New petroglyph sites in the Southern Libyan Desert (Sudan-Chad)

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During the annual geoscientific field missions in the Eastern Sahara of Western Egypt, Northwest Sudan and Northeast Chad conducted since the early 1980s, a number of rock art sites have been observed which were not reported before. Some examples from Sudan, where rock art is relatively scarce with the exception of Jebel Uweinat, and Chad shall be shortly presented here.

Dry Selima

The so-called „Dry Selima“ is a deflectional depression beneath an escarpment about 60 km south of Selima oasis, in the far north of Sudan. We named it that way because of its vicinity to Selima, and the lack of a well or near-surface groundwater and any vegetation (Fig. 1). Surprisingly enough, Dry Selima remained unnoticed until 1990 although the fairy-tale oasis of Selima was known to Europeans at least since Charles Pocet’s and the Bavarian Pater Krump’s visits in 1698/1700. Maybe the powdery feshfesh that covers the southern slope of the depression prevented camel people and vehicle drivers to proceed to the site.

According to the geological evidence, consisting of 4 metres of thinly laminated diatomaceous sediments, a relatively large groundwater-supported freshwater lake existed here during the early Holocene humid phase about 8970-4700 BP (Pachur and Wünnemann, 1996). It filled the lower parts of the wind-carved basin, which is dissected by clonal...

Fig. 1. Map of the Southern Libyan Desert with location of rock art sites. (1) Dry Selima, (2) Lower Wadi Howar, (3) Zalat el Hammad, (4) Central Ennedi.

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gated NE-SW trending sandstone ridges (Pl. R). About 6500 BP, the lake became more saline, ultimately turning into a sebkha. Since its still undated final desiccatio,n most of the lake deposits except a few remnants have been deflated.

During the lake phases, in particular during seasonal or episodic high-stands of the lake level, Dry Selima provided island and peninsula-type settings to prehistoric settlers and visitors who left a few most interesting occupation sites and graves that were not subjected to any archaeological study up till now. Middle Palaeolithic and Neolithic occupation scatter and hut structures occur at many more elevated positions. Milling stones are frequent. The potsherds include mat impressed ware and geometrical patterns (det. Rudolph Kuper, Kln, on the basis of photo- graphs). Some decorations are very similar to C-Group ceramics from the 3rd millennium BC from Ancient Kerma (190 km to the southeast) and to the pottery found in Wadi Shaw (230 km to the west). At least one site, a human burial is associated with the skull of a cow or bull. The only signs of prehistoric activity on the floor of the former lake basin are circular structures that probably indicate wells dug during or after the sebkha stage.

At several locations along the slopes and on the top of the ridges, petroglvphs have been carved, cut or picked into the rather friable Jurassic sandstone. It is obvious that much, if not most, of the original rock art has already been removed by the con-

Fig. 2. Dry Selima. Long-horned cattle, ostriches and human figure. Superposed grooves were possibly used for counting. Scale 10 cm.

Fig. 3. Engraved boat at Dry Selma. Scale 10 cm.

Fig. 4. Engraved vessel at Dry Selima. Scale 10 cm.
tion is whether they reflect vessels that were built locally and used in the palaeolake of Dry Ste-
lina, or whether they were repro-
duced from memories from the Nile River or elsewhere. Their rel-
avitively simple design and their distance from the river or any ma-
jer lake may suggest that they were based on observations on loc-
cation. The apparent end of the freshwater-lake stage at about 6500 BP and the yet undated, but
presumably not significantly later
desiccation of the salt lake would imply a very old age, unless con-
sidering extreme rainfall events that caused short-lived (playa)
lakes at later times. Palaeoclima-
tological reasoning and the degree of weathering of the depictions, however, suggest that they are
significantly older than the paint-
ed reed boat reported from Bod-

Lower Wadi Howar
The Wadi Howar valley has been
called the most remarkable natural
feature of the Southern Libya
Desert. It proved to be a key area
for the reconstruction of past en-
vvironments and climates. Field
evidence obtained along the al-
most 1100 km long and up to 10
km wide dry valley has corrobo-
rated the existence of a now de-
funct watercourse which 10,000 -
2000 years ago was the Nile's
largest tributary from the Sahara (Krippel, 1993a).
In 1995, the first rock art
along the 400 km long Lower Wa-
di Howar was detected about 100
km west of its former junction
with the Nile opposite Old Dong-
la (Fig. 1). The engravings have
been incised on horizontal beds of
darkly coated and very resistant
quartzite at the northern banks of
one of the channels which mark
the eastern section of Lower Wadi
Howar (Fig. 5). The motifs include
simply outlined animals, human
feet, paws, and female genitals.
There are also tens of decimetre-
long hollows obviously used for
milling or crushing. Most conspic-
uous, however, are geometrical
net-like figures of yet unknown
meaning (Fig. 6 and 7). They have
been incised into the rock in dif-
ferent shapes and scales. Some
resemble nets possibly used for
hunting, while others look like ears, e.g. spikes of millet that
may relate to the milling moulds.
Some might also represent pan-
cakes of Spirulina salwater algae
such as the ones prepared and
consumed by the Ocmia people of
Northeast Chad (cf. Cornelius,
1972). Similar enigmatic depic-
tions have been reported from
other Saharan locations, for ex-
ample near the southern margin of
the Mouri depression about

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Fig. 6, 7. Lower Wadi Howar.
A. Enigmatic engravings, lengths ca.
30 cm; B. Net-like figure, length 60
cm; C. Ankh sign, length 12 cm.
650 km further west (Simons, 1960: 85; Rosai, 2000: 151, fig. 4).
Another remarkable find was an Ankh sign (Fig. 8). It provides the first direct reference to Dynastic Egypt. The engravings show clearly distinguishable patinas that can be attributed to different periods. In comparison to the rather fresh appearance of the Ankh sign, the geometrical net-like figures appear to be much older, probably by several millennia.

The new finds are close to the fortress which was discovered in early 1984 (Ruper, 1988). Even after more than two decades of surveys and field research in North-west Sudan, this monumental trapezoid construction with its 105-180 m long and 3-5 m wide walls remains the only known large construction in the Sudanese Sahara west of the Nile (Fig. 9). Its position is not accidental but was probably selected because of hydrologically favourable conditions (Kröpelin, 1993a). Nearby travertines indicate ancient spring horizons at the surface. An adjacent impermeable basalt sheet must have acted as a rainfall collector so that even the minor amounts of precipitation during the late Holocene should have resulted in seasonal or episodic pools in front of the fortress, and recharge of near-surface groundwater layers at the wadi bottom which allowed the use of wells.

In lack of any systematic excavation, the question remains unanswered whether the fortress was constructed during the prehistoric (c. 400 BC - 350 AD) or earlier. To prevent further illicit collecting of artefacts which might provide clues to its age, the fortress should be put under legal protection as an exclave of the recently declared Wadi Howar National Park (WHNP, Kröpelin, 1993b) as soon as possible. The engravings, in particular the enigmatic networks and the Ankh sign, support the repeatedly stated supra-regional function of Wadi Howar as an east-west oriented prehistoric thoroughfare linking the Nile and the Lake Chad region, and provide evidence possibly related to the fortress. More finds are to be expected that might yield further hints.

Zolat el Hammad-East

Additional support for wide-reaching connections comes from a location north of Middle Wadi Howar about 450 km from the Nile (Fig. 1). Zolat el Hammad (Arabic for 'precious rock') is a conspicuous group of sandstone hills and pillars west of Jebel Rabih and comprises the most important concentration of rock engravings in Northwest Sudan (Fig. 10).

While the petroglyphs at the western side that include an elephant, giraffes, antelopes, monkeys and possibly lions as well as cattle and phallic portrayals of humans, were already mentioned by Newbold (1924) and especially by Rhotert (1952) in his pioneering book on the rock art of the Libyan desert, the engravings at the eastern side of Zolat el Hammad have only been recorded during a geological survey in 1985.

Among the many rock art sites of Zolat el Hammad-East, barberry sheep and goats seem to represent the most recent engravings, judging on their least developed patina (Fig. 11). They may be taken as a sign of the onset of the final desiccation of the region. Thereafter, at least since the beginning of the camel period, no more petroglyphs were incised, apart from an Arabic writing. The modern catchment engravings are relatively schematically portrayed herds of presumably domestic long and short-horned cattle that date from the preceding phase (Fig. 12). Possibly also...
domesticated ostriches appear in the midst of the herds. Men and dogs stand nearby. Much less conspicuous at first sight, and very difficult to photograph but much more carefully designed, are closely packed giraffes, ostriches and less easily definable wildlife that often underlie the engravings of the cattle and are undoubtedly significantly older (Fig. 13). Most remarkably, the wild animals are closely associated with elongated human figures with large round heads (Fig. 14). Most of these human figures are armless and in a static posture, their featureless circular heads are always very large in proportion with their bodies.

In regard to the spectrum of wildlife, it was noted that the petroglyphs of Zolat el Hammad did not include hippos, rhinos, or...
crocodiles, though these imposing animals had been identified with- in the early- and mid-Holocene bone material from nearby palaeo- lakes, dune habitats and the shores of Wadi Howar (Kröpelin, 1993a).

This gap in observation has been partially filled during a fur- ther visit in 2001. While the depic- tion of a hippo may be questioned (Fig. 15), other evidence is clear. In spite of the general rule that most rock art in the eastern Sa- hara occurs at more or less easily accessible locations, a find was done at a position somewhat diffi- cult to climb. Here most carefully

worked engravings of rhinos occur in close association with round- headed humans (Fig. 16 and PL 8). Surprisingly, the rhinos stand very close to each other which is quite unusual for these animals. They seem to live in couples or loners. Judging on the grade of their patina, they belong to the most ancient depictions of Zolat el Hammam.

While the depictions of round- headed humans at Zolat el Ham- mad-East are unparalleled in the Sahara of Northwest Sudan, in the wider region similar round-headed figures, even if painted instead of engraved, are well known from the Tibesti, Tassili, Aouer, Boroua and Ennedi for the latter e.g. Fuchs, 1957; Bailloud, 1997. The criteria established for the classi- cal figures of the Round Head peri- od, for example paintings in flat colours and outlines, often «float- ing» figures, attributes such as fe- male breasts, spots and chevrons or specific accompanying animals, are, however, not present. This speaks against their attribution to this period which is generally put between the «Baubas period» and the « cattle period», and thought to predate the 5th millennium BC. In any case the round-headed engrav- ings do seem to be very ancient and relevant in the context of Nilo- Saharan connections via the cen- tral Wadi Howar area, possibly pointing to early cultural and even ethnic relations between the low- er Wadi Howar and the Ennedi, and beyond.

The up to 5000 km² large West Nubian Palaeolake north- east of the Ennedi and some 100 km northwest of Zolat el Hammad is the most significant evidence of the humid conditions that ruled during the early Holocene (Hölz- mann et al., 2001). While the lake and its southern tributaries origini- nating in the El Atrun area and the Ennedi plateau may have hampered prehistoric exchange between the two regions to some extent during high lake-level phases, the most favorable eco- logical environments south of them and along the Middle Wadi Howar have certainly promoted the passage of people.

Central Ennedi (Chad)

A site discovered on an east-west traverse of the central Ennedi in December 2003 on the way from the Nile to the Ounianga lakes shall be mentioned at last in con-
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Fig. 15. Hippo (supposed), Zolat el Hammad-East.

Fig. 16. Rhinos and round-headed figures, Zolat el Hammad-East. (See also Pl. S.)
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Panorama of the extinct oasis of 'Dry Sejima'. The NE-SW trending sandstone ridges provided island-type settings to prehistoric people during the early- to mid-Holocene lake phase.

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Zolat El Hammazi East, Sudan. Rhinoceros and round-headed figures.

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Central Kenedi, Chad. Painted cattle and human.