Mobile peoples - permanent places : the construction and use of stone-built architecture by nomadic communities in the Jebel Qurma region of the Black Desert (Jordan) between the Hellenistic and Early Islamic periods.

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6 Discussion

6.1. INTRODUCTION

The research presented in this dissetation set out to explore the archaeological landscape of the Jebel Qurma region and the nomadic communities that inhabited it between the Hellenistic and Early Islamic periods, with the specific aim to investigate the construction and use of stone-built features by these communities. Over the course of the previous chapters, elements of the natural environment of these landscapes have been explored (Chapter 2), and the man-made features and artefacts encountered during surface surveys (Chapter 3) and excavations (Chapters 4 and 5). In this chapter the results of these studies are further discussed with the following purposes in mind. Firstly, this chapter explores in a synthesising manner the degree to which landscapes of the Jebel Qurma region were physically modified over the course of the Classical and Late Antique periods. This is done by providing a diachronic overview of the history of inhabitation of the Jebel Qurma region during the period under investigation, based on the research presented in the previous chapter. Secondly, in order to better understand these developments in the built environment, the context in which these features were constructed will be explored, using new information on the nature of inhabitation in the Jebel Qurma region derived from the archaeological remains. Thirdly, this chapter explores what the short- and long-term purpose of the stone-built features in the Jebel Qurma region was to nomadic communities.

6.2. AN ARCHAEOLOGY OF NOMADISM IN THE JEBEL QURMA REGION

6.2.1. A history of inhabitation

Until recently the earliest material evidence for the presence of nomadic communities in the Black Desert during historical times were the Safaitic inscriptions and associated petroglyphs. Although the presence of nomads in eastern Jordan prior to the 1st century BC – which by convention marks the appearance of the Safaitic texts – has sometimes been assumed on the basis of textual sources, this had not been substantiated with archaeological evidence (see Chapter 1). The archaeological investigations in the Jebel Qurma region have not yet provided unequivocal evidence for significant inhabitation during the early 1st millennium either, despite the occurrence of potentially early 1st millennium remains. These include, firstly, gold jewellery from a burial cairn at the site of QUR-9 and, secondly, a number of OSL dates from Pendants that cover part of the early 1st millennium BC. These, however, can at this point not be used as solid evidence for a sustained presence of nomadic communities during the early 1st millennium BC. The jewellery from QUR-9 was dated on the basis of a single parallel only, and the OSL dates provide a broad time range, between the late 2nd millennium BC and the early 4th century AD. The oldest OSL sample from a Pendant returned a date covering the entire 1st millennium AD. Even this early date is too broad and lacks corroborating evidence to convincingly argue for a sustained and significant phase of inhabitation in the Jebel Qurma region during the Iron Age. In sum, although there is evidence that hints towards the possibility for an Iron Age-period inhabitation in the Jebel Qurma region, more research is required to substantiate this.

The earliest more convincing evidence for inhabitation of the Jebel Qurma region dates to the 4th or 3rd century BC – the beginning of the Hellenistic period. Notably, however, this period was hardly represented in the artefacts collected during pedestrian survey. Not a single pottery sherd could be securely dated to the Early Hellenistic period. The only Early Hellenistic surface find was a Seleucid coin, retrieved from a looted burial cairn. Nonetheless, excavations yielded more Early Hellenistic materials,

including skeletal remains from a burial cairn at QUR-215 that were dated to the 4th or 3rd century BC, and a radiocarbon sample from a fire pit at QUR-595 that returned an equally early date. Although the evidence remains sparse at this point, the dates are solid, and signify that the inhabitation of the Jebel Qurma region did not start in the 1st century BC – as the conventional date of Safaitic would suggest. Instead, this period of inhabitation can be pushed back several centuries, i.e., into the 3rd or even 4th century BC at the least.

Whether Safaitic inscriptions and petroglyphs were already created during this early phase of inhabitation in the region remains uncertain. As the dating of the script is tentative, it remains possible that it was already in use prior to the 1st century BC, but there is no new evidence from the fieldwork in the Jebel Qurma region suggesting that this must have been the case. At this point the earliest local evidence for the creation or rock art comes from the site of QUR-2, where carvings had already been present prior to the construction of the Tower Tomb there. The exact date of construction of the tower itself, however, is not certain. Based on the dating evidence from the rectangular ante-chamber constructed against the Tower's façade, the Tower and, therefore, some of the rock art, must predate the 1st century AD, but by how far remains uncertain.

For the later Hellenistic and Roman periods the continued inhabitation in the Jebel Qurma region is somewhat better defined, as more ceramics could be dated to these periods. On the basis of these ceramics, but also with help of Safaitic inscriptions, several campsites were documented that were inhabited during the period broadly defined as Hellenistic/Roman. Excavations provided further dates from this period. Fire pits at a number of enclosures, such as at QUR-595 and QUR-373, attest the presence of people in the Jebel Qurma region in this period, as do the dates from burial cairns including radiocarbon and OSL dates.

According to the conventional dating framework of Safaitic, the creation of inscriptions and petroglyphs ceased after the 4th century AD at the latest. The uncertainties about this conventional dating framework cannot be solved on the basis of field research in the Jebel Qurma region. Although there is at this point no evidence to suggest that any of the carvings from the Jebel Qurma region should date to Late Antiquity, it cannot be excluded with certainty that some of the carvings were created in this period. What is certain, however, is that although the creation of Safaitic inscriptions and petroglyphs may have come to a halt over the course of the 1st millennium AD, the inhabitation of the Jebel Qurma region continued for most of this period. This is indicated, firstly, by the relatively large number of ceramics that were dated to the Byzantine and Early Islamic periods and, secondly, by a series of radiocarbon dates from residential sites and burial contexts. Similar to the preceding period, these remains were clearly left behind by nomadic rather than sedentary communities. As during the Hellenistic and Roman periods, residential sites from the Byzantine and Early Islamic periods consisted mainly of enclosures and/or clearings, and were recognised through the occurrence of ceramics, sometimes in much larger quantities than at older sites.

While inhabitation of the Jebel Qurma region continued during the Byzantine, Umayyad and Abbasid periods, during the subsequent Fatimid period the region seems to have become largely, and perhaps quite suddenly, abandoned. Ceramics that were clearly datable to the Fatimid period are almost completely absent, and there is only a single radiocarbon date – from an inhumation grave at QUR-829 – that dates to this period. Not a single radiocarbon sample from the fire pits within the excavated enclosures returned a Fatimid period date. Therefore, there is at this point no evidence for substantial inhabitation of the Jebel Qurma region between the end of the 10th century and the 12th century AD.

6.2.2. Occupational intensities

This research has shed light on a number of periods of inhabitation in the Black Desert that have long remained invisible in archaeological terms. Prior to this study, the period of inhabitation associated

with the Safaitic inscriptions and petroglyphs was regarded as a sudden outburst of activity in the Black Desert, which also quickly diminished again around the middle of the 1st millennium AD. One of the results of the study at hand is that a much more nuanced reconstruction is warranted. The Safaitic inscriptions did not appear more or less out of the blue around the 1st century BC. Instead, it was part of a period of inhabitation that started two or three centuries before that – perhaps even earlier. Similarly, the Late Antique period of inhabitation attested in the study area has thus far hardly been exposed – mainly due to a lack of archaeological research – in other parts of the Black Desert.

This study therefore shows the importance of archaeological research in the reconstruction of the history of inhabitation of the Black Desert. Relevant in this respect is to take into account a variety of well-datable remains. Rock art in itself is poorly datable, and cannot be used by itself to attest the presence or absence of nomads in a given region during a given period. This equally holds, however, for other types of archaeological remains. Ceramics are a relevant example here, as they are often used in archaeological surveys as an important material – if not the only material – to reconstruct the history and intensity of occupation within a survey area (Wilkinson 1999; 2000). This, however, seems to be completely unwarranted for the Jebel Qurma region, and most likely for other parts of the Black Desert as well (cf. Betts et al. 1991, 22). For example, unequivocal evidence for Early Hellenistic ceramics is at this point completely absent, and from the subsequent Hellenistic and Roman period the number of ceramics also appear to be relatively limited. The presence of Hellenistic and Roman-period inhabitation of the region was defined on a broader range of materials which, in addition to ceramics and inscriptions, included OSL and radiocarbon dates and coins.

It thus seems that in this context ceramics are a poor indicator for the presence or absence of people within the study area. For this purpose, other datasets need to be consulted as well, as pottery may not have been as widespread during these earlier period as one would assume, for example, in the case of sedentary populations. In other words, the amount of ceramics attested for a given period most likely indicates nothing more than the use of such materials among communities rather than the presence or absence of the communities themselves. Following this line of reasoning, the increased number of ceramics from the Late Antique period is not necessarily reflective of increased activity in the study area but, at most, an increase in the use of ceramics by communities residing in the region.

6.2.3. Comparisons with other regions

The earliest attested phase of inhabitation in the Jebel Qurma region, i.e., during the Early Hellenistic period and possibly extending back into the Iron Age, is at this point unparalleled in other areas of the Black Desert. Indeed, there are no unequivocal attestations of Early Hellenistic remains documented in other survey or excavation projects in the Black Desert. On the one hand, this may partly be a result of the limited number of archaeological field projects with a specific interest in historical remains. On the other hand, the research in the Jebel Qurma region has shown that the visibility of this period is poor in terms of surface remains, given the scarcity of pottery sherds that could be securely attributed to the Iron Age and Early Hellenistic period, while the period is more visible in results in radiocarbon and OSL dates from excavations. In other words, although remains from the 1st millennium BC may have remained obscure in other parts of the Black Desert, it is possible that many features were actually constructed or used during this period, but that this may only become visible in the future through excavations and absolute dating methods.

Pendants constitute a highly interesting feature in this respect, given their distinctiveness and the fact that all four OSL dates from pendants in the Jebel Qurma region were fairly consistent, all covering part of the late 1st millennium BC. This type of feature occurs, albeit in various configurations, throughout the basalt deserts of the western part of the Arabian desert. If these Pendants follow a date

range similar as defined in the Jebel Qurma region there is a vast number of features in the Arabian deserts of a phase of inhabitation that was thus far largely archaeologically invisible.

The poor visibility of Iron Age and Early Hellenistic remains is not confined to the Black Desert, but is paralleled in regions situated on the fringes of the Black Desert, including the Hauran. The Iron Age and Hellenistic period are still poorly known in this region (Dentzer et al. 2010, 139) despite several occurrences of remains from this period at few locations (e.g. Betts et al. 1996). Yet these remains hardly match the boom in rural sites and communities during the subsequent Roman and Late Antique period (see below). Similarly, limited archaeological evidence for Iron Age occupation is reported from sedentary sites in the Wadi Sirhan. Adams' survey and trial excavations in the 1970s indicated the presence of Iron Age ceramics in the northern Wadi Sirhan, at two settlements and an extensive cairn field near the town of Kaf and Ithra (Adams et al. 1977, 36). At the Wadi Sirhan's southern extremity, at Jawf, no Iron Age remains have yet been found in recent excavations and surveys carried out there (Charloux & Loreto 2014; 2015), even though this site has been identified as the ancient town of Adummatu that is mentioned in Neo-Assyrian sources (Eph'al 1982, 118-121).

The archaeological remains documented in the Jebel Qurma region from the later Hellenistic and Roman periods are limitedly paralleled in other of the regions of the Black Desert. As mentioned before, Tower Tombs similar to the ones in the Jebel Qurma region have been reported from Wisad Pools, suggesting that this type of tomb extends at least along the southern fringe of the Jordanian part of the *harra*. Other tombs known from survey and excavations reports are somewhat different in configuration. For example, the rectilinear outline of the Cairn of Hani and the location of the burial underneath the cairn rather than within it (Harding 1953) finds no parallel in the Jebel Qurma region. It should be noted, however, that there is at this point no absolute dating evidence or any of the previously excavated 'Safaitic' cairns. Making comparisons between these cairns and the ones from the Jebel Qurma region is therefore difficult, and calls for the investigation of tombs in other parts of the Black Desert.

The increase in material evidence from the Hellenistic and Roman periods in the study area is paralleled in regions adjacent to the Black Desert. Many of the towns and villages in the Hauran are probably of Hellenistic or Roman origin, as indicated by survey and excavations there (see Chapter 1). The development of the region into a prosperous rural area began under Nabataean and Roman rule, when much of agricultural infrastructure was probably created. Furthermore, in the Roman period various military installations and roads were developed along the western fringes of the Black Desert, as part of the *Via Nova Traiana* and *Strata Diocletiana*, and fortifications in the Azraq basin were constructed during the early 3rd century AD (Kennedy 1982; 1997; Millar 1993). In short, increased activities in the Jebel Qurma region are largely paralleled in the Hauran to the northwest. The occurrence of tens-of-thousands of Safaitic inscriptions has long illustrated this parallel development, which is now echoed in the archaeological evidence as well.

Up to this point there have been no indications from other archaeological projects that the Black Desert continued to be inhabited by nomadic communities in Late Antiquity (see Chapter 1). Surveys in other parts of the Black Desert have thus far hardly picked up on this period of inhabitation, which is probably largely the result of the lack of epigraphic sources from this period, as well as the limited efforts invested in archaeological research focusing on this period of inhabitation. Betts' survey programme in the Black Desert has documented limited remains from the Byzantine and Early Islamic periods, but these were all situated deep in the *hamad* landscape (e.g. Betts 1993). The only Late Antique sites from the *harra* known until recently were large and partly settled aggregation sites such as Burqu' (Betts et al. 1990) and Nemara (Macdonald 2008). To what degree the Late Antique remains from the Jebel Qurma region are representative of other parts of the Black Desert therefore remains uncertain, and calls for additional field research in other parts of the Black Desert.

Interesting comparisons can be found, however, in regions beyond the Black Desert. While the Jebel Qurma region continued to be frequented by nomadic communities during the Late Antique period, during the same period the Hauran region witnessed its peak in rural prosperity, as observed within towns and villages such as Umm al-Jimal, Deir al-Kahf, Suweida, and many others (Villeneuve 1985). Similarly, numerous outposts and small settlements emerged in the deserts of north-eastern Jordan. These include some of the so-called 'desert castles' such as at Kharaneh, Amra and Hallabat (Walmsley 2007b) and small settlements in desert environments (Bartl & Akkermans 2016; Kennedy 2014). Similarly, settlement in the Azraq oasis also further developed in the Late Antique period (e.g Elter & Al-Jbour 2013).

The phase of abandonment attested in the Jebel Qurma region during the Fatimid period phase is broadly paralleled in the Hauran and other areas on the fringes of the Black Desert. In demographic and economic terms, the Hauran drastically declines in the 9th century AD, i.e. during the Abbasid period, as documented in surveys and excavations (De Vries 2000; Foss 1997; Zerbini 2013). Evidence for Fatimid occupation in the Azraq oasis is highly restricted as well (e.g. Lash 2009). Explanations for these broader settlement trends have been sought in social instability due to civil wars, decreased political protection after the centre of caliphal power was shifted from Damascus to Baghdad, and environmental degradation due to mismanagement and climate change (cf. Foss 1997; Izdebski et al. 2015; Walmsley 2000, 271-272; Wickham 2005, 457-459). However, whether there was any relation between such developments and local settlement trends in the Black Desert must remain unclear at this point.

6.2.4. The nature of inhabitation

The archaeological remains from the Jebel Qurma region unequivocally suggest that between the Hellenistic and Early Islamic periods the region was visited by mobile communities rather than permanently inhabited. The residential sites that have been documented are all campsites which, although sometimes used on multiple occasions, were not inhabited year-round. The degree of architectural investment and accumulation of finds is simply too limited to support such a reconstruction. Instead, they represent campsites occupied for short periods of time – between a few days and a few months – after which they were abandoned, sometimes to be reoccupied at a later point in time.

Subsistence practices

The purposes of these short-lived visits to the region may have been manifold, including all kind of subsistence activities such as herding and hunting which are known, for example, from the Safaitic inscriptions and petroglyphs. Unfortunately, however, the excavations at various short-lived campsites hardly yielded remains that allow for a more detailed reconstruction of the variety of subsistence practices that may have been carried out. For example, direct material evidence for animal exploitation, such as skeletal remains, were almost entirely absent. Poor conditions in terms of preservation are perhaps to be blamed, as the deposits within the enclosures were usually very shallow, and any bone material within these deposits could have been easily exposed to degradative elements, including moisture, animals and bacteria, and severe temperature oscillations that the area receives. The experiences from burial contexts equally indicate that circumstances of preservation of skeletal remains in shallow deposits are poor.

Hypothetically, it would of course be possible that instead of poor preservation there were few animal bones deposited to begin with. This, however, seems highly unlikely because, firstly, waste materials do seem to have been deposited within and directly around campsites locations. Secondly, this waste material must have included, in at least some cases, domestic or wild animal bones. Safaitic inscriptions and petroglyphs clearly indicate the use of such animals. It therefore seems reasonable to

assume that these were occasionally butchered at campsites, and that poor circumstances prevented them from being preserved in the archaeological record.

The implication of this observation, however, is that the reconstruction of subsistence practices through macroscopic remains is considerably hindered by circumstances of preservation. At this point, for example, there is no archaeological evidence that unequivocally supports particular modes of subsistence in the Jebel Qurma region during the Byzantine and Early Islamic periods. Therefore, to what degree subsistence practices such as pastoralism and hunting contributed to livelihoods in the study area during Late Antiquity cannot be established with certainty.

Commodity production and exchange

Excavations and surveys retrieved a wide array of artefacts that could be dated to Classical and Late Antiquity. Ceramic vessels were especially numerous, although not during all phases of inhabitation. The Hellenistic and Roman-period ceramics were relatively limited, while the occurrence of ceramics significantly increases during the Byzantine period, culminating in the Umayyad period, after which it gradually declines again. As argued above, this trend probably reflects an increase in the use of pottery among nomadic communities over time up to the Umayyad period rather than differences in occupational intensity.

Perhaps other types of containers, such as pots made of metal, were used as well, especially during periods in which ceramics seem to have been limitedly used. An example, although perhaps from a slightly earlier period, comes from a burial context at QUR-215, where fragments of a bronze vessel were unearthed. For most other metal fragments it was impossible to say from what type of objects they derived. They may have been part of the weaponry depicted on petroglyphs from the same period, such as spear- and arrowheads. Other objects included items for personal adornment, such as beads and pendants made of mollusc shell, coral, glass or glass paste, bronze, ostrich eggshell, gemstones, and even pearl. Only a few coins have been retrieved, and it seems likely that although they were sometimes acquired, coins were not valued in a monetary sense.

Most of these materials, except ostrich eggshell, were not locally available and many objects must have been acquired through contacts with sedentary communities where they were created. Some of the objects required complex production processes which were most likely carried out in permanent settlements rather than among mobile communities in the desert. These include, firstly, the production of pottery vessels. Most of the pottery vessels from the study area were wheel-thrown, and although their exact provenance remains unknown, they must have originated from sedentary contexts beyond the Black Desert. Even though mobile pastoralists are known to produce their own pottery vessels from ethnographic studies, these vessels are relatively simple and made without help of a throwing wheel (e.g. Eerkens 2008; Grillo 2012). There is at this point no evidence that nomadic communities made such ceramics themselves.

Secondly, elaborate jewellery such as the earrings found at QUR-2 and other metal objects were probably produced in sedentary contexts as well. Although there is some evidence for local metal working – at the site of QUR-595 – there was no evidence at this site for primary smithing. In other words, it is most likely that objects made of bronze were reworked or mended at this site rather than newly produced. Initial production must have occurred in areas where both the expertise, raw materials and fuel, as well as adequate time was available to produce such items.

Other non-local goods include coins, objects made of glass or glass paste, and marine items such as coral and pearl. In summary, a wide array of objects that were circulating among desert communities were produced in and procured from sedentary settlements beyond the Black Desert. The exact mechanisms of procurement remain obscure for the moment. It is impossible to say at this point whether it included direct acquisition at markets, down-the-line exchange, or other mechanisms. What exactly was

given in return for these products is difficult to say with certainty, but may have included all kinds of goods from the desert, including pastoral products such as milk, hides, wool, meat, or live animals. Animal products from wild, hunted animals were perhaps also sold. Other than goods, services may also have been given in return (see Chapter 1). However, whether this was indeed the case and what these services entailed is impossible to say at this point.

Other materials, perhaps locally produced, must have been available to the region's inhabitants as well, such as hides, textiles, and perhaps bone implements. Such materials do not seem to have been preserved well in the archaeological record, even though they must have been an important part of local material culture, such as for use in domestic activities, the creation of residential units, personal adornment, and exchange.

Relations with sedentary communities

Various types of archaeological remains indicate interactions between nomadic communities from the Black Desert and sedentary communities beyond. Although the nature of these interactions cannot yet be defined with precision, some conclusions can be drawn based on the evidence presented in this study. Firstly, and importantly, there is no archaeological evidence supporting the notion of predominantly hostile relationships between nomadic and sedentary communities. There is no evidence that indicates violent behaviour or segregation between the two. Instead, the available evidence from the Jebel Qurma region suggests contact which in any case included the exchange of commodities, as discussed above.

It is difficult to say is whether communities who frequented the Jebel Qurma region were in direct or indirect contact with sedentary communities. Especially for the earlier phase of inhabitation, i.e., during the Hellenistic and Roman periods, it cannot be said with certainty that permanent settlements were situated in close proximity to the Jebel Qurma region. For this period, the closest agricultural villages were situated in the Hauran, some 70 km to the northwest. At the end of the Roman period, and especially during the Byzantine and Early Islamic periods, the encroachment of military forts and permanent settlements onto the nomadic zone, as discussed above, perhaps resulted in more direct contact between nomadic communities of the Black Desert and settled communities on its fringe. The stark increase in the occurrence of pottery during this period in the Jebel Qurma region may perhaps be ascribed to such increased ties.

Mobility

The results of the archaeological fieldwork in the Jebel Qurma region are to some degree informative on mobility patterns on various scales, both within the region and beyond. Starting with local patterns of movement, it has been observed that evidence for repeated human activity could be found far beyond the confines of residential sites. People moved out towards a number of different locations in the landscape. In most cases campsites were situated away from mudflats, which were potentially the most reliable sources of water in the region. To make use of such sources considerable distances had to be covered, and these movements were facilitated by networks of paths running through parts of the landscape that were most densely covered by basalt. Similarly, high and exposed locations were visited repeatedly for the creation of rock art, perhaps in combination with more mundane tasks such as pasturing herds, hunting wild animals, or simply being on the lookout. It is likely that people were well acquainted with their local landscapes.

Movements on a regional scale, beyond the arbitrary confines of the study area, are difficult to reconstruct with precision on the basis of the archaeological evidence. However, the material remains are suggestive of interaction with sedentary communities beyond the Black Desert. Utensils such as

pottery vessels, but also jewellery and metal objects were acquired, either directly or indirectly, from the settled parts of the Levant.

Although there is no direct archaeological evidence for the frequentation of the Jebel Qurma region during specific times of year, the movements of nomadic communities was probably governed, at least in part, by fluctuations in natural resources based on the seasons. Safaitic inscriptions are furthermore suggestive of seasonal migratory cycles (Macdonald 1992a). It was also argued in Chapter 4 that enclosures were possibly used as campsites in cold and wet seasons, while campsites without such features were used in dryer periods. This would suggest that the Jebel Qurma region was visited during multiple times of year rather than during just one season. This is furthermore suggested by the Safaitic inscriptions from the Jebel Qurma region, in which the frequentation of the region in different seasons is mentioned (Della Puppa forthcoming).

6.3. THE DEVELOPMENT OF THE NOMADIC LANDSCAPE

This section relates to one of the main questions addressed in this research: to what degree did nomadic communities transform the landscape they inhabited through the construction of stone-built features? It summarises the history of inhabitation in the Jebel Qurma region by nomadic communities and the nature of the landscapes they inhabited, based on the research presented in the foregoing chapters.

6.3.1. Relict landscapes: prehistoric features in the Jebel Qurma region

Although prehistoric stone-built features lie beyond the scope of this study, it seems relevant to briefly discuss the kind of features that were already present in the landscape since prehistoric times. After all, when the Jebel Qurma region became re-inhabited after a period of seeming abandonment during the 2nd and early 1st millennium BC, the region was by no means a pristine, natural environment. Pedestrian surveys have indicated that a number of features are most likely of prehistoric origin, including desert kites, wheels, dwelling clusters and at least a number of enclosures (Akkermans et al. 2014; Akkermans & Huigens in press; Huigens 2015; see also Chapter 3). With regard to the prehistoric enclosures, it is difficult to say at this point to what degree they were reused and modified during Classical and Late Antiquity. It is certainly possible, as both prehistoric and younger materials were found within enclosures during surveys and excavations, such as at the sites of QUR-210, QUR-373 and UQR-595 (Chapters 3 and 4). It proved difficult, however, to solidly reconstruct correlations between the prehistoric remains, such as dated fire pits and chipped-stone artefacts, and the architectural features. Nonetheless, the fact that both prehistoric and Classical/Late Antique remains were sometimes found within the same enclosure is a likely indicator for the occasional reuse of prehistoric enclosures between the Hellenistic and Early Islamic periods.

The excavation of a number of cairns indicate that some small burial cairns can be ascribed with certainty to a prehistoric inhabitation phase (Akkermans & Brüning 2017). However, most of the burial cairns that were used during Classical Antiquity were newly constructed rather than reused, with the possible exceptions of the cairns at QUR-215 and QUR-956. Important morphological differences were observed between the prehistoric cairns and those from the Hellenistic/Roman period. The prehistoric cairns were fairly small – usually less than 4 m in diameter, while the more recent ones were generally larger. These measurements may thus be used to make chronological differentiations between cairns documented through surface surveys. Whether this holds for areas beyond the Jebel Qurma region as well requires further research.

6.3.2. Developments in the natural environment

Although the geology and topography in the Jebel Qurma region has probably been relatively stable over time, this need not have been the case for vegetation and water availability. This research has provided limited new information on past environmental conditions in the study area. The clearest indications that environmental conditions may have been more humid in the period under investigation are the results from botanical analysis of charred plant remains from the site of QUR-595, discussed in Chapter 4. In recollection, these remains may indicate that part of the Jebel Qurma hosted moister conditions than at present. However, this must remain a suggestion rather than a fact given that these remains came from a single site only and, moreover, may have brought into the site as fire wood from elsewhere. Analyses of botanical remains from other sites are further necessary to determine whether the environment was indeed more humid, and during which periods.

It is also recalled here that potential clues to changing environmental conditions were encountered during the excavations at QUR-373. In the enclosure at this site relatively thick accumulations of wind-blown sand were encountered. These accumulations were deposited behind the enclosure wall that acted like a trap for aeolian sediments. These sands may have been deposited as a result of increased environmental degradation or increased wind activity (e.g. Roskin et al. 2013; Woronko 2012) but this remains uncertain at the moment and requires further investigation.

6.3.3. The construction of stone-built architecture

There is, at this point, no unequivocal evidence that any of the enclosures that were attested in the Jebel Qurma region were constructed during the Classical or Late Antique period. Although many of such features were used in this period, their date of construction may be much earlier. None of the enclosure walls could be directly associated with datable remains, such as OSL dates or stratigraphically related floor levels. Prehistoric remains were often encountered within the enclosures, suggesting that it is possible that the structures were of much older origin. Nevertheless, in some cases there is evidence that enclosure were structurally modified. For example, at the site of QUR-373 part of the enclosure wall was reinforced during the Early Islamic period. Similarly, part of the enclosure wall at QUR-11 was also rebuilt during this period.

While many of the enclosures may have been reused and modified, other features were newly created. These include clearings, which seem to have been newly created in the landscape from the Hellenistic period onwards. After the initial creation of these features they were sometimes reused during later periods, evidenced by the occurrence of pottery sherds from various phases of inhabitation between the Hellenistic and Early Islamic periods on these clearings.

Other features that were newly constructed during the Hellenistic and Roman periods of inhabitation are different types of burial cairns, and Pendants were sometimes added to these tombs. Tower Tombs represent the most characteristic tomb type. These are relatively large burial cairns with a monumental external façade forming the tower. These towers served as tombs, as did, in some cases, rectangular ante-chambers constructed against the façade's exterior. Both male and female adults were interred in such tombs, and possibly children as well. Items for personal adornments such as necklaces or bracelets and earrings were often interred with the dead. Pottery vessels were completely absent from grave inventories. Furthermore, a large degree of architectural investment was put into the construction of such tombs. Some of the blocks of the construction weighed as much as 300 kg, and the total construction of a Tower Tomb may have been the effort of large amounts of people. Another cairn type was the Ring Cairn, which was attested at QUR-215 and possibly represent a slightly earlier tomb type.

Although Safaitic inscriptions and petroglyphs often tend to cluster around burial cairns, there is at this point no evidence for a clear correlation between funerary practices and the creation of such

carvings. It is recalled from the excavations at QUR-2 that at least some of the many carvings found there were already made prior to the construction of the Tower Tomb. Furthermore, there are only very few inscriptions from the study area that actually mention the construction of a funerary structure.

Another spatial and chronological correlation was established between burial cairns and Pendants, on the basis of OSL dates. The excavation results clearly indicate that the Pendants themselves do not represent mortuary structures, as there were no remains of burials within or underneath these structures. Pendants almost exclusively occur at Hellenistic/Roman period burial cairns, and this strong association with burial cairns does suggest that they played some part in burial customs or the commemoration of the dead interred within cairns.

An important shift seems to have occurred in the Late Antique period of inhabitation. Significantly, the construction of burial cairns seems to have come to a complete stop: the latest known cairn burial is from the 3rd or 4th century AD. Instead of cairn burials, inhumation graves appear around the same period. This practice is attested at a limited number of sites but may well represent the funerary custom that was common in the Jebel Qurma region in Late Antiquity. Some of these graves were found in isolation, others possibly in small cemeteries. Given the scarcity of burials from this period it is difficult to make generalisations about how people were buried. The inhumation grave underneath a cairn at QUR-9 from the 5th or 6th century AD was buried in a contracted position, with no grave goods. Other graves did yield artefacts, including ceramics, but the grave goods were generally more limited in number than in tombs from the Hellenistic and Roman periods.

6.3.4. The structure of the nomadic landscape

The study at hand has shown that the Jebel Qurma region consists of a wide variety of environments, and that these were used in different ways by their past inhabitants. A clear differentiation has been observed between the *harra* and *hamad* landscapes of the study area. Although archaeological remains have been documented in both landscapes, the majority of these remains were confined to the basalt-covered *harra*, in the centre of the study area. Also, nearly all of the pre-Islamic inscriptions and petroglyphs were situated here. It should be noted, however, that the *hamad* is far from empty, as a diversity of archaeological remains from the Classical and Late Antique periods were recorded here during pedestrian surveys, including campsites, burial cairns, and pendants. The nomadic landscape thus appears to spread beyond the confines of the *harra*. This is an important realisation because a number of recent studies have still regarded the *harra* as the confines of the Black Desert and its nomadic landscapes. For example, in remote sensing studies (e.g. Kennedy 2011; Meister et al. 2018) the archaeological remains of the *hamad* surrounding the *harra* are rarely taken into account. This study shows, however, that by doing so much of the archaeological remains are essentially missed, which has obvious repercussions for subsequent interpretations with regard to, for example, settlement patterning, land use, and mobility.

These considerations notwithstanding, there is still a considerable discrepancy between the number of archaeological remains present in the *harra* and *hamad* landscapes, as most archaeological and epigraphic remains are found in the *harra*. There may be different explanations for this discrepancy. Firstly, the *harra* landscape offers the best potential sources of water, namely the mudflats which may become transformed into temporary lakes after rainfall, and may even retain water into the dry season. The *harra* landscape is furthermore bordered by Wadi Rajil, which may also contain large amounts of water during wet seasons. Secondly, the *harra* consists of many places offering a relatively high degree of seclusion, including the many deep valleys that run down from the south and west part of the basalt-covered plateau. These secluded areas may have been preferred over the open *hamad* plains in cold weather. The abundance of building material in the *harra*, as opposed to the *hamad*, may also have been a factor in this respect, as this would have facilitated the construction of new enclosures or the repair of

relict prehistoric enclosures. Seclusion may also have been sought for protection against other potential threats, including communities that were regarded with hostility. Although there is no evidence for violent conflict in the region, a number of Safaitic inscriptions from the study area demonstrate hostility between different nomadic lineage groups, which possibly also included risk of violent conflict (Norris & Al-Manaser 2018). In such cases it would not be unlikely that visual exposure to passing enemy groups was sometimes preferably avoided. In fact, one of the Safaitic inscriptions from the study area mentions hiding from cavalry (Della Puppa forthcoming, QUR 956.75.1), while several others refer to raiding and standing guard (Della Puppa forthcoming).

Although archaeological remains from the Hellenistic and Roman periods have been encountered in the *hamad* of the Jebel Qurma region, this hardly holds for pre-Islamic inscriptions and petroglyphs. Such carvings were only encountered in the *hamad* in close proximity to the basalt landscapes. This is rather surprising as this combination of epigraphic and archaeological remains is typical for the *harra*. One possibility for this observation is that the creation of such carvings was indeed largely confined to panels made of basalt. Perhaps the material properties of basalt was better for making carvings than those of lime- and sandstone rocks, or some cultural factors are involved here (see Brusgaard forthcoming). Another possibility is that there was no such differentiation originally, but that most carvings on lime- and sandstone have not been preserved due to wind erosion. The rock types in the *hamad* are much softer than basalt, and we should take into account the possibility that any carvings on these rock types have eroded away over the course of about two millennia.

In the *harra* landscapes, further differentiation can be made between the use of lowland and upland areas. Campsites are almost exclusively found in lowland areas, including valley floors and lower slopes of hills. There are a number of practical considerations that may explain the use of lowland areas for residential purposes. These areas were most easily accessible and featured a relatively open basalt cover that could be easily cleared to create suitable living spaces. Furthermore, as noted above, these areas also provided shelter against potential foul weather. Many ethnographic studies of campsites have highlighted the importance of such considerations among nomads (Cribb 1991, 137; Hammer 2012, 53-57; Western & Dunne 1979). Pasture availability may have further influenced choices for the location of campsites. Most campsites identified in the Jebel Qurma region were situated on or near the transition between *harra* and *hamad* landscapes. Although the location of pasture zones in antiquity remains unknown, ethnographic studies have shown that both the *harra* and *hamad* landscapes may provide pasture, but that this may vary from year to year depending on the timing and amount of precipitation (Rowe 1999, 358). Camping on the transition between the *harra* and *hamad* may have occurred in anticipation of such variations.

Minor developments were observed in the location of campsites which, nonetheless, may have been significant. Campsites that were used during the Hellenistic and Roman periods were mostly situated in secluded locations such as valleys and small basins in the interior of the *harra*. During the Byzantine and Early Islamic periods the location of campsites seems to have diversified as campsites from this period appear in both *harra* and *hamad* landscapes, and thus partly shifted towards somewhat more exposed locations in the open plains of the study area. Apparently, the benefits of secluded locations were no longer valid, or at least to a lesser degree, in the Late Antique period.

While lowland areas predominantly hosted campsites, upland areas mostly contained features of an entirely different nature. Hilltops and ridges mostly contained funerary monuments such as burial cairns and pendants, as well as concentrations of rock art (Brusgaard forthcoming). Such features were present in far less numbers in lowland areas. While lowland areas were often relatively secluded, many of the basalt-covered hilltops and ridges were characterised as places with a high degree of visual prominence: these places could be observed from relatively large distances, and also offered extensive views over the surrounding terrain. In the Hellenistic and Roman periods, such places were apparently

preferred for the creation of clearly visible funerary monuments and for the carving of inscriptions and petroglyphs.

6.4. THE PURPOSE OF STONE-BUILT ARCHITECTURE

This research set out to better understand the way in which stone-built features in the Jebel Qurma region were used by its nomadic inhabitants between the Hellenistic and Early Islamic periods, and the broader significance of such features to certain economic and social strategies of these communities. Archaeological fieldwork in the region has indicated that these nomadic communities made use of a variety of features. Some of these features were newly created, while others possibly represent reused prehistoric installations. In Chapter 1 a number of hypotheses were proposed on the purpose of stone-built architecture in the context of mobile peoples. Firstly, it was argued that stone-built features could have a variety of purposes related to short-term periods of inhabitation of particular spaces. Secondly, it was proposed that features could also serve particular purposes on the long term, related to anticipated return visits to the region. These possibilities are reviewed in this section based on the archaeological research presented in this dissertation.

6.4.1. Ephemeral use of stone-built architecture

The research presented so far provides a number of indications about the functioning of stone-built architecture on the short term. The region does not seem to have been inhabited year-round on routinely basis – there are not permanently inhabited settlements – but frequented only during particular times of year, probably following the availability of resources related to seasonal variations in precipitation. Therefore, mobile communities were occasionally present in the Jebel Qurma region while at other times migrated to different areas of the Black Desert or even beyond. It is difficult to say at this point exactly how long such visits lasted and, furthermore, it is not unlikely that this varied to a considerable degree from time to time. Whatever the case, such short-term visits are indicated by the occurrence of temporarily inhabited campsites, many of which were identified through surface surveys and excavations. Architectural features at these campsites sometimes include stone-built enclosures which, as indicated by the presence of fire places and domestic waste within them, were often used for residential purposes. Other spaces used for such purposes, but without the enclosing walls, were clearings. It is expected that the actual residential units consisted of perishable materials such as cloth or hides, even though such materials were not retrieved. The purpose of the stone walling of the enclosures, then, may have been to provide additional protection against cold winds and rainfall which are expected to have been present, at least occasionally, in winter or even in spring and autumn. The use of such features for this purpose is known from ethnographically documented nomadic campsites (e.g. Cribb 1991; Hammer 2012; Von Oppenheim 1899).

To what degree enclosures were also used to provide shelter for herd animals that potentially accompanied people camping at these locations is at this point impossible to say. Ethnographic studies indicate that especially young animals may be vulnerable to foul weather and therefore benefit from some form of protection against it (e.g. Biagetti 2015; Salzman 1983, 37), and the excavations have indicated that some enclosures or parts thereof were not used for residential purposes, and may have functioned to shelter animals. Any definitive answer to this question, however, requires further investigation. For now, however, it is relevant to have established at least one of the potential purposes of the enclosures, i.e., their use as camping areas, as until now there was hardly any archaeological information about the way in which they were used, as was outlined in Chapter 1.

Another important realisation is that many of the enclosures may actually have been constructed long before nomadic communities came to inhabit the Jebel Qurma region in the late 1st millennium

BC. For several of the excavated enclosures a prehistoric origin is likely, and the same holds for many of the other enclosures documented through pedestrian surveys as they are often associated with prehistoric chipped-stone artefacts. Relict prehistoric features may thus have profoundly impacted future engagements with the landscape, at least in the case of campsite location, even if these features were reused and modified only for the sake of convenience. In other words, there may have been no need to newly construct enclosures as many of them were already present in the landscape since prehistory.

This does not imply, however, that prehistoric enclosures were reused only because they provided areas made free of the rocky surface cover and, therefore, suitable camping areas. The walling itself was certainly relevant, as is indicated by the fact that these walls were occasionally reinforced, such as at the site of QUR-373. Moreover, if the availability of stone-free surfaces was the only requirement for the configuration of campsite areas, one of the many clearings created in the *harra* landscapes could be used as well. These clearings, however, were in many cases differently situated, i.e., on more open terrains and somewhat better accessible locations. While these clearings were sometimes used for camping as well, in other cases enclosures were preferred. This differentiation is possibly explained by the use of these features in different times of year, as argued earlier on (Chapter 4).

In addition to seasonal use of enclosures for residential purposes, other short-term uses of stone-built features can be found within the funerary landscape. The disposal of the dead is inherently a short-lived activity which is manifested in the Jebel Qurma region in a variety of ways. In the early period of inhabitation, i.e., roughly from the late 1st millennium BC until the 3rd century AD, burials occurred in cairns, while in the subsequent period underground graves emerged, mostly unrelated to elaborate architecture. In the former case, considerable effort was put into the construction of a stone-built tomb and the movement of the body of the deceased up to high locations in the landscape where cairns were created or modified for the interment of a new body. Why it was deemed important to bury the dead at such locations and in elaborately constructed tombs is a question that goes beyond the practical purpose of disposing the dead. This question be addressed in the next paragraph.

6.4.2. Investment in permanent landscape features and its long-term significance

Understanding the construction and use of stone-built architecture in nomadic landscapes goes beyond investigating the practical function of such features related to short-term activities of nomadic communities. What is also important, as argued in Chapter 1, is to investigate the potential long-term relevance of such features to economic and social strategies for those who created, used and perceived them. In other words, in what way was the creation of permanent architectural beneficial on the long term? The research presented in this dissertation provides information on this issue in several ways. Various features were used on multiple occasions rather than incidentally. The first kind of sites to be considered in this respect are campsites. These consisted of clearings, enclosures, or both, and were often used during different time periods considering the presence of materials datable to different periods, including dated fire pits and ceramics. In some cases, enclosures may already have been present during prehistory. Other features, such as clearings, were created during the Hellenistic or Roman period but reused after that on multiple occasions. Importantly, therefore, nomadic communities who frequented the region during later periods were able to make use of these features for their own purpose, and may not have had the need to invest in new features. Over time, the landscape became increasingly modified and suitable for hosting the inhabitation of short-lived visits by nomadic peoples who required to invest less in the creation of such features, as they were already present in the landscape.

Funerary monuments differ considerably from the features found at campsites as their configuration is in many cases more elaborate and, arguably, geared not so much towards practical use as towards what they may have conveyed. Tower Tombs, Ring Cairns, and the Pendants often found in association with them were constructed on highly prominent locations in the landscape as they were situat-

ed on hilltops and ridges that dominated the skylines of the Jebel Qurma region. Their visibility was enhanced by their size and configuration. The straight facades characteristic for the Tower Tombs, and sometimes also observed in Pendants, made them further stand out on the horizon. They were not concentrated in one particular place but well-distributed over the landscape. Through their location and morphology, these burial cairns thus visually imposed themselves to anyone visiting the region in the past. The purposeful creation of such features and their use as tombs may thus have created a strong relationship between those who were buried within the tombs and those who frequented the region at a later point in time. The dead were not hidden, but remained present in the landscape using the funerary monuments as a medium. Furthermore, after their initial construction they continued to be added upon through the interment of more burials, which is attested at several tombs. These tombs thus remained important elements in the landscape long after their initial construction.

What may these tombs have signified through their morphology, position in the landscape, and their recurrent use as tombs? It is difficult to answer this question with certainty as it largely relates to the intangible domain of perception. It would seem likely, however, that these funerary monuments symbolised a sense of attachment between, on the one hand, the people who buried their dead in these monuments and, on the other hand, the landscapes in which these monuments were constructed. This relationship may have been vested in the mnemonic properties of these monuments, i.e., the memories they may have invoked related to the individuals who were buried and the people and events associated with these individuals (cf. Bloch 1971; Bradley 1998; Holtorf & Williams 2006). In the Jebel Qurma region, the invocation of such memories was imposed on those who frequented the region through their dominant presence in the landscape, and thus communicated to them a history of individuals and communities who visited the region in the past. The people who were addressed in this way would have identified with this history, i.e., those who belonged to the same social group of those who were buried in the tombs. Similarly, to members of different social groups these features may have invoked a sense of otherness, or detachment, to the places marked by the monuments. In this respect, it is important to take into account the geographic scale on which these funerary monuments were erected. Tower Tombs were identified not only on prominent locations in the Jebel Qurma region, but also at Wisad Pools about 75 km to the east (e.g. Rollefson 2013). It is possible, therefore, that Tower Tombs dotted at least the entire length of the southern limit of the Jordanian *harra*. If so, these tombs would have a communicative function on a scale much larger than the Jebel Qurma region.

If the funerary monuments indeed conveyed the attachment of certain groups of people to the landscapes in which they were erected and, therefore, if this would have been the motivation for why they were constructed and used as was documented, this fits well the model in which burial cairns functioned to communicate territorial claims (see Chapter 1). Examples of territorial behaviour among nomads is found in the Safaitic inscriptions from Jebel Qurma and beyond (Al-Jallad 2015, 16-17; Norris & Al-Manaser 2018), and one of the ways in which territorial claims were communicated may have been through burial cairns. This reconstruction, however, rests on the assumption that burial cairns were exclusively used by the same social groups. More research is required to test this assumption, such as through by a comparative analysis of DNA from the skeletal remains inside the tombs to investigate potential kinship ties (e.g. Baca et al. 2012; Gamba et al. 2011).

Following this line of though a bit further, however, the graves that seem to have replaced the tradition of cairn burials after roughly the 3rd century AD may have had much less dominant mnemonic properties as they lacked the visual properties of the burial cairns. Instead of visually imposing themselves onto those who visited the Jebel Qurma region, these graves could only have invoked the memory of the deceased and the histories attached to them when approached up close. With the introduction of this burial custom, then, material expressions of the attachment between people and the landscapes of the Jebel Qurma region, vested in relations with the dead, were apparently discontinued

with seemingly no medium that replaced it. Does this discontinuity imply a decreased sense of spatial attachment among nomadic communities in the Late Antique period, a loss of territorial behaviour, or even social cohesion? This is impossible to say at this point as there may have been other mechanisms to maintain such relations between people and the landscape. What is clear though that stone-built architecture did not fulfil this role any longer in Late Antiquity.