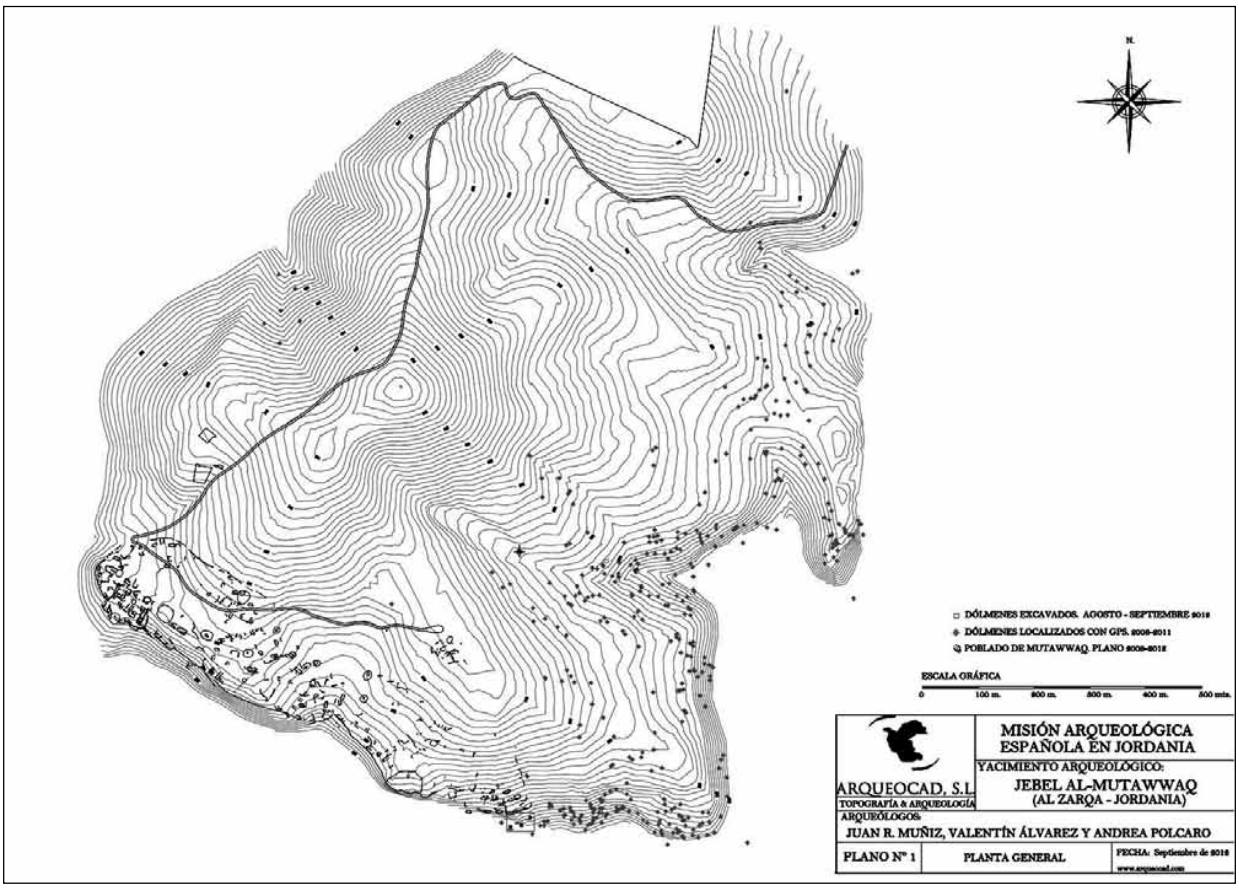
PRELIMINARY RESULTS OF THE FIRST SPANISH - ITALIAN EXCAVATION SEASON AT THE JABAL AL-MUṬAWWAQ DOLMEN FIELD: AUGUST - SEPTEMBER 2012

Valentin Alvarez, Juan Muniz and Andrea Polcaro[1]

I. Introduction

Jabal al-Muṭawwaq (JADIS site no. 2418.011) is located in the middle section of Wadi az-Zarqa (lat. 32°12'56''N long. 35°59'54''E), flanking the river on its southern bank. The archaeological site is located near the spring of Khraysan, *ca* 1 km to the south. The Early Bronze Age settlement and the dolmen field are located on the summit and slopes of the mountain, which is delimited on its western side by Wadi Hmeyd (**Fig. 1**). The presence of the springs and Wadi az-Zarqa itself, one of the most important sea-



1. Topographic map of Jabal al-Muṭawwaq.

1. Valentin Alvarez is prehistorian based at Oviedo University, Spain. Juan Muniz is a researcher at Pontificia Facultad de San Esteban, Salamanca University, Spain. He led the Spanish team during the August - September 2012 season. Dr. Andrea Polcaro is a researcher based at Perugia University, Italy. He led the Italian team during the August - September 2012 season. Andrea Polcaro wrote sections II, III and IV; Valentin Alvarez and Juan Muniz wrote sections I, V, VI; A. Polcaro, J. Muniz and V. Alvarez wrote section VII.

sonal rivers in the Jordanian highlands, facilitated the establishment of human communities. In particular, Jabal al-Muṭawwaq is a strategic location on the seasonal herding routes that cross Wadi az-Zarqa in this area. The landscape around the site is therefore ideal for socio-economic interactions between farmers and herders that would have encouraged, in the proto-urban historical contexts of the southern Levant during Early Bronze Age I, the development of ideological identities associated with the creation of a megalithic landscape.

The Spanish archaeological mission to Jabal al-Muṭawwaq started in 1989, thanks to Juan Antonio Fernández-Tresguerres and the support of the Spanish Embassy at Amman[2]. Since 1992, the project has also been supported by the Spanish Ministry of Culture. Excavations conducted at the site and in its vicinity have revealed traces of human activity from the Palaeolithic to Ottoman periods. During previous seasons, some of the nearby archaeological sites north of Jabal al-Muṭawwaq were investigated (e.g. Hawettan, Wadi Hmeyd and Jebel Makhad Khazua) in order to understand the topographical and geographical networks between similar settlements in the area.

After an initial investigation of the dolmen necropolis (Fernández-Tresguerres and Junceda 1991), the Spanish excavations of Oviedo University mostly concentrated on the Early Bronze Age settlement, located in the southern part of the site. The village comprises several curvilinear houses, with circular stone walls, megalithic doors and post holes (Fernández-Tresguerres 2005). Other kinds of structures, such as open courtyards, are also present and may have served a number of different houses. The most important building discovered at the site is the Temple of Snakes, a sacred area with *temenos*, temple and working areas (Fernández-Tresguerres 2008a). According to Fernández-Tresguerres, all the pottery and lithic material discovered at the village dates to the end of the Late Chalcolithic or to EB I (Fernández-Tresguerres 2008a).

In August - September 2012 a new project started under the direction of Juan Muniz, with the collaboration of the Department of Antiquities of Jordan and that of an Italian team from Perugia University headed by Andrea Polcaro. The work was supported by the Spanish Embassy at Amman and Perugia University.

II. 2012 Excavation Season

Although the dolmens of Jabal al-Muṭawwaq are distributed all over the mountain, three different clusters or fields are observable (Polcaro 2010): (1) the largest is 400 m from the village, on the north-eastern slopes of the mountain; (2) the second is on the western slopes, but has almost disappeared because of agricultural activity; (3) the third is located close to the village, along the southern slope of the mountain. The new excavations focused on this last dolmen field, in the areas nearest to the eastern and southern edges of the village, in order to better understand the stratigraphic and chronological relationship between the dolmens and settlement, and to assess whether the dolmen field represents a megalithic necropolis used by the EB I villagers of the site.

Three 5×5 m excavation squares were opened, centered on three dolmens that appeared to be in a relatively good state of preservation (nos 232, 228 and 318). The three dolmens are spaced no more than 4 m apart (**Fig. 2**). Dolmens 228 and 232, excavated by the Italian team, are located on the southern slope of the mountain, while dolmen 318, excavated by the Spanish team, is in a higher position to the north. Dolmens 228 and 318 were almost completely covered by the natural soil, with just the capstone visible, and both had complete walls made of a row of large stones that surrounded the structures (**Fig. 3**). Dolmen 232 was also covered by soil to a depth of at least half of the lateral stone slabs, but the stone circle - often interpreted by archaeologists as a platform or enclosure - was clearly disturbed in its north-eastern sector, near the entrance. The generally good state of preservation, especially of dolmens 228 and 318, is due to the *ca* 30° slope on this part of the mountainside. This led to a natural accumulation of earth that covered and preserved the dolmens. Moreover, the location of these structures in a place not easily

2. The earliest references to Jabal al-Muṭawwaq come from late 19th century explorers, who were surprised by the large number of megalithic monuments on the mountain. In 1989 Hanbury-Tenison published the results of his 1987 survey; this was the last publication to appear before the Spanish mission started work (Hanbury-Tenison 1989).

2. Area of excavation from the east.

3. Dolmens 228 and 318: before excavation.

reached by man or machine has discouraged,the demolition or robbery of the heavy stone slabs in both ancient and modern times.

All the pottery and chipped stone recovered from the three excavated area was collected and entered into a database, in order to assist with definition of archaeological phasing and chronology. Stratigraphic excavation allowed the identification of phases of construction, use, emptying, sealing and abandonment for each dolmen. A locus number, along with a typological letter (W = wall; S = slab; L = chamber), was assigned to the walls, slabs and chamber of each structure.

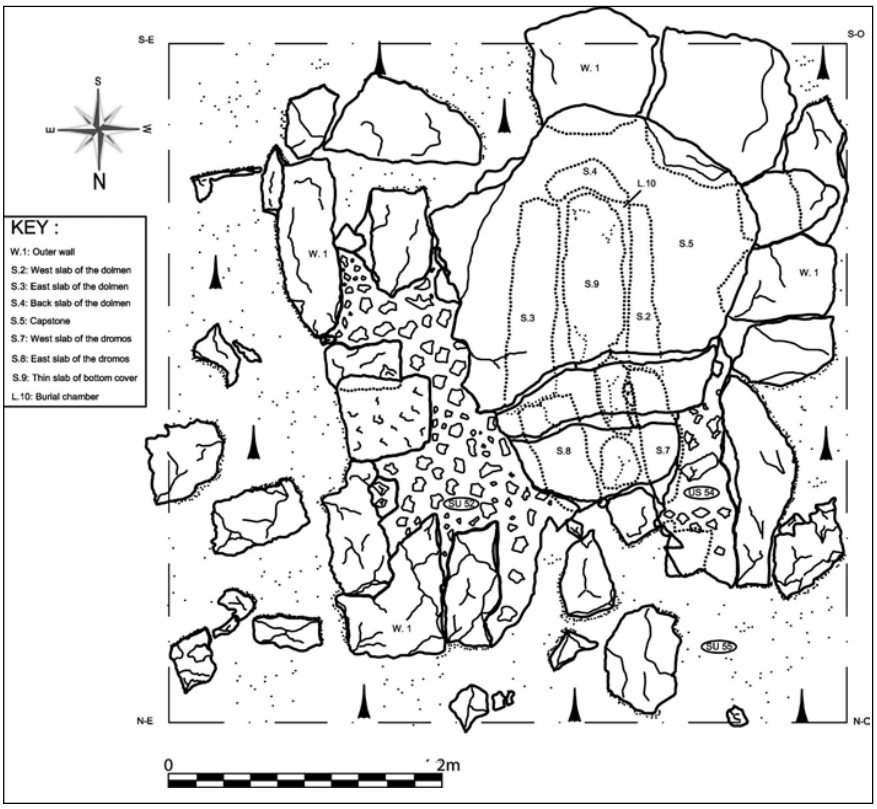
The principal aim of this season was to understand the construction methods and original configuration of these dolmens in order to shed light on the megalithic landscape of Jabal al-Muṭawwaq.

III. Dolmen 228

Description

Dolmen 228 (**Figs. 4** and **5**) is a large example of this type of megalithic monument (5 m long; 4 m wide; 1 m high), constructed close to the southern cliff of the mountain and following the natural slope of the bedrock. Even before excavation, this monument appeared to be one of the most impressive dolmens in this part of the necropolis. Its entrance faces due north, whilst its back slab is positioned against the southern cliff face.

It has an apsidal enclosure wall (W1), originally constructed of one row of large stones at the front and two at the back (**Fig. 6**). The dolmen itself had two lateral slabs (S2; S3), one slab at the back (S4), a large capstone (S5) and one floor slab (S6) (see Table 1). The entrance was sealed with another large stone and had a 2.5 m-



4. Dolmen 228: plan.

5. Dolmen 228: general view from the north.

6. Dolmen 228: surrounding apsidal wall, from the west.

long *dromos*, consisting of two lateral slabs (S7; S8), in front of it. Another narrow capstone (S9) fitted under the dolmen's main capstone and a near-square large stone was found collapsed on to its back. The corridor was constructed on the sloping bedrock, with two steps made of large stones leading into the funerary chamber.

Stratigraphy and architectural analysis

The excavation identified five different phases: construction (Phase I), use (Phase II), emptying (Phase III), sealing (Phase IV) and abandonment (Phase V). Phase V (abandonment) is represented by stratigraphic units SU51 and SU53, which are depositional layers consisting of soft, grey-brown earth that were only identified in front of the dolmen, covering the surrounding wall and northern collapse (SU56). Phase V is also represented by SU58 and SU59, which were identified within the *dromos* entrance and funerary chamber (L10); they are soft soil layers, naturally deposited by means of a small crack just under the capstone. Just under SU58 and SU59, there are other two other

layers (SU60 and SU61), consisting of small stones, compact earth and sherds that completely fill the entrance and internal chamber of the dolmen. These layers represent Phase IV (sealing): SU60 contained sherds and animal bone fragments, while SU61 was sterile. The last action of Phase IV involved the closure of the entrance corridor with a large squared stone. SU62, a thin layer of soft, brown soil representing Phase III (emptying), was deposited over the floor slab of the funerary chamber and yielded sherds and bones. Phase II (use of the dolmen as a tomb) was not identified during excavation, as the corridor and funerary chamber had been completely emptied. However, it is evident that the sherds and some bone fragments, possibly human[3], recovered in SU62 (Phase III) are associated with the original use of the dolmen as a tomb. Phase I (construction) is represented by the dolmen, the *dromos*, its surrounding wall, SU57, SU52 and SU54. SU57 is a thin layer of pebbles and stones, exposed over the entire excavation area, that served to level natural cracks in the slope of the bedrock in order to facilitate the placement of construction slabs. SU52 and SU54 are layers of small stones and compact earth that completely fill the space between the surrounding wall and the lateral slabs of the dolmen and *dromos*, both on the eastern and western sides. They may represent the remnants of a rough cairn or tumulus covering most of the structure. However, it is evident that the tumulus could not have covered the capstone of the dolmen, which remained in view, nor the *dromos* entrance. It is plausible that, when the dolmen was originally in use, it was completely covered by the tumulus and that the surrounding apsidal wall was the retaining wall of the cairn. The corridor might have remained clear, being sealed with a large stone so that it could be reopened for new depositions. It was only in Phase IV that the *dromos* and funerary chamber were emptied of their contents and filled in.

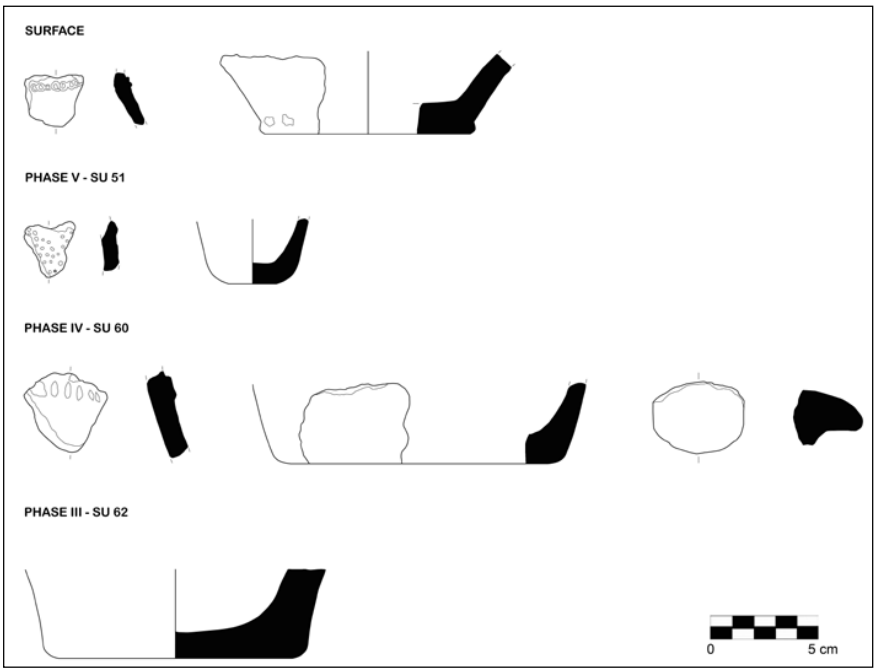
With regard to the method of construction, it is clear that the first two slabs to be erected after the bedrock had been levelled were the lateral ones, which also set the orientation of the entrance. The back slab, floor slab and lateral slabs of the entrance corridor were then positioned. Finally, the surrounding apsidal wall was constructed and the empty space filled with small stones. The last stage of construction was the placement of the thin covering slab over the corridor, followed by the positioning of the main capstone on the top of the dolmen, which also part-covered the *dromos*. The cairn heaped up around the lateral slabs would have been useful during this last phase, as a ramp by means of which the heavy capstone could have been raised to the tops of the lateral slabs[4].

Finds and Chronology

Pottery from dolmen 228 is homogeneous and seems to date to EB IA (**Fig. 7**). It consists mostly of low fired, hand-made simple ware, with a reddish-orange fabric and limestone inclusions[5]. Traces of red slip are rare[6]. The absence of burnished ware, grain-wash decoration, line-painted ware and spouted vessels suggests that the monument was abandoned before EB IB[7].

One flat base of a small jar and three plain ledge handles were associated with Phase V[8].

3. Further analyses are necessary for these fragments to be identified as animal or human, owing to their high degree of fragmentation and poor state of preservation.
4. This method of construction was identified at Damiye by Stekelis (1961: 53-55), who argued for the presence of a tumulus over the dolmens that might also have facilitated the placement of the heavy capstones.
5. The fabric and presence of limestone inclusions have good parallels at other EB I sites in the Wadi az-Zarqa area, such as the nearby Jebel Abu Thawwab (see Douglas and Kafafi 2000: 102-105).
6. Red slip is a common EB I surface treatment (see Jebel Abu Thawwab [Douglas and Kafafi 2000: 101], Bab edh-Dhra [Rast and Schaub 1989: 257] and Tell es-Sultan [Sala 2005: 171-173]).
7. The transition from EB IA to EB IB was recognised in the Bab edh-Dhra cemetery tombs not only by a changes in funerary architecture and inhumation practices (from secondary to primary [see Polcaro 2006: 147-150 and Chesson 2008]), but also by the appearance of spouted vessels and line- and band-painted decoration (see Rast and Schaub 1989: 234-273). At Tell es-Sultan, in the Sultan IIIa1 and Sultan IIIa2 phases (i.e. EB IA and EB IB), an increase in line-painted ware was noted, to the extent that this ware became a chronological indicator of EB IB (see Sala 2005: 174-175). Moreover, the EB IB dolmen excavated at Tell el-Umeyri yielded pottery similar to that from the Jabal al-Muṭawwaq dolmens in terms of shapes, but with the additional presence of spouted vessels and band- and line-painted decoration (Dubris and Dabrowsky 2002: 174-176, Figs. 8.3-5).
8. Plain ledge handles are common at EB I sites within the so-called 'Zarqa triangle' area, e.g. Tell Umm Hammad (Betts 1992: 364, Fig. 239: 71), and in northern Jordan (see examples from Jawa [Betts 1991: 300, Fig. 128]).



7. Pottery from Dolmen 228.

Phase IV was represented by a flat base[9] of a jar and a sherd with traces of finger-pointed band decoration[10]. A loop handle, low stump base and flat base were all associated with Phase III.

Many broken chipped stone tools were collected from both the ground surface and the abandonment phase of the dolmen (**Fig. 8**). Points and blades are particularly common. A basalt grindstone and a scraper were also recovered. It seems clear that all these objects, which were found in naturally accumulated deposits, are derived from the village on the top of the mountain. Only future, more extensive investigation of the necropolis could demonstrate that these tools are the remains of working or ritual activities in the area of the dolmens.

IV. Dolmen 232

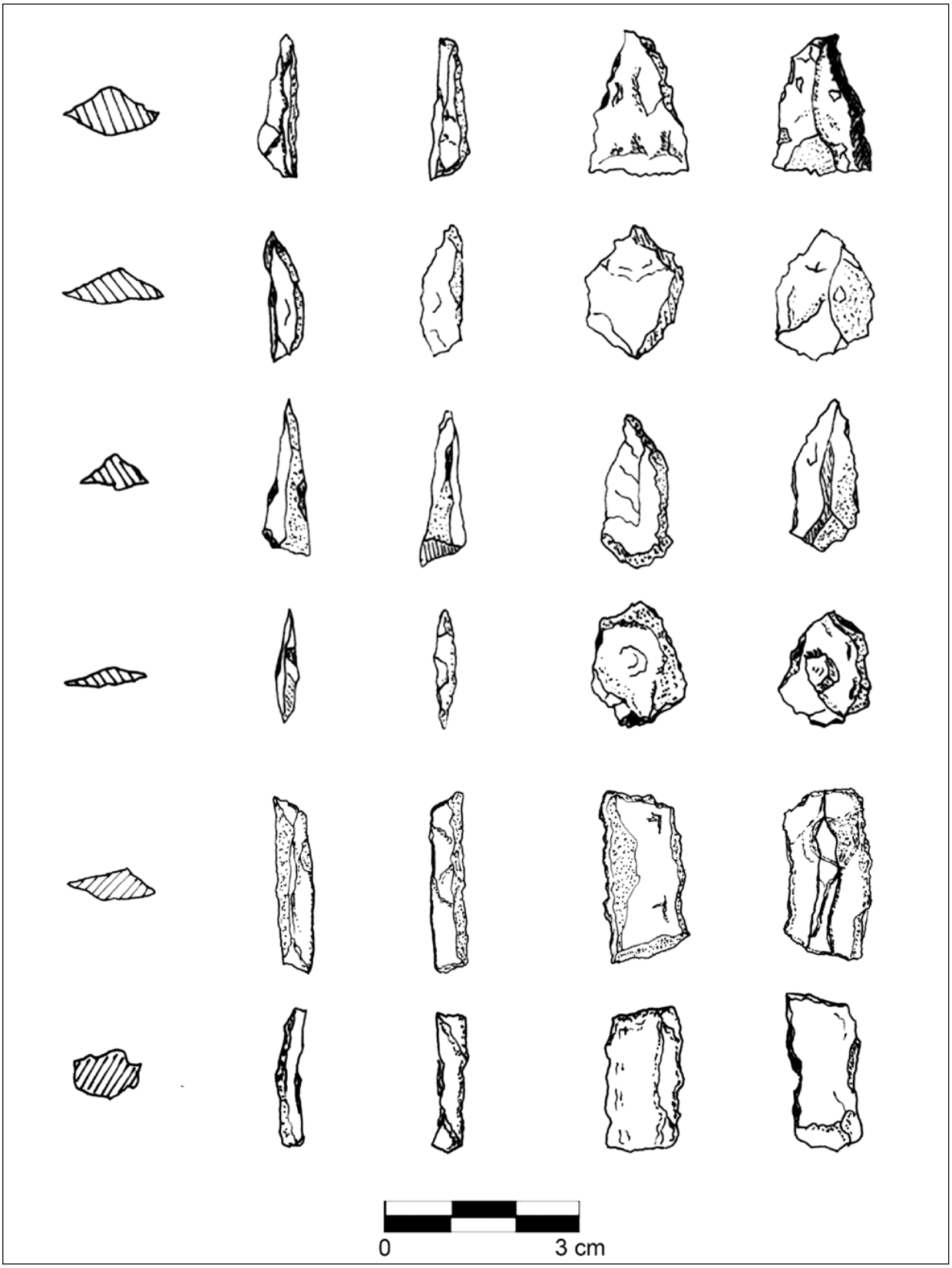
Dolmen description

Dolmen 232 (3 m long; 3.5 m wide; 0.9 m high) is located on a ledge on the southern cliff, west of dolmen 228 and south of the settlement wall (**Figs. 9 and 10**). It initially seemed to be in a good state of preservation but, after a preliminary clean-up of the area, it was clear that at least the northern part of the surrounding wall was disturbed. Dolmen 232 has its entrance oriented due north; it also has a circular surrounding wall (W11) consisting of a single row of large stones, one of which is missing. The dolmen is constructed of two lateral slabs (S12 and S13), a rear slab (S14), a horizontal capstone (S15) and a floor slab (S16) (see **Table 1**). There is no evidence for a genuine *dromos* in front of the entrance; a squared stone, not *in situ*, was found near the entrance and probably functioned as a door. The surrounding circular wall is smaller than that of dolmen 228 and there is less space between it and the slabs. The funerary chamber, delimited by the lateral and back slabs, was designated L17.

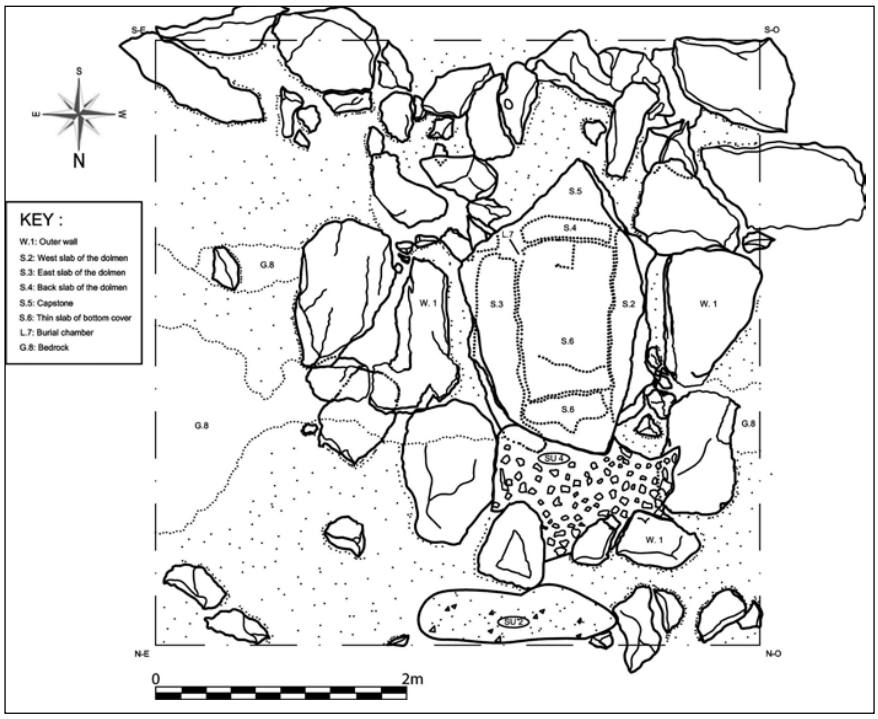
Stratigraphy and architectural analysis

The excavation of dolmen 232 identified six different phases: construction (Phase I), original sealing (Phase II), first abandonment (Phase III), Islamic-period reuse (Phase IV), second sealing (Phase V) and final abandonment (Phase VI). Phase VI is represented by SU1, a layer of soft, brown soil that covered the entire struc-

9. Flat bases and low pedestal bases are common at Jordanian EB I sites (see examples from Jawa [Betts 1991: 65, 265, Fig. 96]). Moreover, the flat base of the small jar from Phase IV is comparable to some examples from the Damiya dolmen field excavations (see dolmen no. 164 [Stekelis 1961: 69, Fig. 21: 172]).
10. Impressed pointed decoration, placed under the rim, has many parallels at Jawa (see Betts 1991: 301, Fig. 129) and Tell Umm Hammad (Betts 1992: 365, Fig. 240: 73).



8. Stone tools from the area of Dolmen 228.



9. Dolmen 232: plan.

ture. Phase V is represented by SU3, a naturally infilling layer of small stones and soft, grey-brownish earth identified inside the funerary chamber, designated L17. This is probably the most interesting phase, indicating that whoever violated the dolmen in later times took good care to reseal it, perhaps out of respect or fear for the ancient tomb. Under this layer, directly on the floor slab of the funerary chamber, SU5 (associated with Phase IV) was identified. It was a layer of compact, greyish-brown earth, which yielded fragments of an Islamic jar. Phase IV represents a violation of the dolmen, also evidenced by the squared sealing stone of the entrance being moved on to its side (**Fig. 11**). L17 was reused, perhaps as a store or something similar. Phases III and II, which relate to the abandonment and initial sealing of the monument, were not recognised during the excavation. However, it is evident from the finds in SU3 (associated with Phase V) that the second sealing of the dolmen probably reused older material associated with the original sealing. Phase I is represented by the dolmen itself, the surrounding wall, SU2 and SU4. This last layer, identified over the entire area, consisted of small stones and a compact, brown soil that leveled the natural bedrock so the stones of the surrounding wall and dolmen

10. Dolmen 232: general view from the east.

11. Dolmen 232: stone sealing the dolmen entrance, from the north.

slabs could be positioned on flat ground. SU2 consisted of small and large stones in a friable, grey-brown soil matrix that lay over SU4, but only in the western space between S12 and W11. It probably represents the remnants of a cairn that originally filled the space between the retaining wall and dolmen 232, albeit one that was smaller and less well-preserved than that of dolmen 228. The sequence of construction was similar to dolmen 228: first the bedrock was leveled, and then the surrounding wall and floor, lateral and rear slabs of the dolmen were positioned. The cairn that was most likely retained by the surrounding wall was probably used to facilitate the construction process in the same way as that of dolmen 228.

Finds and chronology

The pottery from dolmen 232 was mostly hand-made, low-fired, unburnished simple ware, with a reddish-orange fabric and limestone inclusions.

A fragment of a small jug[11] and a fragment of a small bowl with a loop-pierced handle[12] were associated with Phase IV (SU4). These two small vessels, typically found in EB IA funerary contexts (although they continue on into EB IB), are probably associated with the original inhumation in L17. This strongly suggests that the violators of the dolmen during the Islamic period resealed it with material derived with the original emptying and sealing phases of the Early Bronze Age (Phase II). Finally, two fragments of a Geometric Painted Ware jar with brown-painted spiral motifs on a white slip (**Fig. 12**) found just over the floor slab (SU5) clearly date the last use of the megalithic monument to the Middle Islamic or, more precisely, the Mamluk period[13].

The only stone tool to be recovered was a basalt grinding stone found on the surface, which probably came from the village on top of the mountain.

12. Fragment of Mamluk jar from Dolmen 232.

V. Dolmen 318

Dolmen description

Dolmen 318 (**Figs. 13 and 14**) is located at the southern rock cliff of the mountain, following the natural slope of the bedrock, and is close to the other two dolmens excavated during the same season further up the mountainside.

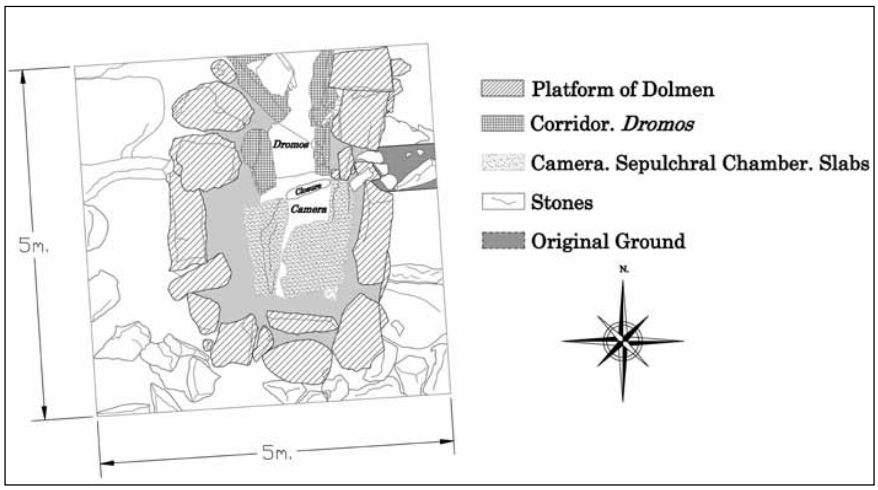
The initial identification of the structure was both inconclusive and unable to reconstruct its morphology, as practically all constructional elements were buried. After initial clearance of the excavation area, the main architectural elements of the dolmen could be defined, *viz.* the burial chamber, access corridor and platform.

The burial chamber, initially the only recognisable element, is smaller than those of nearby dolmens. Unlike the other excavated dolmens, large stone blocks were used in its delimitation.

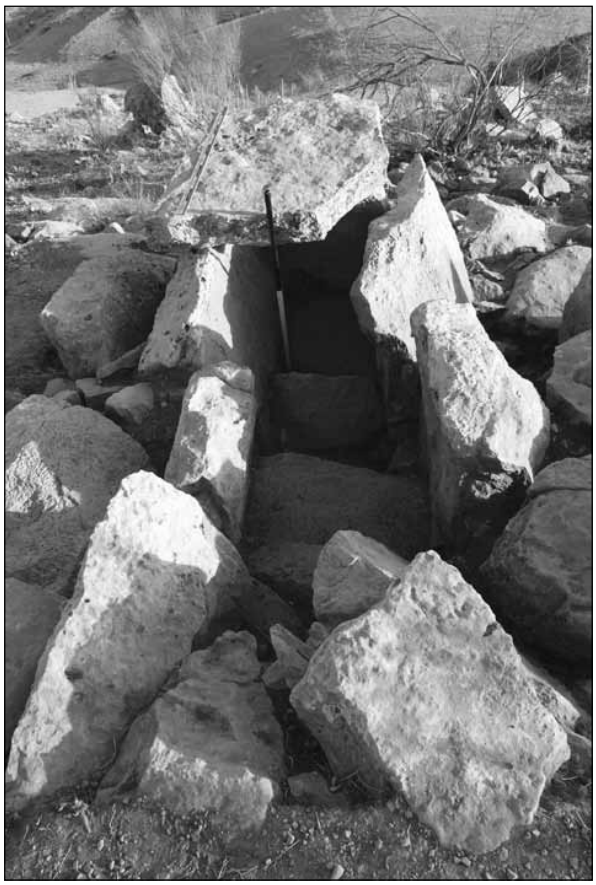
Stratigraphy and phasing

Nine stratigraphic units (SU) associated with five phases were identified during excavation: construction (Phase I), intentional sealing

11. This type of jug has many parallels from EB I tombs and domestic contexts in the southern Levant, e.g. Jericho (Nigro 2005: tab. 32:11), Bab edh-Dhra (Rast and Schaub 1989: 141, Fig. 83), Damiye (Stekelis 1961: 63, Fig. 15:125, 68, Fig. 19:167) and dolmen K at Tell el-Umeiry (Dubis and Dabrowsky 2002: Fig. 8.3:6-7).
12. This type of bowl has many parallels from EB I tombs and domestic contexts, e.g. Jericho (Nigro 2005: tab. 32:8), dolmen K at Tell el-Umeiry (Dubis and Dabrowsky 2002: Fig. 8.4: 4-5), Damiye (Yassine 1985: Fig. 6.1: 3, 5). Parallels for the loop-pierced handle can be found at Tell Umm Hammad (Betts 1992: Fig. 240: 4-7).
13. For parallels see Parapetti 2008: Fig. 1.



13. Dolmen 318: plan.



14. Dolmen 318: general view from the north after excavation.

(Phase II), first phase of natural infill (Phase III), second phase of natural infill (Phase IV) and erosion (Phase V).

Phase V (SU100) is related to natural erosion processes. On the surface there was a significant quantity of archaeological material, especially chipped stone but also pottery. Phase IV relates to two stratigraphic units (SU101 and SU107) that were evenly distributed around the dolmen. These were characterised by small stones in an earth matrix. The archaeological material, pottery and chipped stone alike, were not particularly informative.

Phase III includes stratigraphic units SU102, SU105 and SU108. These three archaeological layers were characterised by medium-sized stone blocks found across the area of the monument. The layers were typically *ca* 0.5m thick, although inside the dolmen (i.e. access corridor and burial chamber) their depth was much less. More than half the archaeological material recovered came from these layers. The finds have clear parallels with pottery and stone tools documented at the Jabal al-Muṭawwaq settlement. The presence of a large quantity of animal bone is noteworthy[14].

Phases III and IV relate to natural sedimentation associated with geological slope processes. Two interrelated issues account for the relative density of archaeological material in these two phases: (1) the spatial proximity of the dolmen to the settlement wall suggests that dolmen 318 was used by the village community; (2) the use of areas immediately outside the settlement as dumping grounds (common at Jabal al-Muṭawwaq [see Tresguerres 2008b]).

Phase II relates to the most recent use of the burial space and the final sealing of the monument. This phase includes two stratigraphic

14. A preliminary field analysis indicated a large quantity of sheep and / or goat.

units (SU106 and SU109), respectively associated with the access corridor and burial chamber. These levels are characterised by earthy soil containing a compact mass of stone that prevented access to the sealed chamber. This fill yielded chipped stone, pottery and human bone fragments, which were scattered across the area of the floor slab. The presence of human bone attests to the use of this space as a mortuary area. The pottery and chipped stone from this phase have clear parallels with material recovered from the EB I village of Jabal al-Muṭawwaq.

Phase I, comprising SU104 and SU103, is associated with the construction of the monument. SU104 corresponds to a lower level associated with the construction of the burial chamber, its access corridor and the large blocks of the perimeter platform. SU103 consists of an artificial fill, comprising flat slabs (that form 'wedges') and compacted dumps. This latter level is located between the inner platform and the outer perimeter wall of the burial chamber. Its main function was to provide stability to the entire dolmen structure, tying all elements together into a compact structure. The archaeological material (pottery, bone and chipped stone) from these last two stratigraphic units is similar, and shares common features with material from elsewhere in the archaeological sequence.

Architectural analysis

Different functional elements were identified during the excavation. The natural ledge upon which the dolmens were constructed provided the essential prerequisites for the installation of the monument. Bedrock provided a perfect foundation upon which to raise the megalithic structure, whilst the natural limestone terraces probably served as a quarry for construction material[15].

The main element of Dolmen 318 is the tomb. This can be divided into two spaces: the access corridor and the burial chamber.

The narrow access corridor served to link the exterior of the dolmen with the burial chamber. It was constructed of a double (parallel) row of stones. It was built as a stepped *dromos* in order to deal with the natural slope. A slab (part-preserved) was placed at the entrance to the chamber, partially sealing it.

The burial chamber occupies the central area of the monument. The floor consisted of a flat limestone slab, tilted slightly to the east. The front slab was very fragmented and had been moved from its original position. Inside, the chamber had a volume of (*ca.* 1m^3)[16].

Finally, an artificial platform provided both a foundation for and perimeter around the monument. It was constructed with three straight walls of stone slabs that were placed to create an apsidal shape, which was in places preserved to a height of three courses of large, rectangular stone blocks. The back of the dolmen was built as an 'artificial podium' to help support the entire structure.

One interesting constructional detail documented during excavation was an intentional fill (SU103) placed between the apsidal perimeter wall and the lateral slabs of the dolmen. In contrast to the other two dolmens excavated this season, it consisted of deliberately placed small and medium flat stone slabs. The aim of this fill was most likely to strengthen the megalithic structure.

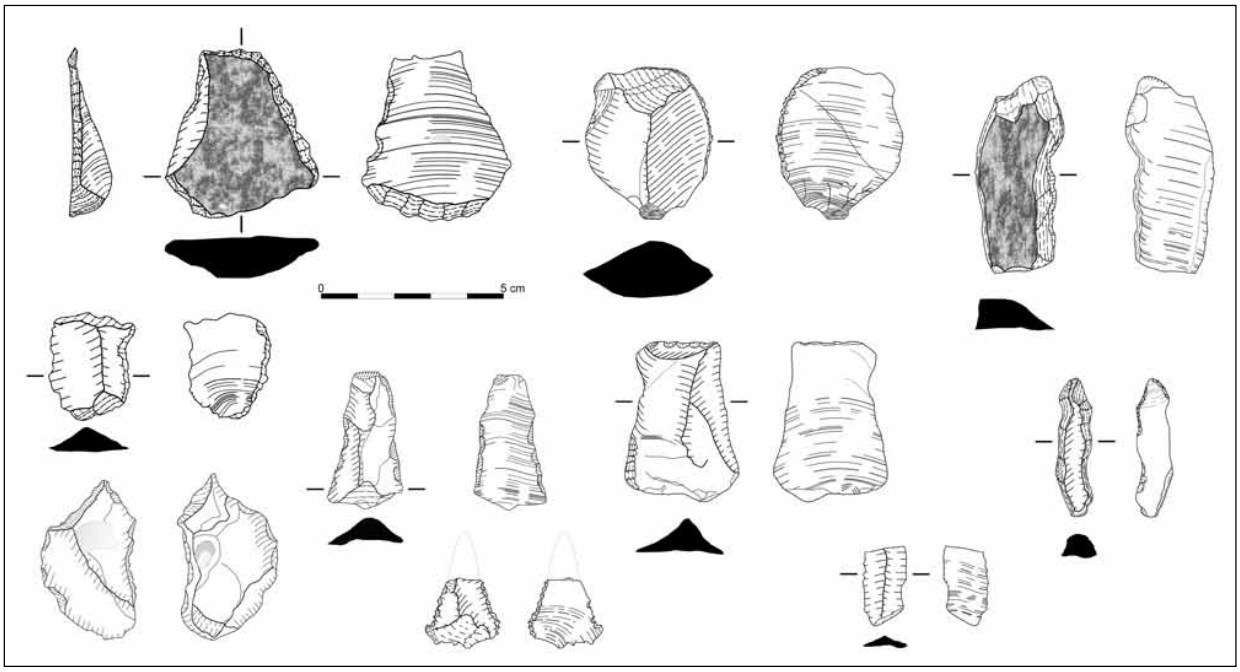
The artificial platform thus had two distinct architectural functions: (1) to serve as a functional element that provided strength and stability to the burial chamber; (2) to monumentalise the dolmen as a whole. It also created an enclosure that differentiated outside from inside, perhaps even - symbolically speaking - the living from the dead.

Finds and chronology

During the excavation a great quantity of archaeological material was recovered from dolmen 318, principally pottery and chipped stone. The latter comprised two main rock types: chert and basalt. Identified flint tools included scrapers, arrowheads, drills and blades (**Fig. 15**). With regard to the pottery (**Fig. 16**), diagnostic sherds associated with the three main archaeological phases (Phases I, II and III) reveal something of the chronology of dolmen 318.

Hundreds of sherds were recovered from

15. Geological analyses will be carried out in future seasons in order to test this hypothesis.
16. This may not have been large enough to accommodate an entire human body, supporting the proposal that dolmens were used for secondary burial (Fernández-Tresguerres 1993: 390). This proposal was based on an observed preponderance of long bones in some excavated dolmens.



15. Stone tools from the area of Dolmen 318.

Phase III stratigraphic units. Amongst them were horizontal, flat ledge handles of large storage jars, clearly similar to pottery recovered from the EB I settlement (**Fig. 16a**). A bowl with a globular body and curved rim was also recovered. Phase II, associated with the intentional sealing of the tomb, yielded a number of flat dishes and three small sherds with finger-pointed band decoration (**Fig. 16b**). Pottery was scarce in Phase I, with just a few sherds of flat bases being collected (**Fig. 16c**). These have a reddish fabric, like the vessels from the other phases.

The Phase III and Phase II pottery and chipped stone are undoubtedly contemporary with material recovered from the EB I settlement.

VI. Material Comparison Between the Settlement and Cemetery

The sudden death of Professor Tresguerres meant that his studies on Jabal al-Muṭawwaq were left unfinished. His work over two decades, which aimed to define the material culture of the EB I village and megalithic necropolis, has not yet been published. This will be a future aim of our project.

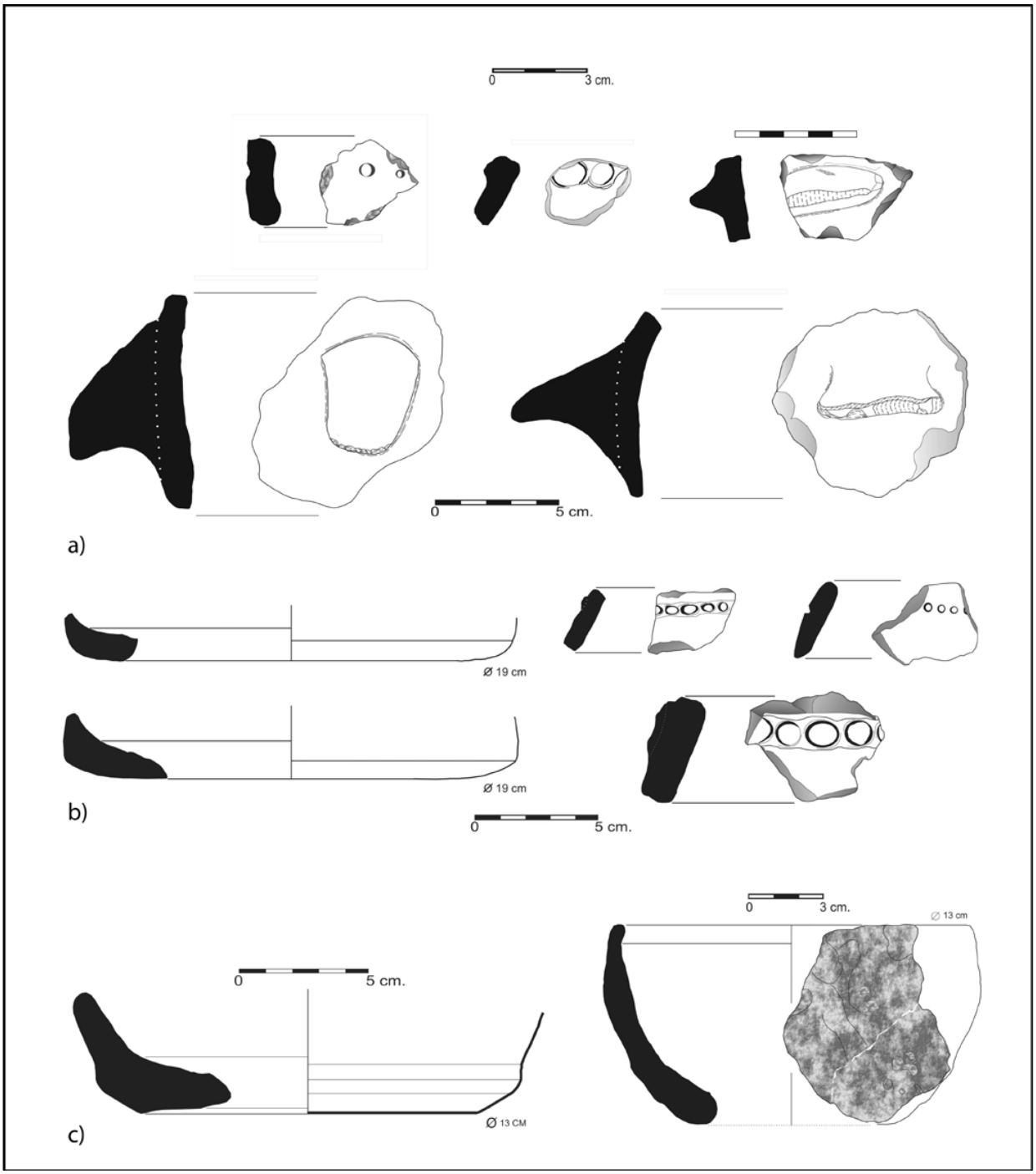
The pottery from the EB I settlement provides a very good record and the shapes are almost complete. Thus, it has been possible to identify numerous vessels of storage, kitchen and simple wares. The most common shapes are large storage jars and hemispherical bowls (Fernández-Tresguerres 2008b: 48). This ceramic repertoire is comparable with other EB I sites in Jordan, such as Jawa, Jebel Abu Thawwab and Tall Umm Hammad (see Betts 1991 and 1992; Kafafi 2001).

Although the pottery recovered during this excavation season was highly fragmented, the original shapes are similar to those of the EB I village.

The clay seems to have been sourced nearby, most likely from clay beds located along Wadi az-Zarqa[17]. The vessels are hand-made, in some cases using a vegetable base mat. Archaeological evidence of this was found on a significant number of bases that still retain the negative mat impression (Fernández-Tresguerres 2008: 48). The basic firing technique led to crude results, with irregularly oxygenated fabrics.

The sherds that can be attributed to exact shapes, such as the flat ledge handles, have clear parallels within the ceramic repertoire of the Jabal al-Muṭawwaq settlement (**Fig. 17**). Other parallels with the pottery recovered from the dolmens include finger-pointed band decoration,

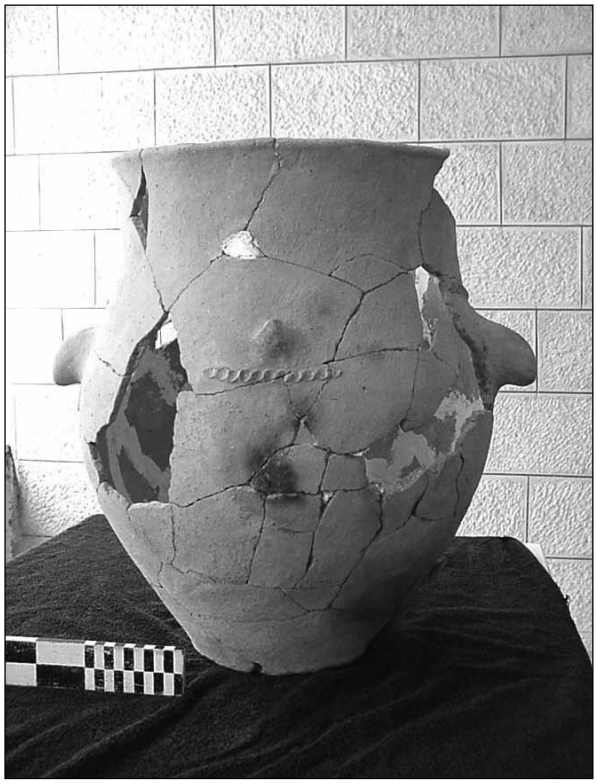
17. Future geo-archaeological studies will be conducted in order to test this hypothesis.



16. Pottery from Dolmen 318: (a) Phase III; (b) Phase II; (c) Phase I.

which is typical of storage vessels recovered from the houses of the EB I settlement. Three types of pottery decoration (incision; plastic; painted) are known from the EB I settlement, but only finger-pointed band decoration was noted on this season's pottery from the dolmens.

With regard to the stone tool assemblage, specifically chipped stone tools made on chert, the excavations carried out by Prof. Tresguerres inside the settlement houses mainly recovered finished stone tools. It is therefore possible that the knapping areas were located outside the village (Fernández-Tresguerres 2008b: 43), perhaps around the dolmen cemetery area. Amongst the



17. Complete decorated jar from house 81 of the EB I settlement at Jabal al-Muṭawwaq (Juan Fernández-Tresguerres).

chipped stone tools recovered from the EB I village are circular scrapers that retain much of the cortex, flint blades and sickles. Another group consists of choppers, drills and burins (Fernández-Tresguerres 2008b: 43). During the excavation of the dolmens, a large quantity of chipped stone was recovered, although in most cases it was debitage, flakes and blades that displayed no clear signs of use. However, some good examples of flint tools were recovered, including arrowheads, scrapers, drills, some retouched flint blades and a good number of flakes with retouch around the perimeter. Of these, the circular scrapers closely resemble examples documented by Prof. Tresguerres at the settlement. The presence of Cananean blade fragments in the dolmens should also be noted; in dolmen 318 one such fragment was recovered from inside the chamber in SU109 (associated with the deliberate sealing episode). This type of blade is typical of the Early Bronze Age (Rosen 1983).

VII. Preliminary Results from the Dolmen Field

This first excavation season of the new Spanish - Italian archaeological project at the Jabal al-Muṭawwaq dolmen field has yielded important results that give a better understanding of the megalithic phenomenon in Jordan during the Early Bronze Age. From the pottery recovered in the earlier constructional phases, it is clear that dolmens 232, 228 and 318 were built in Early Bronze Age IA (3,500 - 3,100 BC)[18]. The settlement on the southern slope of the mountain top was also occupied during this period (C_{14} dates from house 76 are 5,290 - 5,040 BP and 5,270 - 5,170 BP, respectively calibrated to 3,340 - 3,030 BC and 3,320 - 3,220 BC)[19]. The sanctuary was occupied until at least the end of the Late Calcholithic (3,900 - 3,800 BC), but for how much longer remains unclear (see Fernández-Tresguerres 2008a: 33). The stratigraphic and chronological relationship between the settlement and necropolis is therefore still not entirely clear. Clarifying this issue will be the first objective of the next season.

It is clear from dolmens 228 and 318 that, at the end of their EB I use, the monuments were emptied and sealed. This pattern might reflect a ritual tradition maintained at Jabal al-Muṭawwaq, a hypothesis that future excavation of other dolmens on the site might verify. However, it is also possible that the sealing of the monuments was linked to a quick and traumatic flight from the site, although destruction layers are not attested to at either the settlement or necropolis.

The construction technique of the excavated dolmens was reconstructed. The habit of covering part of the structure with a cairn, leaving just the entrance and large capstone in view, sug-

18. The problem of EB I chronology in the southern Levant has been debated by scholars for many years. It is generally accepted that EB IA started some time between 3,600 and 3,300 BC (see C_{14} dates from Palestinian sites in Dessel and Joffe 2000: 38-39, tab. 2.1; see also discussion in Yekuteli 2000). The beginning of EB IB, traditionally associated with the appearance of Narmer seals in western parts of the southern Levant, is typically dated to between 3,100 and 3,000 BC, i.e. the beginning of the first Dynasty (see Braun 2001). Other C_{14} data from the Bab edh-Dhra settlement, founded in EB IB, confirm that the period started between 3,300 and 3,000 BC (see Rast and Schaub 2003: 638-648).

19. See Fernández-Tresguerres 2008b. The latest C_{14} date from abandonment layers at the Tuleilat al-Ghassul sacred area is 5,100 BP, calibrated to 3,800 BC (Seaton 2008: 141-142).

gests that the surrounding wall served to retain the tumulus. This architectural feature, which would also have helped in positioning the heavy capstones, was also noted by Stekelis (1961: 53-55) at Damiye, but there the cairns are built with large squared slabs and not small rounded stones as at Jabal al-Muṭawwaq. Although there are some differences between the two dolmen fields (e.g. the type of stone [limestone at Jabal al-Muṭawwaq; travertine at Damiye]; the presence of front slabs with portholes at Damiye [absent at Jabal al-Muṭawwaq]; the varying distance from a contemporary EB I settlement)[20] there are also similarities. Both dolmen fields are situated along the Wadi az-Zarqa river, in two key topographic locations: Damiye in the 'Zarqa triangle' area, facing the confluence of Wadi az-Zarqa with the River Jordan, and Jabal al-Muṭawwaq in the middle section of the valley, where the river swings from north to west, at its confluence with two important tributaries, *viz*. Wadi Hmeid and Wadi Suweinat. Moreover, the prevailing northerly orientation of the Damiye dolmens is similar to that identified at Jabal al-Muṭawwaq and seems different from the prevailing easterly orientation of dolmens in the southern dolmen fields of Jordan (see Belmonte, Gonzalez and Polcaro in press).

Finally, the pottery recovered from the excavation areas confirms a possible reuse of some dolmens later in the Bronze Age (particularly during the Middle and Late Bronze Ages), supporting the survey observations of Hanbury Tenison (1986 and 1989). Having said that, in this season we only identified an Islamic (probably Mamluk) period reuse of dolmen 232. Future work at the dolmen field might clarify the extent and nature (sporadic vs systemic) of reuse of the Jabal al-Muṭawwaq megalithic necropolis in later periods.

Acknowledgments

We wish to thank Mr Fares al-Hmoud, Director General of the Department of Antiquities of Jordan, and all members of the Department of Antiquities for their kind help and assistance in the field. We also thank Ehab Jariri, of the Department of Antiquities, who carried out the topographical survey and set up the archaeological grid. Great thanks are due to HE Javier Sangro de Liniers, the Spanish ambassador in Amman, for his support and to Prof. Giorgio Bonamente, Dean of the Faculty of Human Science at Perugia University in Italy, for his assistance to our project. We also wish to thank the Angelicum University at Rome, which will participate in future work at the site, in particular Prof. Pablo Zambruno, who participated in the 2012 excavations and made a major contribution to the work.

Bibliography

Belmonte, J. A., Gonzalez, C.G. and Polcaro, A.
In press On the Orientation of Megalithic Monuments of the Tranjordan Plateau: New Clues for an Astronomical Interpretation, *Journal for the History of Astronomy* 2014.

Betts, A.V.G. (ed.)
1991 *Excavations at Jawa 1972-1986*, Edinburgh.
1992 *Excavations at Tell Um Hammad, The Early Assemblages (EB I-II)*, Edinburgh.

Braun, E.
2001 Proto, Early Dynastic Egypt, and the Early Bronze Age I-II of the Southern Levant: Some Uneasy C_{14} Correlations, *Radiocarbon* 43: 1279-1295.

Chesson, M.S.
2008 Remembering and Forgetting in Early Bronze Age Mortuary Practices on the Southeastern Dead Sea Plain, Jordan, Pp. 109-139 in N. Laneri (ed.), *Performing Death*, (Oriental Institute Seminars 3), Chicago.

Dessel, J.P. and Joffe, A.H.
2000 Alternative Approaches to Early Bronze Age Pottery, Pp. 31-58 in G. Philip and D. Baird (eds.), *Ceramics and Change in the Early Bronze Age of the Southern Levant*, Sheffield.

Douglas, K. and Kafafi, Z.
2000 The Main Aspects of the Early Bronze Age I Pottery from Jebel Abu Thawwab, North Jordan, Pp. 101-111 in G. Philip, D. Baird (eds.), *Ceramics and Change in the Early Bronze Age of the Southern Levant*, Sheffield.

Dubis and Dabrowsky
2002 Field K: The Dolmen and Other Features on the South Slopes of Tall al-'Umayri, Pp. 171-177 in L. G. Herr *et al.* (eds), *The 1994 Season at Tall al-'Umeyri*, Berrien Springs.

20. Tell Umm Hammad, the nearest known EB I village, is located about 4 km from Damiye, much further than the situation at Jabal al-Muṭawwaq, where the settlement is located just few metres from the southern part of the large dolmen field excavated in 2012.

Fernández-Tresguerres Velasco, J. A.
2005 Jabal Muṭawwaq, *ADAJ* 49: 365-372.
2008a The "Temple of the Serpents", a Sanctuary of the Early Bronze Age I in the village of Jabal al-Muṭawwaq (Jordan), *ADAJ* 52: 23-34.
2008b Jebel al Mutawwaq (Jordania), Pp. 39-50 in V. Álvarez, D. González and J.I. Jiménez, (eds.), *Actas de las I Jornadas de Arqueología en Asturias, Oviedo*.

Fernández-Tresguerres Velasco, J. A. and Junceda, Q.F.
1991 Jebel Mutawwaq (Jordania). Campañas 1989-1991. *Estudios Biblicos* 49: 523-542.
1993 Los dólmenes de Jebel Mutawwaq (1990-1992), Pp. 35-40 in C. Ayaso *et al*. (eds.), *IV Simposio bíblico español. Biblia y culturas. Tomo I, Granada*.

Hanbury-Tenison
1986 *The Late Chalcolithic to Early Bronze I Transition in Palestine and Transjordan* (BAR International Series 311), Oxford.
1989 Desert Urbanism in the Fourth Millennium, *Palestine Exploration Quarterly* 121: 55-63.

Kafafi, Z. (ed.)
2001 *Jebel Abu Thawwab (Er-Rumman), Central Jordan. The Late Neolithic and Early Bronze Age I Occupations*, Berlin.

Nigro, L. (ed.)
2005 *Tell es-Sultan/Gerico alle soglie della prima urbanizzazione: il villaggio e la necropoli del Bronzo Antico I (3300-3000 a.C.)*, (ROSAPAT 01) Rome.

Parapetti, R.
2008 An Overview of the Italian Excavations in the 'Amman Citadel 1927-1938, *ADAJ* 52: 159-171.

Polcaro, A.
2006 *Necropoli e costumi funerari in Palestina dal Bronzo Antico I al Bronzo Antico III*, (CMAO XI), Rome.
2010 Jebel Mutawwaq Dolmens: Cult of Ancestors in EB I Wadi Az-Zarqa Valley, Jordan, Pp. 553-566 in P. Matthiae *et al*. (eds.), *Proceedings of the 6th ICAANE, Rome 5-10 May 2008*, Volume 2, Wiesbaden.

Rast, W.E. and Schaub, R. T.
1989 *Bab edh-Dhra: Excavations in the Cemetery Directed by Paul W. Lapp (1965-1967)*, Winona Lake.
2003 *Bab edh-Dhra: Excavations at the Town Site (1975-1981)*, Winona Lake.

Rosen, S.A.
1983 The Canaanean Blade and the Early Bronze Age. *Israel Exploration Journal* 33.

Sala, M.
2005 Le produzione ceramiche gerichiote del Bronzo Antico I: materiali stratificati provenienti dal tell, Pp. 167-178 in L. Nigro (ed.), *Tell es-Sultan/Gerico alle soglie della prima urbanizzazione: il villaggio e la necropoli del Bronzo Antico I (3300-3000 a.C.)*, (ROSAPAT 01) Rome.

Seaton, P.
2008 *Chalcolithic Cult and Risk Management at Teleilat Ghassul, the Area E Sanctuary*, (BAR International Series 1864), Oxford.

Stekelis, M.
1961 *La necrópolis megalitíca de Ala Safat, Transjordania*, Barcelona.

Yekutieli, Y.
2000 Early Bronze Age I Pottery in Southwestern Canaan, Pp. 129-152 in G. Philip and D. Baird (eds.), *Ceramics and Change in the Early Bronze Age of the Southern Levant*, Sheffield.

Yassine, Y.
1985 The Dolmens: Construction and Dating Reconsidered, *Bulletin of American School of Oriental Research* 25: 63-69.