

# The ancient stone-built game traps at Gharb Aswan and beyond, Lower Nubia and Upper Egypt

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## Riassunto

Lungo un tratto del Nilo di 400 km, specie sulla riva ovest da el-Hosh nell'Alto Egitto al confine del Sudan nella Bassa Nubia, sono disseminate una serie di trappole costruite in pietra, poco conosciute, che attestano un'attività venatoria svolta nell'antichità su larga scala. L'articolo descrive i ritrovamenti sul terreno a Gharb (Ovest) Aswan e a el-Hosh e comprende i risultati di una ricerca di strutture simili su Google Earth a sud della grande diga di Aswan. Queste trappole sono dei lunghi allineamenti di pietre interrotti da aperture a imbuto chiamate "chutes". In alcuni punti gli allineamenti bloccano i wadi e le valli poco lontano dal Nilo per decine di chilometri, e si ritiene che molti di essi siano precedenti al Nuovo Regno, forse attribuibili al Gruppo-C nubiano. Per chiarire questa ipotesi è necessaria una ricerca più approfondita, che fornisca alcune risposte: quali animali venivano catturati (gazzelle dorcas?), che funzione avevano le trappole (caccia passiva?) e come veniva organizzata la caccia.

## Summary

*Spread along a 400 km stretch of the Nile, especially on the west bank from el-Hosh in Upper Egypt to the Sudan border in Lower Nubia, the poorly known stone-built game traps are evidence of large-scale ancient hunting practices in the region. This paper summarises field evidence at Gharb (West) Aswan and el-Hosh and includes results of a Google Earth search for traps south of the High Dam at Aswan. The game traps come as stone lines broken up by funnel-shaped openings called chutes; systems which in some places block wadis and valleys over dozens of kilometres slightly to the west of the Nile. Many are thought to predate the New Kingdom, perhaps belonging to the Nubian C-Group. More research is needed to clarify this hypothesis, as well as questions related to which animals that were trapped (dorcass gazelle?), the function of the traps (passive hunting?) and how the hunting was organised.*

## Résumé

Sur la rive ouest du Nil, à partir d'el-Hosh en Haute Egypte jusqu'à la frontière du Soudan en Basse Nubie, 400 km vers le sud, on trouve une série de pièges en pierre, peu connus, qui témoignent d'une activité de chasse pratiquée à grande échelle dans l'antiquité. L'article présente les trouvailles sur le terrain à Gharb (Ouest) Assouan et à el-Hosh et les résultats d'une recherche de ces structures sur Google Earth au sud du grand barrage d'Assouan. Ces pièges sont de longs alignements de pierres, entrecoupés avec d'étroites ouvertures en entonnoir appelées "chutes". Dans certains endroits les alignements barrent les oueds et les vallées pour des dizaines de kilomètres. Une grande partie de ces structures peuvent être antérieures au Nouvel Empire et attribuables au Groupe-C de Nubie. Pour confirmer cette hypothèse, des recherches plus approfondies doivent être menées, et des réponses sont nécessaires au sujet de la faune chassée (gazzelles dorcas?), de la fonction de ces pièges (chasse passive?) et de l'organisation de la chasse.

## Introduction

The ancient stone-built game traps – stone lines broken up by small, funnel-shaped openings called chutes – of Upper Egypt and Lower Nubia are extremely widespread along a 400 km long stretch of the Nile (Fig. 1), but they are very poorly known and hardly described in the scholarly literature. The objective of this paper is thus to highlight this important piece of cultural heritage by describing and discussing the discovery of a large concentration of trap structures at Gharb (West) Aswan, between the Old Aswan dam and Wadi Kubbaniya (Fig. 2). The discovery was made during survey of ancient stone quarries, roads and rock art, which took place within the QuarryScapes project between 2004 and 2008 (Bloxam *et al.*, 2007; Heldal, 2009; Storemyr, 2008; 2009; Storemyr *et al.*, in press).

Probably intended for capturing primarily gazelle, similar game traps in the oases of Dunqul and Kurkur, as well as along the Lower Nubian Nile (Fig. 1), have been briefly reported by Hester & Hobler (1969: 63-68). There are different, but comparable structures in the Eastern Desert (Hobbs, 1989: 43), Eastern Sahara (Riemer, 2004; 2009) and by the third

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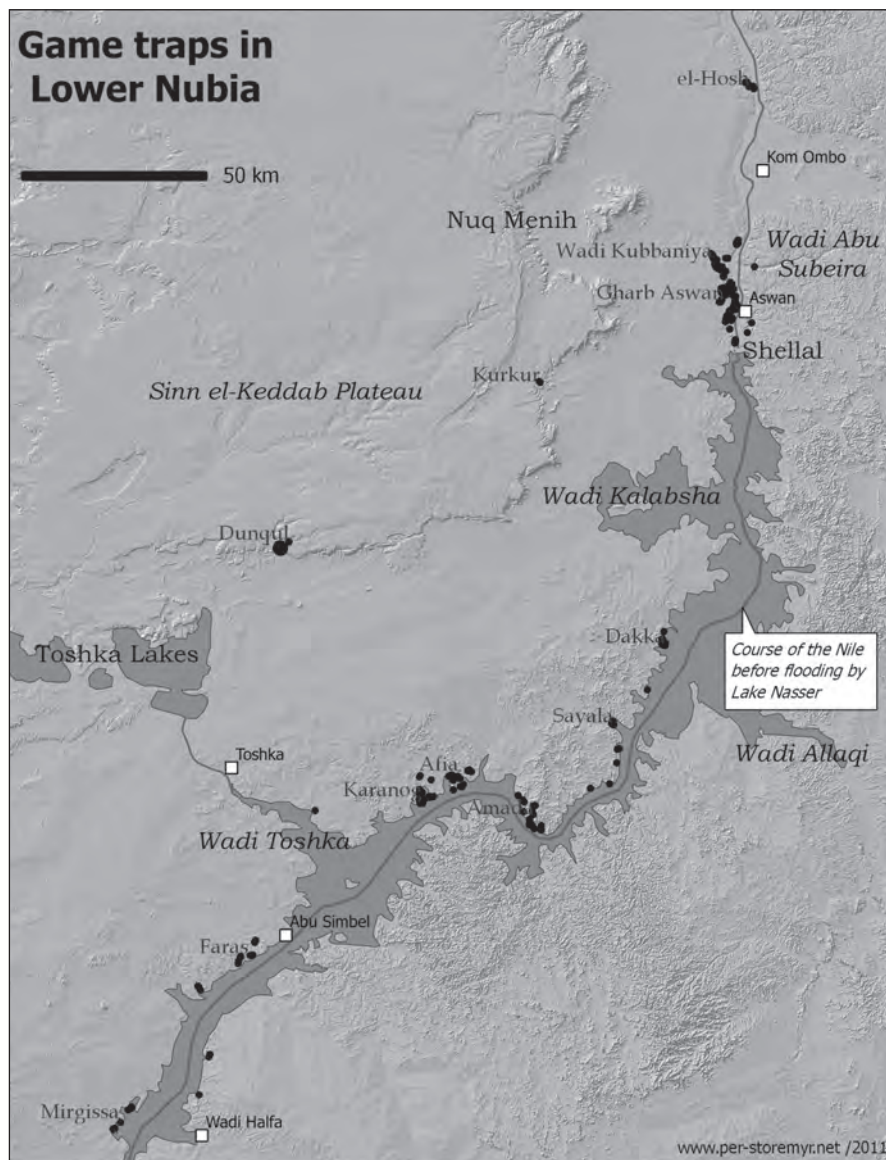


Fig. 1. Map of Upper Egypt and Lower Nubia with game trap structures (dots).

*Sources:*

The Kurkur and Dunqul assemblages: Hester & Hobler (1969); the Gharb Aswan-Kubbaniya and el-Hosh assemblages: field observations by the author; the Wadi Abu Subeira stone line: Adel Kelany/the author; other: Google Earth study by the author.

Nile cataract in the Sudan (Edwards, 2006). Previously thought to have been submerged by Lake Nasser, many of the traps seen by Hester and Hobler above the High Dam at Aswan have been “rediscovered” on high-resolution satellite images (Google Earth) during research for this paper and are reported below. In addition, recent field observations of similar traps at el-Hosh in Upper Egypt are mentioned.

As for Gharb Aswan and el-Hosh, many stone lines have been surveyed by field walking aided by Google Earth along with recording of spatially connected features. Dating is difficult, indeed, and so far we can only rely on observations of stratigraphy and condition (weathering, erosion) as well as on comparison with similar trap systems.

### *The game traps and their distribution*

The game traps of Gharb Aswan (and Upper Egypt/Lower Nubia in general) are different from the far better known “desert kites” in Sinai and the Near East (Fig. 3). Whereas the latter features long stone lines that converge towards an enclosure or corral where game was (actively) driven, trapped and killed (see Helms & Betts, 1987, and the latest review by Holzer *et al.*, 2010), the former are generally “open” structures. They lack the enclosures and instead the stone lines converge towards or are broken up by one or several small, funnel-shaped openings (chutes) where trapping must have taken place. Practically all game traps observed in the field and on satellite imagery share these characteristics. However, there are significant differences in size and local concentration.

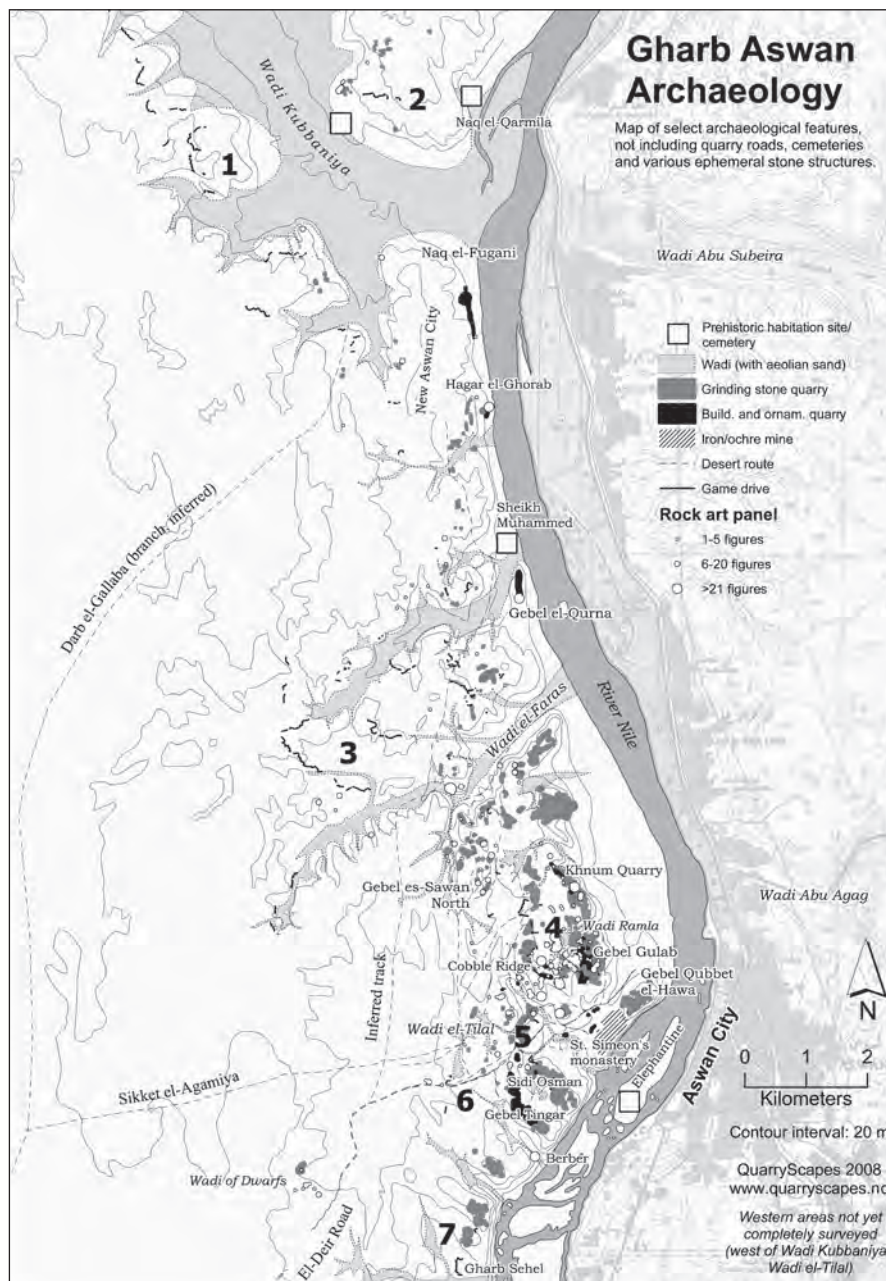
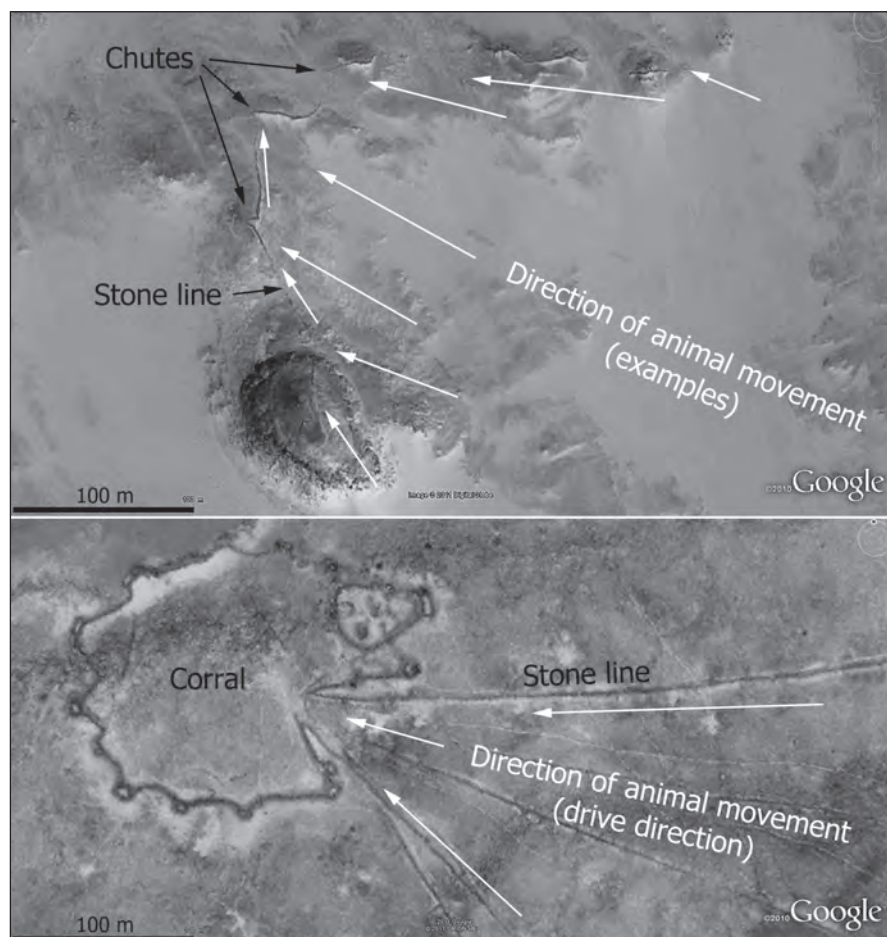


Fig. 2. Map of Gharb Aswan with selected archaeological features. Numbers (1-7) by game trap complexes are referred to in the text. Source: Author/QuarryScapes.

In the 30 km long stretch from north of Kubbaniya to south of the Old Aswan dam there are a dozen or so trap structure concentrations (“complexes”). They are located across and along, sometimes above, flanks of wadis draining the Gallaba pediplain between the Nile and the Sinn el-Keddab plateau (Fig. 1, 2). A “structure” was built as a semi-continuous line with local fieldstone (Nubian sandstone), rarely more than 40-50 cm high, carefully integrated in the local terrain with small hills and hillsides, which acted as natural boundaries (and reduced the amount of stone for construction and time for labour). Importantly, most lines are now broken in several entities due to erosion and aeolian sand cover. Practically all the lines were built for capturing animals on their departure from the environs of the Nile, leading them along wadis and hillsides to the strategically located chutes (Fig. 4, 5), sometimes at spots where animal paths can still be seen.

The lower part of Wadi Kubbaniya (Fig. 4) displays the largest complex (no. 1 in Fig. 2) with 15-20 structures ranging in length from less than 0.1 to more than 1 km (in total c. 12 km). This implies that practically all the small side wadis, valleys and re-entrants over a distance of eight km along the undulating western flank of the main wadi are “blocked” by game traps. In addition a structure is found close to the famous Late Palaeolithic habitation sites (Wendorf & Schild, 1989)

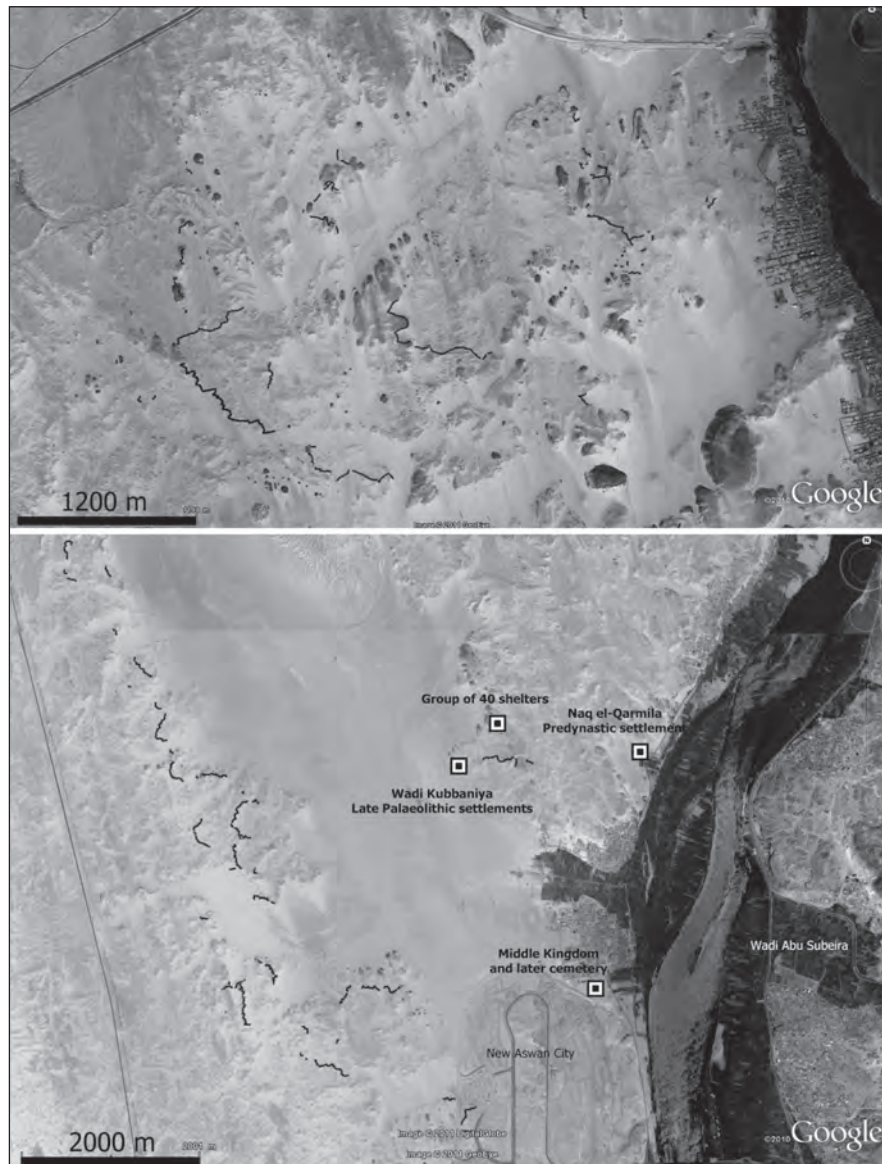


*Fig. 3. The difference between Lower Nubian game traps (top, from Abu Simbel) and Jordanian desert kites (from east of Azraq): The former has stone lines with narrow openings (chutes) where animals are trapped; the latter feature a corral to which animals are driven along stone lines. Images: Google Earth.*

at the eastern flank of the wadi (no. 2). There is a large complex (no. 3) west of Gebel Qurna, between Wadi el-Faras and another, unnamed wadi (Fig. 4). These lines are made like three clusters of parallel V-forms 1.5 km apart, each form measuring 1.5-3 km in length. The largest has about 20 chutes. One might think that the three forms represent stone lines built at different times, but on closer inspection it seems that most are built simultaneously in such an intricate way that all small side wadis and valleys are effectively blocked by the system.

Less extensive complexes are found at the top of the small valleys between Gebel es-Sawan and Gebel Gulab (no. 4). Wadi el-Tilal, which enters the Nile close to St. Simeon's monastery and the island of Elephantine, features several small structures (no. 5), one of which is deviating from the general scheme: It is built more like an enclosure (Fig. 8) and comprises a well-built chute, closed at the far end and reminiscent of a roofed trap. Furthermore, the enclosure has an "entrance" marked with standing stones. There is another enclosure-like structure among a small complex west of Gebel Tingar (no. 6). West of Gharb Sehel there are several substantial structures (no. 7) and further south, in granite country close to the High Dam, is another complex, apparently with a feature resembling a corral (field observations lacking).

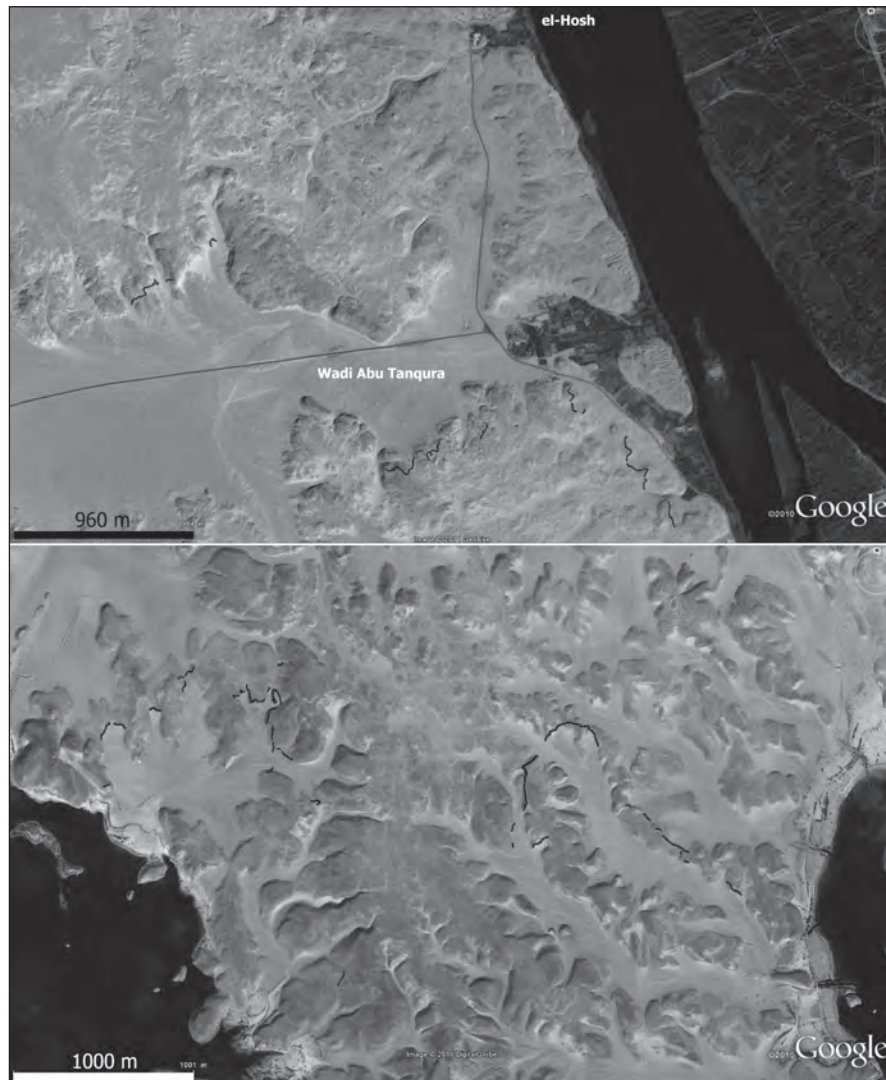
The game traps are generally located one to three km from the Nile, but the larger ones in Wadi Kubbania and Wadi el-Faras extend up to six-eight km from the river (as the crow flies) (Fig. 2). This pattern appears to be dependent on the local geomorphology: as far as we know there are no traps in the "high desert", at the Gallaba piedplain, outside the system of wadis and small valleys towards the Nile. Considering that parts have eroded away and that destruction by modern development has taken place, the trap structures between Kubbania and the High Dam block practically all wadis in the area and are estimated to have a total length of more than 25 km. Given a general width and height of the stone lines of 50 and 40 cm, respectively, this implies that perhaps 5000 cubic metres of stone was needed for their construction. A substantial body of "architecture", indeed!



*Fig. 4.* Game traps (drawn black lines, chutes are not marked) in Wadi el-Faras at Gharb Aswan (top) and Wadi Kubbaniya. Information on the habitation sites and cemeteries marked; see Junker (1920); Wendorf & Schild (1989); Gatto *et al.* (2009). Note that Naq el-Qarmila and the Middle Kingdom cemetery also feature Nubian elements. Images: Google Earth.

As observed on Google Earth there are just two trap complexes between Kubbaniya and Kom Ombo and the whole 40 km stretch further on to el-Hosh seems not to feature (preserved) systems (Fig. 1). This is probably due to the fact that the terrain dramatically changes on entering the Kom Ombo plain; the flat, rather featureless desert west of the river may not have been suitable for hunting. The rockier environs of el-Hosh, however, seem to be more suited and this area displays the northernmost group of game traps found so far (Fig. 5). Generally similar to the complexes farther south, one of the six-seven game trap structures stands out as having been constructed across a steep hill between two valleys that enter the broad Wadi Abu Tanqura.

The game traps along the Nile south of the High Dam at Aswan (Fig. 1), mentioned by Hester & Hobler (1969: 67-68), are generally entirely comparable to the ones further north, despite the fact that the terrain is often different, with sandstone inselbergs as a major feature of the landscape. On Google Earth we can observe substantial complexes close to Dakka, Sayala, Amada, Afia (Fig. 5), Karanog, Faras and Mirgissa, with smaller concentrations in between. It is, of course, likely that these complexes represent the tip of the iceberg only, structures closer to the original river course having been flooded. There are very few structures that have enclosure- and corral like features (but notably two by Afia), and in one case a single stone line seems to follow an animal path, after 60 m or so blocking the path with two chutes (also by Afia). Just as north of the High Dam the distance to the original river course is about eight km at the most. The reason



*Fig. 5. Game traps (drawn black line, chutes are not marked) at el-Hosh (top) and in the Afia area (the latter not field surveyed). Images: Google Earth.*

why structures are now lacking between the High Dam and Dakka and in the Toshka area is probably because they have been drowned by Lake Nasser (Fig. 1). In these areas are two major wadis (Kalabsha and Toshka), implying that the lake extends far to the west. It is, however, important to note that it is only possible to observe stone lines on QuickBird satellite images (resolution c. 0.6 m). In areas with Spot images only (resolution c. 2 m), notably by the wadis mentioned above, stone lines cannot be detected.

Perhaps game trap structures also have been flooded on the east bank of the Nile since very few structures can be observed on Google Earth. It is, of course, entirely possible that many structures have eroded away, given the much stronger wadi activity on the east bank (more rainfall in the Eastern Desert), or that hunting by game traps simply did not develop to the same extent as on the west bank. There are some structures north of Wadi Halfa and two complexes in the Shellal granite area, just outside suburban Aswan (Fig. 1). Moreover, a special structure has been found by Adel Kelany and his SCA team not far from the mouth of Wadi Abu Subeira, 12 km north of Aswan (Fig. 6f). It is 100 m across and designed with two converging stone lines up the steep northern wadi flank. This structure features peculiar entrances with standing stones and several small stone circles within.

The last known complexes in Lower Nubia/Upper Egypt are the traps of Hester & Hobler (1969: 63-68) in Kurkur and Dunqul. In Kurkur they found two structures only; one is easily observed on Google Earth and situated, like the one in Wadu Abu Subeira, on the rather steep east flank of the wadi just to the south of the oasis. This enclosure-like structure is 60-70 m across and probably features four chutes. According to Hester and Hobler there are more structures in Dunqul; eight were



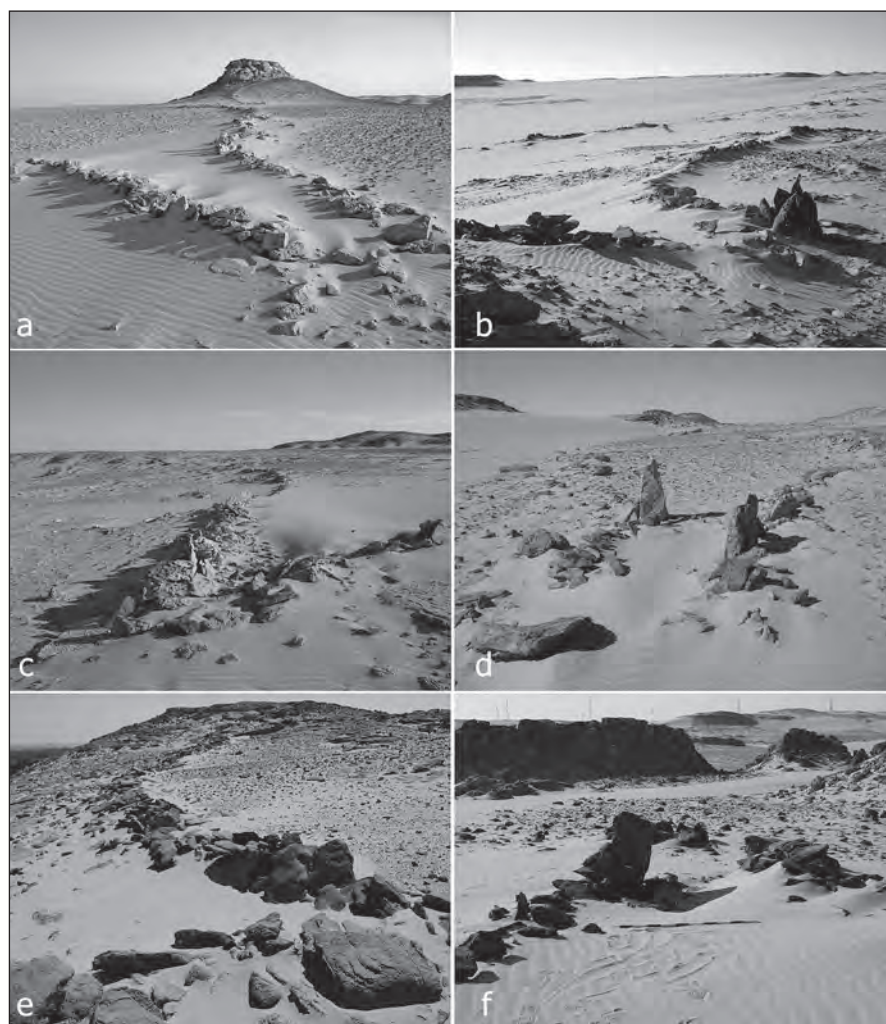
*Fig. 6. Stone lines of game traps:*  
 a) Wadi Kubbaniya;  
 b) Gebel Gulab at Gharb Aswan, note the weathered stone line in front and rock art in the foreground;  
 c-d) Gebel es-Sawan at Gharb Aswan;  
 e) el-Hosh;  
 f) Wadi Abu Subeira, note the stone lines up the slope.

found and described. They were most commonly built from calcareous tufa, implying that stone was not collected in the immediate vicinity of the traps only. Otherwise, they share the characteristics of the structures close to the Nile: Most have chutes designed for trapping as the animals departed from a drinking hole, climbing a slope to higher ground, though, apparently in contrast to the examples along the Nile, there are also a few with opposite characteristics.

### *Notes on building technique and archaeological features*

As seen from a distance the trap structures at Gharb Aswan (and beyond) are remarkably uniform, whether they are long or short, in hilly or flatter terrain. All, except the traps in granite country by Shellal, are situated in Nubian sandstone landscapes. All took advantage of the local terrain and integrated stone lines with hills, hillsides and wadi flanks etc. But there are, of course, some variations in design and building technique (Fig. 6-8). While most of the now ruined stone lines were built to a height matching two-three very rough courses of fieldstone, there are several examples of lines that consist of one course only. Moreover, when thin-bedded sandstone was available, slabs were often put up vertically. Thin slabs and longish stones were also commonly used as standing stones integrated with the lines (Fig. 6), perhaps to frighten the animals so they would not cross the stone lines (cf. Riemer, 2004: 38). Chutes (Fig. 7) were normally built more solidly than the lines; they are often somewhat higher and at the end many feature a small pile of stone and one or two standing stones. Such features were also noticed by Hester and Hobler in Dunqul and they interpreted them as having been used as anchors for nets and/or cord for trapping the animals.

Hester and Hobler observed pitfalls at the end of two chutes in Dunqul. We have not spotted such pits at Gharb Aswan and el-Hosh,



*Fig. 7.* Chutes of game traps:  
 a) Sheikh Mohammed at Gharb Aswan;  
 b) Wadi Kubbaniya;  
 c-d) Gebel es-Sawan at Gharb Aswan;  
 e) el-Hosh;  
 f) west of Gharb Sehel. Note the chutes with standing stones (right column). These may have been used as net or cord anchors.

neither notched blocks beside the chutes, like those reported from the Regengfeld area and interpreted as having been used as anchors for (spiked) wheel traps and/or snares (Riemer, 2009: 183-4). However, at the time of survey we did not look specifically for such blocks. On the other hand, we looked for artefacts such as arrow and spear heads, and bone assemblages (as an indication of butchering) near the traps, but such features were neither observed.

Many structures at Gharb Aswan are spatially closely associated with often well-built stone circles at strategic places such as on top of hills and near chutes (Fig. 9). They can likely be interpreted as look-outs and/or resting places and/or bow stands for hunters, at least in cases where other archaeological features, such as ancient roads and tracks, are missing. Both at Gharb Aswan and at el-Hosh there are, moreover, concentrations of shelters and small habitation sites in the vicinity of trap complexes. Since our survey did not include excavation, there is yet little more to say about such features, though it is worth mentioning a concentration of about 40 (!) undated shelters and wind breaks close to the traps structure at the eastern side of Wadi Kubbaniya. But shelters and windbreaks may also be connected to the massive stone quarrying activities from Kubbaniya to Gharb Sehel, especially grinding stone procurement, which took place in the Late Palaeolithic and from the Predynastic to beyond the Roman period (Bloxam *et al.*, 2007; Storemyr, 2009: 140-2).

Rock art is important, both at Gharb Aswan (Storemyr, 2008; 2009) and el-Hosh (Huyge *et al.*, 1998; Huyge, 2005), where the tradition of making petroglyphs extends back to the Epipalaeolithic and Late Palaeolithic, respectively. Net-like and various other geometric designs of the Epipalaeolithic may well be connected to hunting of mammals, but there seems yet to be nothing in the rock art that specifically refers to stone lines and chutes. However, fish hunting is likely represented by the famous Epipalaeolithic fish-trap designs at el-Hosh. And, like elsewhere





*Fig. 8.* Enclosure-like trap system close to St. Simeon's monastery. It features an "entrance" with standing stones (arrow) and an elaborate trap (circle).

across Lower Nubia and Upper Egypt, there are many Predynastic and later images depicting gazelle and hunting scenes; at Gharb Aswan there may even be a royal hunting scene (bowman, dog and gazelle) (Storemyr, 2009: 126-8). Generally, at both Gharb Aswan and el-Hosh the landscape is so loaded with archaeological features, spanning thousands of years, that any attempt at making inferences of temporal associations with game hunting is tricky, indeed.

### *The difficult dating question*

Edwards (2006) speculated on a Mid Holocene date (pre-5000 BC) for the stone lines by the third Nile cataract, Riemer (2004), with quite some certainty, placed the Eastern Sahara Regenfeld game trap in the Neolithic (c. 5000 BC), Hester & Hobler (1969: 63-8) assigned the Dunqul and Lower Nubian Nile complexes to the "Oasis C-Group" and later, whereas the desert kites of the Near East were used from the Neolithic to recent times (Helms & Betts, 1987; Holzer *et al.*, 2010). Obviously, the inferences made by Hester and Hobler are the most interesting in the context of this paper. Their analysis was based on spatially connected, dated archaeological features, which in most cases belonged to what they called the "Oasis C-Group"; as far as I'm concerned just another name for the Nubian C-Group (c. 2400-1550 BC; Edwards, 2004).

Since we have not carried out excavations at Gharb Aswan, we can only rely on surface finds. Pottery is very scarce, but generally



*Fig. 9. Shelter or look-out (one of two) close to stone line and chute just north of Wadi el-Faras at Gharb Aswan. These features are part of an extensive trap complex (cf. fig. 4, top).*

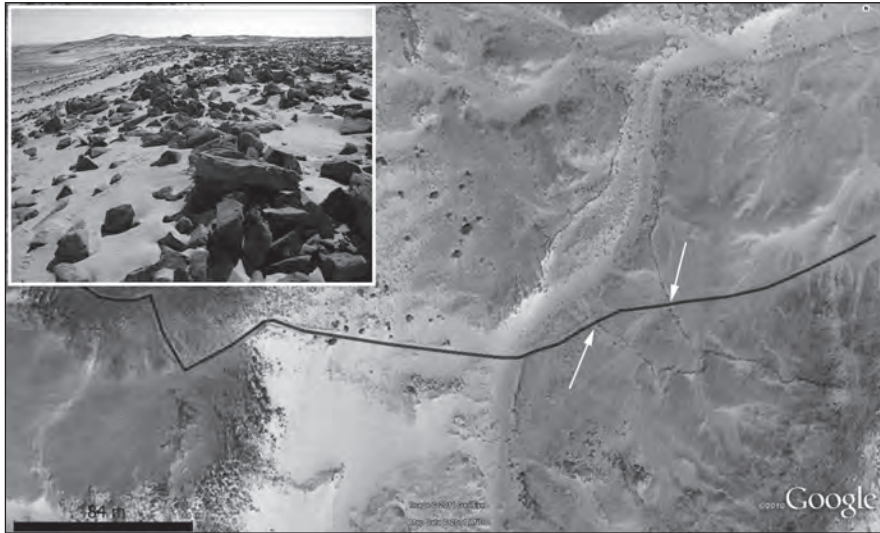
ranges from the Predynastic to recent times. In one case, at Gebel es-Sawan, a stone line has been destroyed by a quarry, in which there is New Kingdom ceramics (Fig. 10). In another case stones lines close to St. Simeon's monastery have been damaged by a quarry road from the New Kingdom quarries at Gebel Sidi Osman (Fig. 10). Generally, stone lines are disturbed, sometimes destroyed, when located within or in the immediate vicinity of ancient quarries. And in several cases camel paths belonging to desert routes have also disturbed chutes and stone lines (the camel came in use around the Ptolemaic period). Thus, as inferred by Hester and Hobler, there is a good chance that we are looking at structures that were in use during Nubian C-Group times, though at places they may, of course, be older or younger.

In the case of the enclosure-like structure with a very elaborate trap close to St. Simeon's monastery (see above, Fig. 8) there is reason to believe that it may significantly postdate the Nubian C-Group. In the close vicinity of this trap there are several yet undetermined stone structures surrounded by pottery of presumably Late Roman and Byzantine age. A similar situation is encountered by the other enclosure-like structure west of Gebel Tingar where Roman pottery is prevalent. At the perhaps youngest end of the scale are a few structures near present habitation sites, notably just north of Wadi el-Faras, which give the impression of having been made more recently than the bulk of the stone lines (less well-built, less weathered).

The condition of the stone lines is a diffuse indicator of age. Practically all lines are thoroughly eroded or gone near and within wadis – and usually covered by aeolian sand in wadis and depressions. Given that it takes a very substantial downpour to move stone weighing +/-50 kg, that the small wadis will not have carried much water and that the climate may have been arid to hyperarid for the last 7000 years (Bubenzer & Riemer, 2007), it is reasonable to suggest that a few larger flash flood incidents over hundreds or rather thousands of years will have been responsible for the erosion.

### *Questions and outlook*

With few exceptions, we are generally looking at remarkably uniform archaeological features, which must have been built according to detailed knowledge of animal behaviour in the discussed region. The structures cover a very substantial area along a 400 km stretch of the Nile River and many may, as we have seen, generally predate the New Kingdom. We are not dealing with a tradition that is unique for Lower Nubia



*Fig. 10.* Dating of game traps. Main picture (Google Earth): New Kingdom quarry road (drawn dark line) has destroyed stone lines (arrows) close to St. Simeon's monastery. Inserted: Stone line (in the foreground) that has been destroyed by a grinding stone quarry. This quarry features New Kingdom pottery and is located at Gebel es-Sawan at Gharb Aswan.

and Upper Egypt, given that the use of stone lines is very widespread in hunting practices. However, the uniform pattern observed indicates that the tradition was specifically adapted – in a highly organised way – to Lower Nubian and Upper Egyptian circumstances. Whether it has to be termed a specific Lower Nubian tradition remains unclear, but this is indeed indicated by the trap distribution pattern; though preliminary, it seems to roughly match the extent of both A-Group and C-Group peoples (e.g. Edwards, 2004).

In the overwhelming majority of cases the animals must have been captured on leaving the environs of the river, moving – or being driven – towards plains, in some cases hilly land, in the west. Moreover, even if the game trap systems indicate large-scale hunting, the animals cannot have been captured and killed in such great numbers (hundreds, thousands) as in the desert kites of the Near East (Helms & Betts, 1987; Holzer *et al.*, 2010) since there are hardly any corrals and so far no archaeological features that indicate mass killing. Here our founded knowledge and interpretation end – and questions arise:

1. What animals were actually hunted? In the Near East (northern Saudi Arabia, eastern Jordan, Syria) the goitered gazelle (*Gazella subgutturosa*) was the main prey captured using desert kites (Holzer *et al.*, 2010). This gazelle forms large, migrating herds, which seem to have been a key factor for the adaptation of the mass-killing kite systems. The goitered gazelle was never at home in the Sinai and Negev, and here it was rather the dorcas gazelle (*Gazella dorcas*), and, less likely, hartebeest, oryx, wild ass, ostrich, barbary sheep and ibex that were hunted in the comparatively small kite structures (Holzer *et al.*, 2010; cf. Uerpmann, 1987: 94-7). The dorcas gazelle was a key species also in Egypt and Nubia and may have been the most important hunted game by stone lines, perhaps to a lesser extent together with other gazelle types that existed in Lower Nubia, such as soemmering's gazelle (*Gazella soemmeringi*) and slender-horned gazelle (*Gazella leptoceros*) (Boessneck, 1988; Osborn & Osbornova, 1998: 173ff) – and, less likely, the animals mentioned for Sinai/Negev. There is some dissent as to whether the long-necked gazelles gerenuk (*Litocranius walleri*) and dibatag (*Ammodorcas clarkei*) were at home in Nubia and it may be that ancient depictions interpreted as such gazelles (Osborn & Osbornova, 1998: 173ff) rather refer to dama gazelle (*Gazella dama*) (Riemer, *pers. comm.*). Moreover, it is unlikely that ibex was among the game since it favours mountains and tend to leap over low stone fences (and it may not have existed to the west of the Nile). The habit of gazelles to follow such fences is a main reason why they could be hunted by these structures (cf. Hester & Hobler, 1969: 64). Thus, was the dorcas gazelle the key animal hunted by stone lines?

2. How far west of the Nile did the animals wander; what was their natural habitat? We can be pretty certain that the animals were drinking (and grazing/browsing) by the Nile, but was their habitat restricted to the environs of the river? Did they live in small, nomadic



*Fig. 11.* The main drainage of the lower part of Wadi Kubbaniya. This is the only place around Gharb Aswan where there is still some vegetation away from the banks of the Nile.

groups only or did they form migrating herds, as dorcas sometimes do (Estes, 1992: 63ff)? Even if we are looking at groups that had their natural habitat near the river, they must have wandered many kilometres into the desert, as indicated by the location of many stone lines, presumably to graze/browse (the gazelles in question are not obligate drinkers, so they can go without water for very long periods). Thus, until when was the climate sufficiently moist or the ground water table high enough to support some vegetation in the desert – and hunting at such a large scale right across Lower Nubia (the *western* desert)? Will the animals have wandered/migrated along vegetated routes such as Wadi Kubbaniya (Fig. 11) and to places like Nuq Menih (a playa/mudpan, cf. J.C. Darnell and D. Darnell), Kurkur and Dunqul (Fig. 1)? If so, can this aid in understanding the ancient hunting and explaining the largely westward orientation of the game traps? Did gazelles wander in these deserts right up to recent times, before they were largely exterminated by modern hunting (Saleh, 1987)?

3. How were the animals trapped? How was the hunting organised? If we are looking at passive hunting techniques by wheel traps, snares, nets or cord, as Riemer (2009) has argued with reference to similar, but not the same type of structures (which have openings in the stone lines, but no chutes), we may have to visualise the hunting as aimed at smaller groups of animals, the hunters regularly checking the traps. Were the look-outs thus built to wait for the game? Or is it possible that they were also constructed for hunters to play a more active role in directing bands driving the animals, perhaps during times of migration? If so, did the hunters use dogs, so often depicted alongside hunters and prey in ancient Egypt and Nubia (cf. Osborn & Osbornova, 1998)? Can we take it for granted that the hunt was always aimed at killing? Is it possible that animals were trapped alive for religious rituals? Or can the stone lines in any way be related to domestication attempts? (cf. Boessneck, 1988: 41ff.) However, attempts at such an explanation for the Near East desert kites have been firmly rejected (Perevolotsky & Rosen, 1998).

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Along with dating the traps, especially looking at how far back this hunting tradition may reach, these are some of the questions that can only be solved by further, broad interdisciplinary investigation. Are there, for example, particularly many gazelle bones at habitation sites of the Nubian C-Group? Do ethnographic parallels exist? Research should preferably start as soon as possible, for the region, especially Gharb Aswan, is subject to intense modern development. This is about to wipe out much archaeology, but also details such as animal paths – evidence that may be of importance for reconstructing the large-scale hunting practices. Clearly, the game traps deserve protection – and

perhaps the work on ancient quarries by QuarryScapes can serve as inspiration for such purposes (see e.g. Bloxam, 2009; Storemyr, 2009).

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