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UMM TUWEYRAT

PRELIMINARY OBSERVATIONS FROM THE JAGIELLONIAN UNIVERSITY RESEARCH ON THE DOLMEN FIELD IN SOUTHERN JORDAN

ABSTRACT: During the 2021 season, a team of researchers from the Institute of Archaeology, Jagiellonian University conducted an exploration of an Umm Tuweyrat site located in southern Jordan. The site constitutes a dolmen field located near the modern city of Ash-Shawbak. More than a dozen dolmens and other structures were identified on the site, indicating the use of the area by communities living in the region during the late prehistoric periods. As part of the research carried out on the site, the available areas were explored, all structures were cleaned and digitalized, and geological and material analyses were proceeded. This activity proved that future research on southern Jordanian dolmens has the potential to shed even more light on the rich cultural history of the region and deepen our understanding of the late prehistory.

KEYWORDS: Jordan; Bronze Age; megalithic architecture; dolmens; late prehistory

In this article, I will focus on the results of the work carried out at one specific site as well as on other conclusions which are the outcome of our field work. They seem to be particularly interesting as a supplement for a broad research field, focused on the period between the Neolithic and the Bronze Ages in the area of the southern Levant.

HLC Project has been ongoing since 2014 and focuses on the late prehistoric period in the area of southern Jordan. However, apart from archaeological research, we are also interested in environmental analysis as well as activities related to heritage protection or public archaeology. We conduct our activities as part of the Jagiellonian University with the support of archaeology students and in fruitful cooperation with the DoA and its specialists.

Since 2014, we have focused on test research on several sites and surface research mainly on the area of the at-Tafileh city. Our most interesting findings include the discovery of the Jerycho IX Neolithic settlement at the al-Munqata'a site and the study of the Bronze Age settlement at the Faysaliyya site. During recent seasons (2021-2022), we have also carried out excavations of the Huseiniya and Wadi Feynan 101 sites, which provide exceptional data on the Chalcolithic and Early Bronze Age in the area (Kołodziejczyk *et al.* 2024; forthcoming volume).

The Umm Tuweyrat site is a field of dolmens located in the immediate vicinity of the city of Shawbak, which seems to be exceptionally interesting as a tool leading to new information that can be extrapolated to other Jordanian sites of megalithic type. The site was first described by E. Dubis, M. Marahleh and S. Nawafleh (2004) as part of their surface survey project. It seems interesting that, despite a number of surface surveys being carried out in the area (see e.g. Glueck 1935: 88-94), until the above-mentioned publication, dolmen structures had been overlooked, focusing instead on later relics. This indicates a lack of interest in prehistoric eras, which results to this day in a lack of recognition of the area towards the periods of our interest. It should also be mentioned that most of the information on dolmen structures found in the Jordanian area comes from its northern regions.

The site is located on a rocky outcrop approximately 1km east of the modern city (Pl. 1: 1). During our work, geological mapping was carried out as an introduction to detailed geological maps and local stratigraphic columns. This mapping will help to reconstruct the geomorphological history of the site as well as materials used by builders of the dolmens. At the same time, geological prospecting was made with particular emphasis on the siliceous rock layers. These results will be crucial for describing the rock materials used for tool production at the site. Preliminary results indicate that the Umm Tuwayrat site lies within the late Cretaceous to Paleocene geological strata. These strata contain at least a dozen different levels of easily accessible siliceous rocks used during prehistoric periods for tool production.¹

¹ Geological and geoarchaeological analyses within the HLC project are being carried out by Dr M. Wasilewski. The information is taken from a publication in preparation.

Defined by two seasonal river valleys, the natural boundaries of the site are evident. However, during our prospection numerous stone structures that appear to be remnants of two stone walls were identified, possibly the original boundaries delineating the north and south of the site (Pl. 1: 2, 2: 1). Within these parameters, various stone structures have been discovered, including 12 dolmens and at least 10 stone circles or cairns. Given the rocky terrain of the site, its agricultural use is unlikely, leading us to speculate about a different original purpose for these structures: potentially for rituals or preparing bodies before secondary burials in the dolmens.

The specific nature of the site means that, on the one hand, it has been preserved to the present day, but on the other hand, it is subject to both natural and anthropogenic threats. The threats caused by natural forces are evident in the state of preservation of the dolmen structures themselves. Of the 12 dolmens visible on the surface, six remain standing, while the rest are damaged, with some appearing to have collapsed, potentially due to seismic activity, as inferred from their common direction of collapse.

The dolmens located in Umm Tuweyrat are built entirely of carbonate rocks. All documented structures are made of rocks forming the valley floor. These are almost exclusively blocks of coquina bedded limestones (i.e. muschelkalk), often of enormous size. Below the archaeological site, at the entrance of the valley, there are also deposits of phosphorites (exploited today). In addition to limestones, marls and chalks, there are numerous levels of cherts and other siliceous rocks both in the valley above and below the archaeological site. They are associated with late Cretaceous to early Tertiary geological formations.

The main task during the field season was to thoroughly document the structures themselves and all the artefacts lying on the surface around them, as well as to excavate the few accessible "sedimentation pockets" with sediments around the dolmens and inside them.

In the interiors of the dolmens, the sediments that have been preserved were almost exclusively deposited there as a result of natural erosion processes, especially if the dolmen's located on the slope. Only in the case of dolmen no. 8 (Pl. 2: 2), a small layer (5-10cm) was identified which seems to be the appropriate context for the artefacts and human remains and other artefacts deposited there. It is an extremely rare case that we can study and date remains found probably in the original context of the dolmen. The human remains were folded in a non-anatomical position and placed in front of one of the dolmen's wall. Of course, human remains could have been deposited in the dolmen at a later

time than it was built. Due to the complexity of the genetic and dating studies, we are still waiting for the full results of these analyses. Osteological analyses of the human remains unearthed in dolmen no. 8 led to the preliminary conclusion that the collected remains represented five individuals.² We have selected for ancient DNA analyses and C14 dating which are ongoing at the Centre for Palaeogenetics (CPG, Stockholm University).

Several other structures of unknown purpose are also visible at the site. The most interesting seems to be the water reservoir and the well carved in the bedrock at the top of the hill (Pl. 2: 3). During their reconnaissance in the 2000s, the authors of the above aforementioned publication (Dubis, Marahleh and Nawafleh 2004) estimated the depth of the well to be 115cm, whereas when we cleaned it, it turned out to be more than 3m deep. However, it is difficult to find a relation between this object and the dolmens. The well could be perhaps of much later origin. No artefacts were found at this place to which can help to date this structure.

In terms of pottery assemblage, there is no clear cultural horizon visible in material found at the site. A mixture of prehistoric and ancient pottery were often found together in the same contexts. The forms, especially those of the older periods, lack distinctive features. In general, we find fragments of vessels that can be dated from the Chalcolithic and Early Bronze Age to the Byzantine periods³ (Pl. 3).

In the course of our research we also have discovered 608 artefacts made of siliceous rock, distributed among the dolmens, including the following numbers in and around individual dolmens: Dolmen 1 – 75; Dolmen 2 – 65; Dolmen 3 – 42; Dolmen 4 – 102; Dolmen 5 – 3; Dolmen 6 – 2; Dolmen 7 – 6; Dolmen 8 – 162; Dolmen 9 – 27; Dolmen 11 – 48; Dolmen 12 – 24; Dolmen 13 – 20; Dolmen 15 – 13; Dolmen 16 – 10. The majority are difficult to assign precise cultural or chronological values, although most appear to be associated with the Bronze Age, possibly the Chalcolithic or Bronze Age. These include flakes with steep or semi-steep retouches on the edges transverse to the to the débitage axis and minor retouches on the sides, classified as inserts or sickle blades. Also present are microlithic lunates, considered to be more characteristic of the

² Anthropological analyses within the HLC project are being carried out by Dr A. Hałaszkó. The information is taken from a publication in preparation.

³ Pottery analyses within the HLC project are being carried out by Dr M. Czarnowicz, drawings were made by J. Ledwoń, B. Witkowska, B. Klose and M. Jurek. The information is taken from a publication in preparation.

EBA I but present, though less numerous, in older assemblages as well. A small, three-sided, unfinished axe is noteworthy because such forms are known from both the Chalcolithic contexts and Neolithic ones. Nor can it be ruled out that we are dealing here with a local variant of EBA production with elements generally considered more typical of the Chalcolithic period. Only one clear example of tabular scraper was found, however it needs to be mentioned that numerous flake tools of a similar type, commonly referred to as scrapers, were also present (Pl. 4: 1).

It should not be overlooked that the forms enumerated here are also recorded in older contexts, for example, tabular scrapers in the Neolithic (e.g. Manclossi, Rosen 2022). However, in the context of the other finds at the site in question, including structures and pottery, these tools should be referred to the Chalcolithic or Bronze Age⁴ (Pl. 4: 2).

All structures which are visible on the site were documented also with a use of 3D modelling, which allows for their better understanding and analysis. Thanks to such documentation, it can be seen, among other things, that the dolmens had a kind of a square, surrounded by stones, in front of the entrance. All dolmens have entrances on the east side or the entrance is slightly rotated to the south-east.

Those models are also important in the context of our work on reconstructing the way the dolmens were built. First of all, they were made of local raw material, obtained in the places where they stand today. On the basis of the data we have collected, it can be tentatively suggested that the features of the ground allow the rock to split off and lever it. This is perfectly visible in some dolmens where the shape of the ceiling fits perfectly to the floor. In addition, we identified at least 3 unfinished dolmens at the site abandoned in various stages of construction, probably due to the cracking of the rock blocks (Pl. 5: 1). This allows us to trace the process of their construction. One of the unfinished dolmens (the top element cracked during construction process – Pl. 5: 2) shows very well how, with a use small stones and the jacking method, blocks can be easily lifted to a certain height by a small group of people. In addition, the stone blocks set up as walls were usually stabilised and blocked with small stones. The side walls of dolmens were often made not of single, large blocks, but also of smaller stones, fitted together. In addition, by weighing the rock material, we are able to calculate the force needed to lift boulders with simple methods and determine

⁴ Analyses of chert artifacts within the HLC project are being carried out by Prof. M. Nowak, Dr A. Brzeska-Zastawna, J. Zakrzeńska. The information is taken from a publication in preparation.

how many people were necessary for this work. These data show that even the largest blocks did not exceed a weight of 1-1.5t, which meant that they could be picked up using simple methods based on the lever by a relatively small number of people (a few persons). In addition, it should be mentioned that many of the blocks that formed the roofs of the dolmens as well as these around the structures show a number of so-called “cup-marks” (Pl. 6). Some of them may be of natural origin, but certain examples seems to be made deliberately.

Preliminary conclusions

During the 2021 season, we managed to gather a huge amount of information regarding the construction of dolmens, however their dating and exact use remain unclear. We are working on a landscape analysis of the site to see how the location of the site may have been important to the community of its builders.

The typologies used till now by researchers to classify dolmens have been based solely on their construction and the characteristics of observable, additional elements such as surrounding stone blocks. They certainly do not reflect adequately the specific characteristics of individual dolmen groups, regionalisms resulting from environmental differences and local cultural traditions. So far, however, no other system has been developed to describe these constructions and so we must refer to these typologies.

According to E. Dubis, M. Marahleh and S. Nawafleh, most of the Umm Tuweyrat dolmens represent Type B in Zohar’s (1992: 45) typology or Type 1b in Epstein (1985: 23) typology. These authors also suggest that it is worthwhile to distinguish another type, Type G, on this site, referring to the Zohar’s typology, taking into account the specificity of some of the dolmens preserved on this site. Regardless of these divisions, however, all of the dolmens from Umm Tuweyrat are relatively simple structures consisting of a few blocks that function as side walls and one large block as a roof. Some of these dolmens also have traces of the construction of small courtyards surrounded by stones in front of the entrances (Pl. 7-8).

We must underline that the construction of dolmens undoubtedly depended to a large extent on the material possibilities offered by the specific terrain and the organisational abilities and capacities of the specific community. It therefore

seems that such general typologies, which were postulated in their due course, may not reflect the issues we are interested in at all.

The more important issue is, of course, the dating of these structures and their cultural affiliation to specific communities. The majority of sites of this type located and studied in Jordan are usually attributed to the Chalcolithic or Early Bronze Age (see e.g. Kafafi, Scheltema 2005, Polcaro 2013, Polcaro *et al.* 2014). This dating of the Umm Tuweyrat site may be indicated by some of the flint and ceramic artefacts found here (both those from the HLC Project excavations and the earlier survey mentioned above). However, material from this period is not the only one found during this and earlier works, which puts this dating into question. Perhaps this will be resolved by bone analysis and dating, which we are still waiting for.

As far as the cultural affiliation of these structures is concerned, they can probably be linked to nomadic or semi-sedentary groups that functioned in the southern Levant area from Neolithic to Late Bronze Age times. Structures of this type may have been the centre of their mobile world and marked the cycles of return to the area, or may have been an important element of cults, perhaps linked to astronomy. We must remember that almost all dolmens are positioned in relation to the cardinal directions. Nor should we overlook that, despite the rarity of finding bones in dolmens, these were probably graves, and therefore places like Umm Tuweyrat served to root a community in a specific area, perhaps also manifesting its authority or type of control over a given area.

Dolmens explored by HLC Project on Umm Tuwayrat site are an important part of Jordan's archaeological heritage and provide valuable insights into the lives and customs of the people who lived in the region during the late prehistory. However, this requires more research and analyzes, also relating to cultural anthropology and landscape studies. It should also be stressed that dolmen-like megalithic structures are part of a wider cultural phenomenon that stretches across Europe, North Africa, and Asia, and they demonstrate the interconnect-edness of cultural ways during long time period. The dolmens in Jordan are significant because they provide evidence of the architectural techniques used by the people during late prehistory period and they offer a glimpse into the beliefs and customs of these cultures.

The data obtained by us at the above-described site, combined with the data previously obtained during excavations and surface research as well as environmental analyses allow us to significantly supplement the picture of southern Jor-

dan in the late prehistoric epochs. Combining data collected on Umm Tuweyrat site with other sites tested during our project, we can attempt to reconstruct the economy and the role of these communities in particular periods on the area of southern Jordan. We hope to share our full results in a concluding publication soon.

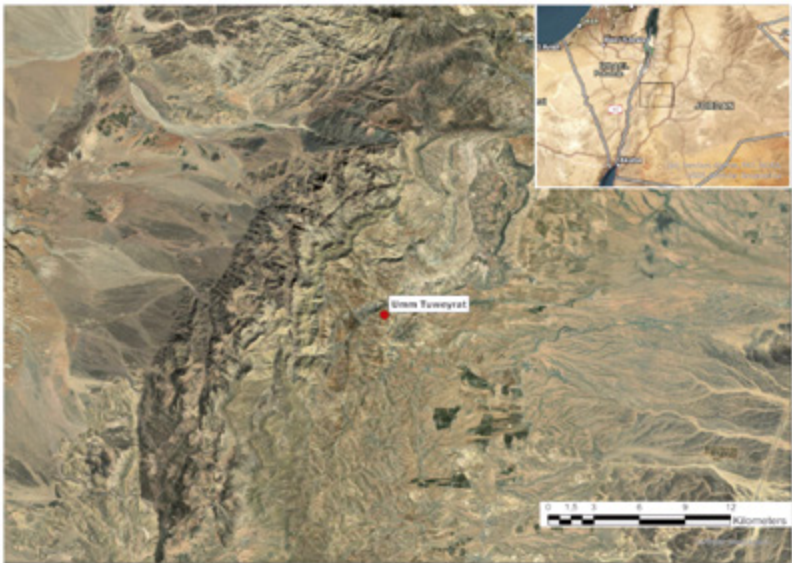
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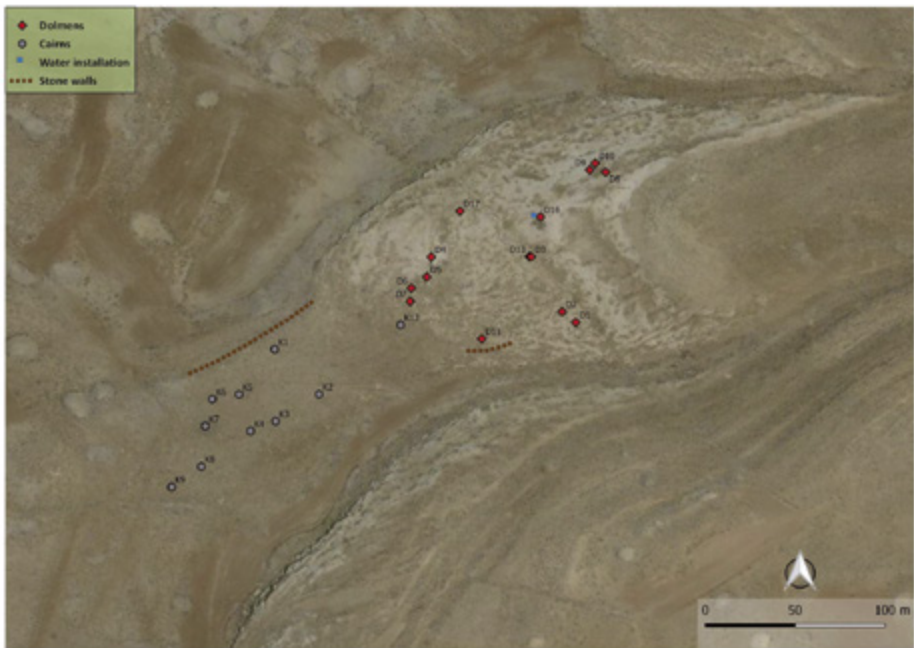
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Pl. 1: 1 – Location of the Umm Tuweyrat site

Pl. 1: 2 – Structures identified on the Umm Tuweyrat site (Photo by J. Karmowski)



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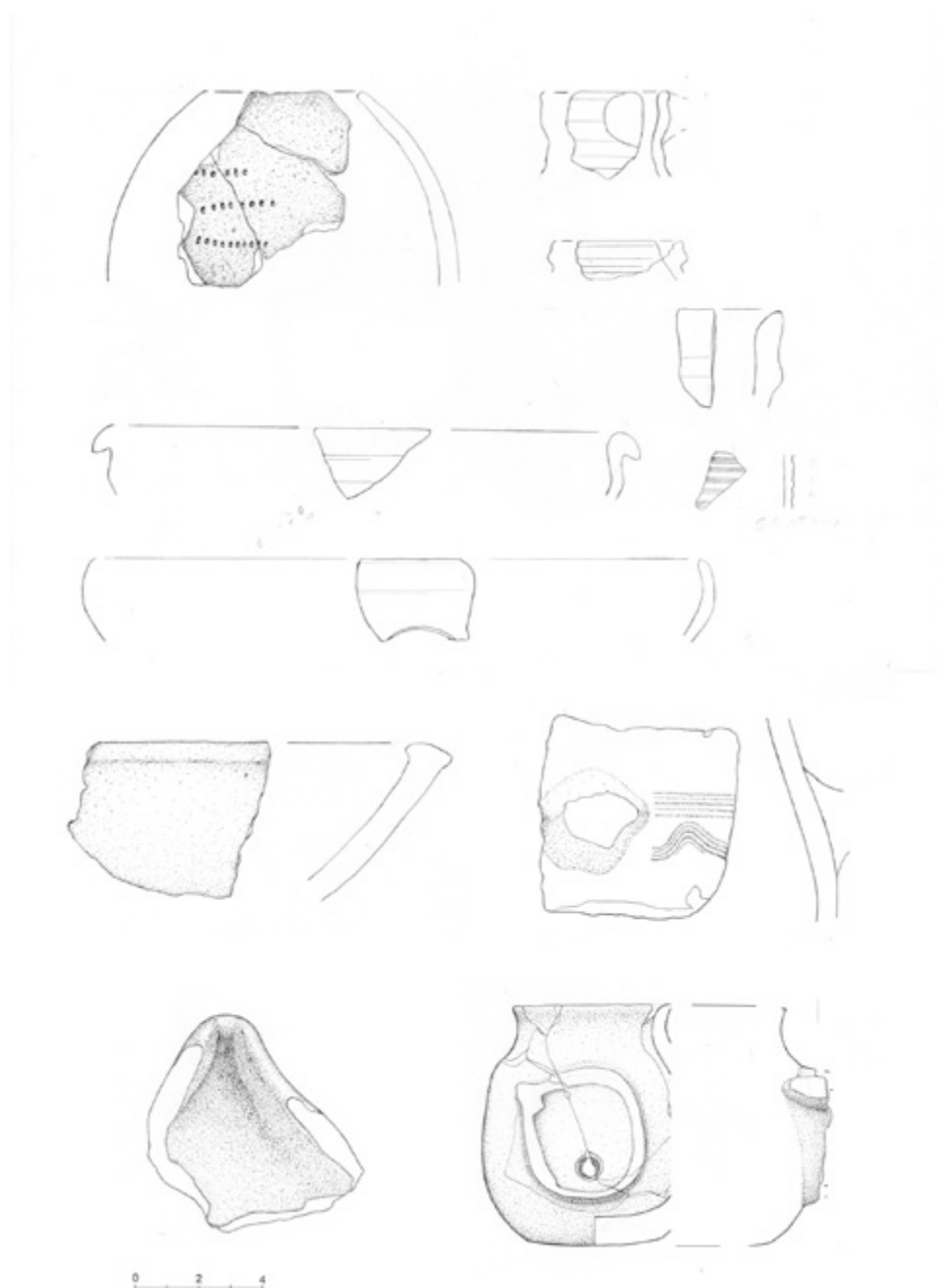


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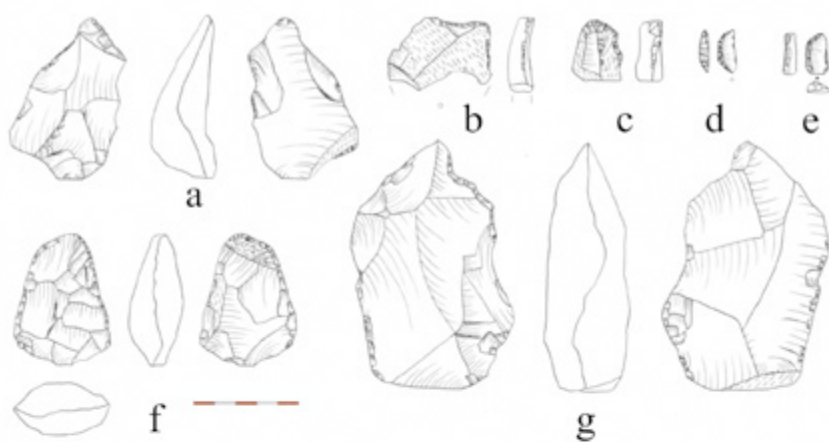
Pl. 2: 1 – Relics of the stone wall surrounding the Umm Tuweyrat site from the north. Photo by the author

Pl. 2: 2 – Dolmen no. 8. View from the east. Photo by the author

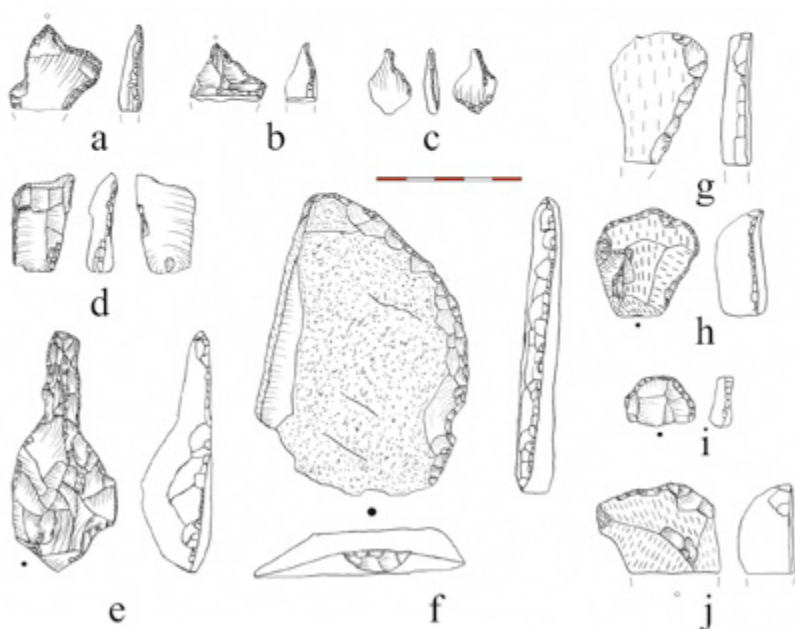
Pl. 2: 3 – Water tank and well on the top of the site. Photo by the author



Pl. 3 – Examples of pottery inventories from Umm Tuweyrat site. Drawing by B. Witkowska



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Pl. 4: 1 – Flint inventory, Umm Tuweyrat: a, g – bifacial forms, b – retouched flake, c – endscraper, d-e – microlithic lunates, f – unfinished flake adze (3-sided). Drawing by J. Zakrzewska

Pl. 4: 2 – Flint inventory, Umm Tuweyrat: a-c, e – perforators, d – retouched flake, f-j – scrapers. Drawing by J. Zakrzewska



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Pl. 5 – One of the few unfinished dolmens on Umm Tuweyrat site. Photo by the author



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Pl. 6 – So-called “cup-marks” on the roof blocks and around the dolmens. Photo by the author



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Pl. 7: 1 – Dolmen no. 16. View from the north. Photo by the author

Pl. 7: 2 – Dolmen no. 3. View from the north. Photo by the author



Pl. 8 – Dolmen no. 1. View from the south. Photo by the author