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ETHNOGRAPHIC INTERPRETATION OF ROCK ART THROUGH ROCK INSCRIPTIONS

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Abstract. Several research developments of recent years imply the possibility that knowledge about the original meaning, significance and production of rock art may be available from various parts of the world besides Australia. It has been well known since the 19th century that ethnographically accessible interpretation of rock art is often obtainable from Australian Aboriginal Elders. Here I present possibilities, in some cases credibly demonstrated, that such knowledge may have survived among traditional societies in various continents. Of particular relevance are such recent findings from Saudi Arabia. Another new development in the ethnography of rock art is the realisation of the possibility of accessing the motivation and cognitive world of rock art producers through the presence of accompanying rock inscriptions making direct reference to the rock art. Where these can be deciphered, they can become messages illuminating the world the rock artists existed in. Such messages are up to a few millennia old and they are as valuable to science as the accounts of living consultants. They provide a new form of access to the ethnographic interpretation of rock art not defined before.

Introduction

Of the thousands of rock art traditions found around the world, very few have survived in the form of practised or 'living' conventions into present times. Most of those we know about are traditions of the Aboriginal people of Australia. However, occasionally suggestions or tantalising intimations of continuing cultural use of rock art have been presented from countries such as India (Dubey-Pathak and Clottes 2017a), Bolivia (Querejazu Lewis et al. 2015), Brazil (Valle et al. 2018) and from Africa (Odak 1992; Goldhahn et al. in press). Indeed, rock art of 'traditional' format has been produced in the course of the late 20th century, for instance, in the Philippines (Novellino 1999), New Guinea and some sub-Saharan African regions. However, it appears that towards the end of the last century, the incidence of rock art production has declined notably, and with the beginning of the present century there may be very few culturally authentic producers of rock art left. Even in Australia, the most recent recorded creation of a petroglyph by a traditional Elder dates from 1968 (Bednarik 1998). The production of rock paintings not prompted by cultural outsiders has also waned markedly in that country, although the traditional connection to the already existing rock art has remained strong, or even experienced a degree of revitalisation in recent decades.

Research into the ethnography of Australian rock art has conclusively shown that it would often be impossible to deduce the true emic meaning of any rock

art correctly. The 'blind test' Macintosh conducted of his ability, as a distinguished professor of anatomy, to accurately determine the identity of an extensive collection of biomorphs established that he had been wrong in 90% of cases (Macintosh 1952, 1977; see Bednarik 2016a: 2). Since then, Australian researchers have placed their 'interpretations' of rock art motifs in quotation marks — to indicate that they are mere etic labels, not valid interpretations. The rock art connoisseurs of the rest of the world have yet to adopt this convention. Wherever the true meaning of rock art motifs has been made available in Australia, it has become amply evident that to guess it by mere eyeballing and pareidolic (by detection of patterns of perception, i.e. the basis of rock art interpretation; Bednarik 2016b) contemplation is unreliable. This is even though Aboriginal Elders sometimes provide other forms of information about rock art that contribute useful insights about its significance. In this context, it must also be remembered that contemporary engagement with rock art by Traditional Owners might not be geared towards emic 'true meaning' but instead is offered based on the knowledge that people carry at that specific point in time. This may ascribe a meaning that may not be commensurate with the original intention but acts as critical insight into the meaningfulness of the image today.

Mountford (1976) has provided many examples of emic interpretations of rock markings, which is precisely why his book had to be destroyed soon after its publication. Sacred information must not be made

available for public consumption, which might suggest that the information in books not pulped is likely to be of 'low-level' veracity and thus 'harmless' (although it must be emphasised that exceptions do exist). Mountford's sometimes very elaborate explanations show decisively that no archaeological theorising about rock art is likely to lead to testable interpretations. For instance, he is the only Australian researcher who witnessed the production of cupules, and the meaning he recorded of them is far beyond the ability of any cultural outsider to 'deduce from the evidence'.

Others have reported similar experiences. In early 1968 I witnessed the production of the most recently created petroglyph in Australia, according to the published record (Bednarik 1998: 26). An Indjibandi Elder in his late seventies spontaneously produced a complex linear and seemingly aniconic design, taking only about twelve minutes to do so (Fig. 1). The meaning of the design was explained to me, but with the proviso that it was not to be divulged to others. Nevertheless, it can be stated quite categorically that the pattern has a particular significance that cannot be determined by iconic conjecture; it is merely unfathomable without the help of a culturally very well versed advisor.

Among the many senior elders, 'men of high degree' (Elkin 1945), I have worked with in the Pilbara region of Western Australia (seven in just one small area, at Karratha and Roebourne, and several others in the broader region), the account of Monty Hale is particularly noteworthy. He is shown in Figure 2, seated next to a design of several circular, connected petroglyphs which he knew the original meaning of (also sacred/secret). This is not extraordinary, but to be expected. However, what is astonishing is that one of the circles in the image has been direct-dated at his request and is in the order of 20000 years old (Bednarik 2002). This is perfectly possible as there are various other accounts known in Australia that suggest the preservation of cultural knowledge since the Pleistocene (particularly the accurate description of geological phenomena that it would be impossible to deduce, such as the sequence in which a series of volcanic eruptions occurred or the existence of a vast freshwater lake in the Gulf of Carpentaria; e.g. Smith 1880).

With the advent of Indigenous land rights during the 1990s, language groups from the Kimberley (Western Australia), which had been removed from their homelands, found themselves obliged to demonstrate their continuing cultural attachment to the land. In the course of these developments, it emerged that what researchers and the wider community had called 'Bradshaw figures' had always been called 'Gwion Gwions' and other names by the Aborigines and that these figures were of paramount significance to them (McNiven 2011). It transpired that their cosmology and ontology are based on the sacred Wunan law, a concept that had remained hidden from the prying ethnographers for a century; and that this moral and legal code was embodied in the Gwion paintings (Bednarik



Figure 1. The most recently executed traditional petroglyph known in Australia, made in 1968 at the rock art site Tom Price 2, Pilbara, north-western Australia; photographed immediately after it was produced. Its meaning is only known to the initiated (photographs by the author unless noted otherwise).

2016a: 3–4). Wunan law was established millennia ago by three men, Wodoi, Jungun and especially the artist-visionary Wibalma at Dududu-ngarri, an extensive stone arrangement site. Previously, the seventeen clan or language groups, which were named after birds, had been nomadic, and Wunan law established their tribal territories.

In their magnificent account of the deep meanings of Kimberley rock art, Doring with Nyawarra (2014) explain that the Ngarinyin *munnumburra* (elders) regard all Gwion rock art as *mamaa*, i.e. as secret and sacred. The term Gwion translates as 'artist and inventor'; for instance, the Gwion Yandama is credited with the



Figure 2. Njama senior Traditional Custodian Monty Hale of the Abydos rock art complex in the Pilbara, Western Australia.

invention of the *nyarndu* (the spearthrower). Although the interpretation of Gwion rock art remains *mamaa*, Doring and Nyawarra have provided a few glimpses suggestive of its complexity and sophistication. The first rock art image they discuss (Doring and Nyawarra 2014: Fig. 1) is a seemingly mysterious arrangement of elements that no amount of pareidolic imagination can explain, which begs the question how self-appointed 'interpreters' of rock art distinguish between motifs they believe they can read and those they cannot. When the profound emic explanation is considered, it becomes evident that interpretation attempts of rock art — any rock art — by cultural aliens are a pastime that can only be of scientific significance in assessing the cognition and perception of the 'interpreters'.

Above all, Doring and Nyawarra's account shows that the information blithely reported by anthropologists can be the result of evasive responses by consultants, or can amount to a simplistic version considered suitable for ignorant foreigners. If it had not been for the establishment of legal requirements for Indigenous land rights in Australia, the nature of the Gwion traditions may have remained hidden. This is a poignant example of how inadequate rock art ethnography can be, and how it can contribute to false understandings of cultures by the academic hegemony. This factor needs to be understood when considering the veracity of ethnography relating to rock art, although there also exists a corpus of credibly researched work on this subject in Australia. The experiences with the ethnography of Australian rock art unambiguously show that pareidolic rock art interpretation, which still dominates rock art studies worldwide, provides merely a measure of ignorance. This understanding shows that most of what has been claimed about the meaning and interpretation of rock art worldwide requires rejection, as it inevitably misrepresents the rock arts concerned.

Ethnographers often fail to appreciate that they, not only the indigenes, are hostage to cultural, cognitive and intellectual values and patterns, and their endeavours of being 'objective' are doomed to failure. Their self-perceived impartiality is a hindrance; it tends to trap researcher in the constructs they created. The explanations given by indigenous advisors to ethnographers are inevitably commensurate with their perceived competence or 'status'. A rock art motif may have several meanings, beginning from an elementary level. This is rather like an explanation a contemporary urban Western parent would give to a small child. Once it had grown up, a more advanced explanation might be considered appropriate. In many indigenous, traditional or tribal societies around the world, knowledge can be of restricted access, secret or sacred, with different levels of severity. It is inconceivable that information at the level of sacred knowledge would be passed on to uninitiated alien ethnographers, simply to satisfy their curiosity. In effect published ethnographic evidence of such metaphysical knowledge of any traditional people tends to be of the type given to

people of poor understanding of the society in question. Unaware of these factors, ethnographers might base their professional reputation and standing on their findings. They would be unwilling to admit that their published narratives might be equivalent to papers in medical journals stating that the stork delivers babies.

Rock art ethnography of the world

In the rest of the world, rigorous approaches to rock art interpretation are mostly lacking, but there are early signs that credible ethnographies may soon be developed in some world regions. For instance, encouraging indications are apparent in Amazonian Brazil, where Indigenous tribes have preserved traditional knowledge about rock art on their territories. At a conference in Cusco, Peru, Valle and Saw Munduruku (2017) addressed the rock art of the Munduruku people from the middle Tapajos river in Brazil. Similarly, in neighbouring Peru, interest in the ethnographic dimensions of rock art has been promoted through the work of Gori-Tumi Echevarría López. In parts of Bolivia, Querejazu Lewis (1994) has long presented circumstantial evidence of contemporary use of traditional rock art. Such practices were recently confirmed for the site Mama Rumi ('Mother Rock') of the Kalatran-cani petroglyph complex near Cochabamba. Several of the cupules at the peak of that rock were found to have been renewed in recent years, certainly <50 years ago and very probably in the last couple of decades (Querejazu Lewis et al. 2015).

The evidence for very recent rock art production or use in various South American localities suggests that there may be more such evidence to uncover in that continent. The same can be assumed to apply in parts of Africa. The work of Osaga Odak provides examples in Kenya and Tanzania, where he examined the relationship between present populations and rock art sites (e.g. Odak 1980, 1992). He found that in some cases, the rock art was produced by residents or their immediate ancestors, and has retained its original sacred or secular function. In other cases, it has assumed new functions for people unaware of its original role, such as the Kuria people's re-use of ancient cupules for their boa game.

Another African example is provided by the World Heritage-listed Chongoni Rock Art Area in Malawi, a cluster of forested hills featuring 127 rock painting sites. This corpus was still added to during the 20th century and retained its cultural relevance to the Chewa people, whose girls' initiation ceremony, *chinamwali*, continues to be practised at some of the sites, mostly in secret. There can be no doubt that future research will bring to light many more examples of continued use of African rock art sites. Most recently, Goldhahn et al. (in press) reported that in northern Kenya, rock paintings continue to be produced by young warriors of the Sumburu during their lives away from the communities, while camping in the decorated rockshelters.

Some of the best prospects for finding continuing

rock art traditions are to be found in Asia. For example, some of the Pálaqwan on the Philippines island of Palawan have remained subsistence hunter and forager cave-dwellers up to the present time. They also continue to produce cave paintings or drawings (Novellino 1999), and there are other indigenous communities in the Philippines that still produce rock art (Peralta 1983; Tenazas 1983; Sangwan 1987). The Pálaqwan have been studied particularly well by Dario Novellino, who provided numerous emic interpretations of their charcoal drawings. These are found in limestone caves and rockshelters in the southern third of Palawan. Again, explanations of rock art compositions are inevitably elaborate and can only be adequately understood in the context of an intricate worldview.

A promising subject of ethnographic investigation is the rich rock art heritage of India, where tribal people of several regions are still involved with rock art. Concrete details are, however, largely lacking, although it is noted that ceremonies continue to be held at rock painting sites (Dubey-Pathak and Clottes 2017a, 2017b). However, reports of rock art still being produced are very scarce, a rare exception being the red dots created at Lekhamada I in Chhattisgarh as part of a ceremony (Dubey-Pathak and Clottes 2017a: 199). The ethnography of the cupule site Pola Bhata, now on the shores of the Gandhi Sagar reservoir in Madhya Pradesh, is more concrete (Bednarik 2008). It includes ancient lithophones whose operation was demonstrated to me, and whose purpose was explained (Fig. 3). They served to summon the inhabitants of nearby villages to assemble at a dedicated location. Recently I have also observed the common recruitment of Tibetan rock art sites as Buddhist sacred sites.

Preliminary ethnography of Saudi Arabian rock art

However, the most unexpected evidence of a continuing ethnographic connection to ancient rock art traditions has been located in Saudi Arabia. In this country of religious conservatism, iconic imagery is subdued, and the continued worship of pre-Islamic deities seems inconceivable. Nevertheless, both elements have survived 1400 years of Islam's influence on a small scale among remote desert Bedouin communities. This is most especially the case in the Himā Cultural Precinct, just submitted for inscription on UNESCO's World Heritage List (SCTH 2018).

Before 2017 it had become apparent that numerous Himā petroglyphs had been retouched long after their initial creation, and that many others had been produced during the Islamic period, even in the most recent centuries (Bednarik and Khan 2005). However, in 2017 it was discovered that a rock art panel at one

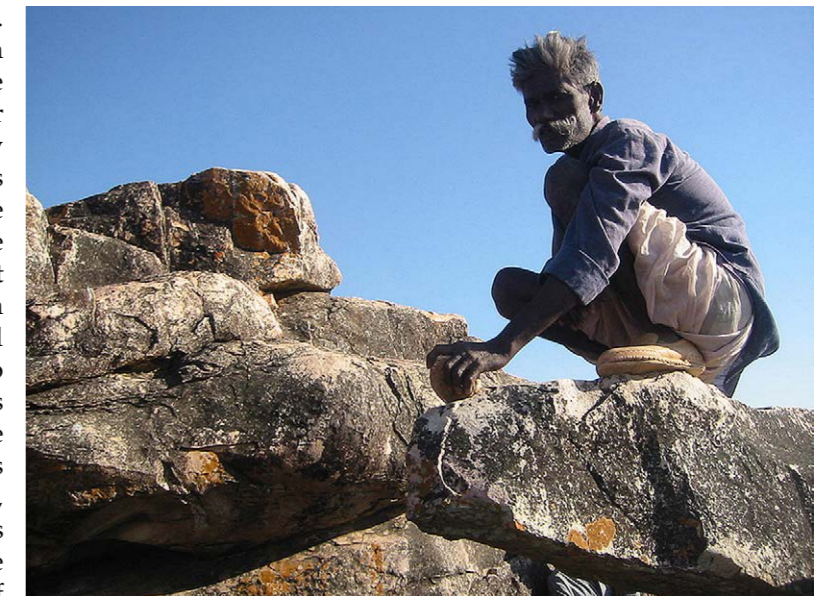


Figure 3. Village elder demonstrating the operation of a lithophone at the cupule site Pola Bhata, central India.

of the Wadi Bayda sites of the Himā Cultural Precinct had been extensively modified later than 1987 (Bednarik and Khan 2018). During those last thirty years, one new camelid motif had been added, c. 1.4 m long (Fig. 4). What is particularly intriguing is that in its creation, the maker had utilised a pre-existing line marking dating from the Bronze or Iron Age, which inspired him to use as the lower outline of the camelid's neck down to the upper part of the foreleg. This was, however, not the only modification of the panel since 1987. There are also changes to the two large Bronze Age anthropomorphs: a 'penis' has been added to the larger figure, as well as numerous peck-marks to both of his legs; the feet of both figures have been modified; and markings were added to the genital area of the smaller of the two figures, which is assumed to depict a female. A series of camelids and 'armed' anthropomorphs occurring below the new camel figure appear to be of recent centuries, and most of the petroglyphs on this panel are assumed to be more recent than the original three figures, the two large anthropomorphs and the strangely semi-naturalistic zoomorph that seems associated with them. These figures are colourimetrically and stylistically of the Bronze Age.

The discovery of this very recently added rock art prompted endeavours to locate other relatively recent work in the Himā Cultural Precinct. Such a concerted effort confirmed that a significant component of this massive body of petroglyphs is likely to date from the Islamic period, i.e. it is less than 1400 years old. Not only are there numerous individual figures that have often been superimposed over earlier material; there are also cases in which an ancient petroglyph has been painstakingly renewed by the removal of patina. An example of this practice is found on a large panel at wādī al-Sammā', where several elegant 'ostrich' figures



Figure 4. Wadi Bayda, site BYD01, as photographed by Majeed Khan in 1987 (upper image); the same panel in 2017 (lower image). *Himā Cultural Precinct, southern Saudi Arabia.*



Figure 5. Two of several 'ostrich' motifs, one of which has been almost wholly retouched, *wādī al-Sammā, Himā Cultural Precinct.*

occur. They are thought to date from the late Neolithic, based on their style and the colourimetry of their patina states. One of them has been retouched almost completely; only the 'tail feathers' and some minor detail surfaces have escaped the much more recent treatment (Fig. 5).

The discovery, also in 2017, of the Mismā rock art complex west of Hail in the north of the Kingdom of Saudi Arabia provided ample more evidence of relatively recent rock art (Bednarik and Khan 2017, 2018). The new site complex encompasses two rock mountains that are 4 km apart. It includes confirmed Neolithic petroglyphs, determined not only by colourimetry and style but in one case also by direct dating of a partially preserved large bovid image. Al-Mismā has been in use for more than 6000 years, and indeed right up into the last century. At one of its two smaller sites occur petroglyphs depicting motor vehicles that cannot be more than 100 years old (Bednarik and Khan 2017: Fig. 9).

The largest site of the Mismā rock art complex, Umm Burqa East Site, measures several hundred metres and includes two caves containing cave art. It comprises thousands of petroglyphs and pictograms. Rock paintings are exceedingly rare in Saudi Arabia, and this site includes the most extensive collection of them known in the Kingdom. The earliest surviving paintings are at least 1500 years old, as evidenced by the presence of painted Thamudic texts. However,

a densely painted, 18 m long panel of hundreds of motifs is so fresh that it appears to be of the 20th century (Bednarik and Khan 2018: Fig. 3). As shown by the numerous older paintings in the site, pictograms that are poorly protected from the elements deteriorate rapidly, yet the largely aniconic patterns of this large panel appear as fresh as if they had just been executed.

Another feature of Saudi rock art that has continued to be produced during Islamic times are the *wusūm*, tribal symbols or ownership brands that have changed little in millen-

nia and are still extensively used on domestic animals, especially camels. They occur widely in rock art, and the tradition of their use is certainly more than 2000 years old (Khan 2000).

The currently 551 recorded sites of the *Himā Cultural Precinct* and the surrounding desert offer yet another enduring feature of rock art implying cultural continuity with the present. The depiction of the pre-Islamic goddess Alia has remained essentially unchanged for the duration of the tradition. This cult based on the female deity of love and fertility began evidently in the late Iron Age and extended well into recent centuries. Portrayals of Alia in rock art are limited to the greater *Himā* area, and they are of such a distinctive combination of characteristics that they are easily identifiable through the eras. They have been suggested to be related to the early Arab goddess Allāt, al-Uzza or Manat (Trimingham 1979: 18; Zarins et al. 1981: 36). In contrast to the goddess al-Uzza, Alia is of a distinctively feminine personality, with a detailed depiction of long and often decorated hair, narrow waist and wide hips, but inevitably lacking a head or face. Judging from the rock art, the cult of Alia has existed in the region for certainly more than 2000 years and may have commenced perhaps about 500 BCE.

Among the numerous petroglyphs of the *Himā Cultural Precinct* and other, nearby rock art concentrations, the images of Alia are easy to recognise, despite considerable variations in the modes of depiction. Figure 6 is intended to show the wide range found in portraying the details of this motif: a simple vertical line always represents the head or face, and often extends well above the hair; there is a rich head of hair, sometimes depicted as if braided with 'beads' at the ends of strands; the arms, when depicted, are half-raised in the attitude that has sometimes been defined as 'adorant'; the torso tends to be triangular in the majority of cases; the waist is narrow, and the hips are typically wide, and the genital area is often marked by a cupule or a hole made in the rock (sometimes by two or even three cupules). Fingers and toes seem to be represented in the majority of examples. Whereas Figure 6a is a fairly typical example, Figure 6b is one of the most schematised and smallest encountered, and the arms were therefore omitted. Figure 6a features three cupules in the genital area.

In addition to these iconographic diagnostics, there are also contextual details that help define the motif of Alia. The goddess, sometimes defined as a princess, is often found in the company of depictions of what seem to be armed men; sometimes there is just one, at other times there are two or more 'warriors'. These may be on foot or, more frequently, they are on horseback. The combination of such motifs is much too frequent to be coincidental; therefore, it seems that there is a narrative expressed in these



Figure 6. Two examples of the depiction of Alia, showing the wide range of style.

apparent juxtapositions. The nature of this narrative has, however, not been established ethnographically.

The Alia figures range in size from around two metres height down to just twenty centimetres. The significant variability is well expressed in Figure 7, showing no less than eight Alia motifs. There are also several 'warriors', some on horseback and some on foot, one of whom appears to be ithyphallic. There are differences in the colourimetric values of the respective patinations, but only within a narrow range, suggesting that these images might be of one single era.

While the majority of the well over 100 Alia images surveyed in the *Himā Cultural Precinct* range in age from the final Iron Age to the historical late Thamudic period (5th century CE), a small number were executed during the Islamic period. In Figure 8, Alia is depicted twice: there is a larger figure typical in every respect, including the 'beads' on the ends of the long 'hair strands'. The second, much smaller figure seems to be accompanied by a rider with a 'lance/spear' raised above his head, of matching patina. Despite the much smaller size of this Alia figure, the cupule presumably



Figure 7. Several Alia figures of greatly varying sizes with some variations in patina development, at one of the *Ta'ar* sites, site No. TUR01-2.



Figure 8. An assemblage of numerous petroglyphs, Thamudic scripts and two recent bullet impacts, covering a period of about two millennia and including two very recent, post-Islamic images of Alia.

indicating the vulva is of about the same size as the one included on the larger figure. There are also several much earlier rock art phases represented, including those with Thamudic inscriptions which are close to 2000 years old.

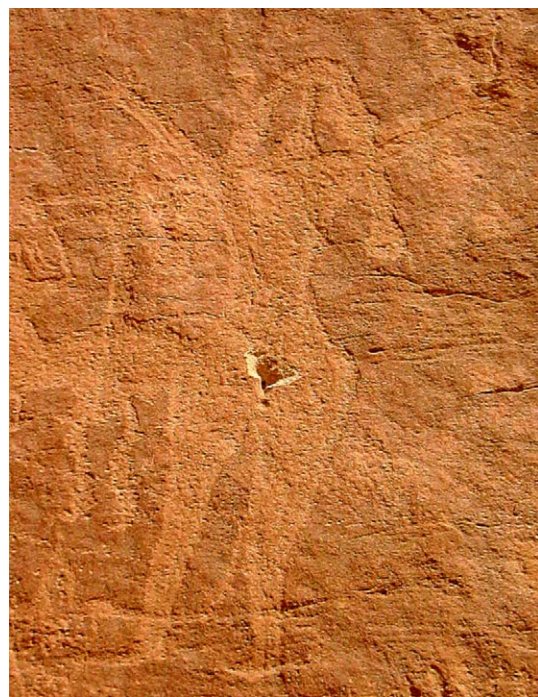


Figure 9. Early Alia motif, probably late Iron Age, with very recently renewed vulvar cupule into which a stone has been placed.

of the sizes of the figures themselves, and they have frequently been renewed in recent times. Therefore, they appear to be very large on small figures, and this uniformity creates the impression that they could have served a utilitarian purpose. The recent retouch implies the re-use of the images. In several instances it was observed that Bedouins had in recent years deposited stones in these cupules, which perhaps explains the latter's relatively uniform sizes: they were perhaps intended as receptacles for these stones. Figure 9 is an example in which a stone has been inserted into a cupule that was renewed only very recently, quite likely in the last 50 years. Another example of this practice appears on the cover of RAR 25(1) of May 2008.

The demonstrated recent modification of the vulvar cupules or recesses on many of the Alia motifs, together with the occasionally observed placement of stones in them, suggests recent ritual use of the fertility figures. It needs to be seen in the context of the post-1987 modifications of a rock art panel at the Bayda complex site BYD01, which prove that petroglyphs were still produced most recently in the Ḥimā Cultural Precinct. Moreover, there is ample evidence of other recent modification or retouch of petroglyphs. At least *some* of the local desert-dwelling Bedouins in the area are still engaging with at least *some* of the rock art.

The principal tribe of the Ḥimā area are the Banū Yām, a large tribe native to Najran Province. They belong to the Qahtanite branch of Arabian tribes, specifically the group known as Banū Hamdan from south-western Arabia. The area north of Naḡrān (today's Najran), at the western margins of the Empty Quarter, is occupied by the Madhḡig. Their neighbours to the north are the Kiddat (or Kinda), to the west the Al-Asd (near Abḡā), and to the south the Murāand and the Khawlān.

Also present are two bullet impacts that postdate 1952 because they were not present in images of the site taken by G. Ryckmans in that year. That provides a coarse basis for colourimetric seriation (Bednarik 2009), which shows that the large Alia figure should be in the order of 150 to 200 years old. Moreover, the vulvar cupule has been either added or renewed even more recently, being no older than the bullet holes. The smaller Alia figure matches the patina colour of the larger as well as its stylistic treatment.

What is evident from numerous examples is that the vulvar cupules in the Alia motifs are generally of roughly the same sizes, independent

There are about 2000 residents in Ḥimā, and about 500 Bedouins have chosen to remain in the Ḥimā Cultural Precinct and the outlying Jabal Kawbab. They reside in semi-permanent camps and breed camels, trucking in water from the ancient wells at Bī'r Ḥimā. They are the people who continue to engage with the rock art of the region, and from whom it is intended to recruit the rangers of the cultural precinct. Their senior leaders (*sheikhs*) do not profess to outsiders any knowledge of recent modifications of, or additions to, rock art, but they are palpably proud of what they regard as their patrimony. Their discretion is understandable; the intense conservatism of Wahhabism would frown upon such practices.

Rock inscriptions as ethnography

Whereas the practice of seeking to establish the meaning or interpretation of rock art by asking a knowledgeable person is well established in ethnography, a second and probably more reliable method of determining what rock art might mean has not been explored up until now. A new method for accessing the motivation and cognitive world of rock art producers is through the analysis of rock inscriptions as a form of 'indirect' ethnography.

I had been aware for some time that there are cases in the rock art of the Middle East where rock art motifs are accompanied by inscriptions referring to them. The first instance of this was noted in 2001 at the spectacular petroglyph site of Yatib, east of Hail, Saudi Arabia (see the cover image of RAR 22[2], May 2005). High up on a vertical cliff occurs a zoomorphic depiction of what appears to be a carnivore, and there seems to be a small second zoomorph attached to its 'muzzle'. The motifs are the most dominant at the site, overlooking thousands of petroglyphs below, and can only be accessed by scaling the cliff. Along the sloping back of the sizeable animal-like figure occurs a Thamudic rock inscription, according to which the composition is a supplication to a pre-Islamic deity to 'save us from

the lion'. Therefore, we know that the large zoomorph depicts a marauding lion of which the herders wanted to be freed. The counter-proposition that the script was added some time later can be tested by colourimetry of the ferromanganese accretion occurring in both the petroglyph and the inscription (Bednarik 2009). Rock inscription and imagery were found to be of similar age; hence the most rational inference is that the composition is authentic and the interpretation derived from it is correct. This provides an example of an indirectly secured ethnographic interpretation of rock art: the author speaks to us through the inscribed message, and we have no sound reason to assume that he or she is trying to trick us into subscribing to a false interpretation. Someone who climbs a cliff to place such a large image and inscription does not do this to deceive us, two millennia on, into a false belief.

This discovery prompted a search for other, similar combinations of inscriptions with rock art imagery. Rock inscriptions are very common at rock art sites in the Middle East, particularly in Saudi Arabia, Jordan and Syria. In northern Syria, 28000 pre-Islamic inscriptions have been claimed to exist, occurring in Safaitic, Himaic, Thamudic, Nabatean, Greek and Latin. In Saudi Arabia, just one single site complex of over 550 sites, the Ḥimā Cultural Precinct near Najran, features tens of thousands of rock inscriptions, besides much more than 100000 petroglyphs. Across the Middle East, rock inscriptions are found in many scripts: Thamudic B, C and D, South Arabian, Safaitic, Aramaic-Nabatean, Hasaitic, Himaic, Dadanitic, Taymanitic, Dumaitic, Greek, Roman and Islamic Arabic (Huber 1899; Winnett 1937; Jamme 1966; Albright 1969; Livingston et al. 1985; Bellany 1991; Al-Shahri 1991; Khan 1993; AlTheeb 1999; Bednarik and Khan 2002, 2005, 2009; Eichmann et al. 2006). All of these are decipherable (Robin 2008, 2010, 2015; Arbach et al. 2015; Robin et al. 2014; Robin and Gorea 2016; Robin and Antonini de Maigret 2017), and they frequently occur in apparent association with petroglyphs (Fig. 10).



Figure 10. Petroglyphs and rock inscriptions at wādī al-Sammā' site No. SMA09.02, Ḥimā Cultural Precinct.



Figure 11. The inscription 'Ywyt' draws a lion' on the left matches the patination of the presumed carnivorous zoomorph to the right of it colourimetrically; it is, therefore, justified to assume that image and script are chronologically linked. The name of the person Ygbr towards the right is not related to the presumed female anthropomorph on the far right (photograph by C. J. Robin).

There are several other possible depictions of lions in Saudi rock art, at sites from the north to the south of the Kingdom. Other instances of certainty are from the Himā Cultural Precinct. In the next example occurs



Figure 13. Series of camelid petroglyphs with three inscriptions: on the right wqr, in the middle (G)rm-yqr, on the left 'Lym.



Figure 14. A group of three figures and an inscription connected by identical colourimetry. The script tells us that the person Mtmlk created the group, but it could alternatively hint at a more detailed explanation of it (photograph by C. J. Robin).



Figure 12. Four zoomorphs with the contemporary inscription 'bs'qm engraved' (photograph by C. J. Robin).

a zoomorphic image with the inscription Ywyt' yqr-lb', which translates into 'Ywyt' draws a lion'. So again, we are made aware of what the image truly depicts, and we even know the name of the person that pounded the design into the rock. To the right appears an anthropomorph that some perceive as a female human (Fig. 11). The Thamudic inscription next to it reads Ygbr, which is the name of a person, but there is no reference to the image. Moreover, the distinct differences in patination, between script and anthropomorph, exclude the possibility that the two had been created at the same time.

The image was made much more recently.

An exquisitely executed group of four gazelle-like zoomorphs is accompanied by an inscription stating 'bs'qm yqr, which translates into 'bs'qm engraved'. The images and the script show colourimetrically identical patination, and here it can reasonably be assumed that the person 'bs'qm experienced pride in his or her creation and therefore signed it (Fig. 12).

Similarly, in the next example, two people, Grm and Ws'q'l, declared that they had contributed to the series of camelid images, while a third, 'Lym, simply provided his or her name (Fig. 13).

More interesting is the next composition considered here, which includes on the left a bovid figure, perhaps a cow. Seemingly attached to its 'tail' is a zoomorph that resembles a carnivore (Fig. 14). There appears to be an anthropomorph in front of the bovid, seemingly in a dynamic posture. The inscription near the bovid's 'legs' reads yqr Mtmlk (or mt-mlk), which seems ambiguous. It could be read simply as 'draws Mtmlk' or as 'Mtmlk draws when he has taken possession'. The latter translation would imply a relatively complex interpretation of the apparent arrangement of the three

graphic elements. Such an interpretation is not insinuated here because it could not be defended, but it can be considered certain that Mtmlk produced the imagery.

It would be wrong, however, to assume that these rock art producers always simply signed images they had produced with their names. The next example features two camelid images among a group of motifs that appear to be roughly contemporary. Thamudic is written from right to left, so there is perhaps a tendency for temporal precedence of components on the right. The camelid on the right could be associated with the inscription S'lm, representing a name (Fig. 15). However, the inscription under the smaller camelid on the left, S'lm-wrb-l-Hld, clarifies the issue beyond a reasonable doubt. It reads 'S'lm has given birth to Khālid', which clarifies several points.

For one thing, the text on the right cannot refer to the large bovid, because bovinds do not give birth to camelids. It also tells us that S'lm cannot be a person, but must be a she-camel. The composition further suggests that the camelid image on the left was produced after the one on the right, i.e. after Khālid arrived; perhaps a proud owner returned to the site and commemorated the happy event? It is in this way that the indeterminate, sterile zoomorphs acquire meanings without these being imposed by pareidolia. The variables so extracted are testable, and the actors of history, the producers of the rock art, can communicate their thoughts and concerns to us: they become individuals, they provide snippets of an ethnography of the rock art.

The next example provides access to a different kind of information. There are two camelid petroglyphs, separated by several kilometres, but they are stylistically so similar that they seem to have been created by the same hand. The accompanying inscriptions, too, are very similar, informing us that the artist's name is 'Abdyaghūth (Fig. 16).

Even more detailed 'indirect ethnography' has been extracted from a series of boulder petroglyphs and inscriptions in neighbouring Jordan (Alzoubi et al. 2016). The authors of this report have provided stunningly detailed information. For instance, one of their examples, rock No. 16, bears a complex composition of incised petroglyphs with a Safaitic inscription reading l qrsms bn s'd'l bn 'byn w hlt 'wr m'wr h'ht (Safaitic is a north Arabian script derived from the alphabetic Musnad al-Janubi script with 29 letters of southern Arabia). The translation of 'For Qrsms son of S'd'l son of 'byn, Ô Allāt evil eye for who obliterates the inscription' explains that the author implores a pre-Islamic female deity, Allāt (cf. Alia), to punish anyone who destroys his artwork. Once again, a rock art producer becomes a 'real person' communicating with us, telling us his name, his father's and grandfather's, and conveys his

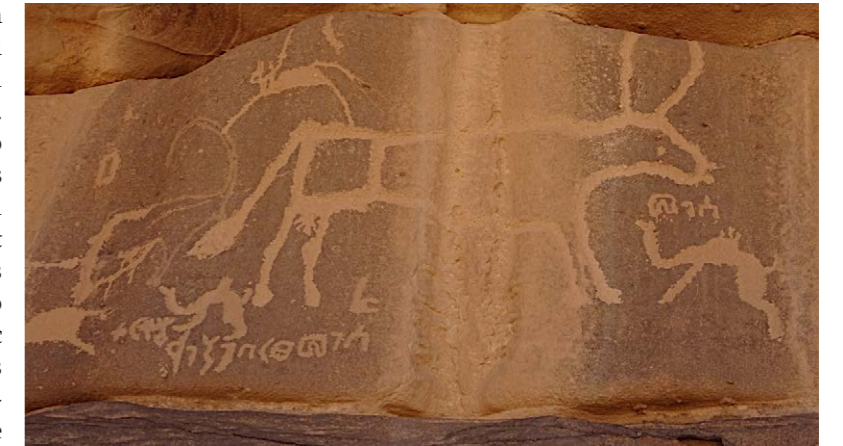


Figure 15. Group of roughly contemporary zoomorphs, including two camelids. Two inscriptions clarify that the one on the right is S'lm and is the mother of Khālid on the left (photograph by C. J. Robin).



Figure 16. Two almost identical camelid images, each with a colourimetrically identical inscription, differing in only two characters. One reads 's's'm-wqr, the other s'tr 'bdy' (photograph by C. J. Robin).

wish that his work is preserved. He also reveals to us that, even in his time, vandalism of rock art was rife (Alzoubi et al. 2016: Fig. 18).

Precisely the same sentiments are expressed in the following, quite detailed Safaitic inscription on rock No. 1. It accompanies an elaborate, semi-naturalistic set of engravings and reads: l'wr bn s'r bn tbrt bn sm' d hsl whrdy nqm[t] m d'slf, which means 'By Hwr son of S'r son of Tbrt son of Sm' from the tribe of Hsl', and an invocation to goddess Rdy to help hunt down those who remove or scratch the inscriptions and drawings. Here the implored deity is the goddess Rdy, but the same concern over the future of the engravings is evident. It did not, however, deter vandalism, and the impact damage incurred dates from more recent times (Alzoubi et al. 2016: Fig. 3); perhaps the perpetrators could not read the message, or perhaps they were motivated by religious fervour.

A different kind of message emerges from the next Safaitic example, like the previous ones also from Al-'Ausajī al-Janoubī in the north-eastern Bādiya of Jordan. In this example, rock No. 7, occur several zoomorphs, together with the words l hl' bn 't' bn 'bd hdr, which

simply translate into 'This settlement place belongs to Hl'l son of 'T^c son of 'Bd' (op. cit.: Fig. 9).

More informative is the following specimen, rock No. 4 bearing several engraved petroglyphs together with an inscription stating *l 'b^t bn ngft h'r*, or 'This donkey belongs to 'b^t son of Ngft'. The main image seems to depict a horse rider thrusting a spear or lance at a quadruped, which might be the 'donkey' in question (op. cit.: Fig. 6). Alternatively, he may be riding the mentioned donkey. Another example, rock No. 15, bears a similar message, consisting of a filled-in percussion petroglyph and the proclamation *l 'hwd bn 'fn bn df bn shl h bkrt*, 'This young she-camel belongs to 'hwd son 'fn son of Df son of Shl' (op. cit.: Fig. 17).

Even more informative if perhaps somewhat enigmatic is the next sample. An assemblage of about fifteen zoomorphs occurs on a smaller boulder, rock No. 14, and the accompanying inscription proclaims that *l hl'l bn'f bn 'md hhyt*, or 'These animals belong to Hl'l son of 'T^c, son of 'Md'. The problem with this announcement is that four of the zoomorphs resemble birds and are most often interpreted as 'ostriches'. The ostrich was quite common in ancient Arabia until relatively recent times, but no evidence has been presented of its domestication. This invites three different potential explanations: that these are not ostriches, that humans kept the ostrich, or that the statement 'belong to' is not intended to be literal but refers to something like hunting rights or predicted hunting success (op. cit.: Fig. 16).

A similar issue applies to an apparently discrete and homogenous composition of several zoomorphs on a larger boulder, rock No. 12 (op. cit.: Fig. 14). The accompanying inscription reads *l ysr bn kf hhyt*, which translates as 'These animals belong to Ysr son of Hf'. In this case, two of the zoomorphs resemble ibex, and next to one of them occurs an anthropomorph with an object most modern humans seem to interpret as a poised bow and arrow. Again, there are several potential explanations; for instance, the two quadrupeds could be goats shot by their owner. Rock art interpreters frequently assume that in the depiction of an anthropomorph with a presumed weapon and an animal, a hunt must be represented. This is, of course, false: a domestic animal may be killed by arrow or spear, for instance in a raid on the livestock of another group of humans. Another potential explanation is again that the concept of 'belonging' may differ between the producer and the beholder of the motifs: it might infer hunting rights, or the anticipation of a hunter to 'possess' the prey animal. It is decidedly of importance to rock art interpreters to consider all these many options and sub-options if only to appreciate that the first interpretation that comes to their mind is not necessarily the correct one.

The need to exercise restraint in endeavours of interpreting rock art becomes starkly evident in the final example, rock No. 9 (Alzoubi et al. 2016: Fig. 11). It shows a large zoomorph with what appear to be extended straight horns and two apparently kneeling anthropomorphs that seem to be holding

bows 'pointing at' the 'animal'. The accompanying and colourimetrically identical inscription meanders around the zoomorph in a quite deliberate manner, rather as if to emphasise that it refers to the petroglyph. Every rock art interpreter the image has been shown to has responded by identifying it as an oryx, a large antelope with long straight horns native to the Arabian Peninsula. However, the inscription, so emphatically referring to the image, states categorically that *l hl'l bn fl' bn mld bn bngr htr*, or 'This ox belongs to Hl'l son of Fl' son of Mld, son of Bngr'. This unambiguous description has been challenged by at least one rock art interpreter, who argued that perhaps the producer of the image was misleading the viewer deliberately. This reaction is of great psychological interest, reinforcing the proposition that reason can easily be defeated by a pareidolic conviction (demonstrated decisively in Bednarik 2016b).

The second issue with this composition concerns the two depictions of anthropomorphs: if they point their presumed weapons at the factual animal, does this not show that it must be a wild animal? The juxtaposition of the three petroglyphs seems to express such a spatial relationship, but again, more care is needed in such reasoning. Just as pareidolia imposes meanings that refer to the cognition of the beholder rather than the producer, spatial association between elements or motifs in rock art are never givens; they are always imposed by the viewer, obviously reflecting his or her construct of reality rather than the producer's. Perhaps the two 'hunters' are deliberately juxtaposed, but this is an untestable proposition, as are all suggestions concerning the existence of scenes in rock art. Finally, if we believe the producer of this composition that its central image is of his ox, it depicts an undeniably domestic animal. Could two 'hunters' attack it? Cattle raids are a fact of life in animal herder societies, but this still does not prove that the two anthropomorphs are hunters, or are deliberately juxtaposed as appearing to attack the ox. All of this brings into sharp focus the need to separate falsifiable propositions from those that are unfalsifiable, and thus not part of a science of rock art.

The report by Alzoubi et al. (2016) confirmed for me that ancient rock inscriptions could in many instances provide a bridge to elicit parts of the meanings of rock art, and I applied this principle at Saudi sites. Bearing in mind that there are hundreds of thousands of rock inscriptions in the Middle East, many of them occurring with rock art, this proposed new method of accessing rock art meaning ethnographically has considerable potential. One might note that the meanings of words may change with time, but this is not a valid objection because many or most of the words found in Arabian inscriptions are immune to such variations: the meanings of such terms as 'lion', 'son of' or personal names are not likely to change.

Concluding discussion

The preceding discussion has brought into focus an

issue of pareidolic identification that deserves closer attention: that such convictions can defeat reason or 'common sense'. This phenomenon is well known from research into pareidolia and is a fascinating aspect of it. Detecting facial features in non-faces is probably the strongest disposition in pareidolia (Bednarik 2016b). Particularly interesting is the reaction of subjects who manage to detect the illusion of their pareidolic vision, but then are so fascinated by the apparent meaningfulness of the random pattern that they eventually convince themselves that these are not random after all. This phenomenon in pareidolic visions is exemplified in the face of Jesus or the name of Allah on burnt toasts, i.e. from religiously inspired visions. Such convictions are often developed into passionate beliefs that defy all opposition to them. An example of this tendency in pareidoles to resist all reason is provided by the humanoid face some see on Mars, in mountains and their shadows in the Cydonia region of that planet. First photographed in 1976 by the Viking 1 spacecraft, it was shown by the much better resolution images of 1998 to be a purely geological feature. Some of the 'believers' then insisted that this finding was a cover-up by a conspiracy, and still in recent years defended their belief steadfastly.

The denial of reason in favour of a false causal association is due to the lack of an error-detection governor in the brain to modulate the pattern-recognition engine (Shermer 2008; cf. Bednarik 2016b). Precisely the same applies in the etic (rather than emic) 'interpretation' of rock art. For example, the rock art interpreter who insisted that the zoomorph in Alzoubi et al.'s rock No. 9 must be of an oryx because that is what its formal attributes 'prove' to him, resorted to unrealistic excuses to justify the defence of his pareidolically guided 'identification'. He effectively questioned the rock artist's legitimacy, suggesting that he may have deliberately misled us. He perceived this contrived explanation as having precedence over the implication that his own, self-proclaimed power of discriminating meaning might be flawed. There are good reasons for this: as a university professor, he perhaps felt that this was an assault on his credibility. More importantly, he no doubt experienced intellectual discomfort or cognitive dissonance at the prospect that his construct of reality might be open to questioning. He may not have encountered the idea that our personal realities (which are necessarily all different, and for good reasons) are simply imagined worlds made real (Plotkin 2002). Outside our individual fantasy worlds, and in proper science, personal beliefs count for nothing. Pure reason tells us that human vision, and especially pattern recognition guided by pareidolia, should yield to the authentic witness account of a rock art producer. Of course, there is always a remote possibility that hoaxes were recorded in rock art, but the scenario of an elaborate hoax concocted by a person two millennia ago is almost infinitely less likely than that of a professor being mistaken.

The examples of indirect ethnography informed by translated texts associated with rock art imagery in a testable format show considerable potential for this approach, as an alternative or supplemental to the traditional ethnographic elucidation of rock art. Several factors tend to weaken the reliability of direct ethnography. The issue is well illustrated by the belief of researchers that the large corpus of red pictograms of the Kimberley region of north-western Australia they called the Bradshaw figures until recently had no significance to the Aborigines. For over a century these have deceived researchers into believing this, to protect sacred knowledge. Some Aborigines went as far as to disown this rock art (Crawford 1968; Stubbs 1974; Flood 1983). Some researchers then suggested that these exquisite styles were not the work of Aborigines, but a previous race of more 'gracile' people (Walsh 1994). It was only in recent decades when the traditional landowners had to demonstrate their continuing connection to the land to secure native title to it, that they gradually released snippets of information they had long concealed. The 'Bradshaw figures' are the Gwion Gwions, the very foundation of Wunan law, the moral and legal code Kimberley Aborigines had lived by for millennia. Although these beliefs remain deeply mysterious and mostly unknown to ethnography, some minor details have been released in the course of land claims, and we now know that three concrete personages established Wunan law and that, at the time of the Gwion tradition there were seventeen groups named after birds. This is a telling example of how inadequate ethnographic narratives can be, and how they can contribute to false understandings of cultures by the academic hegemony. This factor needs to be clearly understood when considering the veracity of ethnography relating to rock art.

By comparison to these complexities, the 'indirect ethnography' via rock inscriptions described and endorsed here is far more reliable, robust and accessible to viable scientific argument through its refutability. There is the potential for other researchers to test the method being put forward in this paper. The method is, of course, limited by three factors: (1) aspects the inscriptions are silent about are not reachable; (2) the meanings of words may not always be fathomable; and (3) the approach is only feasible in those parts of the world where rock art co-occurs with rock inscriptions. This is the case particularly in the broader Middle East, including Egypt and Iran (Ghasrian et al. 2014), elsewhere in northern Africa and further parts of Asia. Especially in China, there are vast numbers of rock inscriptions, all of which can be decrypted, although so far none have been directly associated with rock art (e.g. Tang et al. 2017). From my observations that potential may be greatest in western China (e.g. Qinghai, Tibet, Xinjiang).

In Australia there have been some endeavours to address the relationship between rock art, notably, contact rock art, and character-based Historical inscrip-

tions (cf. O'Connor et al. 2013; Fyfe and Brady 2014; Smith et al. 2018). However, the earliest Australian rock inscription at a rock art site is only of the late 18th century (Bednarik 2000), and there are very few predating the 1840s. In contrast to this very limited scope, the Arabian evidence presented here is part of an immense library of character-based rock inscriptions. Moreover, its direct relationship with specific images can be demonstrated either by context or through the colourimetry of rock varnish accretions that accumulate at rates susceptible to calibration (Bednarik 2009).

Indeed, this approach is significantly superior to pareidolically inspired interpretation, which is best seen as a shortcut that leads into a cul-de-sac. Since its findings are not testable, and since it relies on a notoriously unreliable human sensory system, this approach leads nowhere and has no place in rigorous scholarship. Ethnography of rock art through the content of accompanying inscriptions, by comparison, sometimes provides not only reliable interpretations. It also imbues the rock art with a human dimension; it lets its producers communicate their thoughts, concerns, priorities and desires to us. They, as actors in deep history, become individuals through the contents of their messages.

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