

Tracks in the Sand: Theoretical and Methodological Approaches to the Archaeology of Mobile Desert Communities

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Introduction

The archaeology of the desert communities of the southern part of the Arabian Peninsula has received little attention compared to other arid regions such as Australia and the Americas (Smith et al. 2005). This is compounded by the belief that archaeology is incapable of adequately accessing the information left behind by small mobile groups (Rosen 2011). Historically, this idea was particularly pronounced among scholars of the ancient Near East, who regarded the ephemeral remains of tents and largely perishable transportable commodities as beyond the detection of archaeological practices (e.g. Childe 1951: 70), or as representing a severely deficient record requiring supplemental corroboration (Finkelstein and Pervolotsky 1990). This situation led to a reliance on ethnographic and ethno-archaeological approaches to fill the void left by the absence of archaeological data. The persistence of the belief in the archaeological inaccessibility of the data left by mobile desert communities has impeded systematic efforts to refine archaeological approaches which attempt to detect such information (Rosen 2011: 1). These twin empirical

and theoretical constraints mean that there is a substantial gap in our understanding of the nomads of Qatar, despite the fact that these groups were active into the second half of the 20th century (see Ferdinand 1993; Montigny 1985). Therefore, the challenge is to develop the methodological tools to be able to access the remains of such mobile desert groups.

This was one of the aims of The Crowded Desert Project, a multi-scale archaeological project focusing on the Meleiha-Umm al-Mā' region of Northwest Qatar (fig. 1). The project aims to illuminate the changing material conditions of the region's past nomadic populations and to understand their engagement with sedentary communities (see Carvajal López et al. 2016a, 2016b, 2017a, 2017b, forthcoming). Previous archaeological missions to Meleiha-Umm al-Mā' have focused on either funerary (Glob 1956, 1958; Konishi et al. 1994; Schreiber and Muhler 2008) or settlement archaeology (Cuttler et al. 2013; De Cardi 1978; Guérin 1999; Guérin and Al Naimi 2009), with few attempts made to record the region's extensive nomadic remains. The Crowded Desert Project is an attempt to rectify this. Over the course of four field seasons it has generated a corpus of excavation, survey and artefact data which has greatly enhanced our knowledge of the region. The data and results presented in this paper are preliminary: the project completed the field data collection phase in late April 2018, post excavation analysis is currently underway.

Qatar in Context: Climate, Geology & Hydrology

The climate of the Arabian Gulf has fluctuated considerably throughout the Holocene. The Ubaid (6500–3800 BC) in Qatar corresponded with a period which has come to be known as the 'Hydrological Optimum' (Macumber 2011), when higher interglacial sea-levels resulted in an elevated water table. This coincided with a period of monsoon rains as the Intertropical Convergence Zone shifted northwards. These forces resulted in a wetter climate with more easily accessible groundwater for around a thousand years until 6000 BP (Macumber 2011). From the late Neolithic onwards (fourth millennium B.C.) there was a gradual drying out of conditions. Today, Qatar's climate is defined as arid to hyper-arid

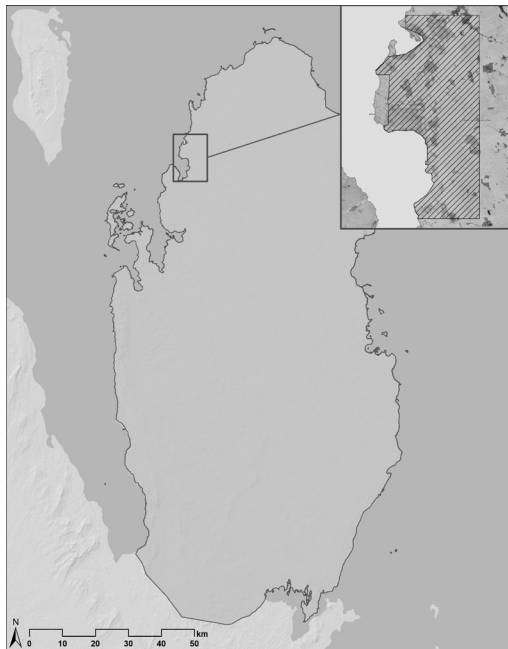


Fig. 1. The Meleiha-Umm al-Mā' region of Northwest Qatar, focus of the Crowded Desert project (Created by Laura Morabito).

(Middleton and Thomas 1997), with average annual rainfall in the north of around 80mm (Macumber 2011).

The terrain in this area is punctuated by broad, shallow, silt depressions, or *rawda* (fig. 2) formed as a consequence of gypsum dissolution, these serve as catchments for rainfall, primarily winter-storm run-off, via a network of fluvial channels. This mechanism results in rainfall re-charge of the Tertiary limestone aquifer system with no permanent fresh surface-water. As a result, historically, all occupation was dependent on groundwater-wells. Groundwater discharges outwards from the interior and is freshest in the north, with a lens of freshwater flowing towards the littoral zone (Eccleston et al. 1981; Lloyd et al. 1987; Macumber 2011) supplying a string of settlements along the northwest coast, and making the Meleiha-Umm al-Mā' region particularly attractive for occupation and pasture. The

fertile soils of the silt depressions would also occasionally have afforded limited and unreliable opportunities for agriculture.

The Crowded Desert Project: Theories and Methods

In order to understand the ephemeral traces of nomad groups in Qatar, the Crowded Desert Project used a range of methods from remote sensing to landscape archaeology, down to excavation and three-dimensional reconstructions of in-situ artefacts, with all data embedded in a GIS (Carvajal López et al. 2016a). This multi-scale approach is intended to generate a dataset conducive to analysis at a variety of resolutions, enabling researchers to engage with questions at landscape, inter-site, and intra-site scales. The project covers an area of 4470ha, centred around several silt depressions and their associated nomadic and settled archaeological remains. Three parallel survey strategies were employed (fig. 3). These comprised an 'extensive' landscape survey, a more focused 'intensive' walk-over survey and an extremely intensive 'artefacts targeted' survey. These surveys informed the location of targeted excavations at a range of site types, including nomadic encampments, middens, forts and the early Islamic settlement of Al Yaghbi.

The survey covered an area of 3895ha and involved a drive-over investigation with transects spaced at 200 m, assuming an effective visibility of around 100m either side of the vehicle using a handheld GPS for navigation (see Bevan 2002 for an overview of extensive survey techniques). Based on comparison with the walk-over surveys, we estimate that this methodology resulted in the identification of between 40 and 60 percent of the total number of features.

In parallel with this approach, an intensive survey followed using the intensive transect method with 10m wide transects (Alcock et al. 1994; Bintliff 2000; Cherry et al. 1991; Van Leusen 2002 for a review of intensive survey techniques). This method of field-walking is more commonly used on plough soils to identify sites based on artefact scatters in these instances 10-20% coverage of the total areas is typically achieved. However, the landscape of the Meleiha-Umm al-Mā' region consists of low relief, undulating, rocky, desert terrain which lends itself to a higher



Fig. 2. The Meleiha silt-depression during winter 2016 (The Crowded Desert Project).

percentage of ground coverage as well as site and artefact identification, enhancing the visibility of many sites on the surface. This factor was both beneficial and problematic; although useful in plotting site densities without reliance on artefact scatters, it also results in an inevitable small-scale site bias (Van Leusen 2002). This bias can be seen as an amplification of the bias established by the targeting of the survey in an area of known archaeological potential. The survey employed several strategies to counter this bias, including walking strictly to transects and targeting a variety of types of terrain (e.g. *rawdā*, silt depressions, low rocky hills) to test assumptions about the archaeological potential of each.

A further degree of resolution was afforded by an artefact-targeted survey, which re-visited areas of interest identified by the previous surveys (Schreiber et al. 2009) and used transects between 2m and 10 m depending

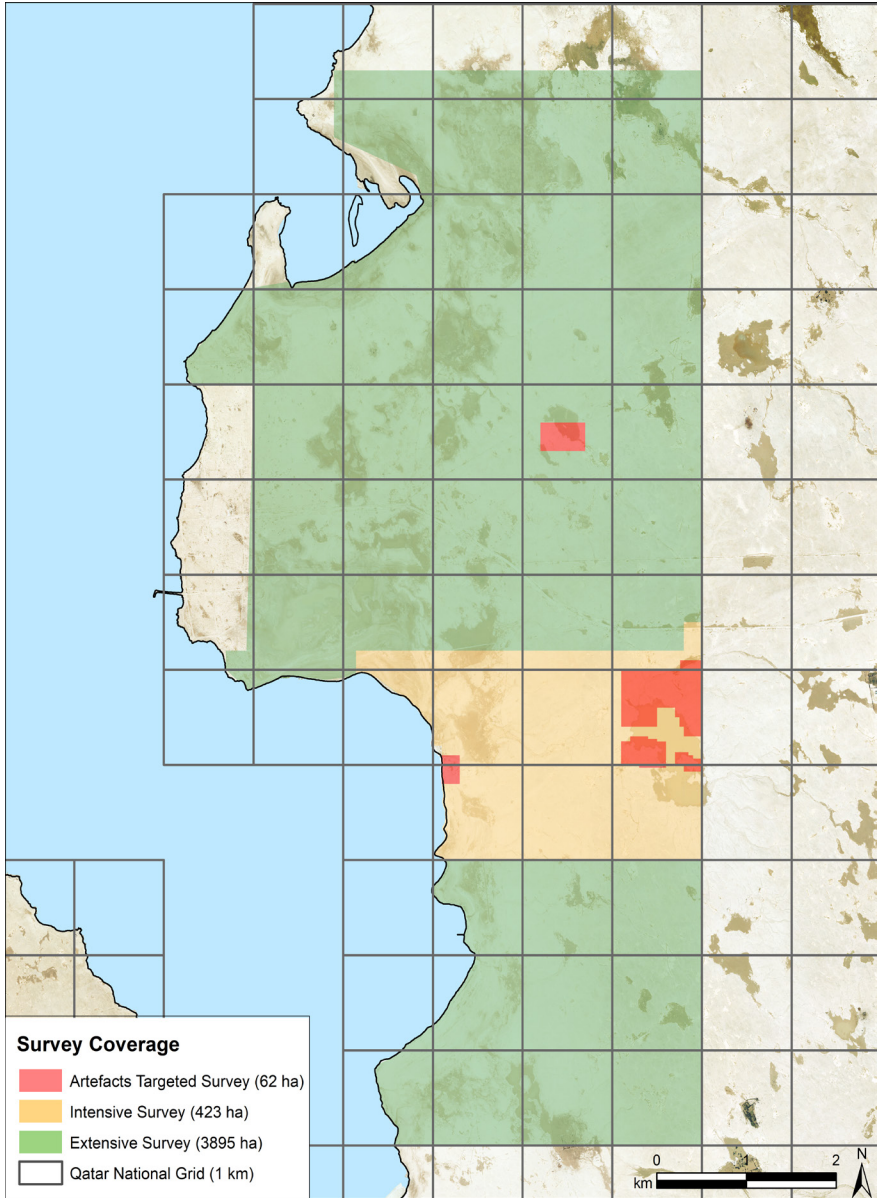


Fig. 3. Map of the Crowded Desert survey area (Created by Laura Morabito).

on the terrain, as well as artefact collection (see e.g. Van Leusen et al. 2011 for a review of survey approaches to ephemeral archaeological landscapes). This resulted in site identification and surface artefact collection in the region of 95%. It is the most intensive and highest resolution survey so far undertaken representing a degree of resolution second only to that obtained through excavation.

Targeted excavations were undertaken at a variety of locations informed by the survey, including nomadic camps, a pair of Ottoman period forts situated close to the coast and at the early Islamic settlement of Al Yaghbi. These excavations represent the biggest enhancement of the data collection resolution and were conducted with the aim of characterising the types and periods of land-use and occupation. The excavations yielded a considerable quantity of contextual, environmental and finds data, along with a written and photographic archive.

In addition to survey and excavation, large-scale aerial imagery using drone, kite and pole photography was conducted to generate far more detailed topographical mapping of the region than had previously existed. At the outset of the project, very little high-resolution base cartography had been made publicly available and open-access satellite imagery provided insufficient detail for the area.

Ground penetrating radar was also used, but was shown to be of limited utility given the potential for shallow geological anomalies to be confused with ephemeral archaeological features (Blinkhorn 2015).

Reading Nomadic Landscapes as a Multi-Dimensional Palimpsest: Ideas, Preliminary Results, and Limitations

A total of 2521 features and 2602 waypoints relating to artefact clusters were recorded by the field survey, while excavations were conducted across 30 trenches including one settlement. The archive comprises over 300 contexts, 125 paleo-environmental, phytolith, and radiocarbon samples¹ and a large and varied finds assemblage. These numbers are impressive if compared to the size of the survey area (4470ha) and to the 25 weeks

¹ The samples are currently under analysis, with results pending.

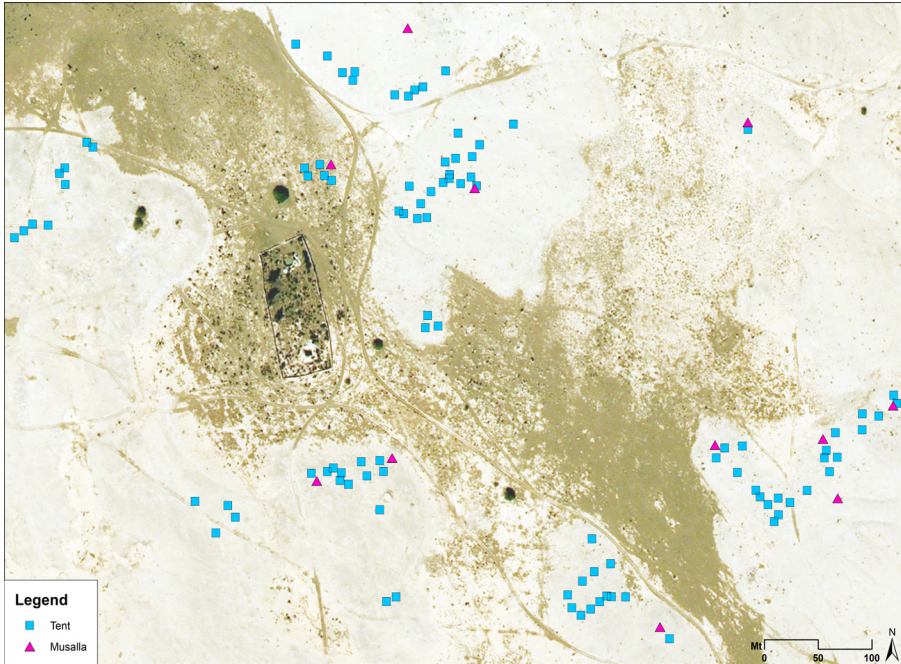


Fig. 4. Map showing the distribution of archaeological campsites (Created by Laura Morabito).

of field activity. Data analysis is still ongoing on several fronts including finds typology and composition, GIS-based spatial analysis and geo-archaeological analysis, but some preliminary remarks are possible.

The multi-scale survey contributed to the identification of a large number of features related to the nomad communities of Northern Qatar. Among the main feature types identified were tent-clearings, cairns, *musallah* prayer areas, permanent buildings, Islamic and pre-Islamic graves, stock enclosures, windbreaks and cleared spaces. Tent-clearings and outlines were by far the most numerous of the site categories, with 1010 recorded, representing several hundred temporary Bedouin encampments. A GIS-based analysis of the density of artefacts and feature distributions of a subset of the survey area identified 23 campsites which formed the basis for interpretations about settlement patterns.

The initial data suggests that nomadic camps conform to a pattern, with the majority arranged in a linear configuration (fig. 4) and the long sides of the tents aligned either northeast-southwest or northwest-southeast. Camps generally comprise between four and ten tents, with clusters of domestic tents, each measuring approximately 8x5m. There was also often one larger tent measuring 16x6 m and occasionally smaller square tents measuring 5x5m some distance from the main part of the campsite. These areas usually also featured a temporary prayer area or *musallah*. Marker cairns often indicate the location of camps. These are located with reference to both natural and human-made landmarks such as ridges, spurs, tracks and paths. The configuration of the camps conforms to the ethnographic pattern described by Ferdinand (1993: 83–88), who studied the twentieth century al-Na'im campsites. These camps consisted of a single, large, five-poled *bayt sha'ar* tent belonging to the most important of the camp's men which accommodated eight to ten individuals with several three-poled tents inhabited by family units and often a smaller, guest tent (*bayt khiàs*), used to accommodate shepherds or other labourers. Among the aspects accessible to archaeology but not necessarily to ethnography are the changing material conditions of life among the Bedouin. Developments in material culture, including changes to construction materials and the substitution of perishable goods for metals and eventually plastics, in parallel with changes to the types of available technologies and transportation in the later twentieth century. These contrast with the stability of the form, dimensions and internal configurations of tents. Cultural norms about spatial relations of campsites (e.g. male vs female areas, guest vs domestic spaces; see Ferdinand 1993), evidently persisted long after the introduction of modern materials, implying a high degree of cultural conservatism coupled with the ability to absorb material and technological innovations (Carvajal López et al. forthcoming).

The results of the survey also highlight the impact of geology and hydrology on settlement distributions with nomadic camps clustered on stony plateaus at the margins of silt depressions and water channels within a few minutes walk of both freshwater wells and pasture grounds. Intra-site mobility appears to have been facilitated by a network of sinuous paths cleared of stone, which frequently extended for several hundred metres

between camps. There is clear evidence for the super-imposition of paths and campsites with tracks cutting through earlier campsites that are themselves superimposed on earlier tracks. This observation both evinces the temporal depth of nomadic occupation in Meleiha-Umm al-Mā' and has enabled tentative relative chronologies between a number of the camps. The identification of this interconnected network of resources and campgrounds is a valuable contribution to our understanding of the human use of this desert landscape. The dating of campsites is methodologically difficult, since the site formation processes of nomadic occupation leave little in the way of stratified accumulated deposits. It is therefore a considerable challenge to definitively link middens and finds assemblages with particular campsites, and in only a few instances were stratified ceramics or dateable samples recovered. This represents one of the primary limitations of the current state of our research.

The Crowded Desert Project has added considerably to our knowledge of the funerary landscape of the Meleiha-Umm al-Mā' region. The combination of field surveys covering a large area with detailed topographical mapping derived from our DTM represents a large amount of new data and provides a basis for interpretations regarding the changing nature of burial practices from the Iron Age until the present day. Provisional analysis suggests that there is a strong correlation between topography and the location of pre-Islamic burial cairns. Data from the intensive survey show that 75.2% of pre-Islamic burial cairns were situated on ridges and outcrops overlooking portions of the landscape. There is no equivalent correspondence for Islamic graves and cemeteries, with only 34.9% of such features located on high ground (fig. 5). This finding would support the interpretation of these early grave sites as markers of ownership in the landscape (Cuttler et al. 2013). Further work on the spatial configuration and landscape scale inter-visibility of the burials is planned, with the aim of testing this hypothesis. In addition, the ongoing geo-archaeological analysis will help inform the statistics by providing evidence on whether morphological changes to low lying areas has affected the archaeological visibility of earlier structures. These new data represent a significant contribution to our understanding of the development of the

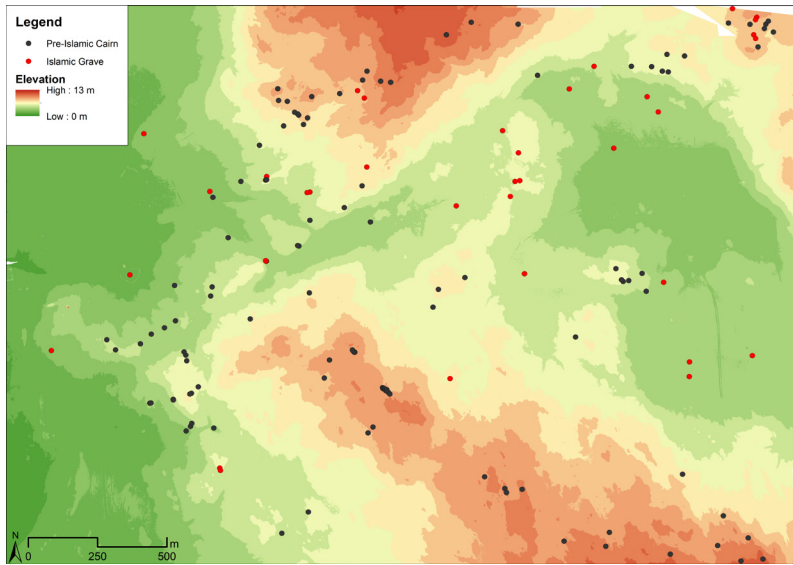


Fig. 5. The distribution of funerary sites relative to topography (Created by Laura Morabito).

funerary and ritual significance of this desert landscape and are a logical progression from the previous scholarship on this topic.

With regards to the targeted excavations conducted during the project, the most conclusive results come from the excavation at al-Yaghbi, which revealed a probable Umayyad settlement occupied for around a century and which provides intriguing evidence for the development of early residential forms in Arabia during the first years of Islam. These data enhance our understanding of the development of sedentary communities in Arabia, as Al-Yaghbi represents one of the earliest Islamic period settlements in the Gulf², whereby the findings provide a means of testing competing models about the mechanisms of sedentarisation in Qatar (see Guérin 1994). Further details of this will be discussed in a dedicated, forthcoming publication. The other, more limited archaeological excavations at the margins of the Meleiha silt depression revealed the buried remains of

² Radiocarbon dates will be presented at the 2019 Seminar for Arabian Studies

tents and camps. Radiocarbon dates from these excavations will shed light on the temporal depth of nomadic occupation in the area. In addition to this, geo-archaeological sampling was carried out in a number of areas; the result of these analyses, once available, will refine our understanding of the longer-term geomorphological processes responsible for the environment of the Meleiha-Umm al-Mā' region.

The use of drones, kite and pole cameras for the photogrammetric mosaic of the survey area has produced detailed ortho-rectified photos and a digital terrain model with a resolution of 200mm (down to 13mm in the areas of highest archaeological significance). This has enabled the identification of sites which are barely visible at ground level, due to the deflation and erosion of archaeological remains and the low relief of certain categories of features. Authors will therefore be able to analyse the relationship between topography, inter-site visibility, and settlement distribution to a far more detailed degree than had previously been possible. Additionally, multispectral photography and thermal imaging have proved useful in the identification of buried and partially buried features such as walls and enclosure ditches.

Discussion: Outline of Nomadism and Nomadic Archaeology in the Light of the Crowded Desert Project³

Relations between nomadic pastoralists and settled communities have long been at the core of debates about mobile desert groups. The anthropologist Anatoly Khazanov pioneered the study of nomads, defining nomadism in terms of mobile, food-producing economies in which the bulk of the population participates in pastoral migrations (Khazanov 1984). Such a definition encompasses a set of extremely broad concepts and debate around the range and patterning of pastoral migrations has been complicated by the use of ethnographic approaches, with analogies often drawn between highly contrasting groups from different ecological and climatic zones. Additionally, there is little scholarly agreement on the distinction between nomadic societies and those practicing transhumance, or between pastoralists, and shepherds who live as marginalised members of settled communities (Cribb 1991). Scholarship on nomadism has

³ This section is based on already published work in Carvajal López et al 2016a, 2016b.

tended to rely to a large extent on ethnography with all of the incumbent theoretical baggage that this approach entails (see for example Binford 2001). Definitions have largely been based on analogies with extant nomadic or semi-nomadic groups and have drawn on examples from areas where the social, material and economic conditions were often radically different to those in the Gulf. Among the issues regarding the use of ethnography is that the time-scales considered are largely dependent on the duration of ethnographers' fieldwork seasons (discussed further below). The temporal resolution afforded by these studies has been a considerable source of bias and represents one of the critical limitations of the ethno-archaeological approach.

Debates around nomadism gained prominence during the latter part of the twentieth century with much of the discussion centred on the role nomadic groups have played in state formation. While some scholars defined nomadism in terms of "cyclical or rhythmic movement" around a fixed area (Kradler 1959: 49), others suggested that it implies a distinct lack of such patterned behaviour (Gulliver 1958). Subsequent studies attempted to synthesise these opposing views by introducing more nuanced perspectives which integrated multiple time-scales. These studies demonstrated that at short (i.e. seasonal) time-scales, nomadic patterns of movement appear structured within a particular area (e.g. Barth 1961; Cole 1975), whereas evidence from research focused on longer (i.e. generational and multi-generational) periods of time reveals a more fractured mode of living, with relatively frequent interruptions to established patterns of migration (e.g. Bates 1972; Irons 1975). Rather than simply fitting one model or another, nomadic behaviour is better understood as a continuum, with scholarly perspectives dependent on both the particular conditions under which research was undertaken and on the historical context of the group under study (Cribb 1991). The potential of archaeology to contribute to this discourse is evident since it enables scholars to take a far longer temporal view than that afforded by conventional anthropological and ethnographic approaches.

There is a broad consensus that nomadic pastoralism emerged in the Middle East as a response to the development of irrigation-agriculture and the pressures this exerted on established models of mixed dry-

farming and subsistence pastoralism (Abdi 2003; Adams 1974; Bates and Lees 1977; Buccellati 2008; Flannery 1965; Gilbert 1983; Hole 1977; Irons 1975; Lees and Bates 1974; Nissen 1980; Spooner 1972; Wright 1977). A controversial alternative to this model however, proposes that nomadism developed independently in parts of Arabia without significant interactions with settled agricultural communities (McCorriston 2011) and sees a direct link with the pre-agricultural Neolithic (see for example Uerpmann and Uerpmann 2001). This is an important distinction; the first view derives from Khazanov's challenge to historical materialism and regards pastoral nomads as fundamentally economically dependent on relations with sedentary peoples, whereas the second view regards them as autarkic, independent and possessing histories not necessarily tethered to those of sedentary communities. Given the long timescales involved, and the inherent limitations of ethnographic and ethno-archaeological approaches, it is clear that archaeological perspectives ought to be central to this debate. A deeper archaeological understanding of mobile desert communities would provide a framework for hypothesis testing, enabling scholars to evaluate competing theories against empirical data and would thus be of critical value to the discourse on nomadism. The Crowded Desert Project is a potential milestone for this discussion as applied to Qatar.

The combination of a multi-scalar survey with targeted excavations provides resolution at the landscape, inter-site and intra-site scales enabling the authors to engage with questions of landscape use, resource availability, mobility and the social, ritual and domestic use of space. These results, combined with data from finds and other analytical material confirm the persistent occupation of the Meleiha-Umm al-Mā' region from at least the Iron Age until the present and illustrates changing patterns of landscape use, habitation and burial practices. The preliminary survey results demonstrate the diverse ways in which the region was exploited by nomadic, semi-nomadic and settled communities for habitation, water extraction, stock management and religious practices. Each scale of survey was conducted in tandem with, and designed to complement the others, contributing to a genuinely multi-scale understanding of this complex and diverse archaeological landscape. The resultant dataset represents a

substantial contribution to our knowledge of northern Qatar and fills part of the gap in empirical evidence for desert communities of Arabia more generally. The results also challenge the theoretical blind-spot related to the archaeological accessibility of mobile desert groups. These data provides a valuable framework for testing hypotheses about economic strategies, subsistence, mobility and the social use of space among the nomadic and semi-nomadic desert communities of south–eastern Arabia. The integration of multiple types and scales of archaeological data within a GIS provides a spatially embedded platform for engaging with a wide range of research questions.

Final Remarks

Contrary to a long held belief among a number of scholars of the Middle and Near East, the remains of mobile desert communities are archaeologically visible and accessible. However, the detection and interpretation of such ephemeral archaeology requires the application of multi-scalar approaches which combine several levels of survey resolution with excavation and, where possible, a variety of remote sensing and aerial prospection methods. The Crowded Desert Project challenges the view of the desert of northern Qatar as a largely empty landscape in which marginal groups clung to existence in the face of hostile conditions. Rather, the desert is seen to have harboured a range of mobile and sedentary communities whose subsistence was linked with maritime trade, pastoralism and conflict, and who actively participated in an extensive network of overland mobility and interaction. These groups not only subsisted in, but adapted to, and often flourished in their desert environment. The Bedouin have come to be regarded as core to modern Qatari conceptions of nationhood and to embody a set of national characteristics which are becoming increasingly politicised (Exell and Rico 2013). However, in spite of the fact that the Qatari Bedouin were active well into the twentieth century, comparatively little is understood about their emergence, long-term histories or subsistence strategies. Archaeological perspectives are critical, not only in filling this empirical gap but also because they have the potential to inform current political and social perspectives on nationhood and identity.

Acknowledgements

The Crowded Desert Project is a joint enterprise of UCL Qatar and Qatar Museums, directed by José C. Carvajal López. This work was made possible by NPRP grant 8-1582-6-56 of the Qatar National Research Fund, a member of the Qatar Foundation. The authors would like to thank the Centre for GIS- Ministry of Municipality and Environment, Doha, for providing 2010 satellite imagery and base shapefiles. The statements and interpretations presented herein are solely those of the authors.

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