

## The Rock Art Of Southern Arabia Reconsidered

Robert G. Bednarik and Majeed Khan

**Abstract:** *This paper considers the widely accepted chronology of southern Arabian rock art proposed by E. Anati. Using scientific rather than stylistic criteria, his sequence is refuted in almost every detail. It is also shown that several specific stylistic features are in fact diachronic phenomena, occurring over long time spans and in several succeeding cultural phases. On the other hand, considerable stylistic differences are noted to occur in single cultural traditions. Therefore, the stylistic approach is contended to be inappropriate in constructing a major regional chronological sequence of the rock art traditions of southern Arabia. The paper also shows that most other interpretations of southern Arabian rock art by Anati are without adequate basis. In particular, his estimates of the ages of the traditions he perceives are generally false; most of the rock art he mentions is considerably more recent than he claims. Much older rock art does occur in the region, but has not been identified before the present project.*

### Introduction

Anati's (1968a) seminal work on Saudi Arabian rock art is widely regarded as the standard information on this large corpus of petroglyphs, as attested by its frequent citation and use in the decades since it appeared. This work is based on a series of 232 photographs taken by the Philby-Ryckmans-Lippens expedition in 1951-52 (Grohmann 1962; Lippens 1956; Ryckmans 1952, 1954), which applies also to his other volumes on Arabian rock art (Anati 1968b, 1972, 1974). Planned by J. B. Philby and led by Gonzague Ryckmans, the expedition crossed from Jeddah to Riyadh, meandering its way through Makkah, Ta'if, Abha, Najran, Qarya, Wadi Dawasir and Masil. Most of the rock art was recorded at or near Jabal Qara, north of Najran. Anati, who himself has never been to Saudi Arabia, analysed patina shades, techniques, styles and superimpositions from enlarged projections of diapositives made from the negatives of the Philby expedition. In all, he examined the images of about 200 engraved panels, and he did acknowledge

some of the limitations of this approach. He believes, nevertheless, to have identified at least twenty 'stylistic groups' of which over ten "belong to Pre-literate times" (Anati 1968a: 4). He groups the entire sequence into four major chronological units: an 'Islamic' period (after A.D. 622), a 'Literate' period associated with 'South-Semitic' writing (South Arabian script), a 'Herding-Hunting' group which he divides into about ten styles and attributes to non-literate peoples, and an 'Early Hunters' group. The last is made up of three styles, two of which largely lack human figures. The 'oval-headed' assemblage, which he singles out for special attention, belongs to the 'herding-hunting' phase of this sequence. He further states that his 'literate' period might date from about 2300 BP to 1800 BP, and that several of his 'herding-hunting' styles are 3000 to 5000 years old, while the late part of this main-phase dates to 2000–3000 years BP. Roughly contemporary with his 'oval-headed' anthropomorphs, Anati perceives other major 'styles', found in the same area, which he calls 'realistic-dynamic style' and the

tradition of the fat-tailed sheep (1968b). On the other hand, he notes (1968a: 169, 171, 173) that there can be considerable differences in the repatination colour of 'oval-headed' figures on the same panel, implying a very great duration of this 'style'. He also concedes that there are anthropomorphs that cannot safely be attributed to, or excluded from, his 'oval-headed' style (1968a: 173). These factors question the integrity of the style he perceives even before the issue is examined scientifically.

Despite the self-evident fact that Anati only had access to a selectively assembled and relatively small sample of the rock art corpus he tried to analyse, he arrived at numerous further conclusions. Most of them are manifest over-interpretations of limited and non-random data (i.e. data not obtained by any process or random sampling, but from biased samples), and in some cases they are even self-contradictory. For instance, he suggests that his 'oval-headed' people probably had domesticated the fat-tailed sheep, even though he admits that there is only one potential association between the two features among his data. Everywhere else the two entities are depicted on different rock panels. He proposes that the 'oval-headed' people may have been one of the Cushite tribes mentioned in the Bible, that they "identified themselves with the ostrich, which may have been for them some sort of totemic animal" (Anati 1968a: 184), that they performed elaborate cult ceremonies connected with an ox worship, with sexual rituals and with hunting magic. Their 'cults' are also said to have involved the use of some unknown flower or fruit, perhaps connected with the use of some narcotic. Anati thus creates aspects of an entire civilization of a people whose existence is purely hypothetical, from his own subjective interpretations of an often very ambiguous iconography. He even invents a dating for this hypothetical tradition,

again without valid justification, placing it from the beginning of the third millennium to the advent of the first millennium B.C. His description of this hypothetical 'Negroid' ethnic group (there is no acceptable evidence of such an ethnic attribution) is one we have sometimes encountered elsewhere in the fringe literature on rock art:

They appear as beautifully built people of high stature, with elegant body features, slender and long legs and harmonious shapes and movements. They seem to have been fully conscious of their physical beauty as is emphasized by their depictions (Anati 1968a: 180).

This compares closely with the more recent definitions of Walsh (1994) when he discusses the early phases of Kimberley rock art in Australia. Such emotive interpretations of an entirely alien iconography, to which the interpreter has absolutely no emic or hermeneutic access, belong entirely into the realm of fiction.

Anati's chronological formulations are just as ambiguous. Whilst he suggests that the late phase of his fictitious 'oval-headed Negroids' might overlap with literate times, he also postulates a "pre-literate and post 'oval-headed' major group" of petroglyphs (1968a: 143). These two formulations seem to be mutually exclusive. His temporal framework is predicated largely on the superimposition sequences he believes to recognize in the photographs, and on his iconographic 'identifications' of objects in the art, which range widely from the plausible to the thoroughly implausible. For instance, an object frequently depicted crossing human torsos diagonally at waist height (1968a: 134-5), pointed at the lower end and with a variety of morphologies at the upper end, would appear to depict quite naturalistically rendered swords. For Anati, however, these objects are "giant

toggle-pins”, and he notes the occurrence of (very much smaller!) toggle-pins from Tepe Gawra and Maayan Baruch in Israel, thousands of kilometres away. There, such pins are not found more recently as the late third millennium B.C. He thus regards these ‘toggle-pins’ as “good hints as to the age of the figures” in the rock art — a far-fetched proposition indeed. Not only does the absence of evidence in Israel not demonstrate evidence of absence, these sites are geographically remote from southern Saudi Arabia. Therefore the proposition has no logical basis. But most importantly, Anati’s iconographic interpretation of the objects depicted with the anthropomorphs is most probably false.

Many of his other interpretations are just as tenuous, and in all probability inappropriate. For instance he interprets an indeterminate motif as the head and forelimbs of a large rodent (Anati 1968a: Fig. 87), yet neither the petroglyph itself nor Anati’s rendering of it justifies this fanciful description. His claims for various cultural activities are generally untestable and spurious. For instance the claim of worship of oxen is based on a single depiction (not of an ox, conversely; the testes of the bovid are prominently shown; cf. Anati 1968a: Fig. 39) providing no such objective evidence. Similarly, the claim for the use of narcotics is based on a single depiction of what resembles a branch held by an anthropomorph, but may well be some other object or symbol. All the claims concerning ritual sex, dances, hunting-magic and supernatural beings are presented without any hard evidence or objective justification. They are simply the reflections of Anati’s cortical processes of locating iconicity in a corpus of rock art to which he has no valid interpretational access.

One of the several difficulties Anati has had to contend with is that the photographs that

provided his only data bear no size scale, so he had to guess the true sizes of the motifs. Another is that he misunderstands the patination process, in that he perceives rock varnish deposition, which occurs in specific climatic phases and largely as extraneous matter, as part of the more gradual but unidentified surface modification processes (cf. Bednarik 1979, 2007b). In establishing his various styles he applies circular reasoning, such as, for instance, when he defines the ‘oval-headed’ style:

The ‘Oval-headed’ people appear to have been primarily interested in man, and more particularly, in themselves. The human figure is by far the most important subject they depicted (Anati 1968a: 6).

He arrived at this view through the following procedure: he selected from the record 74 anthropomorphs, on the basis that they seemed relatively large (he cannot be certain about their actual sizes), shared some iconographic similarities and were lightly to moderately patinated, and he included with them 21 other motifs which he felt were contemporary. Because he had thus selected the human figures as his stylistic marker, and was not able to include with his ‘style’ many other motif types, he created the bias that led him to assume that these racially “compact and autonomous” people he perceived were preoccupied with themselves. In reality his conclusion is merely a reflection of Anati’s own mental and deductive processes, and the model he produces is largely fictional. This applies also to his various pronouncements about the ‘oval-headed’ people, such as where they came from, who they were, who displaced them, or to where they migrated. All of this is without a factual basis. In all probability, no such distinctive ethnic group existed anymore than a distinctive rock art tradition of ‘oval-headed’ people such as Anati describes. His photographic record is

neither comprehensive nor does it represent a random sample. It is simply a set of photographs taken by travellers who located a series of sites along their route through the desert, and who recorded only panels they found interesting or worthwhile. It is likely from our own surveys of the region that they ignored some of the panels they must have seen, presumably because they were not considered photogenic enough. It is also obvious that they managed to locate only a minute number of the petroglyph sites in the general region. Thus their record was never intended to be a representative sample of the area's rock art. Anati then emphasized the bias inherent in their data by focusing even more on the already over-represented features.

There is only limited literature available on Arabian rock art, and most of it follows Anati's basic chronology and interpretation (e.g. Jung 1991a, 1991b, 1994; Thomson 1975; Zarins 1982; Zarins et al. 1980, 1981). The only consistent opposition to this model is reflected in some of the work of the Rock Art and Epigraphic Survey of Saudi Arabia (Kabawi et al. 1989, 1990; Khan 1987, 1989, 1993a, 1993b, 2000, 2008; Khan et al. 1986, 1988), and most particularly in the sustained critique of Khan (1998). We have examined many of the rock art panels photographed by the Philby expedition, and many more not featured in their photographic coverage. We consider that most of Anati's absolute chronology is severely mistaken, and that most of his relative sequence is also false. Our only major agreement with him concerns his pronouncement that the most recent phase relates to the Islamic period, and that this is preceded by a period featuring various scripts. The following shows that, other than on this one, almost self-evident detail, we must disagree with all of Anati's views on the chronology of the rock art of southern Saudi Arabia.

## The evidence

We have previously reported scientific research of a series of rock art sites in northern Saudi Arabia (Bednarik and Khan 2002). In considering southern Saudi rock art we have focused on the same region as the Philby expedition did, essentially an extensive series of rocky mountains near Himā, a small hamlet roughly 100 km north of Najran (Fig. 1). Among the sandstone ridges and wadis of Jabal Qara and the surrounding area, particularly at Jabal Kaubab, we have examined a large number of petroglyph sites as part of an ongoing research effort. Here we present some of our preliminary findings.

Our ongoing analytical work at some of these many sites includes colorimetric determinations of repatination trends, microerosion analyses at two sites, luminescence analyses and uranium-thorium dating. In keeping with the principal

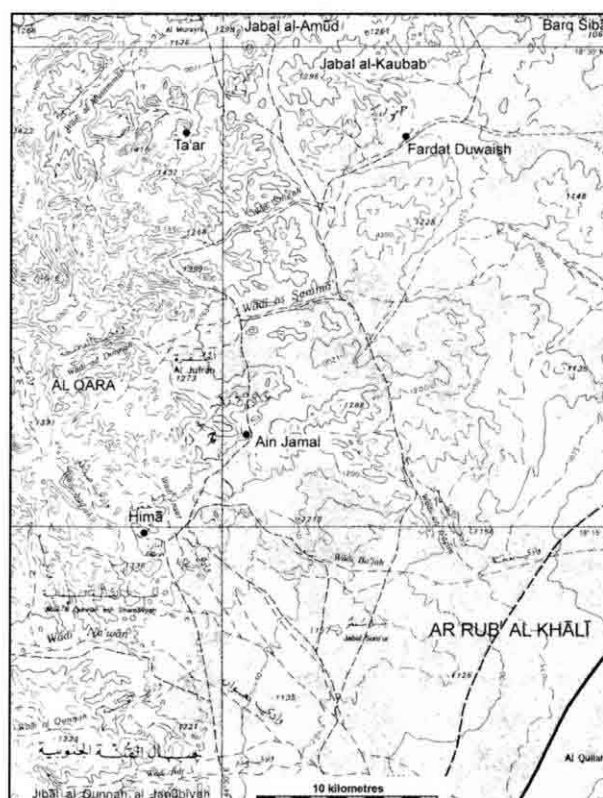


Fig. 1: Map of the Jabal Qara petroglyph complex, north of Najran, southern Saudi Arabia.

variable used by Anati (averaged reflective properties of repatination deposits, or colour), we focus here on the first of these. We have so far taken a total of 2268 colorimetric readings from Jabal Qara petroglyphs.

The possibility of using the variable of petroglyph repatination has long been known (Belzoni 1820), and non-quantified studies endeavouring to employ it have been attempted by many rock art researchers. However, it has only been in the most recent past that such work has begun to be quantified and made precise and repeatable (Bednarik 1979, 2002a, 2007a, 2007b). The methodological principles of this method are simple: photographic colour-calibrated precision records are made of the surfaces to be compared and, after digitization, each is converted to true colour values via appropriate software (Bednarik and Seshadri 1995). Several sampling areas measuring a few hundred microns are then selected from each petroglyph to be analysed, and their average colour values are established. Those that are closest numerically are also closest chronologically. At this point, the method resembles traditional visual comparisons, except that it is much more accurate. However, if there are means of anchoring such a relative sequence to values of known age, these data can provide 'absolute' dating criteria as well. For this it is essential to have, among the material being studied (which must have been exposed to similar weathering and climatic regimes, and occur on similar or identical rock facies), some instances of repatinated rock surfaces of known ages. So far, very few such sequences have been secured elsewhere, the most important being from a series of engraved historical dates at the Western Australian petroglyph site complex at Spear Hill (Bednarik 2002b, 2002c). In addition, we have supplemented colorimetric sampling with direct datings (to be presented



**Fig. 2:** Panel at Najd Sahī, Jabal al-Kaubab East, on which five repatinated surfaces were selected for colorimetric analysis.

separately, together with other data neglected here). Whilst this attempt at actual dating must be viewed as experimental and tentative at this stage, our subsequent pronouncements about the relative sequence of the region's petroglyphs are significantly stronger, and are most certainly capable of testing Anati's basic tenets. This is because what we use here is merely a greatly refined version of what he has attempted.

### Testing Anati's sequence

Among the major petroglyph panels Anati considered from the Jabal Qara region is the one Ryckmans photographed as R.42.11 on 14 January 1952 "between Najd Musammā and Nahd Sahī". This panel is selected here for discussion because it comprises markings of a wide age range, including bullet impact craters that are not present on Ryckmans' photograph and an excellent complement of repatination hues. The site's actual name is Jabal al-Kaubab East or Najd Sahī (Fig. 2). One of the most obvious features is that an anthropomorph, which stylistically resembles Anati's oval-headed figures, is clearly one of the most recent on the panel. It is not much more repatinated than the bullet holes which we know to be under 55 years old. Anati is ambivalent on placing this

‘non-conforming’ motif chronologically, but his mention of a human figure in the Islamic phase suggests that it refers to this recent motif. We have selected five motifs on this panel for sampling:

c: One of the bullet impacts, on inside of hind leg of largest zoomorph, <55 years old.

d: The most recent anthropomorph on the panel.

e: The larger of the several ‘ostrich’ figures.

f: One of the Thamudic letters within the body of the ‘ostrich’ of sample ‘e’, and apparently contemporaneous with it, based on both repatination and spatial arrangement.

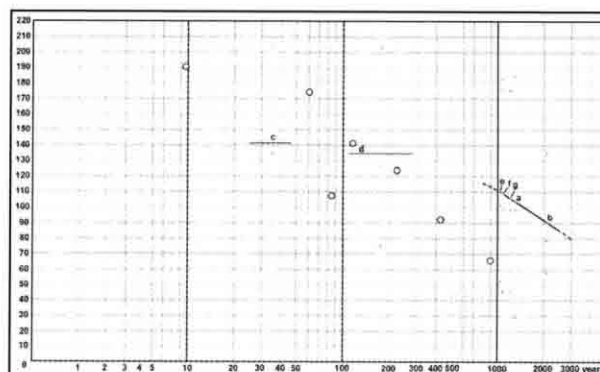
g: The largest of the ‘oval-headed’ figures, central on panel, apparently ithyphallic, in profile and facing right.

In each of these five motifs, three representative sampling areas were carefully selected and subjected to the calibrated sampling procedure, based on square aliquots of 36 pixels. In other words, a total of 324 readings were taken from each motif, and then averaged in each case. The resulting consolidated matrix is shown in Table 1.

| Motif | R      | G      | B     | Mean   |
|-------|--------|--------|-------|--------|
| c     | 205.05 | 135.64 | 86.60 | 142.43 |
| d     | 203.56 | 127.48 | 74.81 | 135.28 |
| e     | 176.38 | 101.44 | 52.69 | 110.17 |
| f     | 182.54 | 98.94  | 46.07 | 109.18 |
| g     | 175.72 | 98.21  | 46.07 | 106.67 |

**Table 1. Summary of the colour values of the five motifs sampled at Jabal al-Kaubab East.**

The reason for including in these determinations the mean values of the combined primary colours is that they have been found to have a much closer correlation to age than individual values (Bednarik 2002b, 2002c). Apparently, random variations in primary colours are compensated for in this way, as



**Fig. 3: Colorimetry of five repatinated surfaces at Najd Sahi (b to g) plus the two dated surfaces from Ta'ar (b) and Jabal A'an (a), showing excellent parabolic alignment of results (considering the logarithmic scale of the abscissa). The circles represent as a background the colorimetric calibration from the Spear Hill results from Australia, which also form a rough parabola.**

shown, for example by samples ‘e’ and ‘f’ in the above instance (which are almost certainly of the same age). In this case it is readily evident that that samples ‘e’ to ‘g’ must be of very similar ages, although ‘g’ might be marginally older than the two others. However, there is not sufficient difference in the quality of the reflected light to assume a consequential age difference. It is also clearly apparent from Table 1 that sample ‘d’ is distinctly younger than the group of three early surfaces, and that sample ‘c’, from the bullet impact, is again younger (Fig. 3).

The first deductions from these considerations are that the ‘ostrich’ figure (e) is probably contemporaneous with the inscription within it, and of an age very similar to the ‘oval-headed’ figure (g). The second anthropomorph, which resembles ‘oval-headed’ figures, is significantly younger. It follows that some ‘oval-headed’ figures are no older than writing, but some may be much younger than some writing. While the time of the introduction of writing is not securely known, no date greater than  $2830 \pm 700$  years BP has so far been suggested for Saudi Arabia

(Bednarik and Khan 2002), All the evidence we have collected so far from Najran sites implies that most of Anati's "pre-literate phases" post-date the introduction of Southern Arabic, or at least the preceding Thamudic scripts. The sequence we found at Jabal al-Kaubab East is repeated throughout the area, excepting a small series of clearly much older sites that were not recorded by the Philby-Ryckmans-Lippens expedition, and therefore could not be considered by Anati (see below).

Next, we determined the microerosion age (Bednarik 1992) of one typical 'oval-headed' anthropomorph, being one of a group of four such figures, together with two 'long-haired female' figures, at Jabal Qara West or Ta'ar (Fig. 4). There are again numerous South Arabic and Thamudic inscriptions that match the repatination of the anthropomorphs, as well as some prominent camel images. The site is located at N 18° 27.691, E 44° 28.836, elevation 1248 m a.s.l. Its sandstone is slightly coarse, with grains typically in the 0.5 to 1.0 mm fraction, slightly frosted and well rounded. There are also occasional pebble-grade grains, but none occurring in the six large anthropomorphs are suitably fractured to allow analysis. Three smaller fractured grains are located in the lowest



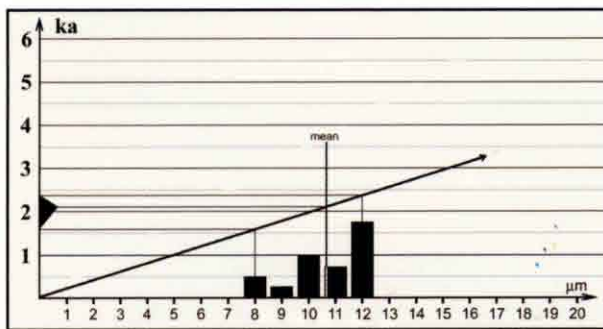
Fig. 4: Ta'ar, Jabal al-Kaubab West, showing the anthropomorph subjected to microerosion analysis, in the centre.



Fig. 5: Microerosion calibration site at Jabal A'an, near Himā.

part (lower legs) of the second 'oval-headed' figure from the left. They permitted seventeen measurements on right-angled micro-wanes, yielding a mean wane-width  $A = 10.706 \mu\text{m}$ .

Jabal A'an (or Ain Jamal) is a prominent site with numerous decorated panels, located at N 18° 17.808, E 44° 30.877 at an elevation of 1253 m a.s.l. (actual sampling site). It was selected for an attempt to calibrate the quartz microerosion rate in the area. Its large upper left petroglyph panel includes a four-line Arabic inscription whose style indicates an age of 1300 to 1350 years BP. Three characters on the bottom line offered suitably fractured grains, with angles of about 90°. Within the sandstone facies occur strata of 5-10 cm thickness formed by granulometrically coarse grades (commonly sizes of 1-3 mm, coarse sand to small pebbles), one of which facilitated this analysis (Fig. 5). One of the wanes shows micro-battering and suggests that it was rubbed with a hard stone, but two others yielded a total of ten measurements, providing a mean wane-width  $A = 6.6 \mu\text{m}$ . If we assume an age of 1300 years, as a best estimate, this provides a rudimentary calibration curve for the Jabal Qara area. It also enables a tentative age estimate of the 'oval-headed' anthropomorph from which we secured microerosion data at Jabal Qara West (Fig. 6). This estimate of



**Fig. 6: Microerosion analysis of an anthropomorph at Ta'ar, Jabal al-Kaubab West, plotted on the calibration curve obtained at Jabal A'an.**

E2109 + 254/ -534 years BP must be regarded as tentative, because the calibration curve it is based on is coarse and in need of considerably more primary data, and it refers to an imprecise reference date. Moreover, it was derived from a single mineral (in microerosion analysis it is preferred to check one mineral against another). However, when the colorimetric values of both the Jabal A'an calibration site, of known age, and the microerosion-dated site from the Ta'ar anthropomorph were plotted into the diagram, they complied clearly with the trend already demonstrated (see 'a' and 'b' in Fig. 3). This provides independent confirmation of the colorimetric data.

Mindful of any qualifications it is still outside of any realistic expectations that the Ta'ar figure could predate the literate period. This is very broadly confirmed by the repatination of the numerous inscriptions on this panel, which generally matches that of the anthropomorphs. Although we have not quantified these so far, we are confident that colorimetry would agree with this visual assessment. Consequently it is again evident that Anati's 'oval-headed' figures are from a literate period.

### The 'long-haired female' figures

There are several notable omissions in Anati's sequence. Obviously he has missed the older component of the local succession of rock

art traditions (below), but two other oversights are of more immediate concern. Firstly, one of the most common motifs are the Wusum, tribal ownership marks of considerable longevity (Khan 2000). Repatination places many of them clearly into recent history, but they occur not only in the Islamic period (where Anati overlooked them altogether), they extend beyond that period. It appears that Anati was not aware of their significance, but what is of more relevance is that he failed to notice that certain distinctive symbols were shared by different periods, because they can be found with varying degrees of repatination. This observation already negates the idea of 'styles' denoting cultures. Rather, these universal signs, which remain in use today among the Bedouins (particularly in the form of ownership marks on the body of camels), show continuity. Bearing in mind that Wusum occur with, for instance, 'oval-headed' anthropomorphs, supposedly of a pre-writing period, this alternative view renders Anati's far-flung hypotheses of migrations and ethnic groups not just severely weakened, but absurd.

An even more obvious omission is that, in his preoccupation with finding identifiable 'periods' or 'styles', he has failed to notice the most prominent standardized motif in the region's rock art: the 'long-haired female'



**Fig. 7: 'Long-haired female' figure dominating panel of zoomorphs and other motifs, Jabal al-Kaubab.**

anthropomorphs. These are of such distinctive iconography that it is hard to understand that Anati failed to identify them as a major entity, bearing in mind that his entire approach was guided by iconography. This motif occurs in hundreds of cases, and on most panels where it is found it arguably dominates the iconography (Fig. 7). It is far more distinctive than the vaguely defined 'oval-headed' figures, and several factors suggest that it depicts a specific personality or event. For instance, there are many instances where, immediately besides this female figure, a horse-rider is depicted holding a long object, perhaps a lance, above his head. This pictorial syntax occurs too often to be coincidence, and the figures are always of identical repatination. However, the most distinctive features of the 'long-haired females' are a symmetrical frontal stance, the horizontal upper arms and the vertically angled lower arms, with fingers depicted, the ample long hair (sometimes shown as apparent braids), a narrow waist, wide hips and an almost always distinctively carved vulva. The torso tends to be triangular, and breasts are depicted occasionally, but not in most cases. The head is always undistinctive and featureless, often consisting of no more than a thick vertical line extending above the hair. There is considerable stylistic variation, which is not surprising in view of the long use of the motif. While we may safely assume, on the basis of consistent repatination colours, that most of these figures are in the vicinity of 2000 years old, it is equally clear that there are prominent and very typical examples that are significantly younger, certainly of the Islamic period (e.g. at Jabal al-Kaubab East and, nearby, at Fardat Duwaish).

The Bedouins of the region claim uniformly that this distinctive personage depicts Alia, a pre-Islamic princess and deity of the region, and the Islamic instances of this motif confirm the



**Fig. 8: Highly stylized 'long-haired female' figure at Fardat al-Ain (Jabal al-Kaubab).**

persistence of her story into more recent times. In reviewing Anati's characterization of the rock art it is important to note that the method he has employed, first, failed to detect the importance of this highly distinctive motif and, second, that his assumption that characteristic motif types define styles which in turn define periods has equally failed in this instance. The 'long-haired female' motifs define no style and no cultural period. Stylistic continuity across the incredibly important introduction of Islam, which had a profound impact on the country, disproves a key-tenet of stylistic sequences. Moreover, it is evident that considerable stylistic latitude, probably on the basis of individual aptitude and preferences, can exist in a single time interval, which has also been demonstrated in Australia. Many of the images of this group belonging to its chronological main corpus show wide variation in execution, although still preserving the apparently crucial common denominator features (Bednarik 1994a). There are even occasional abstractions of the 'long-haired female' motif (e.g. at Fardat al-Ain, Jabal al-Kaubab), and there is no indication that such 'aberrant' specimens are of an appreciably different antiquity (Fig. 8). Hence, like the almost timeless Wusum, the 'long-haired females' of the Najran rock art precinct provide evidence that a simplistic 'stylistic' approach, particularly of the type developed so strongly

in Europe, is inappropriate in analyzing the iconography of this rock art.

### Early petroglyphs

As already implied, there is a body of rock art in this region that is of greater age than any of the material that has been available to Anati. Of particular importance are two sites we managed to locate at Jabal al-Kaubab. One consists of a tumbled group of massive eroded boulders that have formed a shelter, located at N 18° 27.378, E 44° 36.059, elevation 1146 m a.s.l. On its floor, sheltered from sandstorms and precipitation, occurs a panel of bedrock with several dozen fully repatinated petroglyphs (Fig. 9). They differ significantly from the more recent traditions, those Anati deals with. They are deeply carved outline figures, and among them occur a good number of typical cupules. This material obviously predates the major period of rock varnish deposition, which we have attributed to mid-Holocene times in northern Saudi Arabia (Bednarik and Khan 2002) and which may well be of similar age here. The cupules are up to 6 cm deep and comparatively narrow; i.e. they are of exceptionally low depth : diameter ratio. Some have been connected by carved channels. There are also more recent petroglyphs at the site, but the cupules and associated components are substantially earlier than these. A very similar situation can be found at an unnamed isolated outcrop near Jabal al-Kaubab, in a more spacious shelter within a remnant sandstone stack. On a horizontal bedrock panel within the shelter occur several cupules, including an elongate, almost 20-cm-long example, connected to another smaller cup mark nearby.

These two sites, the only ones we found of this kind, bring to mind the earliest petroglyphs we have reported from the Shuwaymas main site and Janin in northern Saudi Arabia



**Fig. 9:** Some of the oldest petroglyphs so far located in southern Arabia, in a shelter near Jabal al-Kaubab. The older phase on this panel is deeply repatinated and is assumed to be either of the first half of the Holocene, or earlier.

(Bednarik and Khan 2002). There, too, cupules occur together with deeply patinated archaic petroglyph motifs. Moreover, cupules and other deeply carved petroglyphs are common, even universal, among all very early petroglyph corpora of the world, even in those of immense antiquity (Bednarik et al. 2005). This is in all probability a taphonomic phenomenon rather than one of cultural meaning (Bednarik 1994b). Be that as it may, it comes as no great surprise that the oldest traditions we found in the area are consistent with what has been found elsewhere in the world.

In addition to these two notable sites, there are a few isolated fully patinated motifs at other localities, always underlying more recent motifs. They are outline figures of apparent animals, such as single figures occurring at Jabal al-Kaubab and Himā. We would tentatively place them in the mid-Holocene, on the basis that they are probably not much older than the main varnish phase. Nevertheless, the true age of these fully patinated figures and the early motifs in the shelters is certainly yet to be established.

This brings us to a timely generic observation

about regional rock art sequences. On non-metamorphosed sandstones, even in an arid region, petroglyphs survive rarely beyond 5000 years on exposed cliff faces, and they survive rarely beyond 10,000 years in partly sheltered conditions. Petroglyphs on quartzites, granites and other vastly more resistant rocks can survive with little weathering for tens of millennia, even in fully exposed locations — and longer still where they are protected. Granite does occur in profusion within the Najran rock art precinct, but unfortunately no rock art has been located on it so far. The lesson to be learnt from this is that to understand the significance of the chronological distribution of the region's petroglyphs, taphonomic logic needs to be applied. In the Najran rock art corpus, the quantitative distribution plotted against time seems to form a typical parabola — precisely the course shaped by taphonomic processes (Bednarik 1994b). This means, in effect, that the sequence must be truncated, which attaches a major limitation to any interpretation of it. Any such construct will be incomplete, and the composition of the sample of any time segment must be expected to be truncated, and the more so the older the segment is.

## Conclusions

Anati's sequence of, from the most recent, Islamic, 'literate', pre-literate animal figures, 'oval-headed' figures and early animal figures (e.g. at Āan al-Jamal, Sho'ib Sammā, Barq Sibā, Najd Musammā) is fundamentally flawed. His explanation of changes in the depicted fauna, that ethnic groups such as his 'oval-headed people' moved about, taking with them when they left southern Arabia "their domestic oxen and possibly ... domestic fat-tailed sheep, bringing with them their cultural heritage", is demographically unsupported. There is no evidence that such a tradition re-appears

elsewhere, and the changes through time in the domesticated as well as undomesticated fauna are related to the dramatic changes in climate and hydrology in Holocene times, and not to movements of ethnic groups. This has been found to be the case in Saharan rock art (e.g. Muzzolini 1990; Le Quellec 2005), and it is also perceived to be applicable in the Arabian Peninsula. Indeed, the environmental changes through time are of much greater consequence to dating the region's rock art than any perceived stylistic characteristics.

As one of us has pointed out previously, Anati applies his own stylistic constructs inconsistently, and his system ascribes stylistically consistent motif types, such as the region's very distinctive 'long-haired female' figures, to several different periods (Khan 1996, 1998). Therefore such a prominent motif indicates cultural continuity more than any of the factors he engages. Some of these females are clearly contemporary with his 'oval-headed' figures, as evident through arrangement and identical patination, and Anati places both well before the introduction of writing. Khan has already shown that many of these motifs are either superimposed over inscriptions, or inscriptions are associated with them spatially and appear to be contemporary on the basis of repatination. He also observed that most of Anati's 'oval-headed' figures are shown with what appear to depict swords or daggers, and therefore could not possibly predate the introduction of metal in this remote region (about 3500 BP). Most pertinently, he notes that the frequently found depiction of human females with long hair, narrow waist, half-raised and angled arms and other consistent features probably dates from the Iron Age. Khan (1998: 436) concludes:

Perhaps the Oval Headed People rock art was depicted in the 1st millennium B.C. and continued until the literate period. There is

no evidence to prove Anati's dating of 4th millennium B.C. for the beginning of this art.

This prediction is strongly supported by the results of our present analysis. None of the oval-headed figures is even remotely 5000 to 6000 years old, we argue categorically that they are all under 3000 years, and that they coincide with writing. Therefore all of Anati's 'pre-literate styles' are in fact of literate periods, with the possible exception of early outline zoomorphs. His styles are all subjective and most of them probably denote neither a tradition nor a discrete time period. Some perceived stylistic entities, such as the oval-headed anthropomorphs, the 'long-haired females' or the Wusum are evidently diachronic phenomena, which is already sufficient to refute the basis of Anati's styles. Indeed, the rock inscriptions may well be the only stylistically reliable time marker, which at least in some instances is almost a

tautology.

It will therefore be necessary to approach this vast corpus of rock art with a very different frame of mind, exploring its chronological dynamics, individual expressions and random variations, and to leave the analysis of age to rock art dating technology, which is better equipped to deal with these complexities than simplistic iconographic or stylistic vibes of archaeologists. While it must be acknowledged that Anati's synthesis suffered from his lack of first-hand knowledge about the rock art of Saudi Arabia it is, nevertheless, also true that his approach would not have worked much better had he been to the sites. It is becoming increasingly evident that alien interpretation of rock art iconographies may tell us something about the perception of the interpreter, but it tells us nothing of scientific relevance about the rock art in question.

**Robert G. Bednarik: International Federation of Rock Art Organizations (IFRAO) P.O. Box 216 Caulfield South, VIC 3162- Australia. E-mail: robertbednarik@hotmail.com.**

**Majeed Khan.**

ملخص: هذا البحث يعيد النظر في الخط الزمني، المتفق عليه، فيما يتعلق بالفنون الصخرية في جنوبي الجزيرة العربية؛ وهو الخط الزمني الذي وضعه إيمانويل أناتي؛ فالمعايير العلمية وليس الأسلوبية تدحض سلسلته الزمنية في كل تفاصيلها تقريباً. كما ثبت أن بضع سمات أسلوبية محددة هي في الواقع ظواهر تزامنية، تظهر ضمن فترات زمنية طويلة، وفي أطوار ثقافية متتابعة. ومن جهة أخرى، ثمة اختلافات أسلوبية لا بأس بها، ثبت ظهورها في تقاليد الثقافة الواحدة؛ ولهذا، فإننا نزعم - فيما يتعلق بتقاليد الفن الصخري لجنوبي الجزيرة العربية - أن المقاربة الأسلوبية لا تناسب بناء تسلسل زمني إقليمي مهم. كما تثبت الورقة أن أكثر تفسيرات أناتي للفن الصخري في جنوبي الجزيرة العربية لا تقوم على أساس مقبول. وعلى وجه التحديد، فإن تقديراته لمراحل التقاليد الفنية التي تبناها هي تقديرات مغلوطة عموماً، وإن جل الفنون الصخرية التي ذكرها هي أقرب زمنياً مما ادّعى؛ فالفن الصخري الأبعد زمنياً لا يظهر في المنطقة، ولم تحدد هويته قبل المشروع الحالي.

## References

- Anati, E. 1968a. **Rock-art in central Arabia, Volume 1. The oval-headed people of Arabia**. Bibliothèque du Muséon, Vol. 30, Institut Orientaliste/Instituut voor Oriëntalistiek, Louvain/Leuven.
- Anati, E. 1968b. **Rock art in central Arabia, Vol. 2. Part I: Fat-tailed sheep in Arabia; Part II: The realistic dynamic style of rock art in Jebel Qara**. Institut Orientaliste, Louvain.
- Anati, E. 1972. **Rock art in central Arabia, Vol. 3. Corpus of the rock engravings, Parts I and II**. Institut Orientaliste, Louvain.
- Anati, E. 1974. **Rock art in central Arabia, Vol. 4. Corpus of the rock engravings, Parts III and IV**. Institut Orientaliste, Louvain.
- Bednarik, R. G. 1979. "The potential of rock patination analysis in Australian Archaeology — part 1". **The Artefact**, 4: 47–77.
- Bednarik, R. G. 1992. "A new method to date petroglyphs". **Archaeometry**, 34 (2): 279–291.
- Bednarik, R. G. 1994a. "On the scientific study of palaeoart". **Semiotica**, 100 (2/4): 141–168.
- Bednarik, R. G. 1994b. "A taphonomy of palaeoart". **Antiquity**, 68 (258): 68–74.
- Bednarik, R. G. 2002a. "The survival of the Murujuga (Burrup) petroglyphs". **Rock Art Research**, 19 : 29–40.
- Bednarik, R. G. 2002b. "First dating of Pilbara petroglyphs". **Records of the Western Australian Museum**, 20 : 414–429.
- Bednarik, R. G. 2002c. "About the age of Pilbara rock art". **Anthropos**, 97 (1): 201–215.
- Bednarik, R. G. 2007a. **Rock art science: the scientific study of palaeoart**, second edition. Aryan Books International, New Delhi.
- Bednarik, R. G. 2007b. "The science of Dampier rock art — part 1". **Rock Art Research**, 24: 209–246.
- Bednarik, R. G. and M. Khan 2002. "The Saudi Arabian rock art mission of November 2001". **Atlal**, 17: 75–99.
- Bednarik, R. G., G. Kumar, A. Watchman and R. G. Roberts 2005. "Preliminary results of the EIP Project". **Rock Art Research**, 22: 147–197.
- Bednarik, R. G. and K. Seshadri 1995. "Digital colour reconstitution in rock art photography". **Rock Art Research**, 12: 42–51.
- Belzoni, G. 1820. **Narrative of the operations and recent discoveries within the pyramids, temples, tombs and excavations in Egypt and Nubia**, Vol. 1. London.
- Grohmann, A. 1962. **Arabic inscriptions**. Expédition Philby-Ryckmans-Lippens en Arabie, Ile partie, textes épigraphiques, tome 1. Bibliothèque du Muséon, Vol. 50, Institut Orientaliste, Louvain.
- Jung, M. 1991a. "Bronze Age rock pictures in north Yemen". **East and West**, 41: 44–78.
- Jung, M. 1991b. **Research on rock art in north Yemen**. Supplement No. 66, AION 51.1, Napoli.
- Jung, M. 1994. "A map of southern Yemen rock art with notes on some of the subjects depicted". **Proceedings of the Seminar for Arabian Studies**, 24: 135–155.
- Kabawi, A., M. Khan and A. Mubarak 1989. "Preliminary report on the fourth phase of Rock Art and Epigraphic Survey". **Atlal**, 11: 41–52.
- Kabawi, A., M. Khan and A. Zahrani 1990. "Preliminary report on the fifth phase of comprehensive Rock Art and Epigraphic Survey". **Atlal**, 13: 35–40.
- Khan, M. 1987. "Schematisation and form in the prehistoric rock art of northern Saudi Arabia". **Atlal**, 11: 94–95.
- Khan, M. 1989. "Sacred images of metaphysical world". **Atlal**, 12: 52–54.
- Khan, M. 1993a. **The origin and evolution of ancient Arabian scripts**. Ministry of Education, Department of Antiquities and Museums, Riyadh.
- Khan, M. 1993b. **Rock art of northern Saudi Arabia**. Ministry of Education, Department of Anti-quities and Museums, Riyadh.
- Khan, M. 1996. "A critical review of Anati's books on the rock art of central Arabia". **Atlal**, 14: 75–101.
- Khan, M. 1998. "A critical review of rock art studies in Saudi Arabia". **East and West**, 48 (3–4): 427–437.
- Khan, M. 2000. **Wusum. The tribal symbols of Saudi Arabia** (transl. into Arabic by A. R. A. Al Zahrani). Ministry of Education, Kingdom of Saudi Arabia, Riyadh.
- Khan, M. 2008. "Symbolism in the rock art of Saudi Arabia: had and footprints". **Rock Art Research**, 25: 13–22.
- Khan, M., A. Kabawi and A. Zahrani 1986. "Preliminary report on the second phase of Epigraphic and Rock Art Survey of northern Saudi Arabia". **Atlal**, 10: 82–93.

- Khan, M., A. Kabawi and A. Zahrani 1988. "A preliminary report on the third phase of Rock Art and Epigraphic Survey of northern region of Saudi Arabia 1986/1406". **Atlal**, 11: 61–76.
- Le Quellec, J.-L. 2005. "Encyclopédie animale". In: J.-L. Le Quellec, P. de Flers and P. de Flers (eds), **Peintures et gravures d'avant les pharaons: du Sahara au Nil**, pp. 290–353. Libraire Arthème Fayard/ Éditions Soleb, Paris.
- Lippens, P. 1956. **Expédition en Arabie centrale**. Maisonneuve, Paris.
- Muzzolini, A. 1990. "The sheep in Saharan rock art". **Rock Art Research**, 7: 93–109.
- Ryckmans, G. 1952. **La trace de Saba en Arabie Séoudite, Reflets du Mond**. Bruxelles.
- Ryckmans, G. 1954. "Through Sheba's kingdom". **Geographical Magazine**, July 1954: 129–137.
- Thomson, C. 1975. "Rock art near Median". **Proceedings of the Seminar for Arabian Studies**, 5: 22–32.
- Walsh, G. L. 1994. **Bradshaws: ancient rock paintings of north-west Australia**. Edition Limitée, Carouge-Geneva.
- Zarins, J. 1982. "Early rock art of Saudi Arabia". **Archaeology**, Nov.-Dec 1982: 20–27.
- Zarins, J., N. Whaln, M. Ibrahim, A. J. Mursi and M. Khan 1980. "Comprehensive Archaeology Survey Program — preliminary report on the central and southwestern province survey 1979". **Atlal** 4: 30–31.
- Zarins, J., A. J. Murad and K. Al-Aish 1981. "The Comprehensive Archaeological Survey Program — the second preliminary report on the southwestern province". **Atlal** 5: 34–37.