly against Wall 33 (A.XLVIII.1.2), but remains intact in some places, curving up against the west and east walls.

Room 26 lies to the west of Room 25 and has the east–west-running Wall 28 (A.XLIII.5.3) as its south wall, against which the other walls are built; Wall 31 (A.XLVIII.16) bounds it to the east side and Wall 29 to the west. Wall 29 was perforated by a doorway (A.XLIX.2). Although the east wall follows the rough south–north alignment of most room walls in Umm al-Biyara, the west wall was built on a south-west–north-east alignment. Furthermore, Wall 30 (A.XLIX.10), to the north, which would be expected to run west–east, was built on a ENE–WSW orientation, resulting in a room with an unusual angular shape. A labelled photograph shows a rectangular stone hearth-like feature with a stone set on either side built against Wall 30 (Figure 2.57). It was not, however, described in the notebooks or drawn on any plan. It is identical to another such feature in trench A.XLVI (Room 30), so it is possible that the photograph was labelled incorrectly and actually shows the feature in Room 30. If these hearth features were discovered in both Rooms 26 and 30, they were both found close to the only two known silos, suggesting perhaps that the two features are linked. A small wall, Wall 31a (A.XLIX.6), was constructed in a curve across the south-east corner of Room 26 formed by the junction of Walls 31 (A.XLVIII.16) and 28 (A.XLIII.2.6); it was probably (but not definitely) built on bedrock (A.XLIX.9). Nothing was found inside the walled area except earth (A.XLIX.7), and it was labelled in the site notebook as possibly being a silo for storage, like Wall 38a in Room 31. The main body of Room 25 can be seen in Figure 2.58. Both this photograph and Figure 2.59 show a pillar in trench A.XLIX, but this feature was not described in the site notes. An abundance of finds was discovered in the main part of the room, although their precise location is impossible to pinpoint. Directly above bedrock (A.XLIX.5) was a level of sandy, pebbly, damp earth containing small pieces of burnt wood (A.XLIX.4). Finds in this level included an incomplete bowl (Reg. 218, Figure 4.1:13), a jug (Reg. 229, Figure 4.6:4), a lid (Reg. 230, Figure 4.7:20), iron fragments (Reg. 219, Figure 7.1:20), an iron dagger (Reg. 220, Figure 7.1:16), an iron arrowhead (Reg. 223, Figure 7.1:18), a bronze arrowhead (Reg. 222, Figure 7.1:4), a bronze ring (Reg. 221, Figure 7.1:8), a shell (Reg. 224, see catalogue in Chapter 9) and some red ochre (Reg. 235, not illustrated). Above this lay brown, soft, damp earth and large fallen stones (A.XLIX.3) associated with collapse (Phase 3) but containing Iron II pottery. It was recorded in the field notebook that the bones of a leg or an arm were found in the north-east corner with a piece of sharp-edged flint, and ash was discovered under the stones and bones. No further details of this can be found, and none of these items was registered or retained. Also in this level were discovered a jug (Reg. 212, Figure 4.7:11), a bowl (Reg. 217, Figure 4.3:13), a bead (Reg. 210, Figure 7.5:4), a bone spatula (Reg. 211, Figure 7.3:28), a loom weight (Reg. 225, not illustrated, but see catalogue in Chapter 7), two shells (Reg. 216, see catalogue in Chapter 9), and

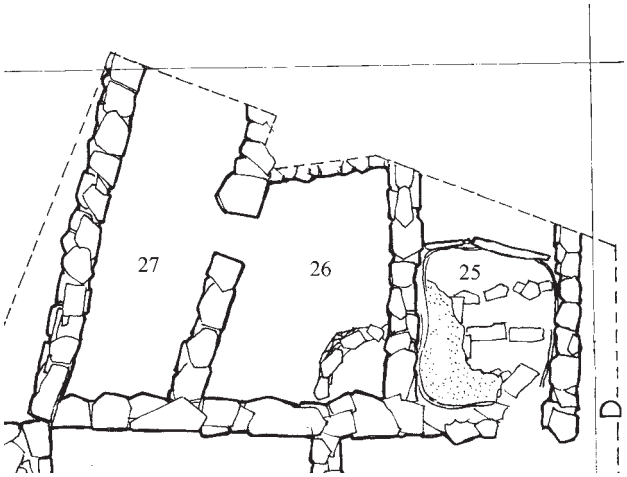


Figure 2.54. Detailed plan of Rooms 25–27

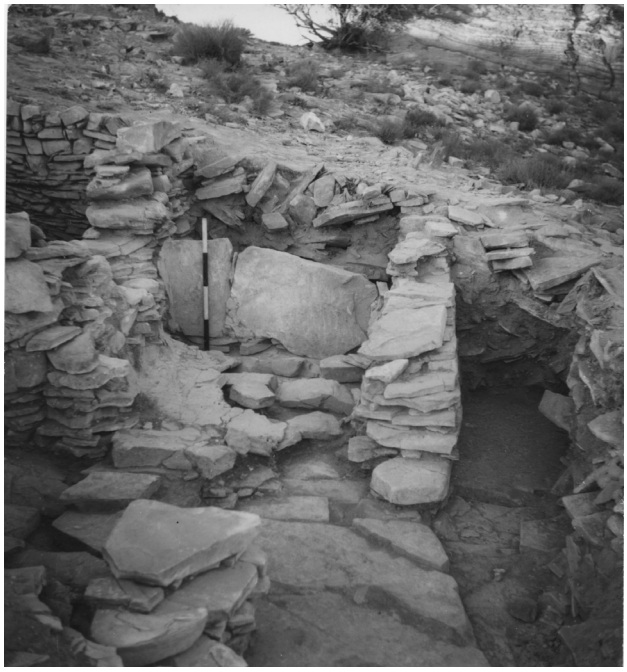


Figure 2.55. Room 25 facing north, showing Wall 33, a blocking wall built between Walls 30 and 32

Figure 2.56. Trench A.XLVIII (Room 25) facing north-west, showing the plastering on the southern side of Wall 33

two bronze arrowheads (Regs 213 and 214, Figure 7.1:3 and 5). Interestingly, all three arrowheads found at Umm al-Biyara were found in this room. Finds distributions are discussed in more detail in Chapter 3.

Room 27 lies to the west of Room 26, with Wall 28 (A.XLIII.5.3) as its south wall and Wall 29 (A.XLIII.6.2 and A.XLIX.2) making up the east side with access to Room 26 through the doorway. To the west Wall 1d (Wall A.XLIII.4.4) runs parallel to the east wall, and so the room is orientated generally north-east–south-west angle. The room is long and rectangular (but exactly how long is impossible to say, as the north wall was not reached during excavation). Wall 1d (A.XLIII.4.4) was an extension of the main spine wall (A.XLIII.5), and was built against it. Bedrock was reached in the north (A.XLIX.1.8) and south (A.XLIII.6.9) of the room; in the northern half, excavated as trench A.XLIX.1, bedrock was overlaid by hard yellow earth in which an iron point was discovered (Reg. 232, Figure 7.1:19). This earth may have been packing for a surface level, since it was overlaid by paving stones (A.XLIX.1.2) which stretch for 0.75 m on the western side and 1 m on the eastern side and then end abruptly. No plan of the paving was drawn so it is impossible to position this surface level within the room with any accuracy. A hard brown ashy surface was found over the paving (A.XLIX.1.2–3), which contained the remains of a bowl (Reg. 228, Figure 4.3:14), a stone pounder (Reg. 237, not illustrated) and a spindle whorl (Reg. 233, Figure 7.3:14). A note in the field notebook mentions insets in Wall 1d (A.XLIX.1.7) that could possibly have been for holding beams for an upper floor, but no further details of this were recorded and no illustrations were made. In the south of Room 27 brown damp earth (A.XLIX.1) overlaid bedrock (A.XLIII.6.9) and contained many Phase 1 finds, including a bowl (Reg. 108, Figure 4.3:18), a stone stand or lid (Reg. 107, Figure 7.4:4), two spindle whorls (Regs 95 and 100, Figure 7.3:4–5) and an iron saw (Reg. 101, Figure 7.1:15). No surface level was found in this part of the room. A level of grey earth and stones (A.XLIII.6.7) overlaid by sandy brown damp earth (A.XLIII.6.6) contained two bowls (Reg. 112, Figure 4.3:2, and Reg. 113, not illustrated) and a pierced shell (Reg. 111, see catalogue in Chapter 9), covered by the later collapse of building stones and accumulation deposits (Phase 3).

Trench A.XLIII.4 extends to the west of Wall 1d (A.XLIX.1.7) where it joins with Wall 1c (A.XLIII.5.3).

Figure 2.57. Trench A.XLIX (Room 26) looking north at Wall 30. This stone feature built up against the wall was not described in the site notes, and is very similar to a feature in Room 30

Figure 2.59. Trench A.XLIX (Room 26) looking west. The photograph is labelled 'one of central walls before main pillar exposed'. The hand-drawn cross on the top-right stone denotes the top of the pillar

Figure 2.58. Photograph taken from Room 25 looking north-west over Room 26. Part of the silo wall (Wall 31a) can be seen on the left, and an exposed pillar stands next to the ranging pole

This area was not given a room number, although the trench number was marked on the plan. How far this trench extended is not certain, but no walls to the north or west were found; it is possible that it may have been part of the southern end of Room 32, judging from the alignment of walls on the plan. It was dug to bedrock, which was overlaid by burned wood and pieces of slabs, indicating a surface level (A.XLIII.4.5). A pounder stone (Reg. 138, not illustrated, but see catalogue in Chapter 7) was found in this level, and a spindle whorl (Reg. 73, Figure 7.3:18) was found in the overlying brown stony level (A.XLIII.4.3). It was noted in the site notebook that there was a light recess in Wall 1d (A.XLIII.4.4 or Wall A.XLIX.1.7). The excavation did not extend any further west from this point, but the area to the south was excavated.

Rooms 28–31

The complex of Rooms 28–31 lies due west of Rooms 20–24 on the opposite side of the spine wall. The overall area covered by these rooms is divided by three walls running north–south, dividing the area into four long narrow rectangular spaces (Figure 2.60). The spine Wall 1c (Wall A.XLIII.5) forms the easternmost wall of this area and was bonded with Wall 34a (A.XLIII.3.6), which runs east–west, thus forming the north-eastern corner of the complex. It was against this corner that the extension to the spine wall, Wall 1d, was built. A baulk 1 m wide was left running west–east across the centre of the four rooms during excavation. Most of the southern parts of Rooms 30 and 31, and the very southern tip of Room 28, were left unexcavated.

Room 28a (north of the baulk) was excavated in two trenches, A.XLV and A.XLIII.3, and Room 28b (south of the baulk) was excavated as trench A.XLIV. Trench A.XLV extended across rooms 28a and 29a, and trench A.XLIV extended across rooms 28b and 29b (although in

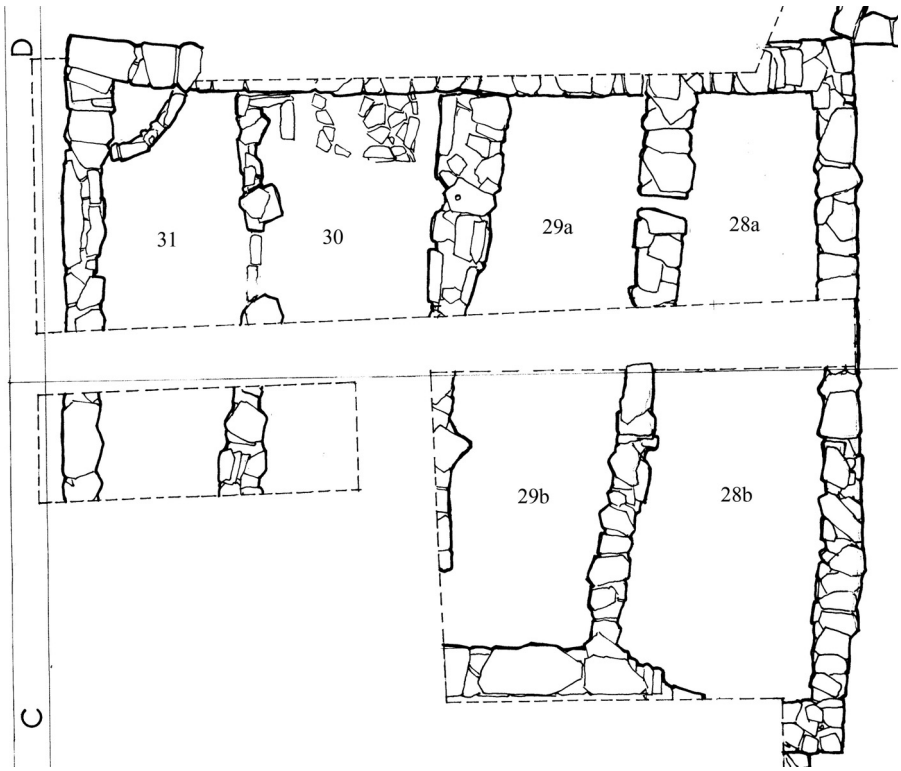


Figure 2.60. Detailed plan of Rooms 28–31

Figure 2.61. Trench A.XLV (Room 28a) facing north-east, showing Walls 34a and 1c

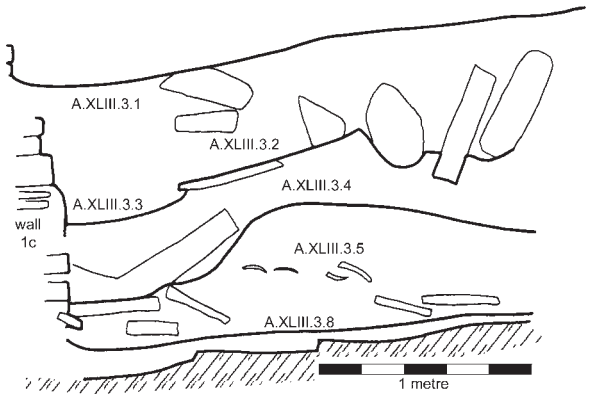


Figure 2.62. Section of trench A.XLIII.3 (Room 28a), south-facing. A.XLIII.3.1: loose stones and hard earth; A.XLIII.3.2: collapse; A.XLIII.3.3: brown earth with stones; A.XLIII.3.4: brown and black earth; A.XLIII.3.5: black soil and burnt wood; A.XLIII.3.8: hard plaster with slabs and burnt beams. Notes: The original section drawing was much more detailed but the context numbers were not assigned to the drawing. Instead new numbers were assigned to the levels retrospectively, but they do not correlate with any other information in the notebooks – they are in fact linked to Bennett's original 'phases' of occupation. The original context numbers have therefore been used where they could be matched with any certainty to the short descriptions on the section drawing

the site notebook the Room 29b trench is referred to as A.XLIV.1). Room 28 is bounded by the spine wall (1c) on the east side (A.XLV.2), which was bonded with the north Wall 34a (Wall A.XLV.1) (Figure 2.61). From the plan it appears that this wall was in turn bonded with Wall 35 (A.XLV.4), although this is not made clear in the field notes. Wall 39a, to the south, was not fully excavated. From the plan it appears that the walls of Room 28 were constructed first, and the walls forming the other three

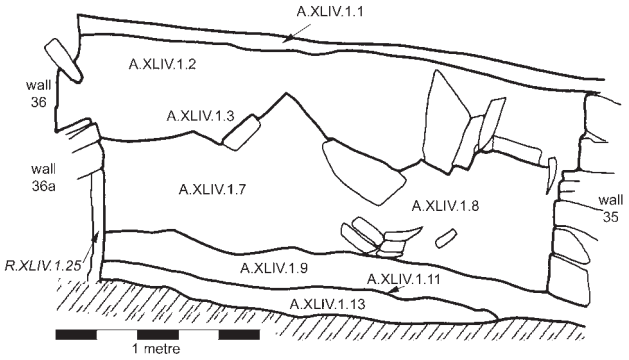


Figure 2.63. Section of trench A.XLIV.1 (Room 29b), north-facing. A.XLIV.1.1: topsoil; A.XLIV.1.2: reddish earth and stones; A.XLIV.1.3: reddish earth and stones; A.XLIV.1.8: reddish compact earth; A.XLIV.1.9: burnt level; A.XLIV.1.11: hard surface, broken and burnt; R.XLIV.1.25: foundation trench. Notes: The text in the notebook describes the burnt level A.XLIV.1.9 as being present underneath Wall 36a but this is not evident on the section drawing

Figure 2.64. Trench A.XLVII (Room 30 south) looking east at the collapsed wall. The blocking in Wall 37 can be seen next to the ranging pole

rooms to the west were added later. In Room 28a bedrock (A.XLV.8 and A.XLV.13) was overlaid by a hard-packed surface level (A.XLV.7 and 12) where pieces of large slabs were used to level the floor. The precise location of this surface is not recorded, beyond being in the north-east of Room 28a, although it matches context A.XLIII.3.8 in the south-east of Room 28a, as shown in the section drawing Figure 2.62. An annotation on a cross section sketch notes that, in the northern part of the trench, the bedrock rises considerably and was burnt; therefore, there was no packing and the bedrock was used as the first floor. This burnt area in the north could correspond with the burnt earth, slabs and beams (A.XLV.6) overlying the hard-packed surface (A.XLV.7) in the north-east corner of the room. Lying above this burnt area was a mixed level of burnt material, a burnt surface level and hard brown earth (A.XLV.5). South of the baulk, in Room 28b, the same walls could be traced extending to the south: Wall 1c (A.XLV.2) on the east side and Wall 35 (A.XLV.4) on the west. Bedrock was reached in Room 28b (A.XLIV.1.3a), on top of which there was a level of reddish-brown earth containing yellow earth patches and small stones (A.XLIV.1.3). In the south-west corner was a clay surface (XLIV.1.22).

Room 29a was excavated with Room 28a as trench A.XLV and shows the same sequence. South of the baulk, Room 29b was excavated with Room 28b as trench A.XLIV, which extended to the southern wall of Room 29, although it omitted the south-west corner. A slope to the east and a depression in the east side were recorded in Room 29b, although this is not evident in the section drawing (Figure 2.63). The sequence is the same as in Room 28b, except that reddish earth (A.XLIV.1.2) was present in the west and south-east. Two vertical stones are visible in the north-east, which Bennett suggested in the site notebook could be a possible blocking of a doorway. A burnt level (A.XLIV.1.9) was recorded beside Wall 36a (A.XLIV.1.4) and on the north side of the section of Wall 36 (A.XLIV.1.6), although the extent of the burning was not recorded. Wall 36 (A.XLIV.1.6) and 36a (A.XLIV.1.4) are discussed in Phase 2. Wall 35, on the east of Room 29 (A.XLIV.14), shows signs of burning on the lowest two courses, and is therefore contemporary with the burning event and burnt level A.XLIV.9. A broken, burnt floor (A.XLIV.1.11) was found under the burnt level. The removal of the baulk between trenches A.XLIV and A.XLIV.1 showed that the same stratigraphic sequence continued in the centre, although under the burnt level (A.XLIV.1.9b) in the south-west corner there was evidence of a clay floor.

Room 30 runs parallel with Room 29a on the west side of Wall 36 (*R.XLVI.18*). Its northern wall was a continuation west of the northern wall of Room 29, Wall 34b (A.XLVI.3), and the west boundary of Room 30, Wall 37 (A.XLVI.9), was built against Wall 34b (A.XLVI.3). A collapsed wall (A.XLVI.5) was discovered running west to east across the central part of the room, but its relationship with the north–south-running western Wall 37 (A.XLVI.9) was not determined (Figure 2.64). Just south of the intersection with the collapsed wall (A.XLVI.5) there was a change in construction of Wall 37 (A.XLVI.9). Two large stones, which may have been doorway blockings, were inserted between two sections of Wall 37 (A.XLVI.9 and A.XLVI.7). South of this insertion the wall returns to its former construction – that is, with thicker slabs than those found in the doorway blocking (A.XLVI.7). Neither bedrock nor a surface level was recorded in this room. Only a small section of the lower part of Room 30 south of the baulk was excavated. This section extended 5 m west to

Figure 2.65. The curved Wall 38a in the north-west of trench A.XLVI (Room 31 north). It may have been used as a silo for grain storage

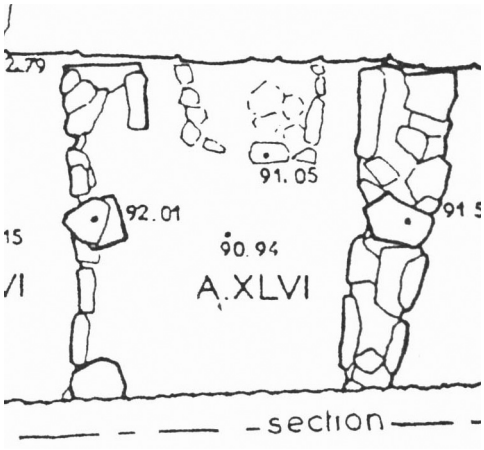


Figure 2.66. Stone feature against the north wall of trench A.XLVI.16

Figure 2.67. Trench A.XLVII (south section of Room 31), looking west at the southern continuation of Wall 38

east from the westernmost wall of the complex, Wall 38 (XLVI.10), and 1.25 m north to south from the central baulk, therefore incorporating approximately a square metre of Room 30b and a larger section of Room 31b. Bedrock was reached across this trench (A.XLVII.11). A pillar (A.XLVII.4) was discovered in the north-east side of the trench (A.XLVII) about 1.5 m from the north end. The next section of Wall 37 continuing south (A.XLVII.5) was built against this pillar. A foundation trench (A.XLVII.8) for Wall 37 (A.XLVII.5) was excavated on the east side of the wall, although the level it was cut through was not described. The foundation trench on the west side was also excavated (A.XLVII.8); this was presumably cut into the lower level of yellowish-brown earth underneath (A.XLVII.10).

Room 31 forms the fourth and final parallel room in this complex on the western edge of the excavation. From the sketches in the excavation notebook it appears that Wall 38 (A.XLVI.10) was built against Wall 34b (A.XLVI.3). A curved wall, Wall 38a (A.XLVI.11), was built against Wall 34b (A.XLVI.3) and Wall 38 (A.XLVI.10) in the north-west corner (Figure 2.65); this, like Wall 31a in Room 26, was interpreted in the site notebook as a silo for storage. Another similarity to Room 26 was the presence of a stone hearth-like feature, here built against the north wall of Room 30. It is not described in the notes but appears on a plan (Figure 2.66). There is unfortunately no further information on either this feature or the almost identical feature which, according to a labelled photograph, was found in Room 26 (see above, and Figure 2.57). No bedrock or surface levels were recorded in this room, the earliest level recorded being yellowish gritty earth (A.XLVI.14). A level of compact reddish earth and ash in the centre of the trench (A.XLVI.13) was overlain by more ashy reddish-brown earth, which was also found beside Wall 38 (A.XLVI.10) and in the south section of the trench (A.XLVI.12), but it is impossible to be more precise about locations. Similar levels of reddish-brown earth and ash were found in the 'silo' (A.XLVI.15–17), but none of the walls were recorded as being scorched. According to the

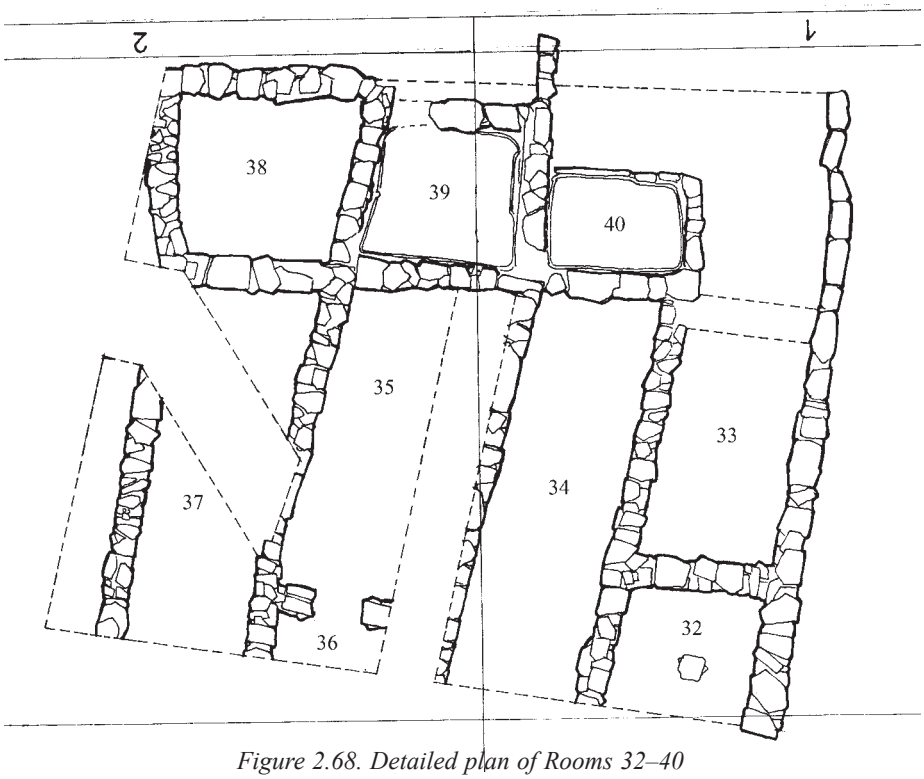


Figure 2.68. Detailed plan of Rooms 32–40

Figure 2.69. The Umm al-Biyara excavation, facing south. The main body of the excavation is on the left side of the photograph, with the separate complex of Rooms 32–40 on the bottom right

excavation notes bones were also found in the earliest ashy level in the silo (A.XLVI.17), but no further details were recorded. Only a small section of the area south of the baulk (Room 31b) was excavated, as part of trench A.XLVII. A continuation south of Wall 38 (A.XLVII.3) was discovered in this area in alignment with the other north–south walls in the east of this complex (Figure 2.67).

A trench labelled 'B.I' was recorded in the excavation notebook but is not labelled on the plans. The exact location of this trench is unknown, but it lay to the west of the main excavation and was detailed after trench A.XLVII (Rooms 30 and 31 south), so it can be assumed that it extended west of Wall 38 (A.XLVII.3). The trench measured 2.5 m from west to east and 2 m from south to north. Bedrock (B.I.6) slopes down from the north and an oven (B.I.5) was found in the south-west corner placed on the bedrock and banked up with clay. Slightly burnt clayey earth (B.I.4) was recorded to the east of the oven and against the south section of the trench, overlaid by a layer of reddish grit (B.I.3) which contained a pottery sherd which fitted with a bowl found in the burnt level. No more details were recorded, and it is uncertain why Bennett called this area 'B' and subsequently reverted to the 'A' system.

Rooms 32–40

The area in the north made up of trenches A.L–A.LI.3 ext (Figure 2.68) is the only area which was cut off completely from the main body of the excavation (Figure 2.69). The main axis wall continues as Wall 1e (A.L.1.6) on roughly the same alignment as Wall 1d. All excavation was carried out to the west of this wall.

Although only the northern section of Room 32 was exposed, it appears from the plan that it probably runs parallel to Room 27 with the axis wall as its eastern wall (Wall A.L.1.6). Wall 1e was bonded with west–east Wall 40 (A.L.1.5), which in turn was bonded with north–south Wall 41 (A.L.I.4) further to the west. A pillar of stones (A.L.1.7) lies in the centre of the area (Figure 2.70), and the remains

Figure 2.70. Room 32 facing south-west, showing a pillar of stones (A.L.1.7) standing in the centre

Figure 2.71. Room 33 looking south, showing the continuation of the main spine Wall 1e (left) and Wall 41 (right). Wall 40, behind the baulk, divides this room from Room 32, to the south

of a beaten earth surface level are recorded six courses down in the south-east and north-east corners (A.L.1.8). A large amount of pottery was recorded as having been found in this room in the reddish earth between the walls (A.L.1.3), but apart from stating that it mostly consisted of storage jars, there are no more details to be found.

In Room 33, directly to the north of Wall 40 (A.L.1.5), Walls 1e (A.L.1.6) and 41 (A.L.1.4) are still present (Figure 2.71). The room is a long rectangle, the north wall of which was not reached. Indications of Phase 1 occupation include hard-packed clayey earth (A.L.2.3) directly overlying small chippings probably used to level out the uneven bedrock (A.L.2.4).

Running parallel to Rooms 32 and 33 to the west of Wall 41 (A.L.1.4) is a long rectangular room (Room 34) which was excavated in two trenches, A.L (5 m × 6 m) and A.L.3. In the notes the location was described as 'situated on the south side of the Nabataean knoll, a very definite slope to the east'. No south wall was reached in Room 34; it is bounded on the west by Wall 44 (A.L.5), which was constructed from very thick blocks in six courses. The number A.L.3.1 was assigned to a possible wall running west–east against which the storage jars of A.L.4 lie, but it was noted in the excavation notebook that it was difficult to decide whether or not it was a wall because of the collapse and it was not marked on the final wall plan. Burnt soft earth was uncovered under the collapse (A.L.4). A complete pot and several storage jars were found to the north in this level. This burnt level (A.L.4) was very thick and black, and contemporary with the burning in trench A.XLI (Room 22). A very distinct clay surface (A.L.3.5) overlies clay packing (A.L.3.6) designed to level off the bedrock. In the south-west and north-east corners (A.L.4 and A.L.4a) was reddish, gritty, compact earth, both corners containing the remains of four or five storage jars, but the notes are vague and no register numbers were assigned.

Room 35 runs parallel to Room 34 on the west side of Wall 44 (A.L.5). Its northern Wall 46 (A.LI.2.2) was bonded with Wall 44 (A.L.5). Bedrock was reached in this room (A.LI.2.6), and was overlaid by hard-packed clayey earth (A.LI.2.5). Pottery was recorded as being embedded in this level, but, as it was described as similar to the storage jars of A.XIII.6 in Room 11, it was not recorded. An ashy patch with mixed pottery was found over the hard-packed earth (A.LI.2.4) (see section drawing Figure 2.72). Pottery and burnt earth are evident in a site photograph of the room (Figure 2.73).

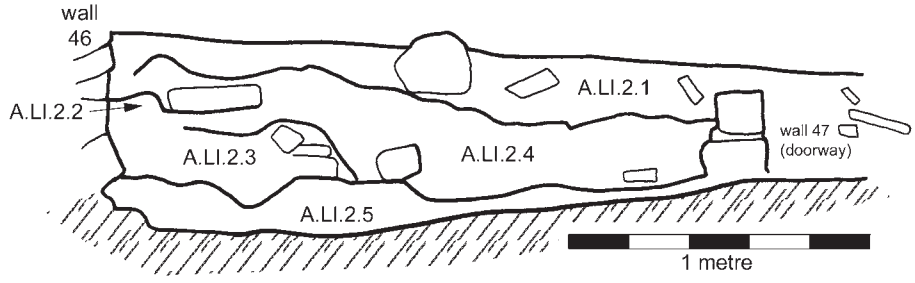


Figure 2.72. Section of trench A.LI.2 (Room 35), east-facing. A.LI.2.1: brown sandy earth and collapse; A.LI.2.2: ashy earth; A.LI.2.3: further collapse; A.LI.2.4: ashy earth; A.LI.2.5: hard packed clayey earth

Room 36 is the room in the southern part of Room 35; it was divided from the latter by a partition wall with a doorway (A.LI.2.12), shown in Figure 2.74. This later dividing wall is still considered a Phase 1 feature as there is no evidence of a second surface. Brown earth (A.LI.2.14) had been packed over bedrock, and a surface of stones laid over the top (A.LI.2.13). This surface level was associated with the hard-packed burnt clayey earth in Room 35 (A.LI.2.11). The southern wall of this room was not reached during excavation.

Room 37 runs parallel to the west of Rooms 35 and 36, with Wall 48 (A.LI.2.1) as its east wall. Wall 48 was bonded with Wall 50 (A.LI.2.4) to the north, which in turn was probably bonded with Wall 51 (A.LI.1.1), to the west – in the site notes it is recorded that even if they are not bonded, they are certainly contemporary. Wall 50 (A.LI.2.4) was constructed of large slabs and small long slabs on bedrock. Wall 48 (A.LI.2.1) was constructed of small slabs built upon two thick long slabs at the base of the wall. A noticeable feature in this northern area is the layered appearance of the rock, which has a slit along its natural faults, giving the impression of slabs laid one on top of the other. This also appeared in trench A.XXI (Room 12). Bedrock was reached in the south (A.LI.1.4) and north (A.LI.3.4) of the room. Over the bedrock in the south was a level of dark earth (A.LI.1.3) restricted to the south-east corner and associated with a cut in the bedrock (*R.LI.1.5*) (see Figure 2.75). A note was made in the excavation notebook that in the south-east corner of this dark earth level there was an important small cache of pottery and other material, which had been placed and not dropped. This cache included a burnt and broken, but almost complete, lamp (Reg. 150, Figure 4.8:2), two bowls (Regs 148, 149, Figure 4.3:9–10), pieces of bone and a rubbing stone. Fragments of iron were also found (Reg. 151, Figure 7.1:22), as well as two polisher stones (Regs 173 and 174, not illustrated, but see catalogue in Chapter 7) and a stone jar stopper (Reg. 175, not illustrated, but see catalogue in Chapter 7). In the north of the room hard-packed earth with small stones (A.LI.3.3) was laid over bedrock (A.LI.3.4), supporting an overlying surface of large slabs (A.LI.3.2).

A trench of unknown size (A.LI.4) was excavated to the west of Wall 51 (A.LI.1.1), but this area was not recorded on the plan or given a room number. A deep cut in the bedrock (*R.LI.4.5*), in which pieces of pottery were found, was discovered in the south of the trench. The dimensions of this cut and details of the pottery were not recorded. Earth had been laid over the bedrock (A.LI.4.3 and 4), over which slabs had been placed (A.LI.4.2). In the north-east corner of the trench, instead of slabs, lay sandy earth and the 'remains of a fire' (still recorded as A.LI.4.2). A section drawing of the area was drawn in the notebook (Figure 2.76).

Room 38 lies north of Room 37 and was excavated as trench A.LI.3 ext. It is a square room walled on all four sides: by Wall 50 to the south (which was bonded to the southern section of Wall 51), a northward extension of Wall 51 to the west (which was built against the intersection of the existing Wall 51 and Wall 50), Wall 49 to the north and Wall 48 to the east. No more details were recorded on this room.

Room 39 was an extension of Room 35, recorded as A.LI.2 ext. It is a slightly smaller almost square room walled on four sides by Wall 46 to the south, Wall 48 to the west, Wall 45 to the north and Wall 44 to the east. There are no context notes associated with this room in the excavation notebook but a plan indicates that large slabs with plaster covering the joins were used in the north, east and west walls, and the south wall was completely plastered to form a curve with the floor. No more details were recorded on this room.

Room 40 was a surface extension north of Room 34, on the north side of Wall 43 (A.L.15). The east and west walls are a continuation north of the Room 34 walls, 41 (A.L.6) and 44 (A.L.5). A northern wall orientated west–east was inserted between Walls 41 and 44 (Wall 42). All four walls were recorded as being plastered, and this plaster was very badly broken and crumbly, with many embedded roots. The plaster was removed in one corner to reveal steeper walls, under which lay brown hard earth and a few bones. Only one piece of pottery was found: a sherd of a jug recorded in the marginal site notes as being made of very hard metallic buff ware, very well levigated and fired, and from the Iron II period. This sherd, however, was not recorded in the finds register.

A note on the Phase 1 'destruction'

Many areas of the excavated site show evidence of burning, which can extend across several trenches. Bennett assumed that this signified that the main area of the settlement was destroyed by fire. It was sometimes difficult from the excavation notes to distinguish between localized fires and the more severe, large-scale burning that Bennett thought swept across the site, because when burning was recorded it was not always pinpointed to a specific location within the trench. It is clear, however, that at some point during the Phase 1 occupation there were burning events located across A.X, A.XX, A.XIII, A.XXII, A.XXX.1, A.XXXIII, A.XLI, A.XLII, A.XL, A.XLIII.1, A.XXXXII, A.XLIV, A.XLVI, A.XLIII.3, A.XLIX.1, A.XLV, A.XLVIII.1, A.XLIII.5, A.XLIII.2, A.L.3, A.LI.2, A.LI.1 and A.LI.4. Most of these were localized fires, sometimes associated with ovens, but in some areas the fire seems to have been more widespread, causing damage to finds and architecture, and perhaps leading to the rebuilding and reoccupation of parts of the structure (Phase 2). The clearest evidence of severe burning directly linked with reoccupation is in Room 22, where the most severe burning occurred (trench A.XLI). Bennett proposed that a burnt beam found against Wall 23 (A.XL.2) may have been the cause of the fire in this area, but it is just as likely to have been the result.

Although it is clear that there were burning activities taking place in Phase 1, there is little evidence to support the theory of one destructive fire sweeping across the site. The distribution of fire is further discussed in Chapter 3.

Figure 2.73. Photograph taken from Room 36 facing north over Room 35. Walls 47 (doorway), 48 (west wall) and 46 (north wall) are all visible. Patches of burnt earth and broken pottery can be seen on the surface

Figure 2.74. Photograph facing south-east over a doorway (Wall 47) dividing Room 35 (left) from Room 36 (right)

Phase 2

This was a phase of rebuilding and reoccupation. It does not appear that the site was abandoned prior to Phase 2, and much of the building activity involved minor architectural additions, sometimes after fire, and was limited to small sections of the site (Rooms 11, 15, 12, 22, 23 and 29). Reoccupation does not seem to have occurred in one distinct block of settlement, but rather in scattered areas within the central area of the site. There was no evidence of reoccupation in the north section of the excavation

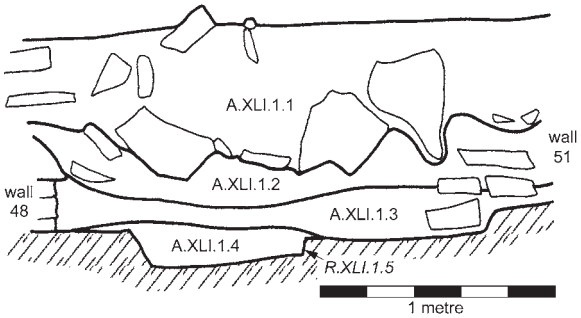


Figure 2.75. Section of trench A.LI.1 (Room 37 south), south-facing. A.LI.1.1: brown packed earth and collapse; A.LI.1.2: burnt earth; A.LI.1.3: dark earth; A.LI.1.4: disintegrated rock; R.LI.1.5: cut in bedrock

(Rooms 32–40). As for dating, Bennett suggested that this re-use may have occurred in the Hellenistic period (Bennett 1966a, 382–3, 402), but the pottery in the Phase 2 levels throughout the site dates to Iron II (although Bennett identified Hellenistic sherds in post-occupation levels). It is therefore evident that reoccupation occurred within the Iron II period.

The geographical distribution of reoccupation does generally correlate with evidence for Phase 1 burning (see Figure 2.77). Although most of the fires appear to be localized, it is reasonable to assume in some cases that, following burning in some parts of the site, the occupants rebuilt and reoccupied the areas that were most severely damaged within the same generation. The area where this can be seen most clearly is in the central area of the excavation, particularly in trenches XXXII, XLI and XLIII (around Room 22).

Rooms 11 and 15 were originally one room in Phase 1. Across the room there was evidence of burning on the Phase 1 walls, the paved surface (A.XIII.10) and the channels (A.XIII.16). Wall 16 shows no sign of burning and the burnt channels (A.XIII.16) run underneath it. It is clear that at some point after the Phase 1 burning event, Wall 16 was inserted between Walls 15 and 1b to divide the room into two.

In Room 12 there was possibly a later floor inserted and the room was reoccupied using the same Walls 10 (A.XXI.4) and 9 (A.XXI.3). A later surface level (A.XXI.5a) of slates may have been laid on top of the intervening earth in Phase 2. Finds associated with the Phase 2 floor include a complete bottle (Reg. 11, Figure 4.6:6) and an almost complete bowl (Reg. 19, Figure 4.1:6), which are both Iron II.

Wall 21 (A.XXXIII.9) in Room 18 (trench A.XXXIII) was 12 courses high, but showed evidence of burning on the top six courses only. It is questioned in the notebook whether this could represent the floor level at the time of a fire. Certainly there was black, ashy burning mixed in with and underneath collapsed building stones (A.XXXIII.19 and 20), but there was no evidence of a later surface. Nevertheless, even if there was some rebuilding in this area, it remains Iron II in date.

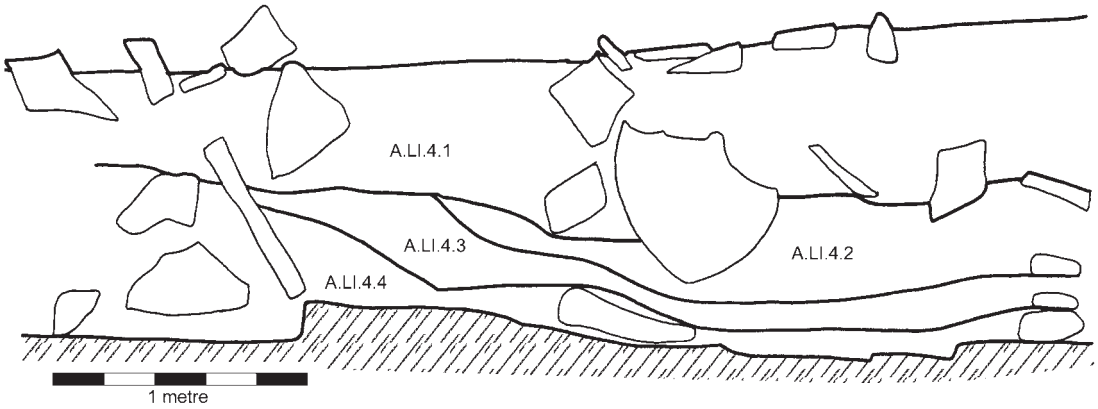


Figure 2.76. Section of trench A.LI.4 (to the west of Room 37), west-facing. A.LI.4.1: brown earth and collapse; A.LI.4.2: soft sandy earth with slabs; A.LI.4.3: hard-packed earth; A.LI.4.4: soft ashy, sandy earth

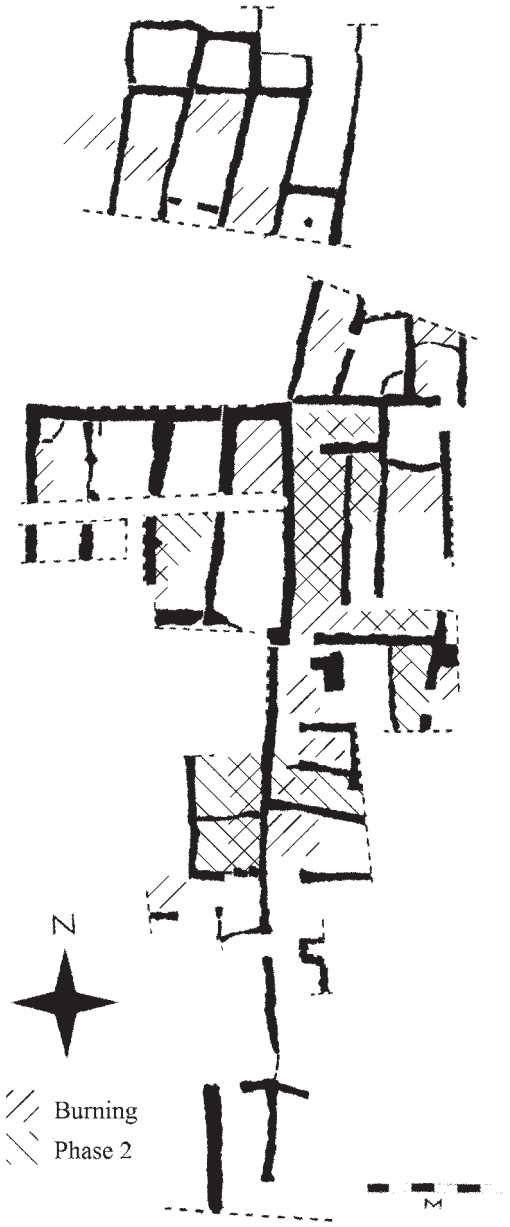


Figure 2.77. Plan showing correlation of burning and Phase 2 rebuilding

Figure 2.78. Trench XLIV.1 (Room 29b) looking north-west, showing Phase 2 Walls 36 and 36a

In Room 22 there was evidence of a later surface being laid over the Phase 1 burnt levels and the room being reoccupied using the same walls. A brown clay floor (A.XLI.8) was laid directly over the burning in A.XLI.9, and this was in turn overlaid by brown earth and stones (A.XLI.4). Another clay surface (A.XLI.3) was laid on top of this level, this latest surface also showing patches of localized burning in several places (A.XLI.3a, A.XLI.3b).

Overlying the burnt level in Room 23 there was a Phase 2 plastered surface (A.XLIII.10) which does not cover the whole of trench XLIII. Again this suggests that the new floor was laid after the fire and the room was re-used within the original Phase 1 walls.

In Room 29 the Phase 1 burnt level (A.XLIV.1.9) was cut through by the foundation trench (*R.XLIV.1.25*) of Wall 36. Against the wall and in the foundation trench

was found a vertical slab – both the slab and Walls 36a (A.XLIV.1.4) and 36 (A.XLIV.1.5) showed no signs of burning, and, according to the site notebook, the burnt level was evident underneath Wall 36a (A.XLIV.1.4). Walls 36 and 36a (Figure 2.78) were therefore constructed in Phase 2, after a period of Phase 1 burning.

Phase 3

This phase is the collapse of the building stones after a period of abandonment, which was consistent over all trenches across the site. The first levels excavated from all Umm al-Biyara trenches were topsoil, followed by a layer of earth and collapsed building stones, and then by a layer of gingery soft earth and sometimes stone flakings. The soft earth accumulated across the site after its abandonment until the buildings eventually collapsed. As time went by more accumulated deposits built up between and around the building stones.

Bennett thought there were two separate phases of collapse across the site but from the descriptions in the site notebooks there seems to have only been one; there was no evidence for a distinct collapsed level being overlaid by wind-blown accumulated deposits over a period of time, and then being followed by another distinct collapse level. Even when earth was deposited between collapsed building stones, as in trench A.LI.2 (see Figure 2.72), it is more likely that this collapse and accumulation occurred gradually over a period of time rather than in two distinct phases.

Sometimes collapse was associated with fire in the excavation notebooks. Of note is trench XXXI (Room 16), the area enclosed by Walls 18 (A.XXX.4) and 17 (A.XXX.3). Soft yellow earth and slate flakings from the building stone were found under the collapsed stones (XXXI.1), which Bennett suggested were a result of a fire between the large building stones which consequently collapsed into the house. Indeed, there was a large amount of collapse in this area (Figure 2.79); particularly prominent are two large collapsed stones which may have been doors or roof supports. Traces of fire were also evident in Room 23 on the fallen stones in the earth level (A.XLIII.2.2).

Summary and interpretation

Phases

Bennett argued for three phases of construction at Umm al-Biyara (Bennett 1966a), and her assumptions, based on one group of buildings, Rooms 20–31 (Figure 2.80), were noted by Bienkowski (1990). Bennett argued that Phase 1 consisted of trenches A.XLIII.3, A.XLIV East and A.XLV East because they did not communicate with adjacent rooms and were entered independently from the southern area, and furthermore the walls were not bonded into other walls to the west. However, Section A–B (Bennett 1966a, pl. XVI, reproduced here as Figure 2.81), which cuts across this area, shows exactly the same stratigraphic sequence in each of the four rooms: occupation on a surface level or floor (on rock or packing), abandonment and then collapse. The section also shows exactly the same sequence for the separately phased building to the east, including occupation against Wall 1c (A.XLI.13) of the 'Phase 1' building. The legend to this cross section can be quite confusing as it lists seven 'levels' in the key, including three floors. However, it is clear that all the floors are actually contemporary: one is on bedrock, one of slate and one on packing.

Figure 2.79. Collapse across trench A.XXX

Bennett also produced a set of section drawings across the site marked with general level or phase types rather than context numbers. These sections were incomplete and basic, but give a sense of trying to fit the evidence for occupation into distinct phases. Figure 2.82 shows the locations of the sections reproduced here (Figures 2.83, 2.84 and 2.85). The original sections did not have wall numbers; these have been added retrospectively. The numbered levels represent phases of occupation but these do not always correlate with the descriptions in the site notebooks; for example, Figure 2.83 shows a 'final occupation' in Room 1 which is not mentioned in the excavation notes at all. However, the overall phase trend across the site is clearly shown in Figure 2.84 (occupation, abandonment and collapse), with Figure 2.85 showing one of the areas of destruction followed by Phase 2 occupation. Although Bennett did argue for three 'phases' of construction across the site, she simultaneously maintained that it was impossible to verify the relative order of these phases. It is thus clear that in actual fact these 'phases' represent a single period of occupation.

Features of the site

It has been argued that there was one period of occupation at this site during the Iron II period; therefore all the excavated walls, features and finds in context essentially

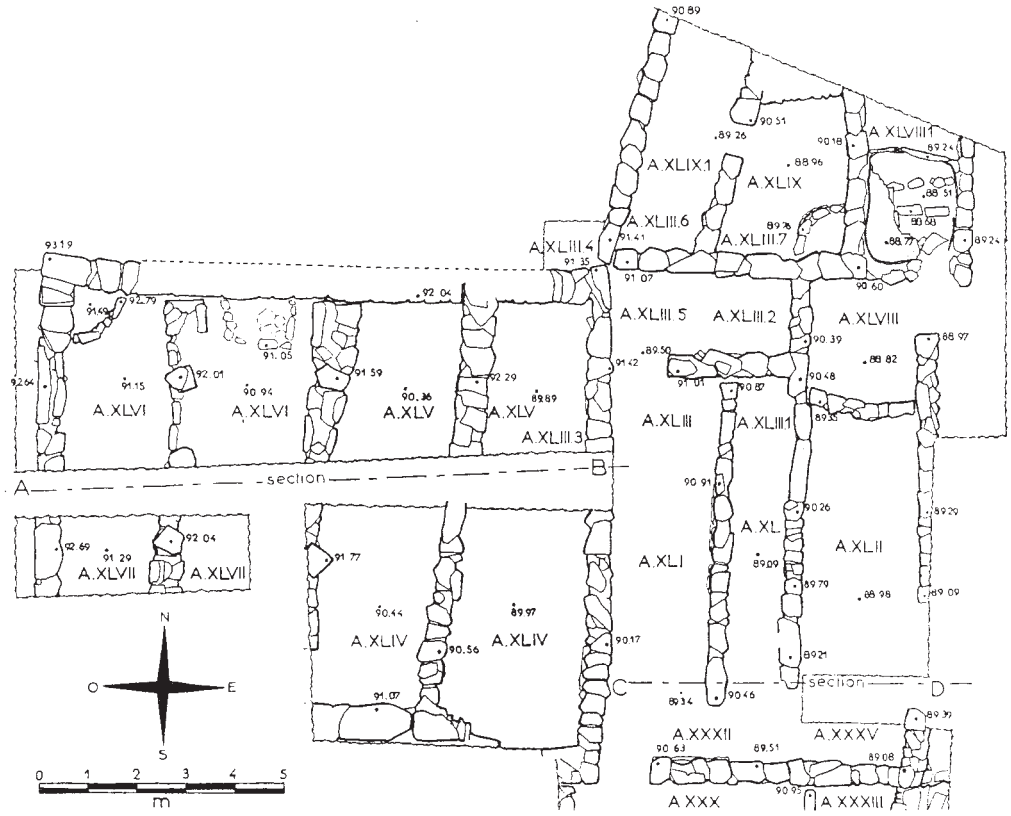


Figure 2.80. Detail of plan, showing the group of buildings (Rooms 20–31) published by Bennett (1966a, pl. XV) to demonstrate her three phases of construction, and the position of section A–B (Figure 2.75)

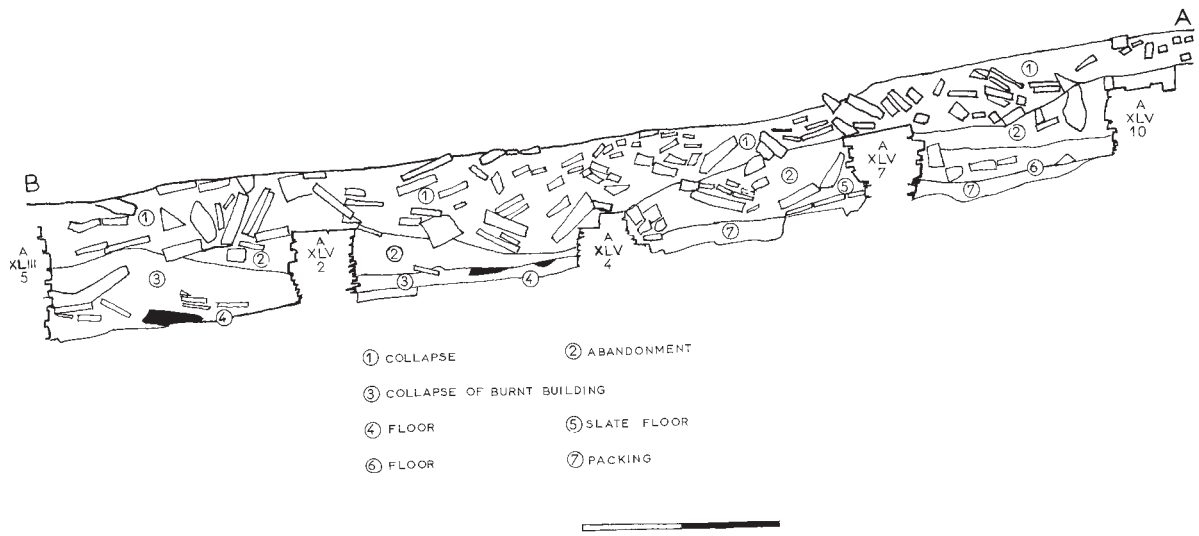


Figure 2.81. Bennett section A–B cutting across Rooms 31–28, south-facing (originally published in Bennett 1966a, pl. XVI)

belong to this phase. Excavations revealed a building complex of small interconnecting drystone rooms fixed to a main wall running north–south. Associated with the walls in most trenches was evidence of a surface deposit. The surface could be made up of the bedrock itself, or alternatively a constructed level (clay, plaster or slate), sometimes supported by an underlying make-up deposit to even out the undulating bedrock (importation of packing to level out shelving bedrock was also found at nearby Tawilan: see Bennett and Bienkowski 1995, 14). A variety of other features was uncovered at Umm al-Biyara, such as ovens, doorways, pillars, possible roof slabs, plastered walls and wall recesses, as well as the finds associated with these features and therefore with the occupation of the buildings.

Fill deposits are not a major feature of the site; in fact

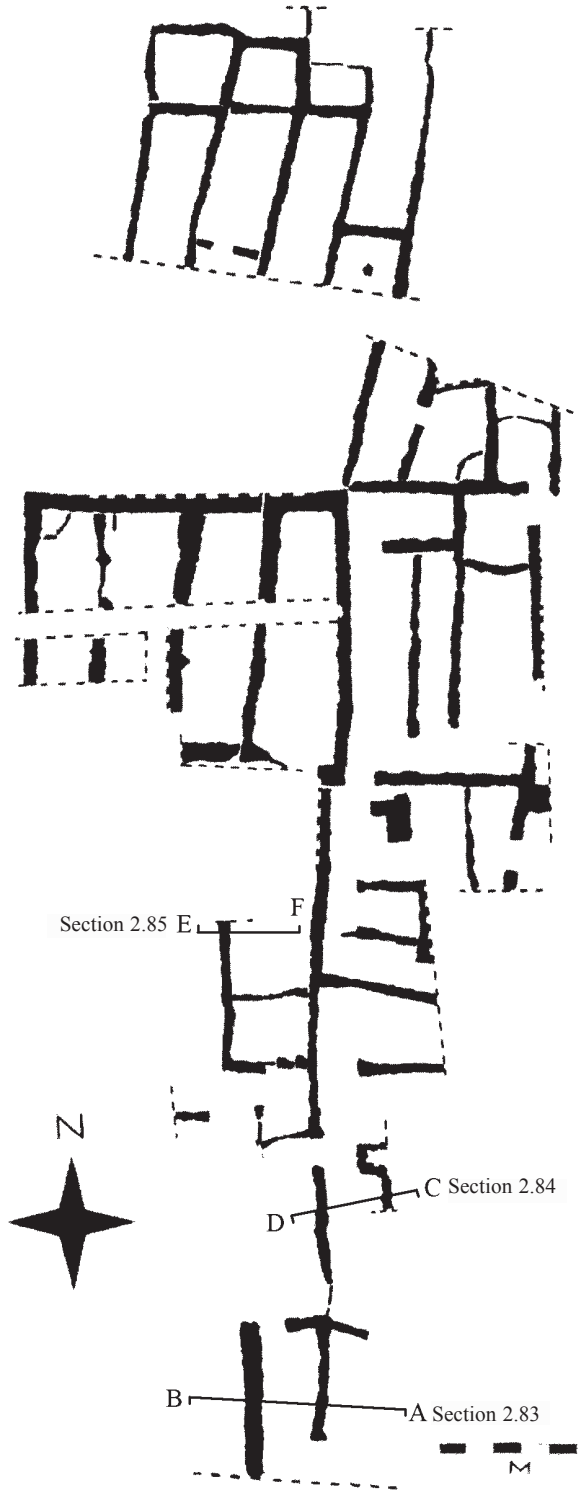


Figure 2.82. Plan showing positions of Bennett sections (Figures 2.83–85)

the only evidence of pits being dug prior to the construction of walls are numerous foundation trenches. Walls were constructed mainly of local sandstone (although instances of limestone were recorded in the field notebooks) and were on average 0.5 m thick, with the walls thickening out at doorways. They were arranged into long corridor rooms with smaller rooms leading off, giving the impression of a maze. If this is indeed a domestic settlement, which seems likely because of the quantity of finds such as spindle whorls and loom weights, there are interesting implications for social roles and kinship structures (see Chapter 3).

There is one axis wall (Wall 1) that runs through the site on a roughly south–north orientation in an almost continuous line. Although this was not constructed as one wall, the evidence suggests that as new rooms and structures were added to the overall complex this line was used as a central axis from which rooms could branch out and so was added to as the structures expanded. Whether or not this holds true for the rest of the site is impossible to say: a true structural overview could only be attained by excavating the other two-thirds of the settlement. Bennett's idea of the Iron Age house is expressed a number of times in the 1960 excavation notebook, but, looking at the plan, it is impossible to state definitely the exact layout of one 'house'. Bennett argued that the A.XL–XLI–XLIII complex bears the closest relationship to the normal Iron Age II house (using comparisons with Tell el-Far'ah), while in areas A.XLIV–XLVII and L–LI they seem to be long rectangular rooms with little resemblance to a 'house'. The site layout and use of space are further discussed in Chapter 3.

According to the site notebooks the local sandstone breaks very easily along its natural striations, thus varying in thickness from 0.01 m to 0.15 m. It was therefore suggested that builders could provide ready-made building stones, paving blocks and roofing tiles. In the entire excavation no examples were found of stones being dressed, leading Bennett to argue in one field notebook that 'rough simplicity' was the keynote of Edomite building techniques, as they had 'none of the skill of their Nabataean successors in cutting or dressing stone'. In Umm al-Biyara, the sandstone building stones seemed to be used for buildings as they broke: only one face ever had a straight edge, along the natural rock faulting, the other face giving an appearance of a series of jagged edges. The technique could be compared to the English 'drystone walling' technique, where irregular stones are tightly fitted together without the aid of a holding agent such as plaster. Bennett did note that it was difficult to tell whether or not walls were bonded because of the gross irregularity of the stones. As for the height of the walls, this is difficult to assess, particularly in the A.II complex and A.XLVI–XLV, where the upper courses had collapsed over time. The existing height of the walls in A.XLIII and A.XLIII.6–A.XLIX.1 was approximately 2 m. The builders of Umm al-Biyara made use of pillars 0.15 m–0.2 m thick to strengthen their partition walls and also possibly for use as roof supports. As can be seen in Figures 2.58, 2.70 and 2.78, these pillars are constructed of much thicker blocks with an intervening packing of smaller stones, but again with no attempt at regularity.

There is a note in the 1965 site diary stating that most of the walls in Umm al-Biyara, particularly where they

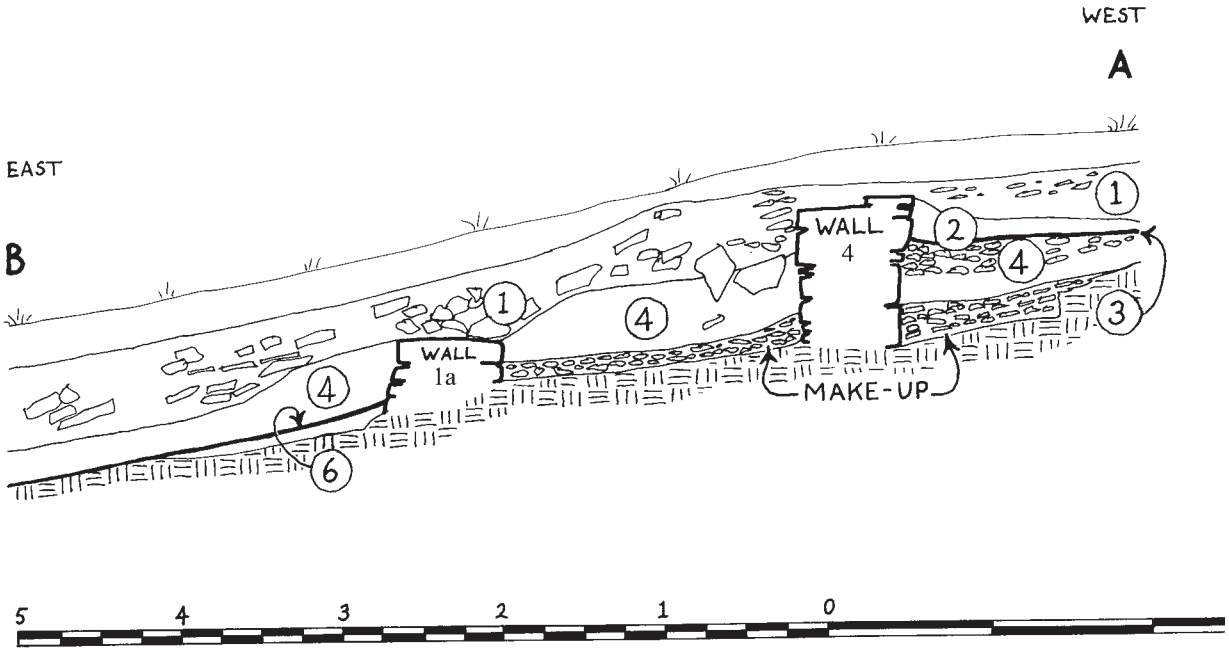


Figure 2.83. Bennett section A–B of trenches A.VI, A.VIII and A.IV (Rooms 1–3), south-facing. 1: Collapse; 2: Abandonment; 3: Final occupation; 4: Abandonment; 6: Earliest occupation on bedrock. Note: There is no evidence for a final occupation in the excavation notebooks

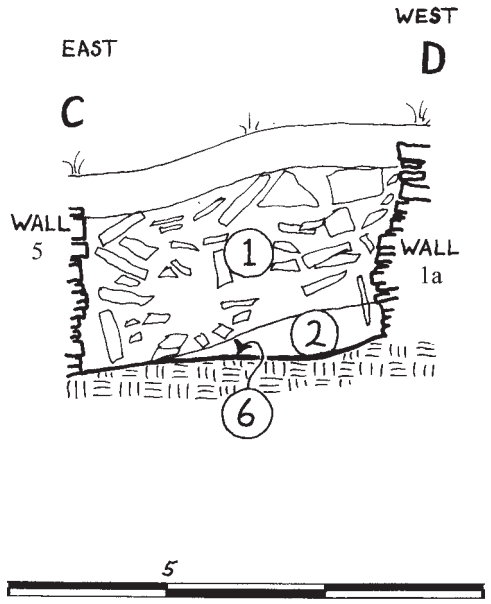


Figure 2.84. Bennett section C–D of early trenches in the Petra Tr. A.XVII complex (Rooms 4 and 5), south-east facing. This illustrates the phase sequence across most of the site. 1: Collapse; 2: Abandonment; 6: Earliest occupation on bedrock

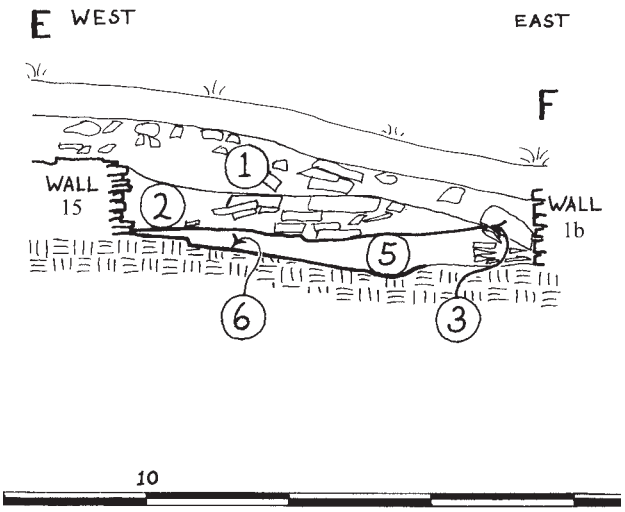


Figure 2.85. Bennett section E–F of trench A.XIII ext (Room 15), north-facing. 1: Collapse; 2: Abandonment; 3: Final occupation; 5: Destruction; 6: Earliest occupation on bedrock

existed to any height (such as in the A.XLI and A.XL complexes), were not completely vertical – they had a lean of almost 10° to the east. Bennett suggests that this could have been the result of the passage of time, a natural effect or a deliberate technique on the part of the builders to cope with the natural slope of the rock from west to east. This feature is not mentioned anywhere in the trench descriptions across three seasons of excavation, and even the cross sections do not depict this leaning tendency – all walls appear to be vertical from the illustrations.

Walls are constructed directly onto bedrock, more often than not with no evidence of foundation trenches. Bennett suggested in the 1965 site notebook that either the settlement was built to be occupied for a very short duration, or each period of settlement saw a complete clearing of the occupation of the previous period. Evidence for the use of the site is discussed in Chapter 3.

3. A Home High in the Mountains: the Use of Space in Umm al-Biyara

Katherine Baxter

Umm al-Biyara: a domestic site?

A number of theories have been put forward with regard to the role of remote Iron Age mountain-top sites in southern Jordan: were they 'central places' for non-sedentary groups; strongholds or refuges from danger; satellites of settlements on the plateau; or sequences of rooms used as storage and distribution facilities? (For a more detailed discussion see Chapter 10.) Certainly, all of these theories are plausible.

One of the strongest arguments is that mountain-top sites like Umm al-Biyara were used for agricultural storage (Lindner and Knauf 1997). This stems both from the argument that the mountain-top ceramic assemblages are mostly made up of sherds from coarse storage jars, and from the interpretation of the use of longhouse structures.

There is, however, much evidence to suggest that Umm al-Biyara was a domestic site – that it was not even a temporary or seasonal camp, but a permanently and continuously occupied settlement. The architecture is solid and well built, not like the simple rock-cut foundations for tents and temporary shelters seen at sites like Jabal al-Qseir. People had made provision for ensuring a continual water supply through rain channels and cisterns, indicating continuous long-term use. There is evidence for a range of domestic activities, particularly spinning, weaving and grinding (discussed further below). Localized fires, ovens and everyday objects have all been uncovered within the structures. The receipt for oil (discussed in Chapter 5**)** indicates that olives were being harvested and the oil was being traded, so the people of Umm al-Biyara were producing goods and engaging in wider economic relationships from this site. The pottery assemblage is not restricted to or dominated by storage functions, but has a complete range of pottery forms (see Chapter 4). All this evidence strongly suggests that the Iron Age people were not just using this space but *living* in it. That is not to say that some buildings or parts of buildings could not have been used for agricultural storage: there would almost certainly have been storage areas within the domestic compound and there is no reason to assume that every room of every longhouse was inhabited.

The orientation of the buildings, possible movement routes through the site and the spatial distribution of finds and features can help to build up a picture of human activities and indicate how space within the settlement may have been divided and used for a range of purposes.

Spatial analysis

Architecture is a means through which societies, both contemporary and ancient, can potentially be understood. By analysing space, hypotheses can be advanced about movement, access, the use of space and gendered space. The household is a significant unit of analysis (assuming, of course, that 'households' are what we have in Umm al-Biyara): it is an arena in which age and sex roles, kinship structures, socialization and economic co-operation are expressed. In a sense tradition begins in the household, as it is usually passed down through the family line, making it probably *the* most significant unit of social analysis (for kinship, tribe and household in traditional Middle Eastern societies, see Eickelman 2002).

Houses themselves are not just physical structures: they are built with purpose and intention, and are not merely a reflection of adaptations to the environment (Humphrey 1988). They are culturally constructed social spaces, representing their inhabitants, their social grouping and the wider world. They can reflect, in their structure, interior layout and decoration, the concept of an ideal natural and social order (Waterson 1991). Rules about the use of space within the house provide one of the most important ways by

which the built environment can be imbued with meaning: people move through the house in a particular way and do things in particular places as defined by the context (Parker Pearson and Richards 1994). Furthermore, the environment of the house itself helps to mould and reproduce a particular pattern of social relationships, and this has frequently been analysed with regard to gendered space and gender roles. It is within the domestic environment that we learn our social roles, and the environment in which a person is socialized has a profound effect on that person's identity and perception of self (Carsten and Hugh-Jones 1995).

Problems

Even with the potential for this kind of analysis we have to be realistic about how much can be reasonably inferred from architectural plans and distributions alone, particularly at sites like Umm al-Biyara where the site is small and detailed knowledge of similar sites is limited. Spatial structure is a useful tool in anthropology, where social conduct and architectural form can be observed in a living culture, but archaeologists must be careful about similarly assuming social interaction and use of space by observing only the architecture.

There are further difficulties in using movement analysis on the architecture of Umm al-Biyara. Bennett excavated only about one-third of the site, so we are analysing only a section of the whole site. If this section could be seen in context with the whole then it would greatly increase our understanding, thus affecting the conclusions. Even within the excavated section vital pieces of the puzzle are missing, as the trenches often stopped before determining if there was an external wall.

Domestic architecture both in the present day and in the archaeological record is very ambiguous, so while analogy is of benefit to archaeology in aiding interpretation, it should be stressed that the conclusions drawn from this analysis are tentative.

Architecture of Umm al-Biyara

The excavations at Umm al-Biyara revealed a complex made up of long corridor-like rooms interspersed with small square rooms. A similar layout is found at two other contemporary mountain-top sites, as-Sadeh and Jabal al-Qseir (see also Chapter 10). In as-Sadeh the houses have been described as 'compartmented longhouses' with long rectangular rooms (Lindner *et al.* 1988; 1990), and at Jabal al-Qseir there is one large longhouse made up of nine rooms and a cistern (Lindner *et al.* 1996b). Even at Tawilan, which is not a mountain-top site, rooms are described as being corridor-like with smaller 'storage' rooms leading off (Bennett and Bienkowski 1995).

Orientation

The buildings of Umm al-Biyara lie on a roughly north–south axis. The discussion of the stratigraphy in Chapter 2 already pointed out that the main north–south 'spine' wall (Wall 1) running through the settlement is the central wall against which other rooms are built. Long corridor rooms, particularly in the northern part of the site, run parallel to this wall. The most northerly section of the site shifts slightly from this orientation, veering to the north-east. The significance of the direction and orientation of these buildings is not known but it can be assumed that there was purpose and intention in the way these rooms were deliberately constructed in this pattern. The northern section in particular looks planned; rooms generally run parallel, maintaining the same length and width in an almost grid-like pattern. It is reasonable to assume that rooms were intentionally organized in this way to suit a particular purpose.

Movement and access

Although domestic architecture is often studied as a distinct entity, separate from people, human interaction and social behaviour cannot be inferred without taking into account human *movement* within the house. The way in which a structure is planned ensures that a given person will move through it in a particular way, depending on the person's relationship and status within the household. There are unspoken 'right' and 'wrong' ways to move through a house, depending on social and religious factors such as notions of gender or public and private space (inherent within Bourdieu's notion of *habitus*: Bourdieu 1990, 52–65).

The plan (Figure 3.1) shows possible routes of physical movement across the excavated houses. In analysing potential routes, different types of lines were used to map out routes between the rooms until each route could no longer continue and came to a dead end. Each type of line therefore denotes a self-contained section or complex, and the plan shows that in terms of access and movement the excavated settlement is neatly divided into four: north, south, east and west. Access into Room 33, from the north, has been marked with a thin dashed line: it may have been part of the north section or part of another complex which has not been excavated. Assumptions have been made when joining the access routes outside the excavated areas, notably the middle east–west access line in the north (thick lines) section. While this is only a likely route, there is no other direction from which these long rooms could be accessed. Furthermore, the rooms in this grouping are those shifted in orientation to a slightly more north-easterly alignment and so were probably built concurrently and belong to one complex which may extend south to Wall 34. Similar assumptions with regard to access have been made about the lower east–west route of the west (thick dotted lines) section. Again, this is the most likely route

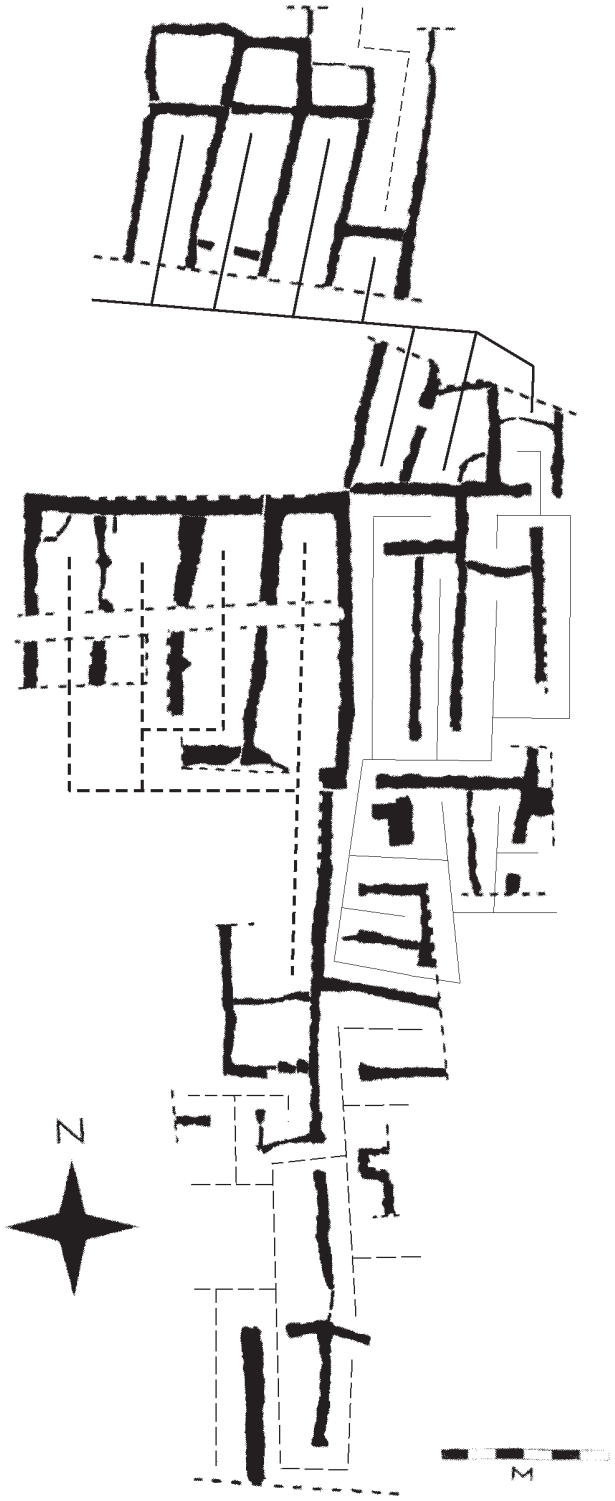


Figure 3.1. Diagram showing possible routes of physical movement across the excavated houses. The site can be divided into four distinct areas or complexes: North (thick lines), East (thin lines), South (thin dashed lines), West (thick dashed lines)

considering the similarities of the north and east section route plans with that of the west section and the lack of alternative access into these long rooms. It is possible that thresholds may have existed between these four rectangular rooms (28–31) in the unexcavated section running through their centres, but it is reasonable to assume that access was from the south as it mirrors the access routes in the east (thin lines) section. Furthermore, none of the other excavated rectangular rooms have east–west access points through the middle of their long walls: they are all accessed from the north or south. These four areas or complexes may have joined together outside the area of excavation, but from the data available they seem to be distinct.

Movement through the site is linear: in order to access a room a person would have to walk through several others. This may point to a close kinship group occupying a space where notions of privacy were limited. Access routes are the most defined in the east section, where all four sides of many rooms are visible. The structure of the east complex is not as ordered as the north and west, where rooms lie parallel to each other and have a set width and length, and are not as open-plan as in the south, where individual rooms are less defined and there are fewer walls (and therefore more apparent freedom of movement). In the east complex there are three rooms of varying widths and lengths running parallel to each other (20–22), with smaller rooms leading off. The plan of the lower east complex is less systematically structured, with a long north–south corridor extending down from Room 22 with smaller rooms of various shapes leading off it. So, as well as being distinct in terms of access, each complex seems to have a slightly different architectural approach.

Physical boundaries and demarcated entrances within a dwelling mark differences in how these spaces are to be treated and control access between them. In this way places and relationships can be classified and controlled more easily (Parker Pearson and Richards 1994). Most rooms in Umm al-Biyara run into each other in a seamless way, with three-walled rooms leading off from longer corridors. There are only three thresholds deliberately designed to leave a gap in the centre of a wall, as opposed to having an unfinished wall with a gap at the side or omitting the wall altogether. These three thresholds may represent entry into an area of distinct change. Demarcated boundaries can be used to emphasize difference in marked space not only on a functional level but also on a social level, between, for example, sacred and secular or private and public. Two of the thresholds lead into rooms with no other exit, so a person would only walk through to spend time in that particular space, and then exit the same way. It is unknown what the third threshold leads into, as the excavated area did not reveal the outer walls. These rooms may have been more private or special in some way.

Several rooms are walled in on all sides and are therefore completely inaccessible. Three of these are in the north section (Rooms 38, 39 and 40) and one is between the west and south sections (Room 11). These walled-in rooms in the north are associated with plastered walls but were not fully excavated. They could indicate high-security storage rooms that were walled in to control access: all four of

these rooms are small and square, and positioned at the end of a long corridor where anyone approaching them would be highly visible. There is, however, no evidence to suggest that temporary walls were erected and knocked down. Furthermore, the finds register shows that the objects found in Room 11 were a lamp, a bone bead, two weights or slingstones, and a rubber stone – hardly the large quantity of storage material one might expect if these were indeed storage areas.

It would be convenient to suggest that each self-contained complex represents the household of a distinct kin group, but other sources of evidence can be examined to see if there are any other obvious divisions in terms of use of space.

Distribution of finds and features

Several patterns emerge from an analysis of the spatial pattern of finds and features across the site. Plotting the distribution of finds at Umm al-Biyara is, however, problematic. In the finds register objects were recorded as being found in a particular trench but with no indication of their location within the trench: this bearing in mind that trenches could span several rooms and rooms could cut across trenches. Similarly, when looking at evidence of fires, loci of burning were rigorously recorded but often without specifying exactly where the burning occurred or its extent. But where exact locations cannot be pinpointed, it is at least known where objects and features occurred at room level. This is enough to detect any general patterns of distribution or clustering.

Clustering

The most obvious clustering of finds occurs in the east of the site across Rooms 20–23. All the objects relate to domestic activities, the most obvious being loom weights and shells (Figure 3.2). A total of 62 loom weights was found on site, of which 57 were found in the east complex in two rooms, 20 and 22. Of the five loom weights found in the northern complex, four were found in rooms bordering the east complex. Interestingly, not a single loom weight was found in Room 21, which runs between Rooms 20 and 22 and is accessed from the same side. It is likely that loom weights were being produced in this area, as they were found laid out in rows, presumably left there to dry before being baked. In total, 118 shells were found on the site, with 103 found in the east complex clustered particularly in Room 21 and across Rooms 18 and 19 (trench A.XXXIII).

In addition, an enormous amount of pottery, mainly storage jars, was recorded from Rooms 20, 21, 22 and 32. This area of the site is very rich in finds, suggesting an area of production and storage. Bennett herself in her notebooks postulated that Room 20 and the east of Room 21 could have been a house pantry or a storehouse for pots.

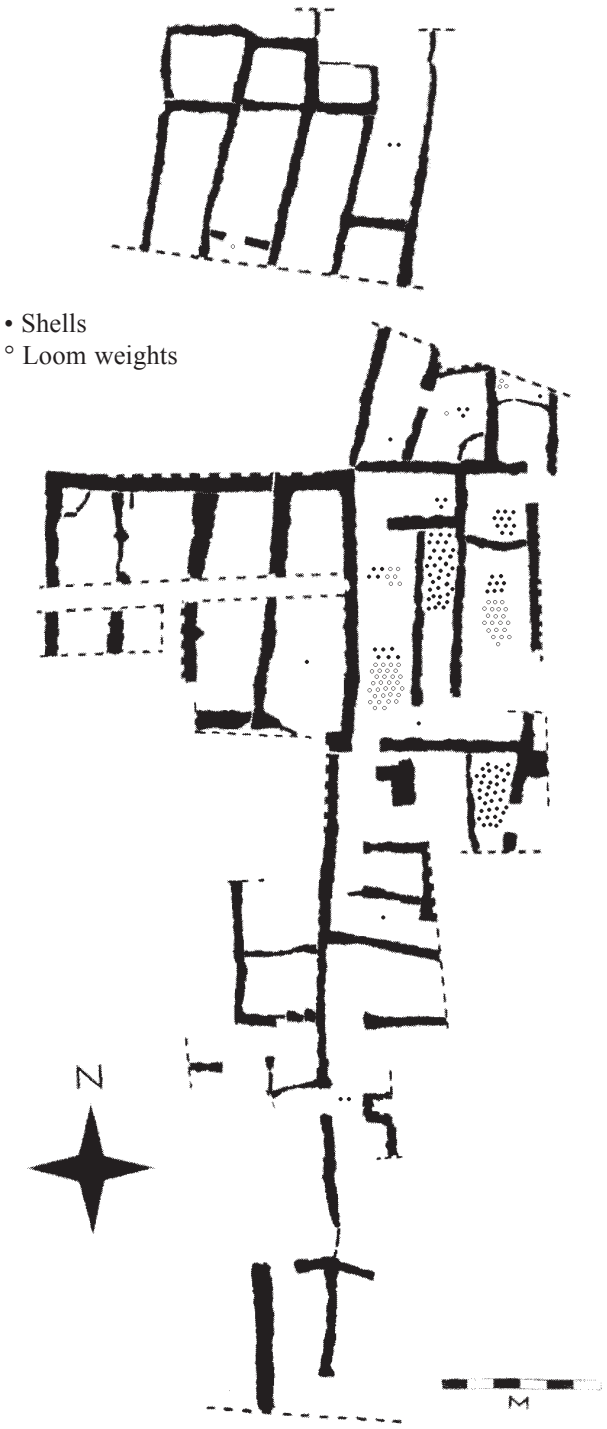


Figure 3.2. Distribution of loom weights and shells across Umm al-Biyara

Smaller quantities of other objects also cluster in this area. Of the five arrowheads found on site, four were found in Room 26 and one was found in the adjacent Room 27.

Wide spacing

Other objects were found distributed across a wide area of the site. Of the 21 spindle whorls found, 10 were found in

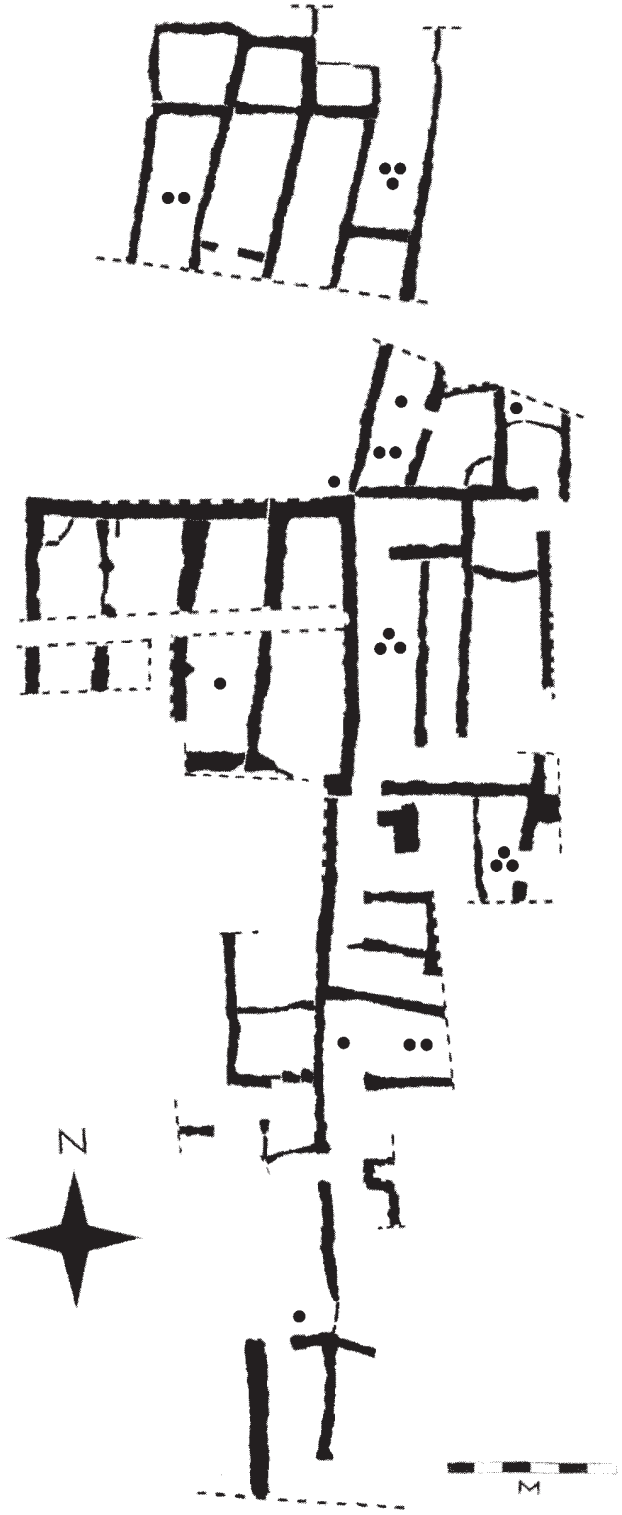


Figure 3.3. Distribution of spindle whorls across Umm al-Biyara

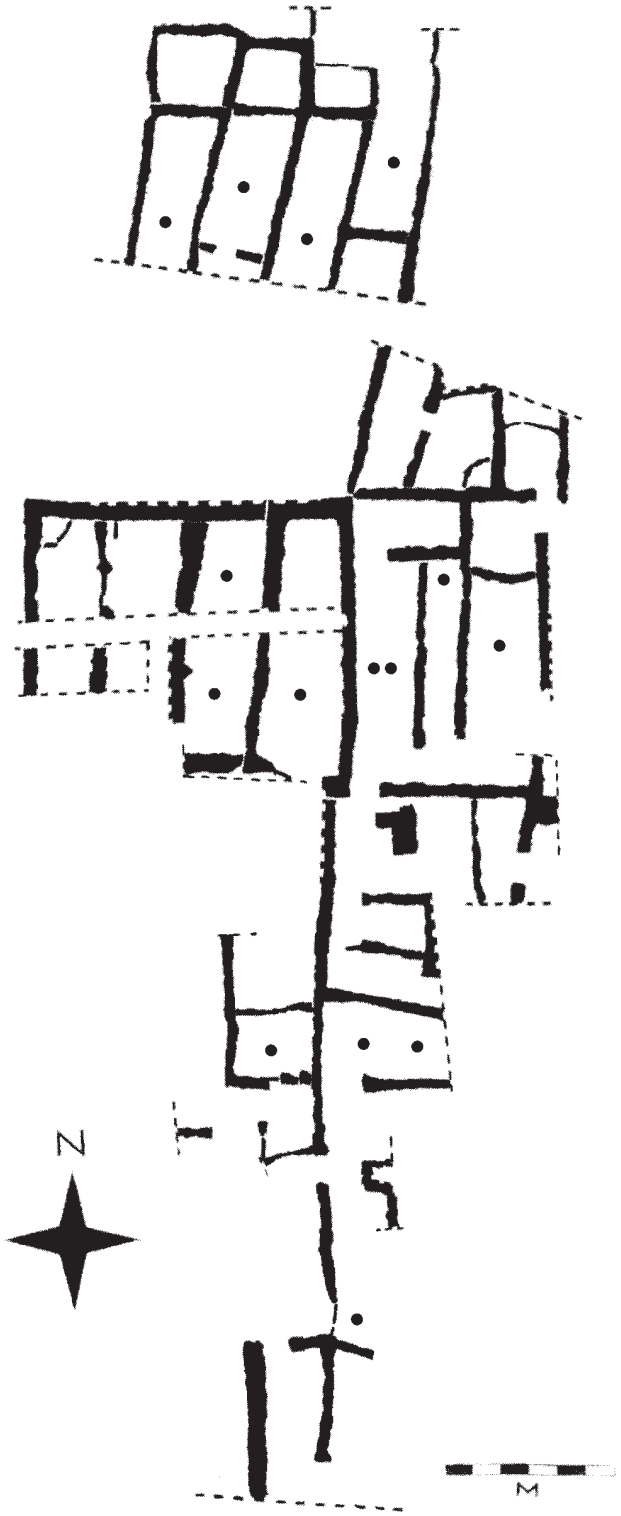


Figure 3.4. Distribution of lamps across Umm al-Biyara

the north complex, six in the east, four in the south and one in the west (Figure 3.3). There is no definite clustering of spindle whorls in particular spaces of the settlement, although they are generally more associated with long corridor rooms rather than smaller square rooms. This distribution could indicate that people across the site were spinning yarn as a domestic activity. If we assume that spinning is associated exclusively with women (which is by no means certain), we could tentatively suggest that these are spaces in which female activities are dominant.

Seven quern stones, either complete or fragmentary, were excavated at the site: four in the north complex and three

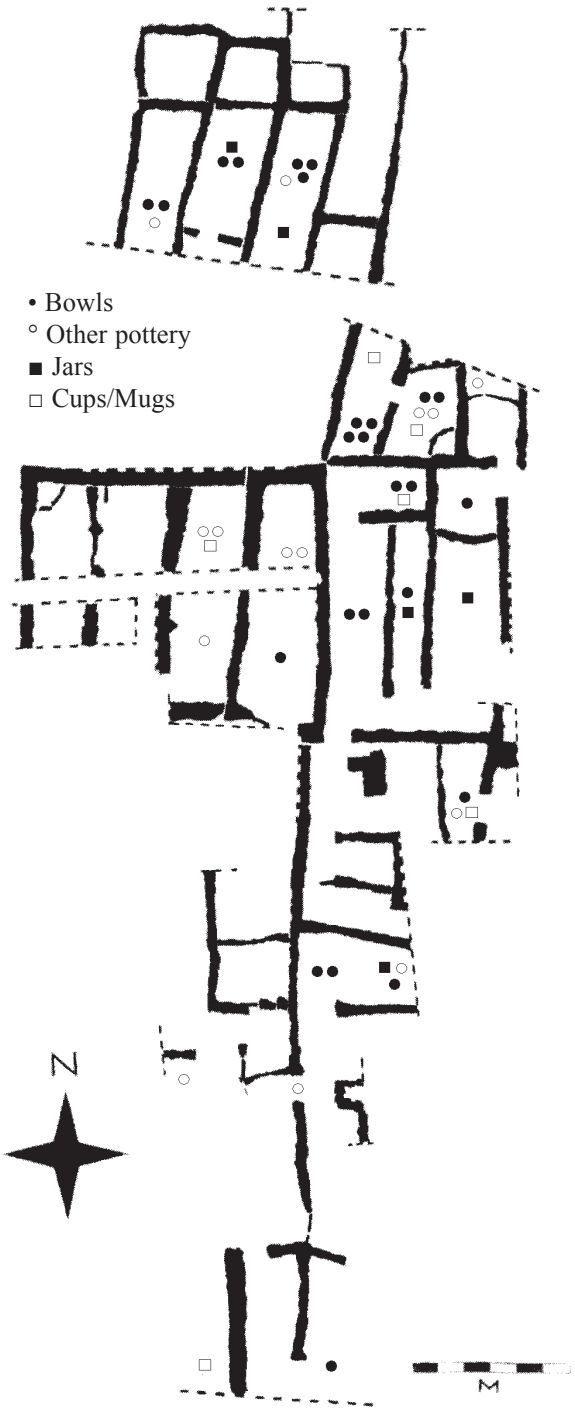


Figure 3.5. Distribution of different forms of pottery across Umm al-Biyara

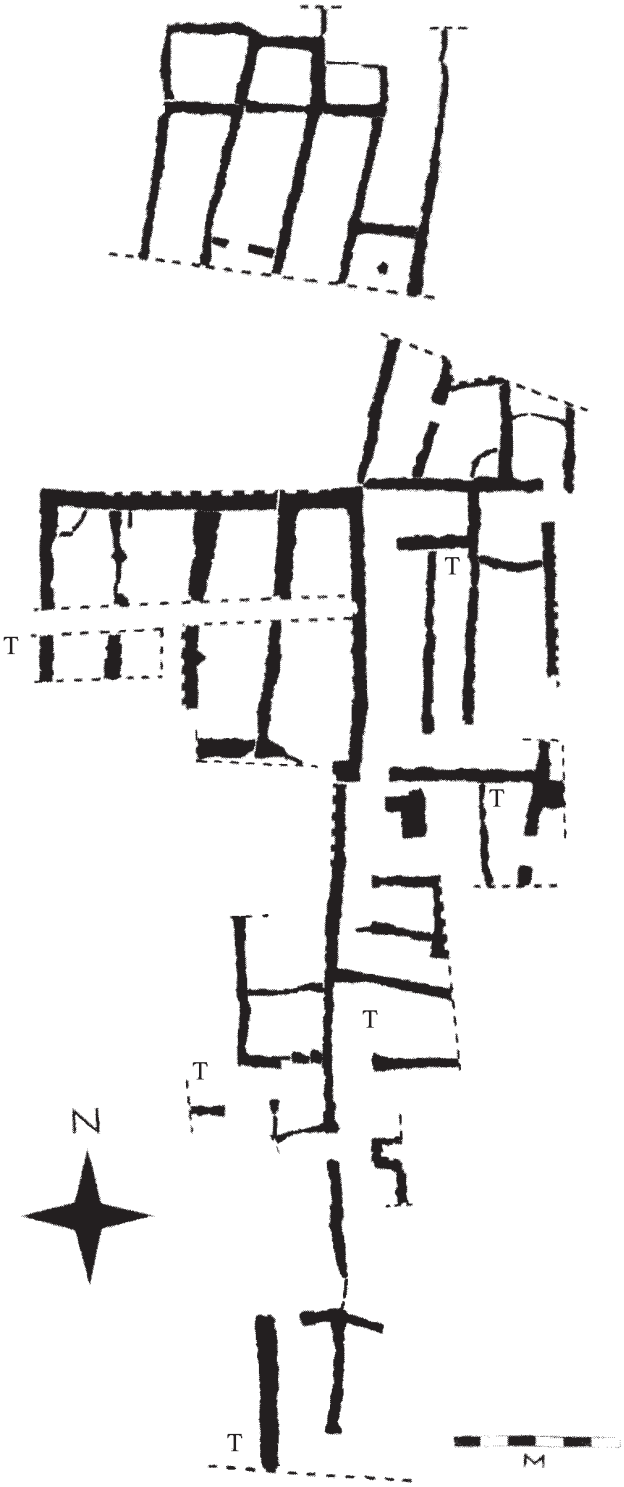


Figure 3.6. Distribution of tabouns across Umm al-Biyara

in the east. Grinding of grain was taking place in at least four different locations. The 15 lamps found were spread widely across the site (Figure 3.4). The pottery recorded in the finds register (excluding bulk material) was also widely spread but was found in greater quantities in the north and east complexes (Figure 3.5). All of these objects – quern stones, lamps, pottery – are items associated with daily life and their distribution indicates that ordinary domestic activities were taking place over much of the site.

Bennett recorded six tabouns, or domestic hearths or ovens, in her excavation notes. They are widely spaced, indicating that there were a number of focal points for cooking (Figure 3.6). There is also evidence of other fires at the site not associated with hearths (discussed in detail in Chapter 2). The evidence points to a number of localized fires across the site, although the burnt layer

across the whole of Room 22 up to the walls suggests that this particular fire may have been more widespread. The small controlled fires appear to have occurred regularly, sometimes associated with a hearth, but more often not. Looking at the spread of hearths and fires across the site, it would seem that there was domestic activity in every complex.

Conclusions and discussion

The evidence from the Umm al-Biyara excavations points to it being a domestic site. The architecture and other features, such as cisterns, hearths and localized fires, all suggest long-term settlement. The types of finds, including loom weights, spindle whorls and quern stones, are also indicative of domestic activities.

The analysis of possible movement through the site suggests a close kin group with notions of shared space was living here. Equally, however, some spaces were clearly more private, with demarcated boundaries. Others were walled off completely and inaccessible to most: the purpose of these rooms is unknown, but it is reasonable to assume they were for secure storage. Indeed, security would have been of prime concern, especially considering the effort it would have taken to carry goods up the mountain. The site as a whole can be tentatively divided into four complexes in terms of ease of access between rooms, although we do not know the extent to which the complexes join together outside the excavated area. All complexes have signs of domestic use, but it is plausible that different areas were also used for distinct activities. For example, the east section of the site was particularly busy: the vast majority of finds was uncovered here, and there is dense clustering, particularly of loom weights, shells and storage-related pottery. This may have been an area of production and storage. Significantly fewer objects and features were found in the south of the site, but the presence of hearths still indicates domestic activity. The main divisions of space of the site are summarized in Figure 3.7.

It is likely that this site represents the settlement of an extended kin group probably practising a mixed economy. As discussed in Chapter 10, the settlement of Edom in Iron II may have resulted in pastoralist tribal groups being forced to move up into the mountains where only limited agriculture on small fields and terraces could be practised. Other products needed by the community were obtained by exchange from the settlements on the plateau, and we know from the oil receipt that Umm al-Biyara was indeed engaged in trade.

The notion of Umm al-Biyara as a domestic settlement may have implications for other Iron II mountain-top sites with similar architecture, like as-Sadeh and Jabal al-Qseir, and clearly demonstrates the Edomites making ‘a home high in the mountains’ (Obadiah I:3).

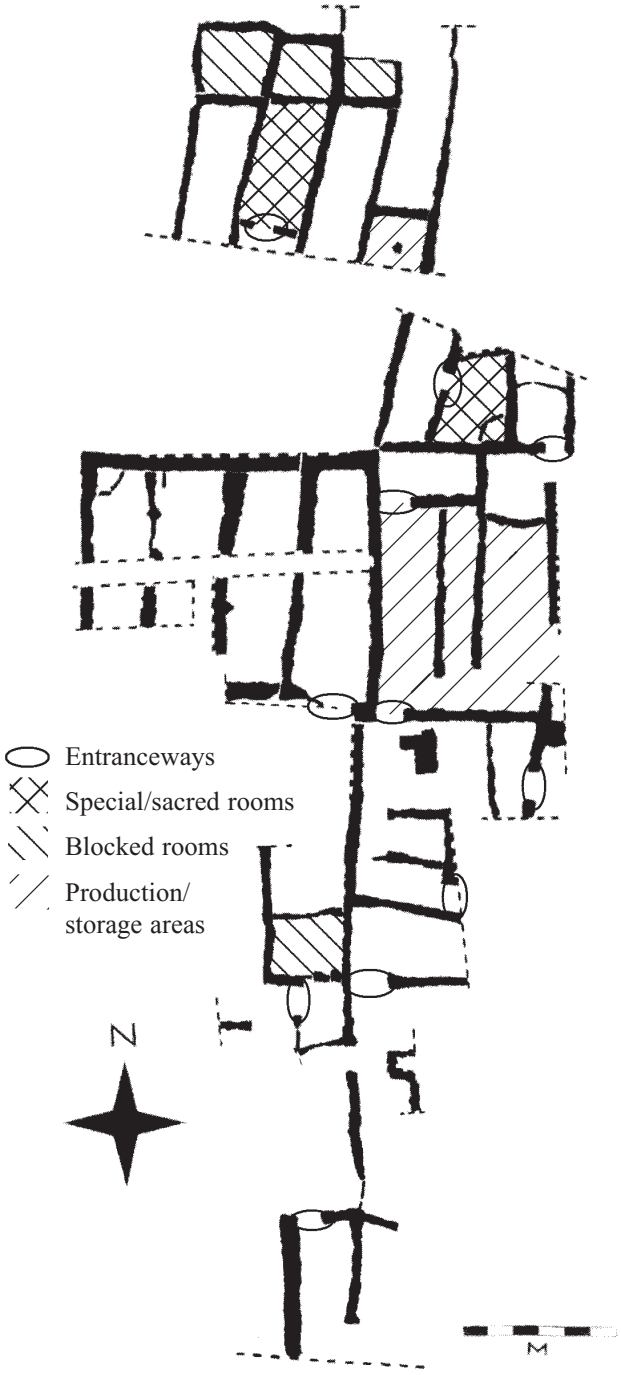


Figure 3.7. Possible uses of space across Umm al-Biyara

4. The Pottery

Piotr Bienkowski

with contributions by Marion F. Oakeshott

Introduction

This chapter presents the Iron II pottery type series from Umm al-Biyara. One of Crystal Bennett's principal aims in excavating the site was to discover a stratified group of 'Edomite' pottery. Prior to her excavations, no 'Edomite' site had been extensively excavated, and there was no existing typology of 'Edomite' pottery.

Despite her desire to excavate stratified 'Edomite' pottery, Crystal Bennett's plan was, once the single-period nature of the site became apparent, to publish the Umm al-Biyara pottery as a type series, not contextually, as at Tawilan and Busayra later on (Bennett and Bienkowski 1995, 17; Bienkowski 2002, 233). To this end, only one example of each pottery 'type' was recorded, and all other sherds of the same 'type' were either discarded or left unmarked, with no indication of context. We have no idea of the total quantities of pottery involved. Often a site notebook will mention 'a great deal of pottery' from a particular context, but the details were not recorded. Crystal Bennett checked all the pottery during the excavations. Diagnostic sherds (rims, bases, handles, painted sherds) were kept, and some – a minority – were marked in ink with their context numbers.

During the excavations, Bennett began her own type series. This was based on four main categories: 1) for storing and transporting, 2) for drawing and pouring liquids, 3) for preparation of food away from and on the fire, 4) for eating and drinking. Her principal pottery types were Jugs, Jars, Bottles, Mixing bowls, Cooking pots, Lids, Bowls, Goblets, Dishes, Lamps and Mugs. These types were drawn onto Type Series sheets: however, these were lost at some point and are not part of the extant excavation archive. A selection of the pottery was retained in the British School of Archaeology in Jerusalem (now the Kenyon Institute).

Bennett never completed her Umm al-Biyara pottery type series, and the first systematic study of 'Edomite' pottery was by Marion Oakeshott as part of her doctoral dissertation (Oakeshott 1978). As part of her research Oakeshott studied some of the Umm al-Biyara pottery, putting it into the same typological series that she had developed for the more extensive Busayra pottery (Oakeshott 1978, 96–9).

As a result of the recording system used for pottery at Umm al-Biyara, and the lack of rigorous and extensive contextual recording of sherds, it is not possible in this report to publish the pottery contextually. The type series presented in this chapter is based on Oakeshott (1978), with her agreement and participation, with modifications, parallels and discussion by Piotr Bienkowski – the same approach as was taken with the Busayra pottery (Bienkowski 2002, 233). Sections on manufacturing methods, ware types and decorative motifs are taken from Oakeshott 1978, with some modification by Piotr Bienkowski. Ware descriptions of pottery illustrated by Oakeshott have been adapted from Oakeshott 1978. Certain illustrated sherds have no associated ware descriptions, where drawings not previously published by Oakeshott were found in the excavation archive with no written description. Other ware descriptions are taken from the finds register, but usually these are not very detailed.

Parallels have been divided geographically – southern Edom, northern Edom, northern Transjordan, the Negev and southern Judah – in order to show clearly the relationship of the Umm al-Biyara pottery to that of neighbouring areas.

Manufacturing methods (MFO/PB)

The same manufacturing techniques were employed for the Umm al-Biyara pottery as at Busayra (Bienkowski 2002, 233–4).

Method A

The pot was built in sections on a clay base, on a turntable (or slow wheel; cf. Homès-Fredericq and Franken 1986, 169–70). When several sections had been placed one on top of the other they were smoothed together. To support the weight of the wall, the lower part had to be rather thick. The rim was then shaped by folding the upper part of the pot inwards and smoothing it against the pot wall; it was then often folded outwards again. When the rim had been shaped and the interior of the pot had been dry-smoothed, the pot was removed from the lump of clay on which it had been built by cutting with a string or some similar material.

The pot was left to dry until the top part was leather-hard. At this stage the rim was strong enough to support the weight of the pot, which was either inverted in the hand in order to finish the base by Method 1 (see Bases, below) or inverted on the turntable and the base made by one of Methods 2–5. Excess clay on the lower part of the wall was removed by turning. If part of the wall is much thicker than the rest, the pot is liable to crack during either drying or firing because, as the damp clay dries out, the fabric shrinks. Thinner parts of the wall dry faster than thicker parts, and so shrink faster, causing stress on the different parts.

When the base was finished, the pot was left to dry, still inverted, until the base reached the leather-hard state. Surface treatment, such as burnishing, was done at this stage. The pot was ready for firing when it had completely dried to the white hard condition.

Method A was used for all types of vessels, with the exception of Cooking Pots A and Jugs A and E.

Method B

The lower part of the pot was moulded. A sheet of clay was rolled out to an even thickness and then pressed into a hollow mould or over a hump mould. When this part of the pot was sufficiently dry it was removed from the mould, the top of the pot was added to it in sections and the rim was shaped. This method was used for Cooking Pots A.

Method C

Some small vessels, notably juglets, were made by a method that amounts to throwing. The clay used for pottery at Umm al-Biyara was too lean for true throwing, and it is unlikely that the type of wheel used was suitable for throwing large vessels that were not cylindrical. However, it is possible to produce narrow vessels by a throwing technique, as this shape of vessel does not induce much outward stress on the clay. The potter would probably make several pots in succession from one lump of clay centred on the wheel. After each pot was made it was left to dry to the leather-hard state and returned, inverted, to the wheel for surface treatment. This method was used for Jugs A and E.

Bases

The following methods of shaping bases were used at Umm al-Biyara:

1. The pot was cut free below the inside of the base. While the vessel was held upside down in the hand, the outside of the base was adjusted by scraping and dry-smoothing. This method is appropriate only for small vessels, and was used for Bowls L and Lamps.

2. The pot was cut free below the inside of the base. It was then either returned to the wheel, inverted and the base turned, or the base was left rough. This method was used for smaller Bowls (A, J, K and O), smaller Jugs (A) and Lids.

3. The pot, with open base, was inverted on the wheel. A coil of clay was added and then grasped and twisted, thus sealing the base. The exterior of the base was then smoothed but a small hollow remained on the inside. This method is most suitable for cylindrical vessels.

4. The pot, with open base, was inverted on the wheel. A coil of clay was added, as in Method 3, and twisted and pushed down at the same time. The base exterior was then smoothed. Unless the interior of the base is subsequently smoothed, an umbilicus remains on the inside of the pot. This method was used for larger vessels: Bowls B, C, D, E, F and N and Jugs B.

5. The pot was pinched off the cone of clay while the wheel was turning, producing a closed base. The pot was later inverted on the wheel and turned. This method can only be used for small jugs and similar narrow-based vessels and is the complement to manufacturing Method C (above).

Ring bases: Any of these bases can have a ring base attached. Where there was surplus clay at the base of a vessel, the ring was usually made from this by trimming away clay from inside and outside the ring to be formed. A separate coil of clay can also be added.

Turned bases: Bowl bases made by Method 2 are frequently turned with considerable care, producing a very smooth, lustrous surface. This treatment of the base is generally associated with similar treatment of the whole of the exterior and interior of the bowl. The technique is a diagnostic criterion of Bowls B4, J, K and O.

Rims

The normal method of manufacturing rims was to make a single inward fold followed by smoothing and frequently by one or more outward or inward folds and subsequent surface treatment.

Ware types (MFO/PB)

The range of fabrics is the same as that used at Busayra and Tawilan (Bienkowski 2002, 234–5; Hart 1995a, 55–6). Organic inclusions such as chaff are very rare; shale occurs quite frequently as a temper.

Ware 1

This is a common fabric at Umm al-Biyara, and all vessels were made from it except where specified below. The surface colour ranges through red, pink, buff, brown, orange, yellow and grey. The core is usually grey, but sometimes one or more of the surface colours. The temper is usually about 2 mm in size, but is frequently 0.25 mm or smaller, or as large as 5 mm. The most common inclusion is calcite, followed by shale, basalt, quartz and grog. In general, the particle size of inclusions in any pot is variable within the limits given above, and would thus seem not to have been sieved.

In storage jars made of Ware 1 a large amount of lime grit, and occasionally sand, was used. The lime grits are very apparent in the clay as white nodules, which appear both on the inside and outside. Manure was also used. In most storage jars there are many impressions of grain or seeds, and no storage jar shows any real wheel marks either inside or outside.

Ware 2

This clay contains little calcite and much basalt.

Ware 2a: with quartz: Surface firing colour ranges from pink to buff, white to green, pink to grey. The core is pink, yellow, brown or grey. This ware is used principally for Jugs B (which are also found in Ware 2b), and occasionally for Bowls. The temper is usually *c.*3 mm in size.

Ware 2b: without quartz: The surface firing colour ranges through cream, pink, white, green and grey; the core may be cream, white, green, pink or grey. This ware is used principally for Jugs B, and for some Bowls. The temper size is *c.*3 mm.

Ware 3

Clays with high silica content. All these wares are rather lean and unsuitable for throwing, and plasticity is further reduced by the addition of temper. They are strongly adhesive, so that handles do not easily become detached. Ware 3a: calcite is rare; quartz predominates. The surface colour ranges from pink to cream to yellow; the core is pink, cream or grey. Temper is generally small, up to 2 mm, and mainly quartz, with smaller quantities of mica, occasionally grog, and some calcite. This ware is as common as Ware 1, and restricted to Bowls. At Busayra, Ware 3a was uncommon (Bienkowski 2002, 235).

Ware 3b: 'white ware' is not found at Umm al-Biyara (or Tawilan). It is common at Busayra and in the Negev – the sample from Busayra analysed by neutron activation originated in the Wadi Arabah (Bienkowski 2002, 235). Given Umm al-Biyara's proximity to the Wadi Arabah, it is notable that this ware is not attested there or at Tawilan.

Ware 3c: 'cooking pot ware'; highly siliceous. The surface is fired red, black, brown, orange, grey or pink. The core is orange, grey, black, brown or pink. The temper consists mainly of quartz; other inclusions are calcite, basalt and grog. Temper size is normally in the range 0.5 mm to 3 mm, but occasional large pieces up to 6 mm occur.

The pottery type series

(Type series adapted from Oakeshott 1978, 28–58)
Note that Oakeshott's type series was originally developed for the pottery from Busayra (Bienkowski 2002, 235–343). Although there are considerable differences between the pottery from Umm al-Biyara and Busayra – and generally the Umm al-Biyara ceramic assemblage is much more restricted – the same type series is being used for convenience and for ease of comparison. Moreover, this approach means that the Umm al-Biyara pottery can also be compared with that from nearby Tawilan, which was published according to the same type series, though slightly simplified (Hart 1995a, 53–66). Since the overall type series was developed for the much more extensive Busayra repertoire, there are inevitably large gaps in the numbering sequence.

Bowls

Bowls type A: platters

Made by Method A with base type 2.
All Oakeshott's principal subdivisions of Bowls A were dependent on the type of base – ring, rough or turned – but only one Bowl A, without a base, was recorded at Umm al-Biyara, with a simple painted band on the rim (Figure 4.1:1).

Bowls A: parallels

Many parallels for the basic platter shape are found in neighbouring areas, but parallels for the decoration are limited to Edom and the Negev.
Southern Edom: Tawilan (Bennett and Bienkowski 1995, figs 6.1–6.2), Ba'ja III (Bienert *et al*. 2000, fig. 18:7), as-Sadeh (Zeitler 1992, fig. 14.3A:13), Ghrareh (Hart 1989, pl. 1:1–3), Tall al-Khalayfi (Pratico 1993, pls 36:8–10; 37:11)
Northern Edom: Busayra (Bienkowski 2002, figs 9.1–9.4), Khirbat an-Nahas (Fritz 1996, fig. 3:1 – unpainted, 9th-century BCE?)
Northern Transjordan: Balu'a (Worschech *et al.* 1986, fig. 12:1), Dhiban (Tushingham 1972, figs 2:22–32; 18:7, 10, 12; 23:12, 13; 24:9), Hisban (Lugenbeal and Sauer 1972, nos 504–512), Tall al-'Umayri (Herr 1989, figs 19.10:11–17, 7th-century BCE; 19.16:21, 22, late Iron II/Persian)
Negev: Horvat Qitmit (Freud and Beit-Arieh 1995, figs 4.1:3, 4, 8–12; 4.8:1; 4.9:1–4; 4.11:1–4), Tel 'Ira (Freud 1999, 194–5, and, e.g., figs 6.69:6; 6.83:5; 6.84:4; 6.90:4; 6.97:1), Arad (Herzog *et al*. 1984, fig. 25:1, Stratum VII, 7th-century BCE), Tel Masos (Fritz and Kempinski 1983, pl. 163:4, 5), Horvat Teiman (Ayalon 1995, fig. 3:1–6)

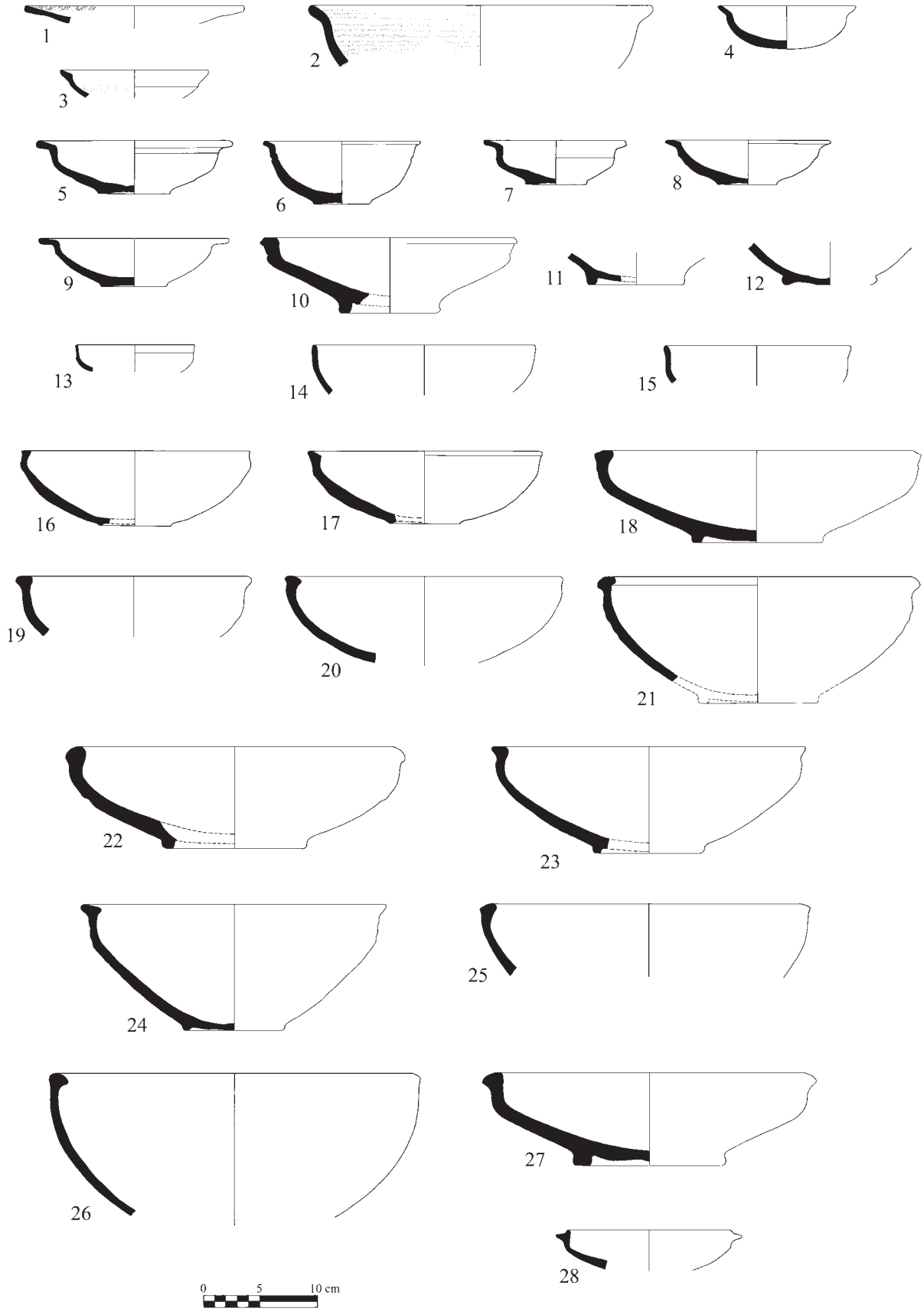


Figure 4.1. Bowls A, B, C, D, E, miscellaneous

Fig. no.	Type	Register no.	Locus	Description
1	Bowl A		XL.14	Painted band on rim
2	Bowl B4		XXXIV.6	Burnished
3	Bowl B4		XIII.1	Burnished
4	Bowl B4		XVII.31	Unusual for having a rounded base
5	Bowl B4b	6	XI.1	Well-fired orange-buff ware, no grits. Thick lime deposit
6	Bowl B4b	19	XXI.5	Pink medium–fine clay with heavy lime deposit. Rim chipped in antiquity. Surface much pitted inside and out
7	Bowl B4b	28	XXXIII.5	Orange ware. Flat out-turned rim, badly finished rim base. Slight carination under rim. Heavy lime deposit
8	Bowl B4b	46	IV.3	Well-fired orange-buff ware
9	Bowl B4b	189	XLIII.2.7 & XLIII.2.15	Burnished interior. Buffish-red clay with a few grits. Well-fired, wheel-turned, surface pitted
10	Bowl B5b	137	LI +	Coarse pinkish-buff ware. Surface very pitted and Lime-encrusted
11	Bowl base, misc.		XLVI.2a	Ring base. Buff ware, grey core
12	Bowl base, misc.		XLVI.2a	Ring base. Yellow-buff ware, fairly well levigated
13	Bowl C	218	XLIX.4	Very fine clay, well-fired with smooth slip and bands of black paint inside and out. No base
14	Bowl C		LI.2.5	No base
15	Bowl C		XLVI.13	Pink ware and slip, very fine and well levigated. No base
16	Bowl D2b	44	XX.2	Well-fired orange-buff ware
17	Bowl D2b	45	XL.1c	Well-fired orange-buff ware
18	Bowl D3a	157	L.2	Buff-red clay. Surface very pitted. Heavy lime deposit. Slow wheel-turned
19	Bowl D3a		XLI.20	No base
20	Bowl D3a		XLI.25	No base
21	Bowl D3a		XLIX.1.4	Pink ware and slip, very well-fired, but clay impure
22	Bowl D4a	136	L.+	Coarse gritty buff ware, clay full of impurities. Lime-encrusted. Slow wheel-turned
23	Bowl D4a	208	XLVIII.8a	Pink clay with many grits. Surface badly pitted.
24	Bowl D4a	231	XLIX.7	Hard, well-fired pinkish-buff ware with a few grits. Surface pitted
25	Bowl D4a		LI.2.10	No base
26	Bowl D4a		XLVI.1a	Pink ware, grey core, fairly hard, few grits. Well-fired. No base
27	Bowl D4b	86	XLI.15a	Badly fired pink clay. Surface pitted because of badly levigated clay
28	Bowl E		LI.2.10	Plain rim with ridge below. No base

Southern Judah: Tall Bayt Mirsim (Albright 1943, pl. 21:4–6), Lachish (Zimhoni 1990, fig. 4:7, 10, Level III), Jerusalem (Eshel 1995, figs 1; 9, 7th-century BCE), Tel Goren (Mazar *et al.* 1966, fig. 15:3, 4, 7th-/6th-century BCE)

Bowls type B: carinated bowls

Usually carinated bowls with the rim folded outwards, horizontally. Made by Method A, base type 2.

B4: carinated bowls with tapering rim and turned base (Figure 4.1:2–4): these bowls were returned to the wheel when leather-hard, and the base as well as the lower part of the wall was turned.

B4b: fairly deep carinated bowl (Figure 4.1:5–9): rim diameters between 11.5 cm and 16 cm, most common 13 cm.

B5: bowls with tapering rim and ring base; rounded carination: the carination is not very marked, although the lower part of the wall was turned.

B5b: large bowls (Figure 4.1:10): rim diameters 21–25 cm, usually 22 cm.

Bowls B: parallels

Parallels for the basic shape are common in neighbouring areas. The Busayra B bowls are commonly decorated, occasionally with a pedestal base and denticulation, which is rare elsewhere and unknown at Umm al-Biyara.

Southern Edom: Tawilan (Bennett and Bienkowski 1995, fig. 6.3:1–12 – note that no parallels at Tawilan for Bowls B5), Ba'ja III (Bienert *et al*. 2000, fig. 18:1–3, 5), Ghrareh (Hart 1987, fig. 9:1–2; 1988, fig. 7:3; 1989, pls 1:4–10; 2; 3:1–6), as-Sadeh (Zeitler 1992, figs 14.3B:1–2; 14.4A:1–6, 8–10; 14.6:12–16), Khirbat al-Mu'allaq (Lindner *et al.* 1996a, figs 27:8; 28:1), Jabal al-Qseir (Lindner *et al*. 1996b, fig. 25:6), Khirbat al-Kur (Hübner and Lindner 2003, fig. 15: 5–6), Tall al-Khalayfi (Pratico 1993, pls 35:7–12; 36:1–7; 37:1–3)

Northern Edom: Busayra (Bienkowski 2002, figs 9.5–9.10), Khirbat an-Nahas (Fritz 1996, fig. 3:3 – 9th-century BCE?), Feifa (Lapp 1994, fig. 13-2:1, 2)

Northern Transjordan: Aro'er (Olávarri 1965, fig. 2:9), Dhiban (Winnett and Reed 1964, pl. 73:7; Tushingham 1972, figs 2:17, 40, 41; 23:6; 24:11), Hisban (Lugenbeal and Sauer 1972, nos 1–101), Tall al-'Umayri (Herr 1989, figs 19.4:23, late 8th-/early 7th-century BCE; 19.7:13–23, 7th-century BCE; Herr *et al*. 1991, fig. 3.25:24, 25, early Persian), Tall Jawa (Daviau 1997, fig. 7: 10, 11, late 8th-/7th-century BCE), Tall Nimrin (Flanagan *et al.* 1994, fig. 19:1, Persian)

Negev: Horvat Qitmit (Freud and Beit-Arieh 1995, figs 4.1:1, 9, 57; 4.2:17; 4.5:7; 4.14:13), Tel 'Ira (Freud 1999, figs 6.63:22; 6.70:2; 6.100:1, 3), Tel Masos (Fritz and Kempinski 1983, pl. 163:15, 16)

Southern Judah: Tall Bayt Mirsim (Albright 1943, pl. 21:7–8, 10–12, 15), Lachish (Zimhoni 1990, fig. 4:14, 15, Level III), Jerusalem (Eshel 1995, figs 3:20, 21; 13:3, 7th-century BCE), Tel Goren (Mazar *et al.* 1966, fig. 15:1, 7th-/6th-century BCE)

Bowls type C: straight-rimmed carinated bowls

Usually carinated bowls with straight rim, either rounded or tapering. Made by Method A, base type 5. When the wall had been built up to the desired height, the rim was finished by an inward fold and smoothed with the fingers.

Oakeshott's principal subdivisions of Bowls C were dependent on the type of base – ring, pedestal or flat – or characteristic S-shaped carination. The three recorded C bowls from Umm al-Biyara lack bases, and so can only be generically classed as C bowls, with no further subdivision (Figure 4.1:13–15).

Bowls C: parallels

The basic shape is common in Palestine and Transjordan in Iron II, but decorated examples are rare outside Edom.

Southern Edom: Tawilan (Bennett and Bienkowski 1995, fig. 6.3:13), Ba'ja III (Bienert *et al*. 2000, fig. 18:6), Tall al-Khalayfi (Pratico 1993, pl. 37:8, 10)

Northern Edom: Busayra (Bienkowski 2002, figs 9.11–9.14)

Northern Transjordan: Dhiban (Winnett and Reed 1964, pl. 75:11; Tushingham 1972, figs 2:18–21; 18:4, 11), Tall al-'Umayri (Herr 1989, fig. 19.9:6–9, 7th-century BCE)

Negev: Horvat Qitmit (Freud and Beit-Arieh 1995, figs 4.1:24; 4.2:8; 4.11:5, but very rare), Tel 'Ira (Freud 1999, fig. 6.87:3), Beersheba (Singer-Avitz 1999, fig. 9:16; Aharoni 1973, pl. 59:46–57, Stratum II), Horvat Teiman (Ayalon 1995, fig. 3:11–14, 19, 20)

Southern Judah: Tall Bayt Mirsim (Albright 1943, pls 24–25), Jerusalem (Eshel 1995, fig. 2:19, 20, 22, 7th-century BCE)

Bowls type D: bowls with triangular-section rims

Virtually no two vessels of type D are identical (Figure 4.1:16–27). Oakeshott's detailed subdivision (1978, 36–7), using criteria of size, general conformation, rim shape and rim slope, has not been applied here since it is too unwieldy to be effective and useful. A simpler system is used to distinguish size and basic conformation, since these criteria are more likely to relate to differential use than differences in rim shape and rim slope.

Size

2 medium bowls: 15–20 cm diameter
3 large bowls: 20–25 cm diameter
4 very large bowls: diameter greater than 25 cm

Conformation

a curved-sided
b carinated

Bowls type D were made by Method A with base type 5. The rim was made by folding twice, once inwards and once outwards. The join of the second, outward, fold was smoothed in to the wall. The bowls are occasionally painted with horizontal bands and lines of slip in black. The fabric is normally fired within the range buff to red.

Bowls D: parallels

Southern Edom: Tawilan (Bennett and Bienkowski 1995, figs 6.4–6.7), Ba'ja III (Bienert *et al*. 2000, fig. 17:2–5), as-Sadeh (Zeitler 1992, figs 14.3A:10; 14.5:14–18), Khirbat al-Mu'allaq (Lindner *et al.* 1996a, figs 27:10; 28:3, 8, 10, 12), Jabal al-Qseir (Lindner *et al*. 1996b, fig. 27: 3–6), Ghrareh (Hart 1988, fig. 7:7; 1989, pls 3:7–13; 4, 5), Khirbat al-Kur (Hübner and Lindner 2003, fig. 15:3–4), Qurayyat al-Mansur (Hübner 2004, fig. 3:7), Tall al-Khalayfi (Pratico 1993, pls 33:3–15; 34; 35:1–6)

Northern Edom: Busayra (Bienkowski 2002, figs 9.15–9.18), Faynan (Barker *et al*. 1999, fig. 27:1, though larger)

Northern Transjordan: Balu'a (Worschech *et al.* 1986, fig. 12:6; Worschech 1990, fig. 21:6), Dhiban (Tushingham

1972, fig. 1:62–65), Tall al-'Umayri (Herr 1989, figs 19.8:26, 7th-century BCE; 19.15:17–22, late Iron II/Persian), Tall Nimrin (Flanagan *et al.* 1994, figs 19:2, Persian; 20:3, Iron II)
Negev: Horvat Qitmit (Freud and Beit-Arieh 1995, figs 4.1:25, 50, 56; 4.2:4–7), Tel 'Ira (Freud 1999, figs 6.83:4; 6.84:3; 6.87:2), Tel Masos (Fritz and Kempinski 1983, pl. 163:8–11), Beersheba (Aharoni 1973, pl. 59:58, 63–71, Stratum II), Horvat Teiman (Ayalon 1995, fig. 3:8–10)
Southern Judah: Tall Bayt Mirsim (Albright 1943, pls 21:1–2; 22; 23), Jerusalem (Eshel 1995, fig. 13:10–19, 7th-century BCE)

Bowls type E: bowls with triangular-section rims with ridge below rim

These bowls are a variant of Bowls type D. The same comments and techniques apply as to Bowls type D, and the same subdivision system has been used. In Bowls type E, the join of the second, outward, fold was left projecting as a ridge. The ridge is probably functional in origin, serving as a handle. Only one E bowl was recorded from Umm al-Biyara (Figure 4.1:28).

Bowls E: parallels

Southern Edom: Tawilan (Bennett and Bienkowski 1995, figs 6.4:2; 6.5:1; 6.7:5–7), Ghrareh (Hart 1989, pl. 4:17), Tall al-Khalayfi (Pratico 1993, pls 33:5; 34:5, 6)
Northern Edom: Busayra (Bienkowski 2002, figs 9.19–9.20), Ash-Shorabat (Bienkowski and Adams 1999, fig. 1:14)
Northern Transjordan: Tall al-'Umayri (Herr 1989, figs 19.8:25, 7th-century BCE; 19.15:12, late Iron II/Persian; Herr *et al*. 1991, figs 3.13:28; 3.14:3–4, late Iron II/early Persian)
Negev: Horvat Qitmit (Freud and Beit-Arieh 1995, figs 4.10:12; 4.17:4?; cf. also fig. 4.12:11), Tel 'Ira (Freud 1999, figs 6.65:1; 6.84:5; 6.102:8)
Southern Judah: Tall Bayt Mirsim (Albright 1943, pl. 26A:2), Jerusalem (Eshel 1995, fig. 4:9, 7th-century BCE)

Bowls type F: deep bowls with handles, thickened rim and ring base (kraters)

Large bowls with two or more handles, always with a ring base. Made by Method A, with base type 5. The handles are applied before the base is closed, and so cannot project above the rim. The handles are pulled. The rim is made with one inward and two outward folds.
F1: bowls with a long second rim fold (Figure 4.2:2–4)
F2: bowls with a shorter second rim fold
F2a: handles from rim to shoulder (Figure 4.2:5–6)

Bowls F: parallels

Southern Edom: Tawilan (Bennett and Bienkowski 1995, figs 6.15–6.17), as-Sadeh (Zeitler 1992, fig. 14.5:13), Jabal al-Qseir (Lindner *et al*. 1996b, fig. 25:2–3), Ghrareh (Hart 1988, fig. 7:11; 1989, pls 13, 17), Qurayyat al-Mansur (Hübner 2004, fig. 3:4), Khirbat al-Kur (Hübner and Lindner 2003, fig. 14:4), Tall al-Khalayfi (Pratico 1993, pls 22–24)
Northern Edom: Busayra (Bienkowski 2002, figs 9.21–9.22), Ash-Shorabat (Bienkowski and Adams 1999, figs 2:8, 9; 3:2, 8), Khirbat an-Nahas (Fritz 1996, fig. 3:9 – 9th-century BCE?), Feifa (Lapp 1994, fig. 13-2: 3–5)
Northern Transjordan: Balu'a (Worschech *et al.* 1986, fig. 12:13–15; Worschech 1990, fig. 24:47), Aro'er (Olávarri 1965, fig. 2:4), Dhiban (Winnett and Reed 1964, pl. 74:7; Tushingham 1972, fig. 1:41–45), Tall al-'Umayri (Herr 1989, fig. 19.4:19, late 8th-/early 7th-century BCE)
Negev: Horvat Qitmit (Freud and Beit-Arieh 1995, fig. 4.2:27, 30–32), Tel 'Ira (Freud 1999, figs 6.59:12; 6.67:11), Tel Masos (Fritz and Kempinski 1983, pl. 164:5, 6), Arad (Herzog *et al*. 1984, fig. 25:6, Stratum VII, 7th-century BCE), Beersheba (Aharoni 1973, pl. 66: 8, Stratum II)
Southern Judah: Tall Bayt Mirsim (Albright 1943, pl. 20:16), Jerusalem (Eshel 1995, fig. 16:5–10, 7th-century BCE), Tel Goren (Mazar *et al.* 1966, fig. 16:3–6, 7th-/6th-century BCE)

Bowls type H: thin-walled bowls

These bowls are not grouped with type J as the walls are not thin enough to qualify as 'fine ware'. At Tawilan, Hart (1995a, 54) equated type H with type J since he found the distinction subjective and difficult to define. Bowls type H were made by Method A and then turned. The sole recorded example from Umm al-Biyara has a rounded base, while no examples survived with bases at Busayra. The rim is made with a single inward fold (Figure 4.3:1).

Bowls H: parallels

Northern Edom: Busayra (Bienkowski 2002, fig. 9.23:5–8), Ash-Shorabat (Bienkowski and Adams 1999, figs 1:11–12; 2:1–2, 4), Khirbat an-Nahas (Fritz 1996, fig. 3:4 – 9th-century BCE?)
Northern Transjordan: Dhiban (Tushingham 1972, fig. 2:12–14?), Tall al-'Umayri (Herr *et al*. 2000, fig. 3.33:1–5, late Iron II/early Persian)
Negev: Horvat Qitmit (Freud and Beit-Arieh 1995, fig. 4.1: 26, 27, 31–32, 35, very common)

Bowls type J: 'fine ware' bowls

The defining characteristic of type J bowls is the thinness of the walls, achieved by careful trimming of the vessel wall at the leather-hard stage. Bowls type J were made by Method A, and when leather-hard the vessel was replaced on the wheel and turned to give an average wall thickness of 2–5 mm. One of the recorded Umm al-Biyara J bowls is decorated, whereas at Busayra they were almost without exception decorated.

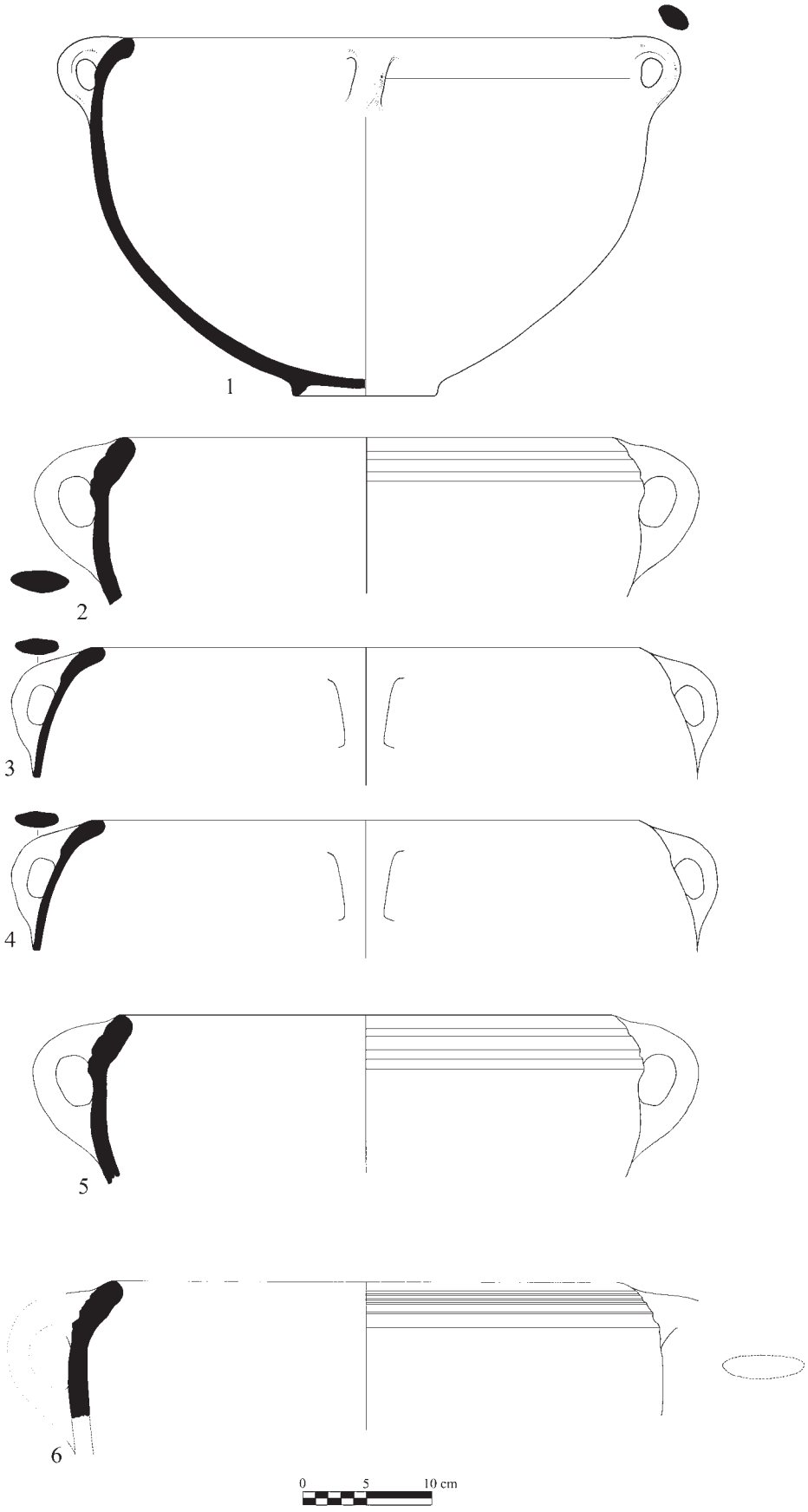


Figure 4.2. Bowls F

Fig. no.	Type	Register no.	Locus	Description
1	Bowl F		XVIII.2.4	
2	Bowl F1		XLI.18	Ridged rim
3	Bowl F1		XLI.15a	Buff ware, burnished externally, with buff slip
4	Bowl F1		XLIX.3	Buff ware with grits, hard and well-fired. Surface pitted
5	Bowl F2a		XLI.18	With ridged rim
6	Bowl F2a		XLI.18	With ridged rim

J1: rounded sides, flaring or vertical neck
J1b: medium bowl (Figure 4.3:2)
Rim diameters 11–15 cm
J2: curve-sided bowls
J2b: large bowl (Figure 4.3:3)
Rim diameters 17.5–22 cm

Bowls J: parallels

Parallels for the basic shape are common in neighbouring areas, but decorated examples are common only in Edom and at certain sites in the Negev.
Southern Edom: Tawilan (Bennett and Bienkowski 1995, fig. 6.8:1–8, 11–17), Ba'ja III (Bienert *et al*. 2000, fig. 17:6), Jabal al-Qseir (Lindner *et al*. 1996b, fig. 27:1), Khirbat al-Kur (Hübner and Lindner 2003, fig. 15:1), Ghrareh (Hart 1987, fig. 9:5–6; 1988, fig. 7:2, 4; 1989, pls 9:9–29; 10:1–4), Tall al-Khalayfi (Pratico 1993, pls 27:15; 28:7–8)
Northern Edom: Busayra (Bienkowski 2002, figs 9.23–9.26), Ash-Shorabat (Bienkowski and Adams 1999, fig. 2:5)
Northern Transjordan: Dhiban (Tushingham 1972, fig. 1:67?), Hisban (Lugenbeal and Sauer 1972, nos 274–276), Tall al-'Umayri (Herr 1989, fig. 19.4:21, late 8th-/early 7th-century BCE)
Negev: Horvat Qitmit (Freud and Beit-Arieh 1995, figs 4.5:3; 4.6:2; 4.9:16–19; 4.11:8, 9; fig. 4.11:7 is the only painted bowl of this type at Qitmit), Tel 'Ira (Freud 1999, figs 6.80:4; 6.90:1), Tel Masos (Fritz and Kempinski 1983, pl. 164:7), Malhata (Mazar 1985, fig. 5:2), Beersheba (Singer-Avitz 1999, fig. 9:1–4, 13–19)
Southern Judah: Tel Goren (Mazar *et al.* 1966, fig. 15:11, 7th-/6th-century BCE)

Bowls type K: imitation Assyrian bowls

The shape of these flared bowls is probably imitated from Neo-Assyrian carinated bowls and beakers made in 'palace ware' (cf. generally Hausleiter 1996, pl. 105), and although the ware is finer than the bulk of the Umm al-Biyara pottery the manufacturing technique and decoration show no distinctive characteristics. The bowls were made by Method A, with base type 2, always turned. They are generally well fired and finished with great care, with occasional burnish.
K3: deep bowls with rounded body (Figure 4.3:4, 6)

Bowls K: parallels

For discussion of imitation Assyrian bowls, and the debate about how to distinguish real from imitation, see Bienkowski 2002, 282.
Southern Edom: Tawilan (Bennett and Bienkowski 1995, fig. 6.8:9–10, 18–22), Ba'ja III (Bienert *et al*. 2000, fig. 18:4), as-Sadeh (Zeitler 1992, fig. 14.6:10), Ghrareh (Hart 1987, fig. 9:4; 1988, fig. 7:1; 1989, pl. 9:1–8), Tall al-Khalayfi (Pratico 1993, pls 26:6–18; 27:1–12)
Northern Edom: Busayra (Bienkowski 2002, fig. 9.26: 20–23), Ash-Shorabat (Bienkowski and Adams 1999, figs 1:19; 2:6; 3:1)
Northern Transjordan: Hisban (Lugenbeal and Sauer 1972, no. 273), Tall al-'Umayri (Herr 1989, fig. 19.16:7, late Iron II/Persian), Tall Jawa (Daviau 1997, fig. 4, late 8th-/7th-century BCE), Tall al-Mazar (Yassine 1984, fig. 3:3, Persian)
Negev: Horvat Qitmit (Freud and Beit-Arieh 1995, figs 4.1:38, 40; 4.6:1), Beersheba (Singer-Avitz 1999, fig. 9:10–12)
Southern Judah: Tall al-Hesi (Bennett and Blakely 1989, fig. 137:5, Persian)

Bowls type L: mugs (bowls with a single loop handle)

Made by Method A, base type 1, with the rim neatened by a single fold inwards. The bases are never turned on the wheel, as the handles, which are smoothed on at the leather-hard stage, project above the level of the rim. Some handles are pulled, but the usual technique is folding. The finish of the mug is rough: they are never burnished or slipped. Wet-smoothing is sometimes used. Rim diameter 9–12 cm, average *c.*10 cm (Figure 4.3:5, 7–14).

Daviau (2002, 204) identifies these as cultic artefacts. They appear in all loci at Tall Jawa where clearly cultic items were found, and were also common in tombs in northern Transjordan. At Umm al-Biyara there is no obvious cultic connection: rather, their context is domestic use and storage (Figure 4.3:7–14).

Bowls L: parallels

Southern Edom: Tawilan (Bennett and Bienkowski 1995, fig. 6.9), Ghrareh (Hart 1987, fig. 9:3; 1988, fig. 7:6; 1989, pl. 8), Tall al-Khalayfi (Pratico 1993, pls 25; 26:1–5)
Northern Edom: Busayra (Bienkowski 2002, fig. 9.27)

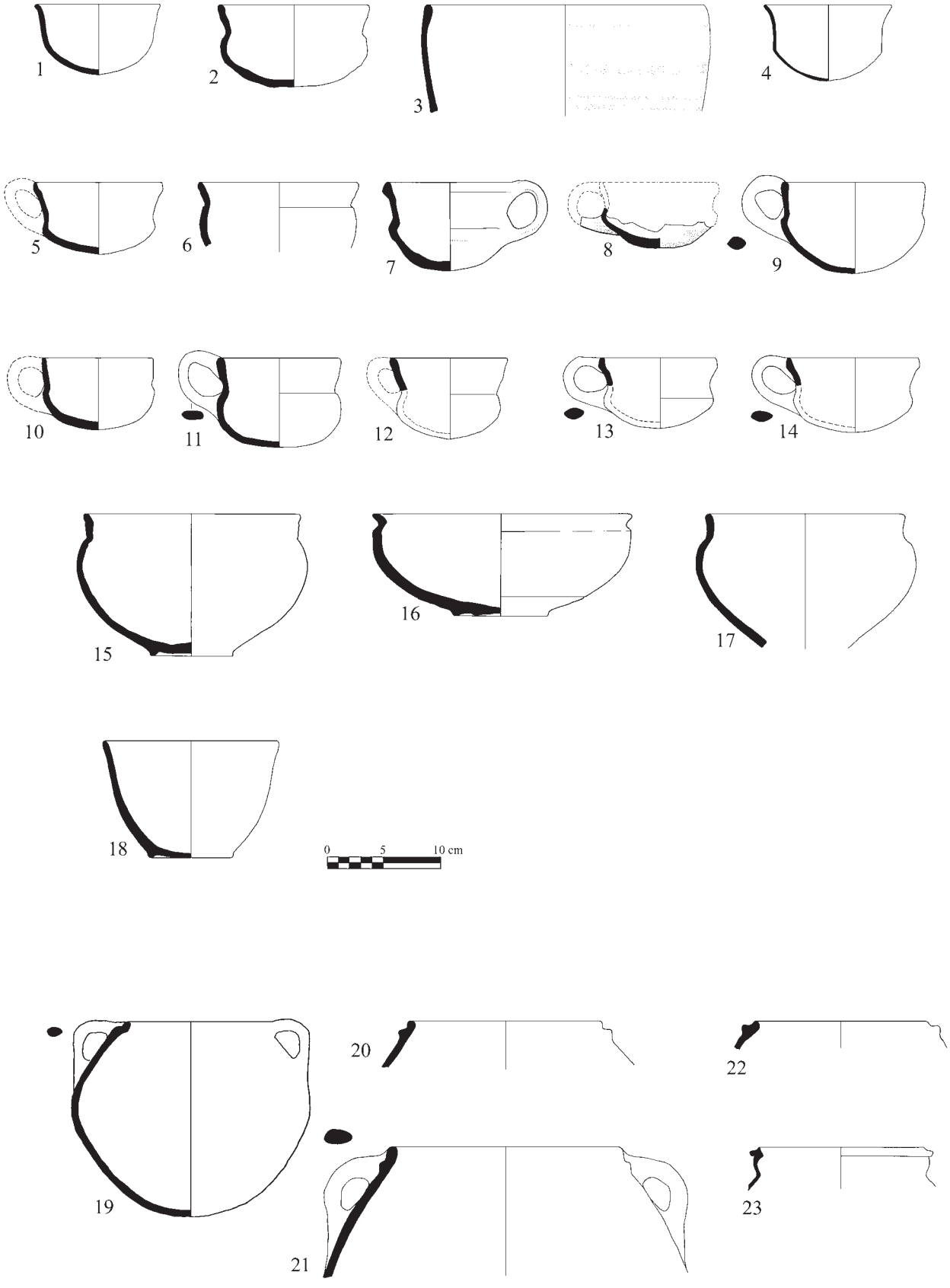


Figure 4.3. Bowls H, J, K, L, N, O, Cooking Pots

Fig. no.	Type	Register no.	Locus	Description
1	Bowl H?	130	L.4	Very fine, well levigated, well-fired pink buff clay
2	Bowl J1b	112	XLIII.6.6	Well-fired but slightly coarse clay, possibly turned on a slow wheel. Pitted inside and out from impurities
3	Bowl J2b	132	XLIII.2.4	Fine buff ware with self slip. Painted with horizontal and vertical stripes. Paint very badly worn
4	Bowl K3	109	XLIII.6.7	Unusually fine clay, pink, well-fired, ring-burnished externally. Metallic feel.
5	Bowl L	162	LI.2.2	Fine hard buff ware. Well-fired clay with some grits
6	Bowl K3		XLI.18	No base
7	Bowl L	27	XXXIII.2	Well-fired, grey ware. Heavy lime deposit
8	Bowl L	29	V.11	Badly levigated buff-orange ware. Pitted surface inside and out
9	Bowl L	148	LI.1.3	Pink-buff ware, hard clay, a few grits. Handle very badly applied to rim. Turned on slow wheel. Signs of burning externally
10	Bowl L	149	LI.1.3	Buff ware, grey core, very weathered
11	Bowl L	185	XLV.3	Hard buff ware, roughly finished off. Many grits
12	Bowl L	190	XLIII.2.7	Yellowish-buff ware. Clay rather impure and gritty but well-fired. Wheel-turned, surface pitted inside and out
13	Bowl L	217	XLIX.3	Very gritty pink ware. Grey core with buff slip, well-fired, surface slightly pitted.
14	Bowl L	228	XLIX.1.4	Well-fired, fairly fine orange-buff ware with grey core. Surface pitted and lime-encrusted
15	Bowl N1	32	XXXIII.6b	Well-fired, levigated buff ware
16	Bowl N1a	43	XL.1c	Clay pinkish with grey-brown core. Surface pitted
17	Bowl N1a		XLI.24	Pink ware, surface pitted. Burnt
18	Bowl O	108	XLIII.6.8	With ring base. Buff ware, grey core, wheel-turned, surface pitted inside and out
19	Cooking Pot A		XLVIII.5	
20	Cooking Pot A		XLI.24	
21	Cooking Pot A		XLIX.3	Buff ware, very hard and well-fired evenly
22	Cooking Pot A		XLVI.8	Pink ware, well levigated, well-fired
23	Cooking Pot C		XXX.6	Like Busayra (Bienkowski 2002, fig. 9.40:1)

Northern Transjordan: Dhiban (Tushingham 1972, fig. 1:13), Tall al-'Umayri (Herr 1989, figs 19.9:31, 7th-century BCE; 19.16:23, late Iron II/Persian), Tall Abu al-Kharaz (Fischer 2001, 311, fig. 5b)
Negev: Horvat Qitmit (Freud and Beit-Arieh 1995, fig. 4.11:11, 12), Tel 'Ira (Freud 1999, fig. 6.74:4), Beersheba (Singer-Avitz 1999, fig. 10:23)
Southern Judah: Tall Bayt Mirsim (Albright 1943, pl. 17:7–15)

Bowls type N: deep bowls with short necks

Made by Method A, with base type 5. Wet-smoothing is common, resulting in a rough surface with projecting temper.

N1: ring bases built on base type 5 (Figure 4.3:15)
N1a: larger bowls (Figure 4.3:16–17)
Rim diameters 16–21 cm, most commonly 17–20 cm

Bowls N: parallels

Southern Edom: Tawilan (Bennett and Bienkowski 1995, figs 6.10–6.14), Ba'ja III (Zeitler 1992, fig. 14.1:10), as-Sadeh (Zeitler 1992, fig. 14.6:5–6), Jabal al-Qseir (Lindner *et al*. 1996b, fig. 27:2), Ghrareh (Hart 1989, pls 10:5–17; 11), Tall al-Khalayfi (Pratico 1993, pls 27:16, 17; 28:1–6, 9–11)
Northern Edom: Busayra (Bienkowski 2002, figs 9.28–9.29)
Northern Transjordan: Tall al-'Umayri (Herr 1989, figs 19.8:14–15, 7th-century BCE; 19.15:6, late Iron II/Persian; Herr *et al*. 1991, fig. 3.29:17, late Iron II/early Persian)
Negev: Tel 'Ira (Freud 1999, fig. 6.90:14?), Tel Masos (Fritz and Kempinski 1983, pl. 164:8), Beersheba (Singer-Avitz 1999, fig. 9:5–8), Kadesh-barnea (Cohen 1983, xx, drawn in Mazar 1985, fig. 8)

Fig. no.	Type	Register no.	Locus	Description
1	Jar A1	242	LI.4.1	Well-fired grey ware, badly levigated, many blown grits. Top and bottom of handles have three incised parallel horizontal lines. Scale 1:10

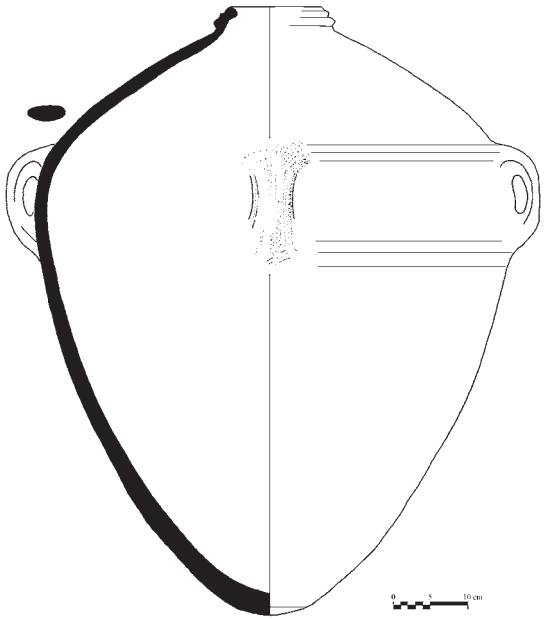


Figure 4.4. Jar A1

Bowls type O: straight-sided cups

Made by Method A, with base type 2, always turned. Only one O bowl was recorded at Umm al-Biyara, with a ring-base (Figure 4.3:18). At Busayra, most Bowls type O had applied tripod feet smoothed on. Oakeshott's four subdivisions of O bowls do not cover the single example from Umm al-Biyara.

Bowls O: parallels

Northern Edom: Busayra (Bienkowski 2002, fig. 9.30)
Northern Transjordan: Dhiban (Tushingham 1972, fig. 23:9)
Negev: Horvat Qitmit (Freud and Beit-Arieh 1995, figs 4.1:47), Beersheba (Singer-Avitz 1999, fig. 9:20–22)

Cooking pots

Cooking Pots type A: rim continuing line of shoulder

These cooking pots have handles, possibly four. The rim continues the line of the shoulder. It was made by folding twice, first inwards and then outwards. The pots were probably built in sections on a moulded base (Method B), but since there are few bases conclusive evidence is lacking. The handles are folded. Rim diameters vary between 10 cm and 35 cm (Figure 4.3:19–22).

Cooking Pots A: parallels

These are typical Iron II cooking pots in Palestine and Transjordan. The Umm al-Biyara examples all lean inwards, and the closest parallels are from late Iron II/ Persian contexts. Early Iron II types have a fairly upright stance (cf. Herr 2000, 199).
Southern Edom: Tawilan (Bennett and Bienkowski 1995, figs 6.33; 6.34:1–5; 6.35:1, 3–6), Ba'ja III (Zeitler 1992, fig. 14.1:2–3; Bienert *et al*. 2000, fig. 15: 1–5), as-Sadeh (Zeitler 1992, figs 14.3A:8; 14.4B:6–10; 14.5:1–6), Jabal al-Qseir (Lindner *et al*. 1996b, fig. 23:4, 7–11), Ghrareh (Hart 1987, fig. 9:7; 1989, pls 21:3; 22; 23:1–6), Qurayyat al-Mansur (Hübner 2004, fig. 3:3), Tall al-Khalayfi (Pratico 1993, pls 16–18:1–6)
Northern Edom: Busayra (Bienkowski 2002, fig. 9.38), Ash-Shorabat (Bienkowski and Adams 1999, figs 1:18, 20; 3: 14), Feifa (Lapp 1994, fig. 13-2:7–9)
Northern Transjordan: Aro'er (Olávarri 1965, fig. 2:8), Dhiban (Tushingham 1972, fig. 1:17–19), Hisban (Lugenbeal and Sauer 1972, nos 291–304), Tall al-'Umayri (Herr 1989, figs 19.4:13, 8th-century BCE, 19.10:22, 24, 28, 7th-century BCE; Herr *et al*. 2000, fig. 3.33:17, late Iron II/early Persian), Tall Nimrin (Flanagan *et al.* 1994, fig. 20:5, Iron II)
Negev: Horvat Qitmit (Freud and Beit-Arieh 1995, figs 4.6:22–25; 4.9:32–34; 4.11:25, 27; 4.12:21, 23), Tel 'Ira (Freud 1999, fig. 6.54:4), Tel Masos (Fritz and Kempinski 1983, pl. 165:14), Beersheba (Aharoni 1973, pl. 68: 4, Stratum II)
Southern Judah: Tall Bayt Mirsim (Albright 1943, pl. 19:2–3), Jerusalem (Eshel 1995, fig. 18:1, 3, 7th-century BCE), Tel Goren (Mazar *et al.* 1966, fig. 17:6, 7th-/6th-centuries BCE)

Cooking Pots type C: miscellaneous cooking pots with necks

Figure 4.3:23 is almost identical to a cooking pot from Busayra (Bienkowski 2002, fig. 9.40:1).

Jars

Jars type A: storage jars

All large jars of pithos type are grouped under type A. When such large vessels were made it was necessary to support the walls until the clay was dry to prevent them from bulging outwards and collapsing under their own weight. String was generally used for this purpose, and the marks where the string was tied around the jar near the widest point can often be seen. Manufacturing Method A was probably used. Rims were made with an inward fold

followed by a single outward fold, and subsequent shaping done with a rib or rilling implement.
A1: profiled rim, normally with three ridges (Figures 4.4, 4.5:1–9)
A2: other types – rim normally folded over and everted, or holemouth, occasionally with collar (Figure 4.5:10–13)

Jars A: parallels

For discussion of possible earlier Iron II jar forms in Edom, found in the Faynan area but not at Umm al-Biyara or Busayra, see Bienkowski 2002, 313. The characteristic profiled rims of Jars A1 are paralleled only in Edom, but other types, especially with thickened, everted or holemouth rims, occasionally with a collar, are also found in the Negev and in northern Transjordan, dating to the late Iron II and Persian periods.
Southern Edom: Tawilan (Bennett and Bienkowski 1995, figs 6.22–6.25), Ba'ja III (Zeitler 1992, fig. 14.1:5–9; Bienert *et al*. 2000, fig. 14), as-Sadeh (Zeitler 1992, figs 14.3A:1; 14.5:7–10, 20–21; 14.6:1–2), Khirbat al-Mu'allaq (Lindner *et al.* 1996a, figs 26:7–10; 27:1–2, 5–7), Jabal al-Qseir (Lindner *et al*. 1996b, figs 24:1–4; 25:8; 26:1–4), Khirbat al-Kur and Khirbat al-Genina (Hübner and Lindner 2003, figs 14: 1, 18:1–2), Ghrareh (Hart 1989, pls 14–16:1–9), Qurayyat al-Mansur (Hübner 2004, fig. 3:1–2)
Northern Edom: Busayra (Bienkowski 2002, figs 9.42–9.44), Ash-Shorabat (Bienkowski and Adams 1999, fig. 1:16), Faynan (Barker *et al*. 1999, fig. 27:5–7)
Northern Transjordan: Balu'a (Worschech 1990, fig. 22; 1992, fig. 2), Dhiban (Winnett and Reed 1964, pl. 75:17), Hisban (Lugenbeal and Sauer 1972, nos 376–387), Tall al-'Umayri (Herr 1989, fig. 19.12:11–14, late Iron II/Persian; Herr *et al*. 2000, fig. 3.32:1–3, Persian)
Negev: Horvat Qitmit (Freud and Beit-Arieh 1995, figs 4.3:10; 4.10:3), Horvat Teiman (Ayalon 1995, fig. 9:2–5)

Bottles and flasks

The bottles/flasks are quite different from those found at Busayra (see Bienkowski 2002, fig. 9.53). They divide into two broad types: bulbous bottles with short necks and squat, slightly flattened bases (Figure 4.6:6–7), and bottles/flasks with longer, elongated bodies and rounded bases, one with a carinated shoulder and flat base (Figure 4.6:8–10). They may be a characteristic of southern Edom.

Bottles and flasks: parallels

Southern Edom: Tawilan (Bennett and Bienkowski 1995, fig. 6.31:14 – bulbous bottle, 6.31:16 – elongated bottle), Tall al-Khalayfi (Pratico 1993, pl. 30: 1 – bulbous bottle)

Jugs

Jugs type A: small squat jugs

Made by Method C. On the single Jug A recorded from Umm al-Biyara, the base, type 2, is turned after cutting free, to form a rounded base (Figure 4.6:5).

Jugs A: parallels

Southern Edom: Tawilan (Bennett and Bienkowski 1995, fig. 6.31:1–4), Ghrareh (Hart 1988, fig. 7:9, cf. especially Figure 9.54:7)
Northern Edom: Busayra (Bienkowski 2002, fig. 9.54: 1–7)
Negev: Horvat Teiman (Ayalon 1995, fig. 14:9)
Southern Judah: Tall Bayt Mirsim (Albright 1943, pl. 14)

Jugs type B: large jugs with ridged rim

Made by Method A, with one handle from shoulder to rim, and rim shaped by an inward fold followed by a single outward fold. The handles were often pulled. Bases are of type 5, either rounded or with a ring added. Rim diameters 8–10 cm (Figures 4.6:11–16, 4.7:1–4).

Jugs B: parallels

Southern Edom: Tawilan (Bennett and Bienkowski 1995, figs 6.26; 6.27), Ba'ja III (Bienert *et al*. 2000, fig. 16: 2–4), as-Sadeh (Zeitler 1992, figs 14.3A:2–4; 14.4B:1–5), Khirbat al-Mu'allaq (Lindner *et al.* 1996a, fig. 26:1–3, 5, 6), Jabal al-Qseir (Lindner *et al*. 1996b, fig. 23:1–3, 5, 6), Khirbat al-Genina (Hübner and Lindner 2003, fig. 18: 3), Ghrareh (Hart 1987, fig. 9:8; 1989, pls 18–19:1–11), Tall al-Khalayfi (Pratico 1993, pls 20–21, where they are termed 'Qaws'anal' jars)
Northern Edom: Busayra (Bienkowski 2002, figs 9.54: 8–11, and 9.55), Ash-Shorabat (Bienkowski and Adams 1999, fig. 2:12)
Northern Transjordan: Tall al-'Umayri (Herr *et al*. 1997, fig. 6.9:30, rim only, late Iron II)
Negev: Horvat Qitmit (Freud and Beit-Arieh 1995, figs 4.3:22; 4.6:29; 4.9:37; 4.14:2; 4.16:15)
Southern Judah: Jerusalem (Eshel 1995, fig. 25:10, 7th-century BCE)

Jugs type C: decanters

These jugs have a ridge around the neck, with a handle or two handles from the shoulder to the ridge. The rim is broader than the neck, and either upright or flaring horizontally. The jugs were made by Method A (Figure 4.7:5–8). Normally the ridge on the neck corresponds to a depression on the inside, although there is no indication that the neck was made in two parts and joined together. In some cases the ridge is artificially created by the addition of a ring of clay to the outside of the neck.

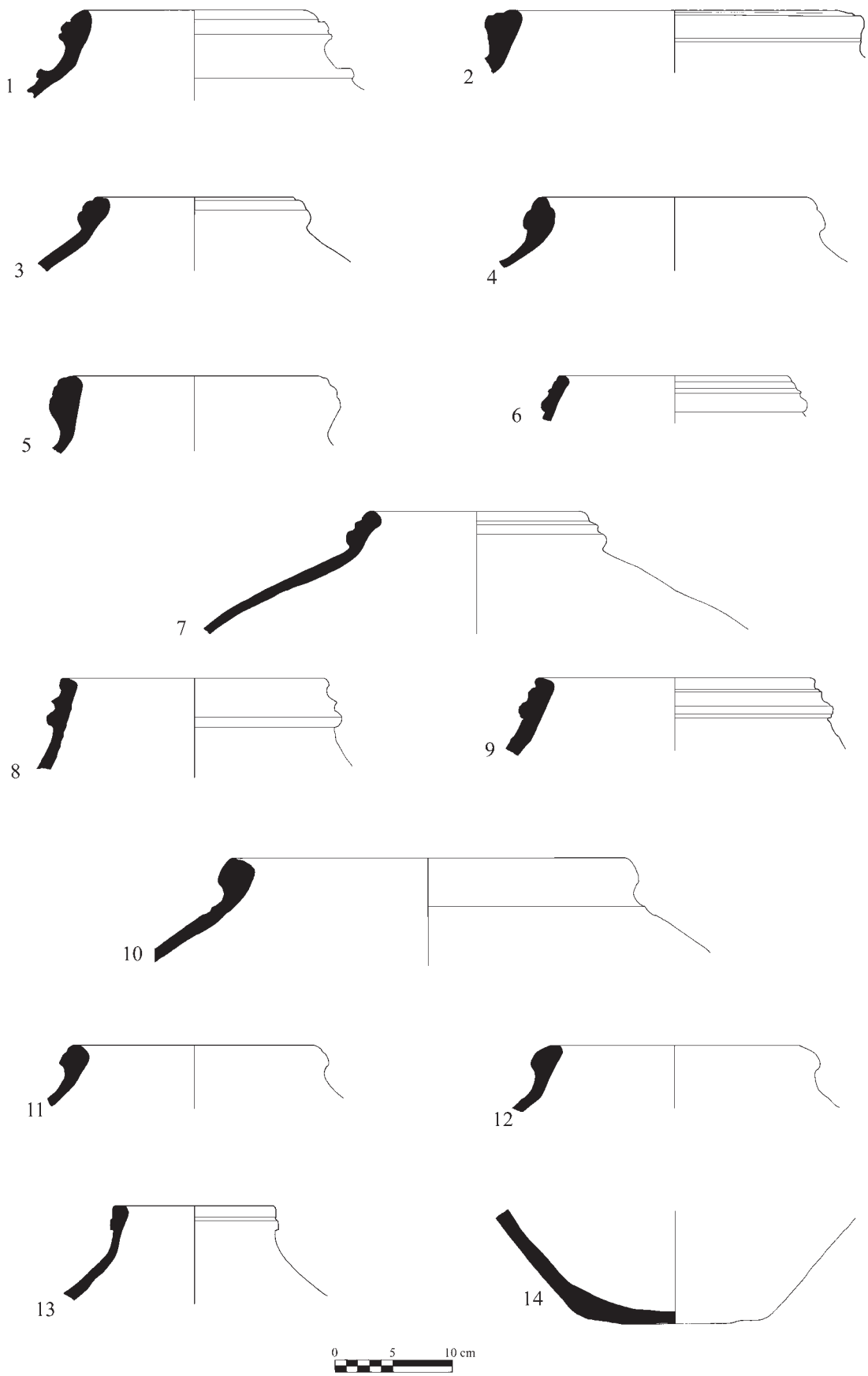


Figure 4.5. Jars

Fig. no.	Type	Register no.	Locus	Description
1	Jar A1		V.9	
2	Jar A1		X.2a	
3	Jar A1		XXX.12	
4	Jar A1		LI.2.5	
5	Jar A1		XLI.24	
6	Jar A1		XLI.16	
7	Jar A1		XLI.16	
8	Jar A1		XLI.18	Very coarse pink ware, many grits, grey core
9	Jar A1		XLVI.8	Buff ware, very hard and evenly fired, but poorly levigated
10	Jar A2		XX.9	
11	Jar A2		XLI.22	
12	Jar A2		XLIX.3.6	Buff-pink ware and slip. Well-fired
13	Jar A2		XLVI.8	Yellow-buff ware, a few lime grits. Hard and well-fired
14	Jar base, misc.		XLVI.12	Flattened base. Buff ware, very heavy and well-fired

Jugs C: parallels

Southern Edom: Tawilan (Bennett and Bienkowski 1995, fig. 6.29:3–9), Ba'ja III (Zeitler 1992, fig. 14.2:1; Bienert *et al*. 2000, fig. 16:5), Jabal al-Qseir (Lindner *et al*. 1996b, fig. 27:7–10), Ghrareh (Hart 1989, pl. 20:3–5, 7), Tall al-Khalayfi (Pratico 1993, pl. 32:7)
Northern Edom: Busayra (Bienkowski 2002, fig. 9.56: 1–10)
Northern Transjordan: Dhiban (Winnett and Reed 1964, pl. 77:6), Hisban (Lugenbeal and Sauer 1972, nos 475–480), Tall al-'Umayri (Herr 1989, fig. 19.12:21, late Iron II/Persian), Tall Nimrin (Flanagan *et al*. 1994, fig. 19:4, Persian)
Negev: Tel Masos (Fritz and Kempinski 1983, pl. 165:17, 18), Beersheba (Aharoni 1973, pl. 62: 103, Stratum II), Horvat Teiman (Ayalon 1995, fig. 14:4)
Southern Judah: Jerusalem (Eshel 1995, fig. 25:7, 8, 7th-century BCE)

Jugs type E: dippers

Small jugs made by Method C, maximum diameters *c*.7 cm (Figure 4.7:9–12).

Jugs E: parallels

Southern Edom: Ba'ja III (Bienert *et al*. 2000, fig. 17:2), Tall al-Khalayfi (Pratico 1993, pls 30:9–16; 31:1–3)
Northern Edom: Busayra (Bienkowski 2002, fig. 9.57: 1–4)
Northern Transjordan: Tall al-'Umayri (Herr 1989, fig. 19.6:29–30, 7th-century BCE)
Negev: Tel 'Ira (Freud 1999, fig. 6.100:17–19), Beersheba (Aharoni 1973, pl. 62: 114, 115, 116, Stratum II), Horvat Teiman (Ayalon 1995, fig. 18:1, 2)
Southern Judah: Tel Goren (Mazar *et al*. 1966, fig. 19:8, 9, 7th-/6th-century BCE)

Lids

Lids were made upside down by Method A, base type 2. The inside is often left unsmoothed.

All the lids are essentially the same shape, with only slight variations in the disc top, which becomes either convex or concave (Figure 4.7:15–20). The actual body shows signs of turning on a slow wheel which gives a slightly ridged effect. The rim is usually elongated to form a flattened splay which rests on the horizontal.

Few parallels are available for lids: this may be because they are commonly misidentified as platter bowls with rough bases, and published upside-down. See, for example, Figure 4.7:20, which was published inverted as a Bowl A2a by Oakeshott 1978, pl. 57:1, reproduced by Hart 1989, pl. 56:1 (both also with incorrect contextual data).

Lids: parallels

Northern Edom: Busayra (Bienkowski 2002, fig. 9.61: 1–7)
Northern Transjordan: Dhiban (Winnett and Reed 1964, pl. 77:12)

Lamps

The lamps were made by Method A, base type 1. A saucer bowl is first made, and the lip is then formed by pinching the wall. The lamp is then held upside-down in the hand and turned: it is not inverted on the wheel. Consequently, the scrape marks on the base are irregular. Both the rounded bases of type A and the stump bases of type B were shaped in this way and then dry-smoothed.

Lamps type A: rounded base

A1: deep (Figure 4.8:1)
A2: shallow (Figure 4.8:2–9)

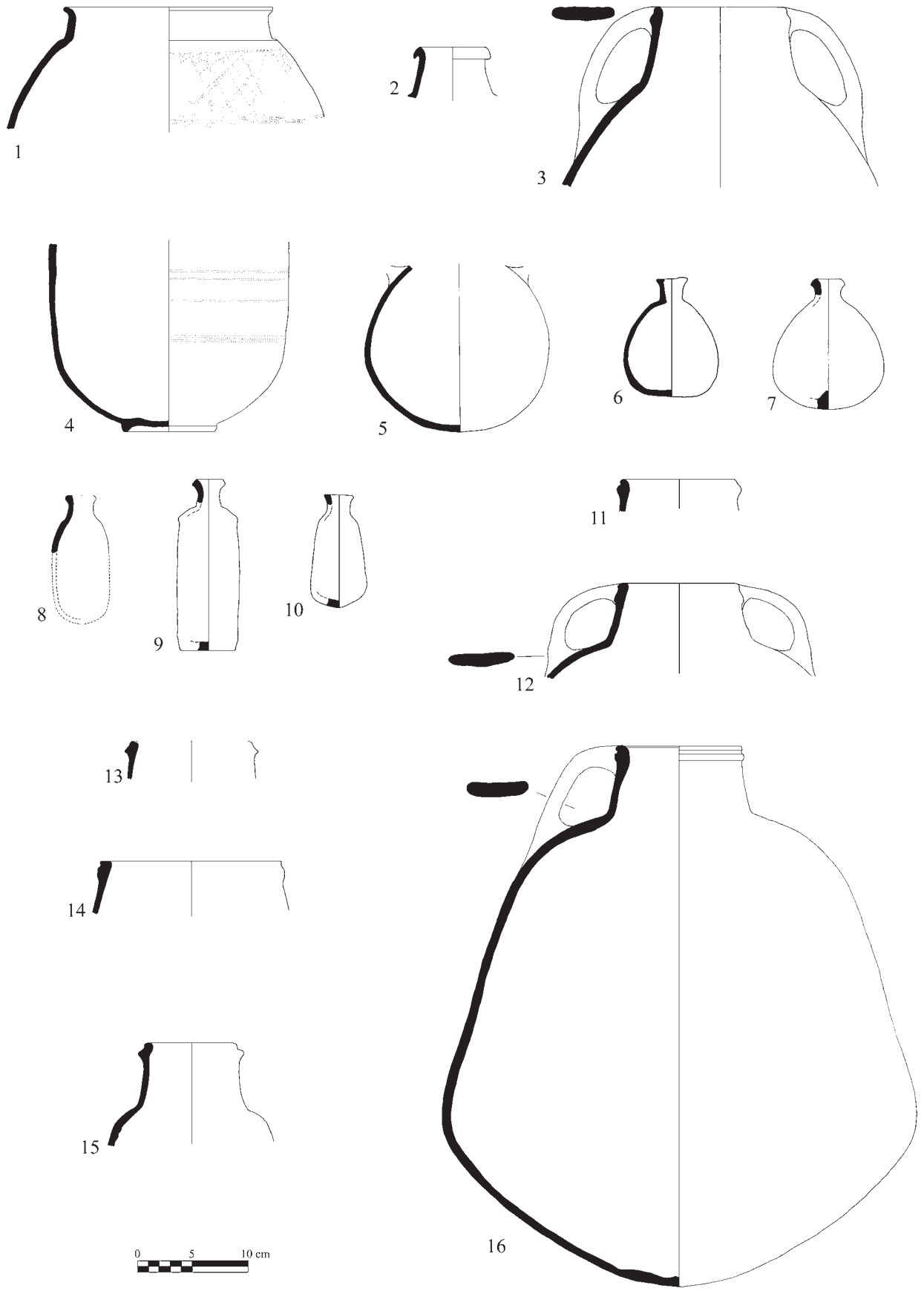


Figure 4.6. Jars, Jugs, Bottles

Fig. no.	Type	Register no.	Locus	Description
1	Jar, misc.	193	XX.19	Buff ware with yellow slip and black painted design. Herringbone pattern between two parallel horizontal lines. Paint almost rubbed off
2	Jar, misc.		XLI.2	Neck only, simple outward fold. See Tawilan (Bennett and Bienkowski 1995, fig. 6.30:6), and Qurayyat al-Mansur (Hübner 2004, fig. 4:6)
3	Jar, misc.		XLI.16.6	Ridged rim, inward-sloping neck, two handles: very similar to a Jar B except for the two handles
4	Jar/jug base	229	XLIX.4	Hard pink ware with grey core, surface pitted. Black painted bands
5	Jug A	164	LI.2.11	Well-fired pink ware. Surface slightly pitted. Neck and rim missing
6	Bottle	11	XXI.5	Orange-buff ware, heavy lime deposit. Surface pitted
7	Bottle	166	L.3.4	Buff ware. Surface pitted
8	Bottle/flask	54	XVII +	Orange-brown ware
9	Bottle/flask	93	XLIII.11	Narrow band burnishing externally. Surface pitted
10	Bottle/flask	186	XLV.5	Red ware, badly levigated. Surface pitted
11	Jug B		XLI.18	No handle recovered
12	Jug B		XLI.18	Buff-pink ware, hard and well-fired. Two handles
13	Jug B		XLIX.1, 4	Grey ware, well-fired, metallic. No handle recovered
14	Jug B		XLIX.1.1	Grey ware, many grits, pink core. No handle recovered
15	Jug B		XLI.24.1	No handle recovered
16	Jug B		XXI.8.9	

Lamps A: parallels

Southern Edom: Tawilan (Bennett and Bienkowski 1995, fig. 6.34:14–16), Ba'ja III (Zeitler 1992, fig. 14.1:12), Jabal al-Qseir (Lindner *et al*. 1996b, fig. 27:11), Ghrareh (Hart 1989, pl. 12:10), Tall al-Khalayfi (Pratico 1993, pls 38; 39:1–3)
Northern Edom: Busayra (Bienkowski 2002, fig. 9.62), Khirbat an-Nahas (Fritz 1996, fig. 3:16 – 9th-century BCE?), Barqa al-Hetiye (Fritz 1994, fig. 10:10 – 9th-century BCE?)
Northern Transjordan: Dhiban (Winnett and Reed 1964, pl. 79:1, 8; Tushingham 1972, fig. 15:1, 4–10), Hisban (Lugenbeal and Sauer 1972, no. 542)
Negev: Tel 'Ira (Freud 1999, fig. 6.80:17), Tel Masos (Fritz and Kempinski 1983, pl. 166:15), Horvat Teiman (Ayalon 1995, fig. 22:3, 4)
Southern Judah: Jerusalem (Eshel 1995, fig. 8:9, 10, 7th-century BCE), Tel Goren (Mazar *et al.* 1966, fig. 23:1, 2, 7th-/6th-century BCE)

Lamps type B: stump base

See Figure 4.8:10–11.

Lamps B: parallels

Northern Edom: Busayra (Bienkowski 2002, fig. 9.63: 1)
Northern Transjordan: Dhiban (Winnett and Reed 1964, pl. 79:3–7; Tushingham 1972, fig. 15:11–15), Hisban (Lugenbeal and Sauer 1972, nos 540, 541)
Negev: Tel 'Ira (Freud 1999, figs 6.57:8; 6.84:20), Tel Masos (Fritz and Kempinski 1983, pl. 166:16), Arad (Herzog *et al*. 1984, fig. 22:17, Stratum VIII, late-8th-century BCE), Beersheba (Aharoni 1973, pl. 63: 135, Stratum II)
Southern Judah: Tall Bayt Mirsim (Albright 1943, pl. 15:5–10), Lachish (Zimhoni 1990, fig. 7:14–16, Level III), Jerusalem (Eshel 1995, fig. 8:11–16, 7th-century BCE)

Decoration (MFO/PB)

Painted decoration is not common at Umm al-Biyara (see Figure 4.9 for typical unpainted forms). The basic painted decoration is parallel horizontal black painted lines, sometimes close together, sometimes wide apart, and in a very few cases with white paint. It appears only on some jars, bottles and bowls. The decoration on the shoulder of the jar (Figure 4.6:1) consists of a trellis design enclosed by two bands. On the other vessels linear decoration only is used (e.g. Figures 4.1:1, 4.7:21). In comparison, the use of painted slip decoration at Busayra (Bienkowski 2002) and Tawilan (Bennett and Bienkowski 1995) is far more extensive: at both sites, it is estimated that approximately 50% of the pottery was decorated (Oakeshott 1978, 99; Bienkowski 2002, 343).

There is no plastic decoration – such as denticulated fringes on bowls – at Umm al-Biyara, although it was common at Busayra (Bienkowski 2002, 343). A seal impression is found on the handle of one storage jar (Reg. 48, see Chapter 5).

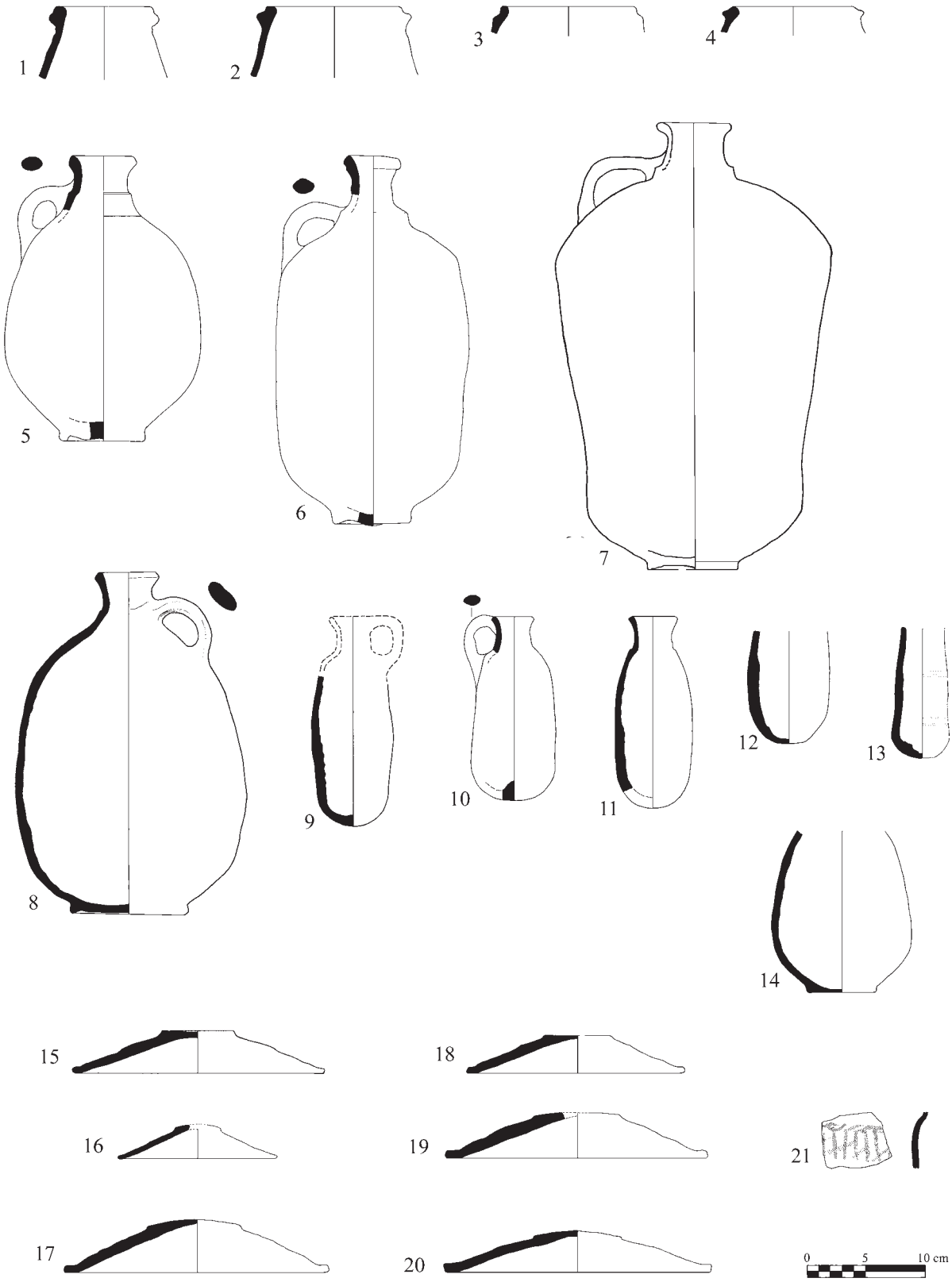


Figure 4.7. Jugs B, C, E, miscellaneous, Lids

Fig. no.	Type	Register no.	Locus	Description
1	Jug B		XLVI.8	Neck only. Buff ware, very hard, well-fired
2	Jug B		XLVI.1a	Neck only. Grey ware, hard, well-fired, buff slip
3	Jug B		XLVI.1a	Neck only, no handle. Jug/jar? Buff ware, hard, well-fired
4	Jug B		XLI.15.5	Rim only
5	Jug C	145	LI.4.1	Buff-pink ware, surface pitted. Turned on slow wheel. Heavy lime deposit
6	Jug C	209	XLVIII.1.10	Well-fired buff clay, grey core. Some grits. Surface pitted
7	Jug C	240	XLIII.3.12	Medium-pink gritty ware. Badly burnt but traces of horizontal burnish
8	Jug C		XVIII.22.20	Plain rim
9	Jug E	10	XXI.7	Evenly fired orange-buff clay ware. Heavy lime deposit.
10	Jug E	191	XLV.5	Hard gritty ware, much lime deposit. Very wide wheel marks internally
11	Jug E	212	XLIX.3	Buff clay, well-fired, few grits. Handle missing
12	Jug E?	146	LI.1.2	Pink ware, coarse, turned on slow wheel. Heavy lime deposit. Neck and handle missing
13	Jug, misc.	102	XLIV.1.10	Hard fine ware, vertically burnished externally. Decoration of double rows of black paint
14	Jug, misc.		XLI.24	Buff-pink ware, well-fired
15	Lid	42	XL.1d	Well-fired orange-buff clay
16	Lid	61	XLII.1	Well-fired buff ware
17	Lid	63	XLIV.2	Well-fired buff ware with heavy lime deposit. Clay fairly impure
18	Lid	110	XLI.15a	Well-fired reddish ware. Wheel turned and surface very pitted
19	Lid	207	XLVII.15	Well-fired pink ware with some grits. Surface lime-encrusted
20	Lid	230	XLIX.4	Very well-fired pink ware with very few grits. Published upside down by Oakeshott 1978, pl. 57:1 and Hart 1989, pl. 56:1 as a Bowl A2a but with a different base and incorrect contextual data
21	Painted sherd		XLIII.3.11	Painted in hatched lines

Burnishing is not common at Umm al-Biyara. Continuous ring-burnishing appears on some bowls and jugs, but not consistently on any. As at Busayra (Bienkowski 2002, 344), more common is an irregular burnish consisting of single discontinuous lines, which was presumably decorative rather than functional.

Discussion and dating

The presentation of the Iron II pottery above divided the parallels into distinct geographical areas in order to establish clearly the relationship of the Umm al-Biyara pottery to neighbouring assemblages (as was done with the Busayra pottery: see Bienkowski 2002, 349). Table 4.1 tabulates the data, listing the types and showing the geographical range of parallels for each broad ceramic type. Presence or absence of parallels must not be assumed to have significance, since in the Petra region many parallels are from sites that have been surface-surveyed but not excavated (and therefore the published assemblage may well be incomplete), while in the Negev much is still in the process of publication.

The majority of the Umm al-Biyara pottery types have wide-ranging parallels to the basic shape from southern and northern Edom, northern Transjordan, the Negev and southern Judah. However, for some types, especially the bowls, the examples from Umm al-Biyara are plain, while many of the parallel types at Busayra and sites in the Negev have extensive painted and plastic decoration.

Other than the paucity of painted decoration and its relative simplicity, the most noticeable characteristic of the Umm al-Biyara pottery assemblage is how restricted it is compared with that of Busayra: Table 4.1 here lists 22 basic types of pottery, compared with 48 types from Busayra (Bienkowski 2002, 349, table 9.1). This restricted range is found across all pottery forms: 11 bowl types from Umm al-Biyara (19 from Busayra), 2 cooking pot types (5 from Busayra), 1 basic jar type (8 from Busayra), 4 jug types (7 from Busayra), 2 lamp types (5 from Busayra). Certain forms are completely missing from Umm al-Biyara, such as all jar types except for large jars of pithos type, double

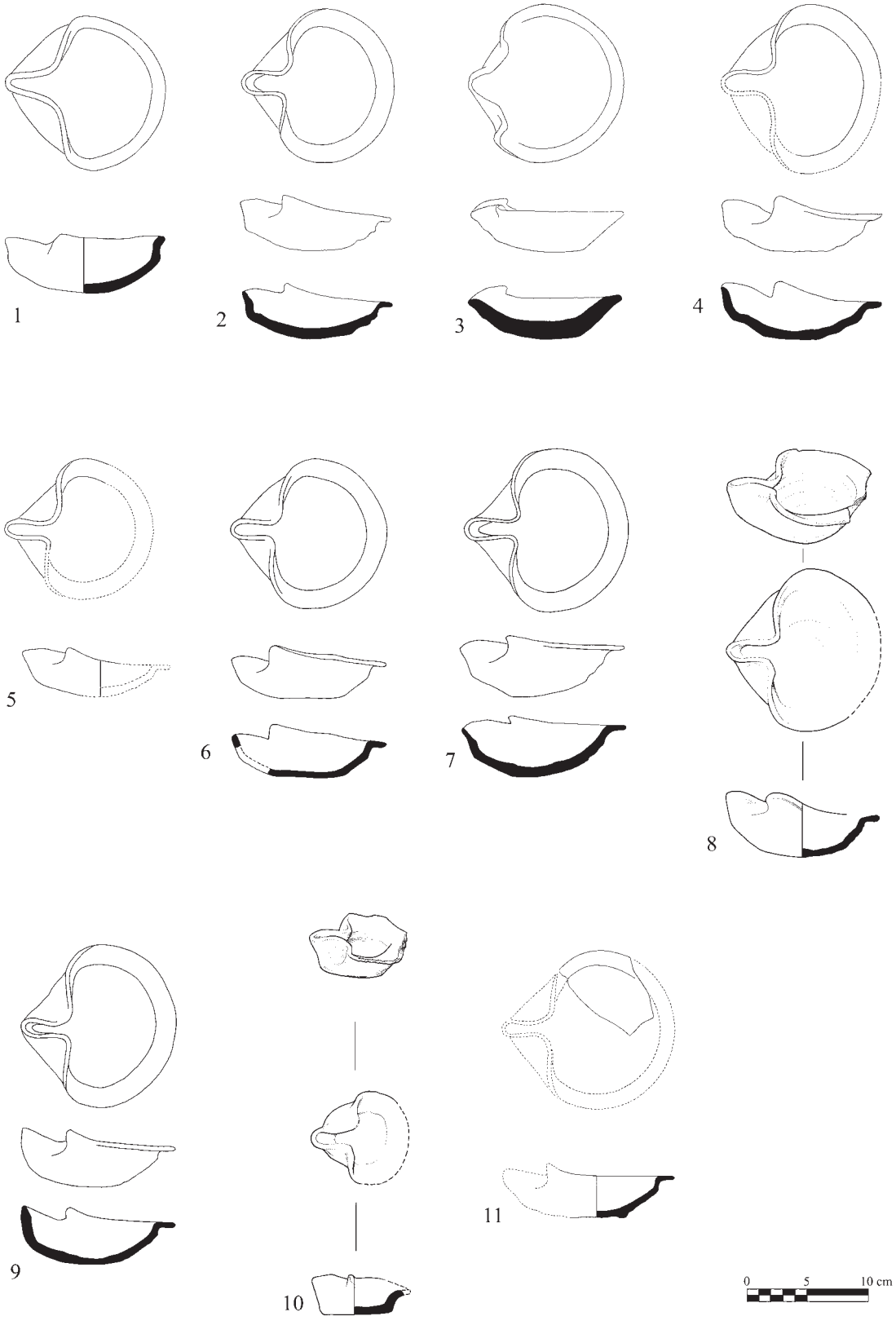


Figure 4.8. Lamps

Fig. no.	Type	Register no.	Locus	Description
1	Lamp A1	192	XX.19	Yellow-buff ware but no signs of use. Nozzle not evenly pinched, more folded in on the left side than right
2	Lamp A2	150	LI.1.3	Hard dark grey gritty ware. Clay full of impurities. Nine pieces extant. Surface very pitted
3	Lamp A2	188	XLV.3	Very thick coarse crude ware, buff but well-fired
4	Lamp A2	194	XLIV.16	Fairly fine buff ware. Surface pitted
5	Lamp A2	199	XIII.9a	Buff ware with grey core
6	Lamp A2	77	XLI.18	Buff ware, well-fired, but clay badly levigated
7	Lamp A2	152	LI.2.2	Very hard grey ware with buff slip inside and out. Base smoothed with twigs
8	Lamp A2	36	XLI.7	In two parts, one burnt, one unburnt
9	Lamp A2	184	XLI.22	Hard grey ware, well-fired. Surface pitted
10	Lamp B	9	XXI.6	Coarse but well-fired. Blackened by use
11	Lamp B	79	XLIII.I.5	Hard grey ware. Badly levigated, full of impurities

Figure 4.9. A range of typical unpainted pottery from Umm al-Biyara, some restored

Type	S. Edom	N. Edom	N. Jordan	Negev	S. Judah
Bowl A	x	x	x	x	x
Bowl B	x	x	x	x	x
Bowl C	x	x	x	x	x
Bowl D	x	x	x	x	x
Bowl E	x	x	x	x	x
Bowl F	x	x	x	x	x
Bowl H		x	x	x	
Bowl J	x	x	x	x	x
Bowl K	x	x	x	x	x
Bowl L	x	x	x	x	x
Bowl N	x	x	x	x	
CP A	x	x	x	x	x
CP C		x			
Jar A	x	x	x	x	
Bottles/flasks	x				
Jug A	x	x		x	x
Jug B	x	x	x	x	x
Jug C	x	x	x	x	x
Jug E	x	x	x	x	x
Lids		x	x		
Lamp A	x	x	x	x	x
Lamp B		x	x	x	x

Table 4.1. Parallels to Umm al-Biyara pottery from neighbouring regions

bowls, pot stands and more elaborate types such as the fenestrated stand. Other lacunae are intriguing: no 'Negev Ware' was found at Umm al-Biyara at all, although it is found at Tawilan and Busayra (Hart 1995a, 59; Bienkowski 2002, 276). Black-burnished ware found at Busayra, fired in a reduced atmosphere and burnished, was revealed through neutron activation analysis to have come from the Petra area, since it matched pottery samples analysed from Umm al-Biyara (Bienkowski 2002, 350, 484) – yet no black-burnished ware has been found at Umm al-Biyara (although some was found at Tawilan, see Hart 1995a, 59–60). (Mazar and Panitz-Cohen (2001, 52) suggest an Assyrian origin for black-burnished ware. Herr (2006, 525, 539–40) notes its ubiquity at sites in the Amman area in the Iron IIC/Persian period, and thinks that the Tawilan example was probably an import, presumably from Ammonite territory. The neutron activation evidence suggesting an origin in the Petra area of at least one example from Busayra urges caution on that suggestion, however.)

This confirms the observation that there is a complex and diverse mix of ceramic assemblages throughout Transjordan and the Negev, undermining attempts to define a characteristic 'Edomite' assemblage (see Bienkowski 2002, 350; Whiting 2007, 109–22; 2008, 69). While most of the individual pottery shapes at Umm al-Biyara can be paralleled throughout the wider region (see Table 4.1), what characterizes this site – and other similar mountain-top sites in the Greater Petra region (see Chapter 10) – is the relative lack of decorated pottery compared with Busayra (and Tawilan), the simplicity of what decoration there is, and the restricted range of forms.

However, the pottery assemblage from Umm al-Biyara does not support Zeitler's hypothesis that the sites situated on mountain tops in the Petra area – Umm al-Biyara, as-Sadeh, Ba'ja III and al-Qseir – all show a functionally restricted assemblage with a preponderance of storage and cooking types, while Busayra and other sites located in plateau areas show a large typological variety (Zeitler 1992; Zeitler in Lindner *et al.* 1996a, 126–30; Zeitler in Lindner *et al*. 1996b, 153–61). Building on Zeitler's initial hypothesis, Lindner and Knauf (1997) further suggested that the 'longhouses' at Umm al-Biyara and other mountain-top sites were essentially storage facilities for agricultural products. This led them to conclude that there was an essential dichotomy between the sites on the plateau and those in the mountains, the latter depending on the former for their agricultural potential. While that conclusion may remain valid, what is clear is that the Umm al-Biyara pottery assemblage is not restricted to or dominated by storage functions. Umm al-Biyara has a complete range of pottery forms – bowls, cooking pots, jars, bottles and flasks, jugs, lids and lamps – but simply a less extensive range of variant types than Busayra or Tawilan, and less extensively decorated. It might be argued that the greater variation of pottery at Busayra and Tawilan is simply due to the fact that more pottery was recovered from these sites than from Umm al-Biyara. Sample size is unlikely to be a factor, however: the area excavated at Umm al-Biyara

was dug to bedrock across much of the site, so the pottery recovered is likely to be representative; moreover, surveys at neighbouring mountain-top sites have also produced restricted assemblages. Site location and use are more likely to be contributing factors (see Chapter 10).

Dating

Apart from the distinctive bulbous bottles and elongated flasks (which may be a southern characteristic), all the Umm al-Biyara pottery forms are paralleled at Busayra (although a significant proportion of the Busayra pottery was decorated). The Busayra pottery has been shown not to pre-date the late 8th century BCE (Bienkowski 2002, 350). The dating of that pottery appears to be confirmed by C14 dates from sounding B at Rujm Hamra Ifdan in the Faynan area, which reportedly yielded late Iron Age forms similar to those from Busayra associated with dates in the 7th century BCE (Levy *et al*. 2008, 16464–5).

In their publication of the Iron Age pottery from the 2002 excavations at Khirbat an-Nahas in the Faynan area, Smith and Levy (2008) suggest that some of the ceramic types found in late Iron II assemblages on the Edomite plateau, previously dated no earlier than the 8th century BCE, are found at Khirbat an-Nahas in contexts dated by C14 to the 10th and 9th centuries BCE. If this is the case, we would need to bear in mind the possibility that some of the Umm al-Biyara types may date earlier. However, the evidence from the Khirbat an-Nahas excavations is not clear-cut, and it is almost certainly premature to re-date other sites on the basis of the evidence published so far (see Finkelstein and Singer-Avitz 2008 and van der Steen and Bienkowski 2006 for overall critiques). Specifically with regard to the dating of the pottery from Khirbat an-Nahas, first of all there is no doubt that there is 10th-/9th-century BCE material present there, as already evidenced by previous fieldwork and incorporated into an overall synthesis prior to the commencement of the recent Khirbat an-Nahas excavations (see Bienkowski and van der Steen 2001, 23). However, that material was judged to have distinct differences from the Busayra assemblage, suggesting that the Busayra assemblage did not date as early as the 9th century BCE (Bienkowski 2002, 350).

The proposal from Smith and Levy (2008) allows two possible interpretations: either, as they suggest, some aspects of the ceramic corpus which in the late Iron Age became common throughout the Edomite plateau do indeed start in the 10th/9th centuries BCE (and this might have an impact on the dating of the Umm al-Biyara material); or some of the pottery from Khirbat an-Nahas dates later than the 10th–9th centuries, contrary to their claim. The first possibility would require taking at face value the evidence provided by Smith and Levy (2008). Nevertheless, there are arguments for considering the second possibility. Although Smith and Levy (2008, 84) state that there are no calibrated dates from Khirbat an-Nahas later than the 9th century BCE, and that therefore they can exclude the possibility of later Iron Age activity, it is a complex industrial site, used over a long period of time in ways that did not leave typical stratigraphy. Finkelstein and Singer-Avitz (2008, 17–18) conclude that Khirbat an-Nahas is a site with no clear stratigraphy and with C14 samples taken mostly from unstratified industrial refuse; in their view, the only way to date the buildings there accurately is to recover a pottery assemblage and C14 samples from floors directly associated with the walls, and this does not seem to have been done (although the published association of stratigraphy, pottery and C14 samples lacks clarity). Furthermore, Finkelstein and Singer-Avitz (2008, 16) point out that pottery from the Edomite plateau is very well cross-referenced with pottery from well-dated contexts in Cisjordan, and that not a single 'Edomite' vessel has been found in Judah in strata earlier than the 8th century BCE. The pottery published by Smith and Levy from the Khirbat an-Nahas Area A 'Gatehouse', and specifically from Stratum A3, associated with the initial construction and use of the building and apparently dated by C14 to the 10th/9th centuries BCE (2008, 56, fig. 11), does not have obvious 10th-/9th-century BCE parallels: over half of the 17 published sherds appear to be unique to Khirbat an-Nahas, and virtually all the rest have parallels in the 8th century BCE or even later.

Although some of the published pottery from Khirbat an-Nahas does have some similarities to certain types from Umm al-Biyara (e.g., there are some similarities between Khirbat an-Nahas bowls BL3 and Umm al-Biyara bowls D3 and D4, bowls BL13 and Umm al-Biyara bowls C, bowls BL21 and Umm al-Biyara bowls N1a, jars JR4 and Umm al-Biyara jars A1, and jugs JG4 and Umm al-Biyara jugs J1 (see Smith and Levy 2008, figs 11–18)), in general those appear to be types which are in any case common across Palestine and Transjordan throughout Iron II, having a wide geographical and chronological distribution, making it impossible to use them as distinctive chronological markers. However, it is possible to challenge Smith and Levy's dating of the Khirbat an-Nahas carinated bowls (Smith and Levy 2008, 71–2, type BL22), which are allegedly found in 9th-century BCE contexts at the site. This is the type previously described as imitation Assyrian bowls and argued as being locally produced in Transjordan (Bienkowski 2002, 282; Na'aman and Thareani-Sussely 2006), but developed from Assyrian styles during the 8th and 7th centuries BCE (Singer-Avitz 2007). Accepting a 9th-century BCE date for these may in principle impact on the dating of Bowls K at Umm al-Biyara. Smith and Levy (2008, 72), clearly aware that the reliance on Assyrian originals not pre-dating the 8th century BCE renders the 9th-century BCE date for their Khirbat an-Nahas examples problematic, therefore attempt to disassociate their BL22 bowls from the 'finer' imitation Assyrian style bowls, claiming that they are very different. Nevertheless, close examination of the Transjordanian parallels demonstrates that there is no appreciable difference, at least in the published descriptions: the examples from Khirbat an-

Nahas are all described as made of fine or medium–fine ware, just like the ones from Umm al-Biyara (Figure 4.3:4, 6) and from Busayra (Bienkowski 2002, 286, fig. 9.26: 12–23). The Khirbat an-Nahas BL22 bowls to all intents and purposes seem to be identical to other imitation Assyrian bowls dating to the 8th and 7th centuries BCE: if we accept, therefore, that imitation Assyrian bowls imitated Assyrian originals that appeared only in the 8th century BCE (i.e., not prior to direct Assyrian involvement in the 730s – Finkelstein and Singer-Avitz 2008, 16), there is a distinct problem with accepting a 9th-century BCE date for the Khirbat an-Nahas BL22 bowls. Smith and Levy (2008, 85) maintain, in support of their dating of some pottery types earlier than current evidence allows, that there are nevertheless many types characteristic of the 8th–6th centuries BCE which are absent from Khirbat an-Nahas, which one might expect to find as part of the assemblage if there really was later activity at the site. But this is not really a valid defence since, as demonstrated above, there is a complex mix of ceramic assemblages throughout Iron Age Transjordan, and nothing that can be characterized as a typical 'Edomite' assemblage: Khirbat an-Nahas, as a specialized copper-producing lowland site, undoubtedly had its own ceramic characteristics, and it may well be the case that some types were present and others absent, as indeed is the case at Umm al-Biyara when compared with Busayra.

There is an argument, therefore, that there is pottery at Khirbat an-Nahas that dates later than the published C14 dates, and hence the stratigraphy at the site is more complex than has been acknowledged. That may be a particular problem with this sort of site. Khirbat an-Nahas is a hugely complex industrial site with activity stretching over several centuries: it was used, re-used (probably seasonally) and destroyed in ways that are difficult to recognize archaeologically, making it hard to associate 'strata', C14 dates and assemblages. It is also just the sort of site that is likely to have very high levels of residual carbon, especially if the C14 dates are based on wood charcoal embedded in slag (Dr Bruce Routledge pers. comm.). While both possibilities outlined above for interpreting the evidence from Khirbat an-Nahas remain open, I suggest that there is sufficient evidence to doubt the validity of the C14 dates and their direct association with the ceramic corpus, and therefore insufficient reason, until and unless further evidence is produced, to argue for any of the pottery from Umm al-Biyara to be dated earlier as a result.

The majority of other parallels to the Umm al-Biyara pottery from Transjordan and Palestine date to late Iron II, the 7th and 6th centuries BCE. However, although throughout Transjordan there is evidence that many of the Iron II pottery forms continued virtually unchanged through most of the Persian period (Bienkowski 2001), Umm al-Biyara yielded none of the types that at Busayra have specific parallels to Persian or Hellenistic-period assemblages (Bienkowski 2002, 350–1). There is therefore nothing to indicate that the Umm al-Biyara pottery continues beyond the 6th century BCE into the Persian period. The seal material from Umm al-Biyara – the inscribed Qos-Gabr bulla and the Neo-Babylonian seal – indicates a date in the 7th and 6th centuries BCE (see Chapter 5), and there is nothing at all in the pottery to suggest a different range of dates: the two sets of data match each other perfectly.

In conclusion, the Umm al-Biyara pottery is a distinct regional corpus in southern Edom, characterized by a full range of functional shapes, though with restricted variant types when compared with Busayra. A very few of these were painted in bands or simple hatched designs, predominantly in black. The assemblage dates to the 7th and 6th centuries BCE.

5. The Seal Material

Peter van der Veen

The excavations at Umm al-Biyara yielded two bullae, one stamp seal and a stamped jar handle impression. Despite the small number of seal objects, only one, the only inscribed bulla, that of Qos-Gabr, has received especially frequent attention since its discovery in 1965, owing to its significance for dating late Iron Age Edomite culture. The second bulla, the stamp seal and the jar handle impression are purely anepigraphic. Nevertheless, it is surprising that only this one has received attention, as with such a small number of objects it would not have been difficult to have considered them all. Recently, therefore, this writer has thoroughly restudied the seal impressions as part of his doctoral research and has drawn new conclusions. The anepigraphic seal material was examined by the author at first hand. The Qos-Gabr bulla, however, owing to its disappearance in recent years, could only be restudied by using old photographs, freshly produced casts made from a well-manufactured rubber mould of the original object and digital images made of the casts produced under special lighting.

The Qos-Gabr bulla

Figures 5.1–5.4 (A.XLI.10, Reg. 50)

This object, which was discovered above bedrock during the 1965 excavation season in the burned debris of trench A. XLI, is an inscribed burnt bulla with a human-headed sphinx in the central register, with string marks and the imprint of a leather document or bag on the reverse and fingerprints on the edges. Imprints of the bezel, which held the seal, can be seen. There are two single line field dividers. Owing to a partial impression, traces of the bezel ring and the inscription (first and third registers) are missing on the left edge. The entire bulla is 1.6 cm in length, 1.9 cm in width and *c.*0.6 cm in thickness, while the impression is 1.5 cm long and 1.3 cm wide. It was formerly held at the Kenyon Institute, but is now lost.

The inscription and the depiction of the human-headed sphinx are divided into three registers. These were engraved lengthwise into the original seal. The inscription is contained in the first and third registers, while the sphinx is depicted in the second or central register. Most previous scholars agree on the identification of the first five characters of the first register – *lamedh*, *qoph*, *waw*, *samekh* and *gimel* –, and the first four letters of the third register – *mem*, *lamedh*, *kaph* and *aleph*. Crystal-M. Bennett originally suggested the following reconstruction:

Figure 5.1. Front of Qos-Gabr bulla. Reg. 50

Figure 5.2. Back of Qos-Gabr bulla. Reg. 50

Figure 5.3. Modern cast of Qos-Gabr bulla. Reg. 50 (Photo: R. Wiskin)

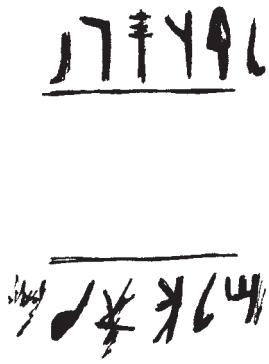


Figure 5.4. Qos-Gabr bulla: line drawing of inscribed registers 1 and 3. Reg. 50

lqwsg[*br*] *mlk 'dm*] – i.e. 'belonging to Qos-Gabr, king of Edom', a reading which has been almost unanimously accepted. David Vanderhooft has recently suggested (1995, 151) an alternative reading, however: *lqwsg*[*br*?] / *mlk'l* – i.e. 'belonging to Qos-Gabr [son of] Malchiel' – in which case the bulla would belong to a private person rather than to an Edomite king. By re-examining the freshly made casts of the original bulla, this writer was able to detect two, and possibly three, new characters which seem to rule out Vanderhooft's alternative reading. Traces of a curved vertical shaft could be detected on the left edge of the first register (cf. Figures 5.3–5.4),[1] which plausibly belong to the letter *beth*. A typical Edomite *daleth* (see below) can be detected in the third register succeeding *aleph*. This *daleth* was also recognized by André Lemaire (1993 and pers. comm.). Although far from certain, the very faint traces of what may be an Edomite broad-headed *mem* are perhaps still to be seen at the end of the third register. Thus the previously suggested reconstruction now appears to be virtually certain: *lqwsgb*[*r*] *mlk 'dm̓*. The letters *qoph* and *daleth* portray typical Edomite traits, while the inverted h-shaped *waw* and large-headed *mem* are well attested (though not exclusively so) in Edomite epigraphic sources (e.g. Avigad and Sass 1997, 1048, 1050–1; cf. Naveh 1987, 101f.; DiVito 1993, 54f.; Vanderhooft 1995, 149). Although not widely attested, parallels for the triangular-headed 'arrow-shaped' *qoph* can be seen on Edomite seals from the 7th to the 6th centuries BCE (cf. the seals/seal impressions *lqwsgbr ….m* from Merkez/Babylon, *lqwsᶜnl* from Tall al-Khalayfi,[2] unprovenanced *lqsw . 'dny*? and possibly *lšbnqws* from Horvat Qitmit).[3] The inverted *daleth* (with the breakthrough to the top right) has been recognized as typically Edomite in origin (Lemaire 1993, 5; DiVito 1993; Vanderhooft 1995, 146–7; Millard 2002, 431; van der Veen 2005, 191–2.). Examples of this letter can be seen on Edomite seals and seal impressions (cf. *lmlklbᶜ ᶜbd hmlk* from Busayra, *lqwsᶜnl ᶜbd hmlk* from Tall al-Khalayfi, and possibly (if Edomite) *lmšᶜ ᶜd'l, lmnḥmt 'št p/gdmlk* (Avigad and Sass 1997, 1050–1, 1062 and 1053 respectively: note that the unprovenanced examples Avigad and Sass 1997, 1062 and 1053 have been known for a long time)), and in other Edomite inscriptions (cf. ostraca from Horvat ᶜUza (Beit-Arieh and Cresson 1985, 96), and Tall al-Khalayfi (DiVito 1993, 55ff., pl. 82: the reading of Edomite *daleth* follows the cogent reconstruction suggested by Vanderhooft 1995, 143ff.)). Despite our very limited knowledge of palaeographic development in Edomite seals – *qoph* is still closed at the top (unlike the *qoph* on the Tall al-Khalayfi jar handles), and *samek* is of the archaic type (see also DiVito 1993, 54–5; Vanderhooft 1995, 149) – a tentative date for the Qos-Gabr bulla squarely within the first three-quarters of the 7th century BCE seems justified (see also DiVito 1993, 55; Vanderhooft 1995, 151; van der Veen 2005, 243).

The central register depicts a striding human-headed sphinx facing toward the right (see especially van der Veen 2005, 193–9. Descriptions are also found in, e.g., Bennett 1966a, 399ff.; 1966b, 125; Klingbeil 1999, 232). The head is adorned with what appears to be a long wig with curl or loop reaching down to the shoulders and a short straight-pointed beard (cf. Barnett 1953, pl. XXI:S6;

Hermann 1992, pl. 21:4; Bordreuil 1993, fig. 12). The latter may represent the ceremonial pharaonic beard (seen on, for example, 9th-/7th-century BCE Egyptianizing/Phoenician ivories from Nimrud, Arslan Tash and Samaria (e.g. Winter 1976, pl. IV:b; Barnett 1953, pl. I:C 60; Kenyon 1971, 85 pl. 55)), or, perhaps more probably, a simple trimmed natural beard as worn by Levantine kings (cf. Jehu – 9th-century BCE Black Obelisk of Shalmaneser III, late-8th-century Yarh-ᶜazer statue from Amman (e.g. Isserlin 1998, 75, figs 24–25; Dornemann 1983, 285, fig. 92:3)) and deities (cf. late-7th-/early-6th-century BCE statues from, for example, Horvat Qitmit and Hazeva (e.g. Stern 2001, 283–7)). The sphinx has two straight wings with upward curving tips (reminiscent of the Syrian styled human and ram-headed sphinxes on the Nimrud and Arslan Tash ivories, as well as on, for example, 8th-/7th-century BCE Ammonite seals (e.g. Hermann 1992, 69–71, esp. 70, nos 38–40; Klingbeil 1999, 230, fig. 64; Yassine 1988, 152, no. 304; Avigad and Sass 1997, 959, 982, 1017, 1038; Younker 1999, 221*, figs 1–2)) and an elongated feline rather than bovine body. Although at first glance the left hind paw may resemble a bovine hoof, close study has shown that the hoof-like division is a simple crack in the clay of the bulla. The tail is S-shaped and curves upward, as is the case with sphinxes depicted on Egyptianized/Phoenician and 'Syrianized' ivores (e.g., from Nimrud and Arslan Tash) and on the Ahiram sarcophagus from Byblos (e.g., Oates and Oates 2001, pl. 9; Barnett 1953, pl. XXI:S6; Kenyon 1971, 87, pl. 59; Winter 1976, pl. IIIb and V:a; Borowski 1995, 36; Hermann 1992, pl. 21:4; Sass 2005, 20–1). The sphinx also wears an Egyptian-type apron. This too is an element commonly found on Egyptianized/Phoenician ivories (cf. examples from Samaria, Arslan Tash and Nimrud (e.g. Hermann 1992, pl. 25:12; Frankfort 1969, pl. 168:D; Kenyon 1971, pls 48, 55)), as well as on seals from Palestine and Jordan (e.g. Avigad and Sass 1997, 85, 160, 171, 925, 956; Younker 1999, 221*, figs 1–2). The iconography of the Qos-Gabr bulla therefore appears to be mixture of Levantine, mainly Syro-Phoenician, elements (I. Ziffer pers. comm. (Eretz Israel Museum – Tel Aviv)).

It has been suggested that the sphinx portrayed on the Qos-Gabr bulla is a royal emblem (cf. Bennett 1966b, 125; Bartlett 1989, 213; Beck 1995, 154; Deutsch 1999, 48; T. Ornan pers. comm.). The role of sphinxes as guardians of gods and kings and as protectors of sacred precincts is undoubtedly a central theme within royal and religious Levantine iconography,[4] but the royal nature of the figure on the present bulla – let alone in Edomite glyptic – cannot be proved. Even though winged sphinxes are portrayed on unprovenanced (if genuine) royal Ammonite seals (Deutsch 1999, 53–7, 46ff.), their very frequent depiction on non-royal inscribed Levantine seals (both provenanced and unprovenanced: e.g. Avigad and Sass 1997, 37, 44, 85, 143, 160, 193, 711, 713, 884, 893, 925, 956, 1069; Younker 1999, 221*, figs 1–2) shows that a royal interpretation may be an oversimplification that is not to be accepted uncritically.

The name Qos-Gabr, '[DN] Qos is my [divine] Warrior/Hero' is rare in the Edomite onomasticon (Zadok 1998, 781–828).[5] The seal owner has been identified with a similarly named king of Edom *Qaušgabri* in the royal Assyrian annals of kings Esarhaddon (Prism B – *c.*673 BCE) and Ashurbanipal (Cylinder C – 667 BCE) (also see the description of this campaign on the Rassam Cylinder, Pritchard 1969, 294f.). This Qos-Gabr is mentioned alongside other Levantine vassal rulers (e.g. Manasseh of Judah, Achish of Ekron, Pado'el and Amminadab of Ammon respectively). While in the former text the vassal rulers are summoned to transport building material to Niniveh for the construction of the palace (see Pritchard 1969, 291), in the latter (see Pritchard 1969, 294) they bring tribute to king Ashurbanipal and are recruited to advance with him against Egypt. Although the suggested identification seems plausible (other kings of Edom are attested between 733 and 701 BCE,[6] the script of the bulla indicates a date during the first three quarters of the 7th century BCE, and the name Qos-Gabr is rare), no Edomite kings are attested in the Assyrian annals after 667 BCE,[7] so that Bennett's cautious remark, 'En toute rigueur, on ne peut pas exclure la possibilité qu'il s'agisse d'un autre roi d'Édom, dans la second moitié du VIIe siècle', still holds true today.

Images of the Qosgabr bulla from Umm el-Biyara and image of Qosgabr seal from Babylon/Merkez can be found in the following: Bennett 1966a, 399–401, no. 5, pl. XXII b; Bennett 1966b, 125, pl. XXX:B; Herr 1978, 162–3, no. 1, fig. 78:1; Naveh 1987, 102; Bartlett 1989, 135–40, 213, no. 5; Bienkowski 1992, 99, fig. 11.2; DiVito 1993, 54–5; Bienkowski 1995b, 44–5, 52, fig. 2; Lemaire 1993, 5, fig. 6; Vanderhooft 1995, 151, no. 1; Avigad and Sass 1997, 388, no. 1049; Zadok 1998, 785, no. a.3; Deutsch 2001, pp. 48f.; Klingbeil 1999, 230, fig. 64; Stern 2001, 271, 275, 279, 289; and van der Veen 2005, 185–99, 221–5, figs 79–87, 102.

The Neo-Babylonian bulla

Figures 5.5–5.7 (A.XLVIII.1.10, Reg. 206)

This object is a brown burnt clay bulla, impressed three times by the same rectangular seal, with a simply carved design of two symbols: a triangular head mounted on a vertical shaft and two vertical parallel lines. Imprints of tissue are seen on the reverse, and fingerprints on the edges. It was broken in antiquity. The entire bulla measured 3.0 cm in length and 2.1 cm in width, while the impression measured 1.2 cm? in length and 0.8 cm in width. It is held by the Kenyon Institute.

This bulla was excavated in 1965 in a localized burnt layer beneath a level of collapsed stones, and almost directly on bedrock in trench A.XLVIII.1. It was found together with three loom weights, a spindle whorl, an incomplete jug and a shell. The bulla is impressed three times with the same seal. Imprints of tissue are seen on the reverse (Figure 5.6). The bulla may have been placed

Figure 5.5. Front of 'Babylonian' bulla. Reg. 206. (Photo: R. Wiskin)

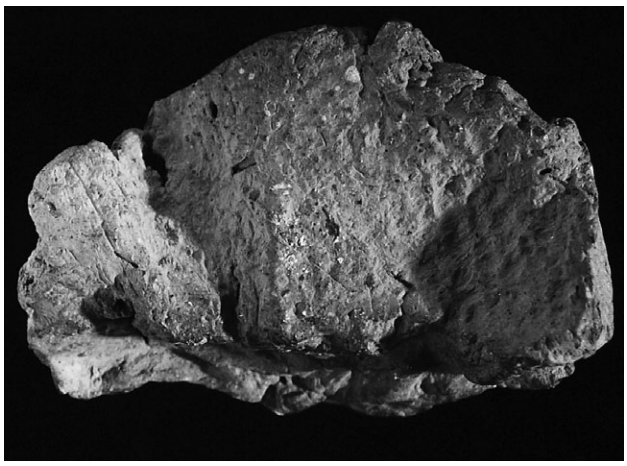


Figure 5.6. Back of 'Babylonian' bulla. Reg. 206. (Photo: R. Wiskin)

on a piece of loose-knit cloth which was pulled over the rim, neck and shoulder of a vessel, in which case the vessel would have contained liquid or dry food for the payment of government tax (for the use of fiscal bullae see, e.g., Herbordt 1992, 59–60, figs 7.4, and especially 8). The seal which impressed the bulla had a rectangular form with smooth round corners, while the shape of the original seal may have been tabloid (D. Collon pers. comm. Cf. also Legrain 1925, no. 705, and Jakob-Rost 1997, no. 260).

The crude anepigraphic carved design of the identical seal impressions depicts, on the left, a vertical shaft mounted by a triangular head and, on the right, two parallel vertical lines (cf. Figures 5.5 and 5.7) (for a more detailed discussion of this bulla see van der Veen 2005, 214–18). Although the left stroke of the triangular head cannot be easily recognized on the photographs, re-examination of the bulla has proved that the closing line (also detected by D. Ellis and S. van der Veen) can still be seen on the original. Bennett, who viewed the bulla 'upside down', tentatively suggested that the icons represented numerals,[8] an unlikely suggestion, as no parallels are known, nor are such signs attested among the hieratic numerals of the time.[9] When viewed as shown in Figure 5.5 and 5.7, the symbols can be clearly recognized as those of the Neo-Babylonian gods Marduk and Nabu, a suggestion which has been subsequently endorsed by seal experts (D. Collon (British Museum), S. Herbordt (Leipzig University), A. Gillibert (Berlin University), A. Otto and S. Wimmer (Munich University)). The pole mounted by the triangular head represents the spade or hoe (the so-called *marru*), the symbol of Marduk (cf. Black and Green 1992, 168; Abusch 1999, 543–9; Gillibert (forthcoming)), the supreme patron deity of Babylon, whereas the 'double rod' represents the stylus, the symbol of the Neo-Babylonian scribal deity Nabu (cf. Black and Green 1992, 185; Millard 1999, 607–10; Gillibert (forthcoming)). Both icons can be frequently seen together on more elaborately carved Neo-Babylonian (often chalcedony) seals depicting worshippers or priests standing in front of the divine symbols, often placed on a pedestal (cf. Jakob-Rost 1997, nos 270, 297–8, 301, 330. Also cf. no. 389. For the triangular head of the Marduk spade see Collon 2001, nos 264–6, 268; Legrain 1925, no. 637, 705. Also Avigad and Sass 1997, 289, no. 774). These have also been found in the southern Levant (including Transjordan), predominantly in Neo-Babylonian through early Achaemenid period strata (i.e. from the late 7th to the 5th century BCE) (for examples particularly from Jordan cf. van der Veen 2005, 21–2, 153).

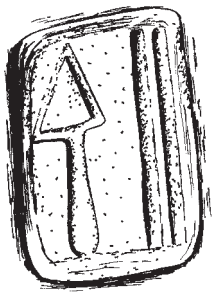


Figure 5.7. Line drawing based on all three seal impressions on 'Babylonian' bulla. Reg. 206

Although some seals depict only the symbols of Marduk and Nabu (but frequently also with additional astral elements) (cf. Jakob-Rost 1997, 390–3. Also A. Gillibert pers. comm. and Gillibert forthcoming), the crude nature of the Umm al-Biyara bulla is unique; it lacks even the usual base line representing the pedestal on which the divine symbols stand, as can be most clearly seen on the left impression of the bulla. The seal which impressed the bulla may have been a peripheral imitation of a 6th-century BCE Neo-Babylonian standard seal (S. Herbordt pers. comm.).

On the use of the spade and stylus symbols see Abusch 1999, 543–9; Black and Green 1992, 168, 185; Gillibert 2009; and Millard 1999, 607–10.

Figure 5.8. Base of stamp seal. Reg. 99. (Photo: D. Ellis)

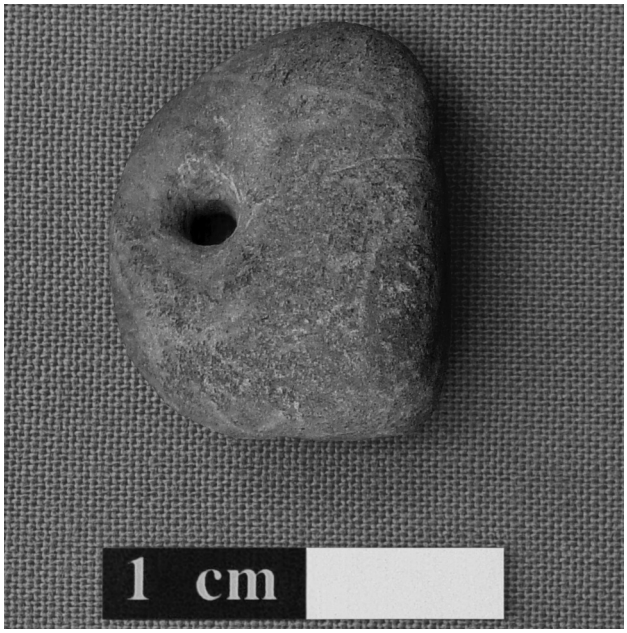


Figure 5.9. Side of stamp seal. Reg. 99. (Photo: D. Ellis)

Stamp seal

Figures 5.8–5.9 (A.XLIV.1.9, Reg. 99)
This object is a prism-shaped brown stone stamp seal or amulet with round edges. It is pierced across its width, and the base has a crude engraving of a human figure or solar element. It is chipped at the upper edge of the ovoid base. The width of the base is 0.9–0.3 cm and the height of the seal 1.5 cm. It is held by the Kenyon Institute.

The meaning of the crudely carved image (Figure 5.8) is uncertain. From the (narrow) top to (broader) bottom of the engraved base, the following elements can be seen: a drilled hole with two down-sloping lines (the left one of which is about three times longer than the right one), and – disconnected from the former – an inverted V-shaped object. No parallel is attested in the Transjordanian seal corpus (see Eggler and Keel 2006). The image may represent a human figure (as was suggested by Bennett on her registration card), or alternatively – albeit in a very crude manner – a winged sun disk (cf. Parayre 1993, 43, fig. 14, 48, fig. 48; or possibly Jakob-Rost 1997, nos 400–407 (perhaps also no. 397). Also see perhaps the similar (though not identical) sign depicted on the 'encircled' Ishtar: e.g. Ornan 2001, figs 9.7, 9.9, 9.14–15).

Figure 5.10. Impression on jar handle. Reg. 48. (drawing)

Jar handle impression

Figure 5.10 (A.XL.1c. Reg. 48)
This object is an oval-shaped stamp seal impression depicting a quadruped on a jar handle attached to a large pink storage jar sherd, which was uncovered in 1963 in the upper level of trench A.XL.1c. The exterior surface of the jar was treated with a buff coating. The handle has a deep central groove in or next to which the seal was impressed.[10] The seal impression is 2.2 cm in length and 1.8 cm in width. Despite several endeavours to locate it at the Amman Museum, as well as at the Kenyon Institute in Jerusalem, the current location of the jar handle is unknown. Owing to its absence and the non-existence of a photograph, the interpretation of the seal impression must be solely based on the comments of the excavator and on subsequent observations based on the existing line-drawing from the excavation archive.

According to Bennett, the impression was apparently extended by incision before firing to form a shape which may be a human figure. But as the current location of

the handle is unknown, and as the line drawing yields insufficient detail, it is impossible to provide further information concerning this rare, if not unique apparently incised human figure (which is said to have used the seal impression as its head) (Bennett 1966a, 396).

By viewing the find with the handle to the left, Bennett argued that the horizontally stamped seal impression depicted an ibex facing right, above which the shape of a scorpion (facing left) could possibly be detected (Bennett 1966a, 396). This interpretation was recently accepted by Jürg Eggler and Othmar Keel, simply because the poor quality of the published line drawing did not offer a better alternative. They refer to similar depictions, especially on early Iron Age seals, including examples from Transjordan, i.e. from Jabal al-Hawayah, Tall as-Sa'idiyya and Dhiban (Eggler and Keel 2006, 462, fig. 4 with references and several parallels also from Cisjordan. Some late Iron Age parallels from Tall al-Hamma, Khirbat Umm ad-Dananir and Tawilan may also exist: *ibid.* Also Bennett 1966a, 396). However, the stamp impression has not hitherto been viewed upside down. If it is turned 180° (i.e. with the handle now facing to the right), a horned long-necked quadruped can be seen facing left. In this way at least three legs of the animal can be detected. Above its back a bent figure may be seen and in front of its hind legs there appear to be three dots. Quadrupeds with astral images such as dots (representing stars?), lunar crescents or further cosmic elements are found on numerous Iron Age seals and seal impressions ranging from Iron Age I to IIC (e.g. Eggler and Keel 2006, 16–17, fig. 9 (bovine, Adoni-Nur tomb in Amman, Iron Age IIC); 70–1, fig. 22 (secondarily carved quadruped from Amman Airport, Iron Age IIB); 168–9, fig. 2 and 170–1, fig. 6 (both with a gazelle, Hisban, Iron Age IIC); 254–5, fig. 1 (gazelle, Rabbat-Moab, Iron Age IIC); 380–1, figs 28, 32 (gazelle, Tall as-Sa'idiyya, Iron Age IB–IIA); also Keel and Uehlinger 1998, 147–8, figs 175b, 176c, etc.). The bent figure above the back of the quadruped may be interpreted as a schematized scorpion (as per Bennett, Eggler and Keel), or alternatively as a bow. The depiction of a bow above a quadruped also finds parallels on Iron Age I seals from Transjordan.[11]

On this impressed jar handle see Bennett 1964, 252; Bennett 1966a, 396 with pl. 24a; and Eggler and Keel 2006, 462–3, fig. 4.

Notes

1. Whereas the traces of the letter could also belong to either *mem* or *nun*, as this author has suggested in his PhD thesis (van der Veen 2005, 188), only the reading *qwsgbr* appears to readily produce a meaningful personal name, attested within the Edomite onomasticon.
2. The triangular head of *qoph* on the impressed jar handles from Tall al-Khalayfi has started to open up. Note also that the two *ʿayins* in the same inscription are open at the top in line with the Aramaizing scribal tendencies of the late 7th–6th century BCE of Transjordanian (Ammonite, Moabite and Edomite) seals: e.g. Avigad and Sass 1997, 1052, 1061–62, 1064; Eggler *et al.* 2002, e.g. nos 11, 23, 32, 36, 42, 54. For a discussion of the Tall al-Khalayfi jar handles see DiVito 1993, 54–5.
3. See Avigad and Sass 1997, nos 1048, 1051, 1057; Beit-Arieh 1995, 264ff.; Beit-Arieh 1996, 33. Note, however, that the *qoph* on the Horvat Qitmit seal is not an exact parallel as the triangular head is flatter. For a closer parallel on an inscribed sherd from the same site see Beit-Arieh 1995, 269f., no. 3.
4. Sphinxes are depicted at many temples and palaces e.g. at Mari, Ugarit, Ayn Dara, Tall Halaf, and can be seen flanking the thrones of local Levantine rulers, e.g. on a Megiddo Stratum VII ivory (13th century BCE), the Ahiram sarcophagus (10th century BCE), Syro-Lebanese votive thrones from the 7th century BCE down to the Hellenistic period. Sphinx figurines were also uncovered at Horvat Qitmit in the Negev: cf. Beit-Arieh 1995, 152f., fig. 3.10.1; Beck 2002, 171–202, esp. 197f. Also in the Old Testament tradition sphinxes play an important role in both royal and religious iconography: e.g. 1Kgs 6:23ff.; 2Kgs. 19:14f., Ps 99:1; Ezek 9:3.
5. In this study the name only occurs twice. The only other reference belongs to a person mentioned on a 4th-century BCE ostracon from Beersheba – p. 791. Zadok, however, has overlooked a fragmentary seal with the same name – Avigad and Sass 1997, 1048 (from Merkez/Babylon) – whose owner has been tentatively identified with king Qos-Gabr of Edom. For references see Avigad and Sass 1997, 388.
6. Tiglath-pileser III received tribute from an Edomite king Qaušmalaku, whereas Sennacherib received tribute from a monarch Ayaramu of Edom (see Pritchard 1969, 282, 287). The name of the king at the time of Sargon II, however, is not attested (Pritchard 1969, 287). Also see Weippert 1980, 205–6; Kuan 1995, 161–4.
7. The region is, however, referred to especially during the years 655–635 BCE when a long-term conflict between Assyria and the Arab tribes befell the region – Pritchard 1969, 298.
8. Registration card no. 206.
9. Personal communication from S. Wimmer (University of Munich). Although the simple vertical strokes could theoretically represent the hieratic number '2', no cogent parallels are known for the first sign.
10. For a stamp impression on an apparently very similar jar handle from Iron Age IIB Tall Dayr Alla see Eggler and Keel 2006, 401, fig. 20.
11. See the Iron Age I specimen from Tall al-Mazar depicting a horned (?) quadruped with a bow above its back: Eggler and Keel 2006, 302–3, fig. 17; the horned quadruped with two dots above its back on a foot amulet from Tall al-'Umayri (Iron Age I–IIA), Eggler and Keel 2006, 346–7, fig. 63. Also see Keel and Uehlinger 1998, 145, fig. 155b with an Iron Age I parallel from Tall al-Far'ah (south) with a suckling cow, above which an archer in horizontal position is depicted. For an example of a horned quadruped (gazelle?) with a schematized scorpion above its back, see e.g. Eggler and Keel 2006, 152–3, fig. 6 (gazelle from Jabal al-Hawayah, Iron Age I–IIA); 370–1, fig. 9 (from Tall as-Sa'idiyya, Iron Age I). Also see Jakob-Rost 1997, 50–51, fig. 125 (with long-necked horned quadruped and scorpion, Berlin Museum); also Keel and Uehlinger 1998, 166ff., figs 175a–176c.

6. The Ostracon

Omar al-Ghul

Introduction

This chapter attempts a re-examination of the ostracon (Reg. 239) uncovered during the excavations of Crystal-M. Bennett in 1966 at Umm al-Biyara (Figures 6.1–6.5). The textual, linguistic and palaeographic aspects of the text have been re-examined, drawn together and discussed, together with the diverse scholarly views expressed about them since the discovery of the ostracon. Despite the brevity of the inscription and the poor state of preservation, the Umm al-Biyara ostracon remains one of the very few representatives of the 'Edomite corpus'. For this reason alone the effort exerted to shed more light on it is justified. It should be noted that this study has been carried out on the basis of examination of a photograph and drawing of the ostracon: the original ostracon can no longer be located.[1]

Discovery

The sherd was discovered in context A.XLIII.3.12 at Umm al-Biyara, where it was found together with other pieces of a large pottery jar (Figure 4.7:7). Bennett's preliminary report dated the context to the mid 7th century BCE (Bennett 1966a, 398). This context falls within Phase 1 of the occupation (see Chapter 2).

Description

The text was written in ink on the convex side of a pottery sherd of well-fired pink clay, as is indicated by the shadows in the photograph (van der Kooij 1986, 43–4). The three-line text was preserved on its upper, lower and right sides, while an indeterminable part of its left side

Figure 6.1. The Umm al-Biyara ostracon

Figure 6.2. The Umm al-Biyara ostracon inked

was lost because the sherd was broken. The traces of the letters were not equally preserved; some were already very faint when the photograph of the inscription was taken. The dimensions of the sherd (calculated from the photograph in Bennett 1966a, pl. XXIIa which was published at a scale of 4:5) are 13.9 cm (maximum width) by 12.6 cm (maximum height).

The *editio princeps* and previous studies

The Umm al-Biyara ostracon was preliminarily published by J. T. Milik (1966), who read the inscription from the original with the help of infra-red images. In that study a photograph of the ostracon was published without a drawing of the inscription. Since then, several scholars have commented on the text (Israel 1979, 178; Bartlett 1989, 215; van der Kooij 1986, 44, 297; 1987, 110, 113–14; Vanderhooft 1995, 140–1). The latter two suggested new readings of the text, although neither was able to examine the original.[2] The photograph published in the *editio princeps* (Milik 1966) is the only way Milik's reading can be verified. The current writer has based his reading on a high resolution electronic image of this photograph.[3]

Reading

Line 1

The letters in this line are fairly visible, and can be read without difficulty. I agree with Milik, van der Kooij and Vanderhooft[4] in reading: *šmn. r[...*

Line 2

The second line begins with the letters *m'* followed by a faint letter (Milik *d*,Vanderhooft *r*; van der Kooij ?). It resembles both *d* and *r*; yet, because of the shorter tail, I am inclined to consider it a *d*. The fourth, less visible letter (Milik *r*; van der Kooij, Vanderhooft and the drawing did not recognize it) could also be *d*, but should rather be considered *r* because of its slightly longer tail and the more rounded head. These letters are followed by a space or a word-divider, which Milik saw, but it is not recognizable in the photograph. It indicates, however, that the last letter in this line is the first in a new word. It might be *n* (Vanderhooft) if the letter is fully preserved, being similar to the *n* in the Aramaic 8th-century BCE Nimrud ostracon ʾ (Naveh 1970, fig. 2: 3–4). Yet a comparison with the two *m* letters in lines one and two suggests rather reading it also as *m* (Milik *m*, van der Kooij *m*/*n*). The *n* in the first line has neither a concave head nor a left curving downstroke, whereas both *m* letters in lines 1 and 2 have these.

Line 3

The first letter in this line is a *b*. The second could be a *d* (Milik and van der Kooij) or an *r* (Vanderhooft). The shorter leg and the triangular head suggest a *d*. Following this letter there are faint traces of a word-divider (van der Kooij did not recognize it). Thus, the first two letters of the third line might be a part of a word that began at the end of the second line.

': The letter is barely recognizable. Vanderhooft read it as a damaged *b*, Milik and van der Kooij did not distinguish it. The drawing also indicates a *'*. It is followed by a lacuna, in which traces of one or two small letters stood, but they are no longer traceable, including the *bn* that Milik recognizes here. The traces that Vanderhooft suggests as *t* are in fact a combination of ink traces with scratches on the surface of the ostracon that resemble the letter *t* as attested in the Khirbat Ghazza ostracon (Beit-

Figure 6.3. The Umm al-Biyara ostracon inked on a bright background

Figure 6.4. The Umm al-Biyara ostracon inked, with characters partly reconstructed

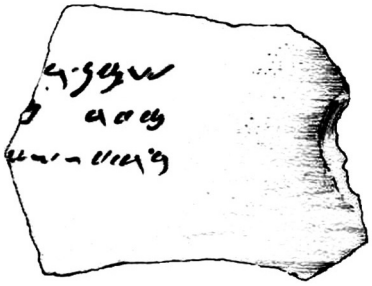


Figure 6.5. Drawing of the Umm al-Biyara ostracon from the excavation archive

Arieh and Cresson 1985, 96). The last character in this line was read hesitantly by van der Kooij as *m*. In fact, the assumed tail does not exist. I read here, very cautiously, a *ʿ*, so presumably does the drawing.

Based on the above I propose the following reading of the text:

šmn. r [. . .
mʿdr [.] m[. . .
bd.ʿ [. .] ʿ [. . .

Commentary and translation

Line 1

šmn: 'Oil' (Brown *et al*. 1906, 1032). Deliveries of oil are attested in several Iron Age II inscriptions. A Phoenician inscription from Tall as-Saʿidiyya dated toward the end of the 7th century BCE mentions 'vessel of oil' *šmm* (Pritchard 1985, 86). Two Hebrew inscriptions from Jerusalem from the end of the 8th century BCE mention delivery of oil (eight and 57 containers), where the word for oil occurs in the generic plural *šmnm* (Lemaire 1978, 158–9, 160–1). A huge amount of oil, 1100 containers, presumably for export, is mentioned in an 8th-century ostracon from Tall Qasile (Maisler 1950–1, 208–10). The Arad letters 4, 7, 10, 12, 13, 14 and 17 from the 6th century also mention the delivery of oil (Aharoni 1981). The richest source with references to the delivery of oil are the 8th-century BCE Samaria ostraca, with 15 texts (nos 16a, 16b, 17a, 17b, 18–21, 53–5, 59, 72, 73 and 82) (Renz 1995, I, 94–5, 103–5, 107–8).

r[. . .: After a separating dot, only the first letter *r* from the following word is preserved. A typological analysis of the north-west Semitic documents shows that, following the name of a commodity, a further designation of the contents, such as their place of origin or their quality and/or quantity, should be expected. In the above-mentioned cases from Arad, the word *šmn* is never followed by a word that specifies its quality (Aharoni 1981). In the Samaria ostraca, on the other hand, it is followed consistently by the word *rḥṣ* '(oil) for washing' 'refined (oil)' (Hoftijzer and Jongeling 1995, II, 1072), where it is separated from the preceding word *šmn*, 'oil', by a dot, as in our case (Renz 1995, I, 94–5; 103–5; 107–8). Similar designations of the contents of vessels are attested in other inscriptions: for example, *[y]n ḥmr* 'fermented [wi]ne' in a probably Phoenician inscription from Khirbat Ras az-Zaytun dated to the 10th century BCE (Gal and Alexander 2000, 133–4) that is mentioned also in the Old Testament (Ps 75:9), and *yyn ʿšn* 'fermented wine' in a 7th-/6th-century Hebrew inscription from Lachish (Ussishkin 1978, 83–4 and fig. 26). Similarly, an inscription from Khirbat al-Kom dated to the 8th–7th century describes the contents of a jug as *yyn kḥl*, which can be understood as 'dark wine' (Avigad 1972, 1–5). A further example is found in the Aramaic ostracon 2069 from Tall al-Khalayfi dated to the early 4th century BCE (DiVito 1993, 58–9): *ḥmr blgn ṭb y'n* 'wine in a bottle, good quality, choice! 5[?]' (Torrey 1941, 15–16).[5]

A word that follows the name of a commodity need not necessarily be a designation of quality. In the Samaria ostraca the commodity was also identified by the name of its place of origin: for example, *yn.šmyd[ʿ]*: 'wine from Šamayd[aʿ]' (Samaria ostraca 62) (Renz 1995, I, 105), and *yn. krm. htl* 'wine from the vineyard of the tell' (Samaria 53 and 54) (Renz 1995, I, 103–4). In another case, the name of a person was also mentioned, probably the one who delivered the commodity: *[yn] yšn. rgʿ* 'old [wine]. *Rāgāʿ*' (Samaria ostraca 1) (Renz 1995, I, 89–90).

Line 2

There is no way to tell how much of the text at the end of line 1 is missing, and therefore one cannot decide the textual relationship between the words which stood at the end of the first line and those at the beginning of the second line.

mʿdr: Since this text can be classified as a 'delivery note', one would expect to find in it, by analogy with other texts from the same genre, a reference to the place from which the commodity was sent. In the Samaria ostraca 16 places are mentioned as the place of origin of commodities and all are preceded by the preposition *mn* (for example, 2, 3, 5, 9 and 10; Renz 1995, I, 90–92). One of these, *ʿŠrt*, in ostracon 42 (Renz 1995, I, 101), begins with the letter *ʿ*, as in our case. In the Ammonite Hisban A 1 ostracon, dated to the 7th–6th century, *m'lt* is probably also a place-name, from which commodities were brought, preceded by the preposition *mn* (Aufrecht 1989, 217). Thus, *mʿdr* can be taken for the preposition *mn* followed by a place-name, with the *n* of *mn* assimilated in the *ʿ* (Milik 1966, 399).

ʿdr might refer to a place called *ʿEder* mentioned in Josh. 15: 2 (Israel 1979, 178). Although this place is not identified today, the biblical context suggests that it existed in southern Palestine, in a region not far from Umm al-Biyara; that is, a place from which Umm al-Biyara could have imported oil. This assumption has been reached hesitantly since commodities may have come to Umm al-Biyara from various other places, possibly many of them local farmsteads whose names were never recorded.[6]

Furthermore, one should also consider the possibility

that *'dr* can signify something other than a place-name. Although not very likely, *'dr* can also mean 'flock', 'herd' (Brown *et al*. 1906, 727), or could even be a personal name (Noth 1928, 63).

m[...: If Milik's identification of a word divider at this place is correct, the *m* would be the first and only preserved letter of a new word. Leaning on the evidence from other texts, mainly the Samaria ostraca, reference to the measurement in which the oil was delivered can be expected here. There, oil as well as wine was delivered in containers called *nbl*, the biblical Hebrew נֵבֶל (Samaria ostraca, for example: 1, 3, 5, 6, 13, 14 [wine] (Renz 1995, I ,89, 90, 91, 93); 17a, 17b, 18, 19, 21 [cosmetic oil] (Renz 1995, I, 94–5)). In nos 1, 3, 19 and 21 of these examples the word *nbl* follows a place-name preceded by the preposition *mn*. However, to the best of my knowledge, there is no word for a measurement of liquids that begins with the letter *m* (Renz 1995, II/1, 36–9) and *nbl* should be excluded here, since it was argued above that this letter should be read as *m* and not *n*. Thus, other possibilities should be investigated. One of these would be a personal name; that is, the name of the person who delivered the oil. Parallels are found in ostracon no. 2 from Samaria, where personal names follow the name of the place from which the commodity was dispatched: *m'Zh: 'Bb'l 2; 'Ḥz 2,Šb'1; Mrb'l* ('from *'Zh: 'Bb'l 2. . .*') (Renz 1995, I, 90).

Line 3

bd: Milik interpreted *bd* as a combination of the preposition *b* and the noun *yd* 'hand', thus meaning 'in the hand of PN' (Milik 1966, 399), an expression already known from the Old Testament, with the meaning 'to give into the hand, possession, of' (Brown *et al*. 1906, 390). It was with Milik's publication of the Umm al-Biyara ostracon that this expression became epigraphically attested. It occurs in three Hebrew ostraca from Tall Arad: in no. 17, and partly reconstructed in nos 16 and 24, all from the beginning of the 6th century BCE (Aharoni 1981, 30–4, 46–9). Whereas the expression occurs in no. 24 in a military context, in nos 16 and 17 it has an administrative significance; in 16 it refers to the delivery of silver, and in 17 the delivery of oil, as in the Umm al-Biyara inscription.

On the other hand, one should also consider the possibility that the letters *b* and *d* are the termination of a word – possibly a personal name – that stood at the end of the second line. The word-divider after the second letter makes it likely that they actually were such a termination.[7] Accordingly, the letters *b* and *d* can be the last part of words such as *zbd* 'to bestow upon', 'to endow with' (Brown *et al.* 1906, 256) and *'bd* 'to work', 'to serve' (Brown *et al*. 1906, 712). In the Old Testament the personal names *Zābād* and *Zābūd* are attested from the first root (Noth 1928, 47), and the names *'Ebēd* and *'Ōbēd* from the second (Noth 1928, 137), in addition to the epigraphically attested name *'Bd* on a seal (Avigad and Sass 1997, 439, no. 1160) and in an ostracon from Tall al-Saba' (Renz 1995, I, 233).[8]

I therefore propose the following translation of the text:

Oil [for washing . . . . . .]
From *'Dr* . . . . . .]
bd. [. . . . . .]

The palaeography

The palaeographical study tackles 11 characters representing seven letters of the alphabet. Their forms are compared with the (mainly cursive) script of Edomite, Aramaic, Ammonite and Moabite texts dated to the 9th–6th centuries BCE. The compared forms are tabulated in Table 6.1.

b: Occurs once in the ostracon  . It has a slightly open head and a vertical downstroke that curves slightly to the left at its end. It shares the open head with all other cursive examples of this letter starting from the 7th century BCE. Most of the *b* letters of this period, including the Edomite ones, have a left-leaning downstroke, as in the Tall al-Khalayfi 6043 ostracon  [9] dated to the second half of the 7th century BCE (DiVito 1993, 57).

d: As is frequently the case in the north-west Semitic scripts, it is not always possible to distinguish the *d* from the *r*. In the Umm al-Biyara ostracon it is even more complicated because neither letter stands in a clear textual context. However, the angular head and the shorter downstroke are taken to be characteristic of the *d*. The *d* does not occur in lines 2 and 3 in its 'inverted' form distinctive in various Edomite inscriptions, such as the Tall al-Khalayfi 6043 ostracon and the Khirbat Ghazza ostracon  , the latter dated to the 7th–6th centuries (Beit-Arieh and Cresson 1985, 96). Rather, it has the form attested in the Aramaic and Ammonite inscriptions. There, the open form was dominant in the 7th and 6th centuries BCE, whereas we have in the Umm al-Biyara ostracon both an open and a closed *d*. However, our examples look older than those of the Aramaic and Ammonite ostraca from 6th-century Hisban.

m: This letter appears twice in the ostracon, in lines 1 and 2  . Both have the distinctive big head of the Moabite and Edomite scripts that can be seen in the Edomite *lMlklb'* seal impression from Busayra  that goes back to the 8th–7th centuries BCE (Avigad and Sass 1997, 388, no. 1050), in the *lYtm* seal from Tall al-Khalayfi (Avigad and Sass 1997, 392, no. 1054), dated to the first half of the 7th century (DiVito 1993, 53), and in many of the *lQws'nl* seal impressions from Tall al-Khalayfi  , dated to the late 7th or early 6th century (Avigad and Sass 1997, 389f., no. 1051). The same big head appears in the Edomite ostraca – that is, in the ostracon no. 6043 from Tall al-Khalayfi  (Vanderhooft 1995, 144) dated to the second half of the 7th century or towards the century's end (DiVito 1993, 57). A further example is in the Khirbat Ghazza ostracon , dated to the end of the 7th or the beginning of the 6th century BCE (Beit-Arieh and Cresson 1985, 96).

	Edomite				Aramaic						Ammonite			
	Umm al-Biyara (mid 7th)	T. Khalayfi 6043 (2nd half of 7th)	Busayra (8th-7th)	Qwsʿnl seal (7th-6th)	Kh. Gazza ostracon (7th-6th)	Dayr Alla plaster text (c.800)	Nimrud ostracon (end 8th)	Hisban A 4 (550- 525)	Hisban A 5 (c.500)	T. Khalayfi 2069 (5th)	Hisban A1 (c.600)	Mazar III (mid 6th)	Hisban A2 (c.575)	Hisban A 3 (c.525)
b														
d														
m														
n														
c														
r														
š														

Table 6.1. Cursive scripts of the 8th to 6th centuries BCE

Similar forms occur in the Moabite inscriptions, such as the Mesha stela  and the al-Karak fragment , both from the 9th century BCE (van der Kooij 1987, 117). The form persists in the later Moabite seals, such as the *Kmš'm* seal from the beginning of the 8th century (Avigad and Sass 1997, 374, no. 1010) and the *Kmš'š* seal from the second half of the 7th century (Avigad and Sass 1997, 381, no. 1033).

However, in both examples from the Umm al-Biyara ostracon the head has no left tip. The downstroke of both letters is left leaning, but the downstroke of the first letter makes a small curve upwards, which is unparalleled in the compared material. The big head of this letter assigns it to the Edomite or Moabite scribal tradition, as it is a feature that does not exist in the contemporary Aramaic and Ammonite inscriptions.

n: This letter is attested once in the ostracon . Owing to its development, the head is no longer curved, thus appearing more developed than the *n* in the Tall al-Khalayfi 6043 ostracon (Vanderhooft 1995, 144), which is dated to the second half of the 7th century or towards the century's end (DiVito 1993, 57), and in the Khirbat Ghazza ostracon , dated to the end of the 7th–beginning of the 6th century BCE (Beit-Arieh and Cresson 1985, 96). The same uncurved head can be observed on the same letter in the *Qws'nl* seal impressions from Tall al-Khalayfi , dated to the late 7th–early 6th century BCE (Avigad and Sass 1997, 389–90, no. 1051), and one of the *n* letters in the Nimrud ostracon , from the end of the 8th century BCE in the Aramaic script. It occurs also in the Amman statue inscription , dated to the 8th–7th century BCE (Aufrecht 1989, 108), and in the *Nṣr'l* seal from Tall al-'Umayri , dated to the late 7th–early 6th century BCE (Herr 2000, 249–50).

': Two examples of this letter are attested, one in the second line , the other in the third . Both are open, corresponding with most of the Edomite, Aramaic and Ammonite *'* letters of the 7th and 6th centuries BCE. Both letters show a resemblance to the *'* in the Khirbat Ghazza ostracon dated to the end of the 7th or the beginning of the 6th century BCE (Beit-Arieh and Cresson 1985, 96).

r: As with the *d*, the *r* also has a closed and an open form . The first finds its closest parallels in the *r* of the Aramaic Tall Dayr Alla plaster text , dated to *c.*800 BCE, and the Ammonite Hisban A1 ostracon , dated to *c.*600 BCE. The closest parallel to the open form is the *r* in the Khirbat Ghazza ostracon , dated to the end of the 7th–beginning of the 6th century BC (Beit-Arieh and Cresson 1985, 96).

š: A single example of this letter is attested in the Umm al-Biyara ostracon . The angle between the right and the middle strokes is wider than that between the middle and the left strokes, but this feature should not be assigned a typological value because it occurs in various inscriptions dated from the 9th to the 6th centuries BCE (Naveh 1970, figs 1–3).

This palaeographical analysis makes it obvious that the script of the Umm al-Biyara ostracon does not show decisive characteristics that would unequivocally assign it to a specific north-west Semitic scribal tradition. Whereas the two examples of *m*, with their big heads, resemble their Edomite and Moabite counterparts, the *d* letters were written in their 'usual' upright position, known from the Aramaic and Ammonite inscriptions, and not in the 'inverted' form as seen in several Edomite inscriptions. The remaining letters show resemblance to their counterparts in the Ammonite and Aramaic scripts. One should probably consider the Umm al-Biyara ostracon as an example of what Herr designated as the South Transjordanian script (1980, 30).

On the other hand, the script of the Umm al-Biyara text should be dated rather later than the 8th century BCE, mainly because of the open heads of the *b*, *d*, *'* and *r* letters, but also earlier than the more advanced scripts of the Aramaic and Ammonite inscriptions dated to the 6th century BCE. It seems that a date in the 7th century BC is appropriate, and – taking into consideration the archaeological context – even towards the middle of that century.

The structure and genre of the ostracon

As far as the condition of the text allows us to deduce, the inscription has the following structure:

> Designation of a commodity; designation of quality ? ... ...
> Designation of the place of origin ... ...
> ... ...

This makes it an inscription of an economic–administrative nature. It probably falls within the category of 'delivery notes'. In this genre the inscriptions usually include several of the following elements: the date of the document; the designation of the commodity; the name of the sender or recipient; the place of origin; and quality and quantity designations of the commodity (*v. supra* the commentary for the examples).[10]

The closest example of this genre in Jordan is the Ammonite A1 ostracon from Hisban (late 7th–early 6th centuries BCE), which details the delivery of various commodities (grain, sheep, goats, gum, a cow, silver and wine) to several persons (Aufrecht 1989, 214–19; Richelle and Weigl 2009, 127–38). In the Hebrew inscriptions of the 8th–6th centuries BCE these elements appear in various combinations, with the Samaria ostraca of the 8th century BCE being the best example.

The identity of the text as a 'delivery note' remains unaffected by whether the text was an ostracon notifying the delivery of oil or a text written on the jar that contained the oil, referring to its contents and the place of origin before being sent to Umm al-Biyara. The latter suggestion seems more probable, taking into account the wide margin at the left side of the text and the fact that other sherds

of – apparently – the same jar were found alongside the inscribed ostracon (Bennett 1966a, 398).

The language

The determination of the linguistic identity of the text is difficult not only because of the nature and condition of the text, but also because our knowledge of the Edomite language is very limited. The small corpus of Edomite texts does not sufficiently provide an indication of its main characteristics (Garr 1985, 230; Vanderhooft 1995, 154). However, in the following, the relevant linguistic data in the inscription are presented and discussed.

The phonology

If the two letters at the beginning of the third line are taken as a combination of the preposition *b* and the noun *yd* 'hand' – that is, 'in the hand of (PN)', they would testify to the syncope of the *y* between short vowels *b* + *yd* = *bd* (Garr 1985, 53), a feature also attested in later Phoenician and in Ammonite (Garr 1985, 54).

If *m'dr* represents the preposition *mn* + place-name, this orthography would reflect the assimilation of the *n* in the following word: *mn* + *'dr*.[11] This feature is attested in Ammonite, Hebrew and Moabite (Israel 1979, 181; Garr 1985, 43–4), but also – though irregularly – in Aramaic (Segert 1975, 228; Neef 2006, 29).

The morphology

The condition in which the text is preserved does not allow any conclusions to be drawn regarding the morphology.

The syntax

There are two possible syntactical features in this text: in line 1 the letter combination *šmn.r[...* might be a genitive construction, 'washing oil', although *r[ḥṣ]* might be taken as an adjective: 'washed = refined' oil. In line 2 *m'dr* might represent a preposition + noun. Neither feature is specific to any north-west Semitic dialect.

The vocabulary

šmn is common to diverse north-west Semitic dialects, and cannot be assigned to a specific north-west Semitic language (Hoftijzer and Jongeling 1995, II 1163). *'dr*, on the other hand, might be Aramaic, in contrast to Canaanite *'zr* 'help' (Brown *et al.* 1906, 740–41).

Taking an overall view of the linguistic evidence from the Umm al-Biyara ostracon, it seems safe to describe its language in general terms – with Bartlett (1989, 209) – as north-west Semitic. In view of the above, the classification of the Umm al-Biyara ostracon as Aramaic (Vanderhooft 1995, 141) is too specific and not justifiable.

Conclusion

The Umm al-Biyara ostracon was probably a delivery note written on a jar. It reports the delivery of oil from a certain place. This situation fits well with the natural and archaeological settings of Umm al-Biyara, as it seems sound to assume that the mountainous settlement maintained itself through supplies brought from elsewhere, where natural conditions were more favourable for agricultural and pastoral production.

The script generally confirms the archaeological dating of the sherd to the 7th century BCE. On the other hand, neither the script nor the language is decisive in answering the question about the identity of the ostracon. The main criterion for classifying it as Edomite remains, as before, its provincial affiliation (Israel 1979, 173; Vanderhooft 1995, 141). Generally speaking, the contents, genre, language and script of the text fit very well within its north-west Semitic setting.

Notes

1. It could not be located at the Jordan Archaeological Museum in Amman, or at the Kenyon Institute in Jerusalem, where the majority of the material from the Umm al-Biyara excavations is stored. I wish to thank Ms Aidah Naghaweh (formerly of the Jordan Archaeological Museum) and Professor Bill Finlayson (Director of the Council for British Research in the Levant) for their efforts in this respect. The fact that infra-red images of the ostracon were made suggests that it was at some point at the Palestine Archaeological Museum in Jerusalem, the only place in Jordan in the early 1960s where this technique was available.
2. For this reason Felice Israel expresses his reservations on Vanderhooft's (1995) reading (pers. comm.). I wish to thank Professor Israel for putting his unpublished notes of this text at my disposal.
3. Piotr Bienkowski kindly put at my disposal an anonymous drawing of the ostracon that was part of the Umm al-Biyara archive (Figure 6.5). It is definitely not Milik's, because it differs from his analysis in the *editio princeps*. It is also not possible to decide when the drawing was made, and whether it was made from a photograph or from the original. Henceforth, I will refer to it as the 'drawing'.
4. The references to the readings of the text are hereafter to: Milik 1966; van der Kooij 1986, 44; and Vanderhooft 1995, 140.
5. I consider the readings and translation of Torrey of ostracon 2069 to be more convincing than those of Glueck (1971, 232–3), though the latter are widely accepted (cf. Bartlett 1989, 217).
6. In an interview in October 2008 with Mr Hassan Nu'aymat, a researcher of the 'Al-Khabiyah Project' (a project sponsored by the Ahli Bank of Jordan to study the traditional food of Jordan, under the directorship of the author), Mr Bakr Masha'lah, born in 1942 at al-Ḥay (3 km north-east of modern Wadi Musa), mentioned several localities in the vicinity of Wadi Musa in which various activities related to food production were practised. Places like al-Hisha and Bir Abu al-'Alaq (between Shawbak and Wadi Musa) were used by some families of Wadi Musa in the spring as pasture

lands. Cereals were planted in places like al-Khor, Biyarit Mahzul and al-Haǧīm. In some years the surplus was sold in and around Wadi Musa, but also in places as far afield as Bir al-Sab' and the northern parts of Saudi Arabia. According to this informant, olive trees were planted in Wadi Musa, and their olives were pressed in a stone oil press that was in the al-Falahat quarter of Wadi Musa.

7. The evidence from Arad is not decisive in this respect; while in Arad 17 and 24 (partly reconstructed) *yd* is not separated from the following personal name by a word-divider, in Arad 16 such a divider is available.
8. If the second letter is an *r*, the first two letters of the third line can be read *br*. The closest suggestion that comes to mind is to assume here the Aramaic word *br* 'son'. This would require that the second line terminate with a personal name, and the possibility that the word that follows *br* be the patronymic element of the name of the person mentioned at the end of the second line. This would point towards an Aramaic identity of the Umm al-Biyara ostracon. But this can only be valid if the two letters are not a continuation of a word that stood at the end of line 2. If one thinks of a personal name, a name consisting of (or terminating with) the element *gbr* 'be strong', attested in the name of the Edomite king *Qws-gbr*, for example (Avigad and Sass 1997, 388, no. 1048), might qualify here.
9. For this text I follow the reading of Vanderhooft (1995, 143–4 and fig. 1, p. 157).
10. Many new examples of this genre have came to light in recent years through the hundreds of mainly 4th-century BCE Aramaic ostraca claimed to be from the vicinity of Khirbat al-Kom (Schwiderski 2004, 203–84).
11. Vanderhooft (1995, 155) did not allow this evidence, because of the uncertainty of the reading and interpretation of the text.

7. The Small Finds

Piotr Bienkowski

Introduction

The small finds in this chapter include most of the objects registered during the three seasons of excavation at Umm al-Biyara. Unlike Bennett's later excavations at Tawilan and Busayra, from which the objects were distributed to a fairly large number of museums and institutions across the world, the Umm al-Biyara material is retained in only two: the Department of Antiquities of Jordan, and the Kenyon Institute in Jerusalem (formerly the British School of Archaeology in Jerusalem), which holds the majority. The seal material, inscribed ostracon, and shells are dealt with separately here in Chapters 5, 6 and 9.

The small finds are presented either by material or by characteristic type, as with the publication of the Tawilan and Busayra assemblages (Bienkowski 1995a, 79–92; Sedman 2002, 353–428). The entry on each object consists of a figure number (if illustrated), the original excavation register number, a description, dimensions, and excavation locus number. Commentary on each object immediately follows its description. Where appropriate, there is a brief introduction and discussion of particular classes of objects.

Where possible, parallels are cited to the Tawilan and Busayra material, as the presence or absence of such parallels is most instructive in terms of understanding the nature and organization of Iron Age sites in Edom. Beyond Edom, the most frequently cited parallels are to the small finds from Tall Jawa in central Jordan (Daviau 2002): this is because the Jawa assemblage is the most extensive and at the same time the most intensively analysed and published small finds assemblage from stratified Iron Age contexts in the southern Levant. Much of the material is comparable to that from Umm al-Biyara, and reflects a typical late Iron Age assemblage in this wider area.

Since Tawilan is so close to Umm al-Biyara, both geographically and chronologically, comparison of their respective small finds assemblages is revealing. Compared with Tawilan, at Umm al-Biyara there are no figurines, bracelets, knives, blades, ivory objects, stone vessels, and only two possible fragments from fibulae. Much of the Umm al-Biyara assemblage is a typologically fairly restricted collection of tools connected with food production (stone tools), craft and industry (metal tools), defence or hunting (arrowheads and points), economy (weights, seals, ostracon) and textile production (spindle whorls, loom weights, bone spatulae). Nevertheless, this was not merely a utilitarian assemblage. There are items of basic adornment (rings, earrings, beads), a fine alabaster palette used for cosmetic preparation and a large amount of bone inlay from wooden boxes – more, indeed, than found at Tawilan or Busayra. However, when compared with broader assemblages such as Tawilan, Busayra and Jawa, the one large class of small finds that is completely missing at Umm al-Biyara (with the possible exception of one bone amulet) are objects connected with what Daviau (2002, 51) refers to as art and religious symbolism.

Bronze

Bowl

This deep carinated bronze bowl is so far unique in Edom: nothing similar was found in the excavations at Busayra, Tawilan or Tall al-Khalayfi. In general, such bronze bowls found elsewhere across the Near East are similar in shape to Neo-Assyrian carinated bowls and beakers made in 'palace ware' (see Chapter 4, Bowls K), and date from the Neo-Assyrian to the Persian periods. These bowls have been extensively studied (see convenient summary and references in Stern 1982, 144–5, and fig. 238, for the development of the shapes from the Neo-Assyrian to Persian periods in Palestine), and there is still a lack of

certainty about their origins. In Transjordan several bronze bowls were found in the Persian-period cemetery at Tall al-Mazar (Yassine 1984, 76–8, figs 7 and 50) and in the Umm Udhayna tomb in Amman, dated to the late Iron Age–Persian period (Hadidi 1987, fig. 10). The closest Transjordanian parallel to the Umm al-Biyara bowl is from Mazar (Yassine 1984, 76 no. 48, figs 7:3, 50:48), although the carination is not so rounded.

Figure 7.1:1 (Petra Reg. 1083). Bronze bowl with flaring rim and pronounced, rounded carination. Base missing, although parallels suggest it was likely to be rounded. Rim diameter: 11 cm [Petra XVIII]

Pin

Figure 7.1:2 (Reg. 7). Part of a bronze pin, from a fibula or brooch. Length: 6.5 cm. Max width: 3 mm tapering to 1 mm. Compare examples from Tawilan (Bennett and Bienkowski 1995b, fig. 9.6:10–11). [A.VI.2]

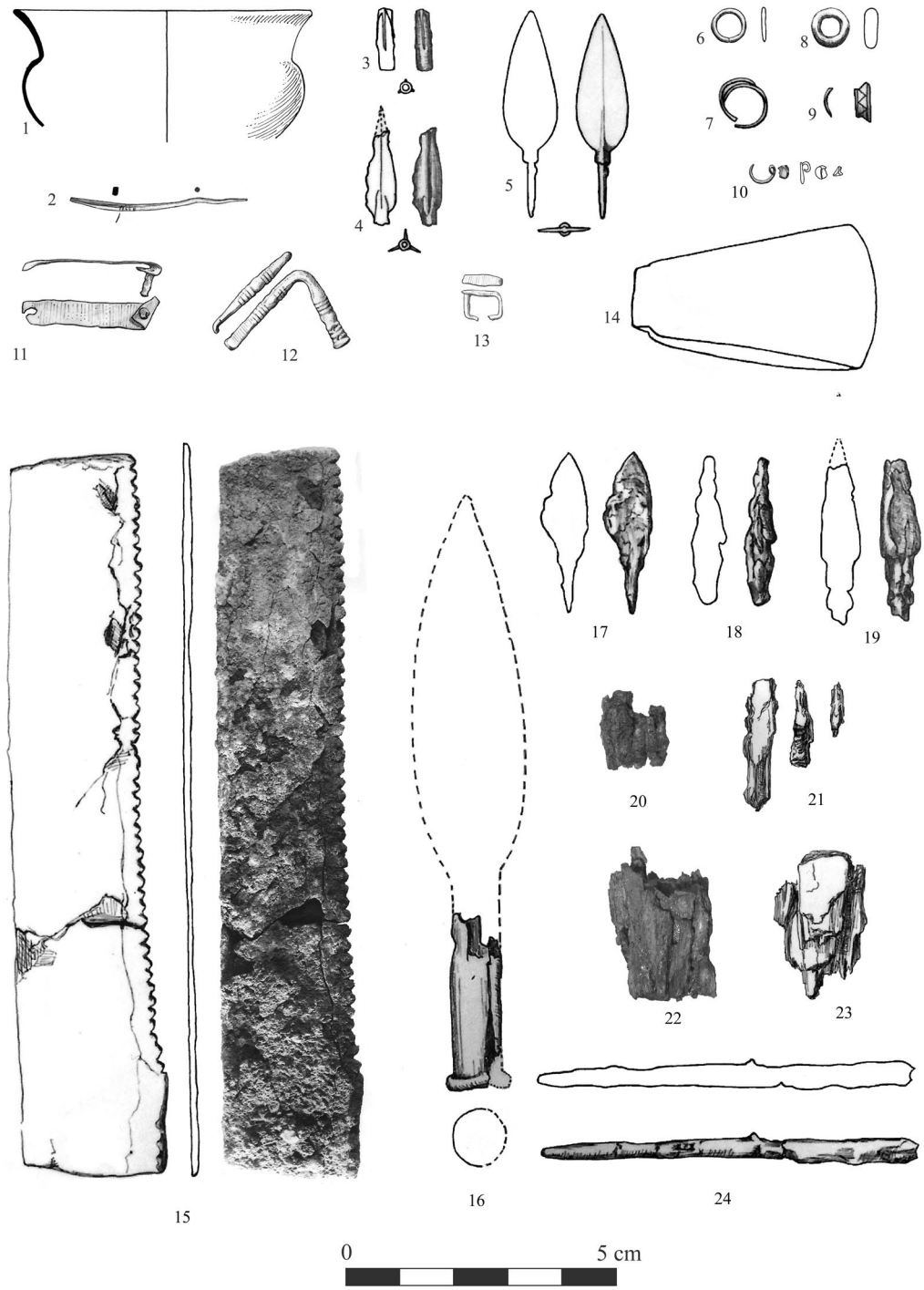


Figure 7.1. Bronze and iron objects

Fig. no.	Object	Reg. no.	Locus
1	Bronze bowl	1083	Petra XVIII
2	Bronze pin fragment	7	A.VI.2
3	Bronze arrowhead	213	A.XLIX.3
4	Bronze arrowhead	222	A.XLIX.4
5	Bronze arrowhead	214	A.XLIX.3
6	Bronze ring	125	A.XLIII.2.3
7	Bronze ring	133	A.L.1.9
8	Bronze ring	221	A.XLIX.4
9	Bronze ring fragment	139	A.LI.1.1
10	Bronze earring?	196	A.XLV.7
11	Bronze strip	3	A.XII.1
12	Bronze fibula fragment	38	A.XV.7
13	Bronze fragments (hook?)	41	A.XLI.7
14	Iron axe	106	A.XLIII.5.7
15	Iron saw	101	A.XLIII.6.8
16	Iron spear point	220	A.XLIX.4
17	Iron javelin point	236	A.XLIII.3.12
18	Iron javelin point	223	A.XLIX.4
19	Iron javelin point	232	A.XLIX.1.5
20	Iron fragments (from spear point?)	219	A.XLIX.4
21	Iron fragments	94	A.XLIV.1.9
22	Iron fragments	151	A.LI.1.3
23	Iron lump	161	A.L+
24	Iron nail	87	A.XXXV.4

Arrowheads

Three bronze (or copper-alloy) arrowheads were found at Umm al-Biyara: two are socketed trilobe, one leaf-shaped with tang. These are exactly the same types as found at Busayra (Bienkowski 2002, 418–20) and Tawilan (Bennett and Bienkowski 1995, 82, fig. 9.7:1–2). The trilobe examples are the typical so-called 'Irano-Scythian' arrowheads dating from the 7th to the 4th century BCE throughout the Near East. As with the Busayra and Tawilan examples, the Umm al-Biyara trilobe arrowhead is Cleuziou Type F17 (Cleuziou 1977), with socket extending beyond the blades, which have an angular profile. The leaf-shaped example is of a type common in the southern Levant from the late Bronze Age through to Iron II (see Bennett and Bienkowski 1995, 82 [Reg. 674] and parallels cited there; see also discussion by Daviau 2002, 167–9, although none of the Umm al-Biyara arrowheads finds a clear parallel at Tall Jawa).

Figure 7.1:3 (Reg. 213). Bronze arrowhead. Trilobe, broken at tip in antiquity, hollow at the other end. Badly corroded. Length: 2.3 cm [A.XLIX.3]

Figure 7.1:4 (Reg. 222). Bronze arrowhead, trilobe, corroded and broken at tip. Existing length: 3.6 cm [A.XLIX.4]

Figure 7.1:5 (Reg. 214). Complete bronze arrowhead (or javelin point), leaf-shaped, corroded. Length: 7.5 cm, Maximum length of leaf blade: 1.6 cm [A.XLIX.3]

Rings

The Umm al-Biyara copper-alloy/bronze rings are formed from bent rods or wire either meeting or overlapping, or from sheet bronze (Reg. 139, Figure 7.1:9, has simple incised zigzag decoration), as is typical for Transjordan and Palestine in the Iron Age (see brief discussion and parallels in Bennett and Bienkowski 1995, 81, and Daviau 2002, 46–7).

Figure 7.1:6 (Reg. 125). Well preserved bronze ring, slight corrosion. Diameter: 1.3 cm [A.XLIII.2.3]

Figure 7.1:7 (Reg. 133). Bronze ring in two pieces, very fragile, with overlapping ends. Diameter: 1.9 cm [A.L.1.9]

Figure 7.1:8 (Reg. 221). Intact bronze ring but heavily corroded. Diameter: 1.5 cm. Width: 0.4 cm [A.XLIX.4]

Figure 7.1:9 (Reg. 139). Fragment of a bronze ring. Badly corroded but incised decoration visible. 1.5 cm [A.LI.1.1]

Earring

Daviau (2002, 46) notes that it is not always possible to distinguish finger rings from earrings. The single possible bronze earring from Umm al-Biyara is broken, encrusted and incomplete; the bent wire or rod was attached to a small piece of curved sheet bronze.

Figure 7.1:10 (Reg. 196). Bronze object (earring?) in two fragments, encrusted. Length: 2.5 cm [A.XLV.7]

Fragments

Figure 7.1:11 (Reg. 3). Strip of bronze with a rivet hole in one end and the other end twisted under with a rivet in position. Length: 5 cm. Width: 1 cm [A.XII.1]
Figure 7.1:12 (Reg. 38). Bronze fragment of a fibula. Much corrosion but some decoration apparent. [A.XL.7]
Figure 7.1:13 (Reg. 41). Two fragments of bronze, possibly a hook. Length: 1.5 cm. Length: 1.3 cm [A.XLI.7]

Iron

Axe

No axe was found at Busayra or Tawilan, and indeed no exact parallel can be found from Iron Age contexts in Transjordan. The closest iron tool in shape is a chisel from Tall Dayr Alla, which is similar but includes a socket for the wooden handle (van der Kooij and Ibrahim 1989, 105, no. 137, illustrated on p. 99). This general lack of evidence of tools for cutting trees is notable, given the amount of forest clearance we can assume was necessary for building and fuel; and the lacuna is further highlighted by the presence also at Umm al-Biyara of another such cutting tool, a saw (Figure 7.1:15), likewise without a parallel. It may be significant that the axe and saw were found in the same trench, in close though not the same contexts.
Figure 7.1:14 (Reg. 106). Iron axe, badly corroded. Length 9 cm. At top: 5 cm. At base: 3 cm [A.XLIII.5.7]

Saw

Figure 7.1:15 (Reg. 101). Incomplete iron saw, fairly well preserved. Broken in antiquity. L 9.5 cm × W 5.5 cm. L 19 cm × W 5.5 cm [A.XLIII.6.8]

Points

The four iron points from Umm al-Biyara vary in size, so it is useful here to use the working definition of Bennett and Blakely (1989, 293), which distinguishes between arrowheads (less than 50 mm long), javelin points (50–100 mm long) and spear points (over 100 mm long). According to this categorization, none of the Umm al-Biyara iron points are arrowheads (see above for bronze arrowheads). Generally the Umm al-Biyara examples are tapering or leaf-shaped, similar to points from Tawilan (Bennett and Bienkowski 1995, fig. 9.7:3–8, with discussion and parallels on p. 82) and Busayra (Bienkowski 2002, 420, pls 10.216–217), although the Umm al-Biyara spear point has a socket rather than a tang. The large collection of iron points from Tall al-Mazar Cemetery A is also similar in the general shapes exhibited, but again there are no socketed examples (Yassine 1984, figs 52–3). Slightly longer bronze socketed spear points from Tall al-'Umayri have been dated to Iron I (Dubis 2002, figs 11.1:3, 11.2:4).
Figure 7.1:16 (Reg. 220). Iron spear point with socket. Complete but in many pieces. Very badly corroded. Disintegrated except for half (?). Length: 22 cm [A.XLIX.4]
Figure 7.1:17 (Reg. 236). Iron javelin point with tang, very badly corroded. Length: 6 cm [A.XLIII.3.12]
Figure 7.1:18 (Reg. 223). Iron javelin point, very badly corroded. Length: 5.5 cm [A.XLIX.4]
Figure 7.1:19 (Reg. 232). Iron javelin point, very badly corroded. Length: 6 cm. Width at widest part of leaf: 1.5 cm [A.XLIX.1.5]

Fragments

Figure 7.1:20 (Reg. 219). Iron fragments, possibly from spear point Reg. 220 (above, Figure 7.1:16) [A.XLIX.4]
Figure 7.1:21 (Reg. 94). Three fragments of iron, very badly corroded, shape unrecognisable [A.XLIV.1.9]
Figure 7.1:22 (Reg. 151). Seven iron fragments. Largest length: 3.5 cm. Width: 2 cm [A.LI.1.3]
Not illustrated (Reg. 159). Lump of iron disintegrated into segments. Length: 9 cm. Width: 6 cm [A.LI.2.5]
Figure 7.1:23 (Reg. 161). Lump of iron. Shape indistinguishable but probably part of an axe. Length: 5.5 cm. Height: 4.5 cm [A.L+]

Nail

Figure 7.1:24 (Reg. 87). Nail in two pieces, badly eroded. Lengths: 9 cm and 5 cm. Compare iron nail from Tawilan (Bennett and Bienkowski 1995, fig. 9.9:12) [A.XXXV.4]

Bone

Amulet

Figure 7.2:1 (Reg. 14). Incised amulet made of bone. Head broken off body. Possibly anthropomorphic. Flat back, convex body, swelling out where stomach should be. Incised lines visible on both edges of body. Badly burnt. Height: 3 cm. Width at base: 1 cm [A.XXI.9]

Needle

Figure 7.2:2 (Reg. 121). Two fragments of very fine curved bone needle (?). Both ends missing. Found in association with Reg. 119 and Reg. 120. Compare example from Busayra (Bienkowski 2002, 361, Reg. 870, not illustrated). Most needles used in textile production were of bronze, and should have a hole or loop near one end, which is missing here (see Daviau 2002, 180, 201) [A.XLIII.13]

Counter

Figure 7.2:3 (Reg. 172). Circular bone counter or gaming piece, surface slightly marked. Base uneven and chipped, or rotted away in antiquity. Diameter: 2.3 cm [A.L.9]

Inlay

A relatively large amount of bone inlay was found at Umm al-Biyara, more than at Busayra (Bienkowski 2002, 362) and Tawilan (Bennett and Bienkowski 1995, figs 9.12–9.13). Generally, this type of inlay was used for wooden furniture or small boxes: at Umm al-Biyara, the small groupings of inlay in individual contexts strongly suggest that it came from boxes, probably of wood, which have not survived. The inlay was crafted as rectangular strips of bone with incised cross-hatch decoration, sometimes with diamond shapes or a guilloche pattern, squares with a decorative knot, small discs with incised dot and circle motif, roundels with a rosette pattern and bone droplets arranged in a floral pattern (Reg. 66, Figure 7.2:5, also includes a piece of bronze of droplet shape among the bone inlay, indicating that boxes were occasionally inlaid with a mixture of bone and bronze). Reg. 122 (Figure 7.2:9) has a representation of a bird with outstretched wings. There are close similarities to the bone inlay from Tawilan, and to a lesser extent from Busayra: Umm al-Biyara yielded none of the bone inlay with lotus design found at Busayra, which has parallels at Nimrud (Bienkowski 2002, pl. 10.18). Elsewhere in Iron Age Transjordan, inlay with the simple dot and circle motif is found at Tall Dayr Alla in the Jordan Valley (van der Kooij and Ibrahim 1989, 99–100), but none at all is recorded from Tall Jawa (Daviau 2002) or, so far, from Tall al-'Umayri in central Jordan.

Figure 7.2:4 (Reg. 39). Forty-one pieces of bone inlay
Two decorated rectangular pieces. Length: 3.3 cm. Width: 2 cm
Four fragments with cross-hatch decoration. Lengths: 4.5 cm, 4 cm, 2.5 cm, 2.3 cm. Width: 8 cm
One circular button-shaped disc decorated with pattern. Diameter: 1.5 cm. Thickness: 0.4 cm
Thirty-four small circular button-shaped discs, decorated. Diameter: 0.7 cm. Width: 0.2 cm [A.XLI.7]

Figure 7.2:5 (Regs 66, 69).
Reg. 66: Bone inlay. Nineteen rosettes; diameter: 0.6 cm. Six triangles; length of each side: 0.7 cm. Eight squares; length: 0.3 cm, height: 0.3 cm. Twenty droplets; length: 1.5 cm, 0.4 cm at top. Nine pieces of incised border; 1.4 cm × 1.5 cm. Two pieces; 5.5 cm × 1.2 cm. One piece of bronze of droplet shape. [A.XLII.3]
Reg. 69. Bone inlay. Two rosettes, one triangle, two and a part of droplets, three pieces of border; total length: 5.5 cm. Half a counter (the other half is Reg. 5, Figure 7.2:8); diameter: 3 cm. Two pieces of bone [A.XLII.6]

Figure 7.2:6 (Reg. 70). Bone inlay, one fragment. Broken in antiquity. Design as in Reg. 66 (Figure 7.2:5). 0.7 cm × 1.4 cm [A.XLII.3]

Figure 7.2:7 (Reg. 98 a + b). Two roundels or rosettes of bone inlay. Diameter: 0.9 cm [A.XXXII.6]

Figure 7.2:8 (Reg. 5). Roundel of bone inlay with rosette pattern. Incised decoration of 16 segments radiating out from a central circle. Chipped in several places. Diameter: 2.5 cm [A.X.7]

Figure 7.2:9 (Reg. 122). Complete plaque of bone inlay, incised with representation of a bird with outstretched wings. It comes from the same context as the following inlay roundels (Reg. 126, Figure 7.2:10), and may have been part of the same box. Length: 6 cm. Width: 1.5 cm [A.XLIII.13]

Figure 7.2:10 (Reg. 126). Seven roundels of bone inlay, with radial lines from circle. Diameter: 0.7 cm. Three angular pieces of bone inlay with incised circle and dot decoration. Lengths: 4 cm, 3 cm, 2.6 cm. Widths: 0.8 cm, 0.8 cm, 1 cm [A.XLIII.13]

Figure 7.2:11 (Reg. 142). Piece of bone inlay. Cross-hatch decoration between two parallel incised lines. Broken in antiquity. This and the following example (Reg. 171, Figure 7.2:12) came from the same context, and may have been part of the same box. Length: 5.4 cm. Width: 1.2 cm [A.L.9]

Figure 7.2:12 (Reg. 171). Rectangular piece of bone inlay. Cross-hatch and diamond decoration between parallel incised lines. Length: 6 cm. Width: 1.5 cm [A.L.9]

Figure 7.2:13 (Reg. 195). Bone inlay with incised decoration. Hatched decoration over circle and dot decoration. Broken in antiquity. Length: 3 cm [A.XLIV.16]

Figure 7.2:14 (Reg. 84). Fragment of bone inlay, incised decoration in guilloche pattern. Length: 2.8 cm. Width: 1 cm. Compare exact parallel from Busayra (Bienkowski 2002, 362, pl. 10.17) [A.XXXIV.3]

Miscellaneous

Figure 7.2:15 (Reg. 123). Bone, slightly curved and ridged on one side. Broken at both ends. Length: 6.5 cm. Width: 1.1 cm to 0.6 cm [A.XLIII.13]

Stone

Cosmetic palette

Figure 7.2:16 (Reg. 74). Alabaster. This palette was published in detail by Bennett (1967), with extensive discussion and parallels. She provided an excellent detailed description based on extensive first-hand observation and handling, of which the present writer has not had the opportunity:

> The actual object is almost rectangular in shape, the bottom being somewhat wider than the shoulder part. It is in white limestone – but not the limestone to be found locally – and the left-hand side of the front has become discoloured and abraded from long contact with the hard earth in which it was found. A shallow depression is evident on this front side. Above the so-called shoulders there is a knob in the round, carved out of the same piece of stone and formed into a head, the striking feature of which is the almond shape of the eyes with a central point, giving them a fish-like appearance. The nose is hardly visible and the mouth is represented by two parallel incised lines. It is impossible to say whether the frontal part of the head showed hair or a head-dress, because the surface

> has been so badly abraded, but the rear of the head has three tresses clearly visible, with inset a herringbone pattern. The impression given is that of a feathered head-dress. The ears have been sacrificed to make way for two rather large holes, obviously meant for suspending the palette. All around the outer edges, back and front of the body, there are drilled circles at fairly regular intervals. (Bennett 1967, 197–8)

This type of palette is well documented from Tawilan (two examples: Bennett and Bienkowski 1995b, figs 9.15:1, 9.60, 9.40:4); Ghrareh (Hart 1988, fig. 8); Karak (Bennett 1967, pl. XXIIIc); Amman Citadel (Bennett 1967, pl. XXIc, d); the Bomford Collection (Bennett 1967, pl. XXIIIa, b); the Metropolitan Museum of Art, New York (Sease and Reese 1994); Jerusalem, but said to come from Bab adh-Dhra (Bennett 1967, 199; Barag 1985, 221); the Braun Collection in Jerusalem (Brandl 1984, 19, figs 14, 18); the Israel Museum, Jerusalem (two, one of which is said to come from Jordan (Barag 1985, pl. 45:1–3)); and Beirut

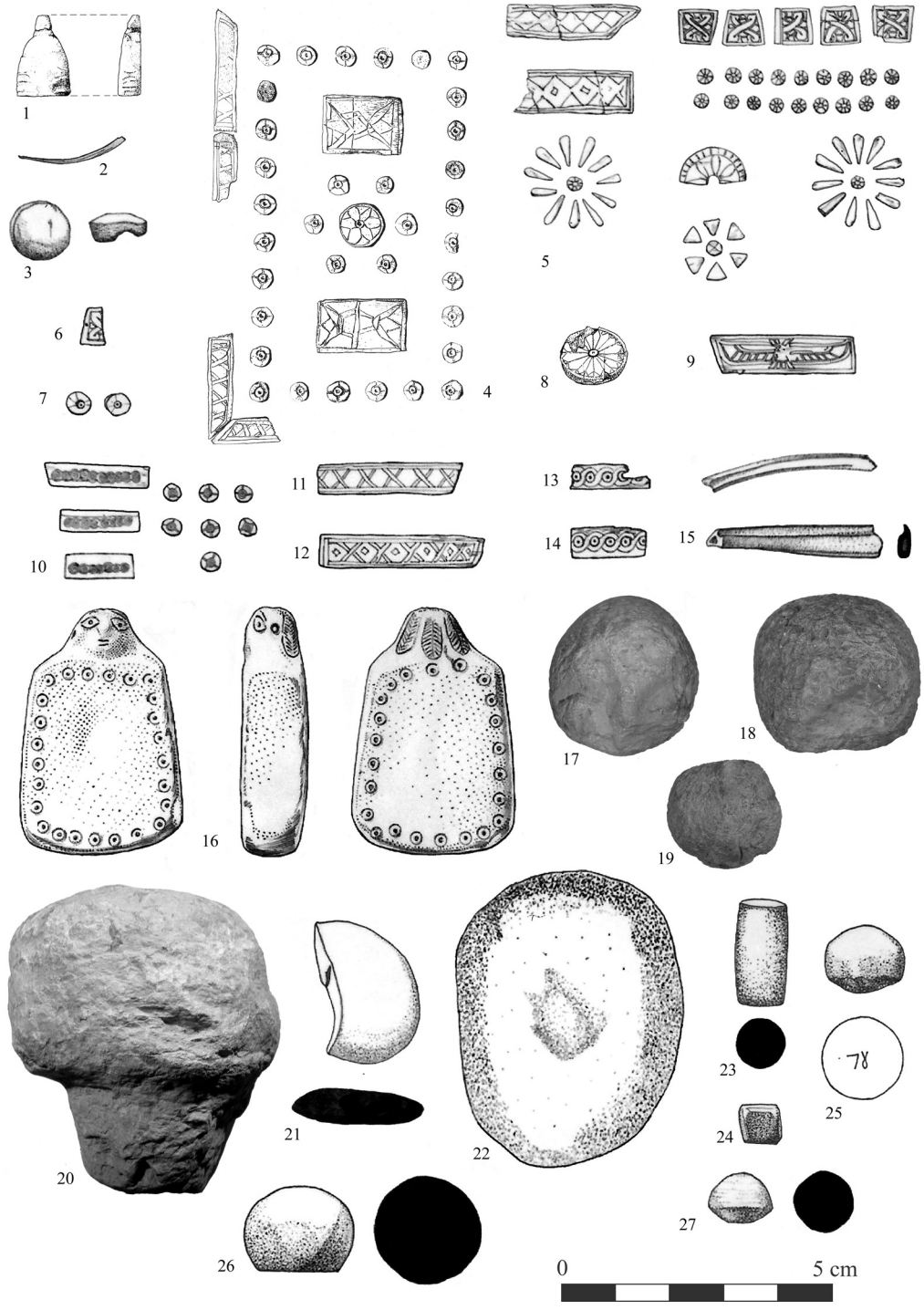


Figure 7.2. Bone and stone objects

Fig. no.	Object	Reg. no.	Locus
1	Bone amulet	14	A.XXI.9
2	Bone needle	121	A.XLIII.13
3	Bone counter/gaming piece	172	A.L.9
4	Bone inlay	39	A.XLI.7
5	Bone inlay	66, 69	A.XLII.3, 6
6	Bone inlay	70	A.XLII.3
7	Bone inlay	98a, b	A.XXXII.6
8	Bone inlay	5	A.X.7
9	Bone inlay	122	A.XLIII.13
10	Bone inlay	126	A.XLIII.13
11	Bone inlay	142	A.L.9
12	Bone inlay	171	A.L.9
13	Bone inlay	195	A.XLIV.16
14	Bone inlay	84	A.XXXIV.3
15	Bone object	123	A.XLIII.13
16	Alabaster cosmetic palette	74	A.XLIV.1.8
17	Flint pounder	34	A.XXXIII.12
18	Flint pounder	17	A.XXI.9
19	Flint pounder	202	A.XLVI.1a
20	Stone jar stopper	35	A.XL.5
21	Stone grinder	89	A.XXXIV.3
22	Stone grinder	147	A.LI.1.1
23	Stone roller	105	A.XLIII.5.5
24	Porphyry die?	153	A.LI.1.2
25	Limestone 4-shekel weight, inscribed	12	A.XXI.5
26	Stone weight	76	A.XXXIV.3
27	Stone weight	96	A.XXXII.3

(Culican 1970). One still unpublished fragment, consisting of the upper part with the head, was bought in the 1960s in Petra by Dr Fawzi Zayadine and Abbé Starcky; it is now in the Musée Biblique in Paris (Rolf Stucky pers. comm.). The three stratified examples from Umm al-Biyara, Tawilan and Ghrareh are dated to the 7th–6th centuries BCE. These palettes have been compared with Phoenician 8th-century BCE ivories and with decorated *Tridacna squamosa* shells found throughout the Mediterranean and the Near East (Bennett 1967, 199; Culican 1970; Barag 1985). Bennett (1967, 200) argued that the palettes and the *Tridacna* shells had a similar function as toilet articles, and that the holes through the Umm al-Biyara palette were for it to be hung up to avoid becoming dirty when not in use. Bennett (1967, 200) and Culican (1970) suggested a Phoenician origin for the palettes (or for their originals, if the Transjordanian examples are copies). However (as already noted in Bennett and Bienkowski 1995, 85), there is a concentration of these palettes in Transjordan (9 to date from a total of 14 known, with the 5 remaining examples of unknown or uncertain provenance), and so Transjordan itself may be a more likely source. Indeed, 7 of the Transjordanian examples, if we include that from Karak, come from southern Transjordan – and 4 of those from the Petra area alone (although Bennett 1967, 197, was of the opinion that the limestone of the Umm al-Biyara example was not local). Length: 9 cm. Width at shoulder: 4.7 cm. Width at base: 6 cm. Thickness: 2 cm [A.XLIV.1.8]

Pounders

Such rounded stone balls with flattened bases are found in large quantities at Tawilan and Busayra, where they are interpreted as grinding stones, pestles or pounders, as opposed to 'slingstones' (Bennett and Bienkowski 1995, 88, with discussion and parallels; Bienkowski 2002, 406–7). They are found throughout the southern Levant from the Neolithic to the Iron Age, their shape virtually unvarying. They are primarily food-producing tools used to pound or grind (see discussion in Daviau 2002, 155–7).

Not illustrated (Reg. 24). Flint pounder. Diameter: 6 cm. Height: 5 cm [A.XX.13a]

Figure 7.2:17 (Reg. 34). Flint pounder. Height: 6 cm. Maximum width: 5 cm [A.XXXIII.12]

Not illustrated (Reg. 138). Flint pounder. Surface very rough, almost circular. Diameter: 4 cm. Height: 5 cm [A.XLIII.4.5]

Figure 7.2:18 (Reg. 17). Flint pounder. Height: 5.9 cm. Diameter of base: 5.2 cm [A.XXI.9]

Not illustrated (Reg. 2). Flint pounder. Height: 4.5 cm. Base: 4.5 cm [A.II.3]

Not illustrated (Reg. 23). Flint pounder. Height: 5 cm.

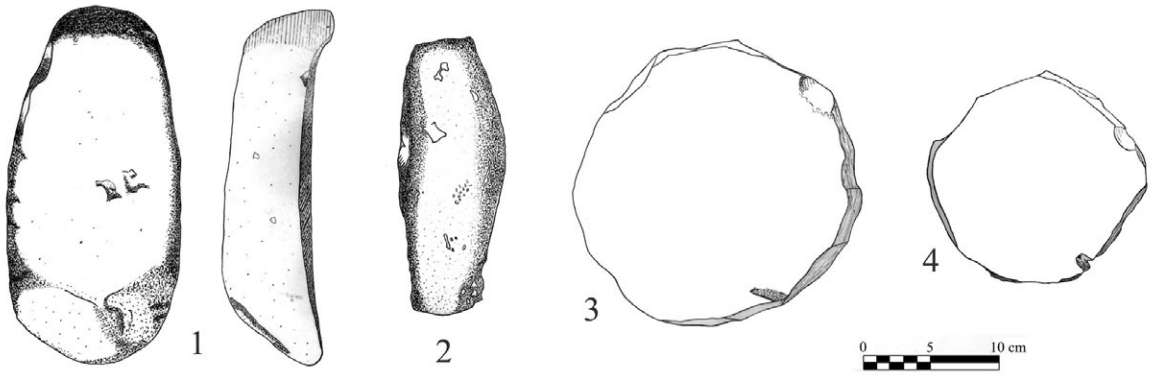


Figure 7.3. Querns and miscellaneous stone objects

Fig. no.	Object	Reg. no.	Locus
1	Stone saddle quern	167	A.LI.2.11
2	Stone saddle quern	187	A.XLI.25
3	Stone lid	78	A.XXXIV.3
4	Stone lid or stand	107	A.XLIII.6.8

Diameter: 5 cm [A.XXXI.1]
Not illustrated (Reg. 200). Flint pounder. Height: 4 cm. Width at base: 6.5 cm [A.XIII.11]
Not illustrated (Reg. 201). Flint pounder. Maximum height: 3.5 cm. Width at base: 6.5 cm [A.XIII.11]
Figure 7.2:19 (Reg. 202). Flint pounder. Diameter: 3.8 cm. Height: 4 cm [A.XLVI.1a]

Stoppers

The two mushroom-shaped stone jar stoppers from Umm al-Biyara are similar in shape to those from Tawilan (Bennett and Bienkowski 1995, fig. 9.24:1–2) and Tall Jawa (Daviau 2002, fig. 2.135:1) but slightly larger (similar in size to examples from Lachish: Tufnell 1953, pls 42:1, 64:4). For description and function of jar stoppers see Daviau 2002, 174–5.
Figure 7.2:20 (Reg. 35). Stone stopper for jar, very heavy and coarse. Roughly made from limestone. Height: 11 cm [A.XL.5]
Not illustrated (Reg. 175). Stone stopper for jar in four pieces, roughly cut on one side, very soft stone. Height: 9.5 cm. Width: 7.5 cm [A.LI.1.3]

Querns

Most of the querns excavated at Umm al-Biyara were left on site after the excavation, and only two were drawn. In most cases the type of stone was not identified, other than as possibly being basalt or limestone. Daviau (2002, 153–5) notes that saddle querns were usually of basalt with the lower surface unfinished. The Umm al-Biyara querns vary in size but are similar in shape to standard Iron Age saddle querns, e.g. from Tawilan (Bennett and Bienkowski 1995, fig. 9.25:2) and Tall Jawa (Daviau 2002, fig. 2.117:1–3), with one end higher than the other as a result of the pattern of wear.
Not illustrated (Reg. 26). Quern. Length: 55 cm. Width: 27 cm. Depth: 15 cm at deep end [A.XXX.10]
Not illustrated (Reg. 140). Part of a stone quern (half only) – basalt? Length: 15 cm. Width: 15 cm, narrowing to 6 cm at edge [A.L.1.9]
Not illustrated (Reg. 158). Smooth and slightly curved on one side, hog-backed on the other. Limestone? Length: 54 cm. Width: from 25 cm at one end to 20 cm at the other. Depth: 17 cm [A.LI.2.10]
Figure 7.3:1 (Reg. 167). Saddle quern. Flat, slightly curved base, humped back. Length: 26 cm. Width: from 14.5 cm in the centre to 11 cm at one end and 7 cm at the other [A.LI.2.11]
Not illustrated (Reg. 179). Flat, slightly curved at one end, humped on the other side. Basalt? Existing length: 25 cm. Width: 15.5 cm [A.LI.2.5]
Not illustrated (Reg. 181). Slightly curved at one end of flat surface. Convex back. Only half preserved. Limestone? Length: 12 cm. Maximum width: 12 cm. Depth: 4 cm [A.XLI.22]
Figure 7.3:2 (Reg. 187). Incomplete saddle quern. Very roughly cut. Curved at both ends on flat side. Other side convex [A.XLI.25]

Grinders

As at Busayra and Tawilan, the stone grinders were small and round hand grinders (Bienkowski 2002, 404–5; Bennett and Bienkowski 1995, fig. 9.25:5, and discussion on p. 88). Such grinders are common from the early Bronze Age to the Persian period in the Levant, and appear in well-stratified Iron Age levels elsewhere, as at Tall Jawa

(Daviau 2002, fig. 2.104–1–3) and Jerusalem (Ariel and de Groot 1996, fig. 29:1–2).
Not illustrated (Reg. 25). Stone grinder, very heavy, flat on both sides. Maximum diameter: 9.5 cm. Height: 3 cm [A.V.11]
Not illustrated (Reg. 33). Heavy flint grinder. Oval-shaped and flat on both sides. Length: 9.5 cm. Width: 6.5 cm. Depth: 4 cm to 2.3 cm [A.XXXIII.7]
Figure 7.2:21 (Reg. 89). Stone grinder (half only). Black oval, very smooth. Surface badly pitted. Broken in antiquity. Length: 6 cm. Diameter: 5 cm [A.XXXIV.3]
Not illustrated (Reg. 173). Incomplete stone grinder. Roughly circular, slightly convex. Broken and chipped in antiquity. Same stone as Reg. 174. Diameter: 13 cm [A.LI.1.3]
Not illustrated (Reg. 174). Stone grinder, roughly circular. Same stone as Reg. 173. Diameter: 10.5 cm [A.LI.1.3]
Not illustrated (Reg. 49). Stone grinder. Limestone, badly chipped and burnt. Length: 10.2 cm. Width: 7.7 cm. Thickness: 2.6 cm [Petra XVII]
Figure 7.2:22 (Reg. 147). Stone grinder, flat-based, oval in shape. Length: 11 cm. Maximum width: 8 cm. Height: 3.6 cm [A.LI.1.1]
Not illustrated (Reg. 182). Limestone grinder. Badly chipped and burnt. Length: 8 cm. Width: 7 cm. Depth: 4.9 cm [A.XLI.21]
Not illustrated (Reg. 183). Limestone grinder. Roughly circular. Very pitted and worn. Diameter: 8 cm. Depth: 4.2 cm [A.XLI.22]
Not illustrated (Reg. 203). Stone grinder, flat-based and humped on the other side. Length: 10 cm. Height: 5 cm [A.XIII.11]

Miscellaneous stone

Figure 7.3:3 (Reg. 78). Stone cut roughly in a circular shape. Used as a lid. Diameter: 21 cm. Depth: 2.5 cm [A.XXXIV.3]
Figure 7.2:23 (Reg. 105). Roller stone, cylindrical. Diameter: 2 cm. Length: 4 cm. See examples from Busayra (Bienkowski 2002, 402–3) [A.XLIII.5.5]
Figure 7.3:4 (Reg. 107). Roughly circular flat stone, one of several found. Stand for a pot or lid? Diameter: 16 cm. Depth: 1 cm [A.XLIII.6.8]
Figure 7.2:24 (Reg. 153). Six-sided stone, porphyry. Die? Approx. 1.5 cm cubed [A.LI.1.2]

Weights

Figure 7.2:25 (Reg. 12). Inscribed dome-shaped weight of hard limestone, very worn base, inscribed with the shekel sign and the hieratic sign for 5, weighing 42.46 g. Scott (1965, 135) and Aharoni (1966, 14–16) proposed that the hieratic sign for 5 was used to represent 4 shekels because 5 *qdt* (45 g) in the Egyptian weight system was equivalent to 4 shekels in the Judaean system (see Kletter 1998, 27 for a summary). The shape is typical of Judaean weights of the Iron II period (Eran 1996). The light shekel was known as the *nsp*, and ranged between 8 g and 11 g in weight (Scott 1970; Eran 1996, 211). This weight from Umm al-Biyara could therefore be the equivalent of 4 light shekels, though slightly lighter as a result of the worn base. Bartlett (1989, 227) speculated that this might alternatively refer to a 'royal shekel' of over 11 g, in which case this example would be quite light in weight, but he also noted that the 'royal shekels' belonged to Judah and that there is no need to suppose that this example is a Judaean 'royal shekel'. Kletter (1998, 175) includes the Umm al-Biyara weight in his study of Judaean weights, noting Bennett's preliminary suggestion that it may have been an export from Judah by a merchant or traveller. Weight: 42.46 g. Height: 2.5 cm. Maximum width: 3 cm [A.XXI.5]
Two other uninscribed stone objects have been tentatively identified as weights. For general parallels, which suggest that the identifications are at least plausible, see examples from Tawilan (Bennett and Bienkowski 1995, fig. 9.28: 1–5) and Jerusalem (Ariel and de Groot 1996, figs 31–39), and the discussions on weights by E. Puech in Chambon 1984, 79–84, and Eran 1996.
Figure 7.2:26 (Reg. 76). Dome-shaped stone weight, flat base, pitted surface. Diameter: 3.5 cm. Height: 4 cm [A.XXXIV.3]
Figure 7.2:27 (Reg. 96). Stone weight, surface pitted like marble. Diameter: 2 cm. Height: 1.5 cm [A.XXXII.3]

Textile production

Spindle whorls

The spindle whorls from Umm al-Biyara are drum-shaped and made of bone, stone or clay (for the function of spindle whorls and wider discussion, see Daviau 2002, 183–4). Most have an incised pattern between two parallel lines: the pattern can be cross-hatched, herringbone or zigzag. This was the common type at Tawilan (Bennett and Bienkowski 1995, 89) and Busayra (Bienkowski 2002, 408–12; see discussion by Sedman in Bienkowski 2002, 408–9). Note that the preponderance of this sort of spindle whorl seems quite characteristic of Iron Age Edom: in contrast, the vast majority of spindle whorls from Iron Age Jawa were formed from reworked sherds (Daviau 2002, 184–5). Three such reworked sherds, with a central hole, were found at Umm al-Biyara; they were slightly thinner than the Jawa examples, which can reach up to 2.5 cm (for parallels, see Daviau 2002, 186–8).
Figure 7.4:1 (Reg. 8). Drum-shaped whorl in well-fired red clay. Chipped at one end. Scoring marks on one base. Lightly incised cross-hatch decoration on part of body. Diameter: 2.8 cm. Height: 1.7 cm. Diameter of central hole: 0.9 cm [A.XXI.6]
Figure 7.4:2 (Reg. 13). Whorl in clay, flat base and top, drum-shaped, body decorated with incised pattern ⋀⋀⋁ enclosed by two incised lines. Diameter: 3 cm. Height:

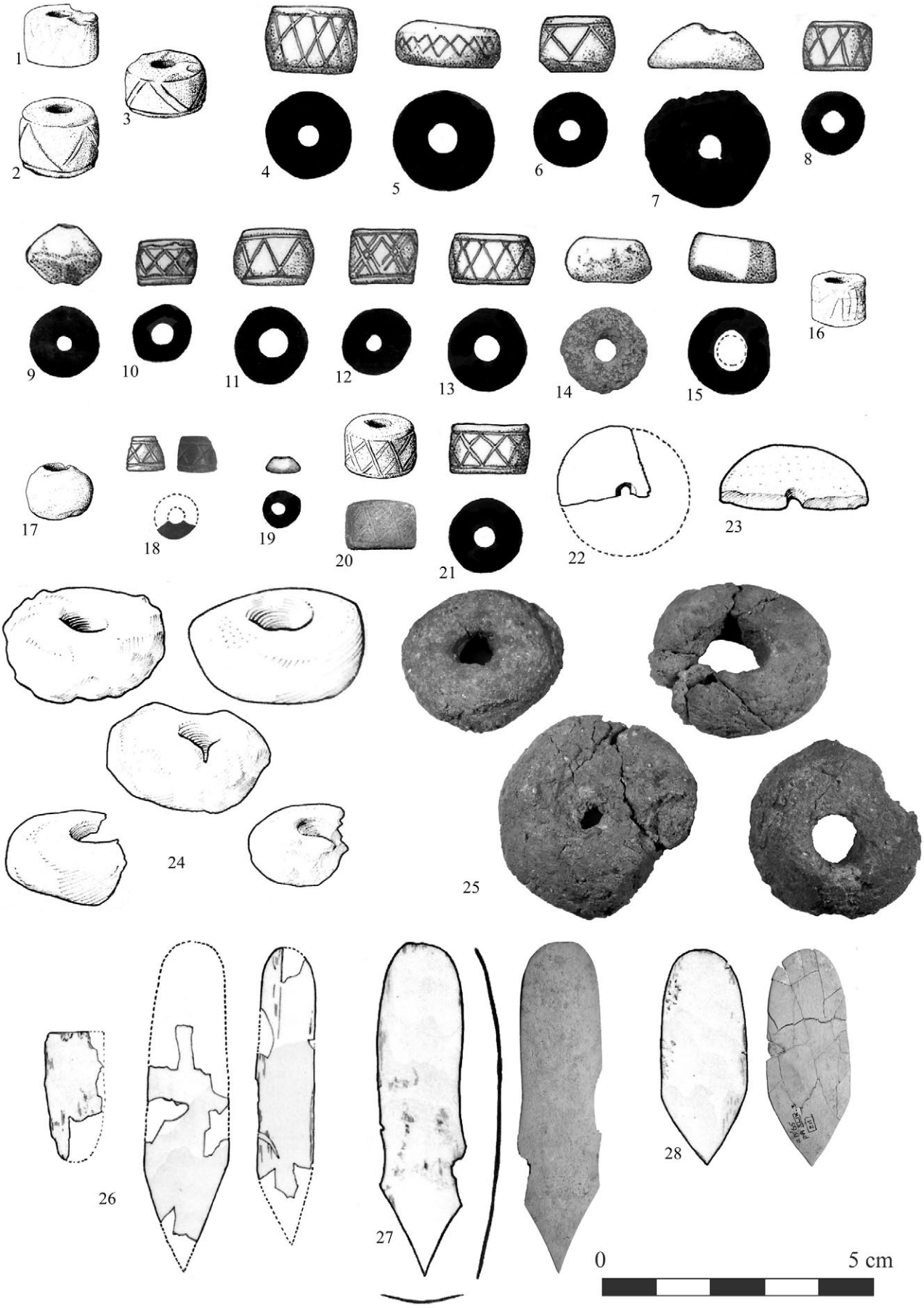


Figure 7.4. Textile-related objects

Fig. no.	Object	Reg. no.	Locus
1	Clay spindle whorl	8	A.XXI.6
2	Clay spindle whorl	13	A.XXI.7
3	Clay spindle whorl	30	A.XX.14
4	Clay spindle whorl	95	A.XLIII.6.8
5	Clay spindle whorl	100	A.XLIII.6.8
6	Clay spindle whorl	141	A.LI.2.2
7	Clay spindle whorl	143	A.LI.1.1
8	Clay spindle whorl	144	A.LI.1.1
9	Clay spindle whorl	163	A.LI.2.5
10	Clay spindle whorl	168	A.LI.2.10
11	Clay spindle whorl	170	A.XLI.22
12	Clay spindle whorl	197	A.XLIV.16
13	Clay spindle whorl	205	A.XLVIII.1.10
14	Clay spindle whorl	233	A.XLIX.1.3
15	Clay spindle whorl	234	A.XXXIII.21
16	Sandstone (?) spindle whorl	21	A.XXXIII.6
17	Clay spindle whorl	31	A.V.13
18	Clay spindle whorl fragment	73	A.XLIII.4.3
19	Stone spindle whorl	169	A.XLI.22
20	Clay spindle whorl	47	A.XXXIII.6
21	Bone spindle whorl	60	A.XLI.16
22	Clay disc-shaped spindle whorl	117	A.XXII.24
23	Clay disc-shaped spindle whorl	37	A.XXX.10a
24	Clay loom weights	40	A.XLI.8, 12
25	Clay loom weights	58	A.XLII.4
26	Fragments of three bone spatulae	103	A.XLI.18
27	Bone spatula	120	A.XLIII.13
28	Bone spatula	211	A.XLIX.3

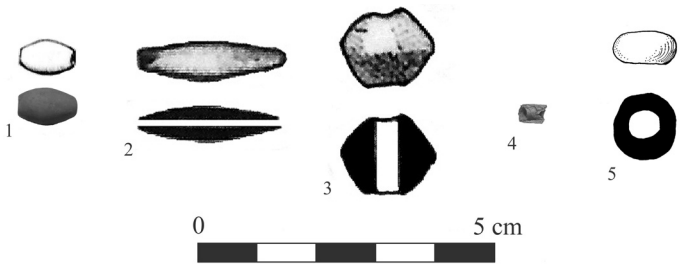


Figure 7.5. Beads

Fig. no.	Object	Reg. no.	Locus
1	Bone bead	4	A.XIII.1
2	Bone bead	68	A.XLII.3
3	Faience bead	104	A.XXII.21
4	Faience (?) bead	210	A.XLIX.3
5	Glass bead	1040	Petra XVII level 10

2.5 cm. Diameter of central hole: 9 cm [A.XXI.7]
Figure 7.4:3 (Reg. 30). Drum-shaped whorl in clay. Flat base and top, blackened base (from fire?). Incised decoration enclosed by two incised lines. Diameter: 3 cm. Height: 1.3 cm. Diameter of central hole: 0.6 cm [A.XX.14]
Figure 7.4:4 (Reg. 95). Complete whorl in clay, surface slightly chipped, cross-hatch decoration between two incised lines. Diameter: 3.3 cm. Height: 2.5 cm. Diameter of central hole: 1 cm [A.XLIII.6.8]
Figure 7.4:5 (Reg. 100). Yellow clay, one surface uneven. Incised herringbone decoration. Diameter: 4 cm. Height: 1.5 cm. Diameter of central hole: 1.3 cm [A.XLIII.6.8]
Figure 7.4:6 (Reg. 141). Cylindrical clay buff ware. Incised decoration of a zigzag pattern. Chipped in antiquity. Diameter: 2.8 cm. Height: 2 cm. Diameter of central hole: 0.6 cm [A.LI.2.2]
Figure 7.4:7 (Reg. 143). Flat-based in buff clay, conical, roughly made, chipped in antiquity. Diameter: 4.8 cm. Height: 2 cm. Diameter of central hole: 1 cm [A.LI.1.1]
Figure 7.4:8 (Reg. 144). Cylindrical, clay, buff ware. Incised herringbone decoration between parallel incised lines. Chipped in antiquity. Diameter: 2.4 cm. Height: 1.6 cm. Diameter of central hole: 0.9 cm [A.LI.1.1]
Figure 7.4:9 (Reg. 163). Biconical in hard buff clay. Height: 2 cm. Width: 3 cm. Diameter of central hole: 0.8 cm [A.LI.2.5]
Figure 7.4:10 (Reg. 168). Buff clay, surface slightly chipped in antiquity. Herringbone decoration between incised lines. Diameter: 2 cm. Height: 1.5 cm. Diameter of central hole: 0.9 cm [A.LI.2.10]
Figure 7.4:11 (Reg. 170). Buff clay, burnished. Surface chipped slightly in antiquity. Zigzag pattern between two incised lines. Diameter: 2.9 cm. Height: 2 cm. Diameter of central hole: 1.3 cm [A.XLI.22]
Figure 7.4:12 (Reg. 197). Clay, chipped in antiquity. Incised herringbone decoration. Diameter: 2.5 cm. Height: 2.2 cm. Diameter of central hole: 0.8 cm [A.XLIV.16]
Figure 7.4:13 (Reg. 205). Pink clay, surface pitted in antiquity. Herringbone decoration between two incised horizontal lines. Diameter: 3 cm. Height: 1.8 cm. Diameter of central hole: 1.2 cm [A.XLVIII.1.10]
Figure 7.4:14 (Reg. 233). In clay – unbaked? Diameter: 3.5 cm. Diameter of central hole: 1.2 cm [A.XLIX.1.3]
Figure 7.4:15 (Reg. 234). Clay, burnt, surface pitted and badly shaped. Diameter: 3.5 cm. Diameter of central hole: 1.2 cm [A.XXXIII.21]
Figure 7.4:16 (Reg. 21). Drum-shaped whorl in sandstone? Incised, rims chipped in antiquity. Diameter: 2 cm. Height: 1.4 cm. Diameter of central hole: 1 cm [A.XXXIII.6]
Figure 7.4:17 (Reg. 31). Very roughly made clay whorl, blackened on one side and chipped in antiquity. Diameter: 2.5 cm. Height: 2.4 cm. Diameter of central hole: 1.2 cm [A.V.13]
Figure 7.4:18 (Reg. 73). Fragment of spindle whorl in stone. Incised cross-hatch decoration. 1.7 cm × 1.5 cm [A.XLIII.4.3]
Figure 7.4:19 (Reg. 169). Miniature, stone. Black, hole is not central. Conical in shape, flat-based. Diameter: 1.5 cm. Height: 0.5 cm. Diameter of central hole: 0.7 cm [A.XLI.22]
Figure 7.4:20 (Reg. 47). Drum-shaped spindle whorl in clay, with incised decoration. Diameter: 2.7 cm. Height: 1.8 cm. Diameter of central hole: 0.6 cm [A.XXXIII.6]
Figure 7.4:21 (Reg. 60). Decorated bone spindle whorl, burnt. Cracked rim chipped in antiquity. Diameter: 2.7 cm. Height: 2 cm. Diameter of central hole: 0.8 cm [A.XLI.16]

Clay disc-shaped spindle whorls

Not illustrated (Reg. 72). Well-baked pink clay, uneven in circumference. One side smooth, the other showing signs of horizontal lines. Chipped and surfaces slightly pitted. Diameter: 5.6 cm. Thickness: 0.5 cm. Diameter of central hole: 0.6 cm [A.XXXV.3]

Figure 7.4:22 (Reg. 117). Fragment. Buff, well-fired clay. Diameter: 5 cm. Thickness: 0.6 cm. Diameter of central hole: 0.7 cm [A.XXII.24]

Figure 7.4:23 (Reg. 37). Fragment. Diameter: 5.5 cm. Thickness: 0.5 cm. Radius: 2.4 cm [A.XXX.10a]

Loom weights

A relatively large number of loom weights were excavated at Umm al-Biyara, and occasionally there were very many in a single context. They are all doughnut-shaped, of fired or unfired clay, and one of stone. Only one group was drawn (Reg. 40, Figure 7.4:24), and part of another photographed (Reg. 58, Figure 7.4:25), and the small finds register compares all the other examples to the drawn ones. They are identical to examples from Tawilan (Bennett and Bienkowski 1995, 89) and to some from Busayra (Bienkowski 2002, 412–13). However, Umm al-Biyara lacks other types of loom weight, such as cylindrical and anchor-shaped ones, known from other sites such as Tall Jawa (Daviau 2002, figs 2.150–2.153) and Busayra (Bienkowski 2002, pl. 10.191). For discussion of loom weights and their use, with extensive parallels and references, see Daviau 2002, 191–8.
Not illustrated (Reg. 57). Very crude, impure clay, full of bits of stone. Yellow-pink clay. Roughly oval. 8 cm × 6 cm. Diameter of central hole: 1.5 cm [A.XLI.8]
Not illustrated (Reg. 59). Half of loom weight in crude yellow clay. Burnt. Roughly round. Diameter: 6 cm. Diameter of central hole: 2 cm [A.XLI.16]
Not illustrated (Reg. 80). Loom weight in very crude clay with bits of embedded stone. Burnt. Broken in two. Diameter: 6 cm [A.XLI.15a]
Not illustrated (Reg. 81). Very crude small loom weight. Burnt. Hole very acentral. Diameter: 5 cm. Height: 2 cm [A.XLI.15a]
Not illustrated (Reg. 82). Coarse, heavy, burnt loom weight. Cracked in two. Diameter: 5.5 cm. Height: 2.5 cm. Diameter of central hole: 1.7 cm [A.XLI.15a]

Not illustrated (Reg. 156). Remains of loom weight only. Disintegrated while being picked up. Hard coarse impure buff clay [A.LI.4.2]
Not illustrated (Reg. 176). Very coarse clay with many impurities: burnt. Diameter: 6 cm. Height 3 cm. Diameter of central hole: 2 cm [A.XLI.24]
Not illustrated (Reg. 225). Unbaked clay, disintegrated on being moved. Discarded [A.XLIX.3]
Figure 7.4:24 (Reg. 40). One complete loom weight in clay; diameter: 6 cm, height: 2 cm, diameter of central hole: 2.3 cm. One complete loom weight in stone; diameter: 6.5 cm, height: 4 cm, diameter of central hole: 1.6 cm. Three halves of loom weights in burnt clay; diameter: 6 cm, diameter of central hole: 1.5 cm [A.XLI.8 and XLI.12]
Figure 7.4:25 (Reg. 58). 15 complete and 4 fragments – part of a very large deposit of loom weights. a–b: broken in buff clay of very poor quality, and almost round; diameter: 6 cm, diameter of central hole: 2.5 cm. c: buff clay, heavy; diameter: 6.5 cm, height: 3.5 cm, diameter of central hole: 1.1 cm. d–r: complete, unbaked. s–v: fragments, unbaked. w–x: complete and 6 fragments [A.XLII.4]
Not illustrated (Reg. 91). 10 complete and 2 broken in very rough crude clay with many small stones and other impurities. Very roughly made. In one case incomplete. Central hole not made. Diameter: sizes vary from 5.5 cm to 7 cm. Height: 4 cm [A.XLI.16a]
Not illustrated (Reg. 114). Unfinished, no central hole, very crude, three intact and three fragmentary. Hard yellow coarse clay but free from stone impurities. Average diameter: 6 cm. Average height: 3 cm [A.XLI.19a]
Not illustrated (Reg. 118). Six loom weights, three complete and three broken. Very damp, soft clay, unfinished. Diameter: 6 cm [A.XLIII.13]
Not illustrated (Reg. 177). Cache of loom weights: 49 complete and 20 incomplete. Very crude and in different types of yellow and green clay [A.XLII.4]
Not illustrated (Reg. 178). Cache of 14 loom weights, two broken. Very crude and some very heavy. Probably never used [A.XLI.25]
Not illustrated (Reg. 204). Three loom weights in very coarse, unbaked clay. Cracked. Diameter: 7 cm. Height: Nearly 4 cm. Diameter of central hole: 2 cm [A.XLVIII.1.10]

Bone spatulae

Spatulae are slightly curved pieces of bone, pointed at one end and rounded at the other. They are found from Bronze Age to Hellenistic contexts in Transjordan and Palestine (including at other excavated 'Edomite' sites such as Tawilan and Busayra). They are usually associated with textile production, although many different suggestions have been made for their use (see detailed review, references and parallels in Bennett and Bienkowski 1995, 83–4; for additional parallels see Daviau 2002, 198–200; Bienkowski 2002, 362–3). Daviau (2002, 198) prefers the suggestion of Tufnell (1953, 397), who thought they were used as pattern sticks to separate threads when weaving complex patterns. In Daviau's recent excavations at Khirbat al-Mudayna, spatulae were found in a collapsed and burned building associated with many textile-related objects such as loom weights and spindle whorls (Dolan 2007, 2).
Figure 7.4:26 (Reg. 103). 28 pieces of black glazed (or very highly burnished) bone, very thin and fragile. Parts of three spatulae [A.XLI.18]
Figure 7.4:27 (Reg. 120). Bone spatula, rounded edge at one end. Edge chipped in antiquity. Found in association with Reg. 119 and Reg. 120. Length: 12.5 cm. Width: 3 cm [A.XLIII.13]
Figure 7.4:28 (Reg. 211). Bone spatula. Very fragile, polished, thin bone. Complete but newly broken. Length: 8 cm [A.XLIX.3]

Beads

Very few beads were excavated at Umm al-Biyara. Two are of bone, two of faience, and they are essentially barrel-shaped or cylindrical. They are paralleled at Tawilan (Bennett and Bienkowski 1995, fig. 9.31) and Busayra (Bienkowski 2002, 365–6), but the Umm al-Biyara assemblage is very restricted in comparison, in both materials and shapes (see discussion in Bennett and Bienkowski 1995, 90). Three other beads were excavated in the 1960 season and registered as part of the Petra excavations (see Chapter 1) – a cylindrical glass bead (Figure 7.5:5); a stone bead (Petra XII level 2, Reg. 1041); and a glass or paste bead (Petra XII level 3, Reg. 1042) – but only one was drawn.[1]
Figure 7.5:1 (Reg. 4). Barrel-shaped bead made of bone, pierced at both ends. Length: 1 cm [A.XIII.1]
Figure 7.5:2 (Reg. 68). Cylindrical torpedo-shaped bead made of bone, broken at one end. Length: 2.5 cm. Maximum diameter: 0.4 cm [A.XLII.3]
Figure 7.5:3 (Reg. 104). Badly worn faience bead, some blue in it. Diameter: 1.5 cm. Height: 1.2 cm [A.XXII.21]
Figure 7.5:4 (Reg. 210). Faience? Green bead, newly broken, cylindrical, very fragile. Length: 1 cm [A.XLIX.3]
Figure 7.5:5 (Reg. 1040). Cylindrical glass bead [Petra XVII level 10]

Note

1. I am grateful to Peter J. Parr, director of the Petra excavations in 1960, for this information.

8. The Animal Remains[1]

Juliet Clutton-Brock

The animal remains which were recovered from the excavations at Umm al-Biyara consist of the bones and teeth of goat, sheep, horse and cattle, and the bones of birds. These animals provided the basic meat supply for the inhabitants of the site, and would also have been used for milk and hides. Bone was also used for making decorative objects. The wildness of the region at the time is indicated by the presence of a bone of a lion. It is unusual to find no bones or teeth of dogs but this does not preclude the possibility that the inhabitants kept dogs – merely that they did not eat them. When a dog died its corpse may have been disposed of away from the habitation site.

The absence of pig bones is to be expected in such a mountainous area and, indeed, it would be surprising if the inhabitants managed to husband cattle and horses successfully, whereas goats and sheep could have thrived in the mountains.

Many of the bones are very heavily charred, which would have occurred when fire swept through those areas of the settlement, burning everything including the food debris.

Domestic horse

One upper right third molar tooth and a lower right molar of an equid have been identified. The measurements of the teeth are:

- Upper right molar 3: max. length 28.40 mm; max. width 24.20 mm
- Lower right molar 1 or 2: max. length 27.35 mm; max. width 20.0 mm

The teeth are large and there is a thick layer of cement covering the enamel. In the lower molar the external sulcus runs into the neck of the metaconid and metastylid. This is characteristically found in the cabbaline group of equids and is not found in asses or onagers, with the exception of the small extinct ass *Equus hydruntinus* (Stehlin and Graziosi 1935). It is difficult to make a species identification solely on teeth but the size and general appearance of these teeth suggest that they belong to a horse and not to an ass or an onager. On the other hand, it would be unlikely that the inhabitants kept horses rather than donkeys on the mountain of Umm al-Biyara. It is possible that horse teeth were imported for some specific purpose.

It is not known when mules were first bred for use as beasts of burden and the possibility that these teeth belonged to a large mule cannot be precluded.

Domestic cattle

Thirty-three bones and two teeth have been identified as belonging to a small domestic ox. Most of the bones are in a very fragmentary condition but the foot bones of a single individual were found in association. Measurements of these foot bones are given below; they show that the animal was very small.

- First phalanx: max. length 52.20 mm; max. width of proximal end 22.50 mm
- Second phalanx: max. length 32.50 mm; max. width of proximal end 22 mm
- Hoof core: max. length 55 mm

One proximal end of a radius and a vertebra are from immature animals and there is one milk tooth (a lower left third premolar); otherwise the bones are all from adult animals. The shafts of the long bones have been chopped and split and many show the cutting marks left by a knife that was used to cut off the meat and extract the marrow.

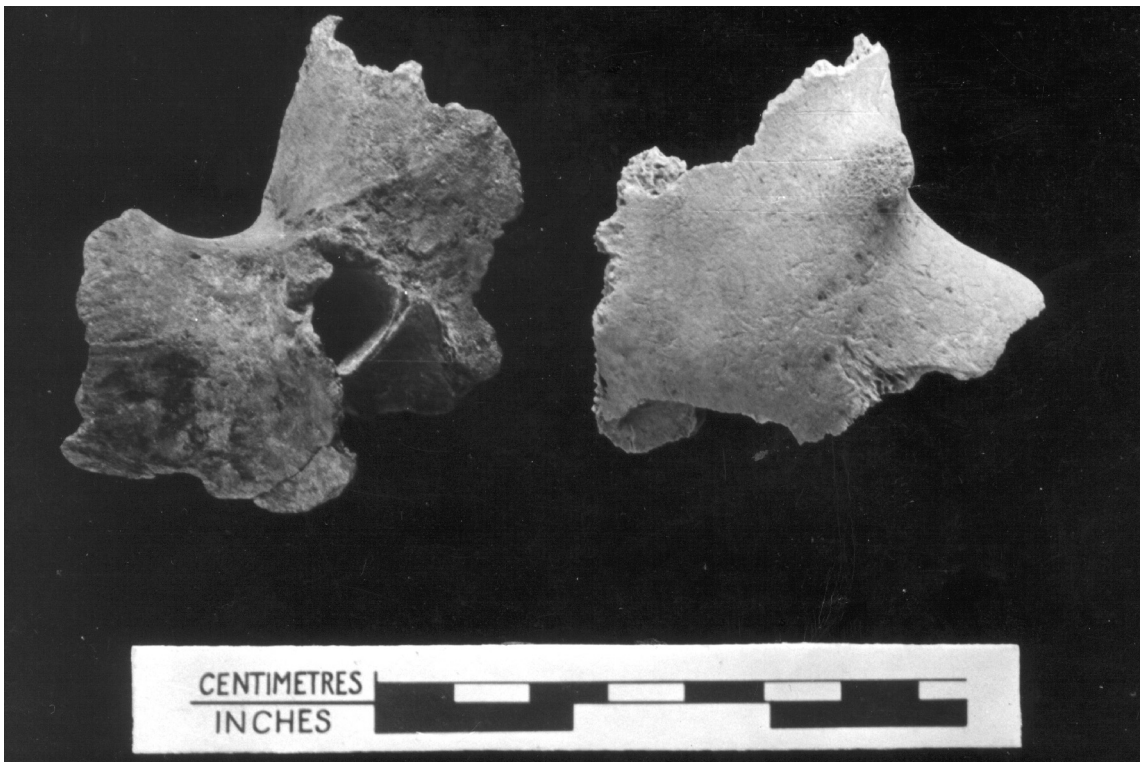


Figure 8.1. Skull fragments of goat and sheep. (left) Right frontal bone of goat with base of horn core. (right) Left frontal bone of sheep with rudimentary horn core

Figure 8.2. Distal ends of left humeri, medial aspect. (left) Sheep. (right) Goat

Figure 8.3. Axis of sheep, ventral aspect, to show knife cuts

Goat and sheep

Thirty isolated teeth and 126 bones or fragments of bone can be identified as sheep or goat. The majority of the bones look more like goat than sheep, although with many bones it is difficult to distinguish the two species. The presence of sheep is proved by the presence of the skull fragment shown in Figure 8.1 (right). A rudimentary horn core can be seen just behind the supraorbital process of the frontal bone. This is the characteristic position for the horn in sheep and the fragment is from a young animal, probably a female, that would have appeared either hornless or to have possessed only a scurr. A similar cranial fragment, with the base of a horn core, from a twisted-horn goat is shown in Figure 8.1 (left).

Figure 8.2 shows the distal ends (medial aspect) of a sheep (left) and a goat humerus (right) from Umm al-Biyara. It has been shown by Boessneck, Müller and Teichert (1964) that in sheep the posterior medial edge of the distal articular surface of the humerus is rounded and forms a right angle, as in Figure 8.2 (left), whereas in goats this edge is set at an oblique angle. The posterior side of the shaft in the goat humerus (Figure 8.2 right) has been broken but this has not affected the identifying characteristic.

A large atlas and axis which articulate with each other come from a male horned animal, probably a sheep. The ventral surface of the axis has deep knife cuts across the bone (Figure 8.3); presumably the sheep was decapitated either at death or afterwards by a knife blade that was passed between the axis and the third cervical vertebra.

Other bones that can be identified as sheep are:

- Two proximal ends left femora
- One left calcaneum. Length 61.0 mm
- One distal end metapoidal bone
- Four first phalanges. Lengths 35.9 mm, 38.2 mm, 38.1 mm and 37.9 mm

Bones that can be identified as goat are:

- Three right scapulae fragments
- One left scapula fragment
- Two distal ends left humeri
- Two distal ends right humeri
- Two distal ends metacarpal bones (these are very large and are likely to have belonged to male goats. The distal widths of the bones are 34.3 mm and 32.5 mm)
- One distal end metatarsal bone with a distal width of 28.6 mm
- Two calcanei from immature animals
- Nine first phalanges (some of these are large and again are likely to have come from male goats. Lengths of the first phalanges range from 32.45 mm to 42.30 mm)
- Four second phalanges, whose length ranges from 22.0 mm to 26.70 mm

In general the bones of the goat and sheep from Umm al-Biyara are small and characteristic of domestic animals; although it is possible that wild animals were killed to

Figure 8.4. Proximal end of a first phalanx of a lion, Panthera leo

supplement the domestic supply, the goat bones are not large enough to be those of wild ibex.

Panthera leo

The only carnivore bone recovered from the excavations is a first phalanx of a lion (Figure 8.4). The distal end of the bone has been broken off. The proximal end is large and agrees well with the phalanges of male skeletons of lions in the Natural History Museum in London.

Birds

There are 12 bones from birds approximately the size of a rock pigeon and one leg bone from a larger bird, possibly a bird of prey.

Fish

One vertebra of a small fish was found among the other animal remains. It is possible that dried fish was bought by the inhabitants, probably as a valuable source of protein.

Note

1. This report by Juliet Clutton-Brock was prepared by her on 14 June 1966 and sent to Crystal-M. Bennett for publication in the final report on the excavations. The analysis of the bones was carried out at the Natural History Museum, London, at that time called the British Museum (Natural History). The present location of the animal bones from the Umm al-Biyara excavations is unknown. They are not in the Kenyon Institute in Jerusalem with the majority of the pottery and small finds, and it is possible that they were not retained after examination.

9. Recent Shells and a Fossil Sea Urchin from Umm al-Biyara

David S. Reese

Introduction

The excavations at Umm al-Biyara produced 119 marine shells: 106 *Cypraea* (cowrie, 89%), four *Glycymeris* (dog-cockle), two *Tridacna* (giant clam), two *Conus* (cone shell), one *Turbo radiatus* (turban shell) operculum, one *Cerithium erythraeonense* (cerith), one *Strombus decorus persicus* (stromb), one Cassidae (helmet shell), and one disintegrated shell. There is also one fossil sea urchin. All the shells originate in the Red Sea, about 100 km away (as the crow flies) and are fully described in the Catalogue, below.

Most shells were found in 1965, with the 1960 season producing only two unstratified cowries and the 1963 season producing one cache of 35 cowries. Twelve shells (eleven *Cypraea*, one *Conus*) were not seen by the author and are said to be in the Rockefeller Museum in Jerusalem.

Most of the shells (68%) belong to Phase 1 (7th/6th century BCE). Two samples, one cache of 32 unmodified *Cypraea* and 1 *Glycymeris*, are probably Phase 1. Three *Cypraea* and one destroyed shell are unstratified. It is not certain why six of the seven shells (four *Cypraea*, *Tridacna*, *Turbo*) from XLI were burnt, or why the XLIII.2.3 *Cypraea* was burnt, although it is likely that this was connected with fires in those areas of the site (see Chapter 2).

The Umm al-Biyara shells can be compared with other contemporary Jordanian sites: Tawilan (90 km from the Red Sea) produced 68 marine shells (Reese 1995a); Busayra (140 km from the Red Sea) produced 249 marine shells (Reese 2002a) ranging in date from the late 8th century to 300/200 BCE, but with almost 70% unstratified; Ghrareh (70 km from the Red Sea and only 20 km from Umm al-Biyara) produced 18 7th–6th century BCE shells (personal analysis); and Tall Jawa (Stratum VII, late 8th–7th century BCE) (255 km from the Red Sea, 125 km from the Mediterranean) produced 15 marine shells (Reese 2002b, 284–5).

Cowries

The vast majority of the Umm al-Biyara shells are cowries, with most *C. annulus*, the money cowrie. Of the 106 *Cypraea* recorded, 69 are unholed, 21 are holed and 16 have not been seen. One sample of 35 cowries had 28 unholed and seven holed, while a second cache (probably also Phase 1) produced 32 unholed examples. The unholed cowries may have been intended to be holed as ornaments or kept unmodified as gaming pieces or charms.

Tawilan produced 28 small cowries (34.1%), with at least 13 *C. annulus*, of which eight come from one necklace, one from another necklace, and five others were found together. Two have an open dorsum and one is burnt. Busayra produced 53 small cowries with at least 42 *C. annulus* (23 unstratified). There are four burnt, four with an open dorsum, and one with a ground-down dorsum (Reese 2002a, 458). Ghrareh produced three *C. annulus*, one of which was ground-down and holed on the dorsum; the other two were unholed. Jawa produced one *C. annulus* with an open dorsum (Reese 2002b, 284, fig. 2.17:1).

The mainly Iron II Wadi ath-Thamad Site 13 wayside shrine in northern Moab (230 km from the Red Sea) produced 40 marine shells including seven cowries (four *C. annulus* [three ground-down dorsum, one open dorsum] and three *C. turdus* [three open dorsum]) (Reese in press). The 'Edomite' shrine at Horvat Qitmit in the Israeli Negev (about 160 km from the Red Sea) yielded only 18 holed *C. annulus* (Mienis 1995, 276–9, fig. 6.6). Iron II Kadesh-Barnea in the eastern Sinai (about 130 km from the Red Sea) produced 226 marine shells with 89 *C. annulus* (37.7% of total; 65 unholed, 21 holed, three broken, eight burnt or partly burnt) and five small *Cypraea* sp. (Bar-Yosef Mayer 2007).

Red Sea cowries are found at many sites in the Levant, the Mediterranean basin and Europe (Reese 1991a, 136, figs 84, 90; 2002a, 458).

Glycymeris

Umm al-Biyara produced four shells (three water-worn, four holed at umbo [two made by grinding]; one was also ground down on the body).

Tawilan produced four shells (three water-worn, three holed at the umbo, and two ground down in the centre of the body, one not seen). Busayra also produced four, one of which was water-worn and holed at the umbo (Reese 2002a, 465–7). Ghrareh produced three shells with a hole at or near the umbo and a ground-down area on the body. Jawa produced 10 shells of which six were holed at the umbo (Reese 2002b, 284–5, figs 2.2:1, 2.70:3–4).

From Kenyon's excavation at Jerusalem (270 km from the Red Sea) came two water-worn and umbonally holed *Glycymeris* of the 7th century BCE and six water-worn and holed shells dated to *c.*587 BCE (Reese 1995b, 265, 274). The Israeli excavations here produced two umbonally holed examples of the 7th century to 586 BCE (Mienis 1992). Kadesh Barnea produced 50 *Glycymeris*, of which 29 were holed at the umbo (24 naturally, five by man) (Bar-Yosef Mayer 2007, fig. 18.2)

The *Glycymeris* ground down on the body from Umm al-Biyara, Tawilan and Ghrareh are similar to water-worn, umbonally holed and centrally ground-down examples interpreted as pottery burnishers from late Israelite levels at Samaria-Sebaste, although here the ground-down surface is closer to the umbo (Crowfoot 1957, 471, pl. XXVII). Similarly ground-down *Glycymeris* have been found at Tall Šeḫ Hamad on the lower Habur River in Syria. The 7th-century BCE Room M2 of Building G in the Lower City II produced four ground-down examples, of which three were also holed at the umbo. An unstratified deposit above Room M2 produced an example ground down on the body and unholed (Reese 1991b, 134, 136, figs 85–86).

Tridacna

Umm al-Biyara produced two remains, one fragmentary and burnt and the other a complete valve.

Tawilan produced 15 *Tridacna* remains. Busayra produced a total of 65 *Tridacna* remains (Reese 2002a, 454, figs 12.30:b, d, 12.31–12.32), including a ground-down fragment and an engraved *T. squamosa* valve fragment (Reese and Sease 2002, fig. 12.33). Ghrareh produced four *Tridacna* fragments, one of which was water-worn. Jawa produced one complete valve and one body fragment with two cut parallel sides (Reese 2002b, 284–5, figs 2.26:1, 4.1:3). Wadi ath-Thamad 13 produced four *Tridacna* fragments, with two water-worn. Kadesh Barnea yielded six *Tridacna* valves and 12 fragments, one of which was possibly used for grinding and another possibly worked (Bar-Yosef Mayer 2007, fig. 18.4).

Unworked *Tridacna* are known from other Iron Age sites in Jordan and Israel (Reese 2002a, 457). These shells may have been used as small containers for foodstuffs or ornaments, or may have been the raw material for worked shell objects.

Conus

Umm al-Biyara produced two *Conus*. One very water-worn shell has an irregular hole on the body; the second was not seen.

Tawilan produced three *Conus* (two with apical holes, one not seen). Busayra produced a total of 14 *Conus* of which four were holed at the apex (Reese 2002a, 460, fig. 14.41). The holed examples were probably pendants.

Turbo

Umm al-Biyara produced one charred operculum but no shells.

Tawilan produced one operculum but no shells. Busayra produced three opercula but no shells (Reese 2002a, 461, fig. 12.45). Jerusalem produced one 7th-century BCE operculum but no shells (Mienis 1992, 122).

These calcareous opercula may have had an ornamental use or been used as gaming pieces or charms.

Cerithium

Umm al-Biyara produced one worn shell with a carefully made hole opposite the mouth; it was probably used as a pendant.

Busayra produced three unmodified shells of two related genera (Reese 2002a, 462).

Strombus

Umm al-Biyara produced one unholed shell.

Busayra produced 10 *Strombus*, of which one was holed on the lower body (Reese 2002a, 460). Ghrareh produced a water-worn shell with a holed apex and the upper part of the columella removed. Jawa produced a *Strombus* with an irregular hole on the lower body (Reese 2002b, 285, fig. 2.3:1). The holed examples were probably pendants.

Cassidae

Umm al-Biyara produced one water-worn shell, a form not found at other Jordanian sites.

Fossil sea urchin

Umm al-Biyara produced one unmodified *Coenholectypus larteti* (McNamara 2002, 446).

Busayra produced 71 fossil sea urchins ranging in date from the late 8th century to 300–200 BCE, with several holed as beads (McNamara 2002, 446, figs 12.2–12.23). A full description of fossil sea urchins from other prehistoric and historic sites in Jordan is given by McNamara (2002; 2004). Additionally, Wadi ath-Thamad 13 produced four examples. One has definite drilled indentations on both surfaces, while a second has slight indentations on both

surfaces, suggesting that someone began to drill the fossil. The two unmodified examples are *Coenholectypus* and *Mecaster* (McNamara in press).

Catalogue of Umm al-Biyara Recent shells and fossil

The numbers below in brackets refer to the small find registration numbers in the excavation archive. All measurements are in millimetres.

Abbreviations are as follows: D – diameter; H – height; L – length; W – width

Phase 1

XXII.21 [116]
Cypraea annulus – ground-down dorsum, L 20, W 15.75, H 7, ground-down opening 12.25 × 9.25
XXXII.6 [97]
Glycymeris – water-worn, right valve, ground down on lower body, ground-down umbo and holed, H 35.75, W 36.25 (slightly broken), ground-down body area *c.*24 × *c.*24, ground-down umbo area 7.5 × 7.75, hole 3 × 2.25
XXXIII.3 [20] (occupation area)
Thirty-four *C. annulus* – 27 unholed, seven worked. Unholed: L 16, W 11.25, H 7.5; L 16, W 11.25, H 7.75; L 16, W 11.75, H 8.25; L 16, W 12.75, H 8; worn, L 16.25, W 11.75, H 8; L 16.25, W 12, H 7.75; L 16.25, W 12, H 8; L 16.75, W 12.25, H 8.25; L 17, W 12.5, H 8; L 17.25, W 12.25, H 8.25; L 17.25, W 12.75, H 8.75; worn, L 17.5, W 12.75, H 8.25; L 17.75, W 12.75, H 9; L 18, W 12.75, H 8.75; L 18, W 13.25, H 8.75; L 18.25, W 13.75, H 9; L 18.25, W 14.25, H 9.25; L 18.5, W 14, H 9; burnt black, now worn, L 18.75, W 13.25, H 10.25; L 19.25, W 13.75, H 9.25; L 19.5, W 14.75, H 9.25; L 20, W 14.75, H 9.25; L 20, W 15.25, H 10; L 20.25, W 14.25, H 9.25; L 20.75, W 14.5, H 10.25; L 21.75, W 14.25, H 10.25; L 24, W 16.25, H 11. Worked: ground-down dorsum (on angle), slightly worn, L 19, W 13.75, H 5.25, ground-down opening 13.25 × 9.75, ½ hole on ventral side (D 4.5); ground-down dorsum, L 22.25, W 16.5, H 8.75, ground-down opening 10.75 × 5.75; ground-down dorsum, L 20.25, W 14.75, H 10, ground-down opening 11.25 × 4.25; ground-down dorsum, L 22.5, W 16.25, H 8.75, ground-down opening (now rather irregular) 13.75 × *c.*8; ground down on angle at anterior end, L 24.25, W 18.25, H 12.5, ground-down area 10 × 9.5, hole 7.5 × 6.75; ground down on angle at anterior end, L 20.25, W 15.75, H 10.25, ground-down area 10 × 7, hole 4.5 (now broken); ground down on angle near anterior end, L 19.25, W 13.75, H 9, ground-down opening 10.75 × 6
One *Cypraea* sp. – ground down toward anterior end, L 24.25, W 15.5, H 10.75, ground-down opening 9.5 × 6.25
XLI.18 [131]
Tridacna – burnt, five fragments
XLI.5 [51]
C. annulus – ground-down dorsum, burnt black, L 17.5, W 11.75, H 5.25, ground-down opening 10.75 × 6.75
XLI.16 [85]
Four *Cypraea* – three burnt and ground-down dorsum, one broken
XLI.16a [90]
Turbo operculum – charred gray, somewhat broken, L 21, W 18.25, T 9
XLII.3
C. annulus – unholed, L 20, W 14, H 9.75 [61]
C. annulus – probably open dorsum [64]
C. annulus – unholed, L 18.75, W 14.25, H 9.25 [65]
C. annulus – small ground-down and holed area on side of dorsum, L 21.25, W 15.25, H 10.75, ground-down area 8.75 × 7.5, hole (irregular) 3.75 × 3.25 [67]
Four *C. annulus* – ground-down dorsum, L 18.25, W 11.75, H 5.5, burnt light brown, ground-down opening 10.25 × 7.25; ground-down dorsum, L 18.75, W 14, H 5.75, ground-down opening 12.25 × 9.75; open dorsum (irregular), L 20.25, H 8.25, broken, burnt brown; unmodified, burnt black, L 19.25, W 15, H 10.25 [85]
XLII.16 [215]
Five *C. annulus* – one open dorsum (irregular), L 19.5, W 14.5, H 7.25, dorsum opening 12.25 × 8.75; four unholed: L 19.75, W 14.5, H 9.25; L 20, W 14.25, H 10; L 20.25, W 14.75, H 9.75; L 22.25, W 15.75, H 10.75
XLIII.2.3 [124]
C. annulus – unholed, burnt black, L 18.25, W 13.25, H 10
XLIII.2.4
Conus – very water-worn, irregular hole on body, broken lip, L 21, W 15, hole 7.25 × 5.5 [127]
Cerithium – worn, holed opposite mouth, broken lip, L 52.25, W 22, hole 6.25 × 5.5 [128]
XLIII.3 [115]
C. annulus – ground-down dorsum, L 16, W 11.25, H 4.25, ground-down opening 11 × 7.75
XLIII.6.6 [111]
Glycymeris – water-worn, left valve, holed umbo, H 38, W 39, hole 3 (now broken)
XLIII.13 [119]
Four *Cypraea* – found with bone spatula [120] and bone needle [121]
XLVIII.1.10 [238]
Tridacna – L 105
XLVIII.6 [198]
Eleven *Cypraea* – some probably modified (in Rockefeller Museum)
XLIX.3
Strombus – worn, unholed, L 42.5, W 24.75 [216a]
Cassidae – water-worn, L 24.75, W 18.25 [216b]
XLIX.4 [224]
Conus – beautifully veined, L 68 (in Rockefeller Museum)
L.2.3 (storage area)
Glycymeris – water-worn, holed umbo, broken distal

(recent), H 28+, W 34, hole 3.25 × 2 [154]
Coenholectypus larteti (fossil sea urchin) – small [155]

Probably Phase 1 but uncertain

XLIII.1.5 [71]
Thirty-two *C. annulus* – all unholed: L 18.5, W 12.75, H 9; L 19.25, W 14, H 10; L 19.25, W 14.25, H 9.25; L 19.25, W 14.25, H 9.25; L 19.25, W 14.25, H 9.75; L 19.5, W 14.25, H 9.25; L 19.75, W 14.25, H 9.75; L 19.75, W 14.5, H 10.25; L 19.75, W 14.75, H 9.5; L 20, W 13.75, H 9.75; now slightly worn, L 20, W 13.75, H 10; L 20.75, W 15, H 10; L 20.75, W 15.25, H 10; L 20.75, W 15.25, H 10.25; L 21, W 15.75, H 10; L 21.25, W 15.5, H 10.25; L 21.5, W 15.75, H 10.25; L 21.5, W 17, H 10.75; L 21.75, W 15.25, H 10.5; L 22, W 15.25, H 10.75; L 22, W 16, H 10.25; L 22, W 16.25, H 10.75; L 22, W 16.75, H 11; L 22.25, W 16, H 10.25; L 22.5, W 16.5, H 10.75; L 22.5, W 16.75, H 11; L 22.75, W 16.25, H 10.75; L 22.75, W 16.25, H 11; L 23.25, W 16, H 10.75; L 23.25, W 16, H 11.25; L 23.25, W 16.75, H 11.25; worn, L 23.75, W 17.25, H 12
XLIII.1.6 [83]
Glycymeris – fresh, right valve, ground-down hole at umbo, H 35, W 38, ground-down area 4.25 × 4, hole 3.75 × 2.25

Unstratified

XVII + (1960 season)
C. annulus – unholed, worn, L 17.25, W 12.75, H 8.5 [52]
C. annulus – ground-down dorsum, worn, L 15, W 11.25, H 4.75, ground-down opening 9.75 × 6.25 [53]
XL +
C. annulus – unholed, L 23.25, W 17, H 12 [56]
Shell – disintegrated [55]

10. The Iron Age Landscape of Umm al-Biyara

Piotr Bienkowski

Introduction

When Crystal Bennett excavated Umm al-Biyara between 1960 and 1965, she carried out no 'hinterland' survey of the area, as has become common practice now. At the time, therefore, Umm al-Biyara was unique as a mountain-top site in the Petra area, and there were no other sites to which it could be compared. From the mid-1980s on, Manfred Lindner and his colleagues have discovered and surveyed many more such mountain sites in the Petra area, as well as others on the plateau or on terraces (*passim* in Lindner 1989a; 1989b; 1989c; 1992; 1997). And, starting in 1996, Laurent Tholbecq has been undertaking a survey of Petra's hinterland – the Jabal ash-Shara Survey – from the Iron II to the Islamic periods, which eventually will fill out the picture even more (Tholbecq 2001).

This work subsequent to Bennett's excavations has enabled questions to be asked about the distinctive nature of the Iron II settlement and use of this area – the mountain-top sites, piriform cisterns, the frequent lack of painted pottery; and, in some ways, we can use it as a retrospective, though as yet incomplete, hinterland survey. This chapter starts, therefore, with a schematic account of the region's geology, which is influential in terms of the character of the sites and their access to water, and then catalogues the known Iron II sites in the 'hinterland' of Umm al-Biyara, essentially the Greater Petra area, before finally exploring ideas about why such distinctive Iron II settlement arose in this area.

The topography and geology of the Umm al-Biyara hinterland

A brief – and highly simplified – geological introduction to the landscape of Umm al-Biyara and its hinterland aids the interpretation of the Iron Age landscape and analysis of the discrete differences between the various sites (see Besançon n.d.; Bartlett 1989, 33–4; for more detailed geology and tectonics of the Petra area, see Kouki 2006, 47–53).

Generally, this whole region is founded on Late Neoproterozoic to Early Cambrian volcanic rocks (Ahaymir Volcanic Suite; Araba Complex; *c*.550–540 Ma), which were extruded subsequent to the granitoid Araba Complex of Neoproterozoic age, and which crop out to the south along the margins of the rift valley and in the Southern Desert adjacent to the Red Sea.[1] The multicoloured sandstones (Rum Group) of Cambrian to Ordovician age so typical of Petra unconformably overlie the volcanic rocks, and were deposited predominantly in fluvial environments (Selley 1972; Powell 1989a). In the Cretaceous era a unit of mauve-grey sandstone, the Kurnub Sandstone, was deposited, also in fluvial environments; the latter sandstone rests unconformably on the white Disi Sandstone to the east of Petra and, in turn, is overlain by Cenomanian to Turonian limestones and marls deposited as carbonate platform sediments over much of the region, becoming thinner towards modern Ma'an and the Ras an-Naqb escarpment in the south-east. Thin patches of Pleistocene fluvial gravel are present on some of the dissected plateau areas around Petra, and more recent alluvial sands and gravels are found in the stream beds (Jaser and Bargous 1992).

During the Neogene, about 23 million years ago, the Arabian Plate started to move northwards in relation to Africa and the Sinai-Palestine plates as a result of the heating of the earth's lithosphere, thermal expansion and rifting that formed the Red Sea. This movement was accompanied by extensive faulting, folding and uplift resulting, regionally, in the left-lateral shear of the Sinai-Palestine Plate about 110 km to the south relative to the Arabian Plate. These earth movements were episodic and

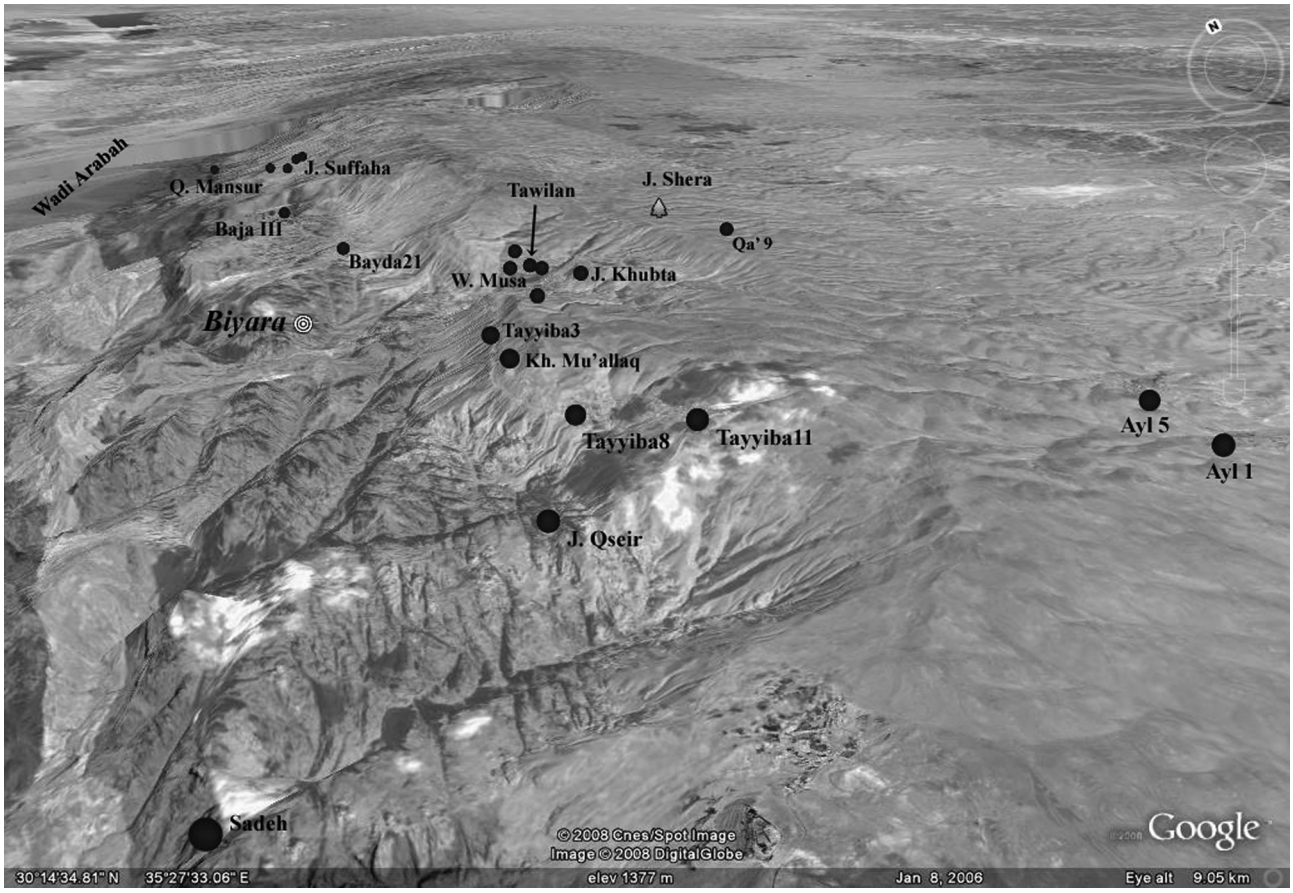


Figure 10.1. 3D map showing location of Umm al-Biyara and neighbouring Iron II sites, looking north (courtesy of Google Earth). The sites marked 'Wadi Musa' refer to Wadi Musa sites 8, 9, 19 and 30 from the Wadi Musa Water Supply and Wastewater Project survey. The sites marked 'J. Suffaha' refer to Kutle II, III and Deraj I, III on Jabal as-Suffaha

were linked to the formation of the African Rift Valley. In the Levant region, left-lateral displacement along the Dead Sea–Gulf of Aqaba fault resulted in down-throw of the central part of the Wadi Arabah and formation of the Dead Sea as a deep pull-apart basin (Freund *et al*. 1970). These earth movements also resulted in uplift and tilting along the Rift margins of the Transjordanian massif, running from the Golan Heights to the Gulf of Aqaba; the eastern margin of the Rift is higher than the land west of the Wadi Arabah. The southern part of this escarpment ridge is called the ash-Shara mountains, essentially the southern highlands of Edom, which are not so much a ridge or a plateau but a series of summits, plateaux and intersecting valleys. The ash-Shara mountains have an average altitude of 1300–1700 m asl, with a width of between 5 km and 10 km. To the west is a steep escarpment towards the Wadi Arabah, and to the east is a gentler slope towards the desert. To the south, at Ras an-Naqb, the ash-Shara mountains curve eastwards to create a scarp formed by the Cretaceous limestones and sandstones.

The tectonics during the Pliocene (*c*.3 million years ago) and subsequent erosion during the Plio-Pleistocene has resulted in the current distribution of geological units along the rift margin and escarpment, including Petra. The Neoproterozoic (Precambrian) granitoid 'basement' can be seen in the southern Wadi Arabah and Wadi Yutm north of the Gulf of Aqaba; the later volcanic rocks (Al Bayda Quartz Porphyry) outcrop about 300 m west of the ad-Dayr ('Monastery') tomb, north-west of Petra. The overlying distinctive pink and red sandstones (Umm Ishrin Formation) and white sandstones (Disi Formation) typical of the Petra–Beidha area reach up to 1100–1300 m asl, and are also found in their type area in the Southern Desert south of the Ras an-Naqb escarpment. The majority of the ash-Shara mountains comprise Early Cretaceous Kurnub Sandstone overlain, in turn, by Cenomanian to Turonian limestone (Ajlun Group) and chalk, marl, chert and phosphorite of the Late Cretaceous to Eocene Belqa Group (Powell 1989b). These predominantly carbonate sediments on the highlands and Arabian plateau receive winter rainfall and are the main source of groundwater resources in the region (Besançon n.d.). On the eastern slopes of the escarpment, at the junction of the Cenomanian limestone strata with the underlying Kurnub Sandstone, numerous springs break through, forming the tributary surface watercourses that flow towards the Wadi Arabah. In Nabataean times this spring water – e.g. from Ayn Musa, Ayn Dubduba and Ayn Brak – was collected by a

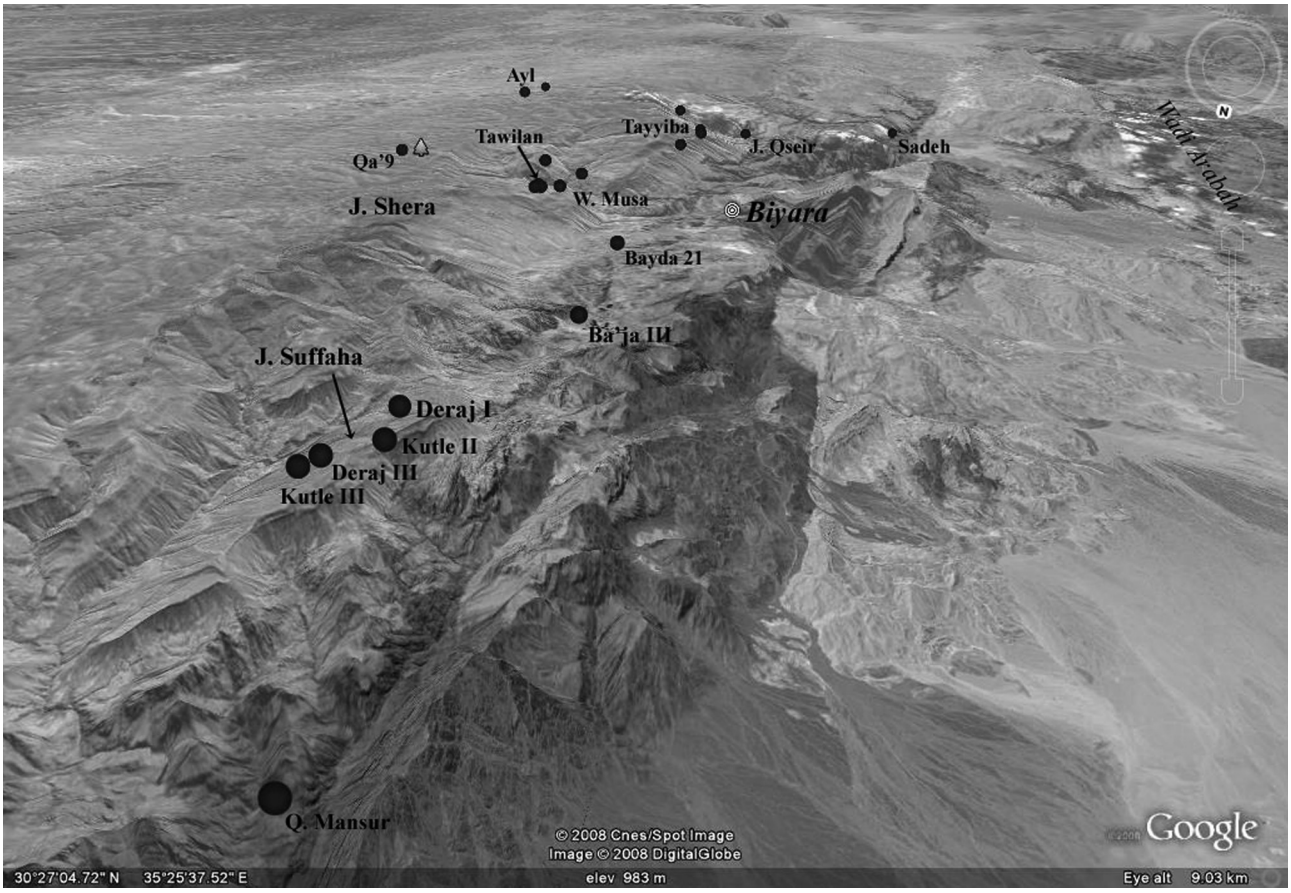


Figure 10.2. 3D map showing location of Umm al-Biyara and neighbouring Iron II sites, looking south (courtesy of Google Earth). The sites marked 'Wadi Musa' refer to Wadi Musa sites 8, 9, 19 and 30 from the Wadi Musa Water Supply and Wastewater Project survey. The sites marked 'Tayyiba' refer to Tayyiba sites 3, 8 and 11 from the Wadi Musa Water Supply and Wastewater Project survey, as well as Khirbat al-Mu'allaq. The sites marked 'Ayl' refer to Ayl sites 1 and 5 from the Wadi Musa Water Supply and Wastewater Project survey

long-distance canal network to supply the city of Petra (al-Muheisen and Tarrier 1997, 146–8).

Today, the ash-Shara mountains are used for summer pasture and rain-fed agriculture. As a result of the comparative dearth of productive agropastoral space on the plateau areas between the ash-Shara and the Wadi Arabah, Besançon (n.d.) suggests that the ash-Shara were an important resource hinterland for Nabataean Petra – particularly since they were most densely settled in Nabataean times. The paucity of actual settlement there today is a combination of modern transport infrastructure lessening the need to live next to cultivated fields and erosion due to deforestation, which has reduced productivity.

Below is a survey of known Iron Age sites in the hinterland of Umm al-Biyara, which is defined as no more than a day's journey on foot (see estimates in Lindner *et al*. 1996b, 152); many of them are in the ash-Shara mountains or their escarpments. Surveys, soundings and excavations beyond the immediate hinterland of Umm al-Biyara show relatively dense Iron II settlement in all directions except west towards the Wadi Arabah (for Iron Age settlement patterns in the Wadi Arabah, see Bienkowski 2006): east of Petra in the Udhruh area (Abudanh 2004); south towards Ras an-Naqb (Hart 1989, 83–111; Hart and Falkner 1985); and north between Petra and Tafila and in the Busayra area (Hart 1989; Whiting 2006; MacDonald *et al*. 2004; Bienkowski 2002). Hart (1989, 7) observes that in this southern area of Edom – particularly the region between Shobak and Ras an-Naqb – the geology has created more frequent springs which attract human settlement; in contrast, more rugged northern Edom has more frequent faults and volcanic vents and relatively fewer settlements. Using the three-dimensional digital elevation model of Google Earth, Figures 10.1 and 10.2 show the location of all these Iron II sites from both north and south to emphasize their relative positions in the landscape.

Iron Age sites in the hinterland of Umm al-Biyara

As-Sadeh/Umm al-Ala (Figures 10.3–10.4)

Survey and soundings: Lindner *et al.* 1988; Lindner *et al*. 1990; Lindner 1992, 145

Figure 10.3. As Sadeh/Umm al-Ala from the east (2005). (Photo courtesy of Ulrich Hübner)

Figure 10.4. As Sadeh/Umm al-Ala from the south-west (2005). (Photo courtesy of Ulrich Hübner)

Coordinates: 35° 23′ 63.5″ East/30° 12′ 81.6″ North
Periods represented: Palaeolithic, Neolithic, EB I–II, Iron II, Nabataean, Mamluk/Ottoman. Iron II pottery from surface survey and soundings attributed to the 7th/6th centuries BCE
Setting: 13 km south of Jabal Harun, the valley of as-Sadeh runs ENE–WSW between Jabal Barrat Salama to the north and Umm al-Ala to the south. The valley runs along the interfaces of Cretaceous limestone, Cambrian sandstone and quartz porphyry, with mostly sandstone on the south bank, mostly limestone on the north bank, and quartz porphyry at the head of the valley. A perennial spring high up in the upper part of the Wadi as-Sadeh comes down in a waterfall through an almost perpendicular crater-like gorge about 100 m high with three basins of quartz porphyry in the wadi bed. The site is on an isolated plateau with steep cliffs on all sides at 820 m asl. The surveyors report that it took them one day to arrive at as-Sadeh from Petra, via Sabra, with two camels and four donkeys.
Description: Foundations of three houses on the plateau with wall lengths of *c.*20 m, 47 m and 83 m are particularly associated with Iron II pottery. They have been described as 'compartmented longhouses' and consist of conglomerations of long rectangular rooms which were compared by the surveyors to those of Umm al-Biyara. Some dwellings below the rim of the plateau were rock-shelters with natural or quarried terraces, with walls of large boulders in front of them; these were associated with a large amount of Iron II pottery. The foundations of one building on the east side consisted of large well-cut limestone ashlars that were interpreted by the surveyors as a 'tower-like building' strategically located with a good view of the valley and the spring. The date of this building is unclear: it could be Iron Age or Nabataean. One cistern was found on the plateau: this was piriform-shaped and with a square opening. Collapsed walls overlooked by the rock-shelters were found at almost all possible accesses to the plateau, perhaps suggesting an element of defence.

Ba'ja III

Survey and excavation: Lindner and Farajat 1987; Lindner 1992, 144–5; Bienert *et al*. 2000; 2002
Coordinates: 35° 27′ 25″ East/30° 24′ 54.5″ North
Periods represented: Neolithic, EBA, Iron II, Nabataean, Late Roman/Byzantine, Ayyubid–Ottoman. Iron II pottery attributed to 7th/6th centuries BCE
Setting: 10 km north of Petra is the mountain massif of Jabal Ba'ja, with a summit of dome-shaped rocks of dark red sandstone. At its foot and on its slopes and terraces are five sites of different periods which have been given numbers, thus: Ba'ja I, Ba'ja II, Ba'ja III and so on. It is Ba'ja III that dates to Iron II: it is on a mountain top in an area of small plateaux, steep and narrow canyons and occasionally dense vegetation. Lindner (1992, 144) describes the difficult access to the top of Ba'ja III, to which no easy ascent was found without mountaineering experience and equipment:

> Their 'eagle's nest' could only be reached through a series of chimneys and across steep cliffs unless the occupants used rope-ladders to gain access from the other side of the mountain.

Stairs cut into the rock of the gorge and chimney suggest that this was already a route in antiquity.
Description: The installations and architectural remains found on top of Jabal Ba'ja (Ba'ja III) are located on a fissured surface of dome-like rocks of different heights, with steps between them. They consist of rock-cut rectangular basins; platforms cut out of the rock, some with pot-holes or cup-marks in the centre (perhaps domestic or food-production areas); stone walls functioning as simple structures or as terrace walls; rock-cut plastered cisterns; water basins; and wine or olive presses. Much of the Iron II pottery was cooking pots and storage jars, but about one-fifth of the pottery assemblage was decorated. The site has been described as 'a mountain stronghold', which was perhaps used for agricultural purposes, as some flat areas suggested space for small fields. The 'entrance' to

the summit, characterized by deeply fissured rocks, was blocked by a wall.

Khirbat al-Mu'allaq

Survey and soundings: Lindner *et al.* 1996a
Coordinates: Not recorded
Periods represented: Iron II, Late Islamic
Setting: Khirbat al-Mu'allaq is located 6 km south of Wadi Musa (the town outside Petra), on a plateau on the ash-Shara escarpment, where the Cenomanian limestone overlies the Cambrian sandstone. The spring of Ayn al-Mu'allaq rises above it, irrigating a number of large terraced fields on the hillside, although no conduit was found between the spring and the site, or any cisterns. The site is a roughly trapezoidal ruin field, the collapse probably caused by earthquakes; it is not easy to access or even to survey effectively because of the large fallen boulders.
Description: A small-scale sounding suggests that Khirbat al-Mu'allaq was a trapezoidal structure first built in Iron II, with a Late Islamic upper structure. It has been tentatively interpreted as a late Iron II 'fortress' with casemate walls enclosing an open courtyard, located 'between the protecting escarpment of ash-Shara, an important north–south route along springs and the cultivable slopes of al-Qseir with ancient terraces' (Lindner *et al.* 1996a, 131). A taboun and a stone-lined storage pit are evidence of probable Iron II use of the site prior to the building of the structure.

Jabal al-Qseir

Survey and soundings: Lindner *et al*. 1996b
Coordinates: 35° 26′ 33″ East/30° 14′ 23″ North
Periods represented: Iron II, Late Islamic (?), and a few sherds of Nabataean and Late Roman/Byzantine pottery. Iron II pottery attributed to 7th/6th centuries BCE
Setting: Jabal al-Qseir is a mass of dome-shaped hilltops at 1140 m asl about 10 km south of Petra. Here the overlying limestone typical of ash-Shara peters out, and sandstone outcrops, first in gullies and later in very deep gorges (Lindner *et al.* 1996a, 114). Jabal al-Qseir itself is a series of 'cupolas' in grey Ordovician sandstone on a foundation of red-brown Cambrian sandstone. It is difficult to climb, accessible only with donkeys from the deep, gravel-filled wadi bed, across deep clefts in the Cambrian sandstone and along a steep boulder-strewn slope which leads to the foothills of the *jabal*.
Description: All the evidence of Iron II habitation is distributed across the uneven rock surface, at different levels, with rock-cut foot holes and steps – a situation similar to that at Ba'ja III. There is a possible long defence wall across part of the slope. House foundations are cut into the uneven rock at different levels: one has three rooms, others just one. In the only area of the site with capacity for a larger structure is a compartmentalized longhouse with nine rooms and a piriform cistern. There are several rock-cut chambers and shelters with stone-built walls in front. A small open area with a few rock-cut house foundations, steps, an isolated rock 'cupola' and an 'offering hole' was tentatively interpreted as an Iron II high place. About 20 piriform cisterns with circular openings, originally plastered, with eroded channels leading to them, as well as several large basins 6 m deep, caught rainwater and provided a water supply. The site has been described, similarly to Ba'ja III, as a 'mountain stronghold'.

Jabal al-Khubtha

Survey: Lindner *et al*. 1997
Coordinates: Not recorded
Periods represented: EBA (?), Iron II, Nabataean, Roman, Byzantine
Setting: The sandstone massif of Jabal al-Khubtha, at 1132 m asl, rises over the Petra basin on its east side. From it there is an unrestricted view of Umm al-Biyara, on the opposite side of the Petra basin. The mountain is difficult to access.
Description: Iron II sherds were found associated with stone tumble in front of a flat rock spur and two cave chambers with evidence of later Nabataean cutting. Perhaps optimistically, this has been described as an Edomite 'hamlet' functioning as a retreat or a watch station. More Iron II sherds were scattered elsewhere on the mountain, between the 'hamlet' and the summit, but none on the summit itself.

Jabal as-Suffaha

Survey: Lindner *et al*. 1998
Coordinates: Jordan map (1:50,000) 737062E, 3373295N
Periods represented: Iron II, Nabataean, Roman, Byzantine, Late Islamic. Iron II pottery attributed to the 7th century BCE
Setting: The mountain of Jabal as-Suffaha, 15 km north of Petra and 1390 m asl, is accessed via a steep terraced wadi to the east of a ridge composed of different kinds of hard Cretaceous limestone. Its sloping plateau is covered with piled stones, terrace walls and field boundaries. On the north, east and south of the plateau are sites of different types and dates which have been allocated discrete names and numbers: of these, Kutle II, Kutle III, Deraj I and Deraj III yielded large proportions of Iron II pottery, but only Kutle II and Deraj III have structures that can be dated to Iron II with any confidence.
Description: Kutle II (736191E, 3373154N, 1290 m asl) is an Iron II settlement of six or eight square stone houses on terraces. There is no spring, and run-off rainwater was collected in several cisterns strengthened with inserted stones and originally plastered. Kutle III (737307E, 3373486N, 1150 m asl), described as an Iron II–Byzantine 'estate', consists of a heap of stones from a large building whose original plan is unknown. It is uncertain whether the building dates to Iron II or the Byzantine period or both.

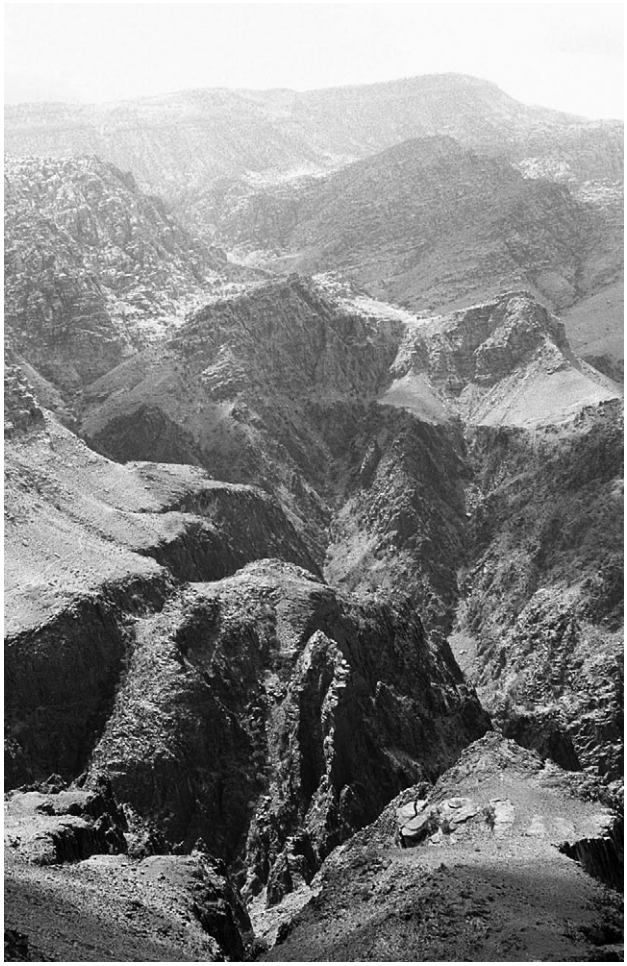


Figure 10.5. Qurayyat al-Mansur from the north (2003). (Photo courtesy of Ulrich Hübner)

Of the pottery recovered, 40% was Iron II and 40% was Byzantine. Deraj I (736527E, 3371915N, 1260 m asl) is described as an Iron II–late Roman–Byzantine village, but the only structure recognized and described appears to be a late Roman–Byzantine building. Of the sherds found, 30% were dated to the Iron II period. Deraj III (737062E, 3373295N, 1180 m asl) is described as an Iron II fortress, built on and surrounded by terraces constructed of massive stones. The 'fortress' consists of massive enclosure walls, some in casemate construction, with a tower-like projection on one corner. There are indications of some rooms internally, off the casemates, but the survey could not produce a definitive plan. The slope above is also terraced with massive walls, some semi-circular, perhaps used to catch floods or non-perennial springs.

Qurayyat al-Mansur (Figures 10.5–10.6)

Survey: Hübner 2004
Coordinates: PGR 193990, 35° 27′ 00.7″ East/30° 30′ 76.8″ North
Periods represented: Iron II, Late Islamic. The Iron II pottery is dated to the 8th/7th to 6th centuries BCE

Figure 10.6. Qurayyat al-Mansur from the east (2003). (Photo courtesy of Ulrich Hübner)

Setting: The site is on the summit of an isolated, craggy but relatively low sandstone and quartz porphyry mountain (*c.*730 m asl) in the perennial Wadi al-Faid, *c.*16 km north of Petra. It is on the very edge of the Wadi Arabah, immediately north-west of Jabal as-Suffaha. The steep sides are covered with fallen stones. It lies at the conjunction of three routes from the east, west and south (Hübner 2004, 142–4).
Description: The summit and terraces have dense concentrations of drystone buildings, apparently broad-room houses, divided into discrete areas on the northern, southern and eastern ends of the plateau. There is evidence of a town wall, with a gateway at the northern point. Of the pottery collected, 90% dates to Iron II. On the basis of his surface survey Hübner (2004, 148) concluded that the site was the second largest settlement so far discovered in Edom, after Busayra, and suggested that it was a customs post on the Iron II trade route for copper from Faynan and incense from Arabia, situated almost exactly halfway between the Petra area and Busayra. Surface surveys of adjacent Khirbat al-Hudus (Hübner 2004, 144) and Khirbat al-Faid (Hübner 2004, 152–4) also yielded Iron II pottery – the latter site with wall lines and water channels, but evidence of earlier EB II and later Nabataean, Roman and Late Islamic settlement.

Tawilan

Excavations: Bennett and Bienkowski 1995
Coordinates: PGR 196972, 35° 29′ E/30° 20′ N
Periods represented: Iron II/Persian, Nabataean/Roman, Late Islamic. The Iron II/Persian occupation is dated between the 7th and 4th centuries BCE
Setting: The site lies in the southern part of the Edomite highlands, in the hills to the immediate north-east of Petra, at 1400 m asl. It is an intensely cultivated area, with the perennial spring of Ayn Musa about 2 km to the south-east. The site is situated on a flat limestone terrace at the western foot of Jabal Heidan; the surrounding fields form a series of descending terraces to the north and west down to Ayn

Musa and El-Ji/Wadi Musa, the village outside Petra.
Description: The Iron II/Persian site has rectangular buildings, with long corridor-like rooms and smaller 'storage' rooms, with no town wall. The walls are of drystone masonry and reflect several stages of occupation/construction. The 'Northern Complex' is an extremely well-built structure with solid walls, possibly with either mud plastering or a mud brick superstructure. The site has been interpreted as an unfortified agropastoral settlement exclusively concerned with food production and domestic activities. The end of the Iron II/Persian occupation is characterized by traces of fire and collapse in all the main excavated areas.

Wadi Musa survey

An archaeological survey of the Wadi Musa area, also including the sectors of Bayda, at-Tayyiba, Ayl and al-Qa', was undertaken as part of the Wadi Musa Water Supply and Wastewater Project ('Amr *et al*. 1998; 'Amr and al-Momani 2001). Effectively, this is the immediate hinterland of Umm al-Biyara. Although several sites with Iron II sherds were identified, there is very little description of individual sites and in some instances it is clear that any visible remains date to periods later than the Iron Age. Below is a summary of the Iron II sites identified by this survey.

Bayda 21
('Amr *et al*. 1998, 512–13 and fig. 6)
Coordinates: UTM 735823E; 3362120N–735779E; 3362062N–735914E; 3361972N–735952E; 3362043N. Altitude 1067.3–1074.2 m asl
Periods represented: Iron II, Nabataean, Late Roman, Byzantine, Late Islamic
Description: Extensive site with many structures, on an elevated stretch.

Wadi Musa 8 (al-Basit)
('Amr *et al*. 1998, 519)
Coordinates: UTM 738413E; 3358021N–738632E; 3357932N–738766E; 3358166N–738793E; 3357954N. Altitude 1195.5–1235.5 m asl
Periods represented: Neolithic (predominant), Iron II, Nabataean, Byzantine
Description: Some wall lines, abundant flint scatter, some pottery.

Wadi Musa 9 (Khirbat an-Nawafla)
('Amr *et al*. 1998, 519–20)
Coordinates: UTM 739081E; 3357818N–739291E; 3357788N–739243E; 3357822N. Altitude 1198.8–1218.2 m asl
Periods represented: Middle Bronze Age, Iron II, Hellenistic, Nabataean, Early Byzantine, Late Byzantine, Early Islamic, Ayyubid/Mamluk, Late Islamic
Description: Series of superimposed and overlapping agricultural villages from 1st century BCE on, with earlier material recovered from northern part of the site.

Wadi Musa 19 (Khirbat Bani 'Ata)
('Amr *et al*. 1998, 526–7)
Coordinates: UTM 738351E; 3356289N. Altitude 1188.1 m asl
Periods represented: Iron II, Nabataean, Late Byzantine, Early Islamic, Late Islamic
Description: Traditional village built on an ancient site, with some pottery sherds.

Wadi Musa 30 (al-Muzayr'a; alt. Khirbat al-Qarara)
('Amr and al-Momani 2001; Tholbecq 2001, 402)
Coordinates: UTM 738850E; 3358800N. Altitude *c.*1200 m asl
Periods represented: Iron II, Late Roman, Ayybud/Mamluk
Description: This site is on the same mountainside as Tawilan, al-Basit (Wadi Musa site 8) and Khirbat an-Nawafla (Wadi Musa site 9). The survey records large structures built of rough blocks, some of the walls still standing up to 4 m. Some individual rooms and a staircase are visible. The site appears to have a boundary wall at its northern and western edges, while at the eastern edge there is a natural cliff. Iron II sherds, though scarce, were found all over the site, while late Roman and Ayyubid/Mamluk sherds were found only at the south-eastern edge.[2]

Tayyiba 3 (Khirbat Dubayl)
('Amr *et al*. 1998, 532)
Coordinates: UTM 736258E; 3353211N. Altitude 1398.1 m asl
Periods represented: Iron II, Late Islamic
Description: Concentration of large stones and pottery scatter.

Tayyiba 8
('Amr *et al*. 1998, 534)
Coordinates: UTM 736305E; 3349844N–736255E; 3349869N–736257E; 3349874N. Altitude 1326.0–1327.1 m asl
Periods represented: Neolithic (?), Iron II, Nabataean
Description: Wall lines, flint and pottery sherds, on mountain slope among agricultural terraces.

Tayyiba 11 (Khirbat ar-Ruways)
('Amr *et al*. 1998, 534–5)
Coordinates: UTM 737314E; 3348099N. Altitude 1569.9 m asl
Periods represented: Iron II, Nabataean, Late Islamic

Description: Structures on hilltop and slopes of medium and large stone blocks; perhaps a watch tower.

Ayl 1 (Nabat 'Ayn al'Ashra)
('Amr *et al*. 1998, 535–7)
Coordinates: UTM 743152E; 3344553N. Altitude 1530.0 m asl
Periods represented: Iron II, Byzantine
Description: Two square structures (watch towers) on mountain summit, with relatively abundant water in the area.

Ayl 5 (Khirbat Ayl)
('Amr *et al*. 1998, 538–9)
Coordinates: UTM 743462E; 3345986N. Altitude 1446.6 m asl
Periods represented: Iron II, Nabataean, Roman, Byzantine
Description: Ancient site built on by modern (traditional) village.

Qa' 9 (Bi'r al-Bitar)
('Amr *et al*. 1998, 543)
Coordinates: UTM 743220E; 3357218N–743293E; 3357184N–743205E; 3357278N. Altitude 1484.5–1502.1 m asl
Periods represented: Iron II, Nabataean, Late Byzantine–Early Islamic, Late Islamic
Description: Site with several structures on hilltop now occupied by modern (traditional) houses and school.

Jabal ash-Sharah survey

Surveys: Hart and Falkner 1985; Tholbecq 2001; Hübner and Lindner 2003
Coordinates: Not recorded
Periods represented: Iron II, Hellenistic, Nabataean, Roman, Byzantine, Islamic
Setting: Jabal ash-Sharah, to the east of Petra, is the southern part of the highlands of Ma'an. It is a mountainous area of Cenomanian limestone rising to 1784 m asl, with rainfall and humidity in winter higher than in Petra, and with numerous springs which allow a different pattern of settlement.
Description: The nature and state of publication of the archaeological surveys on and around Jabal ash-Sharah make it difficult to describe Iron II settlement there with any confidence and accuracy. There have been overlapping surveys and a confusion of site names (see Hübner and Lindner 2003), the sites have not been effectively mapped and the most recent survey (Tholbecq 2001) is not yet fully published. Nevertheless, for the purposes of this chapter, the nature of some of the sites is clear, even though the details, their names and even their precise locations are still uncertain. 'Khirbat al-Kur' (with a view west towards Jabal as-Suffaha) is an Iron II walled settlement with a gate, an 'acropolis' and a 'subquarter' (Hübner and Lindner 2003, 226) (Figure 10.7). 'Khirbat al-'Iraq' (Hart and Falkner 1985, Site 008) and 'Khirbat al-Genina' (Hübner and Lindner 2003, 225–6) are described as 'watchtowers'. Khirbat Dahaha and Site 001 (Tholbecq 2001, 402) are described as 'major' Iron Age sites, but no further details have been published so far.

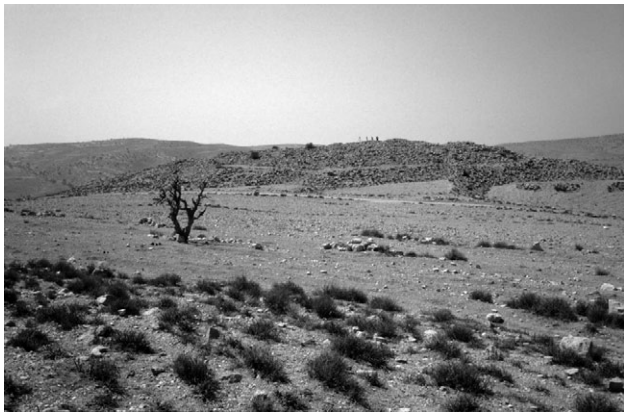


Figure 10.7. Khirbat al-Kur from the east (2003). (Photo courtesy of Ulrich Hübner)

Gaps

Note that so far no trace of Iron Age use has been found by the Jabal Harun survey, on the slopes and foot of Jabal Harun near Petra (Lavento *et al*. 2004, 232–3), which the surveyors suggest may be due to several factors: the lack of a water source in the vicinity of Jabal Harun; the fact that the survey was not conducted on a mountain-top, a characteristic site for Iron Age settlement in the Petra area; and also that any Iron Age use may have been non-intensive, temporary and effectively archaeologically invisible. Lavento *et al*. (2006, 25–6) conclude that Jabal Harun was probably used for herding during the Iron Age – indeed, that a pastoralist, semi-nomadic component was always present in the Jabal Harun area except perhaps during the periods of the most intensive agricultural use in the Nabataean and Byzantine periods.

Exploring the Iron Age landscape

Most research on Iron Age sites in the vicinity of Petra has attempted to explain why so many of them are situated on virtually inaccessible mountain tops with no access to spring water – despite the usual abundant springs available nearby – and to correlate that fact with other aspects of their material culture, particularly the presence or absence of painted pottery, but also the presence of piriform cisterns and 'longhouse' buildings.

When Umm al-Biyara was excavated in the early 1960s it was unique as an inaccessible Iron Age mountain-top site.

Since no survey of hinterland Iron Age sites was undertaken at the time, Bennett (1966a) was primarily concerned with whether or not the site could be equated with biblical Sela‘ (see Chapter 1). Later, Hart (1989; 1995b) compared Umm al-Biyara to the other excavated sites of Busayra, Tawilan and Ghrareh, concluding that the lack of painted pottery at Umm al-Biyara had chronological significance, and that the 7th-century BCE mountain-top settlement of Umm al-Biyara was the earliest in the sequence of ‘Edomite’ sites – the inference being that occupation of such sites happened earlier in ‘Edomite’ history but was later discontinued. He based this conclusion on the fact that Tawilan was, according to him, the latest dated site, and had a preponderance of painted pottery, and argued that this was supported by the low incidence of painted pottery in the earliest ‘phase’ at Busayra Area D. He accepted that Umm al-Biyara was in a very different type of location to the other three sites, but thought that the absolute dates from Umm al-Biyara (*c.*670 BCE) and Tawilan (*c.*521 BCE) gave a bias of probability in favour of a chronological significance to the lack of painted pottery (Hart 1995b, 264; note that the phasing of Busayra Area D used by Hart 1995b is wrong: Bienkowski 2002, 207).

Once other similar mountain-top sites began to be surveyed in the mid 1980s, wider comparisons could be made. J. P. Zeitler concluded – based initially on work at Ba’ja III and as-Sadeh, later expanded to include Khirbat al-Mu’allaq and Jabal al-Qseir, which he compared with Busayra, Tawilan and Tall al-Kheleifeh – that there was a link between the location of ‘Edomite’ sites and their pottery assemblages (Zeitler 1992; Zeitler in Lindner *et al.* 1996a, 126–30; Zeitler in Lindner *et al*. 1996b, 153–61). His ‘bipartite’ hypothesis was that similar locations gave rise to similar typological assemblages, and that there were essentially two types of ‘Edomite’ settlement:

1. Locations on high mountain plateaux (mountain strongholds) with a high percentage of undecorated coarse ware showing a typologically restricted spectrum of functional shapes. Decorated pottery (‘table ware’) is extremely rare, and decoration is restricted to simple painted bands and lines. The main function associated with the pottery is storage.
2. Locations in favourable positions with a large amount of fine ware and decorated pottery showing a rich variety of both types and decorations. The main component in the pottery assemblage is table ware, while pottery for storage forms a smaller proportion.

According to Zeitler, the sites situated on mountain tops – Umm al-Biyara, as-Sadeh, Ba’ja III and al-Qseir – all show a clear tendency to a high percentage of functionally restricted coarse pottery with a preponderance of storage and cooking types, while Busayra, Tawilan, Kheleifeh and Mu’allaq, located on plateau areas, show a great deal of typological variety and a larger variety of decoration (note that Bienert *et al*. report (2000), following more extensive work, that at Ba’ja III nearly one-fifth of the Iron Age pottery assemblage was painted – the implications of this for Zeitler’s hypothesis will be examined below). Many coarse ware types from the ‘mountain-top’ sites are unknown at other sites. Furthermore, the ‘mountain-top’ sites had only two types of architecture: either large rectangular buildings with corridor-like rooms (Umm al-Biyara, as-Sadeh, al-Qseir), or houses with very small rooms adapted to their topographical situation (Ba’ja III, and al-Qseir again). *Contra* Hart, Zeitler saw no reason to assume a chronological difference: some types from Umm al-Biyara, which Hart had dated early (elongated bottles and rounded jugs), were also found at Mu’allaq, which had an assemblage similar to Tawilan and Busayra. Zeitler also noted that Tawilan is situated in the same region as Umm al-Biyara, as-Sadeh, Ba’ja III and al-Qseir, thus discounting regional differentiation.

Zeitler (1992, 176) admitted that interpretation of these characteristics was difficult. Bennett’s suggestion (1975, 15) that painted pottery belonged to the ruling class would indicate an absence of the ruling class from the mountain settlements, despite the presence at Umm al-Biyara of the seal impression of Qos-Gabr, king of Edom; yet Zeitler felt that the extreme position of the settlements made it difficult to suggest farming communities. Arable land and a good supply of water were not available at the sites – water had to be gathered in cisterns, perhaps indicating long-term domestic use. Nevertheless, all the mountain-top sites dominated rich arable lands in their vicinity, thus suggesting a possible function of regional control – either by a central government or a local clan – for at least some of them (Umm al-Biyara, as-Sadeh), while others (Ba’ja III, al-Qseir) might have been local farming communities, the lifestyle of the community being reflected in the absence of painted pottery and rare ‘table ware’. There were opportunities for mixed farming, using the arable land for crop production and the hills for pasture.

Building on Zeitler’s hypothesis, Knauf (in Lindner *et al*. 1996b, 161–3) assumed that the presence of painted fine ware indicated the centrality of a site or its function as an interface between the local clans and the state administration; furthermore, he supposed that sites with an extremely restricted ceramic repertoire (storage and cooking) were inhabited only temporarily. In this way he suggested that the mountain-top sites served as a retreat for populations under pressure, perhaps against hostile Arab tribes, and that each settlement formed the ‘citadel’ of an individual clan or tribe ‘who constantly fought all its immediate and some of its more distant neighbours’ (in Lindner *et al*. 1996b, 162). While villages on the plateau provided a secure water supply and a source of cereals, the mountain strongholds provided security to villages in case of invasion. He assumed that the mountain area was used mostly by the pastoralist segment of the population. Putting this into a wider context, Knauf argued (in Lindner *et al*. 1996b, 163) that Edom underwent an economic, essentially agricultural, revolution in the 7th century BCE, with a concomitant need for food surplus

production and a larger area for agricultural production. Thus, an additional explanation for the construction of the mountain strongholds is 'a last and desperate attempt to increase the area of crop and meat production' by moving grazing to agriculturally even more marginal districts in the mountains. He therefore concluded that the mountain strongholds in the Petra area can be explained 'in the dichotomy of state and tribes, in the dichotomy of farmers and herders, in the opposition of fertility and security, and in the demands of the world economy on the marginal country of Edom which both fed and integrated the various dichotomies identified on the local level'.

The most recent attempt to synthesize all this material was by Lindner and Knauf (1997), building on Knauf's previous work. They saw an essential dichotomy in the Edomite landscape between sites on the plateau and those in the mountains. Still based essentially on Zeitler's bipartite hypothesis, they regarded Umm al-Biyara, Ba'ja III, as-Sadeh, al-Qseir and Jabal al-Khubtha as having a number of features in common:

- restricted accessibility
- storage facilities for agricultural products (their interpretation of the 'longhouses' at as-Sadeh, al-Qseir and presumably Umm al-Biyara, and the fact that sherds from coarse storage jars predominate at all these sites)
- pockets of agricultural and/or horticulturally useful land nearby
- a total or near absence of 'fine ware'

The main feature of all these sites is security, through their mountain setting, although some fortifications are attested at many of them. The key issue for Lindner and Knauf is the relationship between the plateau and the mountain areas; the presence at Umm al-Biyara of the bulla of Qos-Gabr and an ostracon with a record of the delivery of oil (probably sent from rather than to Umm al-Biyara) shows at least some integration into an economic structure. An important point is that the dependence of the mountain sites on the agricultural potential of the plateau is indirectly attested by the large amount of storage jars at all those sites. Although some of these could have contained liquids – as Zeitler assumed – Lindner *et al*. (1996b, 150) point out that any grain ground with the querns found at al-Qseir must have been brought to the mountain from elsewhere; and, indeed, ancient terraces, including ones cultivated today, show that grain was grown in fields around the mountain. Lindner and Knauf further assume that decorated fine ware was produced on the plateau: without extensive ware analysis, preferably by neutron activation, this is difficult to prove, but analysis of pottery found at Busayra shows that some originated in the Petra area, demonstrating some level of contact and exchange (Bienkowski 2002, 350, 484–5).

There is agricultural land situated at the feet of Umm al-Biyara and Ba'ja III, the two most favoured sites in terms of agriculture; agricultural land is limited at the other mountain-top sites, making only horticulture feasible. The oil receipt from Umm al-Biyara, and the abundant traces of Nabataean viticulture in the area surrounding Ba'ja, suggest that the main commodity being produced was not grain but olives. But the most obvious product of the mountain areas was presumably livestock in the form of goats. Lindner and Knauf interpret the 'longhouse' structures as storage and distribution facilities for grain brought from the plateau, which was thus stored in places as inaccessible as possible.

They conclude that the mountain strongholds were not trade stations, being too far from the main trade route, but could be explained as 'central places' of a predominantly non-sedentary population. They see them as a sort of 'interface' between the mountains and the plateau, and suggest that the mountain strongholds had 'counterparts' on the plateau which served the same purpose. For example, in the north, Sela' was orientated to Busayra, al-Qseir to at-Tayyiba (although no Iron II site has yet been found there), and Umm al-Biyara and Jabal al-Khubtha were satellites of Tawilan. The fortress at Mu'allaq is regarded as an example of state intervention. Lindner and Knauf think it is likely that the mountain strongholds also served as refuges, perhaps from Arab tribes.

Sites discovered since 1997 have made the situation a little less clear. Lindner *et al*. (1996b, 150, table 1) tabulated five typical aspects found at the sites of Umm al-Biyara, as-Sadeh, Ba'ja III, al-Qseir, and Sela': by and large these supported Zeitler's bipartite hypothesis, suggesting a link, in most cases, between location on a mountain top, paucity or lack of painted pottery and the presence of piriform cisterns, defensive walls and longhouses.

Table 10.1 here has amended and updated that table, expanding both the number of sites (to include those more recently surveyed which have sufficient recorded and published data), and the number of criteria (to include smaller, conglomerated buildings and 'stronghold' buildings found at some sites). The recovery of a substantial proportion of painted pottery from more recent work at Ba'ja III (Bienert *et al*. 2000) means that Zeitler's bipartite hypothesis is no longer strictly tenable: Ba'ja III is a mountain-top site with difficult access, like Umm al-Biyara, as-Sadeh and al-Qseir, but one-fifth of its Iron II pottery assemblage is painted. Nevertheless, the overall typological repertoire is fairly restricted, and the ware is generally coarse.

In fact, Table 10.1 suggests that there are no longer any very obvious correlations. Longhouses – which in any case depend on the amount of space available for them (Ba'ja III being too small) – continue to be restricted to mountain-top sites with little or no painted pottery and with piriform cisterns, but there is no clear pattern to sites with 'stronghold buildings'. Tawilan remains an anomaly as an unwalled plateau site, compared with, for example, Mu'allaq, which is walled. Other than its size, there is nothing to suggest Qurayyat al-Mansur's role as a customs post on the copper and incense trade route as proposed by Hübner (2004), despite its town wall and gate. We should not assume that the architectural works interpreted as

	Mountain top	Painted pottery	Piriform cisterns	Longhouses	Smaller buildings	Stronghold building	Defence walls
Umm al-Biyara	+	Some	+	+	-	-	-
as-Sadeh	+	Some	+	+	-	+	+
Ba'ja III	+	Much	+	-	+	-	+
Kh. al-Mu'allaq	-	Much	-	-	-	+	+
J. al-Qseir	+	No	+	+	+	-	+
J. al-Khubtha	+	?	-	-	?	-	-
J. as-Suffaha	+	?	+	-	+	+	+
Q. al-Mansur	+	Some	?	-	+	-	+
Tawilan	-	Much	-	-	+	-	-
al-Muzayr'a	-	Some	?	?	?	?	+
J. ash-Sharah	+	Some	?	-	+	-	+

Table 10.1. Archaeological characteristics of Iron II sites in the Greater Petra region

'fortifications' at these sites were primarily defence walls. In tribal, agropastoralist societies, there is evidence for walls being used to delineate territory, as windbreaks, to facilitate storage and, especially in mountain regions, to protect vulnerable parts of the slope with retaining walls (Bienkowski and Chlebik 1991, 151–62).

Nevertheless, many of the ideas concerning the nature and role of the mountain-top sites and their relationship with the plateau proposed by Lindner and Knauf (1997), and summarized above, retain their relevance. It is useful to place these ideas within the context of recent research on the social and economic organization of Edom and the other Transjordanian Iron Age kingdoms, which may help in the interpretation of how the landscape was used. The 'tribal kingdom' model, developed by LaBianca and Younker (1995), Younker (1997), LaBianca (1999), Knauf (1992), Knauf-Belleri (1995), Bienkowski and van der Steen (2001) and Bienkowski (2007; 2009), suggests that, historically, the basic unit of subsistence in the southern Levant is the tribe, which derived its unity not from a territorial identity but from a sense of extended kinship (for a working definition of 'tribe' in this region, see Bienkowski 2009, 16–19). The tribes in the Iron Age of the southern Levant would have been kin-based, partially range-tied and nomadic and partially land-tied and settled, with a mixed economy of pastoralism, agriculture, trade, protection and copper-mining, the balance changing according to circumstances. They would have had core areas but also moved around and negotiated movement across areas controlled by other tribes. They had relations with towns, nominal 'central' governments and imperial powers, but in practice they were independent – although clearly their ability to act 'independently' was constrained – and their affiliation ('identity') was to kin groups within the tribe, not to a 'kingdom'. Within such a model Edom was not a monolithic nation state, but a tribal kingdom composed of largely independent groupings held together by bonds of cooperation and allegiance to a supra-tribal monarchy at the so-called 'capital', Busayra, which was in fact probably more of a tribal centre (Bienkowski 2002, 480). Each tribe continued to control its own area and had its own power base, so that the relationship between tribes, and between Busayra and the other tribes, was heterarchical (horizontal) not hierarchical (vertical).

These tribal groups did not suddenly stop their pastoral migrations when political 'Edom' was formed – or, more accurately, when a monarchy was generated from the tribal coalitions. They continued to move independently and interacted with other groups from Arabia and the west. The tribal groups controlled and sometimes raided the incense trade between Arabia and the Mediterranean. The characteristic pottery of these different groups is found mixed together at the sites where they mingled, and much of it was probably manufactured at these sites; here they probably had grazing grounds and engaged in small-scale agriculture. Other archaeological correlates of this model include the decentralization of Edom, with widely varying settlement types and ceramic assemblages between different regions – the Petra area of southern Edom, for example, having a quite distinctive pattern of settlement.

Generally, the ceramic assemblage of southern Edom is demonstrably different from that of northern Edom, with much pottery from Busayra not showing parallels in the south and *vice versa* (Bienkowski 2002, 350). In that sense it is misleading and inaccurate to claim that the plateau sites in the Greater Petra area with painted pottery – such as Tawilan and Mu'allaq – are somehow more closely linked with the state administration at Busayra and with central control (*contra* Knauf in Lindner *et al*. 1996b, 162). There are very strong regional differences which support the heterarchy hypothesis and the lack of central control from Busayra: the key issue is why, within the Greater

Petra area itself, there are such marked differences between some sites with a typological repertoire largely restricted to storage and cooking and with little or no painted pottery, and others with a wider assemblage including fine decorated ware. As we have seen, these differences can no longer be easily correlated with site location on virtually inaccessible mountain tops.

If a wider assemblage of pottery – including painted wares – is to be correlated with 'table ware' (as Zeitler, e.g. 1992, 172, has argued), then it is very easy to propose that the sites without such an assemblage have a more restricted function, perhaps as temporary refuges or as seasonal sites occupied by pastoralists. However, differences in pottery assemblages need not be interpreted so simplistically. The differences between the two types of assemblage could also be a function of varying eating habits, different economic status (on the grounds that decorated pottery is more expensive to produce) or tribal tradition (painted pottery, or particular types of painted pottery, being characteristic of particular tribes or kin groups). Lindner and Knauf (1997, 262) doubt that most of these sites were permanently occupied. Certainly, Jabal al-Qseir has rock-cut foundations with no architectural remains, which may have been used as foundations for temporary dwellings such as tents or huts; but there is no reason to suppose that Umm al-Biyara was occupied on a temporary or seasonal basis – the architecture and extensive evidence for spinning and weaving suggest something more permanent than a temporary refuge or a seasonal pastoralist camp (see Chapter 3).

In a tribal society with a mixed economy of pastoralism, agriculture, viticulture, horticulture and trade, it is likely – perhaps even certain – that individual kin groups or even whole tribes would have lived together, and that each individual Iron Age site represents, at the very least, an extended kin group. The opposite case would be an anomaly, found only in developed urban contexts in which kinship structures have been broken apart by increased specialization, professional, economic and social hierarchies, and mobility. In a heterarchical tribal society in which relationships, allegiances and formal ties between kin groups, tribes, tribal confederations and the tribal kingdom are constantly shifting, it is unlikely that we need to identify distinct, fixed 'counterparts' between sites on the plateau and in the mountains, as Lindner and Knauf (1997) have suggested. These relationships, both social and economic, would have been constantly changing, for example in negotiations about the exchange of grain for milk or oil, or the use of mountain refuges for security, or safe passage through mountain valleys. Nor should we assume that all tribes were always permanently part of the supra-tribal kingdom of Edom: these allegiances would have shifted according to circumstances and opportunities. There is plenty of evidence for certain tribes remaining outside the purview of a 'tribal kingdom': examples include the 'Arab' tribes that were defeated in a series of battles throughout Edom, Moab and Ammon by their kings on behalf of the Assyrian king Ashurbanipal (Bienkowski 1992a, 4–5), or the Safaitic tribes that remained outside Nabataean hegemony later on (cited in Bienkowski and van der Steen 2001, 39).

Umm al-Biyara in its Iron II landscape context

What can we conclude from this exploration of the Greater Petra area in the Iron II period – the hinterland of Umm al-Biyara? Characteristic of the region are mountain-top sites, on sandstone within Petra, on limestone in the surrounding areas, barely accessible, with no direct access to spring water – cisterns are either rain-fed, or water has to be carried up to the summit from springs at the mountain base. These mountain sites are nevertheless situated among terraces and small fields that are suitable for small-scale agriculture, grazing, viticulture and horticulture. The people living on the mountain sites obtained grain and other products of agriculture – presumably by exchange – from sites on the plateau, with which they had a reciprocal, but shifting, relationship. Some of the buildings and installations at the mountain sites might be explained as secure storage areas, protecting food and other goods that were painstakingly acquired and carried up to the sites. Many of the mountain sites have a pottery assemblage largely restricted to cooking and storage (of liquid or grain), with little painted pottery. This lack of fine 'table ware' may reflect the function of these sites – some may have been temporary camps, although for most there is little to suggest they were not permanently occupied – but can also be explained in other ways: economic status, tribal tradition or culinary habits.

Each site was probably inhabited by discrete kin groups or tribes, which engaged in a mixed economy, perhaps also being involved in transporting, protecting or robbing the trade which came from Arabia, by the shores of the Red Sea, north in the direction of Busayra and then west towards the Mediterranean (Bienkowski and van der Steen 2001, 36–7). It is also likely that this area had always been inhabited by nomadic pastoralists who lived in tents and kept flocks of sheep (the Egyptian *Shasu*: Bienkowski and van der Steen 2001, 22–4), but who left little visible trace in the archaeological record prior to the late Iron Age. The question is: why did they therefore settle now, and on such inaccessible mountain tops? Lindner and Knauf (1997) are probably correct that the rapid settlement of Edom between the 8th and 6th centuries BCE, and the consequent expansion of agriculture and the need for viable fertile land, which was limited even on the plateau, forced pastoralist tribal groups into more marginal grazing grounds and land suitable only for viticulture or horticulture. Thus they settled in the mountains, their habitations becoming such a characteristic aspect of settlement in Edom that even the writers of the Hebrew Bible, who never visited the Petra region, knew that Edomites lived high up in 'the eagle's nest' and 'in the clefts of the rock' (see Chapter 1).

Notes

1. I am indebted to Dr John Powell of the British Geological Survey for his considerable assistance with the geological description here.
2. I thank Dr Khairieh ‘Amr of The Jordan Museum for drawing this site to my attention and allowing me to cite hitherto unpublished data about it.

11. Nabataean Structures on Top of Umm al-Biyara

Stephan G. Schmid

Nabataean structures on top of Umm al-Biyara received little attention before the mid-20th century. For example, Brünnow and von Domaszewski consider only rock-cut structures on the east flank of Umm al-Biyara (Brünnow and Domaszewski 1904, 295 nos 355–7 [misleadingly named 'el Habis']). The same is true for G. Dalman, who treats three 'sanctuaries' under Umm al-Biyara in a more detailed way, but, as is clearly indicated by the subtitle of the chapter and by the descriptions, these are structures on the terraces beneath the plateau and not on top of the plateau (no. 1 on Figure 11.1) (Dalman 1907, 226–9; these structures on the so-called northern terrace have been dealt with in detail by Lindner 1997, 293–303). It was with Nelson Glueck's visits to the site in the 1930s that the plateau of Umm al-Biyara was more intensively investigated, although not so much for the Nabataean remains but rather for the Iron Age pottery that was collected there (Glueck 1935, 82). From that moment on, the question of whether Umm al-Biyara was the rock of Edom became a major issue mostly for Iron Age archaeologists (see Chapter 1).

Figure 11.1. Umm al-Biyara seen from the west. (S. G. Schmid)

In 1955, an expedition organized by the American Schools of Oriental Research at Jerusalem conducted, among other activities, a detailed survey and a few soundings on top of Umm al-Biyara (Morton 1956). William Morton (1956, 29) was able to make some valuable observations regarding Nabataean structures on the site. For example, he observed that Nabataean pottery was mainly to be found on the north-eastern sector of the plateau, and concluded that 'this is the area commanding the best view of the city enclosure below and in which are concentrated practically all of the foundation lines of Nabataean buildings'. He counted about 13 different buildings that he considered being of Nabataean date on several terraces in that specific area. His attention was particularly caught by a huge rectangular structure on the very edge of the north-eastern promontory of the plateau (for the location see the arrow on Figure 11.1) (Morton 1956, 30–1). He described three steps at the end of that building, obviously leading into nowhere right across the cliff, and proposed that the structure initially extended further in that direction, using foundational walls that had since broken away. A substantial block with architectural decoration led to the presumption of a richly decorated building going far beyond 'a temporary refuge for the aged and for women and children as reported in the account of Diodorus'. Finally, Morton suggested a date within the 1st century CE and a function as an 'officially staffed stronghold and observation post, perhaps with provision for ritual observance' (Morton 1956, 31).

From 1960 to 1965 Crystal-M. Bennett spent considerable time and energy in exploring the peak of Umm al-Biyara. Although the Iron Age settlement, the main subject of the present book, was clearly her focus, on several occasions Nabataean remains are dealt with in

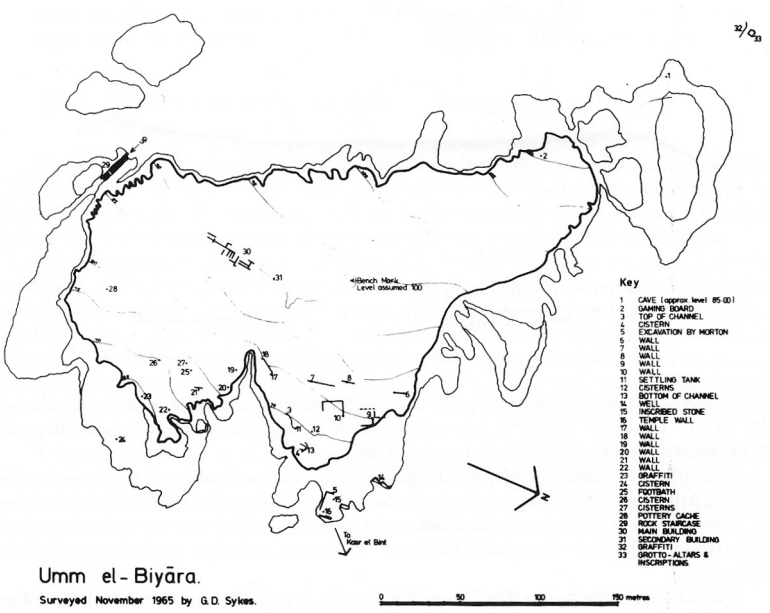


Figure 11.2. Umm al-Biyara: general plan of plateau. (From Bennett 1980)

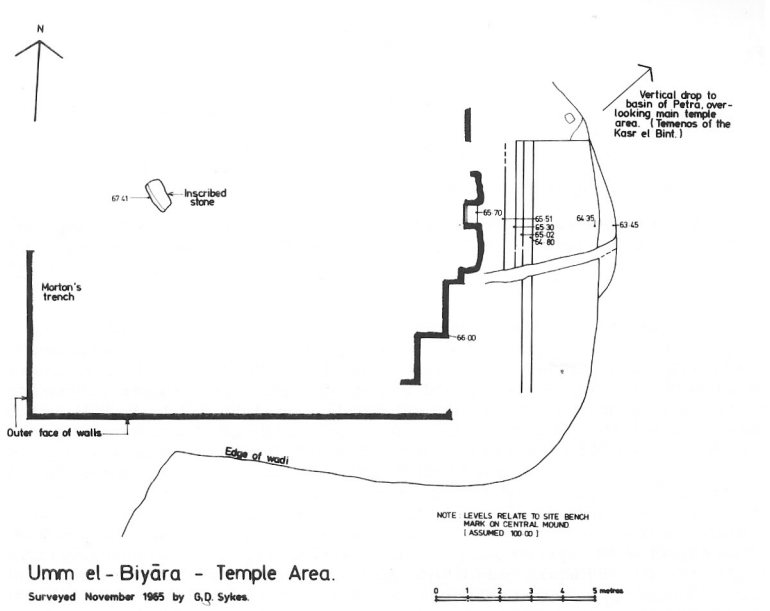


Figure 11.3. Umm al-Biyara: plan of Nabataean structures on north-east edge of plateau. (From Bennett 1980)

preliminary reports. For instance, in an article in 1966, the huge structure described by Morton is illustrated and referred to as 'a building that may have been a small temple, but has been amputated from its fore part by an earthquake or some other catastrophe'.[1] In 1980 Bennett published a short report on Nabataean Umm al-Biyara in which the structures observed by Morton are published as ground plans (see here Figures 11.2 and 11.3), interpreted as connected with the Qasr al-Bint and, therefore, ascribed a religious function.[2]

More recently, scholars mostly abstained from a too precise interpretation of the Nabataean structures on the north-eastern edge of Umm al-Biyara. For example, Ian Browing remains cautious as to any identification of the aforementioned Nabataean ruins.[3] Manfred Lindner, one of the most intimate connoisseurs of the topography of Petra, had in mind a temple or a palace when looking at the Nabataean structures on top of Umm al-Biyara (Lindner 1997, 44). Clearly, the point made by Browning remains valid: that is, that no definite answer can be given before the site has been excavated in some detail.

Such excavations are planned as a follow-up project to the present study, in order to complete work on Umm al-Biyara. For the time being, two main objectives for that project can be formulated: finding out more about the exact date and function of the Nabataean structure(s)

Figure 11.4. Petra: city centre seen from top of Umm al-Biyara. 1: al-Habis, 2: South temple, 3: Palace Tomb. (S. G. Schmid)

Figure 11.6. Petra: plateau of Umm al-Biyara from the Wadi Musa-Taybeh-street. (S. G. Schmid)

Figure 11.5.Umm al-Biyara: view from Nabataean building (centre right) over the city centre and upper parts of Wadi Musa. (S. G. Schmid)

Figure 11.7. Petra: Nabataean structures on north-east edge of Umm al-Biyara seen from Jabal Nmeir. (S. G. Schmid)

observed by previous research, mostly concentrating on the north-eastern edge of the plateau; and verifying whether or not there is continuity between the Iron Age occupation and the known Nabataean structures that seem to date no earlier then the later 1st century BCE (see below). In order to prepare these objectives, a few observations can be added that are likely to turn the focus in a slightly different direction from that of Morton and Bennett. These observations were inspired by several visits to the site by the present writer and reflect the generally increased knowledge about Nabataean material culture as compared with the state of understanding in the mid 20th century.

A consideration of the arguments made by Morton and Bennett in favour of a religious – temple – function for the Nabataean structures on the north-east tip of the plateau of Umm al-Biyara reveals that the only elements mentioned in support of this interpretation were the building's supposed huge size and presumed orientation towards the city's main sanctuary of Qasr al-Bint (see above). In particular, Bennett stressed the latter, which, in her opinion, made a functional connection between the two likely.[4] Upon verification it turned out, however, that the Qasr al-Bint is in fact not visible from the spot of the presumed temple, since the hill of al-Habis is obstructing the view (Figure 11.4). Furthermore, the orientation of the walls that were ascribed to the presumed temple, in so far as they are visible and were mapped by G. D. Sykes in 1965, follows an almost perfect west–east alignment (see here Figures 11.2 and 11.3). Therefore, their orientation differs about 45° from the direction where the Qasr al-Bint is located. Aside from the fact that the Nabataeans had a well-known tendency for using elevated spots in order to worship their gods, there is no archaeological indication for such a religious function for the structures dealt with here. The orientation and location of the building are clearly to be seen in connection with the topography of the area. In other words, the spot was chosen because it offers the best view across Petra, El-Ji and the surrounding area (Figure 11.5). Similarly, that building, whatever it was, was visible from all over the city centre and the surrounding areas (Figures 11.6 and 11.7). Its west–east orientation is dependent on the promontory on which it is built. Clearly, the aim was to push the structure as far as possible towards the edge in order to maximize its visibility as defined above.

Figure 11.8. Umm al-Biyara: Nabataean structures on north-east edge with ruined floor slabs overlooking city centre. (S. G. Schmid)

Figure 11.9. Umm al-Biyara: Nabataean structures on north-east edge with debris following illicit excavation. (S. G. Schmid)

Figure 11.10.Umm al-Biyara: hypocaust and tubuli fragments from Nabataean building on north-east edge. (S. G. Schmid)

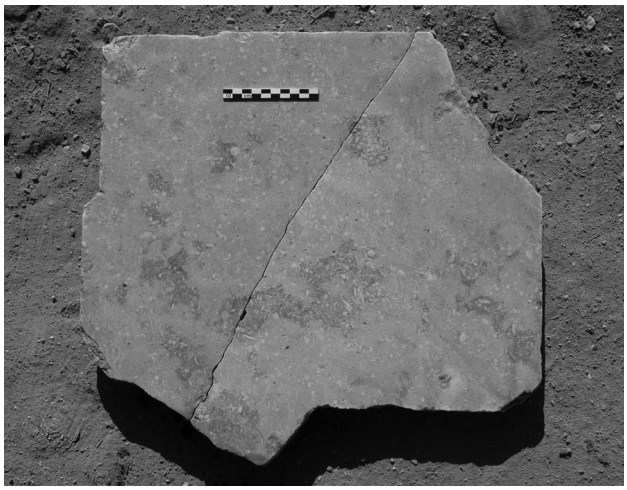


Figure 11.11. Umm al-Biyara: fragments of floor slabs of limestone with shell inclusions from Nabataean building on north-east edge. (S. G. Schmid)

During several visits in 2005 and 2006 the following observations were made, putting the structure into a completely different context, one closely related to Nabataean luxury architecture. Although the exact plan and extension of the building under study are not clear, it must have been a substantial structure extending over several levels and built onto the very edge of the hilltop, prominently overlooking the city centre of Petra (Figures 11.4, 11.5 and 11.8). A few rooms are partially exposed, probably following illicit excavation: the present writer's last visit (prior to 2005) to Umm al-Biyara was in the early 1990s, when most of the rooms mentioned in this chapter had not yet been uncovered. These illegal activities added a substantial new element to the understanding of the Nabataean structures. The scattered debris indicates that one or several rooms were equipped with hypocaust and wall heating systems (Figures 11.9 and 11.10). Although these rooms are not too far away from, and on a slightly lower level than, the row of cisterns on the south-eastern ridge of the plateau, a direct connection was not observed. Therefore, it must remain open for the time being whether we are dealing with simply heated rooms or with heated rooms in connection with bathing installations.

Some partially exposed floors still show sandstone slabs *in situ* (Figure 11.8). However, there must have been more luxurious floor variants. On several occasions fragments of carefully cut slabs made of a fine limestone with shell inclusions were found (Figure 11.11). Especially when wet, these slabs appear very decorative and it can be suggested that they were used to lay out rooms for specific purposes that are as yet unclear.

Small fragments of marble and alabaster slabs show that the interior of the building must once have been lavishly decorated (Figure 11.12). Pottery and lamps are scattered all over the area, indicating an occupation of the building

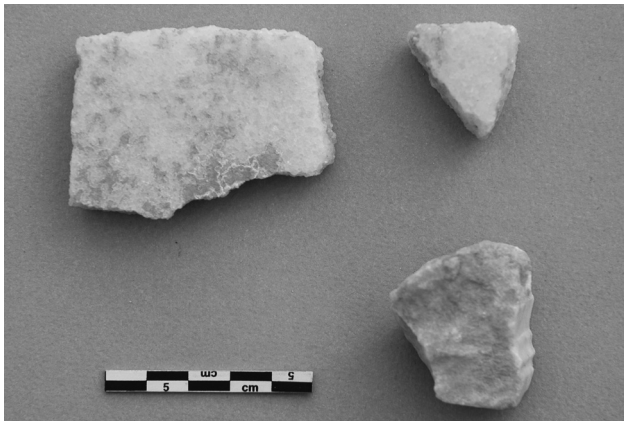


Figure 11.12. Umm al-Biyara: fragments of marble and alabaster slabs from Nabataean building on north-east edge. (S. G. Schmid)

Figure 11.13. Umm al-Biyara: fragments of Nabataean and Roman-type lamps from Nabataean building on north-east edge. (S. G. Schmid)

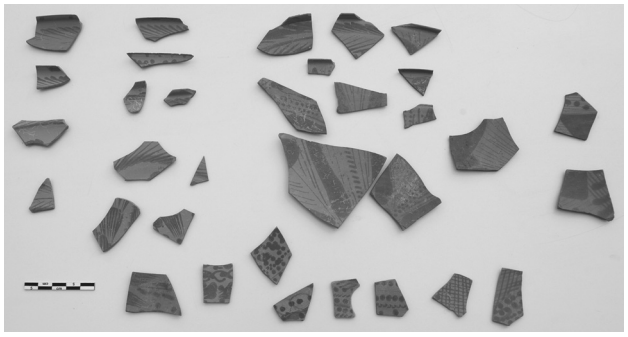


Figure 11.14. Umm al-Biyara: fragments of painted fine ware from Nabataean building on north-east edge. (S. G. Schmid)

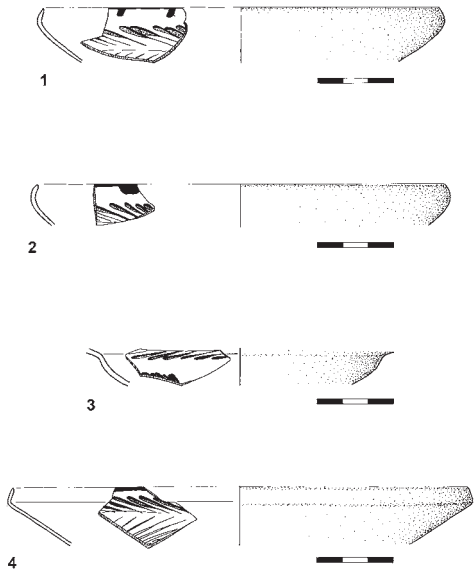


Figure 11.15. Umm al-Biyara: drawings of painted fine ware from Nabataean building on north-east edge. (M. Dehner, S. G. Schmid)

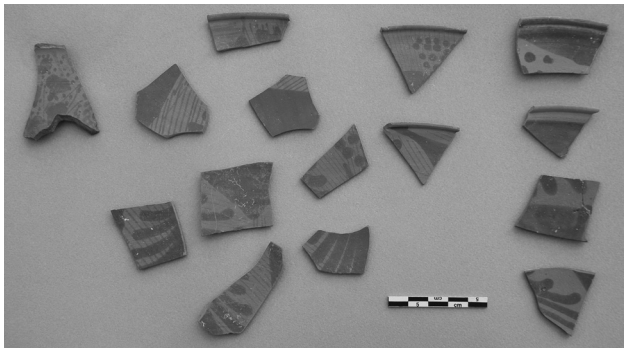


Figure 11.16. Umm al-Biyara: fragments of painted fine ware from Nabataean building on north-east edge. (S. G. Schmid)

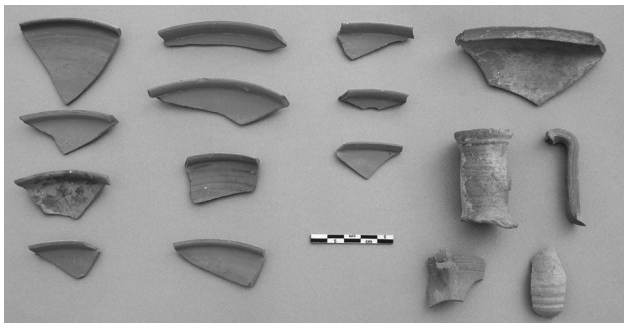


Figure 11.17. Umm al-Biyara: fragments of plain fine ware from Nabataean building on north-east edge. (S. G. Schmid)

from the last quarter of the 1st century BCE until the end of the 1st century CE or the beginning of the 2nd century CE. The many fragments of lamps include Nabataean-type lamps, so-called Negev type 1 lamps, as well as Roman-type lamps, some of them with figural decoration (Figure 11.13). Good parallels for most of the lamps illustrated here can be found in Grawehr 2006. Pottery fragments covering the whole range of Nabataean pottery production, such as painted fine ware (Figures 11.14–11.16), plain fine ware (Figures 11.17–11.19) and coarse ware, mostly cooking pots (Figures 11.20–11.22), are also abundant.[5] The earliest evidence so far registered comes from a few sherds belonging to phase 2b of Nabataean fine ware and, therefore, to the last quarter of the 1st century BCE.[6]

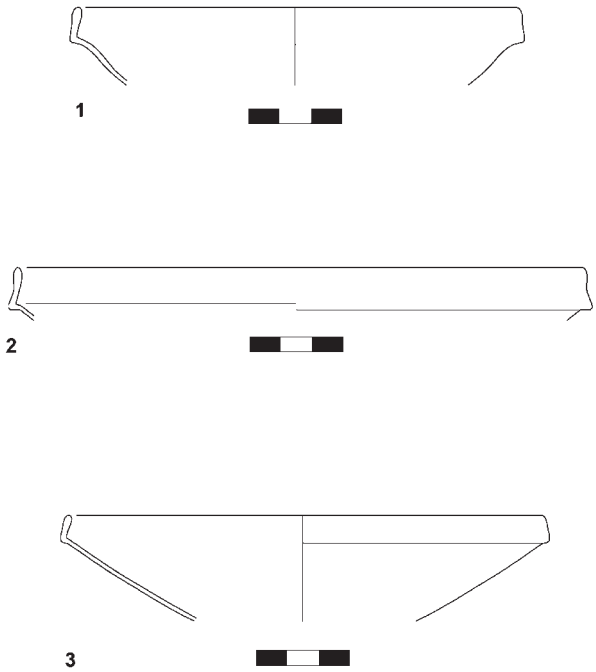


Figure 11.18. Umm al-Biyara: drawings of plain fine ware from Nabataean building on north-east edge. (M. Dehner, S. G. Schmid)

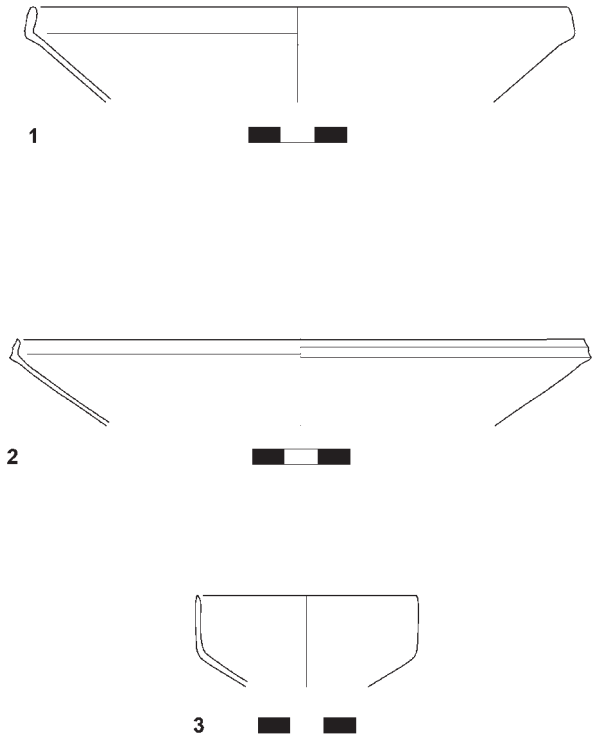


Figure 11.19. Umm al-Biyara: drawings of plain fine ware from Nabataean building on north-east edge. (M. Dehner, S. G. Schmid)

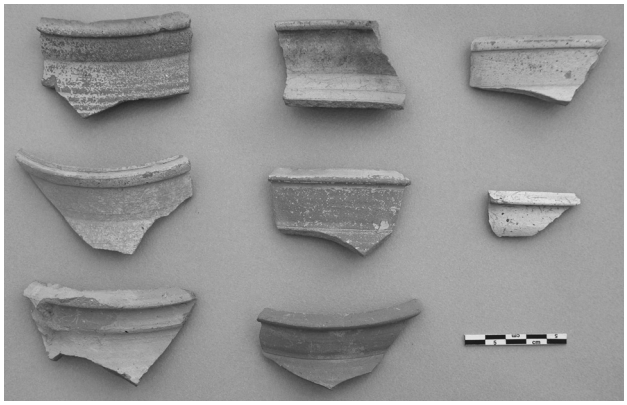


Figure 11.20. Umm al-Biyara: fragments of coarse ware from Nabataean building on north-east edge. (S. G. Schmid)

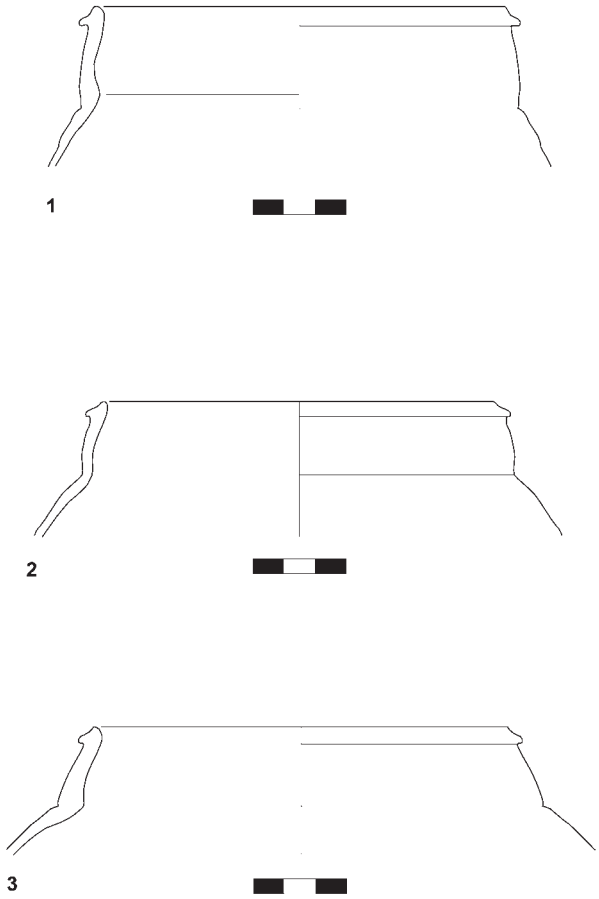


Figure 11.21. Umm al-Biyara: drawings of coarse ware from Nabataean building on north-east edge. (M. Dehner, S. G. Schmid)

Since the work of Morton, who indicated one architectural block with mouldings (Figure 11.23), two blocks with Erotes holding garlands have been reported from the same spot (see, for instance, Lindner 1997, 44 with fig. 6). The larger of the two is still on site (Figure 11.24), while the smaller one could not be located in 2005 and 2006. It would seem desirable to move the remaining one, one of the finest sculpted blocks from the Nabataean realm, down to the museum in order to guarantee its preservation. In addition, in the scattered remains of the

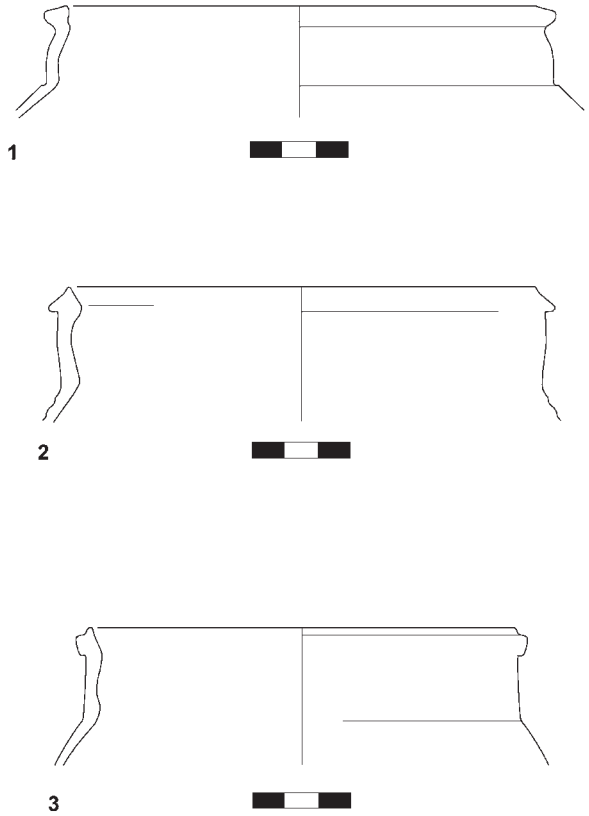


Figure 11.22. Umm al-Biyara: drawings of coarse ware from Nabataean building on north-east edge. (M. Dehner, S. G. Schmid)

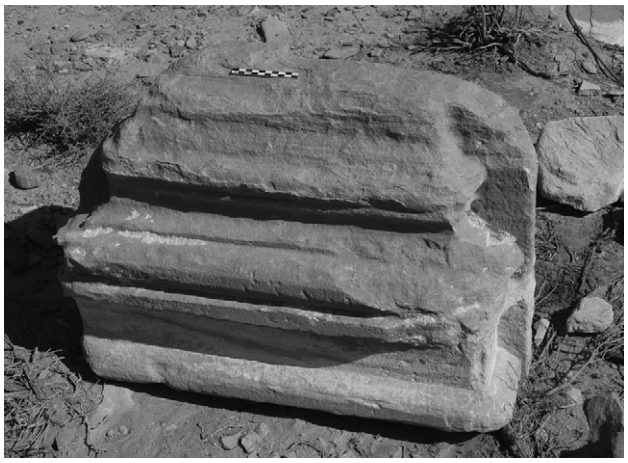


Figure 11.23. Umm al-Biyara: fragment of architectural decoration from Nabataean building on north-east edge. (S. G. Schmid)

Figure 11.24. Umm al-Biyara: fragment of architectural decoration from Nabataean building on north-east edge. (S. G. Schmid)

Figure 11.25. Umm al-Biyara: Nabataean building on north-east edge with debris floating down the cliff. (S. G. Schmid)

huge building, partially fallen into two small couloirs leading towards the cliff, several more fragments of richly decorated architecture can be observed (Figure 11.25). To these belong fragments of sculpted scrolls (Figure 11.26) as well as a fragment of a Nabataean capital (Figure 11.27); others include parts of moulded architraves (Figure 11.28) and fragments of moulded pillar bases.

These architectural remains show close similarities with blocks from the northern terrace beneath the plateau of Umm al-Biyara (for location see no. 1 on Figure 11.1; Dalman 1907, 226–9; Lindner 1997, 293–303). This important spot, situated on a strategic point of the track leading to the peak, shares some general common characteristics with the structure under investigation. There, too, massive retaining walls indicate that the surface for construction was artificially enlarged in order to build virtually beyond

Figure 11.26. Umm al-Biyara: fragment of architectural decoration from Nabataean building on north-east edge. (S. G. Schmid)

Figure 11.27. Umm al-Biyara: fragment of Nabataean capital from Nabataean building on north-east edge. (S. G. Schmid)

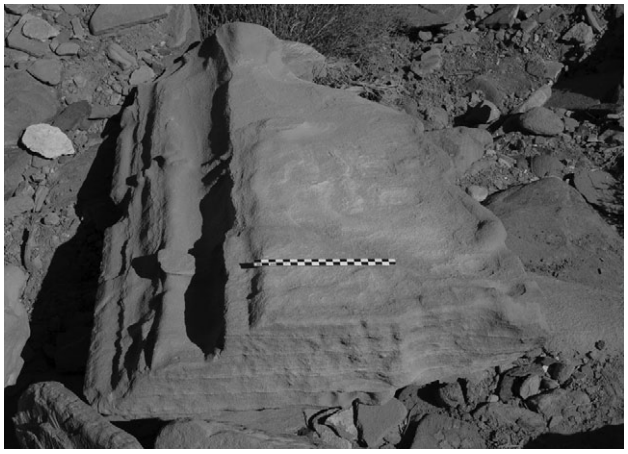


Figure 11.28. Umm al-Biyara: fragment of architrave from Nabataean building on north-east edge. (S. G. Schmid)

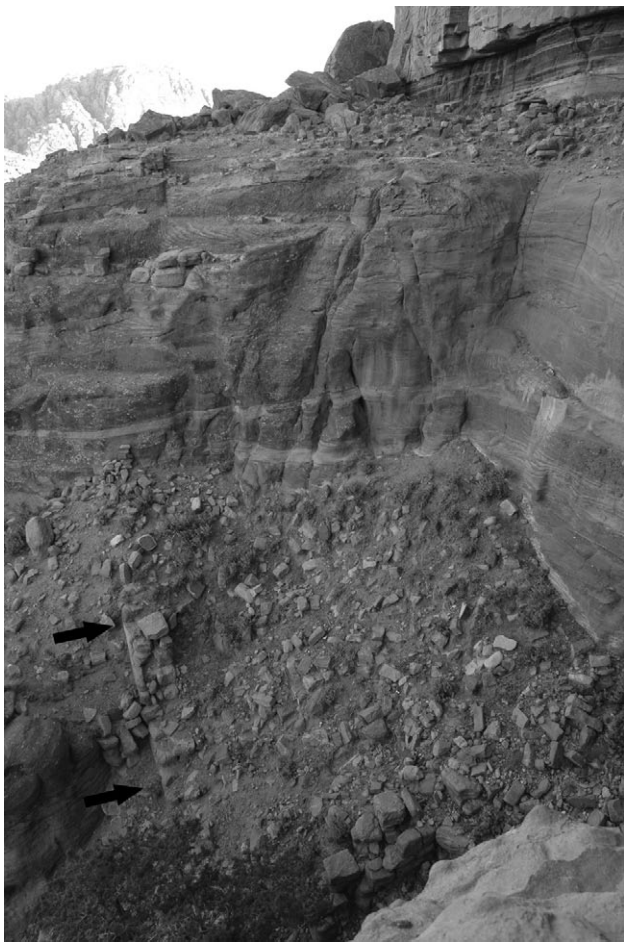


Figure 11.29. Umm al-Biyara: retaining wall and debris from Nabataean building on the northern terrace beneath the summit. (S. G. Schmid)

Figure 11.30. Umm al-Biyara: marble fragment from Nabataean building on the northern terrace beneath the summit. (S. G. Schmid)

the cliff of Umm al-Biyara (Figure 11.29). As on top of the plateau, lavishly decorated structures are indicated, according to fragments of imported white marble (Figures 11.30 and 11.31) and architectural decoration (Figures 11.32 and 11.33) (see also Lindner 1997, figs 12 and 14). The general Nabataean date of these elements requires

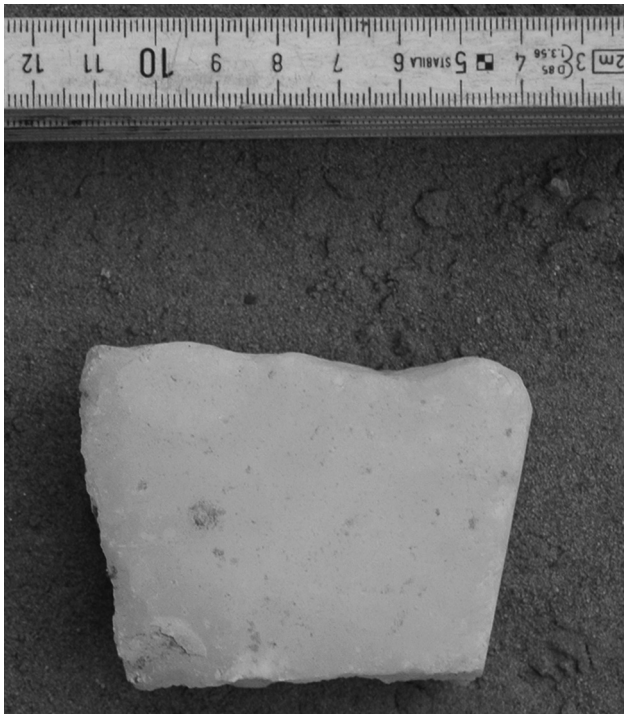


Figure 11.31. Umm al-Biyara: marble fragment from Nabataean building on the northern terrace beneath the summit. (S. G. Schmid)

Figure 11.32. Umm al-Biyara: architrave fragment from Nabataean building on the northern terrace beneath the summit. (S. G. Schmid)

Figure 11.33. Umm al-Biyara: pilaster capital from Nabataean building on the northern terrace beneath the summit. (S. G. Schmid)

Figure 11.34. Umm al-Biyara: pottery from Nabataean building on the northern terrace beneath the summit. (S. G. Schmid)

no specific argument and is confirmed by the masses of Nabataean pottery lying around in the debris all over this area (Figure 11.34). Although some of these elements may in fact have fallen from the plateau above, the built walls and rock-cut structures clearly indicate the existence of important structures on the spot of the northern terrace. Lindner, who carried out the most detailed work on these structures, is cautious in defining their exact function, stressing, however, the possibility that they were used as a secondary or temporary residence of a prominent personality of the Nabataean hierarchy (Lindner 1997, 302).

In any case, it appears increasingly as if the north-eastern part of the entire hill of Umm al-Biyara – that part, *nota bene*, that was the most visible from the city centre – was subject to an important building programme during the decades immediately before and after the turning of the eras. Given the importance of the site in general terms, it would seem more than surprising if any private person could build on the flank and on top of that rock.

Figure 11.35. Umm al-Biyara: view towards upper storey of ad-Dayr from Nabataean building on north-east edge. (S. G. Schmid)

Although it is not yet possible to obtain a more precise picture of the Nabataean installation on top of Umm al-Biyara, several elements can be discerned. From the late 1st century BCE onwards a huge building occupied the most prominent spot on top of Umm al-Biyara, dominating the whole city of Petra.[7] We may add one more element in relation to the prominent location of that monument. Interestingly, it is precisely from this spot that the upper storey of ad-Dayr is visible (Figure 11.35): this is one of the most prominent rock-cut façades of Petra, supposedly dating to the late 1st or early 2nd century CE (McKenzie 1990, 159–61; Schmid 2000a). Even from a few metres away from this spot, as well as from the rest of Umm al-Biyara, ad-Dayr is no longer visible since major elevations obstruct the view. This connection may be pure coincidence, but it is worth noting.

Richly decorated with marble and alabaster slabs, the Nabataean installation on Umm al-Biyara also featured some elements of particular luxury, namely heated rooms.[8] At the time of their supposed construction – that is, not earlier than the late 1st century BCE, and probably during the 1st century CE, according to the pottery found together with the hypocaust fragments, and to results from other hypocausts at Petra – heated rooms *per se* may no longer have been a luxury item of particular note: hypocaust heating systems were a typical Roman invention that were adopted for the first time in the Near East in the palaces built by Herod the Great and quickly spread over the area, including to Nabataean buildings at Petra (for similar heating systems in the Nabataean and Herodian realm, see Kolb and Keller 2001, 319; Kolb and Keller 2000, 361–3; Netzer 1999; and in a wider context Hoss 2005). However, the fact that they are situated on top of the highest elevation in the region makes them outstanding, since every single twig that was burned in their *praefurnia* needed to be carried up the hill. It is precisely that ostentatious demonstration of wealth that places this Nabataean building in a close relationship with some of Herod's hilltop palaces (for these matters in a wider context see Schmid 2009). In the hilltop palaces of Masada, Herodeion, Kypros and Machaerus heated rooms, usually as part of Roman-style *thermae*, are an outstanding characteristic (Netzer 2001; Japp 2000; Lichtenberger 1999; Roller 1998; Nielsen 1994, 181–208). We can assume that not only were these installations known to the Nabataean upper class,[9] but that they, especially the palace at Machaerus, situated on the eastern shore of the Dead Sea, must have been in many ways a provocation to the Nabataeans. It seems, therefore, perfectly appropriate to suggest that the building on top of Umm al-Biyara consisted of something like the Nabataean response to the Herodian hilltop palaces.[10] That it has to be a building out of the ordinary is further suggested by the general geo-strategic situation of Umm al-Biyara. Irrespective of whether Umm al-Biyara is the 'rock' of the Nabataeans reported for the year 312/311 BCE by Diodorus (Diod. 2, 48, 6; 19, 95, 1–19, 98, 1; Hackl *et al.* 2003, 432–3, 439–53), by the late 1st century BCE and the 1st century CE Umm al-Biyara must have been sufficiently important that construction there was restricted to the social elite. The structure under consideration must result from building activities that were at least authorized by the Nabataean kings, if not directly organized and supervised by them.

Although seemingly in accordance with the archaeological record as far as it is available, the present hypothesis has to be considered with the same caveats as previous ones noted above. In other words, only new fieldwork can contribute to a more precise picture. In any case, even if the present hypothesis about the Nabataean structure on the north-eastern edge of the plateau of Umm al-Biyara being a royal residence should turn out to be justified, it is clear that this cannot be the main residence of the Nabataean kings, the *basileia*. That building, at least from the time of Aretas III, must be sought within the city of Petra, as indicated by Josephus, *Ant*. 14, 1, 4.[11]

Notes

1. Bennett 1966c: '(…), y compris un bâtiment qui peut avoir été un petit temple, mais qui a été amputé de son avant-corps par un tremblement de terre ou quelque autre catastrophe'; in the caption to her fig. 4, a picture of the rock-cut steps leading nowhere as described by Morton, the structure is called 'a Nabataean temple'.
2. Bennett 1980, 211: 'Its dominating position, overlooking the main street of Petra and the Temenos of the Temple of the so-called Qasr el Bint, suggest that it might have had some connection with the latter, which was the major Graeco-Nabataean temple in Petra'; in the caption to Bennett 1980, fig. 3, the building is called 'a possible important Nabataean temple'. Strangely, there is no mention of Morton's article despite the fact that his trench is indicated on the plan on fig. 3.
3. Browning 1989, 185: 'It has been suggested that this was the site of a temple (…). Until the site has been excavated it would be vain to speculate on why these steps were so perilously sited.'
4. Qasr al-Bint is indicated on both plans – the overall plan of

the plateau of Umm al-Biyara and the sketch of the building under consideration: Bennett 1980, 209 fig. 1; 211 fig. 3; cf. here Figures 11.2 and 11.3.

5. Nabataean fine ware (painted and plain) identification and chronology according to Schmid 2000b; parallels for the coarse ware illustrated on Figures 11.20–22 can be found in Lindner *et al*. 2007; Gerber 1996.
6. Left on Figure 11.14; in particular the small body fragment no. 3 on Figure 11.15 (= third from the top on the left row on Figure 11.14) with the additional step in the vessel's body can be clearly assigned to that phase and was in use only during a very short time: cf. Schmid 2000b, 28 (type E 2b 16b), 38, 148–9.
7. As indicated above, the visibility is an argument that works in both directions. Not only is the whole of Petra (and the upper part of Wadi Musa where the ancient village of El-Ji has to be located, cf. Figure 11.5) visible from that spot on Umm al-Biyara, but that building is prominently visible from across the city (see Figures 11.1, 11.6 and 11.7). Besides the visual connection, one has also to bear in mind means of audio-communication. Owing to its position, on top of Umm al-Biyara people speaking loudly inside the Urn Tomb can be understood! Car horns and similar sounds from the upper parts of Wadi Musa – corresponding to ancient El-Ji – can be heard without difficulty. These are further elements confirming the importance of Umm al-Biyara in terms of representation as well as strategic value.
8. No precise chronology for these rooms can be obtained without more intensive investigation. According to the pottery from that area, they should belong to the 1st century CE. This would perfectly fit the information about hypocaust heating from other Nabataean buildings (see references in text).
9. Despite occasional disputes that even led to military conflict, Nabataeans and Herodians were otherwise closely tied, including family relations. It seems more than likely that the plan and appearance of the palaces and residences must have been known to the respective neighbours; see in more detail Schmid 2009.
10. It cannot be excluded, of course, that the Nabataeans had more than one such luxury installation built on prominent landmarks. It would be interesting in that context to examine more closely the structures on top of as-Sela near Busayra; cf. Wenning 1987, 86–7; Lindner *et al*. 2001; Lindner 1989a.
11. '(…) Πέτραν, όπου τα βασίλεια ην τω Αρέτα'; on this see some further thoughts in Schmid 2009.

12. Conclusions

Piotr Bienkowski

Overview of site

The Iron Age site on Umm al-Biyara, the highest mountain inside Petra, lies near the centre of the summit. Excavations between 1960 and 1965 by Crystal-M. Bennett uncovered *c.*700 sq m, between one-third and a half of the whole settlement. Chapters 1 and 2 have highlighted problems relating to its excavation, recording and analysis. Nevertheless, its stratigraphy appears relatively straightforward: essentially, it is a one-phase site, with only limited rebuilding in a later phase. Although the excavation archive is deficient, and certain loci are inadequately described, if at all, this does not seriously affect our overall understanding of the site.

In most trenches there was evidence of only one phase of occupation. The typical sequence seems to be bedrock (Phase 0), occupation on bedrock or on a surface contemporary with the buildings (Phase 1), and collapse and/or accumulation/abandonment (Phase 3). There was a further occupation layer in some trenches, where the original Phase 1 walls had been re-used with a later surface (Phase 2), which may have followed a localized fire in that area.

Phase 0

The sandstone bedrock slopes from east to west across the plateau. Most Phase 1 deposits were laid directly on bedrock, which was occasionally packed or cut to create an even surface. The excavations reached bedrock in most trenches, usually at a depth of only 1 m from topsoil, so all the anthropomorphic deposits at the site are very shallow.

Phase 1

This was the main phase of building and occupation at Umm al-Biyara. The majority of walls, associated surface deposits and finds are attributed to this phase.

The architecture constructed in Phase 1 is a network of small rectangular drystone rooms grouped around a discontinuous main north–south spine wall with a terminal stone at the south end. The spine wall was constructed in different stages, as it was apparently used as a central axis from which rooms could branch out and so was added to as the structures expanded. The rooms to either side either lead off from the spine wall or run parallel to it. It was difficult to identify discrete 'houses'; the walls are arranged into long corridor rooms with smaller rooms leading off, giving the impression of a maze.

Surfaces are on bedrock, slate or clay packing. Some walls were constructed within foundation trenches, but the majority were directly on bedrock. Walls were constructed mainly of local sandstone, and were on average 0.5 m thick, thickening out at doorways. The builders made use of pillars to strengthen the partition walls and also possibly as roof supports, where they were 0.15–0.2 m thick. Some walls survived to a height of 2 m. In most rooms there was no evidence of any form of plastering, with the exception of two areas (A.XLVIII and A.L/LI) where both walls and floors were coated with a white lime plaster. A variety of other features were discovered, including an oven, doorways, pillars and possible roof slabs.

The original excavator, Crystal Bennett, interpreted evidence of burning within Phase 1 as evidence of a widespread fire that destroyed the entire site. However, evidence of fire in Phase 1 loci – on bedrock or the earliest surfaces – including fragments of burnt roof beams, is localized, and may be better interpreted as traces of burning events in particular areas rather than a widespread destruction by fire. Only in one part of the site (Room 22 and immediately to the south) was burning followed by a new surface (Phase 2).

Phase 2

'Phase 2' refers to scattered rebuilding and new surfaces in parts of the site, but always re-using the existing Phase 1 walls. The pottery repertoire is unchanged, and there is nothing to suggest that this is actually an overall new 'phase' of occupation. It is most likely that 'Phase 2' building activities in discrete parts of the site were contemporary with continued Phase 1 occupation elsewhere.

Phase 3

This is an episode consisting of collapse, abandonment and the accumulation of debris.

Dating

The broad date of occupation at the site has been established through the inscribed bulla of Qos-Gabr, the style and symbolism of the Neo-Babylonian bulla (Chapter 5), the palaeography of the ostracon (Chapter 6), and the pottery (Chapter 4).

The bulla inscribed 'belonging to Qos-Gabr, king of Edom' has been dated on palaeographic grounds to the first three-quarters of the 7th century BCE. It is possible, though not certain, that the name is the same as the *Qaušgabri*, king of Edom, known from the annals of Esarhaddon (dated 673 BCE) and Ashurbanipal (dated 667 BCE), which would provide a more precise date. The identification is plausible, but it cannot be discounted that the bulla refers to another Qos-Gabr, king of Edom, later in the 7th century BCE, since no names of kings of Edom are attested in the Assyrian annals after 667 BCE.

This bulla's significance for dating purposes derives from its find location in a stratified context, a Phase 1 context in a layer of burnt earth, wood and soot (A.XLI.10) overlying bedrock. This was sealed by another burnt level (A.XLI.9) that contained pottery and a burnt spindle whorl. Although seals themselves often became heirlooms, and can be found in contexts later than those of their manufacture, it is rarely the case with bullae, and particularly one with such a rare name. We can be confident, therefore, that the Qos-Gabr bulla dates Phase 1 within the first three-quarters of the 7th century BCE.

The Neo-Babylonian bulla bears symbols of the Neo-Babylonian gods Marduk and Nabu, and it has been suggested that it is a provincial imitation of a 6th-century BCE Neo-Babylonian seal. Although its stratigraphic context is not absolutely certain, it was found almost directly on bedrock in a localized burnt layer, and can most probably be ascribed to Phase 1. The palaeography of the ostracon, a delivery note written on a jar, dates it to the 7th century BCE.

This dating from the two bullae and the ostracon is broadly confirmed by the pottery, which has parallels from Transjordan and Palestine dating to late Iron II, the 7th and 6th centuries BCE, but nothing that points to an earlier date. Nevertheless, we must be cautious about circular reasoning here. The chronological datum for dating Iron Age sites in Edom, and their associated pottery, has always been the Qos-Gabr bulla (e.g. Bennett and Bienkowski 1995, 102): we cannot therefore use pottery parallels from elsewhere in Edom uncritically by claiming that they support the dating from the bulla, since their dating was originally established by the bulla! Nevertheless, parallels from outside Edom – elsewhere in Transjordan and in Palestine – confirm the late Iron II date in the 7th and 6th centuries BCE. Unlike at Busayra (Bienkowski 2002, 350–1), there is nothing at Umm al-Biyara to indicate a later date, into the Persian or Hellenistic periods. However, it must be acknowledged that the late Iron II pottery from Edom that came from other sites (e.g. Busayra), and indeed elsewhere in Transjordan, continues virtually unchanged though the Persian period, with the probable addition of new forms but no discernible break between the periods. We cannot discount that the pottery from Umm al-Biyara might also have continued virtually unchanged into the Persian period, but unlike at Busayra there are no new forms to suggest this, nor any complex stratigraphy and deep deposits that might suggest a long-lived settlement. If we have confidence in the dating provided by the bullae, we can date Umm al-Biyara Phase 1 to the 7th and 6th centuries BCE.

As noted above, Phase 2 is not really a separate chronological phase, but merely rebuilding and new surfaces in localized parts of the site, re-using existing Phase 1 walls. It is likely to be contemporary with continuing Phase 1 occupation in other parts of the site. Crucially, the 'Phase 2' pottery is identical to that of Phase 1, and can therefore also be dated within the 7th and 6th centuries BCE. In her preliminary report, Bennett (1966a, 382–3, 402) implied that Phase 2 might date to the Hellenistic period, but only late Iron II sherds were found in Phase 2 contexts. Bennett (1966a, 383) specifically refers to a large sherd of a Hellenistic bowl found *in situ* in a door blocking in the extension to trench A.XIII. However, this 'Hellenistic bowl' was not drawn or photographed, and I have not been able to identify it in the excavation archive: it may well be that Bennett misidentified it, since at the time of her excavations relatively little was known about the Iron Age pottery of the region, and especially the finer wares which became well known only later from her excavations at Busayra.

Phase 3 reflects collapse, abandonment and accumulation, and contains no pottery which is different from that of Phases 1 and 2. Bennett (1966a) referred to possible Hellenistic sherds in the post-occupation levels, but none have been identified in the excavation archive. It is possible that she either misidentified 'Hellenistic' pottery, or that she was referring to Nabataean forms, since Nabataean sherds were found in topsoil layers. The presence of Nabataean pottery on the surface of Umm al-Biyara is not surprising, given the use and importance of the mountain in the Nabataean period (see Chapter 11), but there is no evidence at all that the Iron II settlement was re-used in Nabataean times.

The evidence suggests that the Iron II settlement (Phases 1–3) was constructed, used and abandoned during the 7th and 6th centuries BCE.

The nature and role of Umm al-Biyara

Umm al-Biyara is a natural stronghold, difficult to access. It is likely that during the Iron Age the only access was by means of an extremely steep, twisting and dangerous trail. The sandstone summit is either bare or covered with sandy, rocky soil. The sparse desert vegetation comprises juniper, *Pistacia*, wormwood, broom, desert sage, sea squill and *Phlomis*. Ancient charcoals discovered in the excavations were analysed as *Juniperus* sp., *Pistacia* sp. and olive (*Olea europea*). The mountain itself is unsuitable for agriculture: however, surrounding it is land with potential for small-scale agriculture, grazing, viticulture and horticulture. During the Iron Age this was a wild region, as testified by the presence of a lion bone from the excavations.

There is no water source at the top: all water had to be carried up from the springs and wadis in the Petra basin. There are eight rock-cut piriform cisterns associated with rock-cut rainwater channels on the eastern edge of the summit; the date of these is unknown, so it is possible that they are contemporary with the Iron II settlement. However, they are located in or adjacent to the Nabataean building (Chapter 11), and it is perhaps more likely that they are associated with that rather than with the Iron II site.

Since only between one-third and a half of the Iron II site was excavated, any interpretation of the architecture is necessarily limited and incomplete. However, there is no evidence for any defensive wall. The drystone architecture, offset from a long north–south spine wall, is arranged into long corridor rooms with smaller rooms leading off. Such 'compartmented longhouses' are also known at as-Sadeh and Jabal al-Qseir, two neighbouring Iron II mountain-top settlements. Lindner and Knauf (1997) have interpreted these as storage facilities for agricultural products, pointing out that at all three sites sherds from coarse storage jars predominate (see Chapter 10). If we accept this interpretation, then the 'longhouses' at Umm al-Biyara were secure storage areas, protecting grain and other goods that were painstakingly acquired, perhaps by exchange from sites on the agriculturally fertile plateau, such as Tawilan, or from small fields in the Petra valley, and carried up the mountain.

Nevertheless, there are clear indications at Umm al-Biyara of domestic activity (as argued in Chapter 3), with quern stones and a large quantity of spindle whorls and loom weights. In some rooms, up to 70 loom weights were found *in situ*: a clustering in one area of the site suggested that they were being produced there (see Chapter 3).[1] The pottery assemblage is not restricted to storage functions, but has a complete range of pottery forms – the rare painted pottery was usually two parallel bands of black paint with an intervening white band. Many pieces of bone inlay from decorated boxes were excavated, although no actual box was found. Caches of cowrie shells were uncovered. There is no 'stronghold building' at Umm al-Biyara, as exists at as-Sadeh, Khirbat al-Mu'allaq and Jabal as-Suffaha (see Chapter 10), and no smaller discrete buildings or individual, isolated houses, although there were some walled and inaccessible rooms, possibly for secure storage. This strongly suggests use by an extended family, or at any rate close kin groups, and this is borne out by the architectural organization of the site (see Chapter 3).

As proposed in Chapter 10, given the wider context of Iron II settlements in the Petra area it is likely that Umm al-Biyara was inhabited by a discrete kin group or tribe which engaged in a mixed economy largely involving pastoralism, small-scale horticulture (e.g. olives) and exchange, and perhaps some trade. The animal remains point to a meat diet of goat, sheep, horse, cattle, birds (and possibly fish); other animal-based products would have been milk and hides. The two bullae (Chapter 5) reflect wider connections, and perhaps some contact with the royal administration in Busayra, and the ostracon (Chapter 6) appears to refer to the delivery of olive oil.

There is no evidence to suggest that the site was not occupied permanently. There are cisterns, hearths and localized fires, perhaps suggesting long-term settlement (see Chapter 3). Although Crystal Bennett (1966a) thought that the Iron II settlement was destroyed by fire, in fact evidence for burning is localized and episodic within Phase 1, and likely to pertain to confined burning events rather than widespread destruction. It seems more likely that the site was abandoned and that the walls subsequently collapsed.

The ancient name of the site is unknown. Although for a long time it was identified as biblical Sela' of the time of Amaziah of Judah, there is no evidence for this identification, which is generally no longer accepted (see Chapter 1).

Between the 1st century BCE and the early 2nd century CE, other areas of the mountain of Umm al-Biyara were used by the Nabataeans (see Chapter 11). Although Bennett (1980) described the ruins of a building on the south-eastern edge of the plateau as a 'Graeco-Nabataean sanctuary', more recent illegal excavations have revealed evidence that it may have been a terraced public building, with luxury elements such as hypocaust heating. It was presumably to create ceremonial access to this building that the Nabataean staircase and ramp were constructed at the foot of Umm al-Biyara. The building on the south-east part of the summit can tentatively be interpreted as a Nabataean palace located strategically on the highest mountain within Petra, from which it dominated the entire Petra valley.

Note

1. Michèle Daviau, from her experience of excavating Khirbat al-Mudayna, where there seems to have been textile production on an industrial scale, suggests that finding more than 20 loom weights in one room indicates either storage or production beyond a domestic level (pers. comm.).

Appendix 1: Crystal-M. Bennett OBE, DLitt, FSA (1918–1987)[1]

Susan Balderstone

Introduction

High above Petra on a sizzling summer day in 1980, Crystal Bennett struck a pose beside a helicopter on the summit of Umm al-Biyara (Figure A1.1). In a sense the resulting photograph illustrated two of her most defining characteristics – determination and an extraordinary networking ability. They were characteristics she shared with the 'owner' of the helicopter, the late King Hussein of Jordan.

The reason she was there that day was her determination to finish projects in Jordan that were part of her long pursuit of the biblical Edomites, 'the kings that reigned in the land of Edom, before there reigned any king over the children of Israel' (Genesis 36.31). She returned in the 1980s to the three sites she had originally excavated in the 1960s and early 1970s – Umm al-Biyara, Tawilan and Busayra. Her excavations had been interrupted in 1975 by a request from the Department of Antiquities in

Appendix 1.1. Crystal Bennett on Umm al-Biyara in 1980

Amman to direct the rescue dig on Amman Citadel. It was proposed to build a new museum on the Citadel adjacent to the existing museum and the Amman Citadel excavations occupied her from 1975 to 1979. Once her obligations to the Department of Antiquities were fulfilled, and in spite of deteriorating health, she was intent on carrying out final field seasons at the Edomite sites preparatory to a definitive publication.

Crystal was indefatigable in obtaining widespread support, including from Jordanian royalty, for the work of the British and their associates in archaeology. The trip to Umm al-Biyara in 1980 was occasioned by her need before publication to check the survey of her 1960s excavations. She also recorded the location of what she described as a Graeco-Nabataean sanctuary (see Chapter 11) discovered accidentally by a member of the local Bedoul tribe while searching for Crystal's dog Maro on the last day at the site. Princess Alia, who was keen to help with the work but was pregnant with her first child, prevailed upon her father King Hussein to provide helicopter transport to save both herself and Crystal (together with her security guard and myself as the surveyor) the long and difficult climb to the top. We were extremely grateful for this, although when it came time to leave, one of the two helicopters was found to have a mechanical problem and, after ferrying us to the base, the other one could take only half the party back to Amman. Crystal and I returned by road – it was a very long day!

Early years

Crystal was born in the last year of World War I, 1918, on the Channel Island of Alderney off southern England. She studied English at Bristol University after attending a Bristol convent. During World War II she worked for the British Ministry of Supply (Anon. 1986), married and had a son, Simon. After the break-up of her marriage, she purchased her former husband's family home and moved in harmoniously with her ex-mother-in-law.

In 1954 she began a post-graduate diploma in the Archaeology of the Roman Provinces in the West at London University. She directed her own excavations of a Roman villa south of London, and also of a Romano-British temple near her home at Bruton in Somerset (Talbot 1987). She went on to a Diploma in Palestinian Archaeology under Kathleen Kenyon, working with Kenyon for the final season of excavations at Jericho in 1957–8. Subsequently she contributed to Kenyon's publication *Jericho Volume Two* (*Levant* 4, 1972). Crystal also worked with Kenyon on the Jerusalem excavations and was irrevocably bitten by the bug of biblical archaeology. She became interested in the Edomite site on Umm al-Biyara while working with Peter Parr's excavations at Petra (see Appendix 2). Beginning in 1960 with exploratory work, she conducted two full seasons in 1963 and 1965. The key find was a clay seal stamped with the royal symbol and the inscription 'Qos-gabr, King of Edom', dating it to around 670 BCE – too late to be one of the kings referred to in Genesis, but at least hard evidence of the existence of an Edomite kingdom in the later period. In 1963 she replaced Peter Parr as Assistant Director of the British School of Archaeology in Jerusalem.

Following the Six Day War in June 1967, Crystal spent time at the British School of Archaeology in Jerusalem working on her material from Umm al-Biyara. J. B. (Basil) Hennessey, then Director of the British School, recorded her 'valuable assistance to the Director in the moving of the School from one premises to another' (*Levant* 1, 1969, viii). This was no doubt an experience that stood her in good stead later when she established a base for the Jerusalem school in Amman and then the fully fledged British Institute at Amman for Archaeology and History. Also at this time, in response to proposals by the occupying Israeli authority to redevelop the Muslim quarter of the Old City, the British School undertook an architectural survey of the targeted areas. Over a period of 10 years from 1968 a team of architects made measured drawings of the Islamic buildings of Old Jerusalem, resulting in an extremely important record (Talbot 1987).

The British School of Archaeology in Jerusalem

In 1970 Crystal was appointed Director of the British School of Archaeology in Jerusalem, and for the next seven years struggled with the many practical difficulties arising from circumstances following the Six Day War. Since the School was now in Israeli-occupied territory, a lengthy and tortuous border procedure had to be negotiated every time Crystal crossed the Jordan River from the occupied West Bank to work on her sites in Jordan. This was made doubly difficult by the need to carry documents and equipment subject to security searches, not to mention her dear dachshund Maro, from whom she was inseparable (Figure A1.2).

Appendix 1.2. Crystal Bennett with Maro

Despite these frustrations, Crystal persevered in her search for the Edomites. In view of Nelson Glueck's recognition of the Iron Age site of Tawilan (Glueck 1935, 82–3) near Wadi Musa as the largest Edomite site in the Petra area and his identification of it as Teman, mentioned in the 'Edomite king-list' of Genesis 36.31–39, she excavated there from 1968–70 and again in 1982. She uncovered a domestic farming settlement of the 8th/7th centuries BCE, and discovered the first cuneiform tablet to be found in Jordan (Anon. 1986), a livestock contract drawn up in Harran in north Syria. However, the date of the settlement was again too late to enable identification with any kings pre-dating Israelite kings as mentioned in Genesis.

Crystal then moved on to Busayra, identified with the Bozrah mentioned in Genesis 36.33 in connection with the list of kings. There she excavated over three seasons (1971–4), with a final season in 1980. At Busayra the settlement also dated no earlier than the 8th century BCE and demonstrated strong Assyrian influences. In 1971 she briefly surveyed the Wadis Dana and Faynan, recording the Edomite mining sites by means of aerial photographs with helicopter assistance. In January 1980 she returned to this area to undertake a short season of soundings. I surveyed for her during a memorable excursion later that year.

The early excavation seasons in the late 1960s and early 1970s were undertaken with considerable logistical difficulties. These Iron Age sites in southern Jordan were naturally protected by being located on high points or spurs, surrounded by steep wadis and usually accessible only by steep paths or a narrow neck of land. Piotr Bienkowski recorded (Bienkowski 2002, 45) that only a person with Crystal's organizational skills, network of contacts and determination could have succeeded in mounting the early excavations at Tawilan and Busayra. She used her wide network of contacts to engage assistance with transport of material and equipment, including help from the Jordanian Army. Bienkowski noted that despite being Director of the British School of Archaeology in Jerusalem she worked virtually unaided in Jordan. At first she took a room at the old Philadelphia Hotel located downtown opposite the Roman Theatre. Storage of finds was arranged in the basement of the Roman Theatre, but unfortunately heavy rains in 1969 flooded the basement and rendered much of the pottery unusable for stratified, chronological research (Bennett and Bienkowski 1995, 17). In 1970 she rented a flat near the British Council at her own expense as the office and base for British excavations (Talbot 1987, 1).

Amman

In 1975 Crystal was invited by the Department of Antiquities in Amman to direct the rescue excavations on the Amman Citadel, on the planned site of the new museum. This project made it imperative to establish a base larger than her rented flat, and with the support of Kathleen Kenyon she found a large house opposite the University of Jordan. Under the combined lobbying of Crystal, Kenyon and others, the British Academy eventually agreed in 1978 to establish this as a separate British Institute for Archaeology and History in Amman (Balderstone 1978). From there the Amman Citadel team set out early each morning in the Institute's Land Rover for the dig site, usually collecting me from my flat at the Third Circle on the way.

My warmly remembered association with Crystal began in 1977. Following a serious accident involving her assistant director and architect during the 1976 season she found herself without an architect/surveyor. I had accompanied my husband, an Australian newspaper correspondent, to Jordan on his appointment to cover the Middle East for *The Age* (Melbourne) and *Sydney Morning Herald*. Previously I had worked as an architect in London and Melbourne, designing and documenting housing, schools and office buildings, but I welcomed the opportunity to do something different in Jordan. The companionship offered by Crystal and her team during my husband's considerable absences in Iraq, Iran, Saudi Arabia, Egypt, Turkey, Israel, Lebanon and Syria in the course of his job was my lifesaver. I became as passionate about the history and archaeology of Palestine as any of them, to the extent of reporting on archaeology for the *Jordan Times* in 1977–8.

It seemed that Crystal knew everyone. Her parties were amazing fun. Her hospitality and kindness were known and greatly appreciated by the local Jordanians and expatriates alike. She made the most of any opportunity to provide interesting site visits and social events for her dig teams. Two particular occasions in the middle of 1979 stand out in my memory. One was a visit she organized through Princess Alia to the royal stables located on the road to Salt. There we were given a wonderful display of Arab horses by the Spanish director. It was a beautiful place in a pine-treed valley, the stables being arranged around a series of courtyards with central, tiled fountains (Figure A1.3).

The second was the grand party Crystal hosted for the opening of the British Institute at Amman for Archaeology and History following the approval for its establishment by the British Academy. I had organized some internal building alterations to the house. It was a glittering event held at that house high up on the hill opposite Jordan University, with candles illuminating the large terrace under a balmy, mid-summer evening sky. My husband was in Amman and able to attend – Crystal welcomed us by saying 'come and meet my tobacco millionaire', and then proceeded to introduce us to many of her long-time Jordanian friends, including former prime ministers and the Mayor of Amman. She had been appointed formally as the Director of the British Institute at Amman on 1 November 1978 (Balderstone 1978).

Many of Crystal's friends and colleagues visited the Institute and were always included in whatever was happening. Regular visitors were her son Simon and her stalwart friend Jean Black. The latter had the Registrar's responsibilities on almost all of Crystal's projects.

There was never a dull moment on the work front either. Not only were there the excavation seasons on

Appendix 1.3. Crystal Bennett at the royal stables outside Amman, on the road to Salt

Amman Citadel in 1977–9, but Crystal made sure I was also introduced to other teams associated with the British Institute, including the Australians at Pella and the Dutch at Dayr Alla, and of course the Department of Antiquities in Amman. With Crystal herself there were other one-off experiences, such as the Umm al-Biyara expedition mentioned above. Another similar one-day event was an excursion with Princess Alia, her mother Queen Dina, Crystal, Michael Macdonald and a few others from the Institute to Dhra near Karak in the south, for the purpose of mapping the soundings Crystal had excavated earlier that year in January. We progressed in cavalcade – the royals in front in the limousine, then an escort car of soldiers with the rest of us following on behind. It was a terrible day – hot and dusty, not good for using a pre-World War II brass theodolite on the side of a bare, steeply sloping hill. It was made bearable, however, by a wonderful local family who provided us with rugs and cushions, and plates piled with fresh lettuces to supplement our picnic lunch by Karak's springs and orchards.

Crystal maintained a stringent publication schedule, publishing year by year following each season of excavations (see the list of her publications below). The punishing workload – directing several series of excavations, together with running the Institute accommodation and organizing supplies, vehicles and functions in the face of considerable difficulties and frustrations, while at the same time delivering a continuous stream of publications – no doubt took its toll on her health. It always seemed to me that Crystal did a superhuman job in what was often quite a lonely occupation in between influxes of visitors. There was no assistant director or full-time research position at the Institute in those days, although she did have strong domestic support from Hamze Ghazzawi, the Institute's long-serving Palestinian cook/housekeeper. Hamze had begun work with the British School of Archaeology in Jerusalem and moved with Crystal to Amman (CBRL 2004).

The British School accommodated several other excavation teams, as well as her own, at different times. These included members of Basil Hennessey's Sydney University excavation team working at the Chalcolithic site of Tulaylat Ghassul in the Jordan Valley. There, in 1977, the exciting recovery of wall paintings of what appeared to be a religious procession and shrine dating from 4,000 BCE created a major buzz (Balderstone 1977). The wall paintings were carried up from the site to the British School where they were conserved by Annie Searight and a team from UNESCO before being placed on display in the museum on Amman Citadel. The Tulaylat Ghassul excavations had been begun by Basil Hennessey in 1967 while Director of the British School of Archaeology in Jerusalem. The Six Day War of June that year halted the work until 1975, by which time Basil had become Edwin Cuthbert Hall Professor in Middle Eastern Archaeology at Sydney University.

In the winter of 1979 the Sydney team had their first season of excavations at Pella, a tell located by a permanent spring in Wadi Jirm al-Moz, further north in the Jordan Valley. This time the team occupied a dig house which I had been commissioned to build for them. Crystal, in her usual hospitable way, still accommodated anyone who wanted to stay during weekend visits to Amman from the excavation site. She had provided invaluable assistance during the fitting-out of the dig house, storing equipment

and provisions and procuring all the bedding. The dig house is a large extension to an existing stone cottage on the site above the small oasis that has extensive views across the Jordan Valley to Beisan and the Vale of Esdraelon. From late winter through to early summer, the site was immersed in a sea of wild flowers. We had several enjoyable picnics at Pella over the following few years – it was a favourite place to take visitors and never failed to impress Crystal's important contacts.

In 1980 the first international conference on the History and Archaeology of Jordan was held at Oxford with the strong support of HRH Crown Prince Hassan. Crystal was instrumental both in its initiation and in involving Prince Hassan, among many other influential supporters. Once again, her network of contacts was invaluable. Around this time I spent a short period holding the fort for her at the Institute while she was in hospital. This provided me with a first-hand insight on the day-to-day issues and problems of running such an enterprise. Many visitors arrived without warning at all hours of the day and night looking for various services such as sustenance and showers, the latter not always possible as water supply was erratic.

Final publications

Crystal's health deteriorated considerably during the early 1980s and she retired from her position as Director in November 1983, although she returned to act as guide and mentor for the state visit of Queen Elizabeth II in 1984. From Amman she moved to Lefkara in Cyprus, where she had renovated a traditional village house and planned to write up a final publication on the Edomites, based on what had essentially been her major research interest and effort. During the next couple of years my husband and I visited her both in Lefkara and at her home in Bruton. The latter was an unobtrusive but large manor house dating from the 16th century, with an extensive walled garden. She had earlier generously allowed us to stay there during a visit to England in the winter of 1981. It was clearly a place dear to her heart and she was very much at home as the 'lady of the manor'. During our visit in 1984 she seemed well and optimistic about the outcome of her work.

However, on visiting Cyprus for Christmas 1985 we found that illness had forced her to return permanently to Britain. Sadly she was not able to complete her final reports. In the years since then Piotr Bienkowski, who had worked with Crystal at Tawilan and Busayra, has drawn together her work and his own subsequent studies and published these sites (Bennett and Bienkowski 1995; Bienkowski 2002), together with this final volume on Umm al-Biyara. Simon Bennett noted in his forewords to the earlier publications that the perspective taken and interpretations made have diverged from those of his mother. This is not surprising, given the difficulties at the time and the work undertaken by other scholars in the field in the decades since Crystal's pioneering work. As Simon indicated, the early years of the Tawilan excavations were carried out in a difficult political climate. In particular, as Bienkowski recorded, the civil war in Jordan in 1970 resulted in all the photographs from the 1970 Tawilan season being destroyed by order of Naif Hawatmeh of the Popular Democratic Front for the Liberation of Palestine (Bennett and Bienkowski 1995, 17). Bienkowski also pointed out that the methods of excavation and recording in 1968 were less rigorous, systematic and specialized than is expected now. On the other hand, the methods implemented by Crystal's generation were a considerable improvement on earlier ones, as attested by Adnan Hadidi's account of the development of excavation methods in his 1996 tribute to Kathleen Kenyon (*Annual of the Department of Antiquities of Jordan* 21, 7–17) on the occasion of her 70th birthday.

The main area of divergence, as referred to by Simon, was that Crystal had ascribed a relatively settled kingdom or nation-state status to the Edomites on the basis of her interpretation of the evidence as she had found it. Bienkowski, with the benefit of a wider view encompassing later work by others as well as his own, has concluded that the Edomites comprised a heterarchical state of largely independent tribal groupings. He proposed that these groups were held together by bonds of cooperation and allegiance to a supra-tribal authority/monarchy, which was recognized and accepted as kings by the Assyrians (Bienkowski 2002, 481). He pointed out that Crystal's excavations at Busayra neither proved nor discounted the site's identification with the biblical Bozrah. No occupation was found dating to the 13th century BCE, which is the generally accepted period of the passage of the Israelites coming from Egypt through Edom and being refused passage by an Edomite king as recorded in the Old Testament (Numbers 20: 14–21). However, as John Bartlett made clear, the interpretation of the biblical references to Edom is not straightforward (Bartlett 1992, 18). It is possible that the earlier, pre-Israelite kingdom Edomite leaders were based elsewhere, but by the time the history was written down only the later place-names were known.

The excavations on Amman Citadel uncovered substantial Byzantine occupation followed by large Umayyad settlement. The work was brought together in a final form by Alastair Northedge, who had served as Crystal's assistant director on two of the rescue dig seasons and had subsequently carried out his own excavations at different locations on the Citadel in conjunction with the Department of Antiquities. He had established that the northern part of the Citadel, originally a Roman temple and temenos, had been redeveloped by the Umayyads as a large palace fronted by a cruciform audience hall that comprised the major standing remains. The combined work was published in 1992 as British Academy Monograph in Archaeology no. 3, *Studies on Roman and Islamic Amman, Volume I: History, Site and Architecture* (published for the British Institute at Amman for Archaeology and History by Oxford University Press, 1992), and dedicated 'In Memoriam Crystal-M. Bennett, O.B.E., F.S.A. (1918–1987)'.

Crystal died at her home in Bruton, Somerset, on 12 August 1987, shortly before her 69th birthday (Obituary, *Levant* 20 (1988), 1). Her many friends and colleagues still remember her with great affection. Her dedicated professional work, her unfailing diplomacy in a difficult Israeli/Palestinian context and her great personal charm endeared her widely. She was awarded the OBE by Britain in 1977 'for services to archaeology in Jordan', and in 1983 an Honorary Doctor of Letters degree was bestowed upon her by Trinity College, Dublin. If there was an award for sterling friendship, she would surely have that also.

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Note

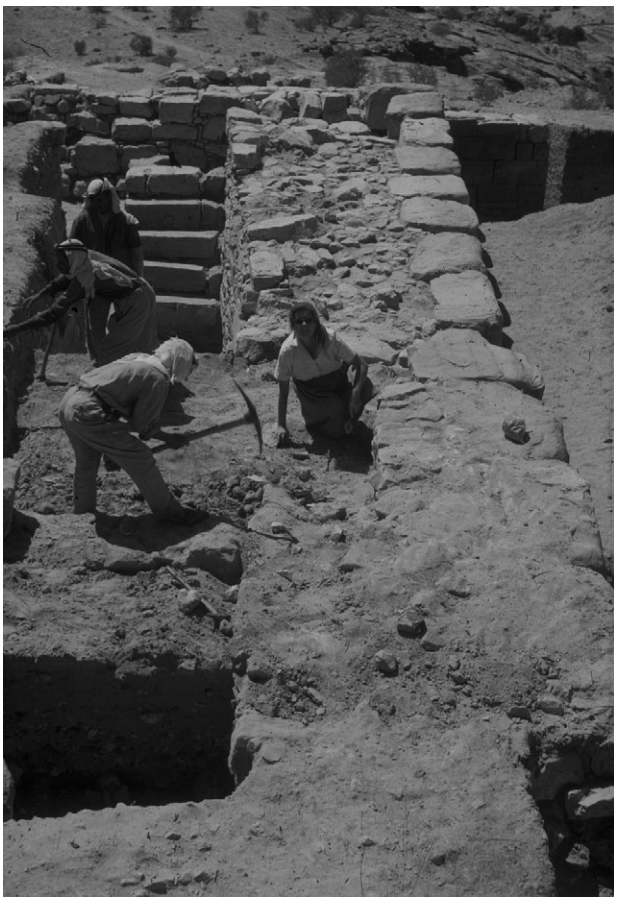
1. This is a slightly amended version of the entry by Susan Balderstone in Brown University's online series BREAKING GROUND: Women in Old World Archaeology, and is published here with the kind permission of Martha Joukowsky. www.brown.edu/Research/Breaking_Ground.

Appendix 2: Crystal Bennett and Umm al-Biyara

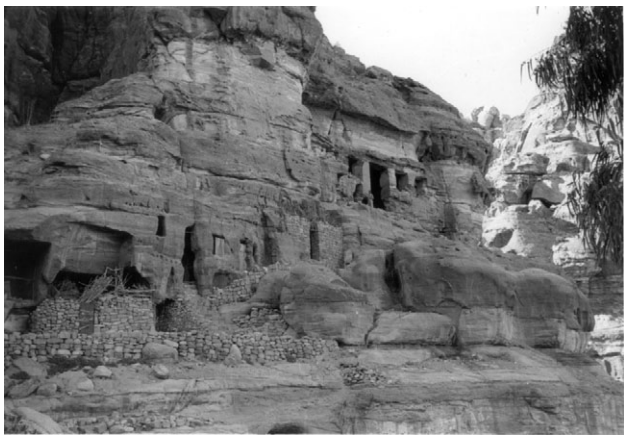
Peter J. Parr

In some respects Crystal Bennett (Figures A2.1–A2.2) drew – or, more truthfully, was given – the short straw when she arrived with me at Petra in October 1958 to initiate an exploratory season of excavations on behalf of the British School of Archaeology in Jerusalem. Four years previously I had spent six months working at the site for the Jordanian Department of Antiquities, supervising the restoration of the ancient retaining wall along the southern bank of the Wadi Musa adjacent to the monumental gate and the (then unexcavated) colonnaded street, and in 1958 I was anxious to return there to try and establish the chronology of the buildings in the city centre and to see if we could find evidence for the initial settlement of

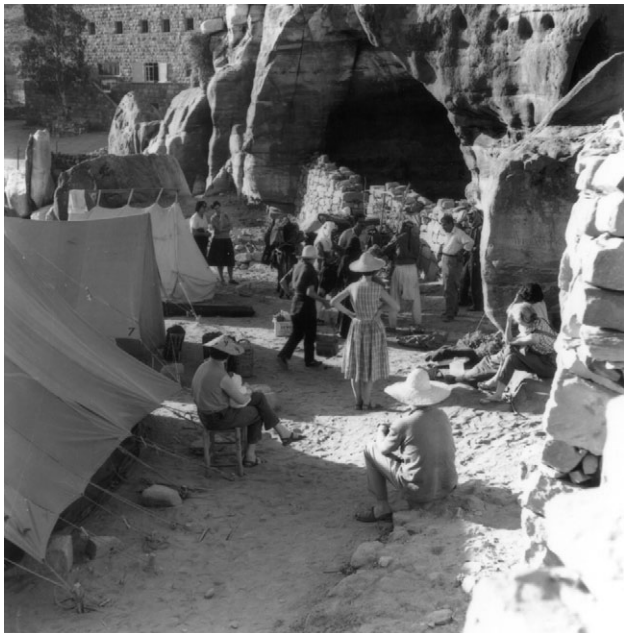
Appendix 2.1. Crystal Bennett at Petra, 1964. (Photo courtesy of Peter Parr)



Appendix 2.2. Crystal Bennett at work on the north town wall in Petra, 1964. (Photo courtesy of Peter Parr)



Appendix 2.3. The Petra dig camp in the al-Habis caves, 1959. (Photo courtesy of Peter Parr)

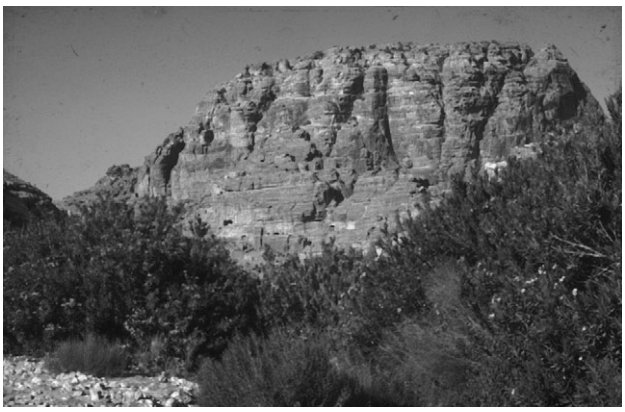


Appendix 2.4.Camping in the caves on al-Habis, 1959. (Photo courtesy of Peter Parr)

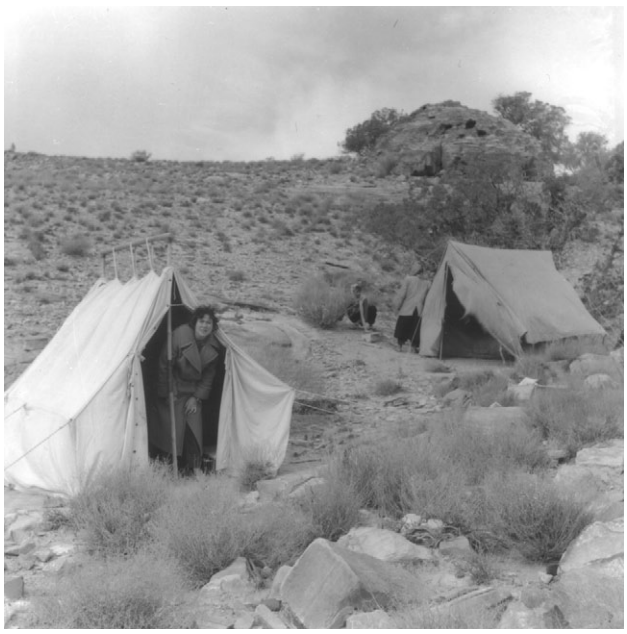
Appendix 2.5. The newly opened tourist hotel within Petra, 1959. (Photo courtesy of Peter Parr)

the Nabataeans at the site. But I was also tempted to take a look at an area on the southern edge of the city known as al-Katuteh, where in 1929 George and Agnes Horsfield had revealed a depth of several metres of archaeological deposits together with structures which they interpreted as part of the town walls. During the course of their work they had recovered a considerable quantity of artefacts – pottery, figurines, objects of bone and metal, and the like – and since one of the aims of the BSAJ's work was to establish a dated sequence of such material a renewed examination of this area seemed called for. Despite the fact that working on Katuteh entailed a steep walk to and from our dig HQ in the caves in the eastern face of al-Habis (Figures A2.3–A2.4) and the recently opened tourist hotel nearby (Figure A2.5, where a lukewarm beer or two was sometimes to be had at the end of a tiring day), and despite the fact that Katuteh itself was exposed to the wind and sun and the dust, and was devoid of such amenities as ruined walls on which to sit or bushes behind which to take cover for essential private purposes, Crystal readily agreed to take charge of the excavations there.

During our first season all went well on Katuteh, as they did also the following year (when we had the benefit of collaboration with an American team led by Philip Hammond). Admittedly the walls which the Horsfields had thought to be defensive turned out to be those of a substantial house, while most of the archaeological deposits proved to be part of an enormous ancient rubbish dump – which, in fact, is what we were told al-Katuteh meant in Arabic. But by the 1960 season it was evident that Crystal was getting restless. The removal of the dump was taking longer than expected, penetrated as it was by many late Roman burials which had to be recorded carefully before the unstratified materials could be removed. These rubbish levels were, it is true, producing enormous amounts of sherds and small objects, many of them complete or nearly so; but the almost uninterrupted and tedious task of labelling and bagging these and transporting them to the dig HQ soon turned this into a curse rather than a blessing, at least for Crystal. And it has to be admitted that the repertoire of Nabataean artefacts is in fact quite limited, and over-familiarity, even with the attractive delicate painted pottery, can easily lead to boredom. More importantly, however, it was becoming clear that, without far greater resources of time and funding than we had – and the Petra excavations were never intended to be more than a small-scale operation, filling the interval of a few years between the cessation of Kathleen Kenyon's work at Jericho and the commencement of her next major project in Jerusalem – we were not going to be able properly to excavate the



Appendix 2.6. Umm al-Biyara. (Photo courtesy of Peter Parr)



Appendix 2.7. Crystal Bennett's camp on Umm al-Biyara, 1960. (Photo courtesy of Peter Parr)

building and possibly not even to reach its original floors. Perhaps it was time for a change of strategy.

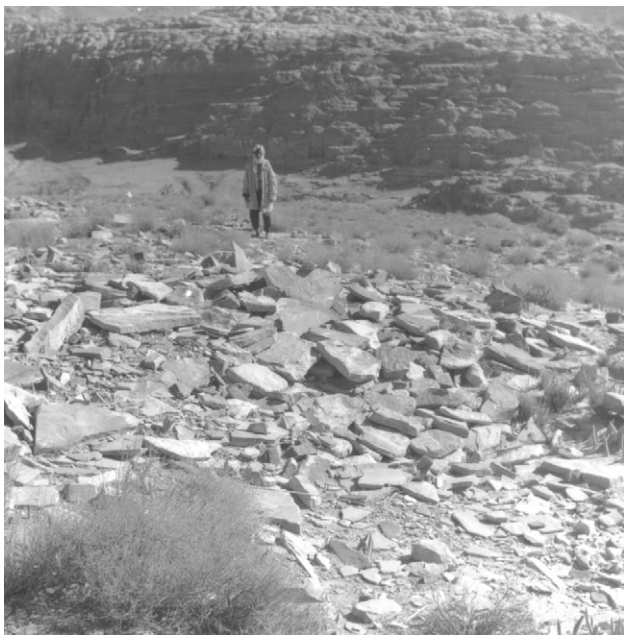
One of the advantages of digging on Katuteh was that from it there is a marvellous view, not only down on the centre of Petra with its visible free-standing monuments (which at the time comprised only the colonnaded street, the monumental gate and the Qasr al-Bint – with the hotel tantalizingly just beyond it), but also of Petra's chief glory, what one of its earliest visitors, Leon Laborde, called 'the most singular spectacle, the most enchanting picture, which nature has wrought in her grandest mood of creation . . . [the] matchless girdle of rocks, wondrous as well for their colour as their forms' (Laborde 1836, 149–50). From inside the Petra basin the most prominent component of this girdle is the Umm al-Biyara massif, dominating the western skyline in what is at once both a threatening and an alluring manner (Figure A2.6). We were certainly allured by it, and no one more so than Crystal, working as she was in its shadow (at least metaphorically, since unfortunately its real shadow did not reach Katuteh until after her work in the field had finished for the day). We knew, of course, that previous superficial exploration of the flat summit had revealed archaeological evidence for both Iron Age and Nabataean occupation, and that on the basis of this it had sometimes been identified with the actual Rock (πέτρα) which, according to Diodorus, the nomadic Nabataeans had utilized as a refuge in the 4th century BCE (see Chapter 1), and also – more tentatively – with Sela', the Rock of Edom, mentioned in the Bible. Crystal was mainly attracted by the biblical connection; it was, I think, around this time that we made a visit to an alternative candidate for the biblical identification, Sela', near Tafila, in the company of Fr. Roland de Vaux of the Ecole Biblique in Jerusalem, a man Crystal greatly admired and who had a great influence on her. But for me it was the co-existence of Iron Age and Nabataean remains which made the site of great interest. One of the hopes I had entertained since beginning our work in Petra had been that we might be able to throw light on the question – as disputed in 1958 as it still is today – of what, if any, ethnic and cultural continuity there had existed between the Nabataeans and their Edomite predecessors. So far the earliest remains we had found in the Petra valley itself, beneath the colonnaded street, dated no further back than the 3rd century BCE, when the Nabataeans were becoming sedentarized. But if Umm al-Biyara was the stronghold of both the Edomites and the nomadic Nabataeans, what better place to investigate the relationship of the two peoples than here? It was an irresistible temptation, and although there was still much to be done in Petra itself Crystal had no difficulty in persuading me to let her make plans for a subsidiary operation on the mountain top towards the end of the excavation season in November 1960.

It can still be quite mild in the Petra valley at this time, sheltered as it is by the surrounding mountains, and the caves in al-Habis are still comfortably warm from the heat absorbed by the sandstone during the summer months. But the summit of Umm al-Biyara is some 300 m above the valley and is sheltered by nothing. The ascent is among the most difficult in Petra for the inexperienced climber, and is seldom attempted by tourists, since although it begins with rock-carved steps and an impressive 'processional way' carved by the Nabataeans, erosion and rock falls have interrupted these in several places, making progress (at least in 1960, before repairs were effected by the Jordanian authorities) possible only for those with sure feet, a firm grip and a steady head. Excavating on the summit was clearly not going to be a picnic. Resources did not enable us to establish a proper base where she could live near her work, and she was provided only with a couple of small tents (Figure A2.7) and a few items of furniture and kitchen utensils. But since the main excavation in the valley was coming to an end we were able to spare a handful of local

workmen, with their tools, to help her (Figure A2.8), and – most important of all – a man to carry a few provisions and jerry cans of drinking water up the mountain each day.

Life was undoubtedly arduous for Crystal during the two weeks she spent excavating on Umm al-Biyara in November 1960, and she must have felt very isolated, since few of her erstwhile companions down in the valley felt the urge to make the two-hour return journey to visit her in her voluntary exile. I have no doubt that she thought often of the warm caves and the hotel 300 m below her. But I do not think she suffered too much; for her, the discomfort was vastly outweighed by the challenge and the excitement. The challenge is obvious, the excitement perhaps less so. The scrappy ruins on Umm al-Biyara (Figure A2.9), even when excavated (Figure A2.10), bore no comparison with the monuments in the valley or even on al-Katuteh, while the objects recovered in this first season were, with the single exception of a fine bronze bowl (Figure 7.1:1), uninspiring. But they were new and different, they were Edomite, and they gave a new dimension to our Petra researches. By the end of her two weeks Crystal was planning another season at Umm al-Biyara, and already had the germ of an idea for a more extensive Edomite project which was to lead her, over the course of the next 20 years, to Tawilan and Busayra.

Appendix 2.8. Crystal Bennett with workers on Umm al-Biyara, 1960. (Photo courtesy of Peter Parr)



Appendix 2.9. The ruins on Umm al-Biyara prior to excavation, 1960. (Photo courtesy of Peter Parr)

Appendix 2.10. Crystal Bennett showing the Petra excavation team around Umm al-Biyara, 1964. (Photo courtesy of Peter Parr)

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