

# On the edge of Prehistory. Preliminary results of excavations at three Chalcolithic and Bronze Age sites in southern Jordan



**Abstract:** This article summarizes the research conducted between 2019 and 2022 by a Jagiellonian University (JU) team at three important sites in southern Jordan: Umm Tuwayrat, Wadi Quseir/Huseiniya, and Wadi Faynan 731. The data gathered provide new perspectives on population groups inhabiting the southern part of modern Jordan during Late Prehistory and give insights provoking reconsiderations of previous assumptions. The excavated sites offer new vantage points on the human presence in this area, illustrating the everyday life of these communities and elements of their spiritual culture, as well as their intriguing relationships with the surrounding landscape. The Umm Tuwayrat site is a dolmen field shedding light on spirituality and family traditions. A recent analysis preliminarily dates these structures within the Bronze Age. The other two sites represent settlement and farming traditions and are preliminarily dated to the transition period between the Chalcolithic and the Early Bronze Age.

**Keywords:** dolmen, settlement, Chalcolithic, Early Bronze Age, lithics

The Heritage – Landscape – Community Project (HLC Project) focuses on the Late Prehistoric period (6th–3rd millennia BC) in southern Jordan, with a particular interest in the Early Bronze Age (3900–2600 BC) (Kołodziejczyk et al. 2018; Kołodziejczyk 2019). Since its onset in 2014, the project's efforts have concentrated

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on test excavations at various sites, as well as on a surface survey, mainly in the vicinity of the city of el-Tafileh [Fig. 1]. Among the most interesting discoveries made during the project's field seasons is a settlement attributed to the Neolithic Jericho IX chronological horizon (6th to mid-5th millennium BC), identified at the Munqata'a site (Kołodziejczyk et al. forthcoming), as well as a Bronze Age settlement located at the Faysaliyya site (Kołodziejczyk et al. forthcoming). The final results of the project are currently prepared for publication in the form of

a volume devoted to the archaeological record of the period between the Neolithic and the Bronze Age in southern Jordan (Kołodziejczyk et al. forthcoming).

In the 2021 season, the field research focused on three archaeological sites known from past surface prospection but still unexcavated: Umm Tuwayrat, Wadi Quseir/Huseiniya, and Wadi Faynan 731. The works permitted to illuminate and clarify further aspects of the functioning of the communities inhabiting the area of southern Jordan during the Late Prehistoric period.

## UMM TUWAYRAT

The Umm Tuwayrat site is a dolmen field probably related to the Bronze Age located near the city of el-Shawbak, on

a rocky promontory about 1 km east of the modern settlement. The site, first documented by Elżbieta Dubis, Mo-

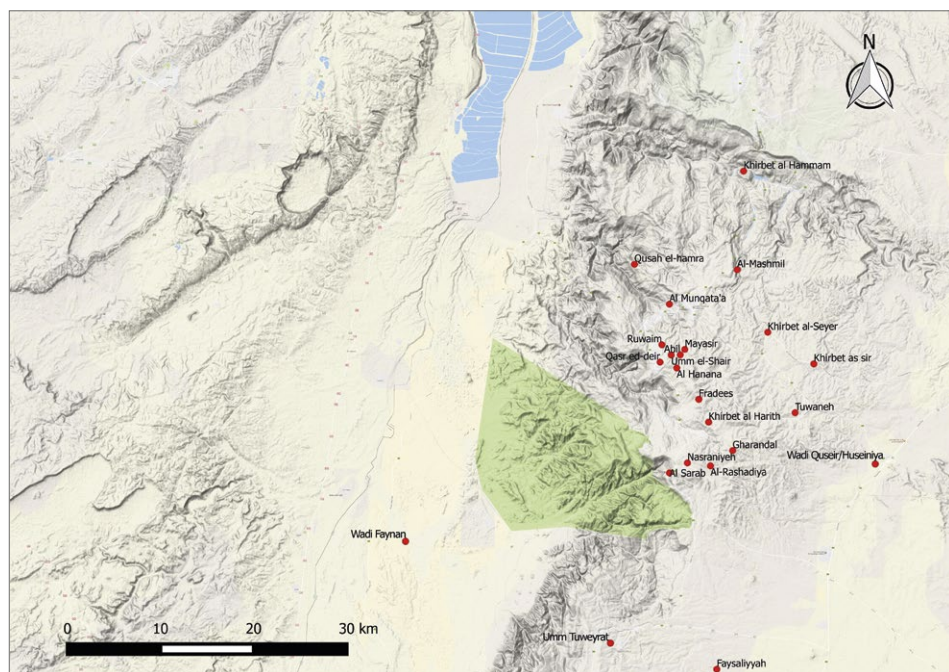


Fig. 1. Sites explored (excavated or surveyed) by the Jagiellonian University team in years 2014–2022 (Processing J. Karmowski)

hammad Marahleh, and Sami Nawafleh (2004) during a surface survey, provides rare information that can be extrapolated to other megalithic sites.

The work carried out by the Jagiellonian University (JU) team included preparing a detailed map of the site's geological stratigraphy and lithology. The geological layers at this site span from the Late Cre-

taceous to the Palaeocene. Notably, they include at least a dozen distinct layers of easily accessible siliceous rocks (mainly cherts), which were a crucial source of raw material for producing lithic assemblages. In addition, the geological prospection revealed a relationship between the local carbonate rocks and the megalithic structures at the site.



Fig. 2. Umm Tuwayrat. Dolmen No. 4 during exploration (Photo P. Kołodziejczyk)



Fig. 3. Umm Tuwayrat. Dolmen No. 8 during exploration (Photo P. Kołodziejczyk)



Fig. 4. Umm Tuwayrat. Dolmens Nos 3 and 13 during exploration (Photo P. Kołodziejczyk)

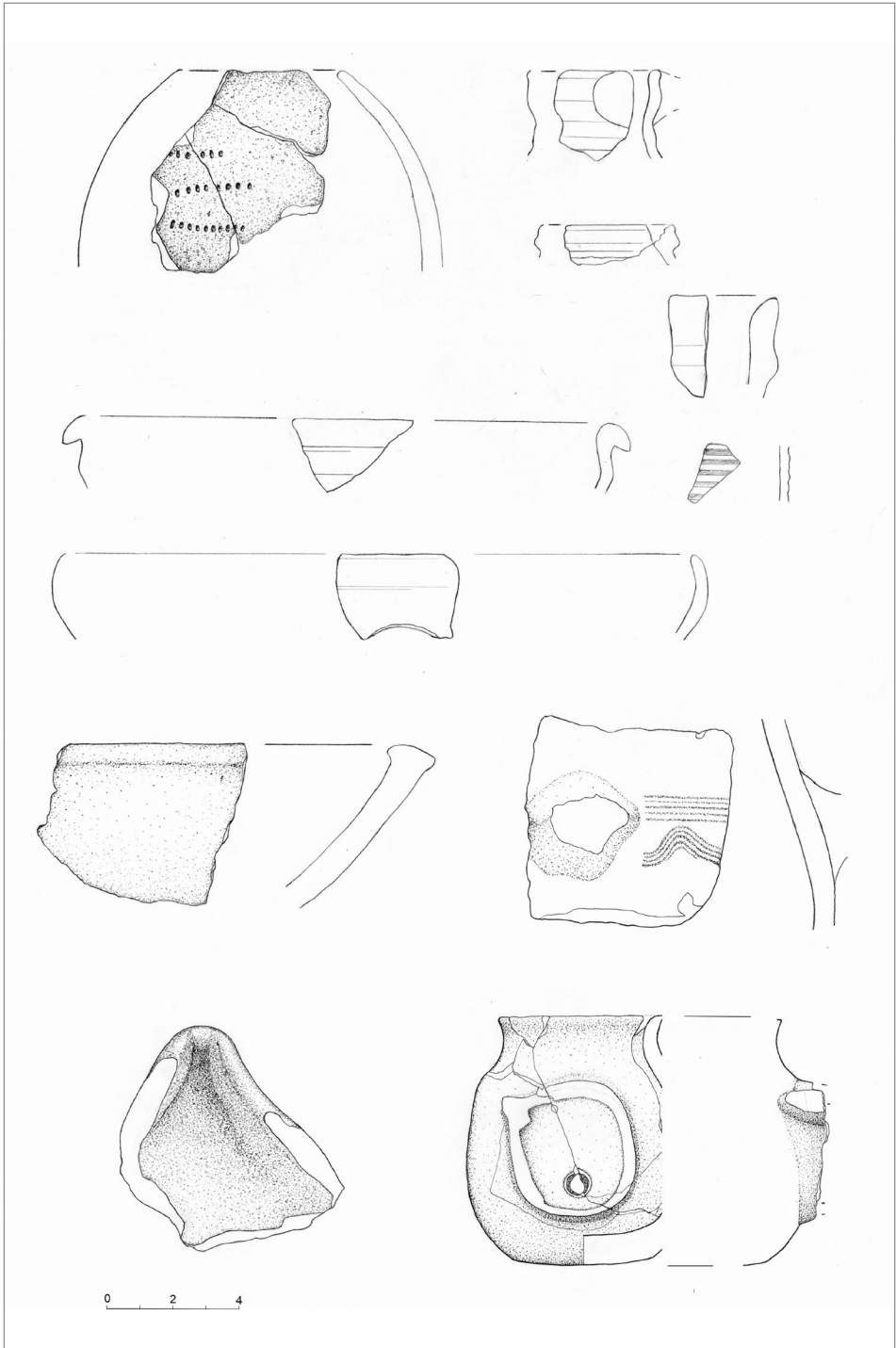


Fig. 5. Umm Tuwayrat. Pottery finds (Drawings B. Witkowska)



To the east and west, the natural boundaries of the site were the valleys of two seasonal rivers. However, several stone structures identified during the research appear to be fragments of two stone walls that probably constituted the original symbolic boundaries of the site from the south and north. Within these borders were other stone structures including 12 dolmens and at least ten stone circles or mounds.

The function of stone mounds and circles is often difficult to identify. Similar stone circles found throughout the Near

East have been linked to a variety of activities (e.g. agricultural, cultic, funerary, land marking). However, the rocky nature of the Umm Tuwayrat site makes it unsuitable for agriculture, therefore this activity can be ruled out as the original context of the stone structures. Perhaps, due to the funerary nature of the site, the stone circles were used in rituals or during preparation of corpses prior to secondary burial in the dolmens.

Six out of 12 dolmens were well preserved, while the remaining ones were damaged. Some of the latter appear to

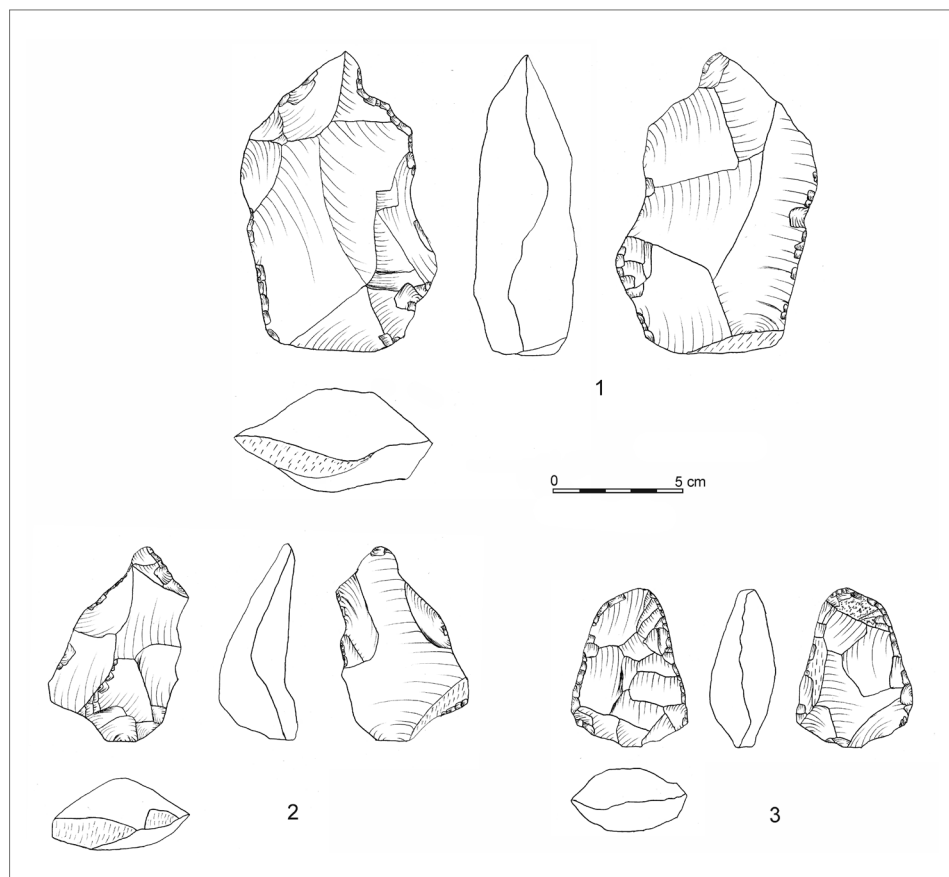


Fig. 6. Umm Tuwayrat. Lithic bifacial tools (1, 2) and a three-sided axe (3) (Drawings J. Zakrzeńska)

have been destroyed by earthquakes, judging from the similar direction of their collapse. The structures reached up to 160 cm in height, 200 cm in width, and 300 cm in length [Figs 2–4].

The goal of the fieldwork was to comprehensively document the structures and all the artifacts scattered on the surface in their vicinity, as well as to methodically explore the soil pockets and hollows around and inside the dolmens. Within these structures, the JU team identified deposits resulting mostly from natural erosion processes, especially in the sloping part of the site. Only dolmen No. 8 [see Fig. 3] contained a thin

soil layer (5–10 cm, see Table 1, Stratum 1) that seemed to constitute the primary archaeological context for the artifacts and the deposited human remains. In this context, the bones were found folded in a non-anatomical position, piled up inside the dolmen along one of its walls.

In addition, several unidentified structures have been found at the site, the most intriguing being a rectangular pool and a well carved into the rock at the top of the hill. However, the chronological relationship between these structures and the dolmens remains elusive, and the pool and well may have been built at a later date.

Table 1. Strata recorded at Umm Tuwayrat in 2021

Stratum	Chronology/origin	Loci (L)	Description
1	Chalcolithic/Bronze Age based on radiocarbon date Ua-78816: 3256±35 BP, which after calibration gives 1613–1446 calBC, at 95.4% probability	L1, L2, L3	Contexts connected with the functioning of the dolmens
2	Post Stratum 1	L4, L5	Contexts connected with events that followed the dolmens' construction and use in their primary function

In 2021, only two archaeological strata were recorded [Table 1]. The pottery fragments found did not allow determining when the dolmens were created. The loci contained mixed finds, frequently both Prehistoric and Roman pottery. The repertoire of forms, especially in the oldest phases, was fairly indistinctive [Fig. 5]. In general, little can be said about this assemblage beyond the fact that pottery fragments, ranging from the Chalcolithic/Early Bronze Age to the Byzantine period,

were found near the dolmens and in their interiors.

The research brought to light 608 artifacts made of siliceous rock scattered among the dolmens [Figs 6–9]. The majority, e.g. flakes and blades [Fig. 9:1–12], were difficult to assign to precise cultural or chronological groups, although some specimens appeared to be associated with the Bronze Age and, possibly, with the Late Neolithic and Chalcolithic. These included flakes with steep or semi-steep re-

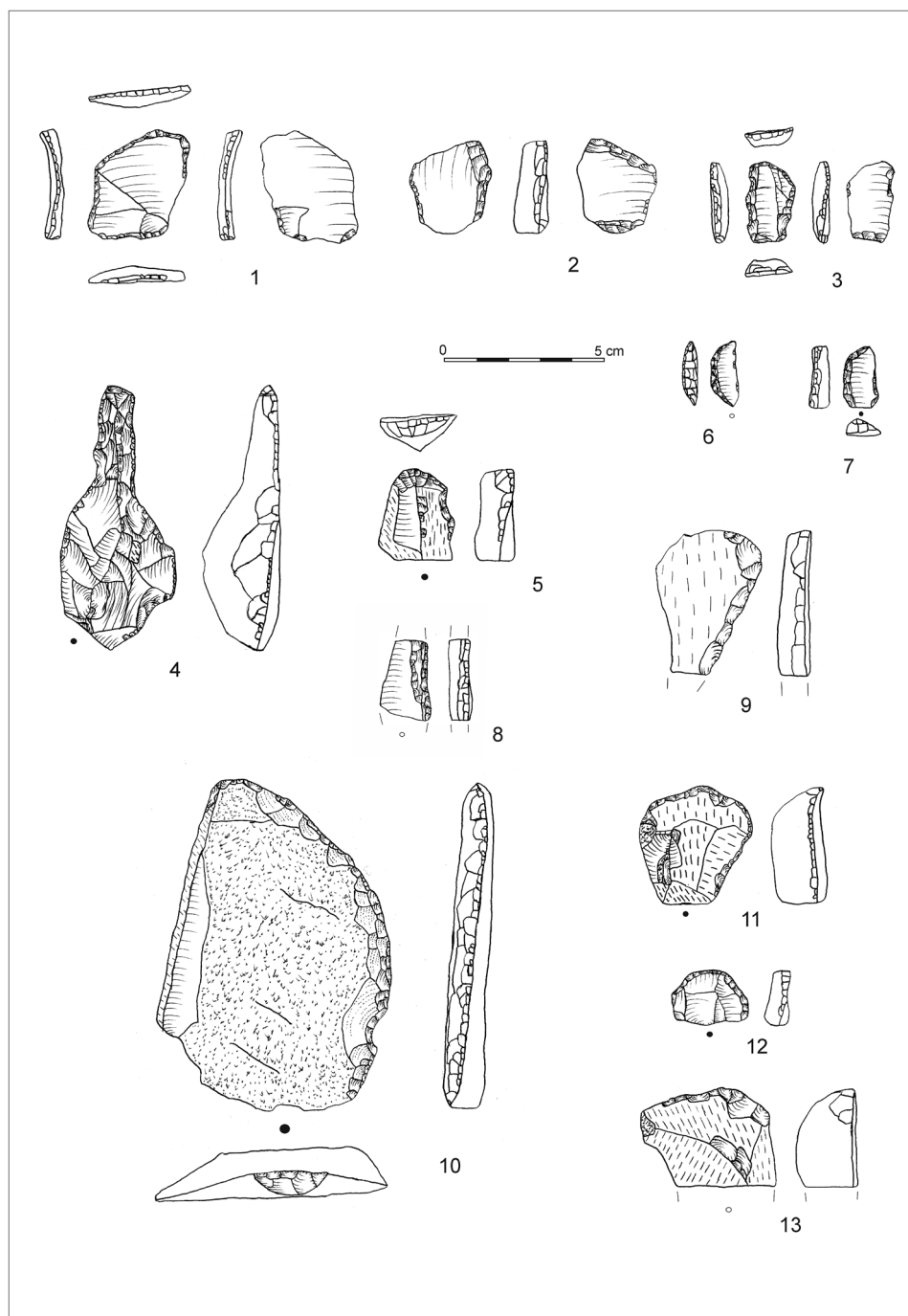


Fig. 7. Umm Tuwayrat. Retouched flakes (1–3), perforator (4), endscrapers (5, 12, 13), microlithic lunates (6, 7), backed piece (8), scrapers (9, 11), and a tabular scraper (10) (Drawings J. Zakrzeńska)



touches on the edges transverse to the débitage axis and minor retouches on the sides [Fig. 7:1–3], and some of them

may resemble forms used as geometric sickle segments. The assemblage included also backed blades [Figs 7:8; 8:16],

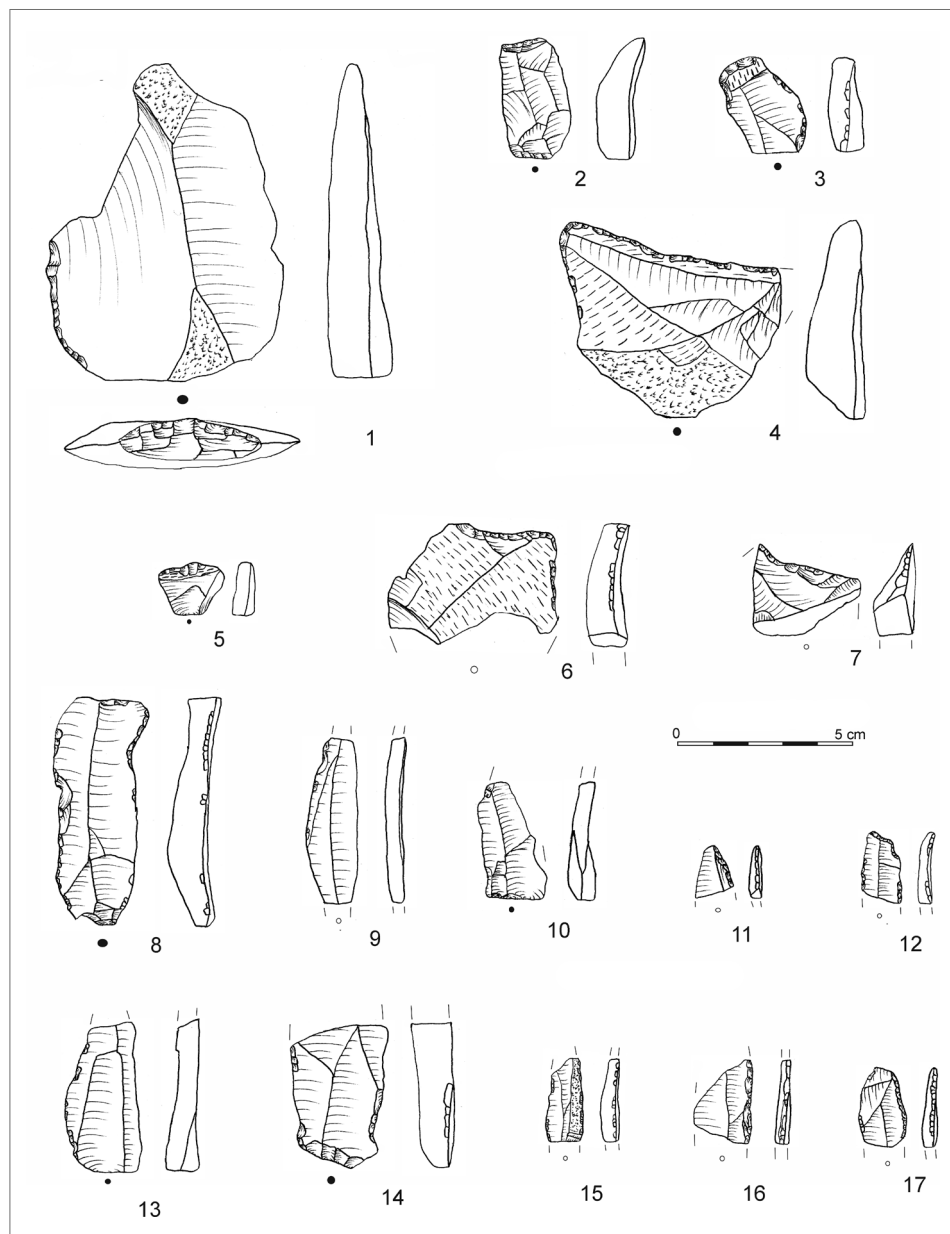


Fig. 8. Umm Tuwayrat. Lithic retouched flakes (1–7), retouched blades (8–15, 17), and a backed piece (16) (Drawings J. Zakrzewska)

some retouched blades [Fig. 8:8–15, 17], and microlithic lunates [Fig. 7:6–7]. The latter are considered to be more characteristic of the EB I, but they also occur in Chalcolithic assemblages, although in smaller numbers (Hermon, Vardi, and Rosen 2011; Rosen 1997: 42–44). Only one unmistakable example of a tabular scraper was found [Fig. 7:10], but numerous flake tools of a similar type, commonly referred to as scrapers [Fig. 7:9, 11], were present as well. Notably, the forms mentioned here have also been recorded in Neolithic contexts (e.g. Manclossi and Rosen 2022). However, given the other

finds at the site, including structures and pottery, these tools should be attributed to the Chalcolithic or the Bronze Age. The lithic assemblage also contained core bifacial tools [Fig. 6:1, 2], which rather seem attributable to the Chalcolithic. However, a small three-sided unfinished axe [Fig. 6:3] is noteworthy because such forms are known from both Chalcolithic and Neolithic contexts (Rosen 1997: 93–98), although it may as well be a local variant of Early Bronze Age production with elements generally considered more typical of the Chalcolithic period.

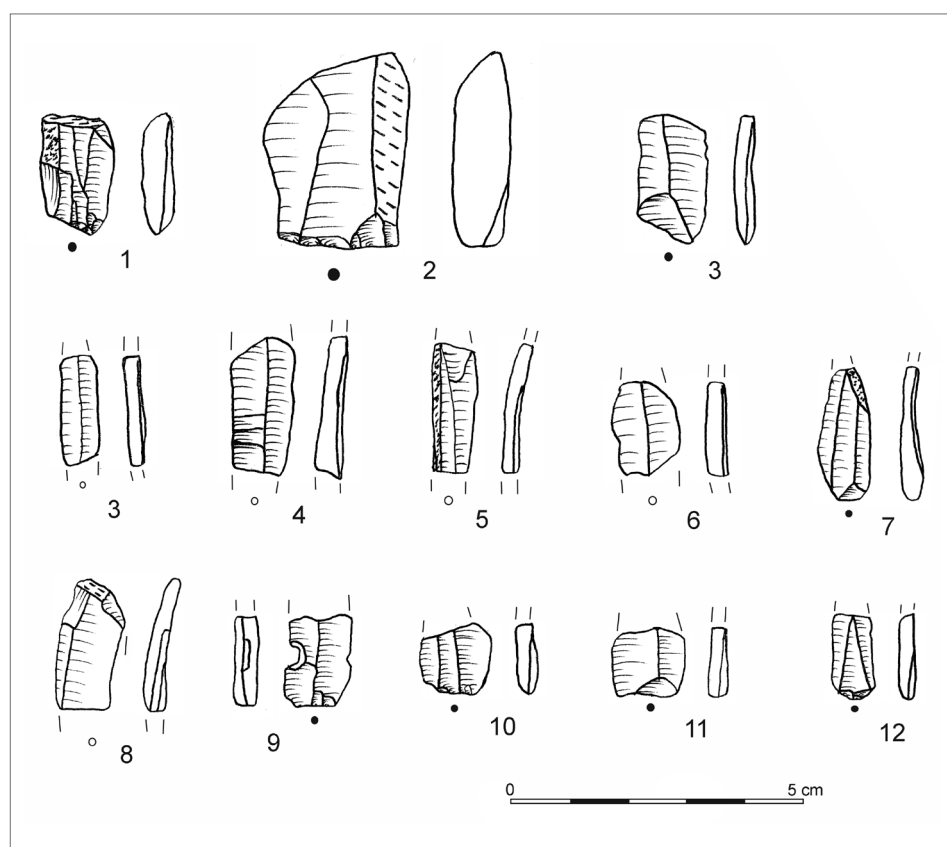


Fig. 9. Umm Tuwayrat. Lithic flakes (1–3) and blades (3–12) (Drawings J. Zakrzewska)

All structures visible on the site have been documented using photogrammetry and prepared for further analyses. 3D models created using this method make it easier to see courtyard areas in front of the dolmens' entrances. All of the dolmens have entrances in the east, sometimes with a slight rotation to the southeast.

The 3D models also significantly contributed to a reconstruction of the dolmens' building process, since they clearly show how certain stone slabs constituting the dolmens' ceilings and floors perfectly matched each other in shape (negative to positive). This demonstrates the efficiency of the builders, who, most likely, would split the rock fragments from the ground and use them to construct the roofs of the dolmens. The dolmens were built with local raw materials quarried on the spot. At least

three unfinished dolmens in various stages of their completion provide insights into their construction process [see *Fig. 4*].

The rock material from the site was weighed in order to calculate the force required to lift the boulders using rudimentary methods. These studies estimated the manpower needed for this task and shed light on the organization of the building process (a publication is in preparation). It seems likely that several people would suffice to complete the task. Future geological mapping is hoped to aid in the reconstruction of the geomorphological history of the site and the way the community selected materials used for building the dolmens.

In summary, the research has yielded a wealth of information about the construction of the dolmens, but their precise dating remains elusive. However,



Fig. 10. Huseiniya. An overview of the progress of excavation at the end of the 2021 season (Photo P. Kołodziejczyk)

their external features, method of construction, and layout indicate that they resembled Types IA and IB in the Zohar

typology (e.g. Zohar 1992; 1993), which dates them to the Early Bronze Age (e.g. Savage, Falconer, and Harrison 2007).

## WADI QUSEIR/HUSEINIYA

The second site excavated by the JU team in 2021 was located in a desert area in the vicinity of Huseiniya, near the Desert Highway [see Fig. 1]. It lies about 500 m from the Harrat Juhayra site, which was investigated several years ago by a Japanese team of archaeologists led by Sumio Fujii (see e.g. Fujii 2013).

The vast site occupied the southern side of a small valley called Wadi Quseir. Numerous stone concentrations were scattered throughout, forming small artificial mounds that concealed architectural relics. The surface was also marked

with scatters of lithics and ceramic objects. While part of the site is directly threatened by the ongoing construction of a gas pipeline, it is mostly under threat of intense looting activity.

The site is located on a fluvial terrace, in a flat-bottomed, shallow, and currently dry river bed running from west to east. The valley itself is a part of a larger basin surrounded from the north, west, and east by hills formed, among others, by Pleistocene rocks of volcanic origin. The hydrothermal phenomena associated with volcanic activity resulted in forma-



Fig. 11. Dug-out household from Huseiniya. Orthostats visible in the picture lean against the inner wall of the dug-out part of the household. The stepped entrance leading inside is visible in the middle of the picture (Photo P. Kołodziejczyk)

tion of massive local deposits of silicates up to several meters thick. Outcrops of these rocks occur at a short distance to the west of the archaeological site. However, the most prominent sediments are of a Quaternary age and comprise gravels, sands, and silts of fluvial and aeolian origin (Ziegler 2001).

Table 2. Strata recorded in 2021 at Wadi Quseir/Huseiniya

Stratum	Chronology/origin	Loci (L) and walls (W)	Description
1	Late Chalcolithic, based on eight radiocarbon dates with the oldest date about 4200 calBC (the median of the start_boundary range obtained from Bayesian simulation) and the youngest one about 4080 calBC (the median of the end_boundary range) <sup>1</sup> Poz-151120, 5240±40 BP; Poz-151190, 5345±35 BP; Poz-151121, 5350±40 BP; Poz-151191, 5250±35 BP; Poz-151192, 5290±40 BP; Poz-151122, 5350±40 BP; Poz-151283, 5370±35 BP; Poz-151193, 5320±40 BP	W2, W3, L4, L5, L7, L10, L11, L12, L13, W16(?), L17, L18, L19, L20(?), L22, W24, W25, L28, L29, L30, L31, L34, L37, L38, L40, L41	Contexts connected with the functioning of the household and installations within
2	Post Stratum 1	L1, L6, L8, L9, L15, L21, L23, L26, L27, L32, L33	Contexts connected with events after the household went out of use

During the 2021 excavations, only two archaeological strata were recorded [Table 2]. One was connected with the functioning of the household (described below), and the other, located outside the building, consisted of collapsed mud-brick and stone material and was most likely a result of events occurring after the household went out of use. Eight radiocarbon dates obtained from the household context date the dwelling's occupation to the end of the 5th millennium BC (Table 2, Kołodziejczyk et al. forthcoming).

Preliminary research by the JU team uncovered part of one mound, which resulted in some interesting observations. Among the investigated structures was a rectangular dug-out building with stone walls, some of them in the form of orthostats, and a stepped entrance giving access to the structure from the south [Figs 10–12]. Near the entrance was a two-part, internally divided stone installation, which, at least at one point in time, was used as a hearth [Fig. 13]. The floor level of the building was probably covered with clay plaster.

1 All calibrations and modeling in the paper were made with the OxCal software v.4.4.4 (Bronk Ramsey 2009), using IntCal20 calibration curve (Reimer et al. 2020).



The mentioned series of eight radiocarbon dates place the functioning of this homestead in the Late Chalcolithic.

Pottery finds help to date the discovered structure to the Chalcolithic but also to the EB IA period [Fig. 14]. By far the most important find that helped confirm this chronology is a ledge handle of the “folded” type (Braun 1996: 93), discovered in Locus 20. Vessels equipped with such handles first appeared at the beginning of EB I and then disappeared about half-way through this period. Analogies have been found in the Afridar area G/Palmahim Quarry 3 (Braun 1996: 92–93), Site H (Roshwalb 1981: Fig. H.7:5), and Taur Ikhbeineh III–IV (Oren and Yekutieli 1992: 377, Fig. 12:11). Worthy of note is the presence of holemouth jars, which differed from those found on other sites

in Wadi Quseir, as they had a more closed shape and arms that sloped less steeply.

The site yielded a total of 976 lithic artifacts, 225 of which were found within the intact archaeological context (Stratum 1 [Table 2]), and the rest were scattered on the surface and in looters’ pits. Flake production, mostly *ad hoc*, dominated in the inventory. An increase in the share of flakes first occurred at the end of the Neolithic, but it was the Chalcolithic and the Bronze Age that witnessed a more noticeable growth in their number. The assemblage from the site featured characteristic elements that in some ways relate more clearly to the Chalcolithic or, possibly, to the transitional period between the Chalcolithic and the Early Bronze Age (e.g. Rosen 1997: 65, 98, 139–141; Barkai 2004; 2005;

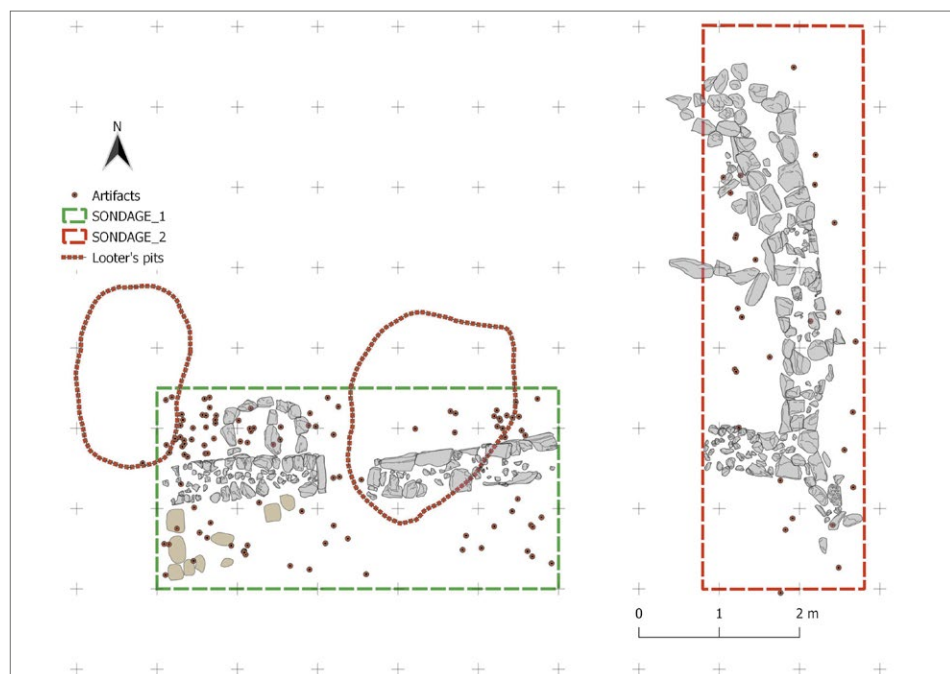


Fig. 12. Huseiniya. The progress of works in the 2021 season (Processing J. Karmowski)



Shimelmitz and Mendel 2008; Vardi and Gilead 2013). Among the more distinctive tools confirming this chronology were arched-backed blades [Fig. 15:1], regular backed blades [Fig. 15:2] sometimes combined with perforators [Fig. 15:6] including those made on flat cortical flakes [Fig. 15:3], as well as forms resembling Palaeolithic chopper tools [Fig. 15:7]. The inventory was complemented by a massive pick [Fig. 16:3]. A distinctive group that formed the majority of the tool assemblage consisted of repetitive serrated and denticulated retouches. Part of this subset were the abovementioned backed blades [see Fig. 15:2], evidently Chalcolithic in style. Since sickle gloss was found on two of the backed blades [see Fig. 15:1, 2], they could be functionally identified as inserts.

Another noteworthy category comprised tabular scrapers, remarkable for their uniformity in terms of shapes and raw materials. The completely preserved examples included typical fan-scrapers [Fig. 16:1], as well as elongated forms with bulb thinning [Fig. 16:2]. In addition, specimens with characteristic faceted winged butts occurred [Fig. 15:4]. Interestingly, some of the tabular scrapers were broken [Fig. 15:4, 5], assumedly corroborating the hypothesis that tabular scrapers were damaged intentionally. The latter is indicated, i.a., by their high breakage rate at many sites, as well as by finds of fractured tabular scrapers in funerary and ceremonial contexts. However, the most convincing argument is technological in nature and comes down to traces of precise direct impact



Fig. 13. Huseiniya. Stone installation inside the building (Photo P. Kołodziejczyk)

in the middle of the pieces (Manclossi and Rosen 2022 with further references). Such is also the case of the tabular scrapers from Huseiniya.

It is worth adding that a cache of tabular scrapers, including broken ones, has been found at Wadi Quseir 173 (Fujii 2011), and it included forms analogous to those from Huseiniya. Within the rather complex system of manufacture and distribution of tabular scrapers in the Chalcolithic and Early Bronze Age, the Wadi Quseir area has been defined as a “way station” between the workshop producing tabular scrapers (Qa’Abu Tulayha) and further “gateway sites” located in the so-called contact zone (Manclossi and Rosen 2022).

Several Palaeolithic Levallois artifacts were also discovered on the surface, as well as several grinders and small querns.

Thus, based on artifacts constituting chronological markers, the chipped lithics found at Huseiniya appear to consist exclusively of Chalcolithic specimens, which is consistent with the other afore-

mentioned chronological indications. However, the presence of other components, most likely dated to the Early Bronze Age, cannot be excluded.

A particularly intriguing find, notable for its intricate decorations and potential insights into ancient artisanal techniques, is a bone object interpreted as a weaving tool. Similar specimens, found at Teleilat Ghassul, also date back to the Chalcolithic period (AbuHelaleh, Bourke, and Thun Hohenstein 2018) [Fig. 17].

In summary, this site most likely contained settlement units scattered along a small seasonal stream. The environmental conditions in the late 5th millennium BC may have been more favorable than today’s arid and hyper arid conditions typical of this area. The role that the communities inhabiting this territory played in the macroregional system of trade and exchange of raw materials, for instance high-quality flint (see e.g. Fujii 2011), as well as their connections with the pastoralists to the east and the early urban dwellers to the west, are important and

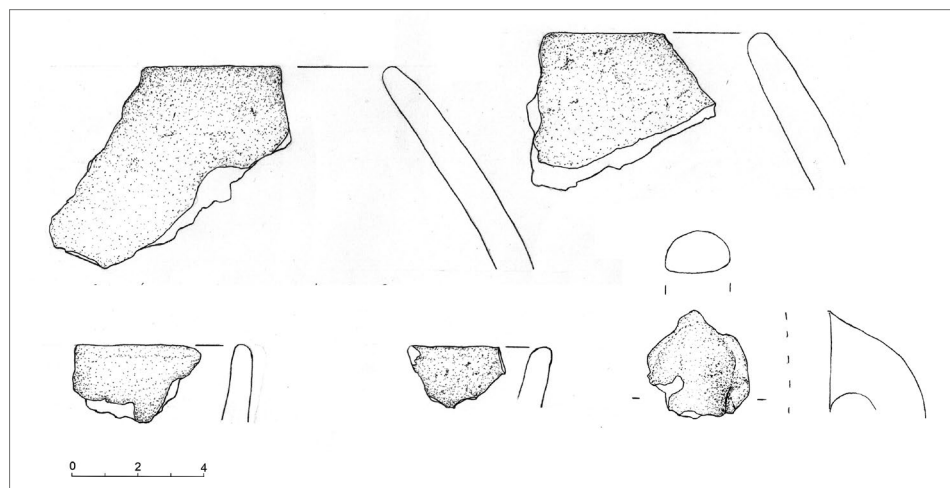


Fig. 14. Huseiniya. Pottery finds (Drawings B. Witkowska)

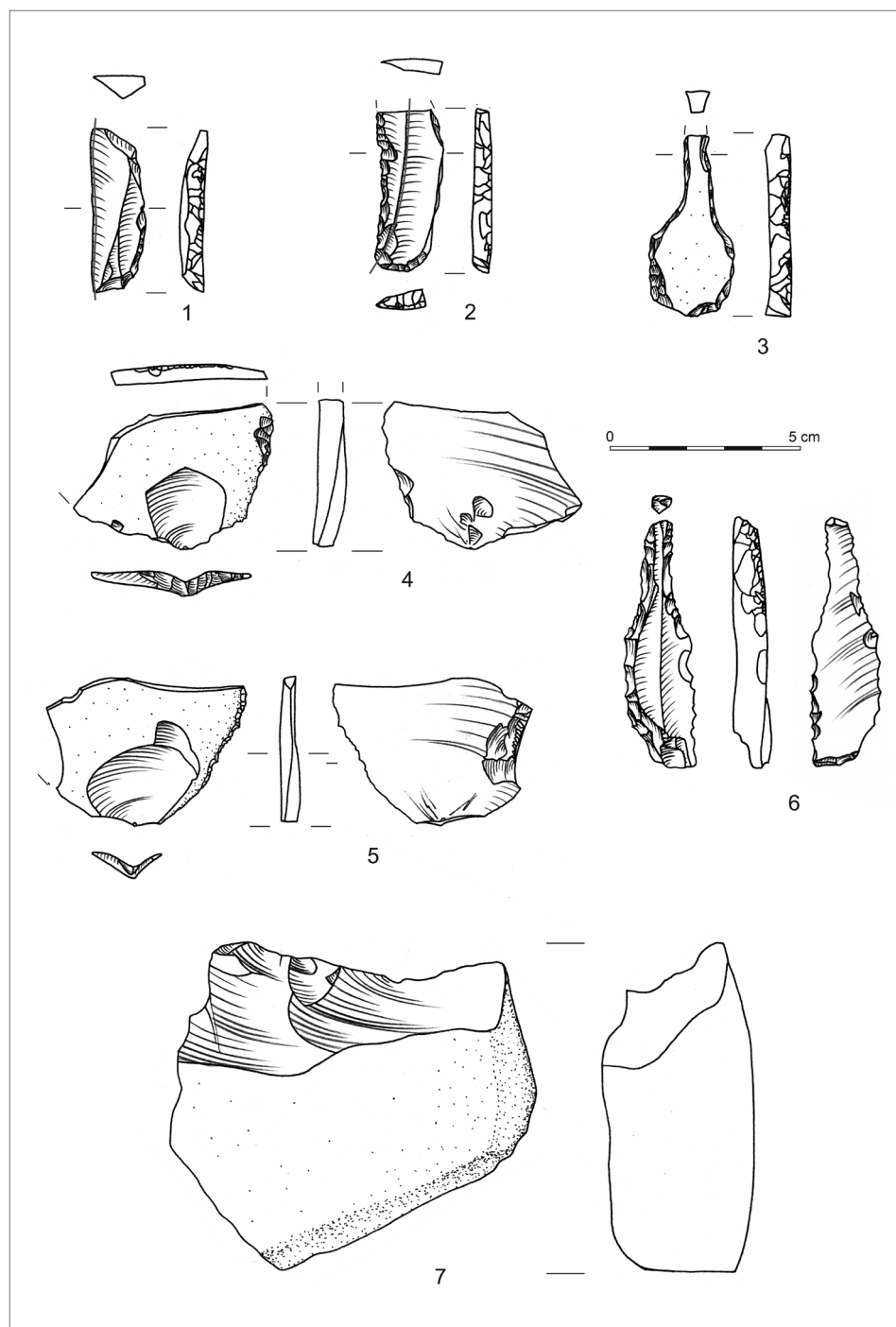


Fig. 15. Huseiniya. Lithic backed blades with gloss (1, 2), perforator (3), tabular scrapers (4, 5), combined tool: backed blade+perforator (6), and a chopper (7) (Drawings A. Brzeska-Zastawna)

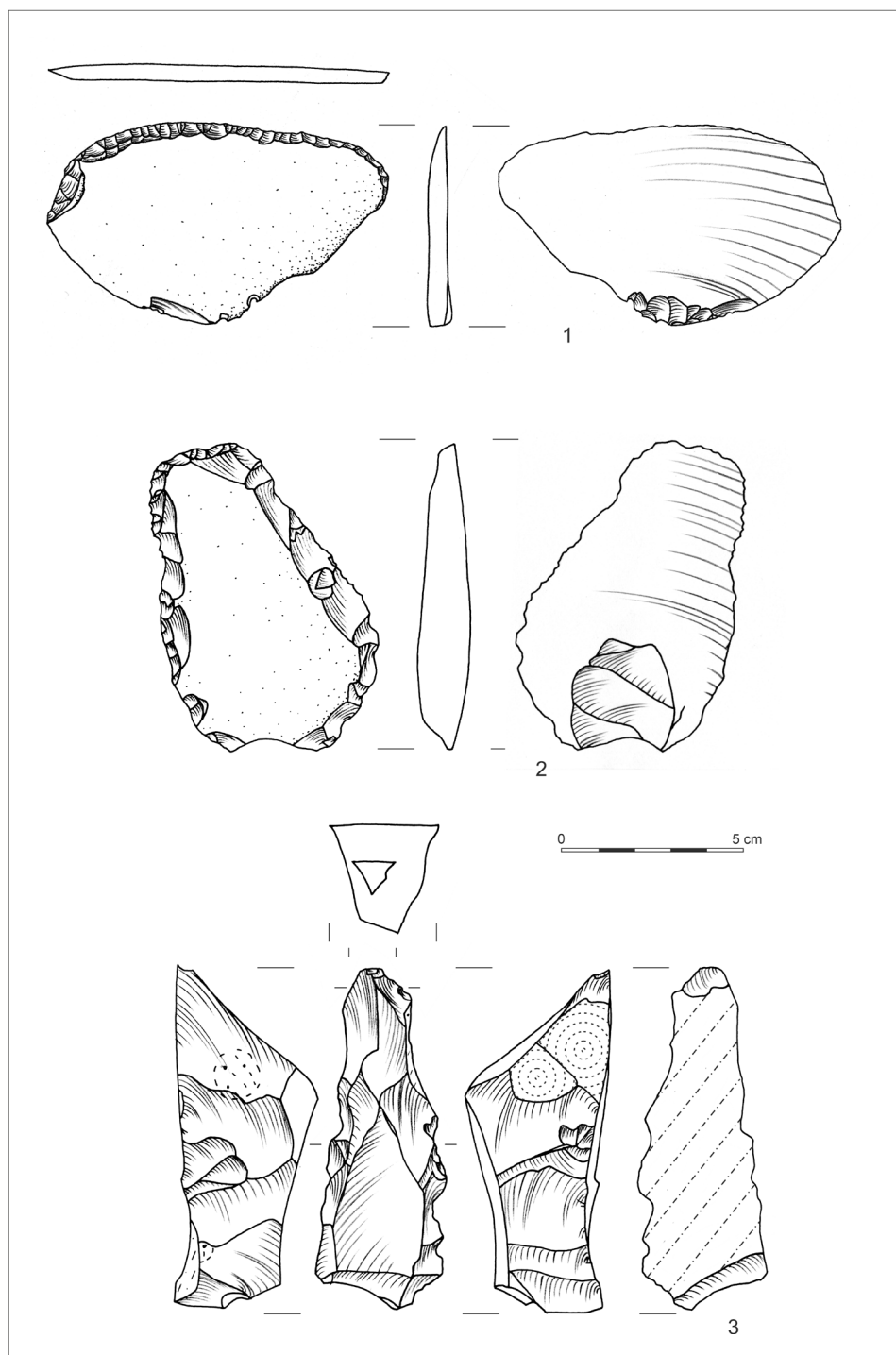


Fig. 16. Huseiniya. Lithic tabular scrapers (1, 2) and a pick (3) (Drawings A. Brzeska-Zastawna)



complex topics to be explored in greater detail as the research progresses.

## WADI FAYNAN 731

The third site examined by the JU team in 2021 is located close to the modern village of Faynan, near the junction of Wadi Faynan and Wadi Dana, about 10 km east from Wadi Arabah [see Fig. 1]. This large area, part of which is under agriculture, lies along the modern dirt road leading to the Faynan Eco Lodge. The region had been meticulously surveyed within the framework

of “The Wadi Faynan Landscape Survey” led by Graeme Barker, David Gilbertson, and David Mattingly (2007). While previous research had focused mostly on surface finds, the JU team aimed to conduct a more thorough examination of one of the structures to determine its precise dating and offer an interpretation of its function.

The part of the site selected by the JU team for test excavations —Wadi Faynan 731 (WF731)— is located in an area noteworthy for its savannah-like landscape and rich copper deposits. It was discovered during the works of the abovementioned Wadi Faynan Landscape Survey. Its findings, detailed in the book *Archaeology and desertification: The Wadi Faynan Landscape Survey, southern Jordan*



Fig. 17. Huseiniya. Bone weaving tool with decoration (Photo P. Kołodziejczyk)



Fig. 18. Wadi Faynan 731. Excavation works in progress during the 2021 season (Photo P. Kołodziejczyk)

(Barker, Gilbertson, and Mattingly 2007), shed light on the remarkable features of WF731, including circular stone structures visible on the surface.

Surface finds collected at WF731 during the survey primarily consisted of pottery sherds, dated mainly to the Early Bronze Age I. These artifacts provided valuable insights into the chronology of WF731 and its connection to the broader archaeological landscape. Additionally, the survey team noticed similar structures in the vicinity, hinting at a larger network of sites in this area (Barker, Gilbertson, and Mattingly 2007: 542).

The relatively small scale of the works conducted in 2021 by the JU team per-

mitted to distinguish only two strata: one connected with the functioning of the building, and the other being a thin layer of dirt and intrusions accumulated after the structures went out of use [Table 3]. Most of the pottery found at the site seems chronologically consistent, suggesting their contemporaneity to the structure. Nevertheless, the construction of the enclosure most likely predated the formation of the stone collapse northeast from it. In addition, a thick layer constituting the floor level (about 17 cm), visible in the cross-section of the deepest sounding, might suggest that the accumulation of strata took place over an extended period.

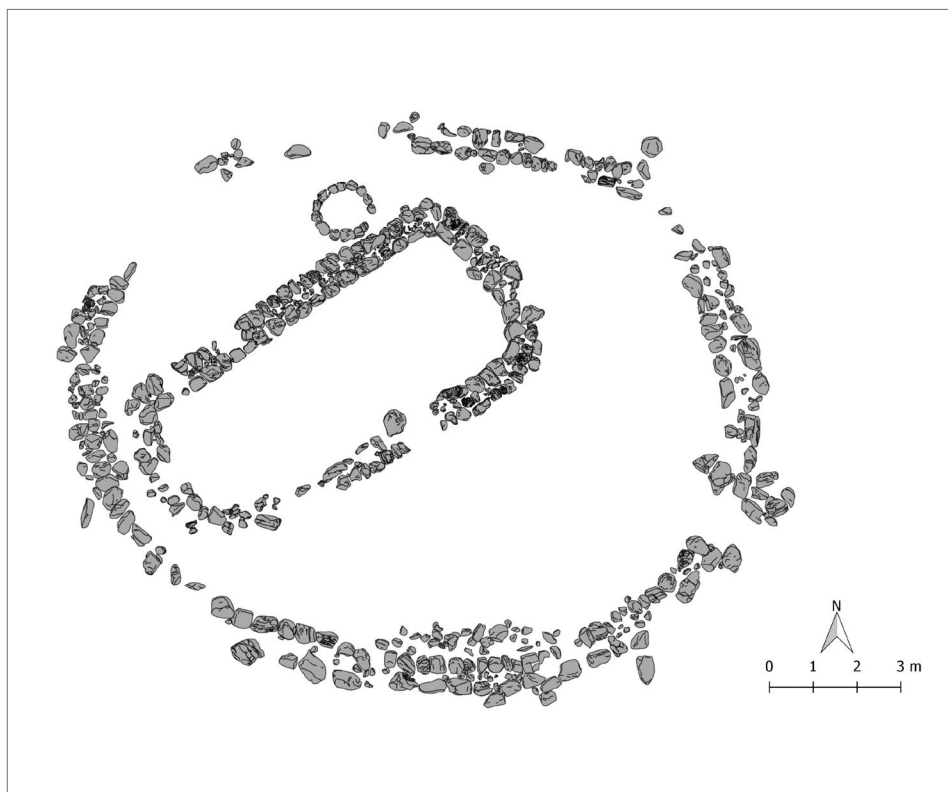


Fig. 19. Dwelling compound at Wadi Faynan 731 (Drawing J. Karmowski)



Table 3. Strata recorded in 2021 at Wadi Faynan 731

Stratum	Chronology/origin	Loci (L) and walls (W)	Description
1	Beginning of the Early Bronze Age, based on pottery finds and architectural parallels	L1, L2, W3, L7, L8, L10, W11, L12, W14, L16, L17, L20, W21(?), W22, W23, L24, L26, L28, W30	Contexts connected with the functioning of the household complex
2	Post Stratum 1. Beginning of the Early Bronze Age IA or later based on one radiocarbon date from under the stone collapse abutting the household (L13). The date Poz-151119, 5015±35 BP falls within the range of 3946–3706 calBC at 93.3% probability.	L5, L9, L13, L15, L19(?)	A relatively thin layer of dirt and intrusions accumulated after the structures went out of use; collapsed stone material located northeast of the household

Test excavations were conducted at WF731 in order to learn more about the site's function and dating and to confirm and enhance the previous survey's findings [Fig. 18]. Before the excavations, the area of the site was meticulously cleared by removing stones that did not belong

to any of the structures. This clearance revealed several distinct features of what appeared to be a single dwelling compound [Fig. 19]. Firstly, the excavations exposed a rectangular room with rounded corners, measuring approximately 8.50 m by 4.70 m, with double-faced walls

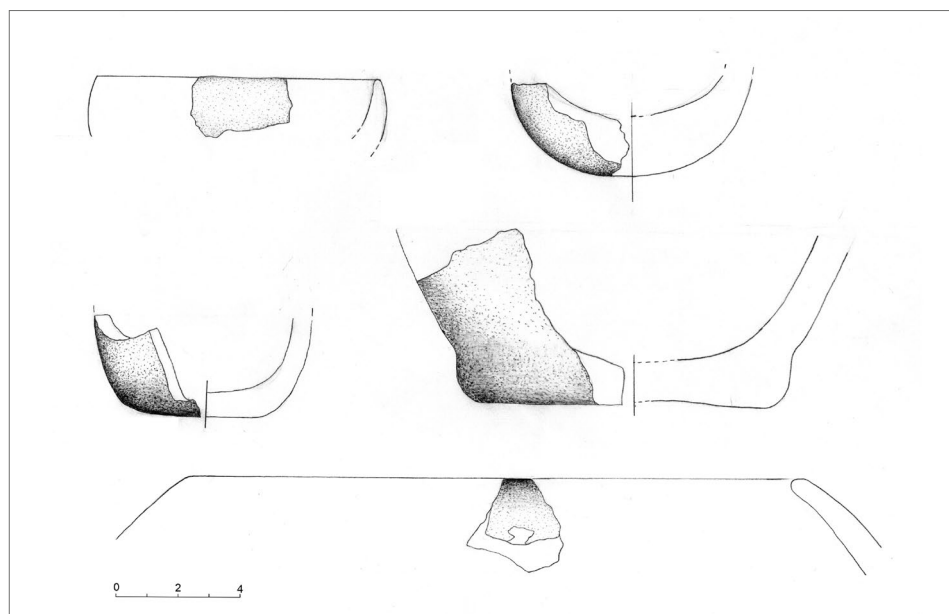


Fig. 20. Wadi Faynan 731. Pottery finds (Drawings B. Witkowska)

filled with smaller stones and remnants of mud mortar. A gap in the eastern wall, around 70 cm wide, possibly marked the location of a blocked entrance or a later modification. It is not impossible that the building had walls of mudbrick set upon the discovered stone wall.

The interior of the room yielded numerous pottery fragments —parts of vessels once used by the household's inhabitants— along with lithic tools and numerous pieces of raw malachite (a copper carbonate hydroxide mineral), which can be smelted to obtain copper. However, the excavations brought forth no traces of copper processing in the form of hearths or other fire-related in-

stallations. It is possible that either the inhabitants were involved only in the extraction of the raw material for trade, or they processed it somewhere else (perhaps near the mines), as suggested by previous research (e.g. Ben-Yosef et al. 2010). Nevertheless, samples collected within the archaeological context of the household at WF731, preliminarily interpreted as raw copper fragments, are under laboratory analyses to determine if they underwent metallurgical processing. Hopefully, future excavations will supply more evidence to clarify this issue.

Pottery fragments found at the site can be dated to the Early Bronze Age,

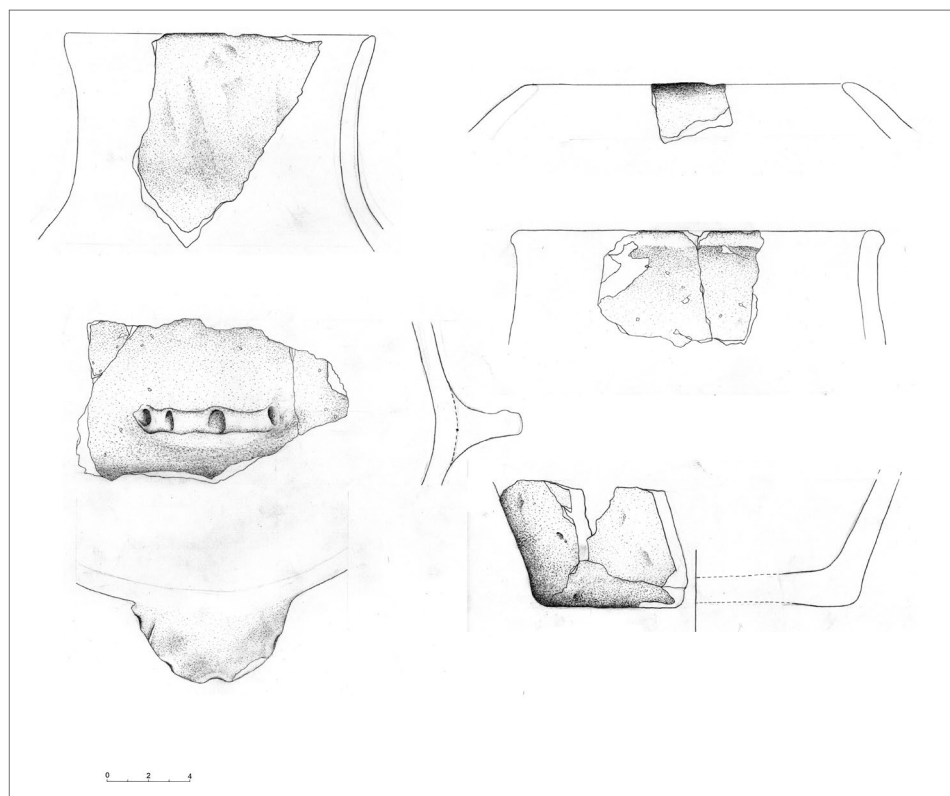


Fig. 21. Wadi Faynan 731. Pottery finds, continued (Drawings B. Witkowska)

potentially even Phase IA. The latter is indicated by holders with visible depressions on the edges, similar to those from other locations (e.g. in Israel, see Karasik, Smilansky, and Beit-Arieh 2005: 23–24). Holemouth jars were also discovered at the site. Also in this case, they differ from those found in Wadi Quseir by their more closed shapes and arms that slope less steeply [Figs 20, 21].

A small silo, approximately 1.35 m in diameter, was found against the northern wall of the house. The silo's stone circle, visible already on the surface, was composed of around 15 closely arranged medium-sized stones, as well as layers of smaller stones mixed with gravel and mud. Unfortunately, while some pottery fragments were uncovered inside the silo, the absence of archaeobotanical evidence hinders the identification of supplies stored within.

The excavations also revealed a circular enclosure, about 15 m in diameter, encompassing most of the site including the household. This double-faced wall, 0.6 m to 1 m in width, featured a gap in its southeastern part, suggesting a potential entrance. Remarkably, the enclosure's design and construction show similarities

to other walls discovered in the vicinity (perhaps more homesteads of a similar type).

Outside the enclosure, in the northeastern part of the site, a concentration of stone rubble covering an area of approximately 3.5 m by 5.5 m consisted of large and medium-sized stones interspersed with earth. The rubble also contained some intriguing artifacts, including a half of a stone potter's wheel (tournette) with a drilled hole [Fig. 22]. This very interesting basalt object in the shape of a semi-circle, with a hole drilled from both sides, was discovered in layer L13. A radiocarbon date obtained from a soil sample collected in the vicinity of this artifact yielded an estimated date range of 3946–3706 calBC [see Table 3]. Traces at its ends indicate that the object, 7 cm thick and approximately 15 cm in diameter, was originally oval in shape, which could suggest that it was a part of a tournette, a slow-running potter's wheel, specifically its lower disc (for comparison, see Roux and de Miroschedji 2009). Similar finds, dating to the Chalcolithic period, come from Site E (Macdonald 1932: 7, Pls XXII:21, XXVIII:24), and an object dated to EB I has been found at Messer (Dothan 1959: 27–28, Fig. 8:16, Pl. 2:F).

Exploration and surface prospection on the site yielded 104 lithic artifacts, with the majority found within the explored strata. The inventory showed a domination of the flake technique associated with *ad hoc* production. Among the tools, tabular scrapers [Fig. 23:3] and a transverse arrowhead of the trapezoidal type [Fig. 23:2] should be mentioned for their value as chronological markers. Such arrowheads appeared in the



Fig. 22. Wadi Faynan 731. A half of a stone potter's wheel (tournette) with a drilled hole (Photo P. Kołodziejczyk)

Chalcolithic, but were especially typical of areas where the EB I style was in evidence (e.g. Rosen 2013). Perhaps the same chronology can therefore be assigned to denticulates and notches made on flakes [Fig. 23:4, 5]. The highlighted elements of the flint inventory, some traits of the pottery indicative of the Early Bronze Age, and the radiocarbon dating support the aforementioned hypothesis proposing to date the site to EB I. Nevertheless, some blade fragments and an exploited blade core [Fig. 23:1] can only very generally be attributed to

either the Neolithic, the Chalcolithic, or the Bronze Age (Rosen 1997: 39–44, 90–91).

The excavations of the JU team provided valuable information on the architectural remains at the site, as well as some data on the settlement in this area and its chronology. The ongoing research on WF731 gives insights into the community inhabiting Wadi Faynan in the very beginnings of the Early Bronze Age, while the collected material points to the survival of some Chalcolithic traditions into the initial phase of this period.

## CONCLUSIONS

The data from the three sites contribute to the results of prior excavations, surface survey, and environmental analyses by enhancing the comprehensive view of the Chalcolithic and the Bronze Age in southern Jordan. The project has thus far gathered substantial information on settlement patterns, pottery production, as well as lithic inventories, and is currently in the process of conducting landscape analyses.

The research carried out by the project team in recent years has demonstrated a considerable diversity of local Chalcolithic and Neolithic communities. The data collected are still fragmentary and require supplementing. In particular, the results of pending anthropological analyses and radiocarbon dating are hoped to contribute to

a better understanding of the structures under study. This is most evident in the case of the megalithic structures, which are still very enigmatic and difficult to date.

For Wadi Quseir/Huseiniya and Wadi Faynan 731, in-depth analyses of settlement and economic patterns are needed to determine their relationship to other previously explored sites in the region. It is of paramount importance to further investigate their role in regional trade and development of technologies related to the processing of copper and other raw materials. Last but not least, their chronologies provide a unique opportunity to investigate the transitional period between the Late Chalcolithic and the Early Bronze Age in the southern Levant.

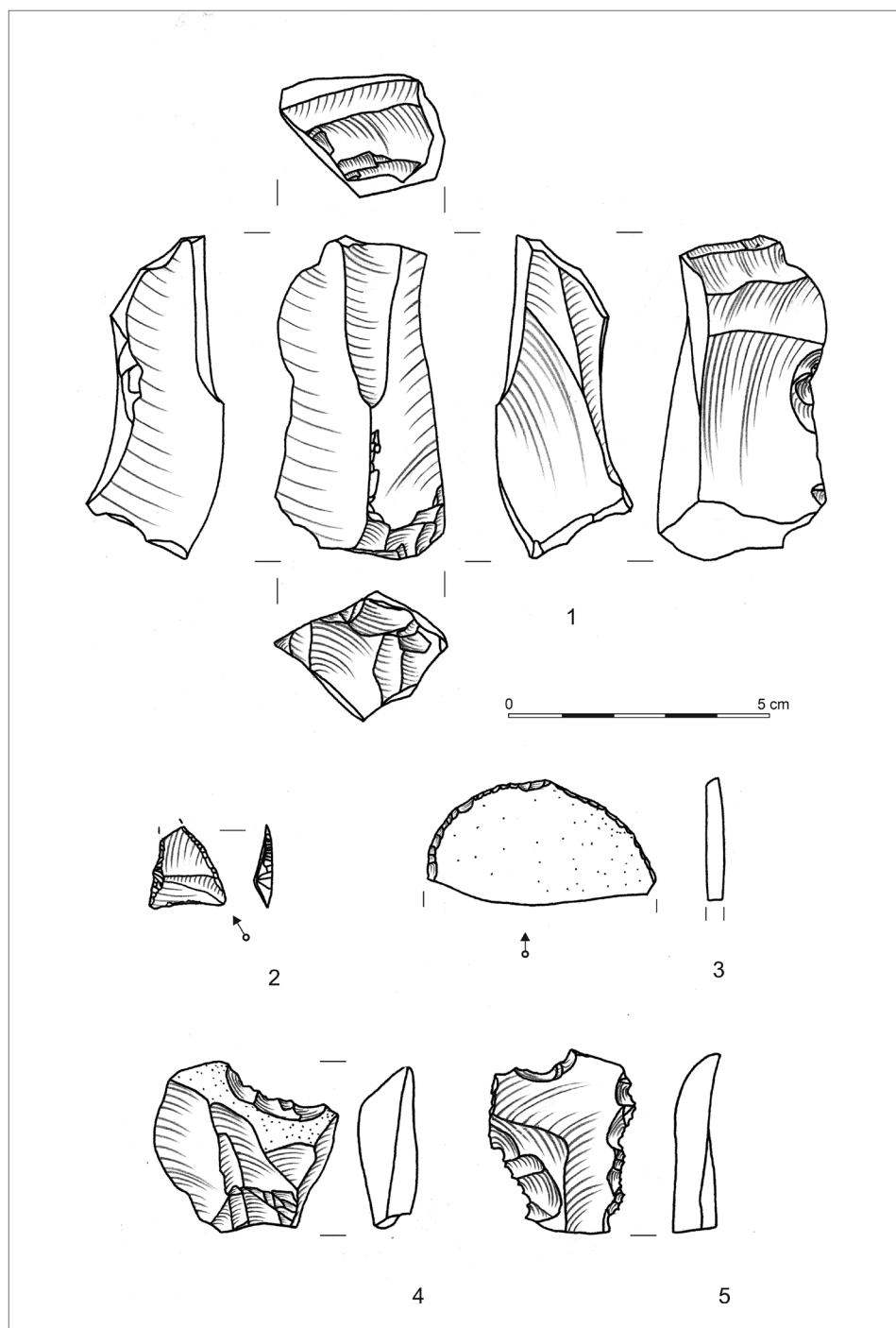


Fig. 23. Wadi Faynan 731. Lithic core (1), trapezoidal arrowhead (2), tabular scraper (3), and denticulated/notched tools (4, 5) (Drawings A. Brzeska-Zastawna)

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