Three members of the Kharga Oasis Prehistoric Project (KOPP) (cf. Hawkins et al. 2001), M. R. Kleindienst (MRK); M. M. A. McDonald (MMAM) and C.S. Churcher (CSC), spent nine field days (Jan.27-Feb. 4, 2002) in archaeological and geoarchaeological surveys of the Wadi el-Midauwara area on the south- ern Kharga Oasis Escarpment. Three others made a reconnaissance visit: U. Thanheiser and J. Walter, botanists and palaeo-ethnobotanists, and I. Teubner, Holocene prehistorian. The field team was ably accompanied and assisted by Mr. Ahmed Gomaa Hussien (AGH), Inspector, New Valley Office of the Antiquities Department, and Mr. Farag Ali Farag of the Kharga Police.

Palaeoenvironmental Studies. (CSC and MRK)

Quaternary sediments at Midauwara (Figure 1) comprise mainly water-laid tufas and silts which were deposited in basins over the last half-million years during wetter periods, with primarily aeolian erosion and deposition during the last 100,000 years (Smith et al. 2000, 2001; Hawkins et al. 2001). Two main periods of tufa accumulation are recognized: an older “grey” or “blue-grey tufa” and a younger “brown tufa”, informally named from the colors of their weathered surfaces. Both tufas formed serpentine terrace walls that restrained pools of water. Some eroded curtain walls still stand 1-2 m high, and run for up to 200 m, suggesting that much has been removed by subsequent erosion that, in places, formed deep basins. The tufas formed a topographic feature through the build-up of terraces that mantle the underlying Esna shale and older deposits. Tufas descended to the foot of the Escarpment slopes, and reached the oasis floor before it was lowered by erosion after tufa deposition ceased.

In order to better understand the Quaternary sediments at Midauwara, and the development of the terraced fluvial gravels extending out from the Escarpment, it is necessary to understand the bedrock geology. CSC and MRK spent part of two days investigating Pleistocene terraces and the sequence of pre-Quaternary bedrocks established by the Geological Survey of Egypt along the Luxor road (old “Dharb el-Gaga” or “Dharb 91-Midauwara”) (El-Hinnawi et al. 1978). A few scattered Middle Stone Age (MSA) artifacts and one Earlier Stone Age (ESA) type of scraper were noted, but no concentrations were found. These finds do suggest that the gravels on the terraces are mainly Pleistocene in age. The depositional and erosional sequence witnessed by three or four terraced gravel levels requires further investigation.

The bedrock geology beneath the Midauwara tufa complex may represent a disturbed upthrust as suggested by El-Hinnawi et al. (1978), or may be more complicated. Certainly Quseir Group, Baris Formation shale forms the base of the underlying bedrock exposures, on the evidence of shark and lungfish fossils typical of both the Baris Formation (Kharga) and the Mut Formation (Dakhleh). Duwi Formation phosphorites and shales overlie the Baris Formation that show different facies; from those in Dakhleh or further north in Kharga. Further work is needed to confirm the sequence and structures of geological units. CSC and MRK made several foot transects across the Midauwara tufas, and CSC briefly investigated the area below and west of the tufa masses. A palaeolake may have existed, stratigraphically below the lowest tufa, marked by very white, stratified and fissile marly silts that overlie probable Baris shales. As well as investigating palaeontological remains in
the bedrock formations, CSC recovered Pleistocene fossils included in basin silt deposits. The fine, white calcareous silts can be over 10 m thick, and are often rich in freshwater snail shells. He has identified 4 species of freshwater/land snail found in the silts and occasionally in the ‘brown tufa’ (mainly following Van Damme 1984): turret snail - Melanoides tuberculata, coiled marsh snail - Planorbis alexandrinus sp., pond snail - Lymnaea cf. natalensis var. exserta, and possibly Zbotecus sp., or, less likely, Pupoides coenopictus (J. R. Smith, pers. com., 2002). These all indicate a permanent freshwater environment with flowing water, rotting vegetation, and aquatic plants. At Kharga, Pipoides sennaariensis and Zbotecus insularis were identified by Gardner (1935) in wadi tufas along the eastern arm of the Libyan Escarpment at Gebel Yabsa, Gebel Umm el-Ghenieem, and at Refuf, Abu Sighawal, and Bulaq “passes”. Both Z insularis and P. coenopictus are indicative of fluctuating water levels with some subaerial exposure at Bir Sahara, Bir Tarfawi and Nabta Playa in southern Egypt (Gautier 1980). As was also reported by Gardner further north on the Escarpment, no vertebrate fossils were found, suggesting that palaeoenvironmental conditions were too alkaline to allow preservation of bone, either in the tufas or in the basin silts. During their brief visit, the botanists collected a few sediment samples in order to ascertain whether or not phytoliths are present. MMAM collected some samples from Holocene hearths for botanical analyses.

**Pleistocene Prehistoric Archaeology and Geoarchaeology (MRK and CSC)**

MRK with CSC revisited Pleistocene localities previously discovered (Locs. MD-03 and 16) where late ESA artifacts had been found (map, Figure 1). At Loc. MD-03 ESA bifaces were found in situ in a gravel at the base of silts underlying the younger ‘brown tufa’, but are aeolised and/or waterworn. MRK sampled a new locality, Loc. MD-27, where ESA bifaces are incorporated into a lag-gravel and are also found in situ in a gravel underlying silts. Again, the artifacts were aeolised and/or waterworn before burial. Other surface occurrences were noted, where isolated specimens are found in lags on the older ‘grey tufa’ benches, or in/on sediments laid down in depressions deflated into the ‘grey tufas’ (MD-32). In contrast to the Dakhleh Escarpment, much of which is mantled by colluvium, it seems that the Esna shale slopes of the Kharga Escarpment, or on isolated jebels in the Kharga depression, do not retain a thick talus cover. They have been repeatedly stripped during periods of erosion, which caused any associated artifacts to be redeposited into the lower-lying areas. There appears to have been a period after deposition of the ‘grey tufas’ when palaeoenvironmental conditions changed, and tufa deposition ceased. At some later period(?s), streams invaded or crossed the earlier tufa masses, resulting in erosion, dissection and deposition of sediments, some of which are quite coarse. The transport of large-sized boulders and handaxes indicates considerable flow energy (cf. Pavlish et al. 2002). Evidence for aeolian processes indicates drier periods. The ‘brown tufas’ were deposited in a later, more humid period when water again flowed from the Escarpment. Our observations agree with those made by J. R. Smith in her geological survey (pers. comm., 2002).

The ESA material at Midauwara is now designated as the “Dharb el-Gaga unit”. Whether or not different units are represented has not yet been determined (cf. Hawkins et al. 2001). Gravel samples may include ‘mixtures’ of ESA and MSA in varying degree. MRK and CSC discovered only two new MSA localities: both are younger or terminal MSA occurrences (MD-26 and MD-28). Holocene cultural evidence is generally located within basins, linear N-S corridors, or deflation zones stripped of tufa or silts, and lies on light brown alluvium. In topographic lows darker brown, more consolidated sediments underlie this deposit.

**Pleistocene Localities (MRK)**

**MD-03:** A deeply deflated basin cut through a thick silt sequence overlain by ‘brown tufas’ that contains both Pleistocene and Holocene cultural components (MD-22, below). MRK found three abraded and white-patinated ESA bifaces on the basin floor during a brief reconnaissance in 1996.

Occurrence 1 is related to the exposed lower silts (base not seen) that form a bench on the west edge of the basin, and are deeply eroded in the center. There a small exposure of gravels included several worn, small ESA bifaces in place. Four were removed. Made of chert nodules or cobbles, all are abraded to heavily abraded, with lengths ranging from 97 to 10.5 mm. The
Figure 1: Outline map of the Midauwara area, following J. R. Smith (2001), showing the area of major tufa deposits north of the Wadi el-Midauwara, and the locations of prehistoric localities discovered between 1996 and 2002. Note that MD-01 is the area number, used to designate scattered finds. KEY: dark hatching indicates tufa area; dotted lines indicate larger basins.
gravel also yielded one Levallois flake and one unspecialized flake. Small sizes probably reflect water sorting and deposition. One biface removed from a slightly higher level in the silts is in fresh condition, worked on a chert cobbles with an untrimmed cortex butt, and measures 122 x 88 x 48 mm. It is similar to those found in the Dakhleh Balat Unit. Occurrence 2 lies to the west, beyond the basin proper, on the edge of a narrow corridor eroded through the ‘brown tufas’ and silts to ‘grey tufa’. A scatter of desert varnished MSA artifacts is related to a chert lag or gravel on the eroded ‘grey tufa’. (None collected).

MD-16: A Dharb el-Gaga unit locality (Hawkins et al. 2001, where ESA-type bifaces and other Pleistocene artifacts are mainly concentrated in a lag-gravel overlying ‘grey tufa’ on the southeast of a deflated, silt-filled basin. MRK collected a sample of all artifacts seen in a 10 m² area of the gravel surface, plus 4 additional bifaces of technological interest. The area sample comprises 24 bifaces, one struck Levallois core, 3 worked-out discoidal (or? unstruck Levallois) cores, and one unspecialized flake, giving a surface density of artifacts of 0.29 /m². CSC found no artifacts in the silt exposures in the northeast basin.

In the area sample, all bifaces are of chert, ranging from abraded to very heavily abraded condition. Some were worked on very thin nodules or cobbles - the equivalent of naturally occurring ‘flakes’. Most retain some cortex, although several are worked on split cobbles or cobble flakes. Some are worked all around the circumference, but many retain untrimmed cortex butts or lateral ‘guards’. Plan forms are mainly long ovate or lanceolate; smaller specimens tend to be ovate in shape, with one cordiform. One of the selected specimens is a tranchet-blow cleaver. As previously noted (Hawkins et al. 2001), the ESA bifaces have traits similar to those from the Locality KO10 artesian spring vent in the Kharga Lowland (Caton-Thompson 1952). Lengths (n = 34) range from 75 to 200 mm, with a mean length of 139.3 ± 35 mm, and a median length of 150 mm. The mean thickness/length ratio (Th/L) is 25.6 ± 3.6, ranging from 20.7 to 30.4. Mean length and the Th/L ratio suggest that the Dharb el-Gaga bifaces are within the size range of late African Upper Acheulian sensu stricto. Better contexts are required in order to determine whether the Levallois products were made during the ESA developmental stage. The materials are probably water-sorted and water-deposited; however, the relatively low incidence of flaking debris suggests that the aggregate may also represent material that was transported by humans away from the original places of manufacture.

MD-26: A younger MSA surface locality, probably Kharga Aterian, on the south and southwest margins of the southwestern basin. A medium density scatter of desert varnished cores and flaking debris in fresh to lightly abraded condition included a Nubia pattern Levallois point core, other medium-sized Levallois cores, plus blades and blade cores. (None collected).

MD-27: In the northwestern basin, CSC located two occurrences of Dharb el-Gaga unit artifacts. The basin is cut into ‘brown tufa’ overlying silts, with an underlying ‘grey tufa’ exposed in places.

Occurrence 1: Below the western edge of the basin, a lag-gravel bar, probably washed in from the north, overlies ‘grey tufa’ and has apparently been exhumed from overlying silts in Holocene times. The lag-gravel surface, exposed area ca. 150 x 50 m, incorporated numerous ESA bifaces and other artifacts. Randomized samples were obtained from transect Set 1, and a collection of all artifacts seen was made from a thin, ca. 20 x 25 m exposure of lag-gravel resting on ‘grey tufa’ northwest of the Set 1 midline.

The Set 1 sample comprises 16 specialized cores, 6 unspecialized cores, 2 of which may be classed as choppers, 19 specialized flakes, 32 unspecialized flakes; 76 bifaces, 1 scraper-plane and 1 hammerstone; the surface incidence of Pleistocene artifacts is 0.19/M2. All are abraded to heavily abraded; some are deeply patinated; fewer are desert varnished. Most are made of good quality chart, with a few of limey charts or silicified limestone. The material is water-sorted and deposited - many flakes were probably abraded beyond recognition.

As at MD-16, the bifaces vary in size and workmanship. Many retain cortex ‘guards’. Those with unworked butts can be classed as ‘core axes’ rather than as ‘handaxes’ (cf. Clark and Kleindienst 1974). Lengths (N = 76), range from 72 to 240 mm with a mean of 121.5 ± 29.4 mm. The median is 120 mm, and the mode, 110 mm. Given the degree of abrasion, some 10-12 mm of edge has been lost. The Th/L ratio (N = 73) averages 26.5 ± 6.0 (range, 14.0 -45.3; median,
26.0), within the size range of late Upper Acheulian sensu stricto. The ratio indicates that most bifaces were made on flakes, split cobbles, or on deliberately selected, thin nodules or cobbles, as at Loc. MD-16.

The lag-gravel was also exploited as a raw material source during the Holocene: 31 Holocene-type artifacts in mint to fresh condition were included in the Set I collection. Holocene Locality MD-04 lies on silts in the northeast corner, and a scatter of Holocene aged material is found across the northern basin surface. Two side blow flakes suggest that the scattered Holocene component belongs to the mid-Holocene Baris Unit (below).

Occurrences: In a situation similar to MD-03, the deepest eroded area on the northwest exposed a gravel underlying silts that included ESA bifaces. Two small bifaces, 118 mm and ca. 150 mm in length, both chart and lightly abraded to abraded, plus a flake core on a cobble, were collected.

MD-28: A workshop locality of small-sized, lightly desert varnished MSA material, probably Khargan Unit, covers the flattened top of an isolated bedrock jebel. Large chert nodules weathering out on the slopes provided raw material. Levallois cores ranged in length from 30-60 mm, with most noted under 50 mm; flakes struck from these are equally small. (None collected.)

MD-32: A lag-gravel deposit rests on eroded 'grey tufa' and alluvium in the area of MD-18, extending beyond the confines of the Holocene locality, and incorporating Pleistocene-aged ESA and MSA artifacts as clasts. The Holocene inhabitants recycled some of these. MMAM and AGH collected a few un-reworked specimens during grid sampling.

**Holocene Prehistoric Archaeology (MMAM)**

Caton-Thompson (1952), who investigated much of the Escarpment further north in Kharga (but not the Midauwara area), reported finding little evidence for the early to mid Holocene in the tufa basins and the other scarp slope localities she visited. It came as a surprise, then, to discover numerous Holocene prehistoric remains on the Midauwara tufa area. In some parts, nearly every aeolian depression has been occupied. Sites seem to span much of the early and mid-Holocene, with cognates for units in the sequence found in Dakhleh Oasis, and elsewhere in the desert including the Nabta Playa area. It seems, moreover, that many localities are not just short-term transit camps for groups traveling to and from the Kharga Oasis Lowland, but are settlement sites, many with stone-built shelters. We are now able to designate two local, cultural stratigraphic units, the "Midauwara Unit" for the early Holocene or 'Epipalaeolithic' type of localities, and the "Baris Unit" for the mid-Holocene localities.

Twelve new Holocene prehistoric localities were discovered in 2002, numbered MD-17 through MD-25 and MD-29 through MD-31. Of these, one (MD-29) belongs to the Midauwara Unit, three (MD-22, MD-24 and MD-30) to the Baris Unit, while one (MD-18) includes both Midauwara and Baris components. The other seven can be designated at present only as belonging to Holocene units. In addition to these twelve new localities, we, J. R. Smith, R. Giegengack and others discovered seven prehistoric Holocene localities in earlier seasons (cf. Hawkins et al. 2001). Additional work was done on four of them in 2002 (Figure 1).

**Holocene Localities Designated In Previous Seasons (MMAM)**

MD-04: A Midauwara Unit blade-knapping station on silts in the northwestern basin. MRK gridded and collected artifacts from one deflated area in order to ascertain the degree of directional dispersal of differently-sized pieces. Smaller material is spread farthest south and downwind from the center of the area, suggesting that Holocene aggregates are likely to be moved and sorted by wind as well as by water action.

MD-05: A Midauwara Unit locality on a silt bench overlooking a small pan. A charcoal rich soil sample from a hearth mound for palaeobotanical analysis was obtained. The lithics include distinctive Harif points and a number of other tool types including triangles, piercers and denticulates, showing that the material is a close cognate of the Dakhleh Masara C cultural subunit, and of the El Kortein entity in the Combined Prehistoric Expedition (CPE) sequence for Nabta Playa (Wendorf et al. 1984; McDonald n. d.). MD-05 is the only locality of this kind yet discovered at Midauwara.
MD-06: A Midauwara Unit locality on a silt bench west of a deflated basin. MMAM made further observations on the lithic technology in 2002. The lithic industry includes the Ounan point and a number of other tool types that show it to be a close cognate of the Dakhleh Oasis Masara A subunit, and of the El Ghorab entity in the CPE sequence from Nabta Playa (Wendorf et al. 1984; McDonald n.d.).

Holocene Localities Designated in 2002 (MMAM)

Localities MD-17 through MD-21 were discovered while surveying an area ca. 1.5 km in diameter to the SE of Loc. MD-06. A thin scatter of Holocene-era lithics including blades and a few Ounan points occurs over much of this area, although there are places with little cultural material. The artifact scatter is heavier than elsewhere in these five localities, and it is often associated with features, suggesting these were localities where people had camped.

MD-17: A scatter of material extending ca. 75 m along three parallel, deflated troughs within the tufas. Slab-lined structures and mounds with fire-cracked rock occur, together with ostrich eggshell and, among the lithics, some blades and a double-patinated scraper. (None collected.)

MD-18: A large locality in a low, deflated depression (ca. 200 x 160 m), occupied during both the early and mid-Holocene. AGH and MMAM spent most of five days in mapping and sampling. The lithics on MD-18 resemble Caton-Thompson’s (1952: 32-36) “Bedouin Microlithic”: i.e., there seems to be a mixture of artifacts usually considered to belong to the Epipalaeolithic developmental stage, or early Holocene in age, such as notched blades, drills and Ounan points, together with Baris Unit-like or mid-Holocene lithics, such as bifacial arrowheads, knives, and side blow flakes. In order to test for multiple components, we imposed a large grid, ca. 200 x 50 m, over MD-18. Structures were mapped, and the artifact distributions plotted. About 85 structures form three distinct clusters. We noticed that many blades and Ounan points occurred on the smallest, least coherent Cluster 1, and that the scatters on Cluster 2 and Cluster 3 seemed more similar to mid-Holocene units. To test this, we made controlled collections on Cluster 1 (16 m²) and on a knapping scatter within Cluster 2 (10 m²). The differential distribution of artifacts seemed to be confirmed. While there is some mixing of artifact types, the collection from Cluster 1 is a Midauwara Unit aggregate of the MD-06 variety: Ounan points, double-backed perforators and retouched blades occur. The collection from Cluster 2 is an early Baris Unit assemblage that includes seven bifacial arrowheads, and three knife fragments. Judging from the surface scatter, Cluster 3 is also of Baris Unit type. MD-18 aggregates also include locally available MSA and ESA artifacts that were reworked in the Holocene, some grinding slab fragments and handstones, a few ostrich eggshell beads, and two small, undecorated potsherds. There were several patches of fire-cracked rock, particularly on Clusters 1 and 2. No charcoal was recovered from these.

MD-19: A locality in a small basin ca. 100 m in diameter, northeast of the long isolated Esna shale jebel. Two or three stone structures occur with a lithic assemblage including numerous blades. (None collected).

MD-20: A locality at the west end of the long jebel, lying in a corridor eroded into tufas. Although much of the locality had been washed away, two intact structures remain with a small patch of blade knapping nearby, and another two intact structures about 75 m to the south. (None collected).

MD-21: Lying in another corridor just northeast of MD-20, this locality includes two mounds covered with fire-cracked rock, measuring 1 x 2 m and 1 x 3 m, and a small oval ring of stones, 600 mm across, with a hollow in the middle. Amongst the ground stone items were a small limestone cobble with a groove incised around the middle, a pair of possible mortars fashioned on limestone cobbles, and two small handstones, one made on an imported quartzite.

MD-22: Originally discovered in 1996 (MD-03), the deeply deflated basin contains spatially and stratigraphically distinguishable Pleistocene and Holocene aged components (above). Thanheiser, Walter and Teubner inspected MD-22, while CSC, MRK and MMAM surveyed, sampled and prepared a preliminary map.

Situated in the bottom of a deep, ca. 300 x 200 m basin, MD-22 consists of four scatters of hearth mounds, a few small platforms of stone, and the associated scatter of artifacts. Pottery is found on all
the hearth mound fields. Ceramicist A.R. Warfe's preliminary assessment of a small sample is that, in terms of the Dakhleh Oasis sequence, the collection spans the time range from the Bashendi B cultural unit (starting ca. 6500 bp) – perhaps even beginning in Bashendi A times (ca. 7000 bp) – through the Sheikh Muftah Unit period (ca. 5200-4000 bp) (McDonald et al. 2001), and into Old Kingdom times.

The chipped stone and other artifacts seem to support this proposed chronology. Many are on raw materials that would have been imported from the Nile Valley and elsewhere. Among the chipped stone are knives, tranchets, side blow flakes, three Armant-like celts or axes (cf. Caton-Thompson 1952: 173 and Plate 103), and various blade and flake tools. Grinding slabs and handstones occur, some made on imported materials. Amongst the ground stone items are two large limestone balls, ca. 169 mm and 130 mm in diameter, and many smaller balls of 20–50 mm diameters, a stone ring ca. 50 mm in diameter, and a stone tube modified into a bead. Amongst the fauna are robust bones eroding out of the silts, possibly of large bovids, and Nile oyster (Etheria elliptica) fragments. Soil samples rich in charcoal were taken from two hearth mounds for botanical analysis. The features and artifacts suggest that MD-22 served as a campground for pastoral nomads over a considerable period of time during the mid-Holocene.

MD-23: Several slab structures occupy a depression west of MD-18. The locality includes an enigmatic stone structure measuring about 2.5 x 2.5 m, consisting of an outer frame of rocks opening to the north, with a central pile of stones, concave in the center. This feature may be similar to some “tumuli” found by the CPE in the Nafta Playa area (Wendorf et al. 2001: 468-488). (A number of isolated ‘stone piles’ were noted during the Midauwara survey, which may not be naturally deposited.) The proximal end of an abraded Aterian point reworked into an end scraper and a caramel chert knife were noted. (None collected).

MD-24: A small early Baris Unit locality between MD-06 and MD-18 lies in a narrow, ca. 90 x 30 m basin. It includes nine or ten, oval or crescent shaped slab structures. The artifact scatter includes grinding slabs and handstones, and, in the chipped stone, knives, side blow flakes and a bifacial arrowhead. Finds include two sherds; decorated with the rocker stamp technique (Warfe, pers. com., 2002), suggesting ties to the south.

MD-25: A knapping station atop the long isolated jebel above MD-19 and MD-20. Here, both blades and side blow flakes were produced. (None collected.)

MD-29: AGH and MMAM spent part of a day exploring a low tufa outcrop about 1 km in diameter, east of the tufa ridge or block above MD-05, and just south of the Escarpment. Within the outcrop are several small, shallow basins, some elongated, and many with patches of pan silts and dead vegetation. All except one are virtually empty of cultural remains. The exception is ca. 80 m in diameter, with an arm extending southward ca. 70 m. In this arm and the southern third of the basin proper are about 20 hearth mounds and a sparse scatter of ostrich eggshell and chipped stone, mostly blades and blade cores. No retouched tools were noted. AGH found little charcoal in testing several of the hearth mounds.

MD-30: MMAM explored the top and southern perimeter of the tufa ridge, ca. 700 m across, near MD-05. Aside from MD-30 near its eastern edge, the top of the tufa was almost barren of cultural evidence. MD-30 occupies a shallow basin at the head of a wadi cutting down the east side of the tufa ridge. In the southern 50 m is a scatter of chipped stone, about six slab built structures and a pair of mounds with fire-cracked rock. These lie beside, and extend onto, a patch of pan mounds with a few bushes at the low northern end of the basin. Artifacts include a grinding slab fragment plus several handstones. The chipped stone is predominantly flake based, but a few spots with blade knapping were noted. Tools include arrowheads, probably mid-Holocene in age although one could be an Ounan point, plus a drill, an and scraper on a spall, and a thin tabular item with bifacial retouch on one edge. The aggregate seems to be mostly early Baris Unit in age, although older, Midauwara Unit material, may be present.

MD-31: About 100 m south of the tufa ridge, in a small basin ca. 50 m in diameter, are three slab-built structures, two crescent shaped, the other oval, associated with a little ostrich eggshell and some chipped stone including both blades and flakes. About 30 m away near the highest point is a cobble-built structure, measuring ca. 5 x 3 m, lacking associated cultural material. (None collected).
Summary

In the course of survey at Midauwara in 2002, the team logged 16 new prehistoric localities: four Pleistocene in age, and 12 early to mid-Holocene in age. Most ESA and MSA type artifacts are found as isolates, and/or have been redeposited into geological contexts associated with eroded surfaces of the older 'grey tufas'. Taken together with an apparent paucity of younger MSA occurrences related to the younger 'brown tufas', this suggests that the main area was not very attractive for human habitation when tufas and basin silts were being deposited. There may have been a danger of drowning in silty basins, or from attack by predators attracted to the cover and water. In fact, it may have been an area to avoid, except at its margins where MSA workshops have been found (e.g., MD-10, Hawkins et al. 2001). Caton-Thompson and Gardner (1952) also noted that most Pleistocene prehistoric remains are in secondary geological contexts elsewhere along the Escarpment. However, progress has been made in defining the Pleistocene cultural stratigraphic units, and in understanding the palaeoenvironmental contexts of the area.

In contrast, we found that Holocene prehistoric remains are abundant, and rich. Based upon the more detailed work, we now designate the Midauwara Unit and Baris Unit. Both units include slab structures, hearth mounds and diagnostic lithic artifacts. Some Baris Unit sites contain pottery. Two incised sherds; were found on a small Baris Unit site, and there are other indications of contacts with southern Egypt and the Nile Valley in oyster shell and the lithic raw materials. The evidence suggests Holocene prehistoric settlement on the Escarpment slopes at Midauwara, rather than just transit camps.

Nine days of fieldwork in 2002 were sufficient to demonstrate the great potential of the Holocene prehistoric archaeological record in the Midauwara area, but much remains to be done. There is a scatter of Holocene type artifacts over much of this region, but some areas are devoid of cultural material. The material of the Midauwara Unit appears to be distributed differently from that of the Baris Unit. Finally, Midauwara is just one of the areas along the Kharga Escarpment which allow easier access to the Plateau. The Holocene prehistoric evidence at Midauwara shows that the entire length of the Escarpment deserves careful and detailed survey.

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