# THE EASTERN JAFR JOINT ARCHAEOLOGICAL PROJECT: THE 2001 AND 2006 SURVEYS IN WĀDĪ AS-SAHAB AL-ABYAḌ SOUTHEASTERN JORDAN

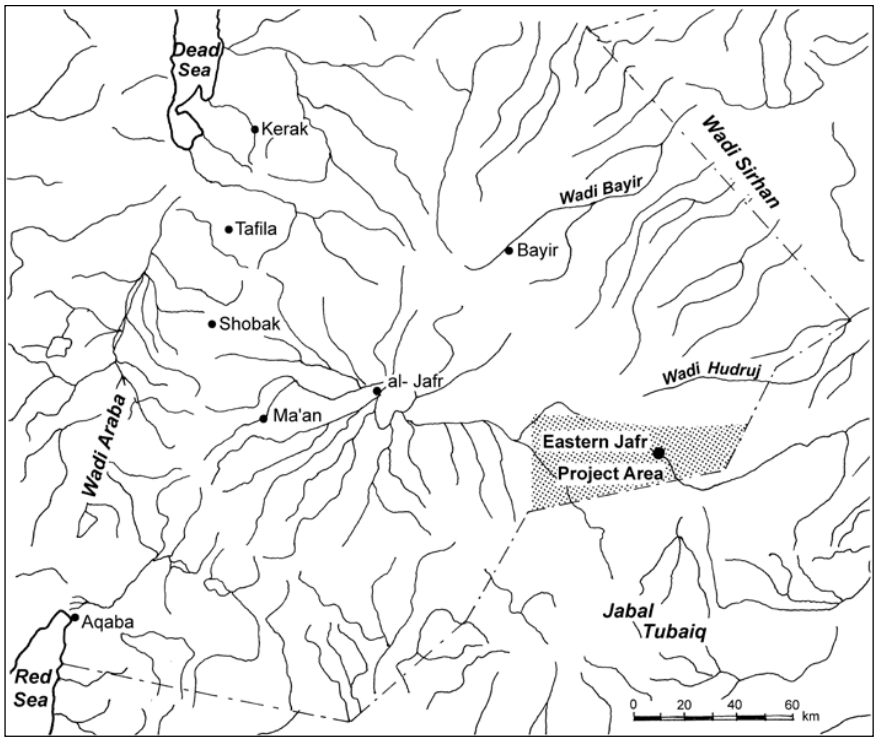
*Hamzeh M. Mahasneh and Hans Georg K. Gebel*

**Research Frameworks and Survey Goals**

In Holocene times, the southern *badia* desert adaptations could support or destabilize the economic and cultural developments of the favored regions to the west, without which some of their achievements or regressions cannot be understood. Often misunderstood as marginal, unproductive or irrelevant for the major socioeconomic and political trajectories in the favored regions, these "deficit regions" allowed specialized economies the use of their biotic and abiotic resources that stabilized, promoted, or even interfered with developments in the Jordanian Highlands. Providing ores and other minerals, grasslands, long-distance route networks, etc., these vast arid lands could gain importance rapidly whenever needs and techniques occurred for their exploitation in the favored areas. Whenever hitherto "deficit" areas received impulses of growth, either by improvements of climate or hydrological situation ("green desert economies", cf. Gebel and Mahasneh n.d.) or demands which they could satisfy (trade routes, flint, ores, salt, etc.), they may show obvious peaks of occupational activities for certain periods, while some other periods can hardly be traced archaeologically. Certainly we have to expect periods in which the arid and the semiarid regions had little contact, and their societies co-existed without having much interaction.

A mixed hunting/ pastoral economy may have exploited the Greater Jabal at-Tubayk Area from the early 7th millennium calBC: certainly Wādī Jīlāt to the north witnessed such an economy at that time (Horwitz *et al*. 1999); Jabal at-Tubayk may even have served as the summer base for seasonal pastoralists during wetter parts of the millennium. The arid lands' 6th and 5th millennium BC is somewhat difficult: characterized by the aceramic "Arabian foliate/ slug horizon" stretching from the Omani Peninsula (Gebel 1982; Bergne and Copeland 1976) across the Arabian Peninsula as far west as Kilwa and Wādī 'Araba (e.g. Abū Barqa near Gharandal), these two millennia may represent a rather uniform pastoralism with a highly variable contribution of hunting. For the Mid-Holocene, we expected to be confronted with an occupational complexity in the survey, while we were and are not expecting oasis cultures of the 3rd and 2nd millennium BC in our area.

However, arid lands and their adaptation potentials should never be understood as the mere management of deficits or as a conservative factor in historic development, but rather as slumbering potentials for new interaction spheres. With these basic research ideas in mind, in 2001 we chose the desert territories east of al-Jafr, south of the Wādī Ḥudruj/ Wādī as-Sahab al-Abyaḍ watershed, and north of the northern extensions of Jabal Tubayk in Saudi Arabia, as a future area of investigation (**Fig. 1**). With the support of the Department of Antiquities, two short field seasons were carried out in 2001 and 2006 as a joint project between Mu'tah University and *ex oriente* at Free University of Berlin. The area of the greater Wādī as-Sahab al-Abyaḍ drainage system (also found on maps as Wādī ash-Shahab al-Abyaḍ) was approached in 2001 with several goals: 1) to test the archaeological potential and the logistics of a project devoted to understanding the southern *badia* desert adaptations in the Holocene periods, 2) to trace the northern extensions of the Kilwa cultures of Jabal at-Tubayq (Rhotert 1938), and 3) to understand the socioeconomic oscillations wet periods caused in the area. Of course, aside from these goals all human and paleontological evi-




*1. Location of the Eastern Jafr Joint Archaeological Project survey area. (dot marks Qulbān Banī Murra).*

dence were subjects of record. In 2006, goals concentrated on the understanding of the magnificent Late Chalcolithic/ Early Bronze Age sepulchral site of Qulbān Banī Murra (Gebel and Mahasneh, n.d.).

Compared to the research we have for the Negev (Avner 2002), little had been done in the southern Jordanian *badia*. Although Rhotert had presented exciting evidence as early as 1938, subsequent researchers showed little interest in the southern *badia* Neolithic and later desert cultures. The same is true for the outstandingly rich late Chalcolithic/EB occupations, known since early works were carried out at Qulbān Banī Murra (Kirkbride and Harding 1944) and Risqah (Kirkbride 1960, 1969). It was only just as we started our project, that Wasse and Rollefson (2005) became engaged in similar questions north of us (Wādī Ḥudruj); however, L. Quintero and P. Wilke (2002) as well as S. Fujii (e.g., 2004) with their al-Jafr Basin projects had already probed into several aspects of the questions before.

After two seasons[1], we are able to present the first results and our first thoughts on the research needs of a project in an area like ours. Apart from having the necessary skills for addressing chipped lithic industries in Holocene aceramic contexts, projects only make sense if the team is composed of various disciplines cooperating already in the field: epigraphy (e.g. **Fig. 7**), geology, geomorphology, pedology, hydrology, and paleontology. The area is also a candidate to search for remains of early man. The special

1. The surveys were made possible by the permit and assistance provided by the Department of Antiquities, ʻAmman. It was carried out -including preparations and closing works- from 30th of Sep. to 11th of Oct. in 2001 and from 1-9 Sep., 2006. Co-directors of this joint project are Prof. Dr. Hamzeh M. al-Mahasneh, representing Muʻtah University, Karak, and Dr. Hans Georg K. Gebel, representing *ex oriente* at Free University of Berlin. While the principal funding of the 2001 survey came from al-Hussein bin Talal University, the 2006 season was financed jointly. The research area can be reached by GPS navigation, or with an experienced local al-Howeitat Bedouin from al-Jafr. The Wādī as-Sahab al-Abyaḍ is about 120-130km ESE of the al-Jafr; a ride to the area (c. 3 hours) is demanding in terms of vehicles. Careful planning of equipment and water supplies is necessary, and for security reasons a minimum of two 4x4 trucks have to be used, especially in view of tire damage caused by crossing extensive flint surfaces). There is a high risk of scorpion incidents. Work can be carried out only in the early mornings and late afternoons, due to extreme heat. While in 2001 some Bedouin had a tent in the survey area, nobody was in the area in 2006.

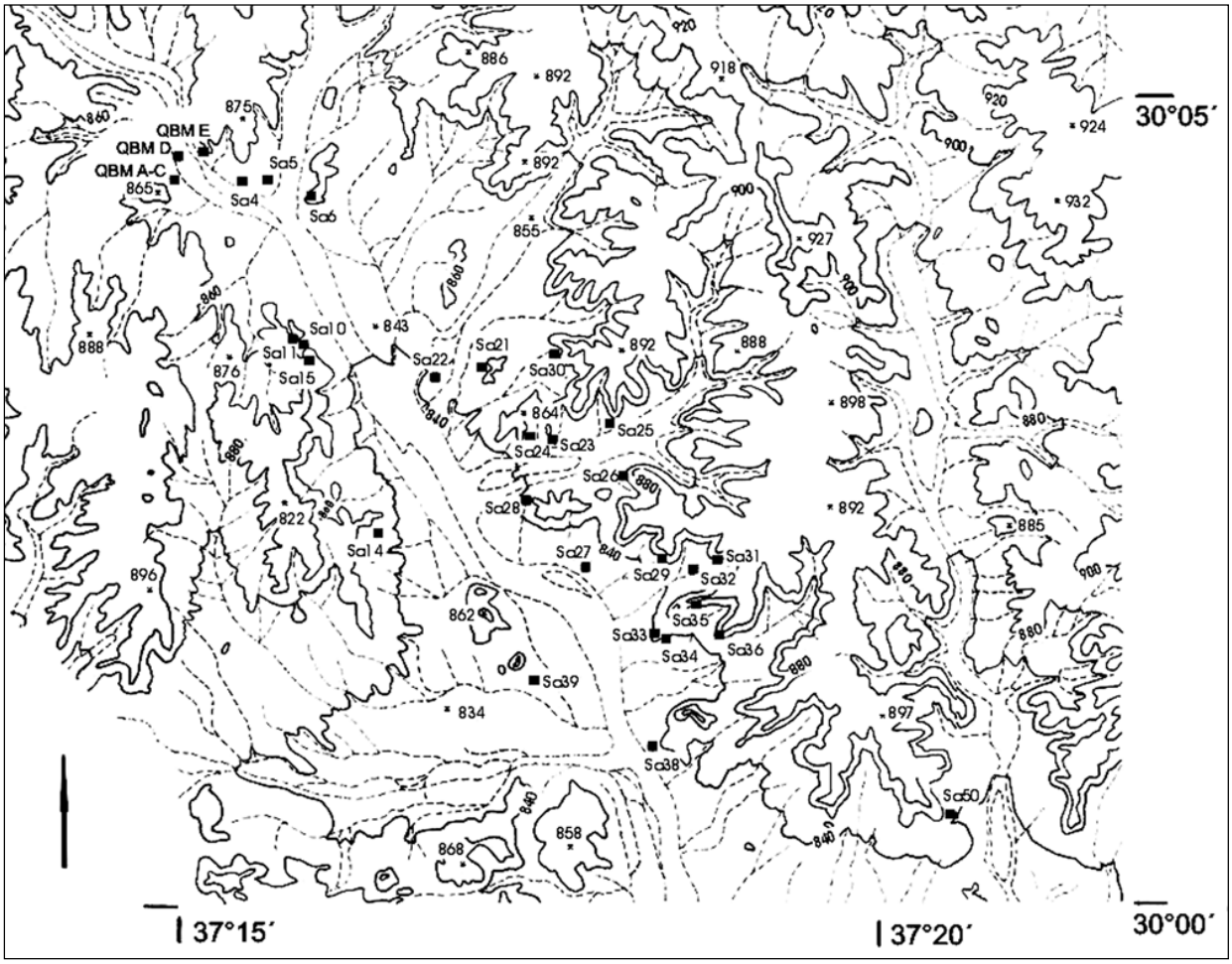
character of the landscape requires a lot of experience in deflated land archaeology, or in ḥammād prehistory: many remains are almost invisible heat-fractured stone structures embedded in the surface, often missed by those who follow what is everywhere and easy to identify: thousands of standing/ lying stones …

**Survey Strategies**

For the initial survey in 2001 (**Fig. 2, Table 1**), a systematic survey following a certain pattern was neglected in favor of getting meaningful insights on the occupational history during a short period. Sites were located by car (visiting promising physiographic settings such as prominent land marks, shelter/cave formations, the lower wadi slopes), which is not difficult for sites with surface structures. After locating them, they were intensively surveyed by means of walking at fixed intervals. It is of particular interest to mention the area's characteristic feature, that chipped lithic artifacts cover all of the survey area; borders of a site are often difficult to determine; single finds or find spots can be located everywhere. The 2006 site survey at Qulbān Banī Murra focused on making a topographical site map (Gebel and Mahasneh, n.d.), locating on it all surface features, and the selected drawing and photographing of its major monuments.

**Present Physiography, Climate and Land-Use**

The greater Wādī as-Sahab al-Abyaḍ drainage system covers in Jordan more than 150-200 square km. Its central and lower parts are about 40-50km long, and drain into one of the basins (at 770m a.s.l.) between the northernmost outcrops of Jabal at-Tubayk. Its orientation of drainage is roughly NW- SE, as is also the case




*2. Wādī as-Sahab al-Abyaḍ: Part of survey area of 2001 with site locations.*

**Table 1.** List of major sites located in the 2001 survey, with preliminary information (only Wādī as-Sahab al-Abyaḍ).

| Site Name | Coordinates | Height a.s.l. | Short Description of Site & Setting | Surface Finds | Chronology & Interpretation (preliminary) |
|---|---|---|---|---|---|
| Qulban Beni Murra Areas A-E | N 30°04.203' - N 30°04.678', E 37°14.564' - E 37°15.136' | | cf. text of contribution | large flake industry with fan scrapers, fragm. of hammerstone | Late Chalco / EB |
| W. as-Sahab al-Abyad 6 | 37 R 0332883 UTM 3327971 | | Large flat plateau with black colored *hammada* surface. Some stone structures at the E foot. Some flakes and blades could be found all over the plateau | blade with steep ret., projectile point with high triangular section | Neolithic ? |
| W. as-Sahab al-Abyad 7 | 37 R 0333656 UTM 3328039 | | | | |
| W. as-Sahab al-Abyad 10 | N30°03.472' E37°15.963' | 854 m | Extensive surface scatters in front of a wadi-side outcrop once hosting a rock shelter, now collapsed | blade I-IV industries with opposed and single platform blade cores, flake industry, burins, hammerstone, heavy-duty scraper, ret. large flakes, large eroded flakes with heavy patina | Early Neolithic (PPN MPPNB related?), Palaeolithic ? |
| W. as-Sahab al-Abyad 14A | below N30°02.363 E37°16.427 | below 873 m | Foothill zone of ridge bordering the wadi | | Late Chalco / EB, c structures |
| W. as-Sahab al-Abyad 14B | N30°02.351 E37°16.433 | 872 m | Circular burial chamber on the deflated surface at the ridge's edge near the wadi border | none | Late Chalco / EB, b chamber |
| W. as-Sahab al-Abyad 14C | N30°02.347 E37°16.461 | 869 m | Rectilinear burial chamber at the ridge's edge near the wadi border | none | Late Chalco / EB, b chamber |
| W. as-Sahab al-Abyad 14D | N30°02.352 E37°16.468 | 869 m | Burial chamber at the ridge's edge near the wadi border | none | Late Chalco / EB, b chamber |
| W. as-Sahab al-Abyad 14E | N30°02.346 E37°16.481 | 860 m | Circular grave with stone alignment around at the ridge's edge near the wadi border | none | Late Chalco / EB, b chamber |
| W. as-Sahab al-Abyad 14F | below south of 37 R 0333653 UTM 3324358 | below south of 862 m | Terraces / terrace walls with burial structures in a small valley deviding the ridge of SA14 | none | Late Chalco / EB, b ground |
| W. as-Sahab al-Abyad 14G | 37 R 0333623 UTM 3324354 | 860 | 3 circular stone alignments on the summit of ridge | none | Late Chalco / EB, c structures |
| W. as-Sahab al-Abyad 14H | below south of 37 R 0333682 UTM 3324312 | below south of 868 m | At the foothill zone of ridge | flake and blade industry, ret. flakes and blades, many fan scrapers | Late Chalco / EB, habitational structur |
| W. as-Sahab al-Abyad 21 | 37 R 0334918 UTM 3326214 | | Slope located on the left side of the wadi. Site of one fragment of a retouched foliate. No other flaked material has been found | unfinished (?) foliate | Neolithic? |
| W. as-Sahab al-Abyad 22 | 37 R 0334326 UTM 3326205 | | Isolated hill situated in the wadi. Circular limestone structures. Largest with an approx. 5 m diam. Many blades and flakes were found. | flake industry incl. large flakes, ret. flakes, flakes with scraping edges, fan scrapers | Late Chalco / EB |
| W. as-Sahab al-Abyad 23 | 37 R 0335900 UTM 3325451 | | Site located at the spur of a hill mainly of sandstone and a shallow layer of limestone on the top. Many circular sandstone structures. Surface is partly covered with lumps of iron-sandstone minerals with a very high iron share. Much flaked material and many fan scrapers | flake industry, many fan scrapers, unfinished foliate fragm. (many iron minerals) | Late Chalco / EB |
| W. as-Sahab al-Abyad 24 | 37 R 0335532 UTM 3325325 | | Site situated at the top and on the slope of a hill. Surface covered with black colored limestone. Some flaked material | flake and large blade industries | |
| W. as-Sahab al-Abyad 25 | 37 R 0336311 UTM 3325498 | | Site like Abiad 23. Again iron-sandstone material, lot of flaked material and scrapers | flake industry with fan scrapers amd flakes with steep ret. edges | Late Chalco / EB |
| W. as-Sahab al-Abyad 29 | 37 R 0336880 UTM 3323754 | 872 m | Flaking ground with many flakes and blades and one core located on a terrace-like elevation on the foot of a spur | Blade III-IV industry | |
| W. as-Sahab al-Abyad 32 | 37 R 0337164 UTM 3323704 | 879 m | Find spot of a foliate fragment of the Kilwa?-type; also scrapers were found. | few fan scrapers, fragm. of large foliate | Late Chalco / EB |
| W. as-Sahab al-Abyad 33 | 37 R 0336767 UTM 3322984 | 880 m | Many Circular structures at the foot of a spur | | |
| W. as-Sahab al-Abyad 34 | 37 R 0336850 UTM 3322937 | 872 m | Many circular sandstone structures, the largest with a approx. 18 m in diam. at the foot of spur. Some of the circular structures are inside the larger structures. Many fan scrapers and a large amount of flaked material | large flake industry with fan scrapers, one foliate | Late Chalco / EB |
| W. as-Sahab al-Abyad 37 | 37 R 0335269 UTM 3322662 | 844 m | Circular structures sandstones at the foot of a single outstanding. Some flints and scrapers | large blade ind., heavy duty side scraper, fan scrapers | Late Chalco / EB |

| | | | | | |
|---|---|---|---|---|---|
| W. as-Sahab al-Abyad 38 | 37 R 0336780 UTM 3321665 | 884 m | "Ibex Rock", in prominent position at the edge of a wadi "bay". Rock art: 1) pecked (wild) goat or gazelle with smaller animal (dog?) on a vertical rock surface (sandstone), flanked by two deeply engraved pairs of signs 2) 4-legged creature with "hook" and circular sign, and stylized ibex with drilled leg ends on a fallen rock | blade industry, flake industry, burins, ret. blades and flakes, notched blades, few foliates | PPNB/PN |
| W. as-Sahab al-Abyad 40 | N29°59.472' E 37°18.350' | 844 m | Circular sandstone structure at the foot of a sandstone formation. The formation eroded and exposed a stair-like structure in the rock. | some flakes and cores, undiag. industry | indet. |
| W. as-Sahab al-Abyad 43 | 37 R 0341164 UTM 3318813 | 882 m | Circular sandstone structures at the foot of a cone-shaped sandstone hill. | large blade and flake industry with many fan scrapers and ret. flakes | Late Chalco / EB |
| W. as-Sahab al-Abyad 44 | 37 R 0341164 UTM 3318813 | | Rock engravings (picking) on top of the cone-shaped sandstone hill (*SA*43). | none | ? |
| W. as-Sahab al-Abyad 45 | 37 R 0344980 UTM 3319241 | 870 m | Circular limestone structures at the foot of a hill, isolated or in groups. The hill consists of limestone and sandstone. | large flake industry with fan scrapers and steeply ret. flakes | Late Chalco / EB |
| W. as-Sahab al-Abyad 46 | | 868 m | Circular structures of very dark sandstones below and between two spurs of a hill. | undiag. industry, one lump of basalt | indet. |
| W. as-Sahab al-Abyad 48 | | 882 m | Cone-shaped hill with circular structures on the slope. | large flake industry with fan scrapers and large thin flakes with cutting edges (ret.) | Late Chalco / EB |
| W. as-Sahab al-Abyad 49 | | 852 m | Circular limestone structures at the foot of a sandstone hill. | large flake industry with fan scrapers and ret. blades III-IV | Late Chalco / EB |
| W. as-Sahab al-Abyad 50 | | 877 m | Circular sandstone structure, partly covered by sand. | none | ? |
| W. as-Sahab al-Abyad 51 | | 884 m | Cone-shaped sandstone hill. At the foot are circular sandstone structures. Flaked material and fan scrapers were found. On top of the hill rock pecked engravings | large flake industry with fan scrapers and ret. blades III-IV | Late Chalco / EB |
| W. as-Sahab al-Abyad XX | | | Petrified forest ("Forest I) | | Paleontological monument |
| W. as-Sahab al-Abyad XX | | | Fossil bones and shells exposed in a deposit, today forming the ceiling of a small shelter | | Paleontological monument |

abbreviations: *ret.* retouched, *Sa.* Wadi as-Sahab al-Abyad - explanations: *blades I* <25mm, *II* <50mm, *III* <80mm, *IV* >80mm

for Wādī as-Sahab al-Asmar running parallel in the SW. The waterless and treeless landscape is characterized by a shallow undulating relief, in which one can listen during the day to the heat-pops of its flint pavements.

The area today is hyperarid (Emberger Classification: very arid - mild; Koppen: E B 4´db4´) and receives 25-50mm rainfall in very wet years. The mean day temperatures are 14°C in January (32°C in July), the mean night temperatures are 4°C in January (24°C in July) (NAJ I). The landscape's slopes and summit surfaces are characterized by a large amount of flint debris and heat-fractured intact stone pavements (ḥammād) bearing desert varnish, by extensive gravel floors in the wadis, confined basins, hillside sand accumulations, and dune areas. There exists almost no vegetation in the area except in the wadi courses.

It appears that the landscape today is not used by herders or any other sort of subsistence economy (although a pair of lost sheep-shearing scissors were found, and camel herds may pass through the area); however, at night the area can become the ground for smugglers to/from Saudi-Arabia. The nearest police stations are Enab Station some 40km to the WSW and Bshash Station some 50km to the NE.

## General Observations on the Geology, Paleontology, and Geomorphology

The general geological stratigraphy of the wadi ridges bordering Qulbān Banī Murra area and further south is characterized by top layers of quartzite sandstone bearing desert varnish, in which quartzite layers of thicknesses up to 30cm may occur. Whitish inclusions in this material are chalky particles less than 5-8mm. It is in here, where the fossil vertebrate (Wādī as-Sahab al-Abyaḍ 11) was found. Below this hard cover of the area, beds of limestone separated by tabular and nodular flint occur. Locally, consolidated

sand is to be found beneath these limestone and flint layers (erosional products of aeolian deposits from the sandstone bedrock underneath?). Below this stratigraphy the sandstone formation starts. The origin of the fossil wood (silicified tree chunks of real forests) found below the ridges bordering the wadi at Wādī as-Sahab al-Abyaḍ remains to be understood.

**Located Sites and Their Chronology**

The more important sites located during 2001 are listed in **Table 1**; in this report, we can only describe some in a bit more detail. Our Survey area otherwise has countless locations with ancient, sub-recent (see **Fig. 19**) and modern rock art tribal marks, as well as innumerable pens with fan scrapers (see **Fig. 20**), or of just fan scraper scatters (see **Fig. 21**) of the late chalcolithic/Early Bronze Age with flint artifacts from other periods.

**Description and Interpretation of Selected Sites and Surface Finds**

*Qulbān Banī Murra* (**Figs. 3-6, 8-10**)

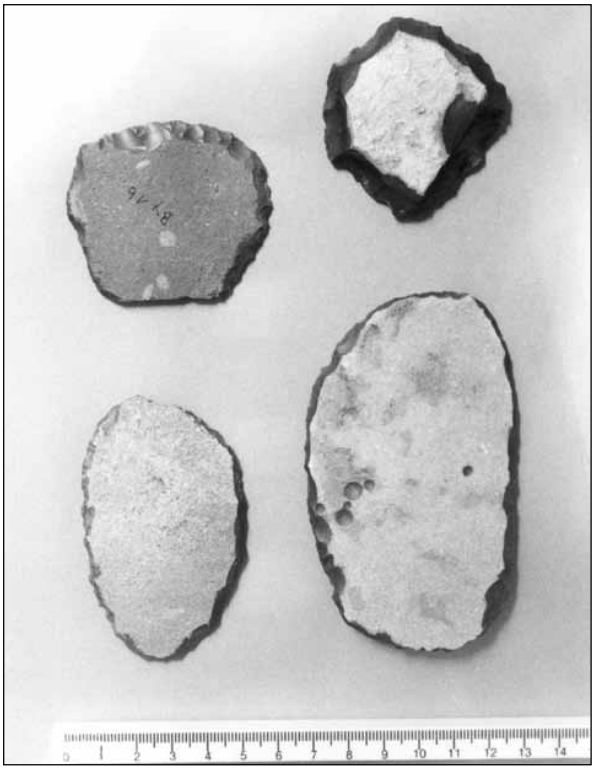
The ruins of Qulbān Banī Murra (also called Biyar Beni Murra, cf. JADIS 1994), respectively their core area, stretch over some 2 square km along the hilly flanks and the bed of central Wādī as-Sahab al-Abyaḍ. Its megalithic structures (cf. Gebel and Mahasneh, n.d.) made from the locally available tabular quartzitic sandstone are visible from afar and create impressive scenery in this barren and deflated environment. The site limits are unclear, since the summits and slopes to the N are covered by more burial grounds of the Qulbān Banī Murra types (not surveyed yet).

*4. Qulbān Banī Murra, Area A: Row of circular structures on the right or southwestern wadi flanks / hilltops, from S. (photo: Eastern Jafr J.A.P.).*

*5. Qulbān Banī Murra, Area C: Looted chamber grave on the hilltops south of Qulbān Banī Murra Area A. (photo: Eastern Jafr J.A.P.).*

The topographical units and areas of investigation with their predominant structures include Areas A-C on the southwestern wadi slopes,

*3. Qulbān Banī Murra, Area E: Burial structures on the left or northeastern wadi flanks / hilltops, from SW. (photo: Eastern Jafr J.A.P.).*

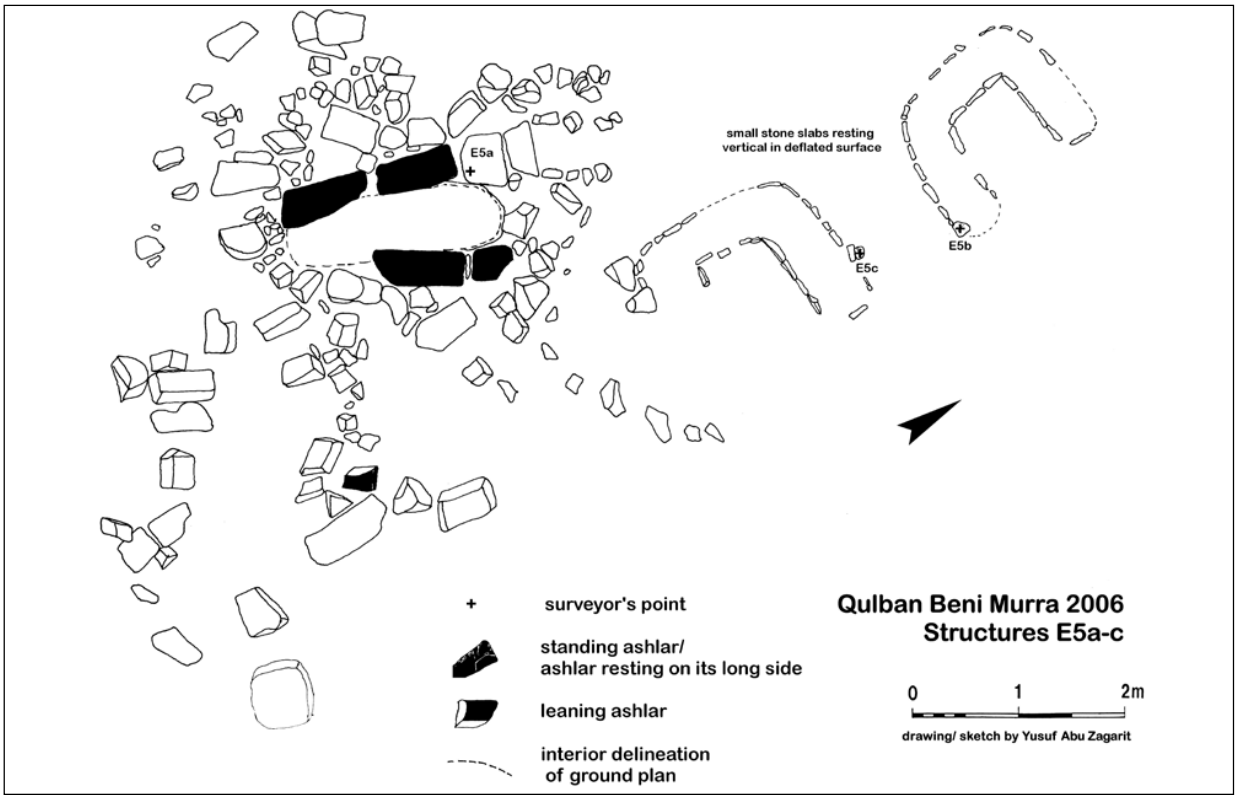


*6. Qulbān Banī Murra 1B: Chipped lithic artifacts (surface finds). (photo: Eastern Jafr J.A.P.).*

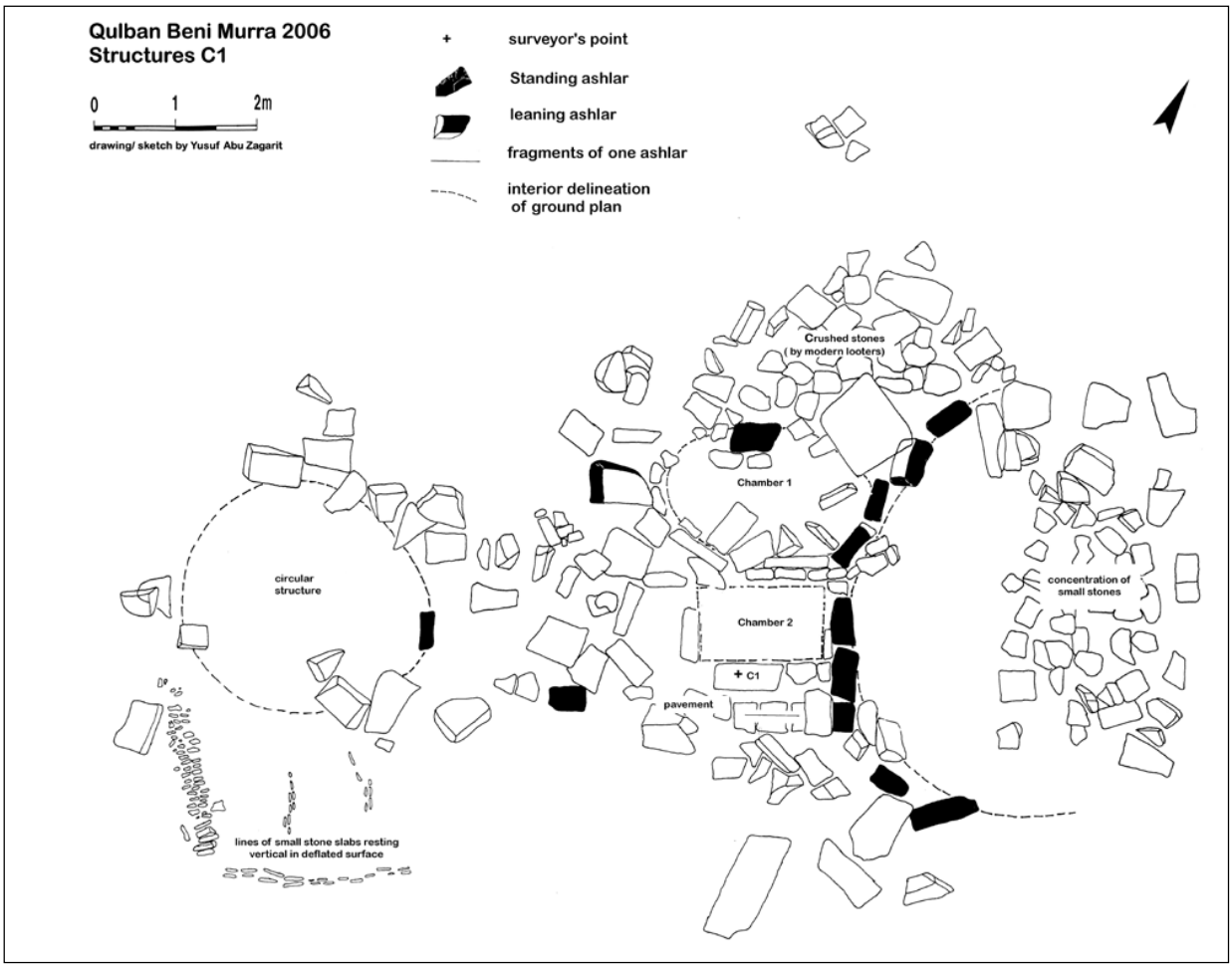
*7. Upper Wādī as-Sahab al-Abyaḍ: Thamudic inscription on portable rock. (photo: Eastern Jafr J.A.P.).*

separated by a runnel (A/B) and a small wadi (B/C):

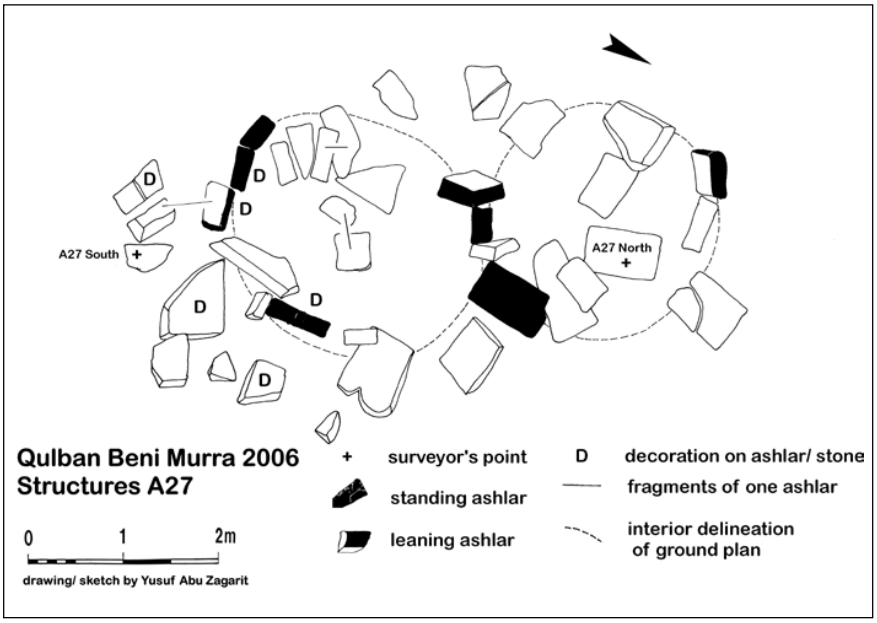
- Area A: a chain of circular megalithic structures, composed of room clusters (ca. 8 clusters with ca. 29 rooms) and ca. 8 isolated room structures; isolated megalithic circular room structures; megalithic cairn graves;
- Area B: mainly isolated megalithic cairn graves; ashlar field between Areas A and B;
- Area C: chain of isolated megalithic chamber




*8. Qulbān Banī Murra Area E: Chamber grave and two embedded horseshoe-shaped structures (Structures E5a-c). (drawing: Y. Abu Zagrit, Eastern Jafr J.A.P.).*




*9. Qulbān Banī Murra, Area C: Chamber graves and associated structures (Structure C1). (drawing: Y. Abu Zagrit, Eastern Jafr J.A.P.).*




*10. Qulbān Banī Murra, Area A: Circular Structure A27. (drawing: Y. Abu Zagrit, Eastern Jafr J.A.P.).*

graves and remains of a camp area.

Area D in the wadi floor is characterized by large isolated multi-roomed structures with central depressions (the so-called well structures) and isolated megalithic chamber graves.

Area E on the northwestern wadi slopes has many isolated megalithic chamber and cairn graves, ashlar fields and quarries, and Bedouin-type graveyards.

Area F (not yet surveyed) to the south of Area E seems to represent the same nature and burial types as Area E.

The areas' general characteristics differ considerably from each other, in terms of structure types, organization of space, image inventories, and surface finds, among others. The question whether we deal with a single occupation with different groups represented by different ceremonial manifestations, or if we deal with several reoccupations during the Late Chalcolithic - Early Bronze Age periods represented by different styles and finds, is unresolved yet. A preliminary summary description of the Late Chalcolithic - Early Bronze Age remains is presented in the following (for more details cf. Gebel and Mahasneh, n.d.):

Area A is dominated by a long row of single and clustered circular rooms, dispersed cairn graves and circular rooms, and a large space east of Structures A15-31 is structured by ashlar settings.

Area B is characterized by large isolated cairn graves with ashlars marking interior and exterior spaces, showing many signs of additive burials with added peripheral pavements or pavement terraces; rows of subsequent cairns resulted in huge stone accumulations, but single cairns also occurred. Very often an isolated group of two or three ashlars was erected in the southeastern part of these structures, as well as obvious fields of stone debris. Ashlar fields are found between Areas A and B. Except for a figurative decoration on the standing ashlars of Structure B39, no other stone pecking was found in Area B.

Area C witnesses a chain of isolated megalithic single and double chamber graves (most looted in recent times) and the remains of a larger camp area; no figurative or other stone-pecked decorations were found in Area C. More burials exist on the hilltops east and southeast of Area C. It appears that many of the chamber graves had annex structures. The human remains exposed by the illicit digging appear to be in a rather good state of preservation.

Area D is typified by the remains of some nine multiroomed structures on small mounds along the western margins of the present-day "active" wadi bottom, and chamber graves on the ḥammād surfaces of the wadi floor. The small mounds rest ca. 0.5m above the surrounding ḥammād and wadi gravel flats; the present runnels also cut through these ḥammād surfaces. The ground plan of the multiroomed structures is outlined by single row, single course walls or "wall-ettes", with clusters of curvilinear, polygonal, oblong, and sub-oval rooms sharing walls. Each building has between 12 and 24 rooms and a central or almost central depression reached by two or more oblong corridor or passage-like rooms with lengths between 1.5 and 5m; each structure has one to three rooms with interior stone piles. The surfaces of the circular or oval depressions (diameters 2-8m) are ca. 0.5 to 1.0m deep and filled with sand; reportedly representing well shafts, we call these buildings "well structures". Located along the major wadi course, these shafts are expected to have tapped the aquifers. Little figurative and petroglyph material is found in Area D, and mostly they represent tribal tags.

Area E shows a high degree of structural variability in its isolated megalithic chamber and cairn burials. In addition, ashlar fields related to "runnel quarries", and Bedouin graveyards associated with various campsite remains from different periods were found in the northwestern parts of Area E's slope. Two horseshoe-shaped structures (each ca. 2 x 2m) of unknown date, outlined by a double-row of small stone slabs (ca. 20cm) set upright into the surface, are characteristic and unique features of the site.

The deflated surfaces of the site are littered with fan scrapers and undiagnostic flake industries with some blade elements.

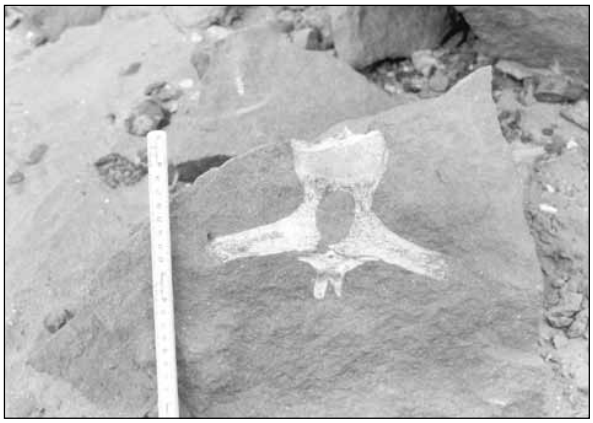
As a preliminary interpretation we offer the following site understanding. The huge site of Qulbān Banī Murra (about 2 square km), which has no equivalent yet in Jordan, seems to represent the burial place of hitherto unknown late Chalcolithic/EB cultures of Jordan. Risqah near 'Aqaba and Rajajil near Sakaka in Saudi Arabia may represent a similar culture. The herdsman

of these basically aceramic cultures gathered in sites like Qulbān Banī Murra to bury their dead and practice ancestral traditions. The 2006 reconnaissance recorded over 200 structures. The megalithic character of the site comes from these ashlar walls and standing stone groups connected with the cairn. Some of the circular structures and ashlars of the cairns carry decorations like ibexes and unknown signs. The "well structures" of Qulbān Banī Murra in the bed of Wādī as-Sahab al-Abyaḍ may date back as early as the Late Chalcolithic/EB burial grounds, since they are littered with the diagnostic fan scrapers as well. They must have been used in a climatic optimum of the Mid- Holocene times when most desert areas of the Arabian Peninsula were covered by seasonal lakes and vast pastures, also bringing life to dry and remote areas like Qulbān Banī Murra.

*Wādī as-Sahab al-Abyaḍ 10*

This site is a collapsed rock shelter (**Fig. 11**) once opening towards Wādī as-Sahab al-Abyaḍ of dimensions we were unable to reconstruct. On the banks of the wadi and upwards towards the previous rockshelter, and between its fallen debris, PPN blades occur in quite good numbers, struck from bidirectional non-naviform and single platform cores; burins are attested also. Large wind-worn and heavily patinated scrapers and flakes seem to represent Paleolithic use(s) of the shelter. Large vertebrates (**Fig. 12**) are exposed by fractured bedrock close to the site.

*11. Wādī as-Sahab al-Abyaḍ 10: Site of the PPN(A?) rock shelter. (photo: Eastern Jafr J.A.P.).*



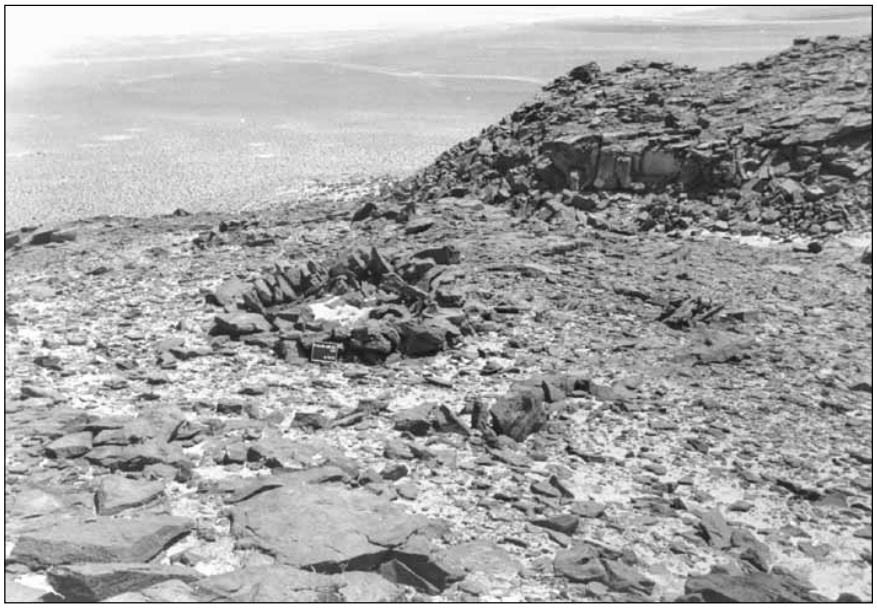
*12. Wādī as-Sahab al-Abyaḍ 10: Fossil vertebrate in the bedrock. (photo: Eastern Jafr J.A.P.).*

*Wādī as-Sahab al-Abyaḍ 14*

SA14 is a unique site for the area, in terms of its Late Chalcolithic/ EB structural variability. Aside from the common animal circular enclosures in the sandy foot zones of the wadi side (e.g. **Fig. 13**, terraces in a drainage leading to

*13. Wādī as-Sahab al-Abyaḍ 14: Late Chalcolithic-Early Bronze Age camp site on the wadi terrace. (photo: Eastern Jafr J.A.P.).*

*14. Wādī as-Sahab al-Abyaḍ 14: Late Chalcolithic-Early Bronze Age terraces of the burial ground. (photo: Eastern Jafr J.A.P.).*



*15. Wādī as-Sahab al-Abyaḍ 14: Late Chalcolithic-Early Bronze Age circular structure in the burial ground area on the hilltop. (photo: Eastern Jafr J.A.P.).*

Wādī as-Sahab al-Abyaḍ bear a graveyard with very different types of grave structures, among which a circular one is one the hilltop (**Figs. 14-15**). On the summit of the wadi side to the N the remains of two tower-like graves are present.

*Wādī as-Sahab al-Abyaḍ 38 ("Ibex Rock")*

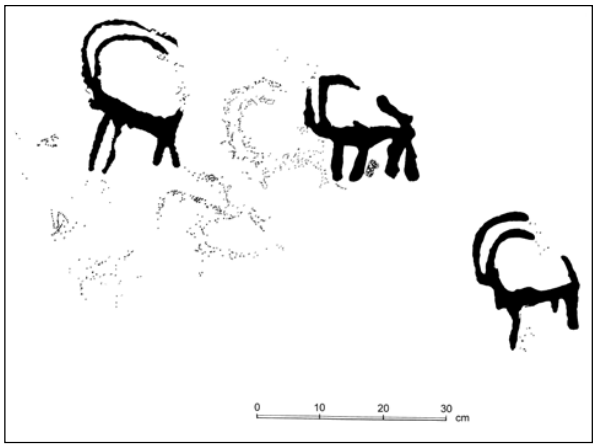
A rather prominent but smaller hill (**Fig. 16**, right) bears large sandstone rocks/ blocks with several ibexes on two vertical or slightly inclining rock surfaces in the upper part of the small conical mountain. This point provides an excellent view over the Wādī as-Sahab al-Abyaḍ.

The northwestern part of the conical mountain is in shadow during forenoons and has a small flattish area that is bordered by more fallen rocks creating a room-like situation. One of these rocks, on a surface towards the "room", bears multiple depictions of ibexes (**Fig. 17**). The other depiction is on a vertical rock facing W (**Fig. 18**) and is oriented towards the wadi. Both images are on the highest part of the conical mountain.

All representations of the ibexes and nearby motifs are pecked. The repertoire of motifs exclusively involve the ibex except for the two scenes facing the southeast, showing a human and a human with an animal led by a rope. The

16. Wādī as-Sahab al-Abyaḍ 38: View of the site from SW (photo: Eastern Jafr J.A.P.).


17. Wādī as-Sahab al-Abyaḍ 38: Rock art on the south-eastern rock face (drawing: H.G.K. Gebel, Eastern Jafr J.A.P.).

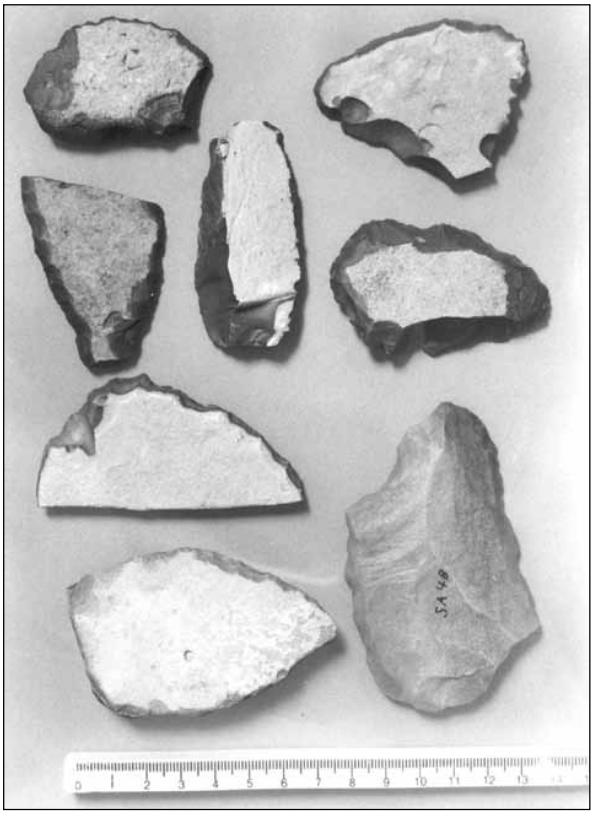



18. Wādī as-Sahab al-Abyaḍ 38: Rock art on the western rock face (drawing: H.G.K. Gebel, Eastern Jafr J.A.P.).

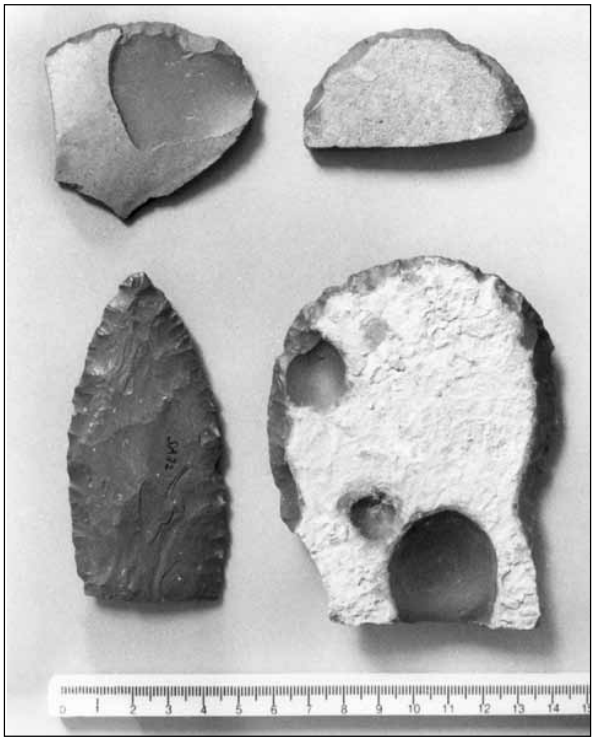
19. Upper Wādī as-Sahab al-Abyaḍ: Sub-recent narrative scenes on flat bedrock. (photo: Eastern Jafr J.A.P.).

field of representations on the rock facing the northeast only has two ibexes deeply pecked in to the rock, while a third is executed less deeply, and a fourth only is outlined by a more fresh pecking. Other pecked areas show that the compositions might not have been finished or that more motifs were to be added. The rock is a porous and hard sandstone with quartzitic inclusions and veins; it bears desert varnish.

At the foot of the rock a large amount of PPN



*20. Wādī as-Sahab al-Abyaḍ 48: Chipped lithic artifacts (surface finds). (photo: Eastern Jafr J.A.P.).*

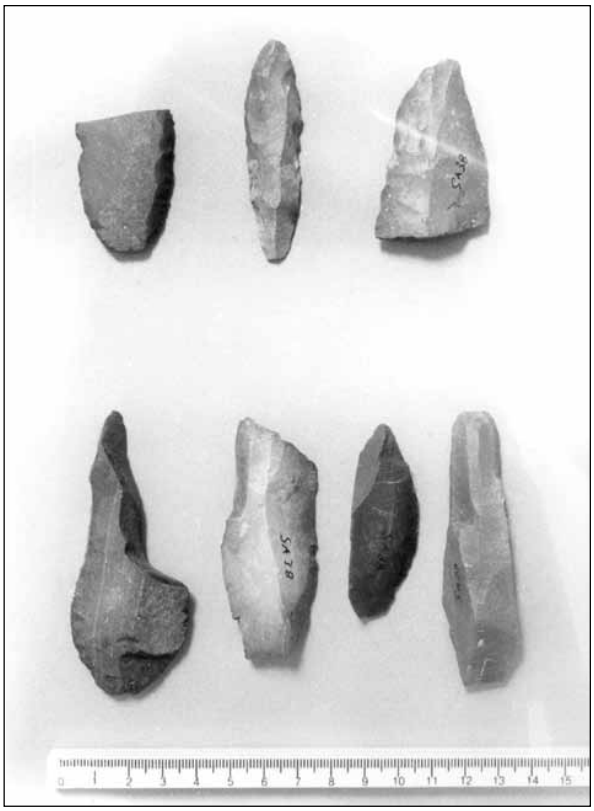


*21. Wādī as-Sahab al-Abyaḍ 32: Chipped lithic artifacts (surface finds). (photo: Eastern Jafr J.A.P.).*

flaked material was found including foliates, burins and cores (**Fig. 22**).

**Brief Summary**

This report is preliminary in the sense that we have not yet found many parallels for our findings. The area of survey turned out to be extraordinarily promising with an extremely high research potential for many disciplines. Unexpected and unknown were the very rich aceramic Late Chalcolithic/Early Bronze Age occupations with their large variety of circular and rectilinear structures, serving pastoral, domestic, sepulchral and unknown ritual purposes. Much rarer, but clearly present, is the PPN in the area, while the Paleolithic and Epipaleolithic periods are almost absent, or not in the locations where we have so far concentrated our research, or they are buried in local stratigraphies. The collapsed PPN rock-shelter of Wādī as-Sahab al- Abyaḍ 10 so far is among the very first PPN evidence in far southeastern Jordan. We expected that a PPNB/PN Kilwa-type of occupation would have occurred more densely



*22. Wādī as-Sahab al-Abyaḍ 38: Chipped lithic artifacts (surface finds). (photo: Eastern Jafr J.A.P.).*

in the area; future research has to investigate why it appears so limited in Wādī as-Sahab al-Abyaḍ. The marvelous findings of fossil forests and bones in the bedrock open a new field of research to paleontologists who have to join the future investigations of the area. At the moment, the findings are under study and deserve a very basic discussion, since our project has entered and encountered completely new evidence from many periods. It is planned to publish full reports in the near future: one will focus on the Neolithic occupational history of the area, one on the palaeoenvironmental aspects of the Early-Mid Holocene, and one devoted to the densely distributed Late Chalcolithic/EB camp sites and burial fields.

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Hamzeh M. Mahasneh
Muʻtah University
Department of Archaeology and Tourism

Hans Georg K. Gebel
Institut für Vorderasiatische Archäologie
Free University of Berlin
Hüttenweg 7, 14195 Berlin, Germany

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