



KEYWORDS: *Petroglyph – Pictogram – Cave art – Age estimation – Hail – Saudi Arabia*

NEW ROCK ART COMPLEX IN SAUDI ARABIA

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Abstract. The discovery of a previously unknown rock art complex is reported from northern Saudi Arabia. It is located roughly half-way between two major rock art precincts recently added to the World Heritage List, but will be preserved in pristine forensic condition by not disclosing its very isolated location. The rock art complex includes an extensive gallery of pictograms and two cave art sites; both features are very rare on the Arabian Peninsula. Its surviving rock art dates from 6000 years BP to the present. It includes petroglyphs, rock paintings and inscriptions of the most recent past, including of the 20th century CE. This adds new evidence to the observation, made also elsewhere in Saudi Arabia, that Arabian rock art production and rock art use is a continuing tradition of the Bedouin that may have locally survived to the present time.

Introduction

One of the most impressive rock art properties in the world, the Shuwaymis petroglyph complex south of Hail, Saudi Arabia, was discovered only as recently as 2001 (Bednarik and Khan 2002, 2005, 2009). The significance of that monument has been acknowledged by its speedy inscription in UNESCO's World Heritage List (Bednarik 2014, 2015). The Shuwaymis rock art precinct comprises the largest known assemblage of

monumental Neolithic rock art, comprising many thousands of petroglyphs. We prepared the nomination dossier for its listing together with the Umm Sinman petroglyph complex at the Jubbah oasis (Bednarik and Khan 2013). Here we report the new discovery, made in 2017, of yet another major rock art complex in the general region, located roughly between Jubbah to the north and Shuwaymis to the south. Like the latter monument, the new group of sites is located deep in the desert, a considerable distance from made roads, and is protected by its remoteness and difficult access. But while the Shuwaymis complex, as part of its nomination for World Heritage listing, is being rendered accessible by a sealed road of over 40 km length, there is no intention of making the new site complex better accessible and its location is not provided, except that it is in the mountains known as Jabal al-Mismā, almost 100 km west of Hail (Fig. 1). Access will continue to be only by desert driving (sand dune and rock desert), camel or by helicopter.

The al-Mismā rock art complex is found at two major rock mountains, Jabal Umm Burqa and Jabal Fardat Shamous, separated by 4 km of sand desert. Between them occurs a smaller rock outcrop devoid of rock art and a low plateau bearing several stone structures. These are assumed to mark a burial complex of pre-Thamudic times and are notable because of their two large rectangular parallel enclosures, about 160 m long and 40 m wide. Numerous grave cairns occur both inside and outside of these; some are geometrically

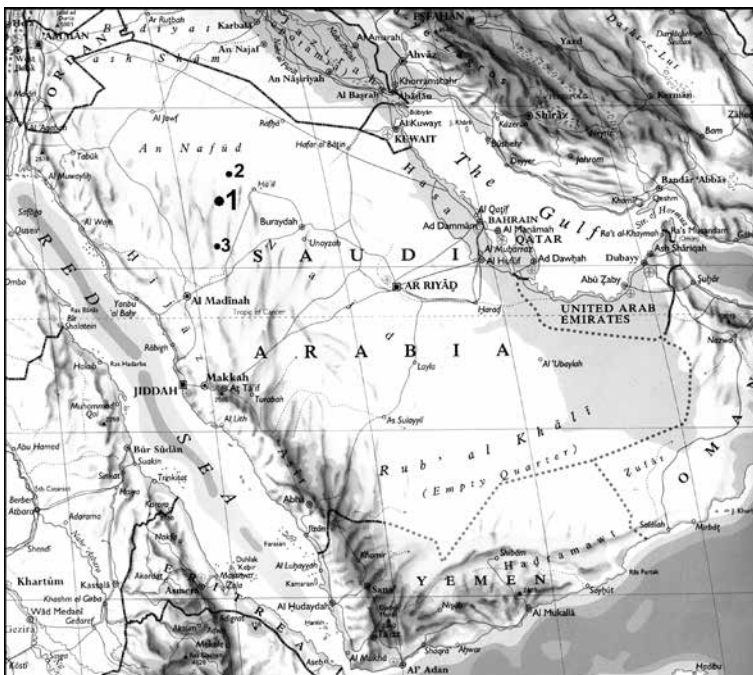


Figure 1. The location of the Jabal al-Mismā rock art complex in Saudi Arabia (1). Jubbah (2) and Shuwaymis (3) are also shown.

aligned; others appear randomly arranged. There is also a precisely circular structure with a prominent central interment cairn near the end of one of the large rectangles. The burials have generally been disturbed by treasure seekers in the distant past, but occasionally such disturbance still continued to most recent times.

This new rock art complex is rendered particularly interesting by two factors. First, it comprises a major component of pictograms, which are extremely rare in Arabian rock art, a vast corpus that consists almost entirely of petroglyphs. Second, one of its two major sites includes two caves containing rock art, which is an even more extraordinary feature in the Kingdom of Saudi Arabia.

The al-Mismā rock art complex was discovered in early 2017 by Saad al-Rawsan in the course of a hunting trip into the desert and examined by us in April 2017. The following preliminary report summarises our findings.

THE SITES

Umm Burqa East Site

This site occurs at an elevation of about 920 m a.s.l. and follows the base of Jabal Umm Burqa's south-eastern perimeter for a distance of almost 300 m, facing south (Fig. 2). Although the mountain is essentially of sandstone, there are many stratified facies and occasional strata of other rocks, especially hard siliceous ironstone. Near the base of the mountain appears a horizontal seam of haematite, several centimetres thick and re-surfacing in Jabal Fardat Shamous a few kilometres away. This stratigraphic consistency implies that the region's stra-

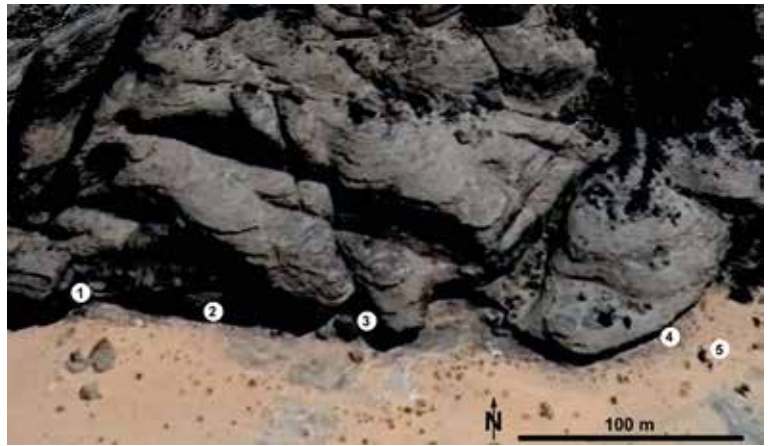


Figure 2. Aerial view of the Umm Burqa East Site from the south, indicating the locations of (1) Saad al-Rawsan Cave, (2) the principal pictogram panel, (3) Hijab Cave, (4) a large rockshelter and (5) the eastern-most location of petroglyphs surveyed. Rock art occurs throughout between (1) and (5).

ta have remained perfectly horizontal. At both mountains the haematite is underlain by sandstone of low resistance to weathering that has given rise to moderate undercutting and the formation of rockshelters. Tectonic movements at the mountain's base have even led to the development of occasional caves in the sandstone, two of which occur within the rock art site.

The site comprises many hundreds of red pictograms, painted mostly on protected vertical faces, and several hundred petroglyphs occurring on the sloping scarp below them as well as on loose blocks along and near the base of the mountain. The central part of the site features one single panel densely covered by vivid red paintings that is 18 m long and is located about 70 m from the left



Figure 3. Partial view of the central panel of pictograms at the Umm Burqa East Site, bearing traditions of widely differing ages. Note faded petroglyphs on the scarp below the painted panel.

(western) end of the site. Its most recent artwork, randomly superimposed over previous red paintings, is significantly better preserved than other pictograms of the site (Fig. 3). The latter, older paintings are found in the form of numerous scattered smaller groups along the cliffs and in the two caves, and they are in many cases of severely weathered appearance. Their variable state of preservation suggests that the tradition of rock art production extends well into the past, and they are preceded in time by most of the petroglyphs. These include bovid images safely attributable to the Neolithic because by the time the Chalcolithic period commenced in the area, aridity prevented such species from surviving (McClure 1976; Garrard et al. 1981; Schultz and Whitney 1986; Bednarik and Khan 2002, 2005, 2009; Petraglia et al. 2011; Petraglia et al 2012). Some of the petroglyphs have been covered by paintings, and those not effectively sheltered from rain are in many cases so faint they are barely perceptible.

The occurrence of pictograms is exceedingly rare in Saudi Arabia, where only a very few such sites have been known until now (Bednarik and Khan in prep.). The wealth of them at this site complex is no doubt attributable to the haematite seam at the locality. Several crayons or pigment fragments with use facets have been observed on the floor and rock ledges. This material provided an immediately available source of colouring material and people of various cultural traditions were probably inspired by previous designs to add their own creations. The sequence of many rock art traditions is enhanced by the presence of Thamudic rock inscriptions, both in pounded and painted forms (Fig. 4). The presence of the latter provides a pointer to the age of some of the faded rock paintings, implying that they are likely to be in the order of 2000 years old (Bednarik and Khan 2005). In addition to a variety of human-like and 'camel' figures several *wusūm* (plural of *wasm*) or tribal identity symbols are painted in red ochre. Some of these symbols are still in use by some tribes, thus suggesting the continuity of a tradition for several millennia (Khan 2000, 2007, 2017; Khan et al. 1988). Although enough space was available for the people to draw images and *wusūm*, they superimposed these on already existing pictograms as if showing their relationship to their ancestors' tradition.

The site features two forms of lithic material extraction. In its central part occurs evidence of systematic quarrying in the form of series of conchoidal fracture scars along the edge of a layer of very fine-grained quartzite. Numerous impact flakes have been removed here, evidently intended for the production of stone implements (Fig. 5). Secondly, in the large rockshelter towards the eastern end of the site (see location 4 in Fig. 1) occurs a thin layer of coarse silicified conglomerate just under the horizontal roof of the shelter. Many of



Figure 4. Faded pictograms with Thamudic script, apparently reading 'kt'.



Figure 5. Impact fracture scars along edge of quartzite layer, indicative of quarrying stone tool blanks, at Umm Burqa East Site.

its large pebble to small cobble fraction-sized, rounded quartz inclusions have been fractured to secure lithic raw material (Fig. 6). The flat ceiling of the shelter is stained by black soot, very probably the residue of many campfires. Locally the carbon coating is overlain by a more recent thin accretion of carbonate. Both the soot and the calcite would be susceptible to age estimation methods; the

latter to U-series analysis and both of them to radiocarbon assay. However, no samples were collected in order to leave the site in pristine condition. Similarly, although stone tools and pigment crayons were found, none of the archaeological materials were removed from their find sites.

Of the few stone tools observed at the site, those located in the western cave are of particular interest. This cave, named Saad al-Rawsan Cave by us to recognise its discoverer, contains several panels of both petroglyphs and pictograms on walls and ceiling. They include the only black drawings of the entire site, poorly preserved and no doubt made with dry charcoal. On the surface of the cave's sediment floor occur patches of large quantities of charcoal. Despite the relative inaccessibility, this cave was used as an occupation site. Being located several metres above the flat ground it is accessed by climbing the near-vertical wall to the east of the entrance and then traversing a narrow ledge leading into the cave. The 12 m wide entrance opens into a spacious passage, up to 16 m wide and in most parts 2 to 3 m high. The cave is 51 m deep until the passage becomes too narrow for human access. It was formed by tectonic fissures and cavitation processes. Most of it is reached by adequate daylight to allow moving about but the innermost part lies in darkness.

The zoomorphic petroglyphs in Saad al-Rawsan Cave include bovid depictions of typical Neolithic style (Fig. 7). The same antiquity (cf. Bednarik and Khan 2005) is also implied by the few stone artefacts observed on the floor,

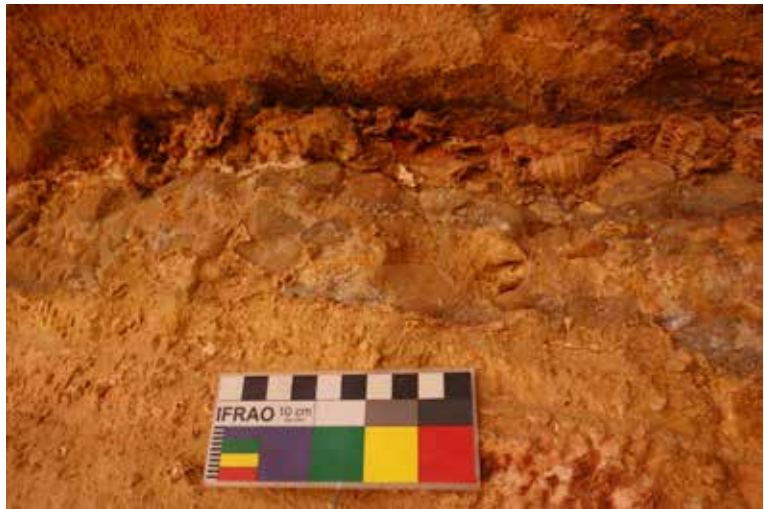


Figure 6. Fractured quartz pebbles in conglomerate bed, indicative of quarrying in the large rockshelter near the eastern end of Umm Burqa East Site.

which include a large granite mortar, broken in half. It is exotic to the region and must have been transported from a considerable distance. Especially well-preserved specimens of presumed Neolithic petroglyphs also occur at the eastern end of Umm Burqa East Site. Good quality silica minerals are generally scarce in the area and the preferred raw materials for lithics appears to have been the heavily silicified ironstone of purple to black colour that is found in profusion, having eroded down the mountain slopes from higher strata.

In the central part of the site (Fig. 1), concealed by a huge block leaning against the cliff, is the entrance to a second cave which we named Hijab Cave, after a



Figure 7. Saad al-Rawsan Cave, Umm Burqa East Site, panel of petroglyphs and pictograms on the western wall, including two large bovid images in typical Neolithic style.



Figure 8. The sandstone tower off the western flank of Jabal Umm Burqa that forms the West Site, seen from the south. Note the dark patination on the blocks in the foreground.

Bedouin who devoted his life to protecting the antiquities of Jubbah. About 15 m deep and mostly about 2 m high, it comprises a large outer chamber and a narrow, fairly dark inner passage. Red rock paintings occur in groups in several locations but petroglyphs are limited to angular blocks located in the entrance area. This includes four cupules on horizontal panels near the dripline, three of them in a group. Their orientation and context suggest that they may have served a utilitarian purpose. The entrance is maximal 11 m wide but the massive block in front of it limits the entry of daylight. Sediment cover of the floor is restricted to the first few metres from the entrance, after which the floor is formed by bedrock. There is a stone arrangement on the floor that was made by adding rocks to a naturally occurring block; its purpose is not clear.



Figure 9. Petroglyphs of varying antiquities, the most recent probably being up to one century old, at Umm Burqa West Site.

Umm Burqa West Site

This site is significantly smaller than the previous; its rock art is limited to the walls of a rock tower located on the western flank of Jabal Umm Burqa (Fig. 8). The rock art there consists mostly of petroglyphs although there are also traces of heavily eroded paintings present, suggesting that their number may have been greater in the past. All observed petroglyphs are significantly more recent than the Neolithic, and the most recent specimens are likely to be under 100 years old (Fig. 9). Nevertheless, there is a wide range of patination present on these petroglyphs, including several highly schematised zoomorphs of 100% patination relative to background. The several pecked inscriptions of this site

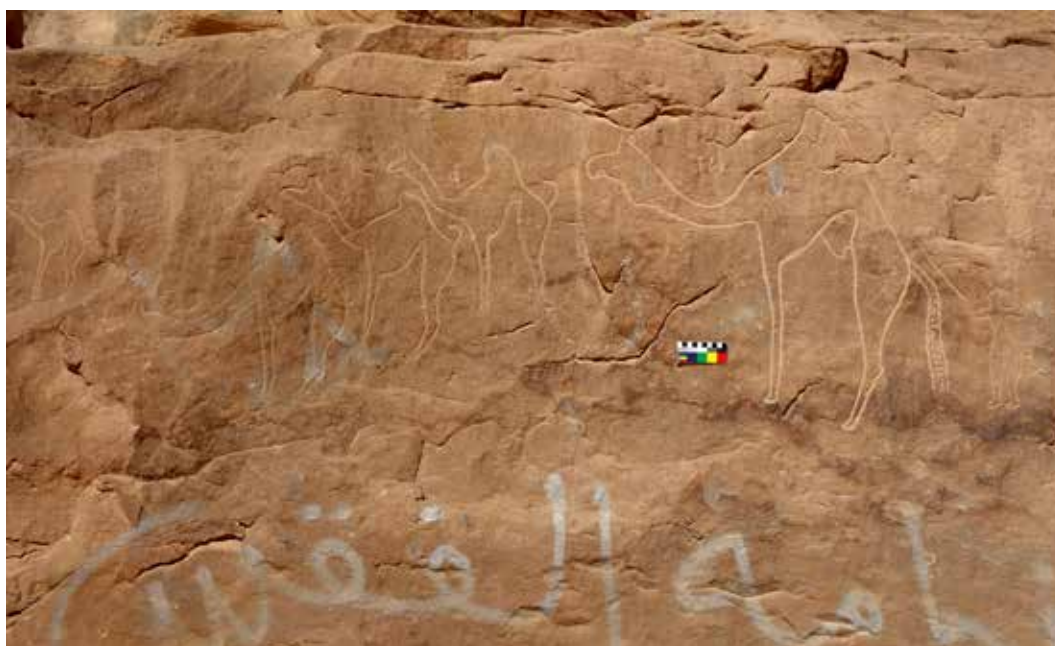


Figure 10. Series of semi-naturalistic camelid figures and anthropomorph, with superimposed modern Arabic graffiti; Umm Burqa West Site.

range from Thamudic D and Safaitic through to well-executed Arabian script. The former two, presumably dating from the first centuries CE, show roughly 50% patination, some of the Islamic is c. 25% patinated. It is therefore reasonable to assume that full patination at this site might imply a minimum age of c. 3500 years.

The remoteness of the sites described in this paper has facilitated their protection from anthropogenic damage in most cases, but at the Umm Burqa West Site occur two large graffiti executed with spray-cans on the site's western panel. It is presumed that these are the work of local Bedouin. The five camelid zoomorphs and one anthropomorph seem all contemporary and can be attributed to the first millennium CE (Fig. 10).

Fardat Shamous South Site

The second mountain included in the new rock art complex described here is Jabal Fardat Shamous, which also features two sites. The first is located on the foot of the south-eastern slopes of the *jabal*, where a group of large angular blocks deriving from the mountain slopes have accumulated by gravity below an outlier rampart (Figs 11 and 12).

The site is distributed over these blocks and on the lower wall of the rampart itself. There are a few dozen panels totalling in the order of up to one thousand petroglyphs. Rock paintings or drawings are entirely lacking at present, although the presence of the same haematite seam observed at Umm Burqa East Site suggests that pictograms might have existed in the distant past and a detailed search for pigment traces might succeed. There is also a notable absence of rock

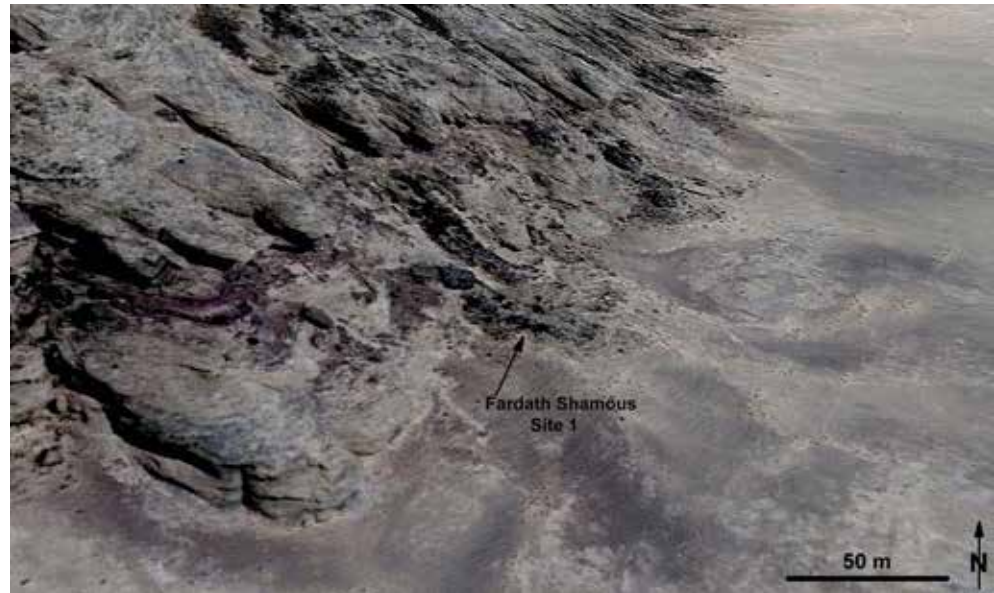


Figure 11. Aerial view of the Fardat Shamous South Site from the south, indicating its location among the low sandstone ramparts of the mountain.



Figure 12. Fardat Shamous South Site, showing its context. The petroglyphs extend over most of the blocks seen below the isolated rampart, and all occur within 50 m of the central shelter. The one dated motif occurs to the immediate right of the three persons visible.

inscriptions relative to the two Jabal Umm Burqa sites. The petroglyphs are clearly attributable to various traditions, commencing with Neolithic motifs and probably ending with the first millennium CE (Fig. 13). There are also about twenty cupules, all occurring on a sloping flat panel together with Neolithic-style bovid petroglyphs (Fig. 14).

The main panel of the site, on the vertical cliff of the bedrock rampart, extends to about 7 m above the ground and comprises mostly apparent Neolithic imagery, with a



Figure 13. One of the many decorated sandstone blocks at Fardat Shamous South Site. The uniform patina and schematised style of the zoomorphs and anthropomorphs suggests that they are all of similar antiquity and they are thought to be of the Iron Age. Note natural arch in the background.



Figure 14. Some of the cupules on a sloping panel at Fardat Shamous South Site, occurring with numerous other petroglyphs including a Neolithic-style bovid on the lower left. Note the full patination on the latter motif.

small number of superimposed Metal Ages figures. This vertical and partially sheltered panel bears no significant surface accretion and has been subjected to considerable granular exfoliation (Fig. 15). Its production scale and

‘monumental’ appearance resemble the major Neolithic corpus of Jabal Raat at Shuwaymis, about 90 km to the south (Bednarik and Khan 2002, 2005, 2009, 2013). The upper imagery could have only been created from



Figure 15. Part of the main panel at Fardat Shamous South Site. Neolithic zoomorphs dominate but there are also superimposed motifs of the Metal Ages. The Neolithic figures especially have experienced extensive granular exfoliation.

scaffolding or from trees located next to the cliffs in the past, before the onset of the final period of desertification.

Below this main panel, on the side wall of the large block whose upper surface bears the cupules (Fig. 14), occurs a particularly deeply pounded bovid image of typical Neolithic style. Located only slightly above the surrounding ground, it displays inward-curved horns (Fig. 16). This contrasts not only with the Neolithic bovid depictions of the petroglyph site complexes of Umm Sinman at Jubbah, to the north, and those at Shuwaymis, to the south (Bednarik and Khan 2005); most of the bovid images at al-Mismā rock art complex also have the ends of their horns turned outwards. The partial body infill of this motif is typical



Figure 16. Partially preserved bovid petroglyph with geometric internal body marking and large, inwards curved horns. Several pebble-grade grains occur in the grooves and have been battered in the production of the figure, including one located in the middle of the short edge of the IFRAO Standard Scale.

of Neolithic cattle images. It may be intended to depict body markings or applied paint, e.g. for decoration or to signify ownership, because it occurs in unique



Figure 17. Close-up view of the lower horn of the bovid petroglyph in Figure 16. The quartz pebble in the middle of the scale has been subjected to microerosion analysis in the grain's central part.

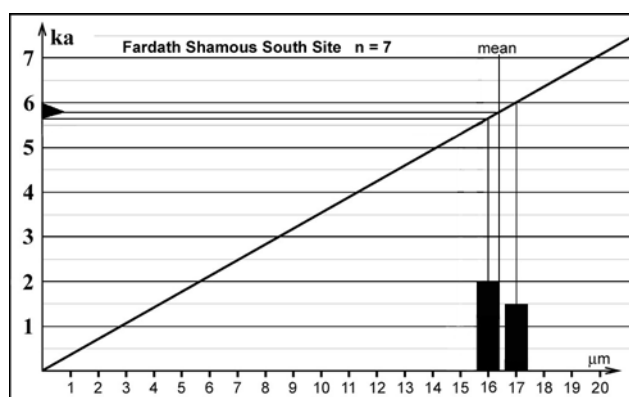


Figure 18. Microerosion age estimate of the bovid petroglyph at Fardath Shamous South Site shown in Figure 16.

combinations or patterns in the various depictions. The motif considered here is incompletely preserved, with the animal's rear parts missing due to erosion. The panel it occurs on is oriented roughly north-south and has experienced extensive local deterioration since the motif was produced. The remaining figure is 129 cm long but would have measured well over 1.5 m originally. Fortunately, this layer of sandstone contains numerous rounded quartz grains of coarse sand and small pebble fractions. Where these occur in the pounded grooves they have been subjected to battering by stone hammers, providing the opportunity to locate broken edges suitable for microerosion analysis.

Two such fractured pebbles are located in the right-hand part of the lower horn. Here, the groove forming the horn is 10.6 mm deep and 44.3 mm wide. The upper rounded quartz pebble is 6.9 mm long but was found to be unsuitable for microerosion analysis (Bednarik 1992, 1993). The lower grain is roughly heart-shaped, 8.3 mm long and maximal 5.5 mm wide. It consists of

translucent to whitish quartz and bears several impact fractures (Fig. 17). The vertical main ridge includes a slightly curved section where the two fracture faces form an angle of approximately 90°. At this location, over a distance of c. 80 µm, seven micro-wane widths were measured as follows: 16, 16, 17, 17, 17, 16, 16 = 115/7 = 16.43 µm. In applying the calibration value secured from the Kufic (early Arabic) inscription of 147 AH at Umm Sinman (Bednarik and Khan 2005: Figs 19 and 20) to these values, we arrive at an age estimate of E5810 + 200/ - 160 years BP (Fig. 18). In the context of this microerosion analysis, 'BP' refers to 2017 CE being 'the present'. This result also needs to be qualified by the tentative nature of the calibration, but it indicates approximate contemporaneity with two of the three dated motifs

at Jabal Raat (initially called Shuwaymis 1), the 'ibex' and one of the anthropomorphs; and with the dated anthropomorph at the Jabal Umm Sinman main complex (see Bednarik and Khan 2005: Table 1). Certainly all four motifs from the three sites overlap in their tolerance margins, they are all of the mid-sixth millennium BP, and they are clearly of the Late Neolithic period of the region.

Fardat Shamous West Site

This site comprises a single panel of petroglyphs located several hundred metres west of the previous site, some 50–60 m above the foot of the rocky slope. It is dominated by three camelid images but was not examined in detail on this occasion.

Discussion

We have reported the discovery and initial survey of a new complex of rock art sites in northern Saudi Arabia, located roughly between the very major complexes at Jubbah and Shuwaymis we have previously described, and which have since been inscribed on the World Heritage List. The al-Mismā rock art complex comprises four sites located at Jabal Umm Burqa and Jabal Fardat Shamous, two major sandstone stacks on the southern margins of the an-Nafūd Desert that are essentially outliers of the central Arabian mountain plateau. Two of these sites are relatively small, but the motifs of the other two number in the thousands. The Umm Burqa West Site is unusual in that it features not only a major corpus of red pictograms, it includes also two sites of cave art — both features being exceedingly rare in the Kingdom of Saudi Arabia. The rich complement of rock paintings is no doubt attributable to the presence, at the site, of an extensive haematite seam.

The second major site, Fardat Shamous South Site, comprises only petroglyphs. The present study has

provided analytical data from one of its many early petroglyphs placing it securely into the Neolithic period, with an age corresponding to the early sixth millennium before the present. The al-Mismā Neolithic repertoire complies fully with that of two major rock art complexes to the north (Jabal Umm Sinman at Jubbah) and south (Jabal al-Manjor and Jabal Raat at Shuwaymis). Both these other corpora, regarded as the most spectacular Neolithic rock art sites in the world (Bednarik and Khan 2013), yielded very similar age estimates from corresponding motifs.

However, at the al-Mismā rock art complex, rock art production continued apparently right up to the present, in the form of petroglyphs that seem to be of the early 20th century CE and even more recent inscriptions, as well as large numbers of rock paintings that are regarded as relatively recent. Therefore, this new complex includes rock art of many periods covering the last 7000 years and there are indications that present-day Bedouin of the region are still engaging with the rock art culturally. This observation coincides with the recent discovery at another, very major rock art complex of over 550 sites in the far south of the Kingdom, near Najran, of petroglyphs that have been demonstrated to have been produced in the last thirty years. This cultural continuity represents a new aspect of Saudi rock art that was never expected in this part of the world. Apparently rock art production and site use at some cultural centres of the Kingdom has continued right into most recent times among Bedouin. Such site use seems to include not only the occasional addition or modification of motifs, but also specific reactions to some features that imply the continuation of ancient beliefs alongside Islam. This 'continuity of culture' is a new aspect of Arabian rock art that deserves greater attention in the future.

The al-Mismā rock art complex will not be added to the serial nomination of the Jubbah and Shuwaymis sites, but will be preserved as a pristine research site suitable for forensic work, by discouraging any non-research visitation. It is only intended to declare an exclusion zone and install protective markers around its perimeter. This will hopefully prevent the looting of burial cairns and add to the natural isolation of the rock art sites.

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