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## Barakah: a Middle Palaeolithic site in Abu Dhabi Emirate

GHANIM WAHIDA, WALID YASIN AL-TIKRITI & MARK BEECH

### Summary

Recently collected lithic artefacts from Jebel Barakah, the well-known Late Miocene fossil locality situated in the Western Region of Abu Dhabi Emirate, provide clear evidence for a Middle Palaeolithic presence in the region. The artefacts come from three localities around Barakah: one lies to the west of the jebel, the other to the south and south-west, and the third to the east. The three cluster sites represent a single techno-typological industry. Most artefacts were collected from locality BRK1 (on the western side of the jebel), that lies between the sea cliffs and the first line of ridges, some 40 m from the sea, which may be the site described by McBrearty. The presence of a Levallois flake core, a Levallois point flake, two broken bifaces/hand-axes, and the centripetal radial or discoid form and the prepared Levallois technique of manufacturing flakes, place the Barakah assemblage in the Middle Stone Age. The total absence of blade implements further points to a Middle Palaeolithic industry. Previous reporting on the Barakah material had suggested several possible dates for the Barakah assemblage, ranging between Middle Pleistocene, Acheulian or Middle Stone Age, and mid- to Late Holocene. The Barakah material complements the recent discovery of Palaeolithic material elsewhere in the UAE and in Oman.

**Keywords:** Jebel Barakah, Middle Palaeolithic, lithics, Levallois, Acheulian, Abu Dhabi Emirate, United Arab Emirates

### Introduction

Until recently, our knowledge of the Palaeolithic period in Arabia has been fairly limited. A number of Palaeolithic tools have been collected and reported early in the last century, such as a Lower Palaeolithic hand-axe from central Arabia (Cornwall 1946). In addition geological teams have reported a number of Acheulean implements from Arabia (Field 1971; Overstreet 1973). In the late 1970s, archaeologists began a five-year comprehensive programme to survey Saudi Arabia. A large number of archaeological sites from various periods were discovered throughout the country. Nearly 200 Acheulean sites of the Middle Pleistocene and even more sites of the Middle Palaeolithic were discovered in the central, western, and south-western Provinces (Parr *et al.* 1978; Zarins *et al.* 1980; Zarins, Murad & al-Yish 1981). Of special importance were three older sites, namely Shuwayhitiya in the north, another near Najran in the south end, and Tathlith in the south-west of Saudi Arabia. These sites belong typologically to an early part of the Pleistocene (Whalen & Pease 1992). Research into another possible Lower Palaeolithic site is currently under way in central Saudi Arabia (Petraglia & Alsharekh 2003; Alsharekh 2007).

The first *in situ*, datable Middle Acheulean site excavated in Arabia so far is that of Saffaqah near Ed-Dawadmi in central Saudi Arabia (Whalen *et al.* 1983; Whalen, Siraj-Ali & Davis 1984). Uranium-thorium dating has demonstrated that the site dates to more than 200,000 years BP (Whalen & Pease 1992).

Work on the Palaeolithic of the Arabian Gulf started in the early 1990s. A number of international expeditions began to discover Pleistocene sites in Abu Dhabi Emirate (McBrearty 1993; 1999) and in Sharjah in the United Arab Emirates (Uerpmann 2007; Scott-Jackson, Scott-Jackson & Jasim 2007), as well as in neighbouring Oman (Rose 2004; 2005). Five pre-Acheulean sites were also discovered in the Ḥaḍramawt mountains of southern Yemen (Whalen & Pease 1992). Genetic studies have recently been introduced to the study of Palaeolithic Arabia and evolutionary geneticists have begun to appreciate the major role that Arabia must have played in the origin of modern humans. New genetic evidence has highlighted the significance of the Arabian Peninsula as a corridor for early human migration to and from Africa (James & Petraglia 2005; Abu-Amero *et al.* 2007). The new Palaeolithic evidence now emerging from the Arabian Gulf promises to provide a wealth of data to explore questions surrounding Lower and Middle Palaeolithic

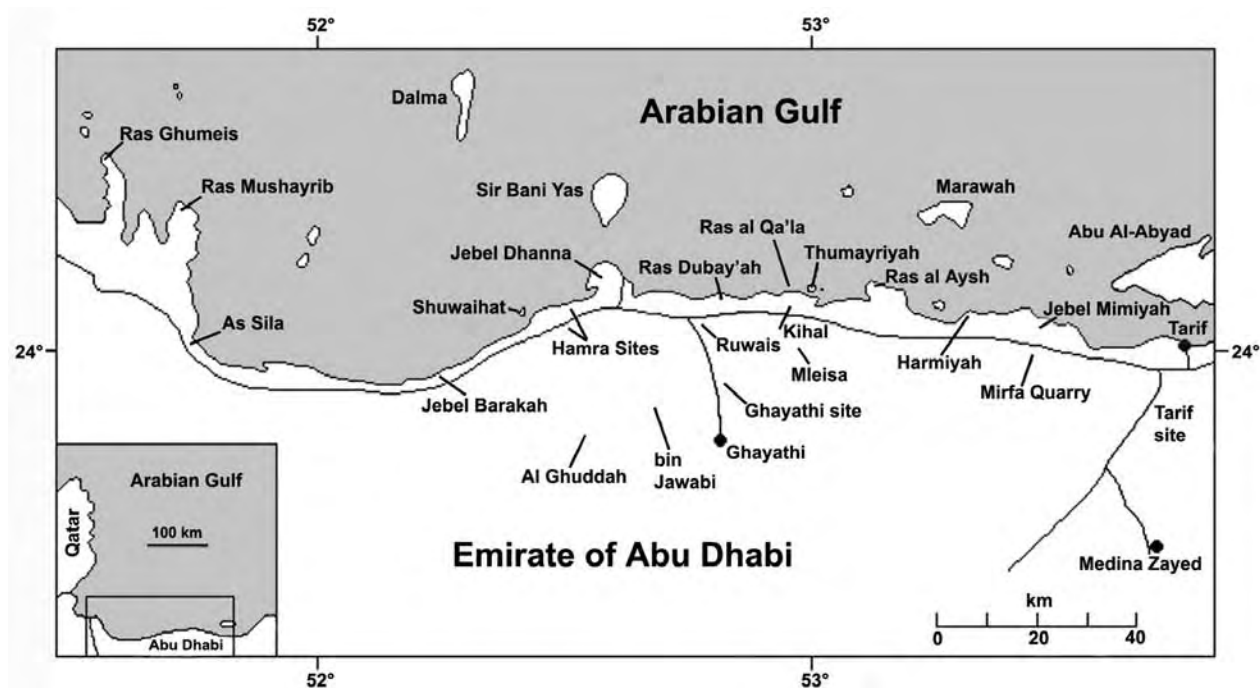


FIGURE 1. The location of Jebel Barakah in the Western Region of Abu Dhabi Emirate (after Whybrow and Hill eds 1999).

occupation on the Arabian Peninsula. It should be noted that a previous synthesis of Middle Palaeolithic sites in Arabia largely drew a blank for the Arabian Gulf region (Potts 1990; Petraglia & Alsharekh 2003).

### Jebel Barakah

Jebel Barakah is located on the coast of Abu Dhabi Emirate, between Jebel Dhannah and the Qatar peninsula (Fig. 1). The coastline of Abu Dhabi is generally low and dominated by sabkha with occasional sand hills and low grass vegetation. Jebel Barakah at 62.6 m is the highest point along this stretch of coastline. It is an isolated outcrop composed of red sandstone (originally wind-blown sand) and thin bands of conglomerate (originally water-transported, wadi pebbles). The outcrop occupies the north-western part of a much wider plateau, and its oval peak overlooks the sea. The international highway (Abu Dhabi–Sila) cuts the southern part of the plateau, quite a distance from the jebel itself (Fig. 2). The jebel is the last elevated area as you head westwards prior to the Sabkha Matti.

Before the recent archaeological discoveries, Jebel Barakah was probably best known for its Late Miocene fossil remains (Whybrow & Hill 1999). Part of the sea cliff

contains the type section for the Baynunah Formation, which covers the Shuwaihat Formation (Whybrow 1989; Whybrow & Hill 1999). At most outcrops of the Baynunah Formation, the sequence is capped by a thick layer of resistant tabular chert/flint (cryptocrystalline siliceous rocks produced by diagenetic solution). This provides the ever-lasting raw material for Abu Dhabi's earliest toolmakers.

As mentioned above, the lithic material from Jebel Barakah was first reported upon by McBrearty (1993; 1999). She noted that a large number of artefacts occurred on the level bluffs on the southeast side of the jebel (1999: 378). The artefacts lie directly on Baynunah Formation rocks; upslope they are overlain by a thin superficial layer of soft unconsolidated sediment derived from the exposures of the Baynunah Formation above. McBrearty also reported that the Barakah artefacts demonstrate a very consistent and formalized flaking method, being composed almost entirely of radial cores and the flakes derived from them. There was no trace of any blade element. All sixteen cores collected by McBrearty are radial or high-backed radial forms.

The aim of this paper is to introduce some new data collected from Jebel Barakah, which will typologically confirm its Middle Palaeolithic affinity.



FIGURE 2. *Jebel Barakah looking north. The view from the Abu Dhabi–Sila highway.*

### Three localities around the jebel

The lithic material currently under study by Dr Ghanim Wahida was collected on several visits to the jebel by staff members of the former Department of Antiquities and Tourism in Al Ain, now the Abu Dhabi Authority for Culture and Heritage (ADACH).

The lithic material came from three localities around Jebel Barakah (Fig. 3). Locality 1, known by the site code BRK0001, lies on the north-west and western side of the jebel between the sea cliffs and the first line of ridges up the slope, a distance of about 300 m. Most of our material comes from this location. Artefacts were scattered on a thin layer of soft soil derived from the exposure of the Baynunah Formation outcrops. Much of the archaeological material along the cliffs would have been eroded away to the Arabian Gulf through substantial erosion processes over the millennia. McBrearty's description of her site does agree with the above description of Locality 1. Unfortunately, it contradicts

with the co-ordinates provided in her report (1999), which plot the site location on the north-west side of Barakah, in proximity to Locality 3.

Locality 2, known by the site code BRK0002, is situated on the south and south-western side of the jebel. This site has produced a small number of artefacts.

Locality 3, known by the site code BRK0003, lies to the eastern side of the jebel.

A key point, however, is that the three cluster sites represent a single techno-typological industry. To all intents and purposes they appear to be all inter-related.

### The lithic assemblage

It should be stressed here that the study of the Barakah assemblage is still in its preliminary stages and further analysis has been planned with more material to be added. Test pits will be considered if needed. This forthcoming analysis will include, among other details, a discussion of the economy and way of life indicated by the tools.



**FIGURE 3.** *The location of the lithic scatters at Jebel Barakah. Note the summit of the jebel (height = 62.6 m above sea level), which is the whitish-coloured spot visible immediately below the label BRK0001. (Source: Google Earth 2007).*

The Barakah artefacts were made of fairly good quality flint, some of it very good indeed, with a black to blue black patina. They were unlike those McBrearty found and more numerous, with several tool types which can provide more appropriate dating. Beyond the radial cores mentioned above, McBrearty also collected 218 objects of which only eight were artefacts. McBrearty suggested several dates for the Barakah assemblage, ranging between the Middle Pleistocene, Acheulean, Middle Stone Age, and mid- to late Holocene. The first three dates were based on the presence of radial and high-backed radial cores from which the flakes originated. The last date was probably based on the presence of two broken implements: one a bifacial tip, the other a fragment

flake with unifacial trimming. McBrearty should be given credit for her achievement as the limited collection of tool types gave her no space for other conclusions to be drawn. Indeed, McBrearty offered in her article an excellent outline of the palaeo-environment of the Western Region of Abu Dhabi Emirate, including Barakah to which there is little for us to add (1999).

### Technology

Two techniques of core reduction were available to the Barakah flint knappers. One is the centripetal radial, high radial, or the discoid form, and the convergence of some of the flakes into actual tools (Figs. 4 and 5). The other was the prepared core technique known as the Levallois. This



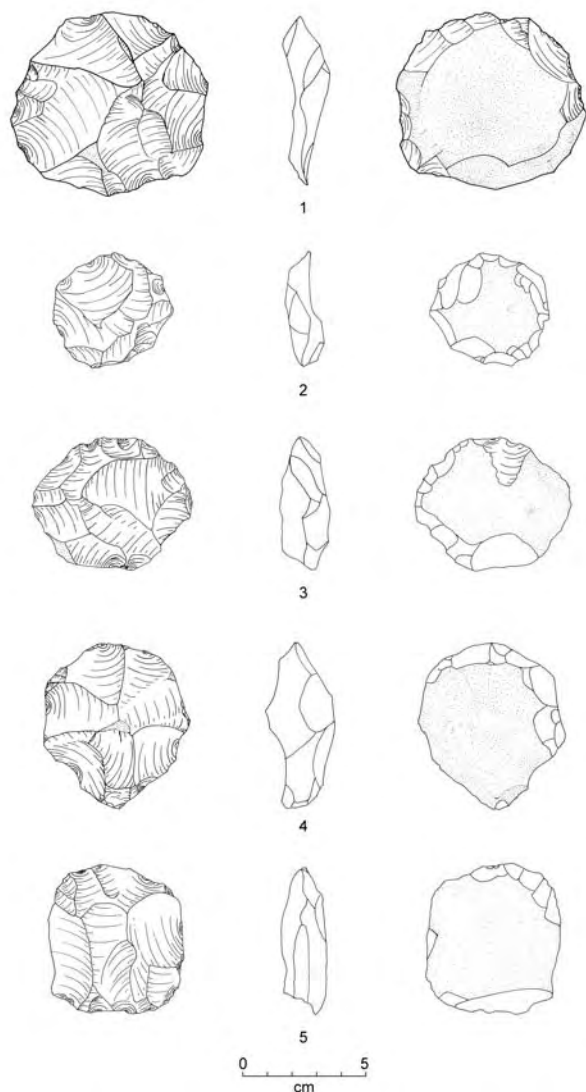


FIGURE 4. Radial cores partially bifacial (1-3). Pointed radial core (4). Square-shaped partially bifacial core (5).

technique, which requires the surface of the core to be specially prepared beforehand, allowing a predetermined flake size and shape to be detached, was evolved in the Levant during Middle Acheulean times (Copeland & Hours 1978) and is characteristic of many Mousterian industries in Africa, Europe, and the Near East. Of course, flint knappers of any period had to apply some form of preparation to the cores if reasonable-sized flakes were to be obtained. The Barakah flint knappers seem to have adopted a tendency towards a centripetal core

manufacturing strategy, which was the technology during the transition from the Middle to Upper Pleistocene.

### Typology

The lithic assemblage, randomly collected, numbered eighty-four objects with no debitage or debris; among these fifty-one are actual tools (Table 1) including cores, with thirty-three plain flakes. The assemblage has been divided into three categories: cores (11); tools including cores (47); and primary flakes (33). Among the cores category were one Levallois flake core, radial cores and semi-discoid cores, and one undecided. The tools category included some diagnostic elements of the Middle Palaeolithic assemblages, including two broken bifaces/hand-axes (Fig. 6) and one Levallois point flake (Fig. 7).

TOOL TYPE	NO.	%
Radial / discoid Core	11	21.57
Levallois flake Core	1	1.96
Levallois point Flake	1	1.96
Bifacial / hand-axe (broken)	2	3.92
Unifacial	3	5.88
Possible Core	1	1.96
Notch	16	31.37
Denticulate	1	1.96
Borer	2	3.92
Possible Chopper	2	3.92
False Burin	2	3.92
Retouched Implement	8	15.69
Slug-shaped Implement	1	1.96
Total	51	100

TABLE 1. The number and percentage of tool types found at Barakah.

Apart from the diagnostic implements, the majority of the tools category comprised the usual non-diagnostic types, including notches and denticulates (Fig. 8), retouched blanks, and borers.

Although these are non-diagnostic implements, they must have been important components within the Barakah assemblage. A number of microwear and refitting studies have indicated that similar tools had one or more functions in the daily life of hunter-fisher-gatherers (Keeley 1977; 1980; Cohen, Keely & van Noten 1979). These included woodworking, splitting bone for the extraction of marrow



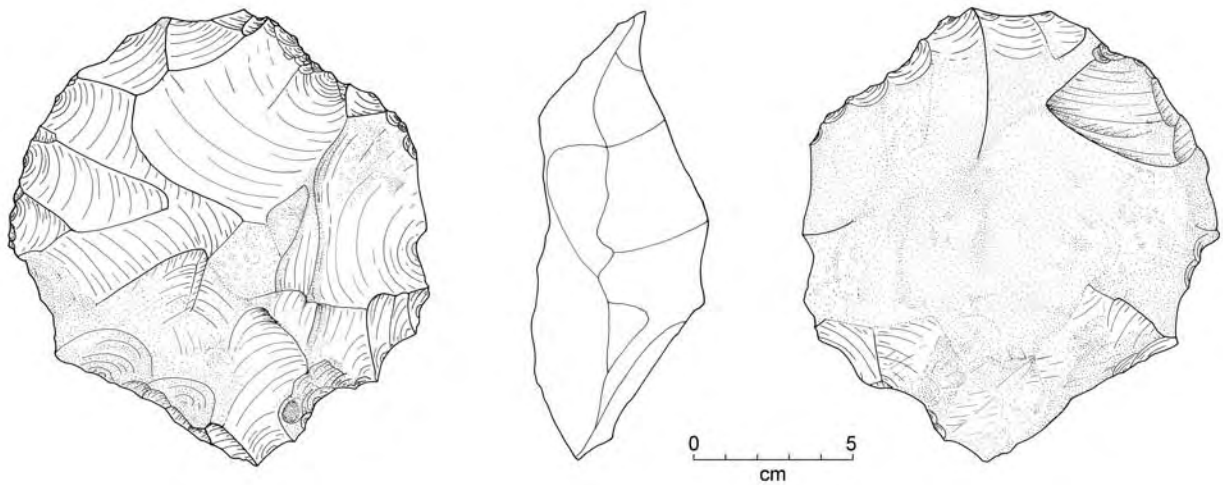


FIGURE 5. *Large discoïd core.*

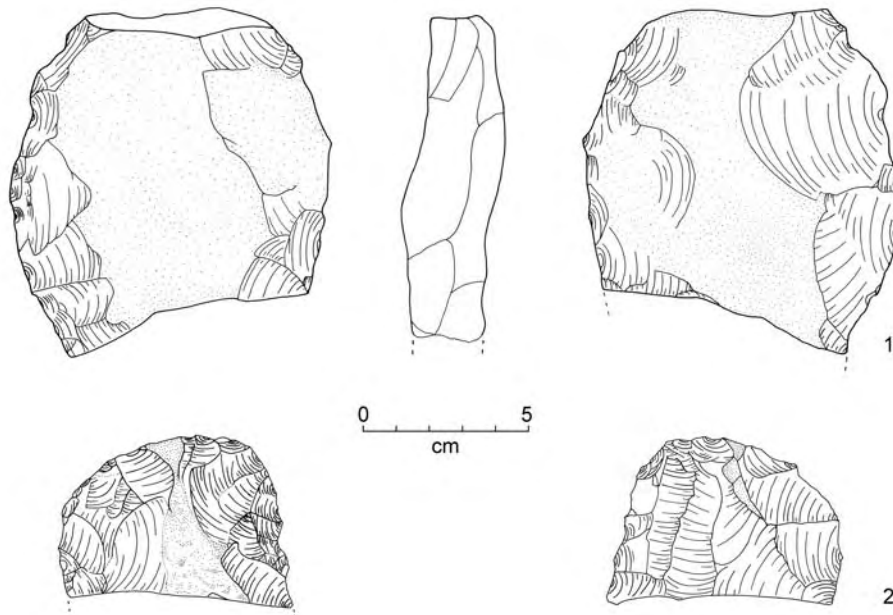


FIGURE 6. *Biface/handaxes (1-2).*

and fashioning bone tools, hide cutting and piercing, butchering of animals, and the preparation of plant food. They also showed that discoïd or radial cores were used for woodworking and for this reason they were classified as tools in Table 1.

The “primary flakes” category included specimens

that lack any trace of deliberate working in the form of retouch, on either side of the blank. Among this category there are flakes with sharp edges or wide distal end suitable for cutting or scraping, and others that might be termed false burins. It should be noted here that the majority of the blanks in this and the tools categories were broken.

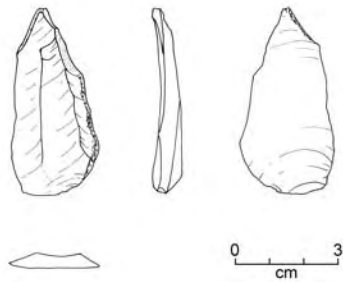


FIGURE 7. *Levallois point flake.*

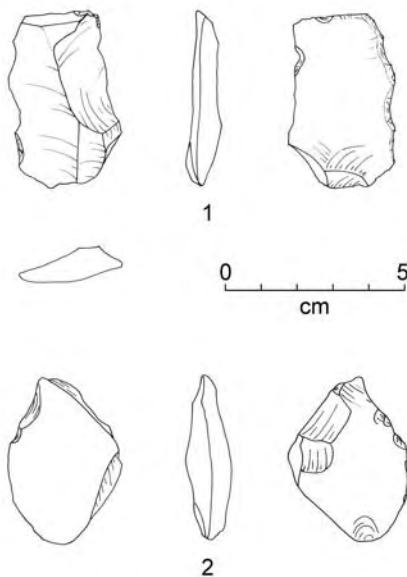


FIGURE 8. *Notches and denticulates (1-2).*

As mentioned above this present study of the assemblage aims to set it within its broad framework and further detailed analysis is to be carried out at some future date.

### Conclusion and perspectives

The Barakah assemblage can confidently be assigned typologically to the Middle Palaeolithic in the Arabian Peninsula. This conclusion is supported by the presence of one Levallois flake core, a Levallois point flake, two broken bifaces/hand-axes, together with the presence of the radial and Levallois techniques of tool manufacturing. Missing at Barakah were blades and the blade

manufacturing techniques. The Barakah assemblage may therefore be dated roughly to around 200,000 years ago, or marine oxegene-isotope stage (MIS) 5, (Rose 2004; 2008; Van Peer *et al.* 2007). Typical Upper Acheulean tools like well-balanced, thin, symmetrical bifaces were absent at Barakah. Also missing are large Acheulean cleavers, choppers, and axes. Thus the material cannot be dated other than to the Middle Palaeolithic. The Barakah assemblage complements the recent discovery of Middle Palaeolithic material elsewhere in the UAE and Oman. The exciting discovery of stratified materials of an unknown Palaeolithic industry at Jebel Fayah in Sharjah Emirate (Uerpmann 2007), and the expected OSL dating of their associated sediments, will, it is hoped, shed some light on the approximate date of movement of Palaeolithic communities through the United Arab Emirates.

The early sites of southern and northern Arabia complement the migration theory of *Homo erectus* from Africa into Asia along two possible routes. In the south of Arabia, the importance of the Lower Palaeolithic tool sites of Najran and Tathlith, and those in the Ḥaḍramawt area of Yemen, lie in their geographical locations. If these sites were vestiges of the early migrants, this evidence supports the short crossing route theory across the Bab al-Mandab Straits into Asia.

Evidence in support of a longer migration route from Africa to Asia is provided by the Shuwayhitiya site in northern Saudi Arabia. This site's existence suggests a passage through Egypt and the Rift Valley of northern Arabia. This theory is further supported by several well-known sites in the Levant, such as Ubeidiya in Palestine and Sitt Markho and Khattab in Syria, and others in Lebanon and Jordan.

At Barakah, the material did not come from excavations, so there is therefore no way of assessing the long-term presence of hunter-fisher-gatherers on the site. This problem can only be resolved by excavation, thus determining a stratigraphic presence, if any. Stratified deposits at Barakah would mean a sequence of long-term occupation, i.e. a base camp. *In situ* material would permit functional interpretations of the way the site was used. Such functional analysis has been carried out at the stratified site of Saffaqah in Saudi Arabia, where animal bones were absent (Whalen, Siraj-Ali & Davis 1984). Similar analysis has been also carried out at Torralba and Ambrona in Spain, where animal bones and some plant remains were found associated with the lithic artefacts (Howell 1966; Freeman 1975; 1978).

As mentioned above, the three Barakah localities

had suffered heavily from erosion and that would leave a slim chance, if any, for the Palaeolithic deposits to be preserved.

The strategic position of Jebel Barakah overlooking the eastern edge of the Sabkha Matti must have attracted Middle Palaeolithic hunters following their prey along the ancient river courses. Water may have certainly flowed along the Sabkha Matti, draining down into the Arabian Gulf basin. Palaeo-environmental conditions from southern Arabia indicate that at least three pluvial conditions were associated with MIS 5e, 5a, and 3 (Rose 2004), providing habitable conditions for hunter-fisher-gatherers to the region. It should be noted here that the Arabian Gulf during the time in question was a huge river-valley system and the Barakah people were living in a world completely different from today.

The Abu Dhabi Authority for Culture and Heritage (ADACH) is currently striving to protect important archaeological and palaeontological sites throughout the Abu Dhabi Emirate. The discovery of the first Middle Palaeolithic material in the Abu Dhabi Emirate places

Jebel Barakah, with its already known fossil-rich Late Miocene deposits, as a site deserving the highest degree of protection by the authorities.

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