## **E**GYPT

Report on the 2005 field activities of the Kharga Oasis Prehistoric Project (KOPP)

Mary M. A. McDonald Department of Archaeology University of Calgary Calgary, Alberta Canada T2N 1N4

E-mail: mmcdona@ucalgary.ca

Jennifer R. Smith
Department of Earth and Planetary
Sciences
Washington University
Campus Box 1169
1 Brookings Drive
St. Louis, Missouri
USA, 63130

Ashten R. Warfe Centre for Archaeology and Ancient History Monash University Clayton, Victoria 3168 Australia

Johanna M. Kieniewicz and Katherine A. Adelsberger Department of Earth and Planetary Sciences Washington University Campus Box 1169 1 Brookings Drive St. Louis, Missouri USA, 63130

#### Introduction

In January 2005, five members of the Kharga Oasis Prehistoric Project (KOPP) conducted field research in Kharga Oasis: Holocene prehistorians M. M. A. McDonald and A. R. Warfe, and Quaternary geologists/geoarchaeologists J. R. Smith, J. M. Kieniewicz, and K. A. Adelsberger. Mr Ahmed Moussa Moustafa, Inspector, Kharga Office, Department of Antiquities, ably assisted the KOPP team.

We spent six days doing field research, five of them in the Midauwara area of the southern Kharga escarpment, and one day further north at Naqb Bulaq (Figure 1).

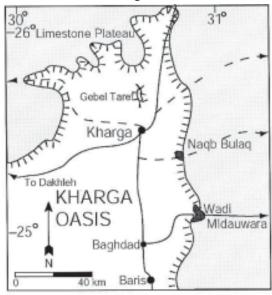
## Holocene Archaeology (McDonald)

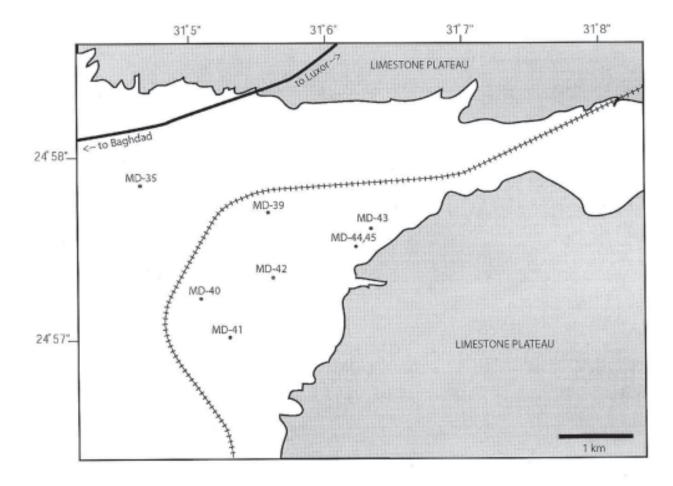
In the 2005 season we spent five days in the Wadi Midauwara Pass, and one at the top of the Bulaq Pass. In Wadi Midauwara we discovered six new sites and did further sampling at two sites recorded in previous years (Figure 1). Of the six new sites (MD-40 through MD-45), two, MD-43 and MD-44 are Epipalaeolithic or Midauwara Unit sites, one (MD-41) is late Baris or mid Holocene in date, one (MD-45) is of mid Holocene or later date, and two (MD-40 and MD-42) have both Midauwara and Baris components. Three of the new sites, MD-40, MD-41 and MD-42, lie in basins in the Wadi Tufa deposits between the railway tracks and the main wadi.

MD-40 lies in a large, deep basin which also contains Pleistocene cultural material. Both Midauwara and Baris Unit material occurs here, but within different contexts. A Midauwara Unit blade knapping cluster about 5 m in diameter was found on the chert-covered floor about the middle of the basin. A nearby hearth mound covered with dark-colored fire-cracked rock may be associated with it. The mid-Holocene Baris Unit material is found on the higher ground towards the south end of the basin. Here, some 10-12 clusters of whitish limestone cobbles are associated with Baris Unit chipped stone, some grinding equipment, and ostrich eggshell scatters. A rough knife and a denticulated flake-blade were collected from this area.

MD-41 is located in another large basin some 600 m SE of MD-40. An Early Stone Age handaxe site, MD-16, is located on the basin floor, but the mid-Holocene Baris Unit material is located in a series of narrow draws along the west side of the basin. MD-14, recorded in 2001, may be part of this site. Features include a number of small hearth mounds covered with dark fire-cracked rock, and a few crescent-shaped slab structures. The associated chipped stone industry is dominated by flakes rather than blades. A few representative tools were collected including side blow flakes, two knives, a bipointed arrowhead and a drill. Grinding slabs, handstones, and one piece of pottery were noted. A

Figure 1. Outline map of the Midauwara area showing sites worked on in 2005.





few tooth fragments, possibly from cattle or antelope, were eroding out of the sediment. MD-41 appears to be a late Baris camp site, perhaps of pastoralists.

MD-42 is located in a shallow basin ca. 80 m across at the SW corner of a large hill overlooking the Wadi Midauwara. Features include a few mounds covered by light-colored limestone cobbles, and 3 or 4 possible slab structures, oval and crescent-shaped. The chipped stone includes mid-Holocene Baris Unit material such as a tranchet and a knife, most of it from the SW part of the site, and on the east side, Midauwara Unit material such as Ounan points and a long notched Epipalaeolithic blade. Grinding stones and ostrich eggshell scatters were noted as well. Similar sorts of sites, with mixed Midauwara and Baris Unit material (MD-20 and MD-21) were recorded in 2002 just to the south of here, also at the foot of the large hill. The other three sites recorded in 2005, MD-43, 44, and 45, are in a new context not visited before: the high, cliff-like bank overlooking the Wadi Midauwara. Two of these sites are lookout sites with a fine view of the wide Wadi below. The third, MD-43, is a large settlement site and the locality we spent the most time on this year.

MD-43 is located in a shallow basin just at the head of a small wash cutting down into the Wadi. The site consists of at least twenty slab-built structures occupying an area ca. 50 x 28 m. McDonald and Warfe made a map of these structures using tapes, while Smith produced a digital elevation map of the basin in which they are found (Figure 2). The structures are small (ca. 2-3 m across, the largest about 6 m across). Most are either oval or crescent-shaped, and nearly all have their openings to the south, presumably for protection from the north wind. The slabs either lie flat or are perched on edge. In addition to the structures, about three possible hearthmounds covered with fire-cracked rock were noted.

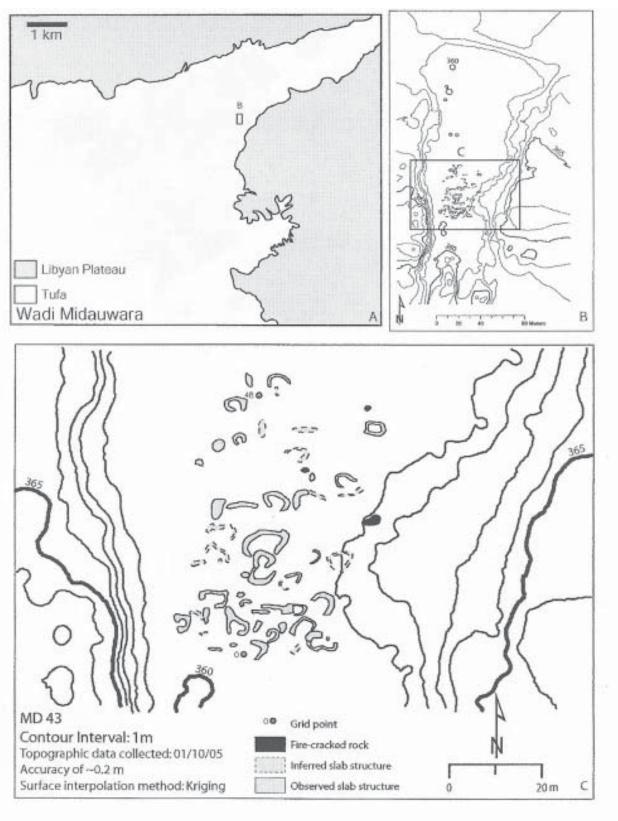
The chipped stone, mostly a good quality dark brownish gray chert, is predominantly a blade industry. In three areas of the site, a total of 13 m², all the chipped stone was collected and the deposit screened for a complete sample. In addition, a few representative tools were collected from other parts of the site after they were plotted in on the map. Tools from the site include small "Ounan" arrowheads, geometric microliths, truncated bladelets, scrapers, denticulates, notches and drills. On the whole, the

chipped stone industry indicates that MD-43 is an Epipalaeolithic or Midauwara Unit site. Other artifacts found on the site include grinding slabs and handstones, and a few ostrich eggshell beads. A sample of ostrich eggshell was collected as a radiocarbon dating sample.

The two lookout sites, MD-44 and MD-45, are within a few hundred meters of MD-43, at the edge of the cliff overlooking the Wadi. MD-44 consists of a few hut circles scattered in an area of ca. 100 m<sup>2</sup>. The structures, some quite fragmentary, are small ovals or crescents, most 2-3 m across, with the slabs lying flat. There is also at least one hearth mound. The associated chipped stone is a blady, Midauwara Unit industry. MD-45 is in the same area as MD-44, and also consists of hut structures, but they are very different from those of MD-44. They are typically right at the edge of the cliff overlooking the Wadi. They are coherent, well-constructed units consisting of slabs set upright in the ground. One cluster consisted of two rectangular structures, each 6 m. long, and two others only 2 m across. All are open to the Wadi. There is no chipped stone industry associated with these structures. The only artifacts found in them are two lithic knives, which could be of mid-Holocene age, and a Roman pot.

From MD-44 and MD-45, we surveyed southward along the west edge of the Wadi for over one kilometer, but found no further late Prehistoric sites. Finally, we returned to two of the sites from 2003, MD-35 and MD-39, for further sampling. Warfe collected pottery from both sites, and I collected charcoal for a radiocarbon sample from MD-39. On our last day of fieldwork, we visited the Plateau top above the Naqb Bulaq. Caton-Thompson (1952) reported seeing scatters of Holocene artifacts around pans along the edge of the scarp between the Bulaq pass and the Gebel Umm el Ghenneiem to the north. Four of us, Warfe, Kieniewicz, Inspector Ahmed and McDonald, surveyed ca. 4 km2 of the flat Plateau just at the head of the Bulaq Pass. We noted a thin scatter of debris dating from the last several millennia, including isolated chipped stone tools or grindstone fragments of early to mid-Holocene age, a few well-constructed rectangular slab structures like those of MD-45 (above), and several scatters of sherds bearing basket-impressed decoration that may be of early Islamic age (see Warfe's report below). Within the surveyed area, however, we found no coherent scatter of early or mid-Holocene material.

**Figure 2.** Locality MD-43 with its slab structures within its wider context.



To sum up, during our short 2005 season, we were able to visit two new areas within the Wadi Tufas of the Midauwara Pass, and recorded six new late prehistoric sites of both early and mid-Holocene age. The most important may be the large Midauwara Unit settlement site of MD-43. With its many slab structures and rich chipped stone industry, it should provide much new information about human adaptation in this area in the early Holocene.

## **Ceramics (Warfe)**

Pottery was recovered from four registered sites (MD-35, MD-39, MD-40 and MD-41) and three unregistered sites, or 'findspots', two of which are located in the Midauwara region while the third is located on the plateau above the Bulaq Pass. The collection is consistent with what we have come to expect from early/mid-Holocene sites in the region (McDonald et al. 2004). It comprises only a handful of sherds - 82 to be precise - that represent somewhere between 11 and 14 vessels. The preservation of the material is generally poor as a result of extensive surface exposure: most sherds are fragmentary (>4.0 cm<sup>2</sup>) and no longer retain their original surface treatment. Although this complicates analysis, some general observations on the collection may still be offered.

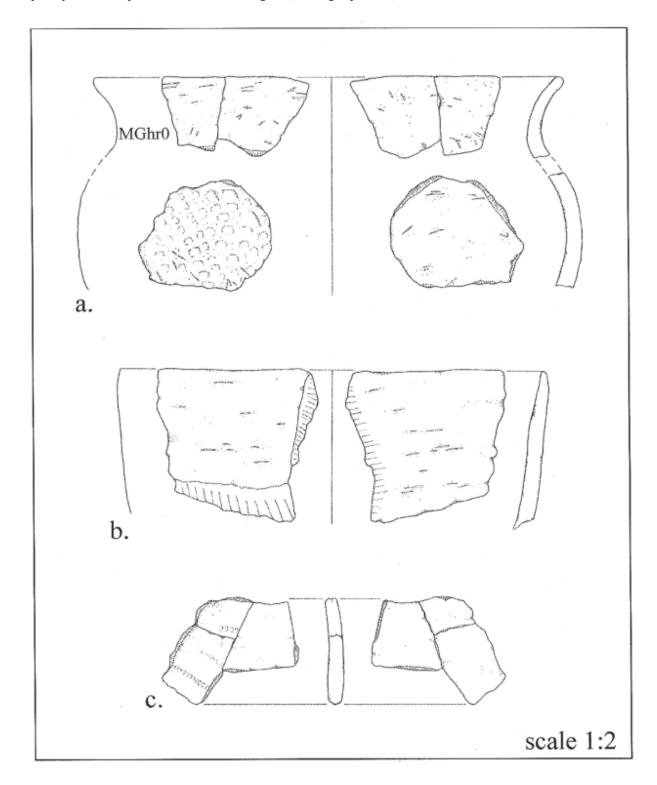
In all cases, the vessels were handmade by way of coil or slab construction, or a combination of both. The rim sherds and larger body sherds indicate that vessels were unrestricted with simple or inflected contours (Figure 3a and b) and probably stood around 20 cm in height. There is no evidence for appendages in the form of feet, handles and spouts, and the wall thickness of most examples is within the range of 5.0-10.0 mm. A small range of fabrics is represented in the collection, all of which have been produced from iron-rich clays. The most common fabric contains varying amounts of fine-to-medium sand and shale particles and is most likely the product of a local pottery industry. This fabric compares closely to that which typifies the mid-Holocene Bashendi (7500–5200 bp) and Sheikh Muftah (5200–4000 bp) traditions in neighboring Dakhleh Oasis (Hope 2002), and this highlights the existence of an over-arching pottery tradition linking the two oases.

The other fabrics are probably imports from beyond the oases region. One of these is distinct for its coarse grit particles and for the faint cord impressions preserved on the exterior surface (Figure 3c). While this decoration may be likened to 'Early Neolithic' designs produced in the Nabta-Kiseiba region, no exact parallels can be drawn with illustrated examples (Gatto 2002, Figure 5.3). Two other fabrics stand out for the presence of carbon-lined voids left by burnt-out organic inclusions. The finer of these examples also contains mica particles and the surfaces have been highly compacted. Both the fabric and treatment are reminiscent of material produced by Predynastic potters in the Nile Valley (Nordström and Bourriau 1993:170). The coarser example, which was the only pottery collected from the Bulaq Pass, retains basketry impressions on the exterior surface (Figure 3a). The origins of this material remain unknown. While it is tempting to draw associations with 'woven mat' or 'imitation basketryimpressed' pottery from prehistoric contexts elsewhere in the Western Desert (Banks 1980; Hope 2002:45), a similar find from Dakhleh was recently identified as Islamic (Hope, pers. comm., 2004). As with the ceramic collections from previous seasons (McDonald et al. 2004), this year's collection again highlights the level of cross-cultural interaction that occurred in the Midauwara region during the early/ mid-Holocene period. Evidently, this region was firmly nestled within the established pathways of cultural flow that seem to have existed across Northeast Africa at this time.

# Quaternary Geology (Smith, Kieniewicz, and Adelsberger)

We have continued our geological investigations at Wadi Midauwara and at Naqb Bulaq in 2005 in order to further our understanding of the paleoenvironmental history of the region, and to add greater detail to our reconstruction of the landscapes occupied by prehistoric people. Based on work by KOPP members and others, we now understand the Western Desert region to have undergone a series of arid-humid oscillations throughout the Pleistocene, with a cyclicity of 100 ka (kilo annum, or thousand years) or, quite likely, less. During humid phases, which may have lasted at least 10 ka, conditions were probably semi-arid, with a savanna flora and fauna occupying this currently hyper-arid region. The

**Figure 3:** a) coarse organic-tempered pottery from the Bulaq Pass; b) sand-and-shale pottery; and c) coarse grit pottery from findspots in the Midauwara region (drawings by Warfe).



enhanced rainfall during these times was likely linked to the increased northward penetration of the Atlantic (African) Monsoon, which currently brings rain to low latitudes of western Africa. Southward penetration of Mediterranean rain, or, less likely, north westerly movement of the Indian Ocean monsoon may also have brought rain to this region.

We hope to use the sediments preserved along the edge of the Limestone Plateau in Kharga to shed light on these issues. We are particularly interested in the lacustrine record at Wadi Midauwara, which appears as of yet to be unique within Kharga Oasis, though we also maintain an ongoing interest in the spring carbonates (tufas), which can be also found at Midauwara (as at numerous other localities in Kharga). Though the lacustrine deposits were preliminarily mapped and described in earlier KOPP seasons, we this year undertook more detailed observations of the lacustrine strata, both laterally and vertically (i.e., across the lake basin, and stratigraphically through the layers of sediments recording the history of the lake). We examined all outcrops visible around the margins of what was previously mapped as lacustrine, and surveyed in the tops and bottoms of these sediments with differential GPS, which gives an accuracy of ~0.3 m vertical and ~0.1 horizontal. It is our hope that, following analysis of the data, we may be able to more precisely reconstruct the geometry of the basin. Defining the lake bottom will prove particularly challenging and will require additional field work as eolian erosion of the underlying surface prior to the formation of the lake resulted in a highly irregular surface. The bulk of our field time was spent on this exercise.

Based on our observations of this year, the lake was substantially larger in area than previously thought. Prior estimates were made based on the extent of lacustrine deposits easily visible from some distance. A more detailed survey of the presumed margins of the lake revealed substantial thicknesses of lacustrine sediments obscured beneath the talus of the overlying tufa. We believe we have now documented a minimum extent of the lake which includes all existing outcrops of lacustrine sediment. There is a noticeable thinning of the deposits towards the margins, as well as an increase in grain size and in the tendency of the lacustrine silts to be cemented, or to have a more classic "framework" tufa incorporated irregularly within the silts. The maximum

observed thickness of ~6m is near the center of the basin, with thickness decreasing to ~1 m or less along the edges. Tufa cascade deposits (effectively, paleowaterfalls) towards the southeastern margin of the lake suggest a substantial portion of the lake's water may have flowed- in from that direction. Microscopic analysis of lacustrine sediments will follow next season in Dakhleh Oasis in order to determine whether the composition of the silts varies distinctly temporally or spatially.

We also engaged in a non-systematic survey of the younger spring carbonates (which generally are more likely to preserve delicate features) for information of paleoenvironmental significance. We principally hoped to find either identifiable plant casts, which would provide additional information as to the flora of the area during humid phases, or algally-laminated tufas. Algal laminations in tufas frequently record rapid growth by these photosynthetic organisms in the summer, and dormancy in the winter, resulting in alternating bands of dark and light (finely and coarsely crystalline) calcite. The relative width of these bands can be used as an indicator of variation in the amount of seasonality, or yearly change in climate, in the region in which the tufa was formed. This information on seasonality may aid in discriminating between the paleoclimatic hypotheses outlined above. Several excellent specimens of leaf casts were discovered in the youngest tufa unit at Wadi Midauwara, as well as several from Nagb Bulaq (see below). These will be examined by KOPP paleobotanists at a later date. We have also acquired several specimens of laminated tufa, but the origin of the laminations cannot be verified as algal without microscopic evaluation.

Finally, during our one day visit to Naqb Bulaq, we were able to visit some of the northern most spring carbonates in the Bulaq area, mapped by Getrude Caton-Thompson and Elinor Gardner in the 1930s. Based on their map, we were able to locate and examine several tufa sheets of varying ages which we had not visited in prior years. It does appear that small segments of the Bulaq system (similar to the tufa sheets along the Limestone Escarpment northwest of Wadi Midauwara), are effectively a microcosm of the larger tufa depositing systems, and provide a relatively complete archive of the climatic history of the region. We intend to extend our survey during the next season, both at Bulaq and at Midauwara.

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