

A Prehistoric Geometric Rock Art Landscape by the First Nile Cataract

Per Storemyr, Geological Survey of Norway, Trondheim, Norway and Conservation Science Consulting Sarl, Fribourg, Switzerland

Recent survey has shown that the hinterland at Gharb Aswan, by the first Nile cataract opposite modern Aswan, has a significant corpus of geometric rock art. It is comparable to corpora at Abka near the second cataract and El-Hosh close to Gebel el-Silsila, but appears to be more varied. Presumably spanning the period from the Epipalaeolithic to the early Predynastic, complex rectilinear forms accompanied by ladders seem to define the earliest horizon, whereas meandering lines, sometimes associated with giraffes would belong to the latest. Located in connection to notable landscape formations, there is a wide variety of simple geometric forms, however composite designs and unique, complex compositions also occur, in some cases together with crocodiles, other animals and human figures. Undoubtedly, this rock art is the expression of relatively mobile groups that ranged across Upper Egypt, Lower Nubia and the adjacent deserts in the Epipalaeolithic and Neolithic periods. An important corpus of “classic” Predynastic rock art is found near earlier pictures, which indicate the long-

term significance of the locations. It is suggested that diversity in the geometric corpus can be explained in terms of age and the varying contexts in which it may have been made. As judged from several strands of indirect evidence, principal reasons for coming to Gharb Aswan in prehistory are believed to include hunting and stone procurement. There may have been campsites near early rock art and the area could have held significance as a meeting place along converging travel routes. The extraordinary location by the first cataract is also commented upon.

Introduction

Winkler’s site no. 53 at Gharb (West) Aswan has long been used in interpretations of prehistoric geometric rock art¹ in Upper Egypt and Lower Nubia (Winkler 1939: 6, 18, 32; Červiček 1986: 87ff; cf. Davis 1984). Until recently it was an isolated rock art station; its nearest neighbour on the west bank being the location at Berber just

1. In the IFRAO glossary (<http://mc2.vicnet.net.au/home/glossar/web/glossary.html>) geometric rock art is defined as a motif of simple geometrical form or design, such as circle, line, cupule, convergent lines, barred lines etc. Such motifs can also be combined to form more complex designs; see classification for Gharb Aswan in this paper (below).

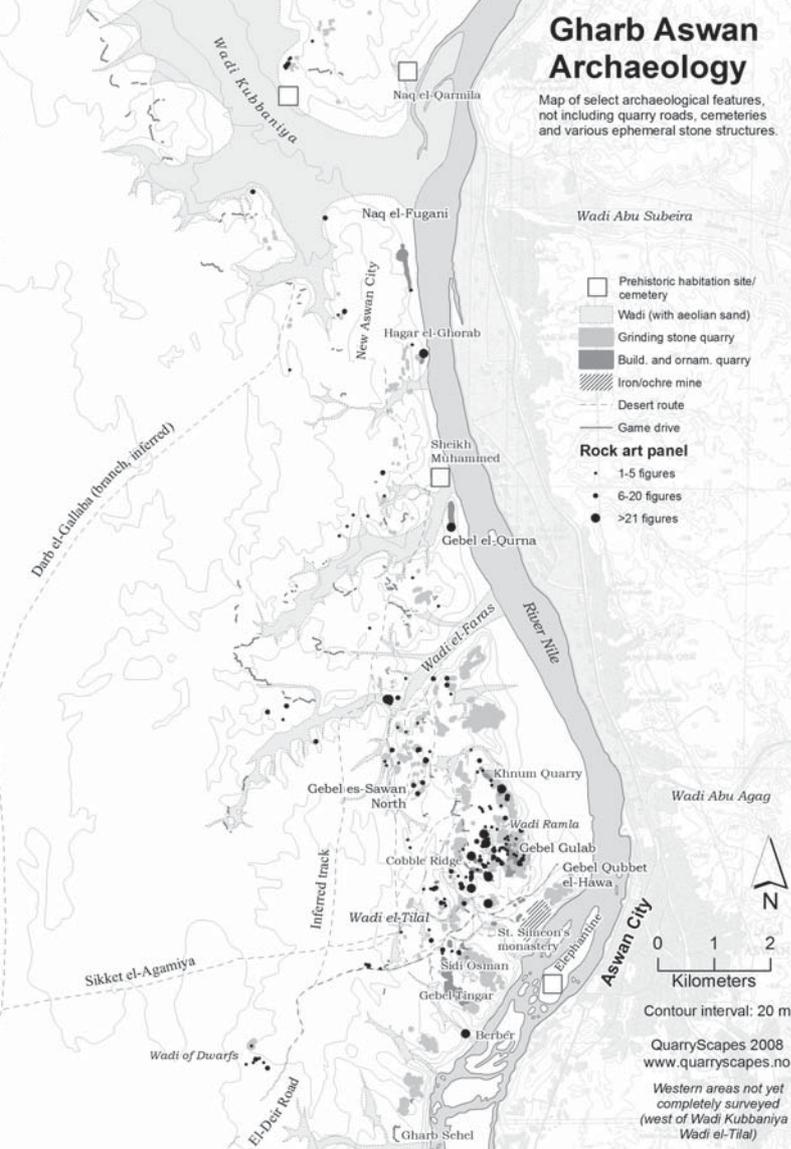


Fig. 2
Survey map with selected archaeological features.

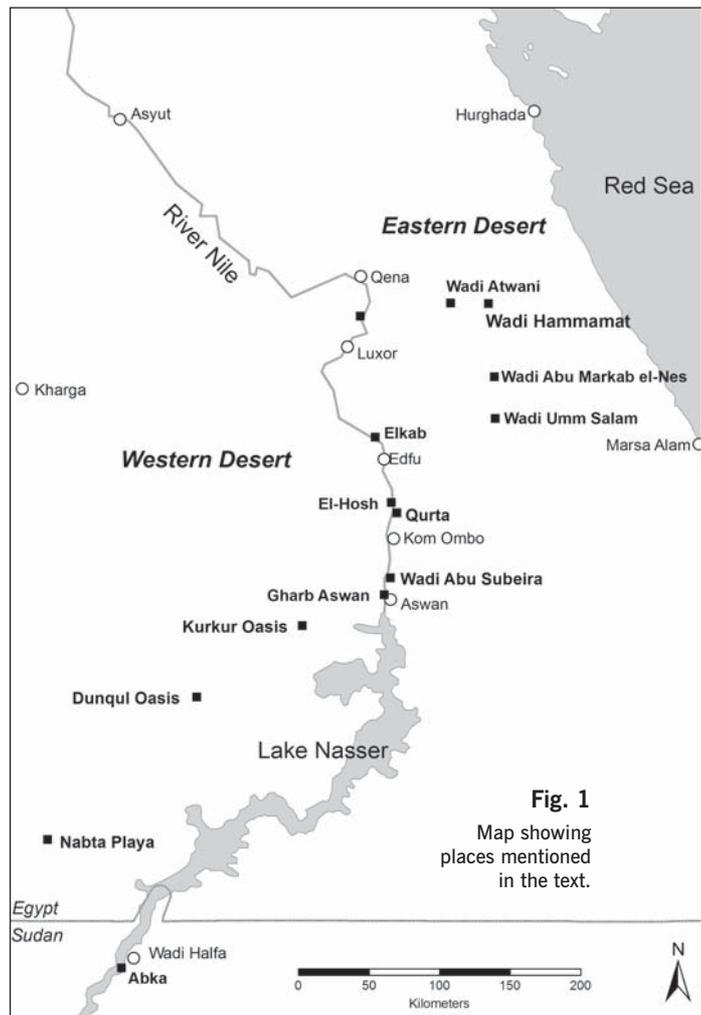


Fig. 1
Map showing places mentioned in the text.



Fig. 3
The Gharb Aswan desert landscape near the First Cataract. Modern Aswan in the foreground and the Tombs of the Nobles at Gebel Qubbet el-Hawa across the Nile.

opposite the first cataract (Schweinfurt 1912). A survey conducted since 2004 by the QuarryScapes Project, between Gharb Sehel and Wadi Kubbania (fig. 1-3), has now shown that there are many more geometric images at Gharb Aswan; the diversity of this new corpus perhaps even exceeds the well-known assemblages at Abka and El-Hosh. There is also a significant body of Predynastic and later images (Storemyr 2008; Gatto *et al.* (a) this volume). All in all, the status in spring 2008 stands at about 250 panels

with more than 1500 mostly pecked pictures made on Nubian sandstone. The aim of this paper is to describe and analyse the recent discoveries in terms of motifs, setting, chronology and cultural attribution in order to work out hypotheses on the context of image-making. Context is here understood as the reasons why people came to Gharb Aswan – and not in terms of ritual and ceremony that may have followed image making or been undertaken at the rock art stations. Focus will

be on the geometric corpus, however other images are included within the description, and when relevant in the analyses. Hypotheses on context are needed for future discussions on the meaning and motivation of the rock art: like so many geometric corpora across the world, Gharb Aswan still resists such interpretation (Storemyr 2008). Among the Egyptian and Lower Nubian geometric rock art it is only the well known El-Hosh fish traps, dated to the Epipalaeolithic, that have yet been plausibly explained (Huyge *et al.* 1998; Huyge 2005). Predynastic rock art is thought to have been motivated by cosmology/religion and, in the Late Predynastic, regal ideology (Cervick 1986; Huyge 2002). Applicable to the Egyptian Nile Valley, I use the terms Epipalaeolithic, Neolithic and Predynastic for the periods 7000-5000 B.C., 5000-4000 B.C. and 4000-3000 B.C., respectively (*cf.* Hendrickx & Vermeersch 2000).

Field research on the prehistory of the Aswan area has been limited and generally focused upon the Predynastic of Elephantine (summary in Kopp 2006) and the cemeteries at “Kubanieh Süd” (Sheikh Mohammed) (Junker 1919) and Shellal (Reisner 1910), in addition to the Late Palaeolithic habitation sites in Wadi Kubbaniya (Wendorf & Schild 1989). However, recent work undertaken by the Aswan-Kom Ombo Project has led to the discovery of the 4th millennium settlement/cemetery of Naq el-Qarmila near Kubbaniya (Gatto & Guiliani 2006-2007: 2007; Gatto *et al.* (b) this volume) and several rock art sites in the northern part of the area (Gatto *et al.* (a) this volume), where survey has overlapped with that of the QuarryScapes Project. The latter project has shown that Gharb Aswan has a significant history of quarrying of silicified patches in the Nubian sandstone (“quartzite”) during the Middle Palaeolithic and earlier periods (tools), as well as in the Late Palaeolithic and Predynastic periods (grinding stones). The grinding stone industry became a hallmark of the area during the Pharaonic Period and, together with ornamental stone production, created one of the largest quarry landscapes known to exist in Egypt. The landscape also must have been a favoured hunting ground as it features an immense concentration of stone-built game drives (Bloxam *et al.* 2007).

Recording of rock art has been undertaken as part of the QuarryScapes survey of ancient quarries. Panels encountered during extensive field walks have been carefully described, marked with a GPS and photographed. No tracing has yet been undertaken.

Documentation

Winkler 53 revisited

Before describing the recently discovered rock art, it may be useful to pay a revisit to Winkler’s site no. 53, since its characteristics to some extent reflect the whole Gharb Aswan rock art landscape. Winkler (1939: 6) writes: “*Site 53. About 5km. north of Aswan, west bank, short wadi. In this wadi, about 3.5km. west of the river, rocky island. Giraffes, antelopes, gazelles, crocodile, ostriches, cattle, dogs. Men, some with feathers. Boats. Curved throwing-sticks. Sandals. Wavy lines and other curved compositions. – Man with sword and shield, schematic drawings of men. Here and there scooped-out cups.*”

The “rocky island” is an elongated, isolated sandstone hill within a sea of wind-blown sand in Wadi el-Faras (or Wadi el-Qutb), 2.5km west of the Nile. It is located at a protected place where the wadi narrows to a “bottleneck” before widening again to a plain further west. A systematic re-inventory reveals the following pecked figures and other features (**fig. 4 & 5a**):

- P400A: The main occurrence (**fig. 5b**), located on slightly elevated bedrock surrounded by hillocks. Although the panel is partially sandblasted, preserved desert varnish indicates the following chronological sequence (**fig. 6**): 1) Two meandering lines with thick, whip-like ends. These are the only figures with deep black varnish resembling the surrounding bedrock; 2) A series of meandering lines and giraffes with ropes from their necks, one giraffe has a bushy tail; 3) Dibatag gazelles (*cf.* Osborn & Osbornova 1998: 174) and an ibex; 4) Boats, roughly contemporary with the gazelles, two of which are strongly incurved with “clubbed” ends (Winkler’s “throwing sticks”). Another incurved example has a giraffe “on board”; and furthermore features approximately 20 oars. A last one is high-prowed and also has several oars. An ostrich and sandal prints could also

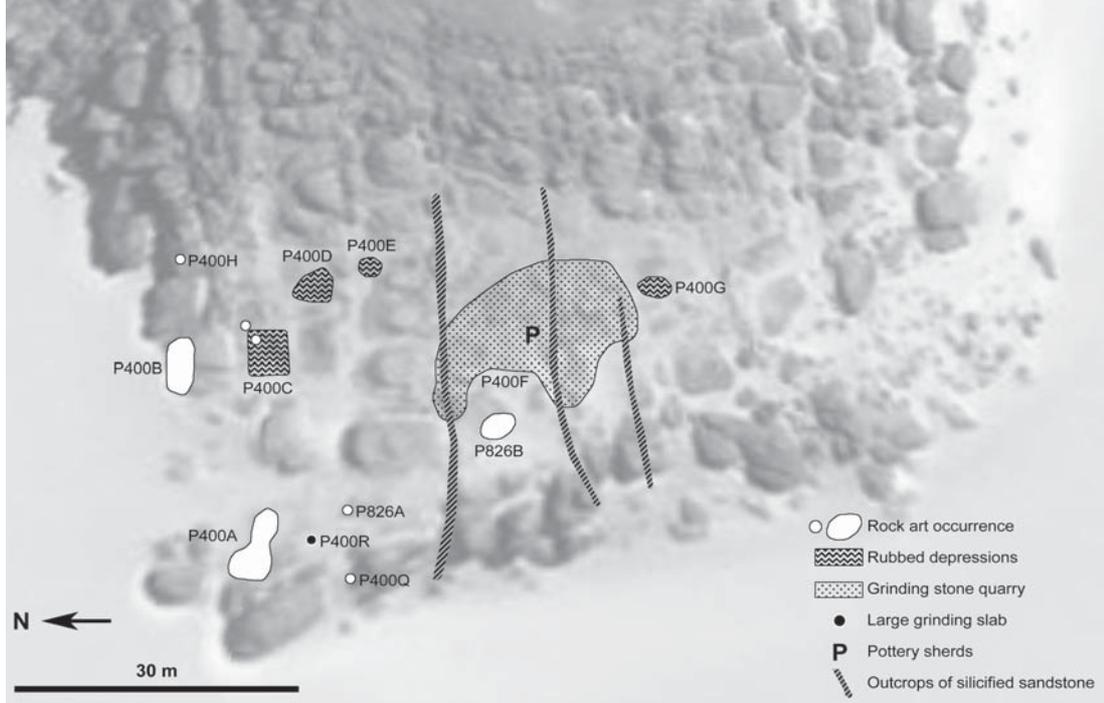
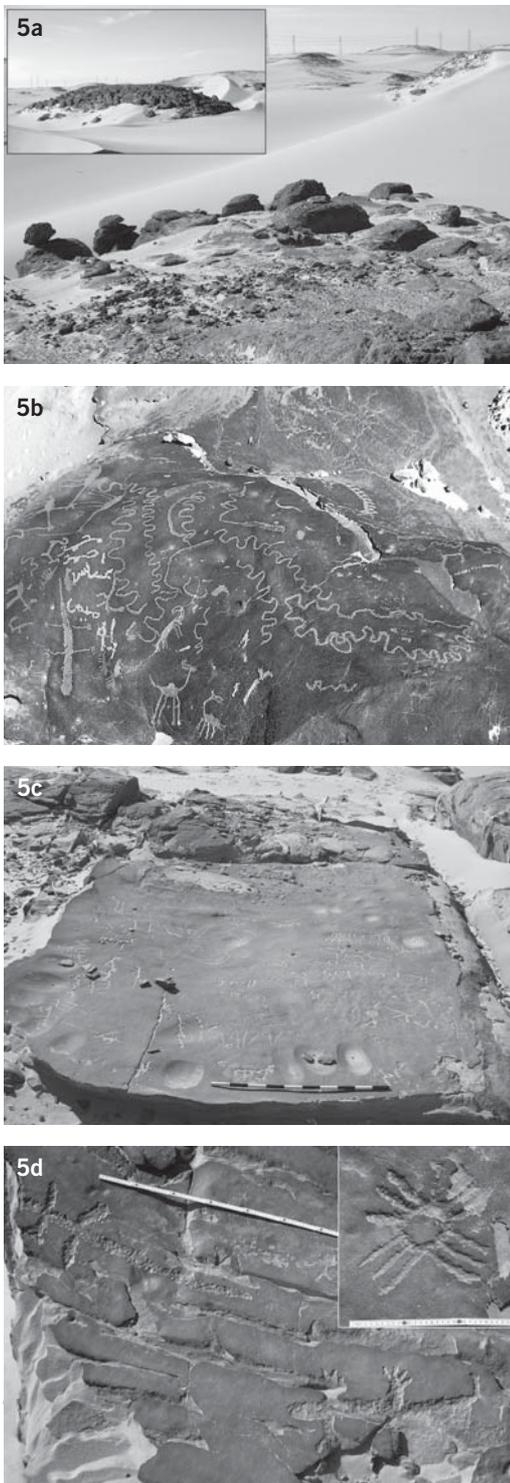


Fig. 4
Map of Winkler's site 53 in Wadi el-Faras. QuickBird satellite image as background (from Google Earth).

Fig. 5
Winkler's site 53 in Wadi el-Faras.
a. Overview of the site.
b. The main panel (P400A). Perspective altered for illustration purposes.
c. Rubbed depressions (P400C).
d. Crocodiles (P400H) and a circle with radiating lines (P400Q).



belong to this phase; 5) Additions at uncertain times include a few short meandering lines, a circle, two boats(?), two undetermined animals and a large crocodile. The latter seems to be younger than the giraffes/meandering lines.

- P400B: This occurrence includes two humans, several gazelles, a giraffe, a Barbary sheep and two tessem dogs, all of which Winkler believed were of a similar age as the boats in P400A. This corresponds with our observations. In addition there are about five unidentified animals (cattle?) with practically no varnish.

- P400C: This is a location with 21 rubbed depressions (Winkler's scooped-out cups) carefully arranged along cracks forming a rectangular area in the sandstone (fig. 5c). Associated with this location are two circles with radiating lines (fig. 5d), a short line with a clubby end and a line with two "arms". Both the depressions and the figures have black varnish similar to the surrounding bedrock. This is also the case with the rubbed depressions in P400D, E and G; featuring 25, three and six depressions, respectively.

- P400H: Here are two long crocodiles with thin bodies and legs with claws (fig. 5d). They are different from the crocodile in P400A and have a deep black varnish. The varnish of the crocodiles is less prone to erosion than the figures at P400A since the sandstone is finer-grained in the former case. In an earlier report (Storemyr 2008: 72) it was incorrectly stated that the difference in erosion could be attributed to degree of protection against wind.

- P826A is a single boat with high stem and stern and P826B an extremely eroded group of geometric motifs. Meandering lines and possibly arcs can be distinguished as well as

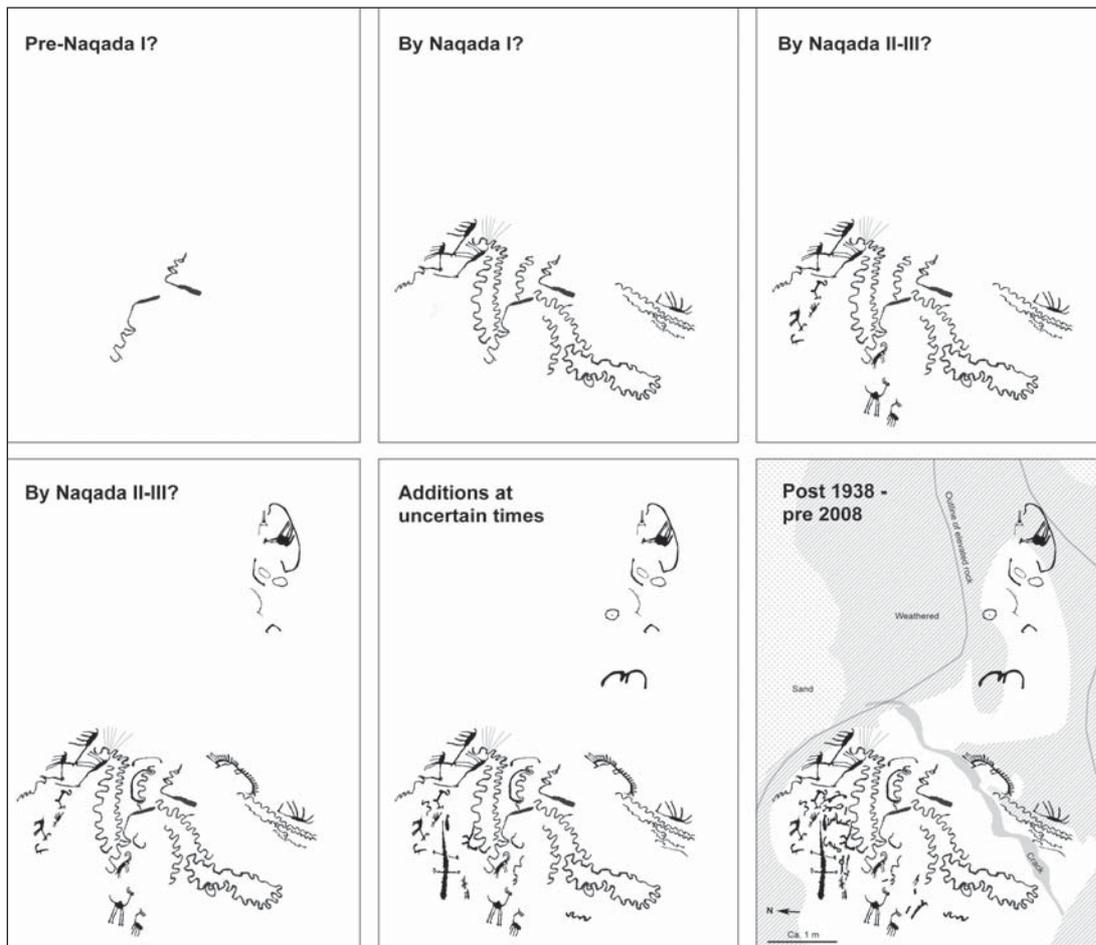


Fig. 6
Development of the main panel (P400A) at Winkler's site 53. Sketch based on detailed field investigations and photo mosaic. See text for explanations.

what might be crocodiles. It is impossible to make statements about relative dating. Evidently, the site with its approximately 65 individual pictures and roughly 55 rubbed depressions has a long history. Following Huyge's (2002) general analyses of giraffes, as well as preserved varnish at site 53, it is likely that Winkler (1939: 18, 32) was correct in attributing them and the associated meandering lines to the "Earliest Hunters", i.e. Naqada I. Červiček (1986: 78) believes incorrectly, that the giraffes are older than the meandering lines. Using Winkler's own analyses of boats, as well as more recent analyses by Červiček (1974; 1978), Engelmayer (1965) and Vinson (1987), it is reasonable to suggest that he was essentially right in stating that most boats and other pictures were made by "Early Nile-Valley Dwellers", i.e. Naqada II or somewhat later. The unidentified animals with no varnish at P400B are late, but undated additions.

On the basis of varnish and comparison with other motifs at Gharb Aswan it is not unlikely that the crocodiles (P400H), the small geometric figures (P400C) and the meandering lines with "whips" (P400A) were made earlier

than the Predynastic Period. Given the similarity in varnish, this may also be the case for the rubbed depressions. Their presence at the site, like at so many rock art sites at Gharb Aswan and in adjacent regions, is intriguing, however issues such as whether they had utilitarian or ritual functions, or both is beyond the scope of this paper. Close to P400A there is also a large, broken oval grinding slab that once must have measured 60-70cm (l) x 40cm (w) x 6-7cm (h) (fig. 7). It bears vague traces of use, which may be an indication of habitation sites in the near vicinity.

Fig. 7
Grinding stone quarry at Winkler's site 53. Inserted: Boat shaped grinders produced in the quarry (bottom); grinding slab found close to rock art (top).



The slab may have been produced on the spot as there is a small grinding stone quarry (P400F), not reported by Winkler, virtually in the midst of the rock art (fig. 4, 5a & 7). The stone resource consists of silicified patches along minute faults in the sandstone that was worked using granite and dolerite hammer stones. Numerous grinding stone preforms are scattered on the surface (fig. 7). They are different to the slab mentioned above and occur as thick, oval or boat shaped forms, 35-40cm long and intended either as lower stones using a rubber as the active grinder or as long, upper stones (“riders”) in saddle querns (on grinding stone forms at Gharb Aswan, see Heldal and Storemyr 2007).

Unfortunately, the quarry cannot be accurately dated, though there are a few pottery body sherds that may be placed somewhere between the Late Predynastic and the First Intermediate Period (Ashraf el-Senussi, pers. comm.). Since we have reason to believe that the type of grinding stone produced was important by Naqada II-III, it is not unlikely that there could have been activity in the quarry by then. If so, we may suggest that some of the Prehistoric

rock art was produced roughly simultaneously. However, the few later additions are also candidates when seeking connections between stone working and rock art creation.

Rock art in the environs of Wadi el-Faras

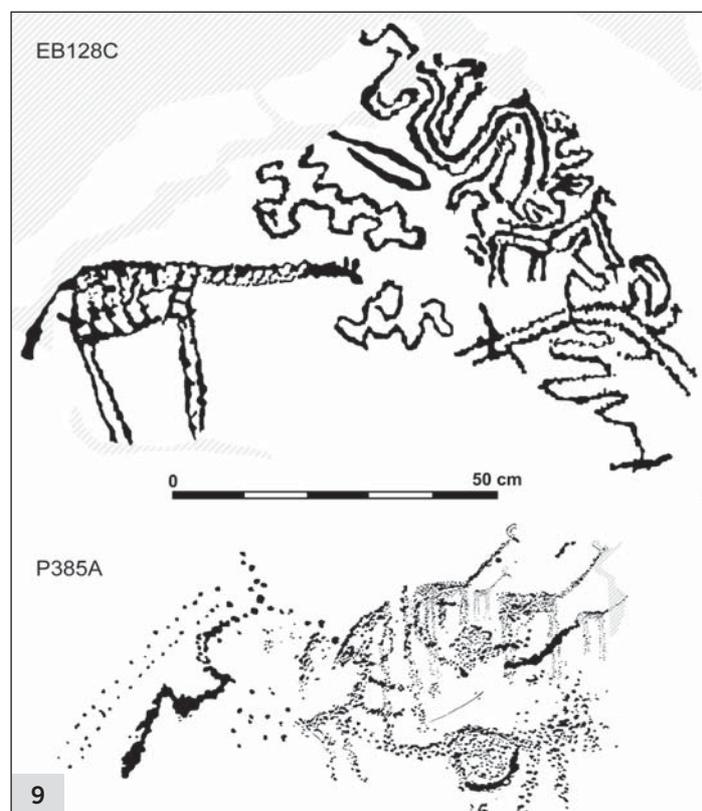
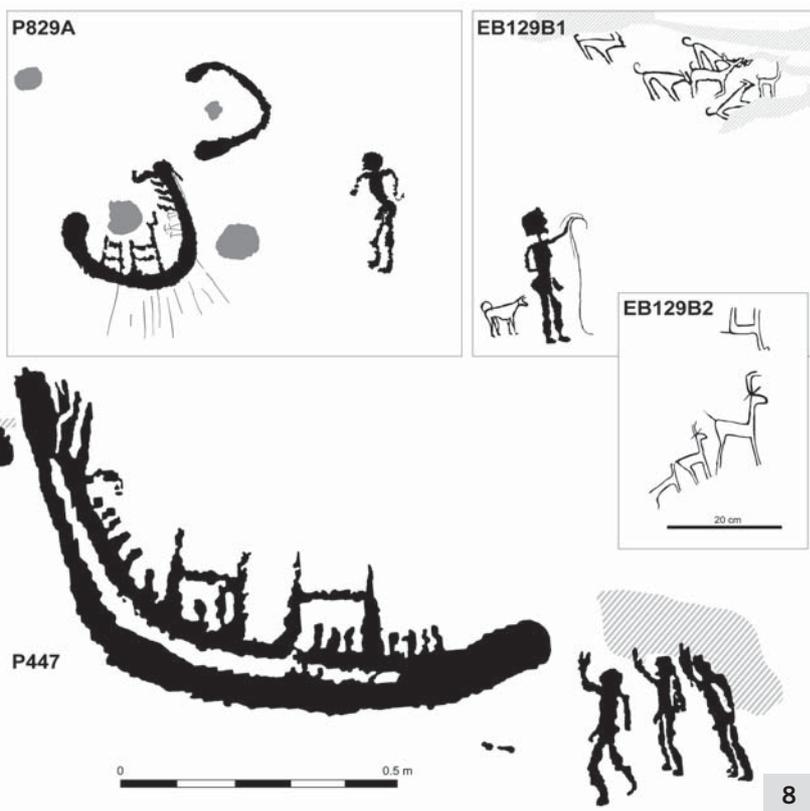
There are several Palaeolithic tool quarries and later grinding stone quarries in the region of Wadi el-Faras (fig. 2), especially at Gebel es-Sawan North (Heldal & Storemyr 2007), a plateau to the south that also features rock art concentrations. “Gazelle Hill” (EB129A-D, P825) has scattered images with black varnish, such as circles, a lotus or palm frond-like motif, a long thick line, joined curved lines and a meandering line. These are all clearly older than incised, “dynamic-realistic” gazelles (mainly dibatags), which in one case form a scene together with an archer (with pointed chin/beard and loincloth or penis sheet) with his dog, and several other dogs attacking the animals (fig. 8). The youngest phase displays a group of cattle, fish and possibly a donkey. “Giraffe Hill” (EB128A-D) has four dibatag gazelles on a small cliff, as well as a panel of seven giraffes, an ostrich (?), footprints, mean-

Fig. 8

Rock art from Gebel es-Sawan North (top) and the eastern part of Wadi el-Faras (bottom). The human figures are pecked in a very similar way. Tracing from photos.

Fig. 9

Rock art from Gebel es-Sawan North. Tracing from photos.



dering lines and a complex curvilinear design beside one of the giraffes (fig. 9). An additional panel has incised concentric circles next to what might be slightly younger ibexes, dogs and a human figure with outstretched arms. Close by is a panel with a small number of footprints, rubbed depressions and younger “bulky” cattle, partially drawn inside the depressions.

Panel P385A shows four very finely pecked animals with long necks looking like giraffes, but with horns akin to dibatag gazelles, superimposed by a crude “geometric” pattern (fig. 9). There are parallel dotted lines beside the scene. Close by is a possible crocodile and two strongly incurved boats with “clubbed” ends (probably Engelmayer’s Type I 1965). Two such boats are found further to the south (P829A; fig. 8), however here one of them has cabins and a decoration at the stem. Within the boats are small, carved-out cups. A contemporary human figure with loincloth/penis sheet accompanies the boats.

There are also scattered single occurrences, repeating the motifs at the larger sites such as a circle, a nested arch, a meandering line, a dog, a dibatag gazelle, a crocodile, an ox and two archers etc. As can be seen, the motifs also reflect Winkler 53, and it is likely that a similar chronological succession can be drawn up. The small geometric “symbols” seem to come first, followed by the giraffes, at one place with an associated curvilinear design and later most of the dibatag gazelles are added, as well as the ibexes, the archers with dogs, and the boats. The last figures in the sequence are cattle and fish (Pharaonic Period, probably Middle/New Kingdom).

Arguably the earliest figures are found on an angular boulder (P802; fig. 10) at the south margin of the western plain in Wadi el-Faras. They include curvilinear motifs connected with tadpole-like designs (which may not depict tadpoles at all!), some of which feature “extra arms” or radiating lines. A kilometre or so further west are giraffes and other weathered animals, as well as an eroded group of meandering lines. A small, eroded group of possible “tadpoles” can be found at Gebel es-Sawan North (P385B), however this is speculative.

Turning to the eastern part of Wadi el-Faras and a group of cliffs (P447-50) where there is view

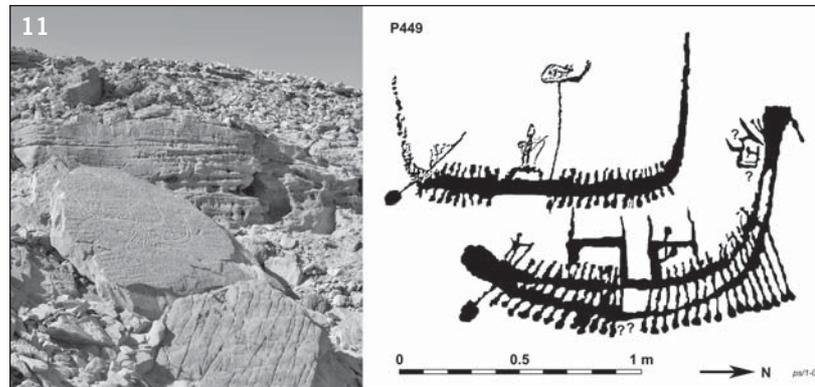


Fig. 10

Angular boulder (P802) filled with “tadpole”-like designs in the western part of Wadi el-Faras. Inserted: Part of the design traced from photo.

Fig. 11

Boat images in the eastern part of Wadi el-Faras. The upper boat features a king with a crown. Tracing from photo.

of the Nile some 1.5km away, we encounter a group of at least seven large ships, all more than one metre in length (fig. 8 & 11). All except one can be classified as Engelmayer’s Type II (1965); they have high, decorated stems with a hanging “rope”, low sterns with many oars/rowers, usually featuring cabins; in one case there is a rudder/mate. Groups of accompanying figures depict archers and humans raising their arms as if greeting the ships (in a similar way as depicted on the Qustul incense burner). These humans have much in common with the two others featuring loincloths/penis sheets (mentioned above, EB129, P829B) (fig. 8). One of the vessels is a large square boat with many oars, a rudder/mate and in the centre a person with a crown standing on an elevated platform (a king?). There is also a pole with an unidentified animal standard.

This “procession” of ships, including the possible king, is remarkable and has few parallels in Egyptian rock art. Importantly, the style of the accompanying human figures matches that of a king and accompanying images on a “lost”

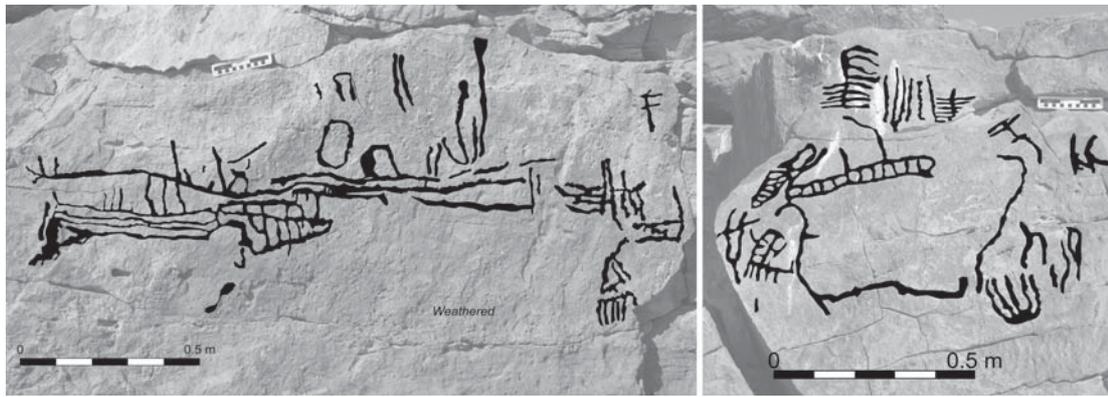


Fig. 12
Rectilinear designs including “ladders” by the Wadi of Dwarfs (P810A-B). Tracings from photos.

panel at Gharb Aswan, described at length in this volume by Hendrickx *et al.* and dated to the Late Predynastic/Early Dynastic Period. This serves as a considerable aid in dating other figures in Wadi el-Faras and environs since, as we have seen, there are also other panels with figures in a very similar style.

Fig. 13
Selection of geometric rock art in the Wadi el-Tilal- Cobble Ridge environs. Tracings from photos.

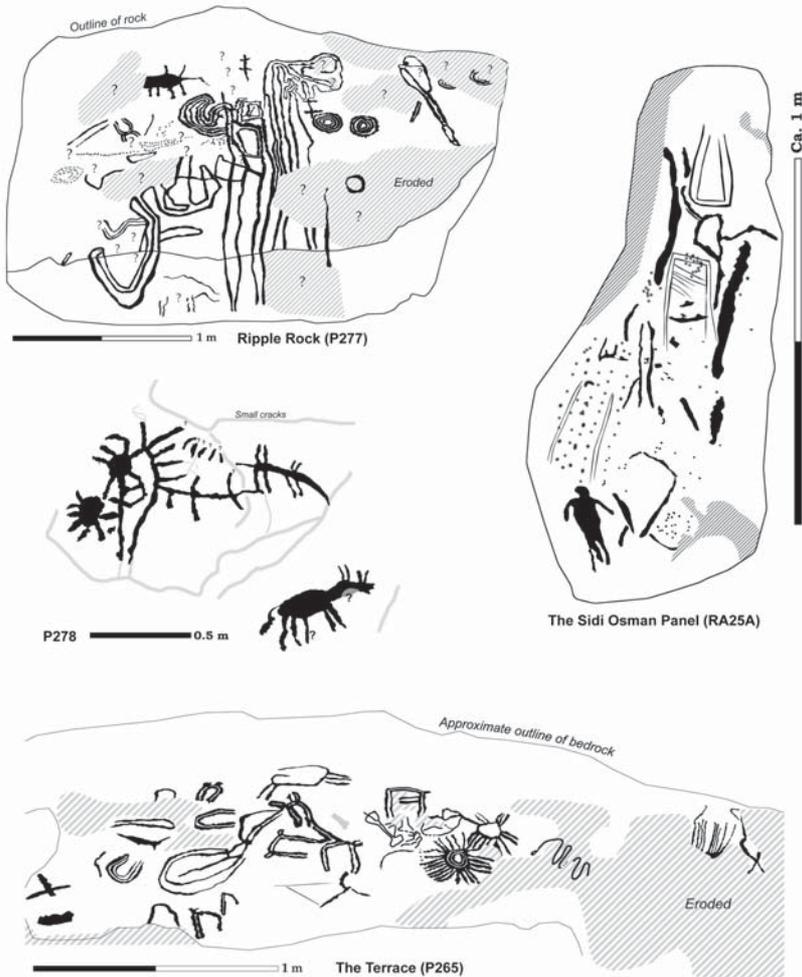
Rock art between the Wadi of Dwarfs and Gebel Gulab (Wadi el-Tilal)

Whereas Wadi el-Faras and environs show a rather limited range of geometric and other

figures, the southern area between Gebel Gulab and the Wadi of Dwarfs (**fig. 2**) display a highly complex rock art assortment. Any brief description is bound to be biased; however a narrative will be attempted, starting in the west, at the fringes of the Gallaba pediplain. This whole area is a complex grinding stone quarry landscape, at places mixed with Pharaonic and Roman ornamental stone quarrying (between Gebels Gulab and Tingar) (Heldal & Storemyr 2007).

As with Wadi el-Faras, the earliest rock art is found in the west, on the cliffs of a hillock in the Wadi of Dwarfs, which is a very small basin with many traces of stone working. Site P810, spotted by Adel Tohami of the SCA, consists of two intricate rectilinear compositions, including ladder-like figures (**fig. 12**). Judging from weathering and varnish that totally merge with the surrounding rock, these figures are definitely very old. Moreover, the ladders are similar to motifs found in the likely Epipalaeolithic corpus at El-Hosh (Huyge *et al.* 1998). That the region of the Wadi of Dwarfs was also visited much later (in the Predynastic Period) is testified by the odd occurrence of boats, mainly of Engelmayer’s Type II (1965) and possibly I and IV as well as a number of animals (giraffe, gazelle). There are also, like elsewhere at Gharb Aswan, many undated, deeply incised lines.

Although some scattered, much eroded rock art is encountered on moving east towards the Nile, the next significant site, the Sidi Osman panels (**fig. 13**), is located just north of Gebel Tingar. Apart from a human figure with a long penis, the design at RA25A is apparently geometric, composed of thin and thick lines, two of which feature a round figure “suspended” between them. There are incised open-ended “rectangles” and parallel dotted lines, possibly superimposed. RA25B consists of joined cir-



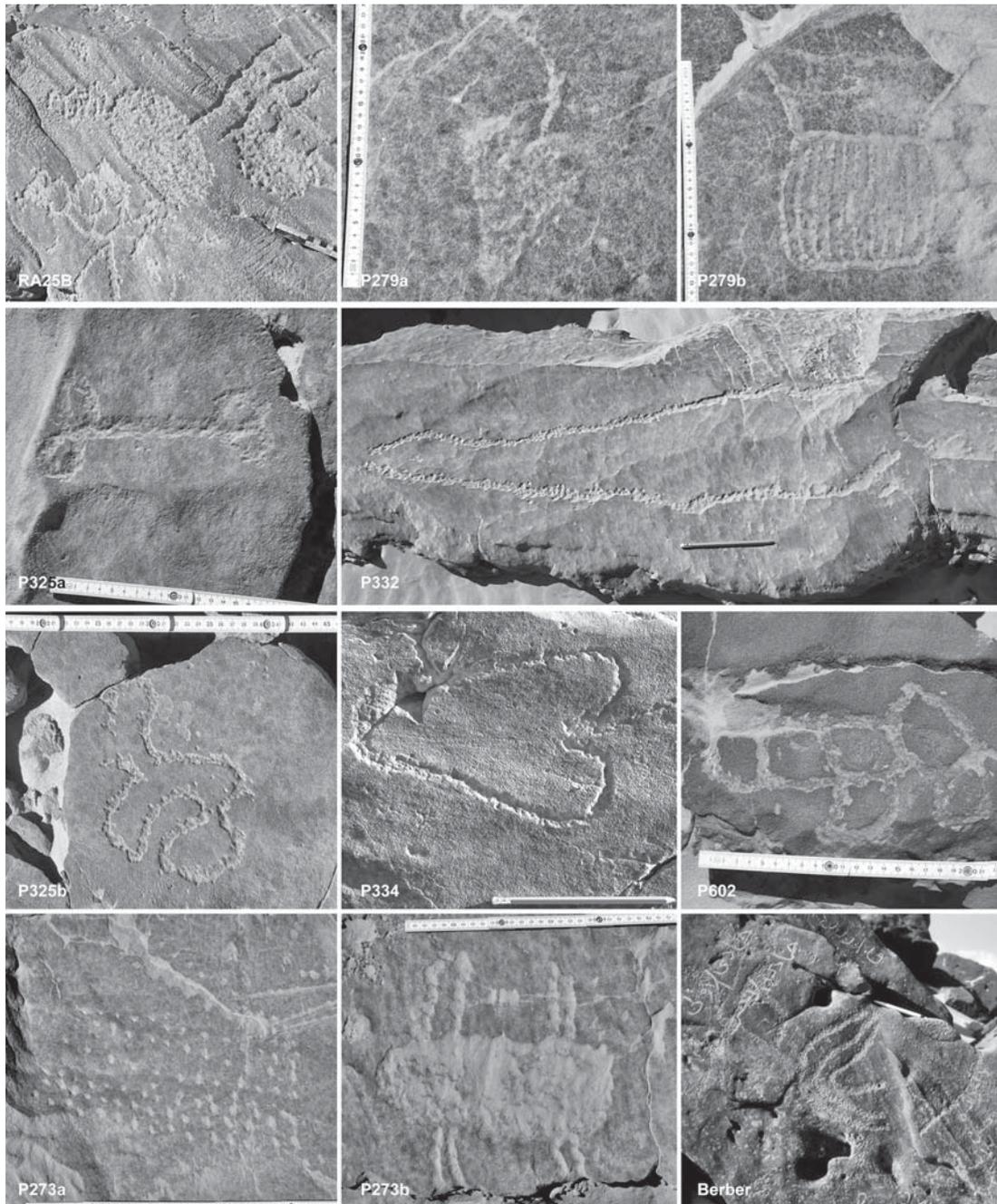


Fig. 14
Selection of motifs
in the Wadi el-
Tilal-Cobble Ridge
environs and at
Berber.

cles and lines and several fully pecked ovals. In the vicinity there is a grid (RA25C) and a site with a small number of crocodiles (P630-2). All of the figures have black varnish. The Sidi Osman panels are located at the edge of the “high desert”, near the Wadi el-Tilal. Discharging into the Nile in the vicinity of St. Simeon’s Coptic monastery this form a small system of narrow wadis, in which there are also several small panels. These panels include images of boats (P336), archers (P262), a few giraffes and crocodiles, foot prints (P326) and a variety of single geometric motifs (**fig. 14**), such as parallel lines, plain and semi-enclosed meandering lines, circles,

a “fish trap” and labrys-like symbols (EB105, P325, P332, P342, P625A). The archers and boats would be Predynastic in age (Naqada II-III), whereas the geometric figures are older, as judged from the varnish. At the eastern margin of Wadi el-Tilal is the elevated “Cobble Ridge”, after nearby Gebel es-Sawan (approx. 200m a.s.l.) it is the highest point in the area and very special within a local context due to a thick layer of cobbles deposited by a Pliocene channel of the Nile river (Channel I of Issawi & Hinnawi 1980). Below the summit is a wide terrace with outcropping Nubian sandstone, forming a scene for one of the most significant

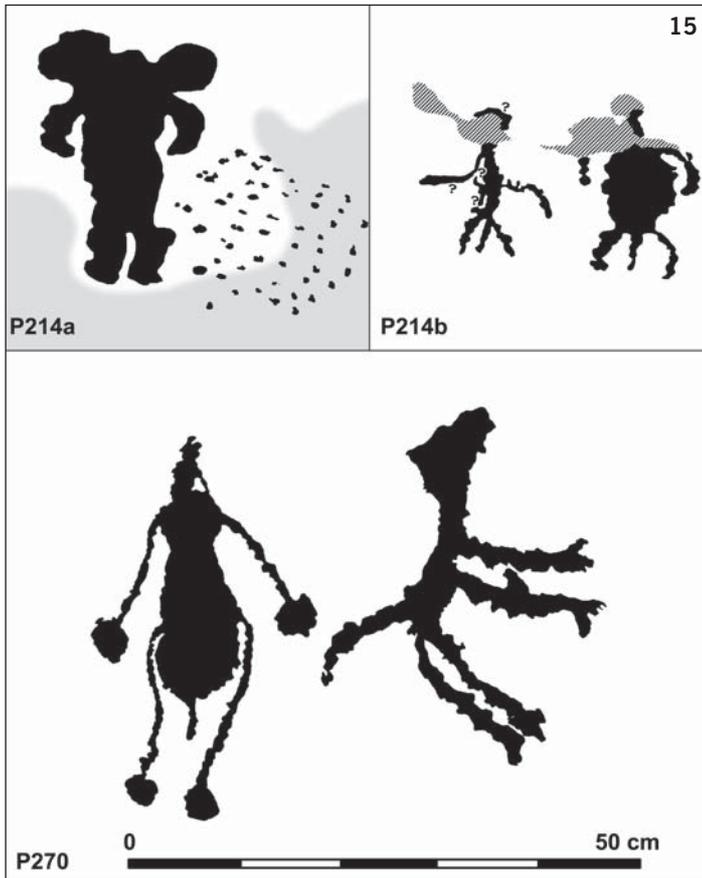


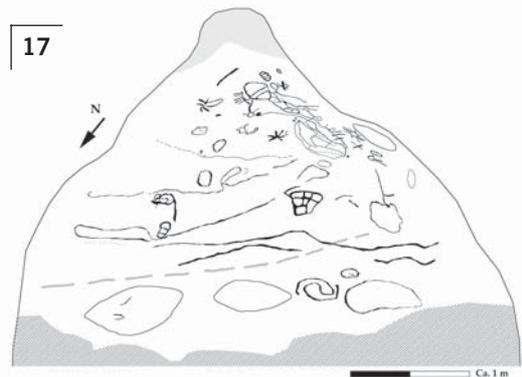
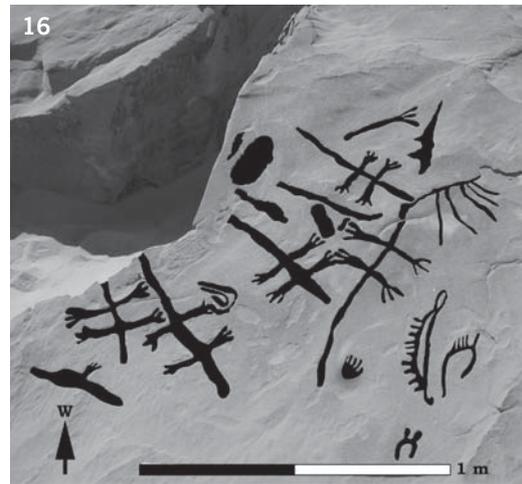
Fig. 15
Some human figures in the Cobble Ridge area. Tracings from photos.

Fig. 16
Part of a panel dubbed Crocodile Beach (P223). The panel is much eroded and the figures have been traced for illustration purposes.

Fig. 17
The geometric composition on Commander's Rock (P240). Sketch based on photo mosaic. Hatched areas are weathered, the stippled line marks a small ridge, the grey area in front is elevated. Compare with fig. 10.

rock art locations in the area. The two most conspicuous panels are "Ripple Rock" and "The Terrace".

Ripple Rock (P277) (fig. 13 & 26) is a thin, flat slab on the western side of the ridge, owing its name to the naturally rippled surface forming parallel grooves, within which long lines have been pecked. These are connected with concentric curved lines and labyrinth-like patterns. Beside this main feature are concentric circles and other geometric figures consisting of two crocodiles and two unidentified animals. Despite sandblasting, remains of deep black varnish have survived and it can be observed that a concentric circle and a group of dotted lines were added later. On a group of boulders next to Ripple Rock is a composition with interconnected lines and possibly a warthog (*Phacochœrus aethiopicus*) (P278; fig. 13). The warthog is interesting since it is largely unknown in Predynastic and Pharaonic Egypt (Manlius & Schneider 1997) and may thus be dated to an earlier period. In rock art it is reported only from Kharga, probably dating to the Old Kingdom or earlier (Manlius 2005). The animal is known to have existed until at least the Neolithic in, for example, Dakhla (Churcher *et al.*



1999: 309). An array of smaller panels is located in the vicinity (P273-6, 279, 281, 312, 602), with motifs such as lines, parallel dotted lines, pecked ovals, lattices, leaf-forms, footprints, crocodiles, unidentified animals and possibly some human forms. An interesting motif is a human associated with a rope hanging from a giraffe. The Terrace (P265) is located at the southern edge of Cobble Ridge with splendid vistas towards the First Cataract. The panel (fig. 13) has concentric circles with radiating lines, nested arcs, a meandering line and a complex motif with connected curved and straight lines. Unfortunately, the panel is much eroded, as is the case at nearby panels, on which there are more circles with radiating lines and several series of parallel dotted lines (P266-9). Not far away is a curious panel (P270) including a human figure consisting of a pear-formed body with a small head, penis, thin legs and arms ending in pecked circles. It is accompanied by what might be a dog (fig. 15). Similar, yet less carefully executed human figures are located in a wind-swept re-entrant below (P211-7). Here, a figure with exaggerated "ears" and two with thin arms and legs and long penises are represented (fig. 15). Some crocodiles and unidenti-

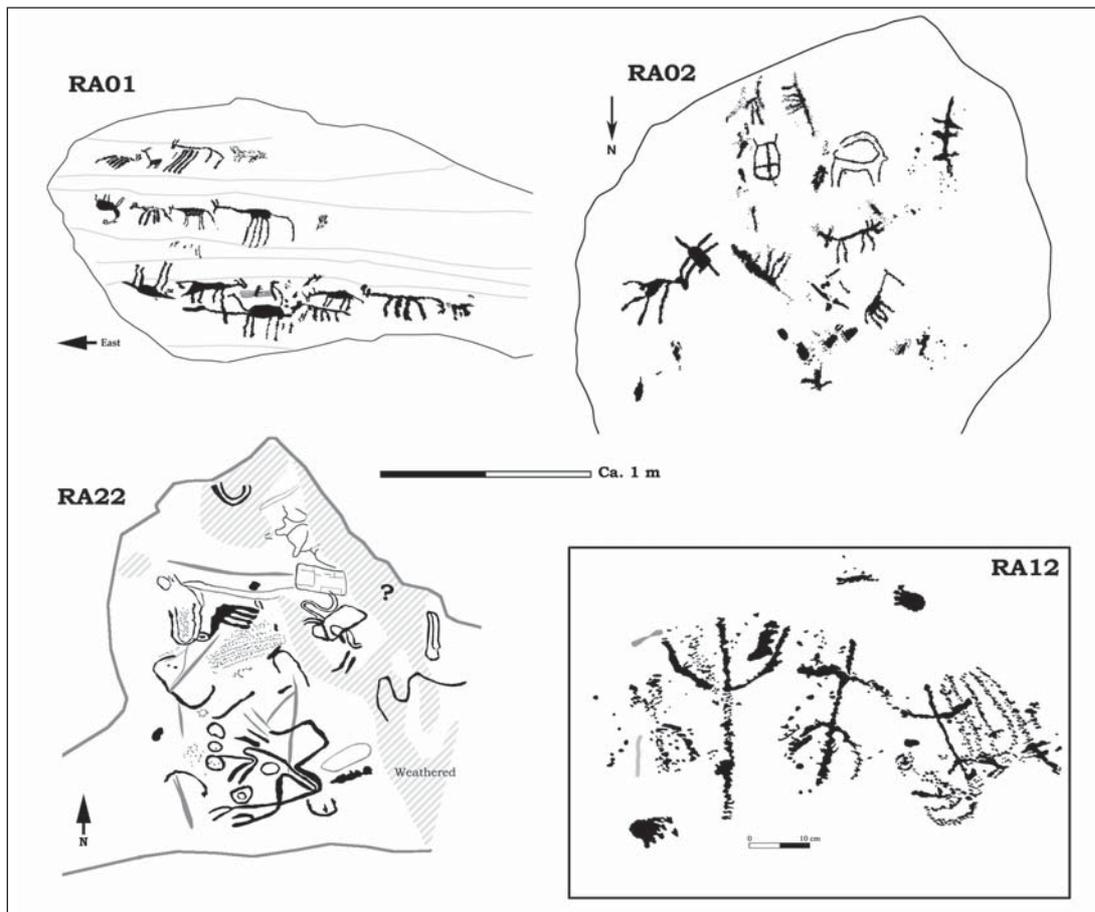


Fig. 18
Selection of panels at Gebel Gulab. Tracings from photos.

fied animals, pecked areas, parallel dotted lines, circles and arcs are also present. Much later visits are attested by an incised long-horned bull. East of Cobble Ridge the landscape gently slopes down to the small “Wadi Ramla” and Gebel Gulab with its Pharaonic and Roman ornamental stone quarries about one kilometre away. In this zone there is a much eroded panel, dubbed “Crocodile Beach” (P223-4) due to the occurrence of several crocodiles in a small natural depression beside a broad crack in the bedrock – as if the crocodiles have emerged from a river (fig. 16). There are several other figures such as arcs, lines, a pecked oval, a human (?) with a “winged” belly, a centipede(?), handprints, numerous small footprints and a large crocodile (1.5m) drawn along the entire long axis of a slightly elevated outcrop. Nearby, small panels (P285, 287-8) have motifs that include circles, arcs, lines, parallel dotted lines and single giraffes (P272, 301). On the tip of a plateau close to Gebel Gulab is a complex panel (RA22, fig. 18) with a range of geometric motifs (circles, lines, arcs, meanders and parallel dotted lines), including what could be an elephant, as well as simple, incurved square boats and footprints. The panel is accompanied by ani-

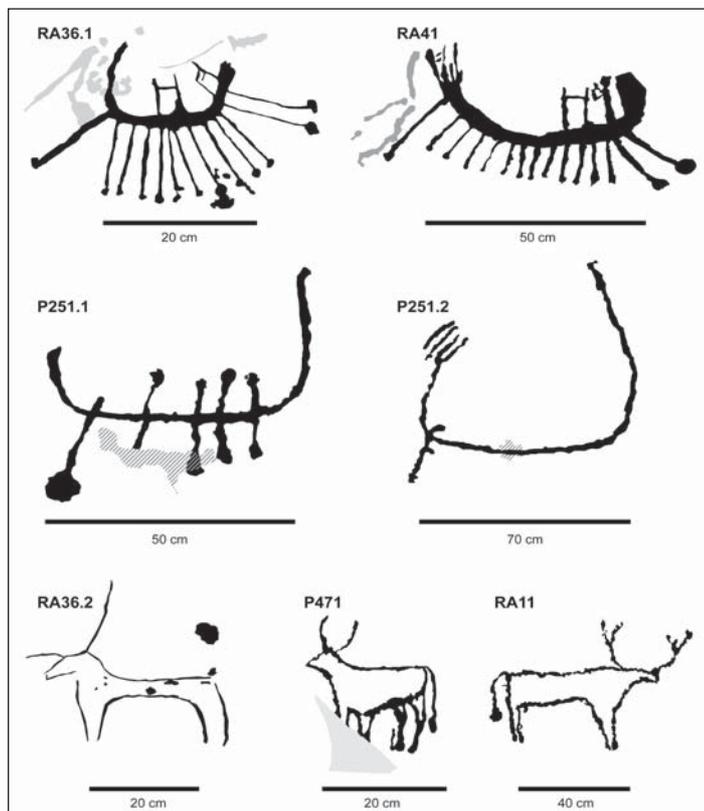
mal figures (ibex, gazelle, crocodile?) at neighbouring locations (RA21, P514).

Perhaps the most impressive rock art in the survey area is located in Wadi Ramla. Commander’s Rock (P240) derives its name from the impression one gets of “commanding” a natural amphitheatre from the site (fig. 17 & 25). It is an imposing boulder on which the “back” has a large composition of circles, long straight and slightly curved lines, shorter, interwoven and interconnected lines and some crocodiles. There are clear divisions in the composition; with the largest circles placed to the north, most lines along a ridge in the centre and the other figures to the south. All have dark greyish varnish although a single ibex is evidently drawn at a later date. Importantly, small images, such as a lotus or palm frond-like motif, a circle with radiating lines and a small grid appear to predate the other figures.

In Wadi Ramla there are also panels with parallel dotted lines, small meanders, circles and arcs, many small footprints as well as a giraffe, crocodile, gazelle and simple incurved and high-stemmed boats (RA12, P241, 245, 247-8, 251-2, mainly of Engelmayr’s

(1965) type II) (**fig. 19**). This assemblage, apart from the geometric motifs, can also be found at Gebel Gulab. Though many panels here are heavily sandblasted, most of them depict “classical” Predynastic motifs: there are giraffe panels (e.g. RA31), boat panels (e.g. RA34, 36, P471 mainly Engelmayr’s type II, IV or V), in two cases associated with rubbed depressions; however, the most conspicuous ones depict a range of animals. This is the case at RA01 (**fig. 18**), showing three rows of giraffe, gazelle and a possible ibex at a boulder cliff-face and at nearby RA02 (**fig. 18**), which has giraffes, an ostrich, a fox, a possible crocodile and small footprints, all drawn roughly contemporaneously. An ibex was evidently added at a later date and may be contemporary with a small group that includes single cattle figures (RA11, P471; **fig. 19**). Much later figures at Gebel Gulab include a fine New Kingdom boat (RA51). Moreover, an important, predominantly New Kingdom site (EB112) is located in a secluded shelter with good views of the Nile at Khnum Quarry, just north of Gebel Gulab, depicting images of boats, deities, men and fish. Use of the site during the New Kingdom and Roman Period is also known through

Fig. 19
Selection of boat and cattle images at Gebel Gulab and environs. Tracing from photos.



many inscriptions that have survived (overview in Bloxam & Kelany 2007); during the latter era, sandal prints and symbols such as altars are also attested.

Attention should be paid to the site at Berber located near the Nile between the islands of Elephantine and Saluga. Based on my own brief visit and the description by Schweinfurth (1912), the site displays at least three phases of rock art creation comprising of: 1) an early phase with a nested arc and interconnected lines (**fig. 14**); 2) possibly Predynastic and slightly later motifs including tessem dogs, ibex, gazelle, a man herding a bull and a cow; 3) an even later panel of figures that include a goat and pig (?), as well as a horse or camel. The site also has a fairly modern array of animals, feluccas, household utensils and inscriptions.

Rock art in Wadi Kubbaniya and New Aswan City

Whereas the two southern groups include rock art with many common characteristics, in the northern section we encounter different, scattered images. This section represents a larger area, stretching from the broad and wide open Wadi Kubbaniya to the southern portion of New Aswan City, now under construction (**fig. 2 & 27**).

A small corpus is found on low hills literally within the Late Palaeolithic grinding stone quarries (cf. Roubet 1989; Heldal & Storemyr 2007), close to the contemporary habitation sites at the northern margin of Wadi Kubbaniya (**fig. 20**). There are more than 30 rubbed (and pecked), heavily patinated depressions and some incised lines, accompanied by tiny panels (P403-8) with a small number of geometric figures (pecked lines, circles and arcs with medium varnish), a giraffe with a rope from the neck and two heavily patinated quadrupeds (ass?, ox?) with large heads and short horns or ears; one of which has a pear-shaped appendix “hanging” from the hind quarters (wounded?, entrails?). Close by are two other, most likely contemporary, extremely schematic incised animal figures. A possible human figure with medium varnish has a small “stick” head, short, outstretched arms, a large, almost “winged” belly, short legs and a penis of

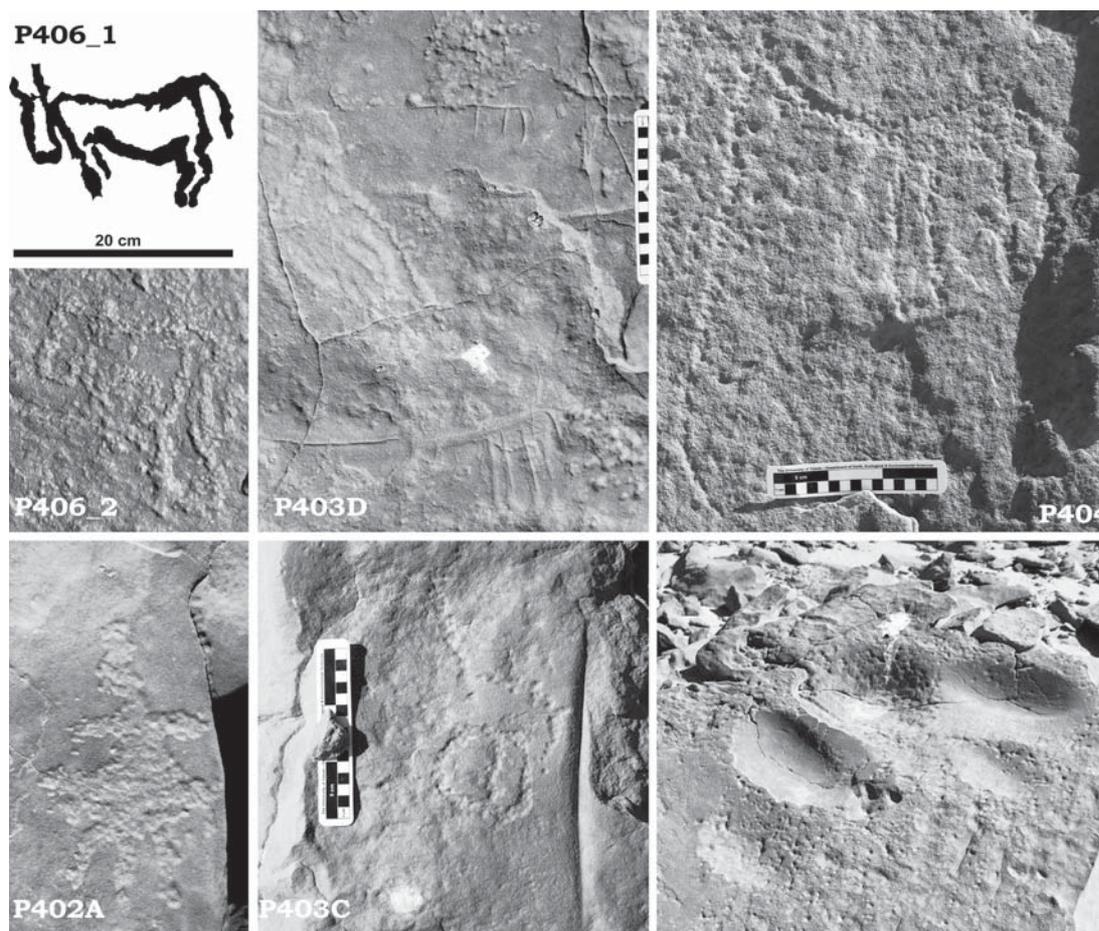


Fig. 20
Selection of rock art near the grinding stone quarries and Late Palaeolithic habitation sites in Wadi Kubbania. Scale by traced animal valid for all pictures except lower right.

similar size (not unlike the possible human figure at “Crocodile Beach”, see above).

Judging from the weathering and varnish it is tempting to suggest that some of the figures may be contemporary with the Late Palaeolithic activity at the site. However, they are very unlike the probable Late Palaeolithic naturalistic animal figures in the region (Huyge *et al.* 2007; Huyge 2008; Storemyr *et al.* 2008). Moreover, parallels at Gharb Aswan include figures at Winkler 53 (giraffe) and Crocodile Beach (possible human figure). This would point to a much later period than the Late Palaeolithic. At the southern margin of Wadi Kubbania can also be found rubbed depressions accompanied by incised and pecked lines (P521), as well as a grid (P619).

Further south, there is mainly Pharaonic Period and later rock art. Two sites at landmarks by the Nile, Hagar el-Ghorab and Gebel el-Qurna, have been described at length in this volume by Gatto *et al.* (a). They both display a long succession of rock art; however, there are few Pre-

dynastic pictures and no images from earlier periods have been found. Hinterland rock art shows similarities with the Hagar el-Ghorab site. Gebel el-Qurna West (P707-10) is on a small hill 1.5km west of the Nile and consists of about ten boats, many with square sails, in a very secluded position, probably dating to the Middle Kingdom period (*cf.* Červíček 1974: type XVI boats; Landström 1970: 75-97). On and around the hill there are a few eroded pictures in open positions showing what might be identified as a giraffe and an elephant – probable testimonies of Predynastic visits. Hagar el-Ghorab West (P608-11) is also on a group of small hills, about 1.6km west of the river. And here, too, are a couple of presumably early giraffes and other animal drawings in open positions, accompanied by what most likely could be a Middle Kingdom period herd of long-horned cattle drawn on a very sheltered, north-facing wall. In the vicinity of these two latter sites are several small, undated grinding stone quarries and shelters.

Tab. 1 • Tentative classification of geometric rock art at Gharb Aswan.

No.	Class	Subclass	Attribute	Wadi el-Tilal environs	Wadi el-Faras environs	Wadi Kubbaniya environs	Comment
Simple forms							Also as recognisable on panels with compositions
1.1	Line	plain		23	2	1	Independent of length
1.2	Line	plain	parallel	4	1		Often sub-parallel, almost meeting at one end
1.3	Line	plain	crossing double	1			Two long lines crossing at low angle
1.4	Line	plain	attachment	1	2		Lines or pecked area attached
1.6	Line	dotted	parallel multiple	26	1		Sometimes sub-parallel
1.7	Line	curved		8			Sometimes like meanders with «long amplitude»
1.8	Line	angular		3	1		Lines with sharp angles
1.9	Line	meandering		4	16		Most at Winkler 53
1.10	Line	meandering	sub-enclosure	2	5		Meandering line formed as sub-enclosure
1.11	Line	meandering	attachment	2	3		Attachment typically circle/semi-circle or pecked area
1.12	Line	meandering	spiralling	1			Only one «spiral»
1.13	Line	zigzag		1			Short
2.1	Rectangle		open-ended	4			Reminiscent of some «ovaloids» in Saharan rock art
3.1	Triangle			2			Could be sails
4.1	Arrow			3			Pecked outline
5.1	Cross			3			Two crossing lines or T-form
6.1	Lattice	grid	crossing lines	6		1	Often slightly curved lines
6.2	Lattice	grid	parallel lines	1			Enclosure (rectangle), with protuberances («horns»)
6.3	Lattice	ladder-like	two «poles»	2		1	Like conventional ladder
6.4	Lattice	ladder-like	central «pole»	6			
7.1	Arc	plain		9	1	3	In one case dotted
7.2	Arc	plain	one internal line	4			Internal line parallel to the sides of the arc
7.3	Arc	plain	internal parallel lines	1			Internal lines parallel to the sides of the arc
7.4	Arc	nested		10	5		Usually only two nested together
7.5	Arc	double		4			Two opposing arcs, touching each other
7.6	Arc	horned		2			Two small protruding lines at the short side
8.1	Circle	plain		36	6		May be completely pecked or with irregular outline
8.2	Circle	plain	central point or cup	2	1		
8.3	Circle	plain	internal lines	5	1	1	Small attachments like lines may be present
8.4	Circle	plain	two crossing lines	2			Along the diameter
8.5	Circle	plain	radiating lines	6	2		Radiating lines, in one case only one
8.6	Circle	concentric		11	3		
8.7	Circle	concentric	internal lines	1			
8.8	Circle	concentric	radiating lines	3			
9.1	Oval	pecked		41			May be longish or irregular, some foot prints?
Composite designs							Partially composed of simple forms
10.1	Mainly rectilinear			10	1		Usually open (not enclosed by lines), with parallel, crossing and radiating lines
10.2	Mainly curvilinear			6	1		Includes closed rectangles/ovals tied together and rows of circles with radiating lines
Complex compositions							Panels including unique features, but also composite designs and simple forms
11.1	Mainly rectilinear			2			Panels: P810
11.2	Mainly curvilinear			3	1		Panels: EB 128C, P240, P265, P277
11.3	Tadpole-like				1		Panels: P803 (perhaps also P385B)
Uncertain							
12.1	Leaf forms			5	1		Heart-forms, two are clover-forms, one like a fish trap
12.2	Lotus-like forms			1	1		Or palm frond-like
12.3	Labrys-like forms			2			One with crossing, longish enclosure
12.4	Other			30	16	5	Small figures, difficult to classify or too eroded
Total				299	73	12	
Not included							
	Series of cups/holes			2	1		Often as grids. Game boards?
	Series of short lines			2	4		Counting systems?
	Incised grids			2			Weakly incised. Probably game boards
Characteristic associated figures							Statistics not yet available
	Crocodiles			many	few		At geometric rock art panel or in near environs
	Giraffes				some		At geometric rock art panel or in near environs
	Humans			few			At geometric rock art panel or in near environs
	Small footprints			many			At geometric rock art panel or in near environs

Analysis

Classification and comparison of geometric motifs

At this stage of investigation and analysis it is only the geometric corpus that has been classified. I have divided the motifs into 1) simple forms, 2) composite designs and 3) complex compositions.² Statistics have been made from each of the three main rock art areas, following the description above, from south to north: 1) Wadi el-Tilal³, 2) Wadi el-Faras and 3) Wadi Kubbaniya (Tab. 1).

There is a great variety of simple forms and about 35 have been classified from a total of approximately 300 figures. Of these, ovals and plain circles are the most frequently encountered, followed by parallel dotted lines. Plain lines, arcs and concentric circles are well represented, as are meandering lines, of which Winkler 53 (P400A) has more than the half. It is worth noting that parallel dotted lines are almost exclusively found in the environs of Cobble Ridge/Gebel Gulab and that ovals, so important in the south, are totally absent elsewhere. Notably, no spirals have been found.

Composite designs, often made by combining simple forms, have been divided into mainly rectilinear and mainly curvilinear forms. In total there are less than 20 such designs, the great majority of which is found in the south. Seven panels are classified as complex compositions (or very special, extensive designs), five of which are located in the south (the rectilinear compositions in the Wadi of Dwarfs, Ripple Rock, Commander's Rock and The Terrace) and two further north (at Giraffe Hill and the "tadpoles" in Wadi el-Faras). Of course, panels with simpler motifs may also contain compositions. A total of about 60 uncertain forms that could be depictions of floral, animal or other motifs (such as weapons and tools), or that are too eroded to allow for precise identification, have been noted.

Abka and El-Hosh are known to possess substantial early geometric corpora. They are both

comparable to Gharb Aswan, but whereas Abka has a wide variety of simple forms and "smaller" designs, the El-Hosh corpus is centred on fish trap motifs, probably reflecting the site's use for mainly fish hunting. Hellström (1970) reported 104 geometric figures in his Abka "Corpus X". Though the number of Myer's (1958) figures from the same site is difficult to discern, it would perhaps amount to somewhere between 20 and 50. Thus, the maximum number of geometric motifs at Abka may be in the order of 200 (as compared to around 400 at Gharb Aswan). Using the Gharb Aswan classification scheme, there are about 15 simple forms at Abka, as well as additional types (10-15) not present in our area. The number of composite designs (see especially Hellström's Corpus X29-33, X71-80) would be about the same at the two sites, though they are partially different. There are no complex compositions at Abka that would match the most notable ones at Gharb Aswan. Although this comparison is a sort of validation of our hypothesis, namely that Gharb Aswan has a very varied assemblage; it is more interesting to note that there are quite a few obvious similarities between the two corpora. Having stated this point it must also be noted that there are also vast differences between the corpora: as usual, similarities are particularly reflected in simple forms (circles, arcs, grids), whereas more complex designs are not only different, but also very hard to sensibly compare.

The simple forms such as concentric circles, arcs and grids, as well as composite designs ("curved and meshing lines") appear to be the earliest at Abka and may be vaguely associated with "stylized" humans, crocodiles and some other figures (see analysis of Hellström's and Myer's reports in Davis 1984; 2006). They are older than the next succession of drawings that include giraffes, crocodiles, small human figures, hand prints, wheel traps and "snakes" (meanders?). This is quite in line with the findings at Gharb Aswan, where some simple forms and composite designs are clearly among the most ancient, although they may be preceded

2. When possible, within this classification I have used terminology from the IFRAO Rock Art Glossary, see : <http://mc2.vicnet.net.au/home/glossar/web/index.html>

3. This area stretches from the Wadi of Dwarfs to Gebel Gulab. In Storemyr (2008) it is called the "Cobble Ridge group".

by complex compositions such as the rectilinear ones. Moreover, in some cases they are associated with crocodiles (e.g. Ripple Rock) and humans (e.g. the Sidi Osman panels). The dating of the earliest Abka rock art is highly disputed and range from the 10th to the 5th millennium B.C., though it seems that a later range (5000-6000 B.C.) is being increasingly accepted (Myers 1958; 1960; Hellström 1970; Davis 1984; 2006; Huyge 2003: 70).

The El-Hosh geometric corpus with its high concentration of fish trap motifs has been dated with a variety of methods, including AMS ¹⁴C of organic components within the varnish, providing a *terminus ante quem* of 5600-5300 B.C. Associated with this corpus are human figures not unlike the one at the Sidi Osman panels, as well as thick-bodied crocodiles, a variety of ladder-like forms, circles, nested arcs, pecked ovals, footprints, some parallel dotted lines and sub-enclosed meanders. Early motifs are frequently superimposed by Predynastic images, especially giraffes with much less varnish (Huyge *et al.* 1998; 2001; Huyge 2005).

Another location containing geometric designs comparable to Gharb Aswan is Wadi Atwani in the Eastern Desert, here Winkler's (1938) sites 14 and 17 comprise of crocodiles, "grids", footprints/handprints, arcs and pecked ovals. Wadi Umm Salam, also in the Eastern Desert, features a different array of geometric motifs, including concentric circles, meandering lines and "ladders", including a complex, definitely very old design with parallel/concentric and radiating lines. This design has a complete varnish and is superimposed by what might be a Predynastic boat with no varnish. It is located near the so-called "Jacuzzi site", a narrow gorge with a natural "whirlpool" by the main wadi that also features a vast amount of rock art mainly from the Predynastic era. Apparently, the many giraffes at the Jacuzzi site are associated with meanders (Morrow & Morrow 2002: sites SAL 4, 10-14, 28, 32, 40). Winkler's sites 17 (Wadi Atwani) and 26 (Wadi Abu Markab el-Nes/Wadi Abu Wasil) include a number of curvilinear motifs or meandering lines (see also Cherry 2000). Other meandering lines have been found on small boulders in the gold mining area at Umm Eleiga in the southern region of the Eastern Desert (Klemm 1995).

I have argued above that the meandering lines at Winkler's site 53 (P400A) are roughly contemporary with the giraffes and could well date to the early 4th millennium B.C. These particular meandering lines have close parallels at site N.K. 74 and N.K. 77 at Naq Kolorodna (Almagro & Almagro 1968: 102-3) and in the Dakhla Oasis, where they have tentatively been ascribed a "neolithic origin" by Kobusiewicz and his group (Bagnall *et al.* 2006: 15-9, fig. 11). It is difficult to tell from the available documentation whether similar motifs are present among the "wavy-lines", spirals, circles and curvilinear designs at Winkler's (1939) sites 58-68 near the Ghubari road between Dakhla and Kharga. However, it is interesting to note that Winkler reported perhaps the most numerous rubbed depressions found during his surveys at some of these sites. As will be recalled, site 53 in Wadi el-Faras also displays such depressions in great quantity. They are likewise very numerous at Nag Kolorodna (Almagro & Almagro 1968: plate 1).

At Winkler 53 (P400A), the giraffes have ropes hanging from their necks and at a location near Cobble Ridge (P275) a human figure is "attached" to the rope. Similar motifs are rather common, especially in the Western Desert, where Winkler (1938; 1939) found them for example at his site 58 along the Ghubari road and at El-Hosh (site 35). The Darnells have recently reported similar motifs at Bir Nakheila, where similar "meandering elements" occur (J. Darnell 2002a: 149-50, D. Darnell 2002: 162). Moreover, these researchers have reinvestigated Winkler's sites (e.g. 40-43, 46) in the desert west of Thebes-Armant and found several new rock art locations that include giraffes with ropes etc. Importantly, in this region there appears to be several sites with small symbols, such as "lotus-like flowers or papyrus umbels" and "U-shaped" forms (arcs), as well as meandering lines. Some of the most striking rock art recently discovered include handprints in the "Cave of the Hands" – paralleled in Farafra (Barich 1998) and the Sahara at for example, the Gilf Kebir and thought to be an interesting indicator of contact (D. Darnell 2002; 2008; *cf.* Le Quellec & Huyge 2008: 92-93).

Early contacts between Egypt/Lower Nubia and Central Sahara have long been proposed on the

basis of geometric rock art (Hallier 1997, with references to earlier works therein). However, as Le Quellec (1997) points out, it is problematic to compare such globally common figures (*cf.* Bahn 1998: 180, 222-5), when themes such as dating, associated figures and archaeological context remain unclear. It is mainly the simple forms (circles, arcs etc.) that can be regarded as being similar, whereas more complex forms are different, as we have also seen in our comparison of the Gharb Aswan and Abka material. Some of the “neck-less” (Round Head) figures apparently related to geometric rock art (*e.g.* Hallier & Hallier 2003) have certain similarities to the human figure at the Sidi Osman panels; and perhaps importantly, this panel includes open “rectangles” with affinity to some of the “ovaloids” in Saharan rock art (*cf.* Hallier 1990: 72, No. 20). My view is that we should not preclude the possibilities of contact; however, validating or discarding such a hypothesis would imply substantial efforts in order to gain an understanding of the contexts of these groups of rock art.⁴

Tentative chronological summary

Despite difficulties in comparing spatially and temporally widely spaced geometric rock art, there can be little doubt that most occurrences in Upper Egypt/Lower Nubia and the adjacent deserts generally postdate the Late Palaeolithic and continue into the early Predynastic Period. For Gharb Aswan, within this immense time span, I believe it is feasible to distinguish between early and late motifs on the basis of the comparisons presented above, and great differences in varnish/weathering.

When patterns of weathering and varnish on pictures in open locations completely merge with the surrounding rock it is usually clear that they have been exposed to a significantly wetter climate than what would have been the case during the Predynastic Period. This is because no examples of typical Predynastic motifs (*e.g.* boats) have developed such patterns; a fact certainly caused by the gradual retreat of the rains after c.5000 B.C. (Nicoll 2004, Bubenzer

& Riemer 2007; for theories of varnish formation, see Liu & Broecker 2007; Cremaschi 1996; Dorn 2007). However, it is yet extremely hard to make chronological sense of a wide variety of “intermediaries”. The most obvious difficulties are related to the limited amount of superimposition and widespread sandblasting, as well as to varying rock properties (for example, figures on silicified sandstone are generally darker than contemporary ones made on non-silicified sandstone) and (presumably) limited and irregular varnish formation during the climate desiccation period (c.5000-3000 B.C.). This implies that fine-tuning of relative chronologies is impossible if motifs are not closely spaced on the same panel (such as at Winkler 53/P400A).

Epipalaeolithic motifs would likely include the rectilinear designs and ladder-forms in the Wadi of Dwarfs, perhaps also the “tadpoles” in Wadi el-Faras, the most intensively patinated simple forms throughout the area (some concentric circles with and without radiating lines, ovals, arcs and lattices) and a few panels with composite designs, for example the Sidi Osman panels. Moreover, it is possible that some of the crocodiles and one or two of the few human figures are contemporary with such motifs. At the other end of the spectrum are many meandering lines and curvilinear designs, especially those associated with giraffes, some with ropes from their necks (Winkler 53, Giraffe Hill) that may well have been made during the early 4th millennium (*e.g.* Huyge 2002).

For many simple forms, as well as composite designs and complex compositions (*e.g.* Ripple Rock and Commander’s Rock) we can only state that they were most likely made before the Predynastic Period; yet they are probably younger than the rectilinear designs in the Wadi of Dwarfs. The important parallel dotted lines are apparently superimposed/later additions on earlier images at four locations (Sidi Osman panels, Ripple Rock, RA22 and P385A), pointing to their relatively late date (Neolithic?). If it is correct to state that giraffes with ropes from their necks can be placed just after 4000 B.C.,

4. I have omitted in this section a discussion on the widespread (dotted) wavy-line pottery. There are few designs that closely compare with rock art, but see Jesse (2003: 136ff) on geometric pottery decoration in Wadi Howar, which includes arcs. Jesse (2005) has also reported many rock art grids in Wadi Howar.

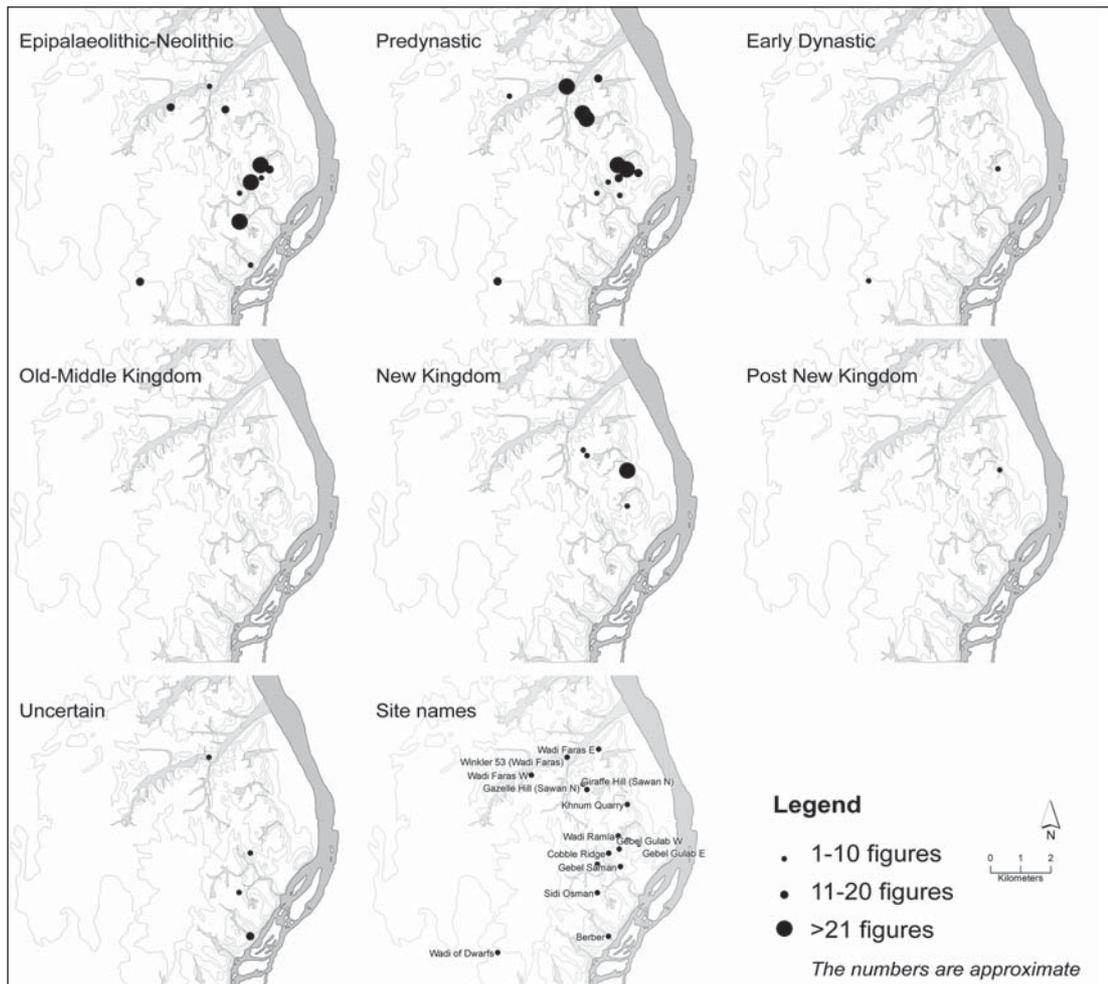
many small associated footprints may indeed be of the same age. This would further imply that quite a few crocodiles are contemporary. A date around 4000 B.C. would, moreover, not be entirely unlikely for the small corpus located near the Late Palaeolithic settlements in Wadi Kubbaniya, however this is speculation.

Considering the Predynastic motifs (concentrated at the southern part of the survey area), there are a few examples of animals other than the giraffe; perhaps a crocodile, some gazelle, ibex and ostrich that can be placed in the early 4th millennium (Winkler 53 and panels RA01-02 at Gebel Gulab). Whether simpler boats turn up at this stage remains debatable; it seems clear that most boats in the area can be dated to Naqada II-III (excluding relatively clear Middle and New Kingdom examples). On the basis of associations between boats, human figures and gazelles (especially relating to the large boats with a depiction of a king,

P449A-B) in Wadi el-Faras and environs, several such images located elsewhere can also be placed within the same periods. However, the very long-necked, delightfully pecked animal at P385A (Gebel es-Sawan North) is superimposed by a crude geometric figure associated with parallel dotted lines. This would point to an earlier date for the animals than Naqada II. It is difficult to assign cattle figures to periods prior to the Late Predynastic/Early Dynastic periods (as at Elkab, see Huyge 2002: 197). They rarely occur in direct association with other animals and where present, for example at Gebel Gulab they typically have less varnish than giraffes and boats.

In the southern portion of the survey area there seems to be a break in rock art creation on approaching the Old Kingdom (see also **fig. 21**). A short “revival” may be attested by probably the New Kingdom in the area of Gebel es-Sawan North and Gebel Gulab, but

Fig. 21
Tentative chronology of the most notable clusters of rock art across the southern part of Gharb Aswan. Not all small sites have been included.



later images are rare. The break by the Old Kingdom may also be valid for the significant sites at Hagar el-Ghorab and Gebel el-Qurna, although here there are many Middle Kingdom period images attested (see Gatto *et al.* in this volume).

Tentative cultural attribution

Since no habitation data is as yet available on the Epipalaeolithic and Neolithic, we can at present only extrapolate from evidence in nearby regions for cultural attribution of the earliest rock art. The closest known Nilotic Epipalaeolithic habitation site is Elkab and it has been argued that it should be seen as a local expression of the widespread Western Desert Early Neolithic, with sites at places such as the Second Cataract, Nabta Playa, Bir Kiseiba, Kharga, Dakhla and Dunqul. Tree Shelter in Wadi Sodmein (Eastern Desert) also belongs to this group (Vermeersch 1984; Hendrickx & Vermeersch 2002: 35-36). With Gharb Aswan located between the presumably, at least partially, contemporary rock art sites at Abka and El-Hosh, there can be little doubt that we are dealing with other expressions of the regional Epipalaeolithic/Early Neolithic horizon with its highly mobile peoples.

For the Neolithic similar arguments can be used: if we acknowledge the developing hypotheses, especially by Gatto (2002; 2006(a); (b)), of the close relationships between the Badarian, Naqada I, Western Desert (Final) Neolithic, Abkan and *Early A-Group*, the distribution of geometric motifs along the Nile and in the Eastern and Western Deserts makes sense. This hypothesis would point to the creation of this rock art by several small, but closely interconnected, relatively mobile groups. The early 4th millennium habitation site (Nag el-Qarmila) and cemetery (“Kubanieh Süd”/Sheikh Mohammed) at Gharb Aswan (Junker 1919; Smith 1991: 94-8; Gatto & Guiliani 2007; Gatto *et al.* (b) this volume) also seem to reflect such close connections between Naqada I and the *Early A-Group*.

As for cultural attribution of Predynastic (especially from Naqada II onwards) and later rock art, this has not been analysed. However, for future attempts at interpretation, it seems to be relevant to point to the apparent lack of Old

Kingdom pictures and the revival by the Middle Kingdom, especially in the northern portion. This may, however, fit all too well with the traditional views concerning the “disappearance” of the Nubian A-Group and the attested presence of the C-Group in the northern portion of the survey area (*cf.* Junker 1920; Seidlmayer 1996; Gatto & Guiliani 2007, see also Raue 2002; 2008).

Early rock art in the context of habitation

Whoever created early, mainly geometric rock art at Gharb Aswan, they would have had good reasons to come to this area. In the following discussion, likely reasons are discussed and viewed from the perspective of the rock art. To start with, we will consider relationships to habitation sites, before going on to discuss stone procurement, hunting and desert travel. This discussion is inspired by location analysis of rock art on multiple levels (Bradley 1997; 2000; Hyder 2004) and the focus will be on the southern portion of the survey area, as the northern portion has little early rock art.

Yet, we have to start our discussion in the north: in the hyperarid Late Palaeolithic period we know that the mouth of Wadi Kubbaniya formed an attractive environment for seasonal settlement and subsistence activities, such as fishing and gathering of wild plants, especially tubers. These activities required sophisticated processing, which was an important reason for the significant contemporary grinding stone procurement (Wendorf & Schild 1989: 797-9). The environment was entirely different from that of the Holocene Period, with possibly a braided Nile flowing some 15m higher than it is today.

Following the “Wild Nile” phase, the subsequent entrenchment of the river (Wendorf & Schild 1989: 771ff; Butzer 1997: 161-3) and the establishment of a wetter Holocene climate, the archaeological record goes pretty cold as to habitation sites until the early 4th millennium; Nag el-Qarmila being the only reported substantial site (Gatto *et al.* (b) this volume). Yet, Maria Gatto (pers. comm.) and her team have reported possible Epipalaeolithic sites not far from the river in the environs of Gebel el-Qurna – Wadi el-Faras. Thus, we have to await the publication of these findings before we can

start to get a grip on the difficult period between the Late Palaeolithic and Early Predynastic. However, it is interesting to note that there is practically no geometric/early rock art located near the river (only very few figures at Berber), despite many suitable rock outcrops.

The geometric rock art at El-Hosh and Abka is located at places seemingly very attractive for fishing, the latter being a favoured habitation area (Huyge *et al.* 1998; Myers 1958; 1960; Hellström 1970; Nordström 1972: 15-6). This stands in contrast to the swift waters of the first cataract zone that must have been a rather forbidding environment before the Nile level stabilised so as to make habitation possible during the 4th millennium (Seidlmayer 1996; 2001; Raue 2008). Thus, there may be environmental reasons for the apparent absence of early rock art by the river, unless it is covered by sand dunes or have been destroyed. In the northern part of the survey area, there once must have been a shallow bay in the area of Gebel el-Qurna; and Nag el-Qarmila is located at a place where fishing may have been an important activity (Gatto *et al.* (b) this volume). In these regions early rock art may have also been destroyed (by ancient and modern quarrying). However, taking a broad view, it does not seem that the immediate environs of the river were a particular focus for image-making in the Epipalaeolithic-Neolithic or even into the Predynastic periods.

In the southern portion of the QuarryScapes survey area, three hinterland locations suitable for campsites and subsistence activities in a moister climate have been spotted, but not yet thoroughly investigated. The first is in the western area of Wadi el-Faras, which is a wide open plain to the west of the wadi bottleneck by Winkler's rock art site 53. There are a few used, small circular grinders (hand stones) found and some hammer stones; the latter cannot readily be associated with stone working. Importantly, these features are close to the rock art site featuring "tadpoles" and a small corpus of what are probably mainly early Predynastic pictures.

The second possible location is near Winkler 53 itself. Its numerous rubbed depressions (and a used grinder) may point to activities of more

than a temporary nature. Unfortunately, the sand cover at the site is so immense that we may never be able to recover what archaeological remains might exist nearby. However, the location at a wadi bottleneck, where it would have been comparatively easy to catch game may indicate its importance as a hunting location. As we have seen above, the grinding stone quarry at the site is possibly even younger than the Late Predynastic Period but it cannot be excluded that it was worked earlier. All in all, Wadi el-Faras stands out as a suitable environment for possible small-scale mixed subsistence activities in prehistory (hunting, gathering, herding and maybe some fishing by the river), perhaps for small groups that moved on the Gallaba Pediplain? (For example groups moving between Gharb Aswan and Kurkur and other small oases/mudpans.)

The third location is the Wadi of Dwarfs with rectilinear rock art (and few later pictures) in the southern hinterland, situated by a very small basin-like area, which may have supported vegetation in the Holocene wet phase. Close to the site there is also a possible system of wells of uncertain date. There are many signs of yet indeterminate stone working (debitage, hammer stones, small used grinders, flint, quartz), partially within two miniature natural caves. It would come as no surprise if campsite remains turn up. There are also substantial quarries that are very difficult to interpret in the near vicinity, as we shall see below.

Early rock art in the context of stone procurement

The question of relationships between stone procurement and rock art has been raised repeatedly above. Such connections (also between mining and rock art) have been vaguely proposed for the Eastern Desert (Butzer 2004: 118; Huyge 2004: 120-1); however they have never been substantiated. Wadi Hammamat is a key candidate, with its wealth in rock art and long history of quarrying; as regards greywacke ("slate") palettes, perhaps reaching back to the 5th millennium. Summarising the available evidence at Gharb Aswan (Heldal & Storemyr 2007), it is clear that Late Palaeolithic quarrying was undertaken in Wadi Kubbaniya and probably also at other

spots in the landscape. We have, however, no indication that the grinders and mortars produced were used other than locally.

For the Epipalaeolithic and Neolithic there is no datable evidence, however as we have seen above, there are quarries in the Wadi of Dwarfs that need to be commented on. One of these is a fairly “standard” grinding stone quarry, not unlike the one at Winkler 53 where oval/boat shaped grinding stone were procured. There is also a very substantial quarry for unknown objects, perhaps some sort of tool, accompanied by masses of debitage and hammer stones. This site is one in a small series of anomalous quarries at Gharb Aswan, for which it is very difficult to determine what was actually produced; others have been found in the area of New Aswan City. They feature quarrying of bedrock or boulders of varying quality and are very different from “standard” (Middle) Palaeolithic tool quarries that took advantage of mainly thin layers and cobbles/small boulders of very hard, highly suitable ferruginous silicified sandstone. They are also different from “standard” grinding stone quarries, which almost without exception are associated with various types of oval/boat shaped or other distinct preforms (Heldal & Storemyr 2007).

It is yet impossible to date these anomalous quarries as there is no hint at the use of silicified sandstone that may have come from Gharb Aswan. Considering the Epipalaeolithic and Neolithic periods there is only a limited, known use of silicified sandstone other than for numerous grinding slabs and small hand stones. Such slabs were rarely produced at Gharb Aswan since, at best, the stone only split into rather thick pieces and it seems that the use of grinding slabs at other places (Western Desert) can be explained by procurement from (semi-)local

sources.⁵ The use of silicified sandstone for lithics fades out in favour of flint/chert (and to some extent quartz in Nubian contexts) by the Late Palaeolithic, with the Sebilian as the latest known culture that applied such stone extensively. Sporadic use is, however, attested until the Predynastic.⁶ Another vague possibility is silicified sandstone palettes, which are known from Nubian contexts (paralleled by the “slate” palettes typical of the Badarian and Naqada).⁷ In summary, at present the best we can do is to speculate that anomalous quarries may have been in use during the period of geometric rock art creation. However, the Wadi of Dwarfs is yet the only place spotted where geometric rock art is co-located with such quarries.

A possible relationship between early rock art and the mineral world can be hypothesised at Cobble Ridge with its notable panels (such as Ripple Rock and The Terrace). Cobble Ridge is special in the local topography not only due to its vistas, but also for its range of metamorphic stone cobbles and particularly quartz cobbles. There are indications that such cobbles were used as hammer stones in (Middle) Palaeolithic tool quarries nearby, however no traces of collecting on the ridge itself has been observed (Heldal & Storemyr 2007). Though the quartz is not of outstanding quality, it may have been collected also in later periods for the use as a range of tools.

Moving into the Predynastic Period, it is almost certain that grinding stones of various forms were procured in the area and used locally from the early 4th millennium onwards.⁸ Judging from several strands of indirect evidence, they may also have found their way to other Upper Egyptian settlements at this time – and this must be the direct precursor of the Pharaonic industries within the region.⁹ Evidence from

5. Examples include Nabta Playa (Wendorf and Schild 2001); Dunqul (Hester and Hobler 1969: 98-9) and Kharga (Caton-Thompson 1952). My own observations at Nabta Playa and in Kharga confirm that Gharb Aswan stone is not among the assemblages at these sites. However, it is not impossible that grinding stone procured at Gharb Aswan was used at nearby Kurkur and Nuq' Maneih in the Neolithic. See the website of the Darnells (www.yale.edu/egyptology/ae_kurkur.htm).

6. See for example Hendrickx & Vermeersch 2000: 31, Wendorf & Schild 1989: 813-4, Kopp 2006: 81, Cat. no. 557.

7. See for example Nordström 1972: 120, pl. 191; Darnell, D. 2002: 164-5; cf. Junker 1919: 85.

8. See for example Junker 1919: 118-9 (at Kubanieh Süd); Kopp 2006: 81, Pl. 36 (at Elephantine); Maria Gatto pers. comm. (at Naq el-Qarmila).

9. There is no hard evidence for the export of grinding stones from Gharb Aswan during the Predynastic Period, but it has been suggested that grinders made from the nearby Aswan granite found their way to various Upper Egyptian settlements in this period (Hoffman 1971/1972: 38; Mahmoud & Bard 1993). This is a strong indicator that Gharb Aswan stone would have been exported. For the Pharaonic Period, see Storemyr *et al.* in press.



Fig. 22
The site Giraffe Hill at Gebel es-Sawan North (EB128A-D, in the middle), as seen from an ancient quarry in the foreground.



Fig. 23
A typical game drive at Gharb Aswan. In the foreground a narrow passage or “chute” where animals were ultimately driven to be trapped.

quarrying technology and fragments of Predynastic pottery suggest that likely production places are located in the southern margin of Wadi Kubbaniya, at Gebel es-Sawan North (fig. 22) and at Gebel Gulab (in addition to the Wadi of Dwarfs and Winkler 53). Yet, the number of undated grinding stone quarries is so overwhelming that it is extremely difficult to make sense of potential Predynastic production places and thus relationships with rock art. Another way of arguing for relationships would be to stress the co-location of rock art and quarries at generally elevated places across the landscape. However, quarries of any date are usually located at such places because the most suitable silicified sandstone can be found there (Heldal *et al.* 2007). Additionally, many of these places also have the best views and the best sandstone for making rock art and furthermore feature evidence of hunting practices and desert route branches nearby, as we shall see below.

Despite the substantial difficulties involved in spatially and temporally relating stone procurement to rock art creation, there is undoubtedly a case for suggesting such connections. This is especially due to the evidently long use of the area as a whole for quarrying of silicified sandstone (see Bloxam 2007), the characteristics of which are still

very unclear in the long period from the Late Palaeolithic to the Predynastic.¹⁰

Early Rock art in the context of hunting

In addition to stone resources, other reasons for the presence of people include hunting. The area once must have been prime hunting ground, as judged from the enormous concentration of stone built game drives – trapping devices most probably intended for catching gazelle (Storemyr 2007: 170-3) (fig. 2 & 23). Like the quarries, their dating remains unclear. In Dunqul, Kurkur and along the Lower Nubian Nile, where identical structures have been found, a dating to the 3rd-2nd millennium has been suggested (Hester & Hobler 1969: 63-8). However, the slightly different “desert kites” in the Near East may have a history stretching back to perhaps the 6th-7th millennium (Helms & Betts 1987, with further references therein) and at Regenfeld in the Great Sand Sea where possible trapping alignments have been placed before approximately 5000 B.C. (Riemer 2004). Thus, it is not unlikely that we are looking at a tradition with a long and complex history at Gharb Aswan.

Construction, maintenance and use would have demanded considerable communal effort, especially with regard to the extensive drives north of Wadi el-Faras and along Wadi Kub-

10. It should also be noted that there is a large iron mine with high-quality ochre resources between Gebel Qubbet el-Hawa and St. Simeon’s monastery, literally overlooking the first cataract. The mine may have a history of exploitation dating back to the Pharaonic Period (Degryse *et al.* 2007). Ochre resources are widespread on the east bank of the Nile at Aswan. Butzer and Hansen (1968: 164) have suggested that these sources in Wadi Abu Subeira might have been put into use already by the Late Palaeolithic (for body paint). Ochre was “always” valued as a pigment and we may certainly speculate whether the mine by the cataract was being used at the time of the earliest rock art creation.

baniya. These are several kilometres long and quite likely must have been made and operated by larger numbers of people. Therefore, they may be relatively young. In contrast to the wide open landscape in the north, the small and narrow wadis around Wadi el-Tilal and Gebel Gulab and between Wadi el-Faras and Gebel es-Sawan North feature numerous short (as small as 50m or so) and often weathered/eroded drives that may reflect operation by fewer people, perhaps down to a band. Thus, it would not be entirely unreasonable to suggest that preserved drives at such places, or their antecedents, date to periods prior to settled life in the Aswan region. Such places may also have been preferred hunting locations before construction of game drives began. The implication of these considerations could be that much of the prehistoric rock art was indeed related to hunting practices.

Contrary to some places near the Near East desert kites (for example Betts & Helms 1986), we cannot relate geometric rock art motifs to the actual design of game drives (Storemyr 2008: 70, 73-4). Thus, we are in no position to suggest motivation of this rock art in such a direct way as for the fish trap images at El-Hosh. Here the images are interpreted as «maps» of fish hunting «drives» possibly made as part of communal ritual intended to secure a good catch (Huyge *et al.* 1998). However, the location of the most notable Epipalaeolithic-Neolithic panels at distinct places in the landscape, overlooking wadis, valleys and plateaus, often with game drives, indicate the importance of views (fig. 24), perhaps in relation to movement of animals. There is rarely space by such rock art to accommodate more than a small number of people, which would be consistent with their possible use by hunting bands. Also, we have seen that the bottleneck location of Winkler 53 may be associated with hunting. Though topographically different, it is interesting to note that the mainly Predynastic rock art site of KASS1 in a bottleneck/galt of a small wadi in the environs of Wadi Abu Subeira has also been interpreted in a hunting context (Gatto *et al.* (a) this volume; with reference to another *galt*; the Jacuzzi site in Wadi Umm Salam, see above).



Fig. 24

Rock art (RA22) overlooking a plateau with a game drive near Gebel Gulab. In the background is modern Aswan.

Early rock art in the context of travelling

Coming to Gharb Aswan for shorter or longer stays, prehistoric peoples may have journeyed roughly along antecedents to some of the numerous historical desert roads and tracks attested in the area (fig. 2). These partially connect to the many branches of Darb el-Gallaba, which cross the Gallaba Pediplain before heading off in the direction of Dakka to the south, Kurkur to the west and Hierakonpolis to the north – and then further beyond. Three areas of embarkation along the Nile have been identified: one is in the southern part opposite Elephantine, another in the environs of Wadi el-Faras and a third in Wadi Kubbaniya (Storemyr 2007: 173-8; see also Weigall 1909: 169ff; Jaritz 1981). Topography is clearly the main factor determining the courses of the roads as they follow smaller and larger wadi systems leading the short distance (3-5km) from the Gallaba Pediplain to the Nile. However, the routes not only embark close to places with an attested Predynastic presence, they also run close to many rock art sites.

Prehistoric rock art has been found at stations along most desert routes in nearby regions, for example in the Eastern Desert and close to Thebes (see Winkler 1938; D. Darnell 2002; J. Darnell 2002a). If rock art at Gharb Aswan was made in the context of travelling for purposes other than hunting and stone procurement, a question arises as to why it is placed at the “end” (or “beginning”) of the routes? Could it be seen as in some way parallel to the well-known practice of erecting simple votive stelae (undecorated stones) on entering or leaving the

Nile Valley? This is a practice that is extremely well attested at Gharb Aswan (especially in the environs of Gebel es-Sawan North) and which may have a history dating back to the Pharaonic Period (Jaritz 1981; Storemyr 2007: 173-8; cf. J. Darnell 2002b: 112). However, it is debatable whether prehistoric Gharb Aswan can be regarded as the “end” or “beginning” of desert routes. In a time with no or limited habitation (i.e. before the settlement at Elephantine was firmly established), we may rather be looking at a station along converging routes that, for example, continued across the Nile and into the Eastern Desert. People may have congregated here for the same important purpose as during the historical period, namely for trade/exchange practices. Or, they may simply have regarded the area as a stopover location suitable for image-making. Early rock art immediately beside historical routes, including, for example, the Wadi of Dwarfs, the Sidi Osman panels and at Gebel es-Sawan North, may be worth considering in a “travel context”.

Fig. 25
Commander's Rock (P240) overlooking Gebel Gulab. About 20 rock art locations can be seen from this location. Compare with fig. 17.

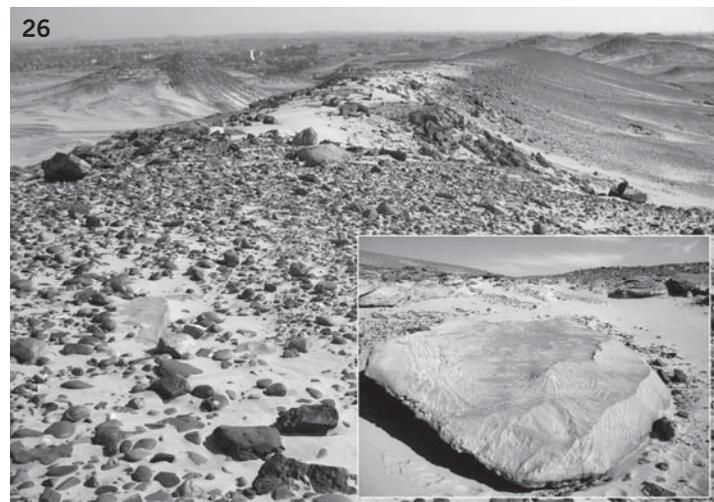
Fig. 26
The elevated Cobble Ridge with the Ripple Rock panel (inserted). Compare with fig. 13.

Early rock art in the context of special places and cataracts

As viewed from the considerable period of creation and considering that there are less than 1500 pictures from the prehistoric period, image-making was clearly not taking place frequently. When considering the wide distribution, and though there may have been periods of more intense activity, this infrequent pattern of creation becomes even more manifest. Yet, this does not necessarily mean that the places

were not visited/used on a more frequent basis. Furthermore, the locations where rock art was made often retained (not necessarily the same) significance until the late Predynastic and in some cases for even longer periods. It is quite likely that they would have been important for some reason prior to the making of images. The earliest, often complex geometric panels were seldom used for subsequent rock art, however they often appear to have defined distinct places in the landscape, around which contemporary and later images were added, usually at less notable outcrops. In addition to the careful selection of location, the larger early panels display an intimate relationship with topography right down to the micro-scale, in that small cracks, edges, ridges and depressions were cautiously taken advantage of in the designs. Good examples of these phenomena, hard to discern in later periods, are Ripple Rock on Cobble Ridge (fig. 26) and Commander's Rock with its views to Gebel Gulab (fig. 25). Though there may be mundane reasons for the placement of rock art at these two particular places (collection of cobbles for tools, overlooking the movement of animals), one cannot escape the feeling that they define special, perhaps sacred places (e.g. Bradley 2000).

Of course, there are places of long-lived rock art traditions throughout the world, as with the region across Upper Egypt and Lower Nubia. However, taking a broad view, in this region there are relatively few known places at which image making started on a notable scale as early as during the Epipalaeolithic-Neolithic and



continued for a considerable time span. Abka, Gharb Aswan and El-Hosh host the largest assemblages with such a time-depth, whereas Wadi Umm Salam (in particular the very special Jacuzzi site) is another example, although with a limited range of early motifs.¹¹ Abka and Gharb Aswan are located by Nile cataracts, while El-Hosh is close to the Gebel el-Silsila “semi-cataract”.

From a natural resource perspective (fish, game, stone) it may not be coincidental that people were attracted to these places at an early stage, which may also have been meeting places at converging travel routes. But could there have been additional reasons for the creation of early rock art at these places? As landmarks on the Nile in the (later) borderland region between Egypt and Nubia the cataracts may have had meaningful associations, cultural, religious or otherwise that are difficult for us to grasp today. Considering the first cataract during the historical period, in addition to its obvious significance as a border and for quarrying and trade, it was conceived as the mythical origin of the Nile in the sacred landscape of Pharaonic Egypt (Wilkinson 1994: 62). It would quite likely have been associated with other myths when the first rock art was created in the area, though an obvious difficulty is the lack of pictures very near the cataract itself. On the other hand; by far the largest concentration of rock art, from the earliest times and until the Late Predynastic Period is located within a 30 minute easy walk from the cataract.

Conclusion

Except for the consistent use of notable landscape formations for early rock art and the relative proximity to the first cataract for the majority of geometric images, no equally consistent pattern between rock art and archaeological features have yet been discerned. This may reflect difficulties in interpreting the complex, fragmentary and poorly dated archaeological remains; however an obvious suggestion is that the area attracted people for multiple reasons. In addition to time-depth, this may be a further explanation for the diversity in the geometric rock art. In **Tab. 2** I have attempted to summarise the possible contexts discussed. Several general theories on early rock art (overview in Ross 2001) that can be recognised in the table simply reflect the diversity. The suggestions should *by no means* be viewed rigidly, but rather as intertwined hypotheses that may aid in future attempts at making sense of the area’s prehistory in general and ultimately, the meaning and motivation of the rock art in particular.

Returning to where we began, at Winkler 53, a tentative interpretation of the use of the site illustrates possible changing and overlapping contexts of image-making: situated in a wadi bottleneck, it may have been an early hunting station where it would have been comparatively easy to catch game. But it may also have been related to campsites in the wadi, perhaps reflected in the numerous rubbed depressions

Tab. 2
Summary of hypotheses on context of rock art creation at Gharb Aswan. Note that ochre mining may also have been pursued, as briefly discussed in the text.

Time period	Context				
	Habitation	Quarrying	Hunting	Travelling	Special places
Epipalaeolithic-Neolithic (and early Predynastic)	Close to possible campsites in the hinterland	Indeterminate stone procurement at few, distinct places	Game (gazelle) hunting using game drives or special spots in the landscape	Congregation, exchange practices	Borderlands, the first cataract as a special landscape, sacred places
Predynastic	No evidence	Grinding stone procurement		Connected to entering/leaving (the Nile Valley)	

11. At El-Hosh rock art was made already by the Late Palaeolithic (Huyge 2005). In Wadi Abu Subeira Late Palaeolithic pictures are found at a place with much Predynastic and later rock art, but Epipalaeolithic/Neolithic images seem to be missing (Storemyr *et al.* 2008).

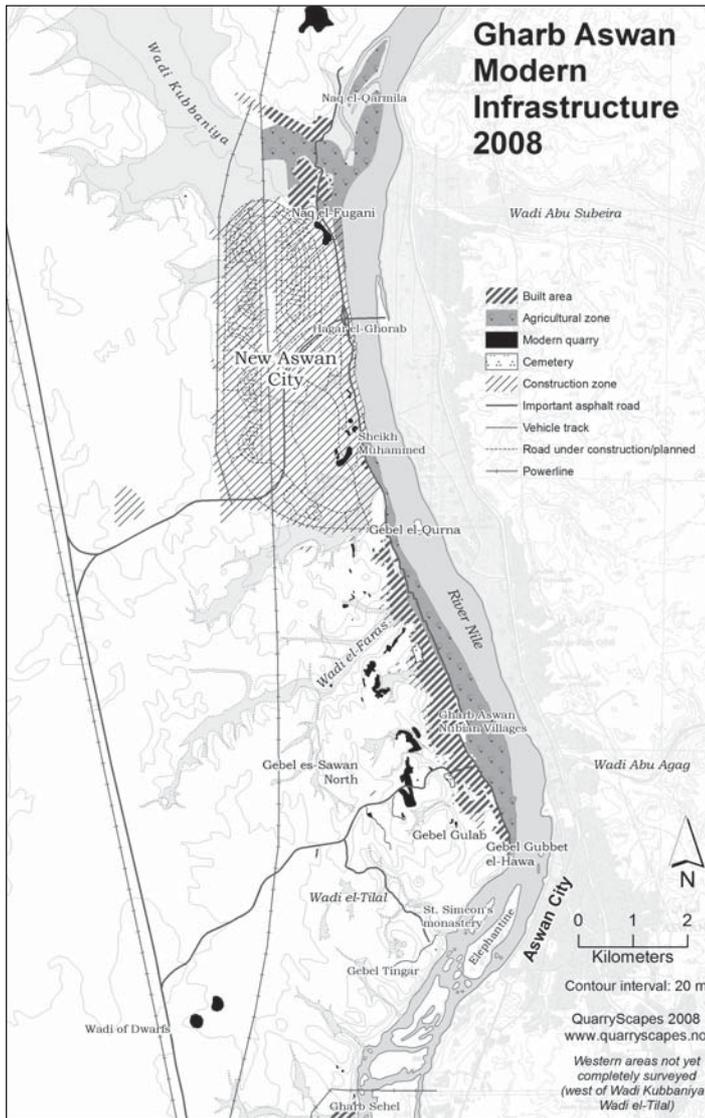


Fig. 27
Map of the modern infrastructure at Gharb Aswan. Compare with fig. 2.

ACKNOWLEDGEMENTS

I wish to thank my colleagues Elizabeth Bloxam, Tom Heldal, Adel Kelany, Patrick Degryse, Adel Tohami and Mohamed Ahmed Negm for spotting rock art as well as numerous discussions. Much appreciation is extended to Dirk Huyge for discussions on dating and interpretation, for an invitation to visit the rock art sites at El-Hosh and for commenting on the draft of this paper. Many thanks also to Maria Gatto for discussions and sharing survey information and to Stan Hendrickx for useful comments on the manuscript. This work would not have been possible without the kind permission and support from the Supreme Council of Antiquities and Secretary General Zahi Hawass. Many thanks also to Mohamed el-Biely, Director of SCA Aswan, and to our inspectors Wafaa Mohamed and Hussein Megahed. Fieldwork has been undertaken within the QuarryScapes Project (Conservation of Ancient Stone Quarry Landscapes in the Eastern Mediterranean); funded by the Sixth Framework Programme of the European Union, contract EU FP6, INCO/MED 015416 (www.quarryscapes.no). When not otherwise indicated, photos and drawings were made by the author, who is alone responsible for any shortcomings in this paper.

for utilitarian and/or ritual grinding of some sort. Perhaps by Naqada II-III it had become a short-lived grinding stone quarry and might have had some significance as a hinterland ceremonial place for peoples settled by the Nile at this stage. Since it is very close to a major desert route, people may have congregated in this area on entering or leaving the Nile Valley. Furthermore, the place has in fact been revived in terms of rock art after Winkler's visit in the late 1930s. Perhaps this modern rock art was made by people working the nearby, small building stone quarries?

Threats and conservation

Regrettably, it may only be a matter of a decade or two before many of the unique and extensive archaeological remains at Gharb Aswan are gone. As a result of the extreme population growth and development pressure in Egypt, New Aswan City is now being built in the north and although the southern part is still well preserved, road building, expansion of the Nubian villages along the Nile and modern stone quarrying take their increasing toll (**fig. 27**). Work in the QuarryScapes Project has been undertaken with a view to monitoring and risk assessment and, in cooperation with the Supreme Council of Antiquities, it has drawn up concepts for conservation (Storemyr *et al.* 2007). Within New Aswan City only "islets" of archaeological remains can now be preserved. This situation calls for a landscape conservation programme in the southern part.

Bibliography

- ALMAGRO B.M. & ALMAGRO G.M., 1968. *Estudios de arte rupestre Nubio*. Memorias de la mision arqueologica en Egipto, 10. Madrid.
- BAGNALL, R.S., CHURCHER, C.S., HOPE, C.A., KLEINDIENST, M.R., LEEMHUIS, F., MCDONALD, M.M., MILLS, A.J., MOLTO, J.E., SMITH, J.R., THANHEISER, U., 2006. Report to the Supreme Council of Antiquities on the 2005–2006 Season Activities of the Dakhleh Oasis Project. Available at: <http://arts.monash.edu.au/archaeology/excavations/dakhleh/assets/documents/dakhleh-report-2005-2006.pdf>
- BAHN, P.G., 1998. *The Cambridge Illustrated History of Prehistoric Art*. Cambridge.
- BARICH, B.E., 1998. The Wadi el-Obeiyd Cave, Farafra Oasis: a new pictorial complex in the Libyan-Egyptian Sahara. *Libya Antiqua. Annual of the Department of Antiquities of Libya New Series*, 4: 9-19.
- BETTS, A. & HELMS, S., 1986. Rock Art in Eastern Jordan: 'Kite' Carvings? *Paléorient*, 12: 67-72.
- BLOXAM, E., 2007. The assessment of significance of ancient quarry landscapes - problems and possible solutions. The case of the Aswan West Bank. *QuarryScapes report*. Trondheim: Geological Survey of Norway. Available at: www.quarryscapes.no
- BLOXAM, E., HELDAL, T. & STOREMYR, P. (eds), 2007. Characterisation of complex quarry landscapes; an example from the West Bank quarries, Aswan. *QuarryScapes report*. Trondheim: Geological Survey of Norway. Available at: www.quarryscapes.no
- BLOXAM, E. & KELANY, A., 2007. The material culture of the West Bank quarry landscape: constructing the social context [in:] BLOXAM, E., HELDAL, T. & STOREMYR, P. (eds), Characterisation of complex quarry landscapes: an example from the West Bank quarries, Aswan. *QuarryScapes Report*. Trondheim: Geological Survey of Norway: 183-228. Available at: www.quarryscapes.no
- BRADLEY, R., 1997. *Rock art and the prehistory of Atlantic Europe. Signing the Land*. London & New York.
- BRADLEY, R., 2000. *An Archaeology of Natural Places*. London and New York.
- BUBENZER, O. & RIEMER, H., 2007. Holocene climatic change and human settlement between the central Sahara and the Nile Valley: Archaeological and geomorphological results. *Geoarchaeology*, 22: 607-620.
- BUTZER, K., 1997. Late Quaternary problems of the Egyptian Nile: stratigraphy, environments, prehistory. *Paléorient*, 23: 151-173.
- BUTZER, K., 2004. Rock Engravings Pose Enduring Problems. [in:] Review Feature, Genesis of the Pharaohs. *Cambridge Archaeological Journal*, 14: 117-119.
- BUTZER, K.W. & HANSEN, C.L., 1968. *Desert and River in Nubia. Geomorphology and Prehistoric Environments at the Aswan Reservoir*. Madison, Milwaukee & London.
- CATON-THOMPSON, G., 1952. *Kharga Oasis in Prehistory*. London.
- ČERVIČEK, P., 1974. *Felsbilder des Nord-Etbai, Oberägyptens und Unternubiens*. Wiesbaden.
- ČERVIČEK, P., 1978. Notes on the Chronology of the Nubian Rock Art to the End of the Bronze Age [in:] *Études Nubiennes, Colloque de Chantilly, 2-6 juillet 1975*. BdE, 77: 38-56.
- ČERVIČEK, P., 1986. *Rock Pictures of Upper Egypt and Nubia*. Annali Istituto Universitario Orientale di Napoli, 46, fasc. 1. Napoli.
- CHERRY, P., 2000. The World's Oldest Maps [in:] ROHL, D. (ed), *The Followers of Horus. Eastern Desert Survey Report 1*. Abingdon: 166-168.
- CHURCHER, C. S., KLEINDIENST, M.R. & SCHWARCZC H.P., 1999. Faunal remains from a Middle Pleistocene lacustrine marl in Dakhleh Oasis, Egypt: palaeoenvironmental reconstructions. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 154: 301-312.
- CREMASCHI, M., 1996. The Rock Varnish in the Messak Settafet (Fezzan, Libyan Sahara), Age, Archaeological Context and Paleo-Environmental Implication. *Geoarchaeology*, 11: 393-421.
- DARNELL, D., 2002. Gravel of the Desert and Broken Pots in the Road: Ceramic Evidence from the Routes between the Nile and Kharga Oasis [in:] FRIEDMAN, R. (ed), *Egypt and Nubia. Gifts of the Desert*. London: 156-177.
- DARNELL, J., 2002a. Opening the Narrow Doors of the Desert: Discoveries of the Theban Desert Road Survey [in:] FRIEDMAN, R. (ed), *Egypt and Nubia. Gifts of the Desert*. London: 132-155.
- DARNELL, J., 2002b. The Narrow Doors of the Desert. Ancient Egyptian Roads in the Theban Western Desert [in:] DAVID, B. & M. WILSON

- (eds), *Inscribed Landscapes. Marking and Making Place*. Honolulu: 104-121.
- DARNELL, D., 2005. Evidence from the Rayayna Desert and Kurkur Oasis for Long Distance Trade during the Predynastic Period. [in:] MIDANT-Reynes, B. & TRISTANT, Y. (eds), *Livret des résumés. Conférence internationale « L'Égypte pré- et protodynastique. Les origines de l'État », Toulouse, 5-8 septembre 2005*. Toulouse: 31.
- DARNELL, D., 2008. A desert crossroads: the Rayayna Culture [in:] FRIEDMAN, R. & MCNAMARA L. (eds), *Abstracts of papers presented at the Third International Colloquium on Predynastic and Early Dynastic Egypt*. London: 40-45.
- DAVIS, W., 1984. The earliest art in the Nile Valley [in:] KRZYŻANIAK, L. & KOBUSIEWICZ, M. (eds), *Origin and Early Development of Food-Producing Cultures in North-Eastern Africa*. Poznan: 81-94.
- DAVIS, W., 2006. *History in Petroglyphs at the Second Cataract of the Nile*. Archaeologies of the Standpoint, Chapter 2. Web-publication, available at: <http://arthistory.berkeley.edu/davis/Abka2.pdf>
- DEGRYSE, P., STOREMYR, P. and HELDAL, T., 2007. Notes on iron ore mining and smelting, and clay extraction at the West Bank of Aswan. [in:] BLOXAM, E., HELDAL, T. & STOREMYR, P. (eds), Characterisation of complex quarry landscapes; an example from the West Bank quarries, Aswan. *QuarryScapes report*. Trondheim: Geological Survey of Norway: 141-149. Available at: www.quarryscapes.no
- DORN, R.I., 2007. Chapter Eight: Rock Varnish [in:] NASH, D.J. & MCLAREN, S.J. (eds), *Geochemical Sediments and Landscapes*. London: 246-297.
- ENGELMAYER, R., 1965. *Bericht des Österreichischen Nationalkomitees der UNESCO-Aktion für die Rettung der nubischen Altertümer. 3. Die Felsgravierungen im Distrikt Sayala-Nubien. 1. Die Schiffsdarstellungen*. Denkschriften der Akademie der Wissenschaften in Wien, Philosophisch-historische Klasse, 90. Wien.
- GATTO, M.C., 2002. Ceramic Traditions and Cultural Territories: The "Nubian Group" in Prehistory. *Sudan & Nubia Bulletin*, 6: 8-19.
- GATTO, M.C., 2006(a). The Nubian A-Group: a Reassessment. *Archéo-Nil*, 16: 61-76.
- GATTO, M.C., 2006(b). The Early A-Group in Upper Lower Nubia, Upper Egypt and the Surrounding Deserts. [in:] KOBUSIEWICZ, M., KROEPER, K. & CHLONICKI, M. (eds.), *Archaeology of the Earliest Northeastern Africa*. Poznan: 223-234.
- GATTO, M.C., DE DAPPER, M., GERISCH, R., HART, E., HENDRICKX, S., HERBICH, T., JORIS, H., NORDSTRÖM, H-Å., PITRE, M., ROMA, S., ŚWIĘCH, D. and USAI, D., this volume b. Predynastic settlement and cemeteries at Nag el-Qarmila, Kubbania. *Archéo-Nil*, 19.
- GATTO, M.C. & GIULIANI, S., 2006-2007. Nubians in Upper Egypt: Results of the Survey in the Aswan-Kom Ombo Region (2005-2006). *CRIPEL*, 26: 121-130.
- GATTO, M.C. & GIULIANI, S., 2007. Survey between Aswan and Kom Ombo. *Egyptian Archaeology*, 30: 6-9.
- GATTO, M.C., HENDRICKX, S., ROMA, S. & ZAMPETTI, D., this volume a. Rock art from West Bank Aswan and Wadi Abu Subeira. *Archéo-Nil*, 19.
- HALLIER, U.W., 1990. *Die Entwicklung der Felsbildkunst Nordafrikas*. Stuttgart
- HALLIER, U.W., 1997. Les relations préhistoriques entre le Haut-Nil (la Nubie) et le Sahara Central. *Archéo-Nil, Lettre d'information*, 9: 6-42.
- HALLIER, U.W. & HALLIER, B.C., 2003. The Roundheads of the Djado- and the Tassili-Mountains, *Stone Watch. The World of Petroglyphs*. Available at: http://www.stonewatch.de/media/download/djado_d_e.pdf
- HELDAL, T., BØE, R. & MÜLLER, A., 2007. Geology and stone resources of the Aswan West Bank [in:] BLOXAM, E., HELDAL, T. & STOREMYR, P. (eds), Characterisation of complex quarry landscapes: an example from the West Bank quarries, Aswan. *QuarryScapes Report*. Trondheim: Geological Survey of Norway: 51-57. Available at: www.quarryscapes.no
- HELDAL, T. & STOREMYR, P., 2007. The quarries at the Aswan West Bank. [in:] E. Bloxam, T. Heldal and P. Storemyr (eds), Characterisation of complex quarry landscapes; an example from the West Bank quarries, Aswan. *QuarryScapes report*. Trondheim: Geological Survey of Norway, p. 69-140. Available at: www.quarryscapes.no
- HELLSTRÖM, P., 1970. *The Rock Drawings. The Scandinavian Joint Expedition to Sudanese Nubia I-II*. Stockholm.
- HENDRICKX, S. & VERMEERSCH, P.M., 2002. Prehistory. From the Palaeolithic to the Badarian Culture [in:] SHAW, I. (ed), *The Oxford History of Ancient Egypt*. Oxford: 17-43.
- HENDRICKX, S., Swelim, N., Raffaele, F., Eycerman M. & Friedman, R. this volume. A lost Late Predynastic-Early Dynastic royal scene from Gharb Aswan. *Archéo-Nil*, 19.
- HELMS, S. & BETTS, A., 1987. The Desert "Kites" of the Badiyah Esh-Sham and North Arabia. *Paléorient*, 13: 41-67.

- HESTER, J.J. & Hobler, P.M., 1969. *Prehistoric settlement patterns in the Libyan Desert 4. Nubian Series*. Salt Lake City.
- HOFFMAN, M., 1971/1972. Preliminary Report on the First Two Seasons at Hierakonpolis. Part III. Occupational Features at the Kom el Ahmar. *Journal of the American Research Center in Egypt*, IX: 35-47
- HUYGE, D., 2002. Cosmology, Ideology and Personal Religious Practice in Ancient Egyptian Rock Art [in:] FRIEDMAN, R. (ed), *Egypt and Nubia. Gifts of the Desert*. London: 192-206.
- HUYGE, D., 2003. Grandeur in confined spaces: current rock art research in Egypt [in:] BAHN, P.G. & FOSSATI, A. (eds), *Rock Art Studies. News of the World 2*. Oxford: 59-73.
- HUYGE, D., 2004. A Theory too Far [in:] Review Feature, Genesis of the Pharaohs. *Cambridge Archaeological Journal*, 14: 119-122.
- HUYGE, D., 2005. The Fish Hunters of El-Hosh: Rock Art Research and Archaeological Investigations in Upper Egypt (1998-2004). *Bull. Séanc. Acad. R. Sci. Outre-Mer*, 51: 231-249.
- HUYGE, D., 2008. Còa in Africa: Late Pleistocene rock art along the Egyptian Nile. *INORA - International Newsletter on Rock Art*, 51: 1-7.
- HUYGE, D., AUBERT, M., BARNARD, H., CLAES, W., DARNELL, J.C., DE DAPPER, M., FIGARI, E., IKRAM, S., LEBRUN-NÉLIS, A. & THERASSE, I., 2007. 'Lascaux along the Nile': Late Pleistocene rock art in Egypt. *Antiquity*, 81.
- HUYGE, D., DE DAPPER, M., DEPRAETERE, D., ISMAIL, M., MARCHI, E., MOMMAERTS, R., REGULSKI, I. & WATCHMAN, A., 1998. Hilltops, Silts and Petroglyphs: The Fish Hunters of El-Hosh (Upper Egypt). *Bulletin van de Koninklijke Musea voor Kunst en Geschiedenis*, 69: 97-113.
- HUYGE, D., WATCHMAN, A. DE DAPPER, M. & MARCHI, E., 2001. Dating Egypt's Oldest 'Art': AMS 14C Age Determinations of Rock Varnishes Covering Petroglyphs at El-Hosh (Upper Egypt). *Antiquity*, 75: 68-72.
- HYDER, W.D., 2004. Locational analysis in rock-art studies [in:] CHIPPINDALE, C. & NASH, G. (eds), *The Figured Landscapes of Rock-Art*. Cambridge: 85-101.
- ISSAWI, B. & HINNAWI, M., 1980. Contribution to the Geology of the Plain West of the Nile Between Aswan and Kom Ombo [in:] WENDORF, F. & SCHILD, R. (eds), *Loaves and Fishes: The Prehistory of Wadi Kubbaniya*. Dallas: 311-330.
- JARITZ, H., 1981. Zum Heiligtum am Gebel Tingar. *MDAIK*, 37: 241-246.
- JESSE, F., 2003. *Rahib 80/87. Ein Wavy-Line Fundortplatz im Wadi Howar und die früheste Keramik in Nordafrika*. Africa Praehistorica, 16. Köln.
- JESSE, F., 2005. Rock art in Lower Wadi Howar, northwest Sudan. *Sahara*, 16: 27-38.
- JUNKER, H., 1919. *Bericht über die Grabungen der Akademie der Wissenschaften in Wien auf den Friedhöfen von El-Kubanieh-Süd, Winter 1910-1911*. Denkschriften der Akademie der Wissenschaften in Wien, Philosophisch-historische Klasse, 63, 3. Vienna.
- JUNKER, H., 1920. *Bericht über die Grabungen der Akademie der Wissenschaften in Wien auf den Friedhöfen von El-Kubanieh-Nord, Winter 1910-1911*. Denkschriften der Akademie der Wissenschaften in Wien, Philosophisch-historische Klasse, 64, 3. Vienna.
- KLEMM, R., 1995. Umm Eleiga. Ein prädynastischer Goldfundplatz in der Ostwüste Ägyptens [in:] KESSLER, D. & SCHULZ, R. (eds), *Gedenkschrift für Winfried Barta. Münchener Ägyptologische Untersuchungen*. Frankfurt am Main: 247-260.
- KOPP, P., 2006. *Elephantine XXXII. Die Siedlung der Naqadazeit*. Archäologische Veröffentlichungen. Deutsches Archäologisches Institut Kairo, 118. Mainz.
- LANDSTRÖM, B., 1970. *Ships of the Pharaohs. 4000 Years of Egyptian Shipbuilding*. London.
- LE QUELLEC, J.-L., 1997. Comparatisme et horizon archaïque des gravures du Nil au Sahara central (à propos d'un article de U. Hallier). *Archéo-Nil, Lettre d'Information*, 9: 43-48
- LE QUELLEC, J.-L. & HUYGE, D., 2008. Rock Art Research in Egypt, 2000-2004. [in:] BAHN, P.G., FRANKLIN, N. & STRECKER, M. (eds), *Rock Art Studies - News of the World*. London: 89-96.
- LIU, T. & BROECKER, W.S., 2007. Holocene rock varnish microstratigraphy and its chronometric application in the drylands of Western USA. *Geomorphology*, 84: 1-21.
- MAHMOUD, A.-M.A. & BARD, K.A., 1993. Sources of the predynastic grinding stones in the Hu-semaineh region, Upper Egypt, and their cultural context. *Geoarchaeology*, 8: 241-245
- MANLIUS, N., 2005. A representation of a wild boar or warthog in Egypt during pharaonic times. *Journal of Egyptian Archaeology*, 91: 187-189.
- MANLIUS, N. & SCHNEIDER, J., 1997. L'oryctérope et le phacochère, éléments de deux animaux fabuleux de l'ancienne Egypte. *Archaeozoologia*, 9: 103-111.
- MORROW, M. & MORROW, M., 2002. *Desert RATS. Rock Art Topographical Survey in Egypt's Eastern Desert*. London.

- MYERS, O. H., 1958. Abka Re-excavated. *Kush*, 6: 131-141.
- MYERS, O. H., 1960. Abka again. *Kush*, 8: 174-181.
- NICOLL, K., 2004. Recent environmental change and prehistoric human activity in Egypt and Northern Sudan. *Quaternary Science Reviews*, 23: 561-580.
- NORDSTRÖM, H.-A., 1972. *Neolithic and A-Group Sites*. The Scandinavian Joint Expedition to Sudanese Nubia, 3.1-2. Copenhagen.
- OSBORN, D.J. & OSBORNOVA, J., 1998. *The Mammals of Ancient Egypt*. Warminster.
- RAUE, D., 2002. Nubians on Elephantine Island. *Sudan & Nubia Bulletin*, 6: 20-24.
- RAUE, D., 2008. Who was who in Elephantine of the third millennium BC? *British Museum Studies in Ancient Egypt and Sudan*, 9: 1-14. Available at: www.britishmuseum.org/research/publications/bmsaes/issue_9/raue.aspx
- REISNER, G.A., 1910. *The Archaeological Survey of Nubia*. Report 1907-08. The Archaeological Survey of Nubia. Cairo.
- RIEMER, H., 2004. Holocene game drives in the Great Sand Sea of Egypt? Stone structures and their archaeological evidence. *Sahara*, 15: 31-42.
- ROSS, M., 2001. Emerging trends in rock-art research: hunter-gatherer culture, land and landscape. *Antiquity*, 75: 543-548.
- ROUBET, C., 1989. Report on Site E-82-1: A Workshop for the Manufacture of Grinding Stones at Wadi Kubbaniya [in:] Wendorf, F. & Schild, R. (eds), *The Prehistory of Wadi Kubbaniya* 3, Dallas: 589-608.
- SCHWEINFURTH, G., 1912. Über alte Tierbilder und Felsinschriften bei Assuan. *Zeitschrift für Ethnologie*, 44: 627-658.
- SEIDLMEYER, S.J., 1996. Town and State in the Early Old Kingdom. A View from Elephantine. In: J. Spencer (ed), *Aspects of Early Egypt*. London: British Museum Press, p. 108-127.
- SEIDLMEYER, S.J., 2001. *Historische und moderne Nilstände*. Achet - Schriften zur Ägyptologie, A1. Berlin.
- SMITH, H. S., 1991. The Development of the "A-Group" Culture in Northern Lower Nubia [in:] Davies, W.V. (ed), *Egypt and Africa. Nubia from Prehistory to Islam*. London: 92-111.
- STOREMYR, P., 2007. Overview of rock art, stone alignments, desert routes and a possible hermitage at the West Bank of Aswan [in:] Bloxam, E., Heldal, T. & Storemyr, P. (eds), Characterisation of complex quarry landscapes: an example from the West Bank quarries, Aswan. *QuarryScapes Report*. Trondheim: Geological Survey of Norway: 163-181. Available at: www.quarryscapes.no
- STOREMYR, P., 2008. Prehistoric Geometric Rock Art at Gharb Aswan, Upper Egypt. *Sahara*, 19: 61-76.
- STOREMYR, P., BLOXAM, E. & HELDAL, T. (eds), 2007. Risk Assessment and Monitoring of Ancient Egyptian Quarry Landscapes. *QuarryScapes report*. Trondheim: Geological Survey of Norway. Available at: www.quarryscapes.no
- STOREMYR, P., BLOXAM, E., HELDAL, T. & KELANY, A., in press. The Aswan West Bank ancient quarry landscape: Stone procurement, hunting, desert travel and rock-art from the Palaeolithic to the Roman period. Papers from the conference: *The First Cataract: One region – Various Perspectives*. Berlin, September 2-5, 2007.
- STOREMYR, P., KELANY, A., AHMED NEGM, M. & TOHAMI, A., 2008. More 'Lascaux along the Nile'? Possible Late Palaeolithic rock art in Wadi Abu Subeira, Upper Egypt. *Sahara*, 19: 155-158.
- VERMEERSCH, P.M., 1984. Subsistence activities on the Late Palaeolithic sites of Elkab (Upper Egypt) [in:] Krzyzaniak, L. & Kobusiewicz, M. (eds), *Origin and Early Development of Food-Producing Cultures in North-Eastern Africa*. Poznan: 137-142.
- VINSON, S.M., 1987. *Boats of Egypt before the Old Kingdom*. M.A. thesis, Austin: University of Texas.
- WEIGALL, A.E.P., 1909. *Travels in the Upper Egyptian Deserts*. Edinburgh & London.
- WENDORF, F. & SCHILD, R. (eds), 1989. *The Prehistory of Wadi Kubbaniya*, 2-3. Dallas.
- WENDORF, F. & SCHILD, R. (eds), 1989. *The Archaeology of Nabta Playa*. New York.
- WILKINSON, R.H., 1994. *Symbol and Magic in Egyptian Art*. London.
- WINKLER, H.A., 1938. *Rock-Drawings of Southern Upper Egypt I*. London.
- WINKLER, H.A., 1939. *Rock-Drawings of Southern Upper Egypt II*. London.