

Landscape reconstruction of the Predynastic site at Nag el-Qarmila (Upper Egypt)

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Riassunto

Questo breve articolo presenta la ricostruzione ambientale di un sito Predinastico vicino ad Assuan. Il contemporaneo ritrovamento di contesti domestici e funerari in una piccola valle vicino al Nilo rende il sito unico nel suo genere. La ricostruzione ambientale ottenuta con il disegno artistico è indubbiamente un buon metodo per presentare visivamente i dati archeologici.

Summary

This short article wants to present the landscape reconstruction of a Predynastic site in the vicinity of Aswan. The site is unique because of the presence of both domestic and funerary contexts in a small valley close to the Nile. Landscape reconstruction with artistic drawings is an interesting method for presenting in a visual way archaeological information.

Resumé

Cet article présente brièvement la reconstruction du paysage d'un site prédynastique de la région d'Aswan. Ce site est unique par la présence de vestiges à la fois domestiques et funéraires dans une petite vallée située à courte distance du Nil. La reconstruction de paysages par des dessins artistiques est une méthode intéressante pour visualiser l'information archéologique.

Introduction

The Predynastic site at Nag el-Qarmila, located about 17 km north of Aswan on the west bank of the Nile (Fig. 1), consists of both settlement and cemetery remains (Gatto *et al.*, 2009).¹ This is exceptional because most of the information available for the Predynastic period comes from cemetery sites (Hendrickx & van den Brink, 2002). Even more exceptional is that the hitherto excavated part of the settlement (WK15-B) and the nearby cemetery (WK14-A) are contemporaneous. They date to Naqada IC, eventually continuing into Naqada IIA, around 3700 BC.² Furthermore, Naqada IIC-III A2 sherds are recorded on the surface of both sites.

The site of Nag el-Qarmila is located at the mouth of a small wadi, just outside of the alluvial plain (Fig. 2). The latter is very narrow in the southern part of Upper Egypt because the sandstone hills bordering the valley are at a relatively short distance from the Nile. This implies that the Nile cannot shift its channel as easily as it did more to the north (e.g., Bunbury *et al.*, 2008). This, together with the limited distances between the different parts of the landscape and the proximity of the two contemporaneous sites, presents very good possibilities for drawing a landscape reconstruction without extensive regional investigations, but primarily based on the information from the site of Nag el-Qarmila itself.

Geomorphology

A survey of the geology of the surface materials and the geomorphology allows a preliminary interpretation of the geo-archaeological context of the site (Fig. 2), based on a 370 m-long NNE-SSW profile across the wadi (Fig. 3). For the purpose of the present article, only the features visible

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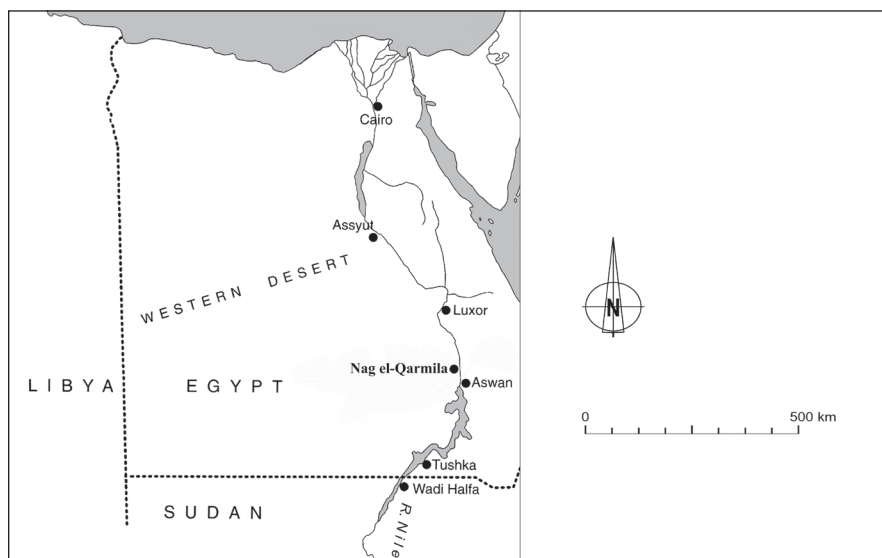


Fig. 1. Map showing the location of the Predynastic sites at Nag el-Qarmila.

on surface are of importance.³ The wadi is eroded in a plateau consisting of purplish fluvial sandstone bedrock, exposed on both sides of the valley. The alluvial fill of the valley bottom comprises different lithostratigraphical units. The oldest unit is formed by a Middle-Pleistocene river terrace composed of medium sized sandy sediments. The incision of the Middle-Pleistocene valley took place in the southern part of the valley bottom and resulted in a river terrace at the foot of the northern valley slope. On the surface, the limit between the rocky valley slope and the sandy terrace is marked by a clear concave slope change. The younger sediments consist of a very hard layer of dark, compact silts up to 2 m thick, that were deposited by the catastrophic floods of the 'Wild Nile' stage at the transition Late Pleistocene/Holocene. The silt layer forms a narrow strip through the wadi, about 70 m wide at the place of the section. The present-day valley bottom is situated in the southern part of the wadi. It is filled by Holocene alluvial sediments, the upper unit of which consists exclusively of coarse to medium sandy wadi deposits, eroded from the rocky valley slopes and the Middle-Pleistocene river terrace. The whole landscape is covered by a discontinuous veneer of yellow medium sized sand. This sandy layer is the result of persistent aeolian activity.

Living conditions

The physical environment of Nag el-Qarmila presented different opportunities and constraints for Predynastic people. An unhindered long distance view of the surrounding landscape is still available from the rocky plateau above the site. Fish, birds and reed for construction were obtainable from the nearby Nile and its floodplain. The thalweg of the alluvial valley bottom was probably between 2 and 3 m deeper than it is at present day. As a consequence, it was affected by the yearly Nile flood. The thalweg is situated at the fringe of the Nile floodplain, resulting in a shorter alluvial season due to the relatively late start and early receding of Nile flood waters. The aquifer in the sandy silt of the lower alluvial infill was recharged on an annual basis by the Nile flood and sporadically by winter rains. As a consequence, the water table reached close to the surface throughout the year. By damming the upslope part of the thalweg when the flood started to wane, it was possible to catch part of the flood water in order to obtain a reservoir which could be used to irrigate the downslope part of the thalweg when it was dry again.

Considering those hydraulic conditions, agriculture must have been possible during the major part of the year. However, due to the small area of the alluvial valley bottom, yields were limited and could only support a small number of people. Catching fish was possible by installing traps during the flood. The narrow terrace of 'Wild Nile' flood silts offered excellent opportunities for a settlement: close to the fields in the alluvial valley bottom and out of reach of the flood. The sandy

¹ After the landscape reconstructions presented here were made, another cemetery (WK22) was discovered on the rocky terrace south of the wadi (cf. Gatto *et al.*, 2009).

² For the chronology of the Naqada culture, see Hendrickx, 2006.

³ For a more complete geomorphological description, see De Dapper *in* Gatto *et al.*, 2009.



Middle-Pleistocene river terrace was of limited use. Aeolian deflation was hindering for the settlement; the high position above the wadi thalweg and the sandy nature of the sediments were not conducive for agriculture even with irrigation techniques. This landscape unit was however suitable for digging graves which was not the case in the bank of compact and hard 'Wild Nile' silts nor in the rocky slope.

Fig. 2. Map with indication of geomorphological units (adapted from Google Earth).

Vegetation

A botanical study was not yet available for Nag el-Qarmila when the landscape reconstructions presented here were made. Therefore, information from other sites in Upper Egypt was firstly used (Newton, 2005 and Midant-Reynes, 2007).

During the period of inundation, only the vegetation at the edges of the wadi and the banks of the alluvial plain must have been visible. Because the water table was not very deep, trees and bushes would have grown there. The silty soil on the northern side should have been favourable for acacias (*Acacia raddiana*) (Newton, 2005: 362) and bushes such as capers (*Capparis* spp.). On the southern edge of the wadi, the sandy land probably would not have allowed acacias but rather tamarisks (*Tamarix nilotica*) (Newton, 2005: 362), Christ's thorn (*Ziziphus spina-christi*), balanites (*Balanites aegyptiaca*), and bushes. Doum palms (*Hyphaene thebaica*) may also have occurred on this side of the wadi, but rather close to the alluvial plain. Furthermore, a limited amount of herbs would have grown which may have been used for grazing animals.

The appearance of the alluvial plain during the dry period would very much have depended on the human use of the landscape. Population density was not high during Predynastic times, but judging from the known sites (Hendrickx & van den Brink, 2002), it may have been particularly low in the Kom Ombo-Aswan region. It should therefore be considered that not all of the alluvial plain was used for agriculture, but that important parts of it were covered with grassland and woody vegetation. On the riverside, reeds and papyrus would have grown, while trees such as acacia (*Acacia nilotica*), white acacia (*Faidherbia albida*), tamarisks and probably also doum palm and Christ's thorn can be expected on the bank of the Nile.

After the landscape reconstructions were drawn, charcoal analysis was performed on material from the settlement site WK15 (Gerisch

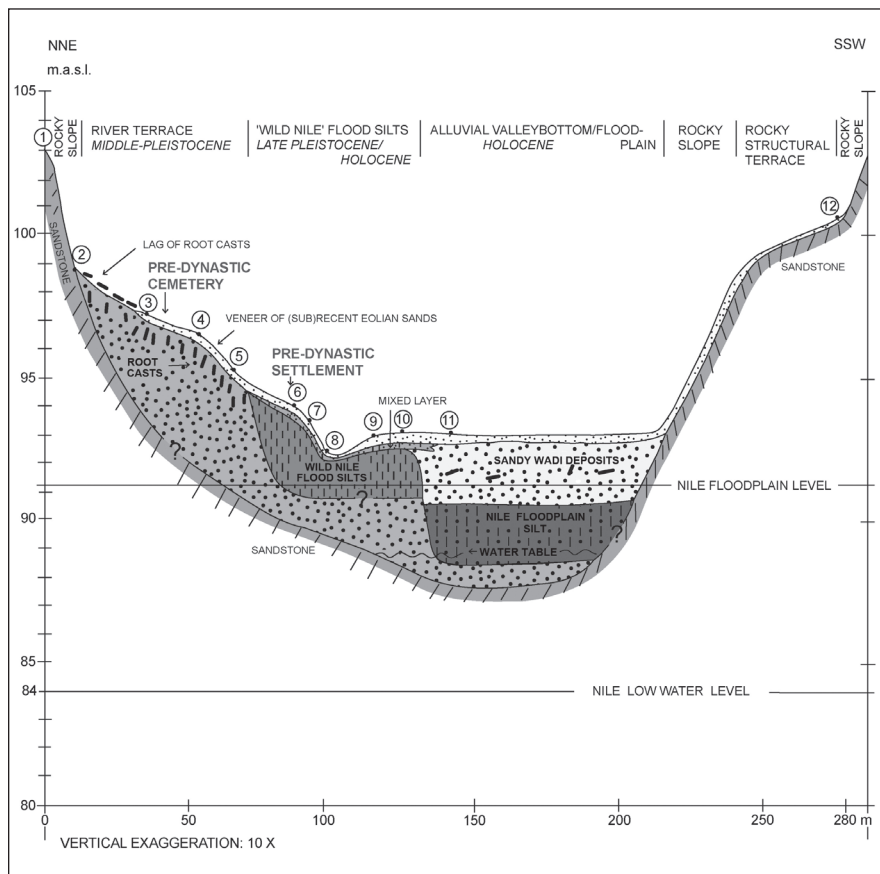


Fig. 3. Section of the wadi.

in Gatto *et al.*, 2009). This largely confirmed the information above on which the reconstructions are based.

The excavated charcoal from a number of hearths found in stratigraphical series within the settlement deposit (dated to NIC-IIA) allowed the identification of seven woody taxa among which the Nile acacia was the most abundant one with 49% from a total of 2,535 analyzed fragments, followed by acacia (a group which includes *A. raddiana*, *A. seyal*, *A. laeta*) with 20% and tamarisk with 24%. The remaining taxa, white acacia, Christ's thorn, *Capparis decidua* and *Chenopodiaceae* were represented to a smaller extent. Acacia trees formed the dominant wood element in the Nag el-Qarmila local vegetation.

Landscape drawing

For drawing landscape reconstructions of Nag el-Qarmila, a convenient location from which all of the site could be seen within its geomorphological setting first had to be chosen. Such a place was found on the northern slope of the wadi, at about 150 m from the modern road. From this spot, a sufficiently large portion of the wadi can be seen, as well as the alluvial plain and the Nile (Fig. 4). In the far distance the famous landmark of Qubbet el-Hawa in Aswan is visible, which is most convenient for locating the little known site of Nag el-Qarmila.

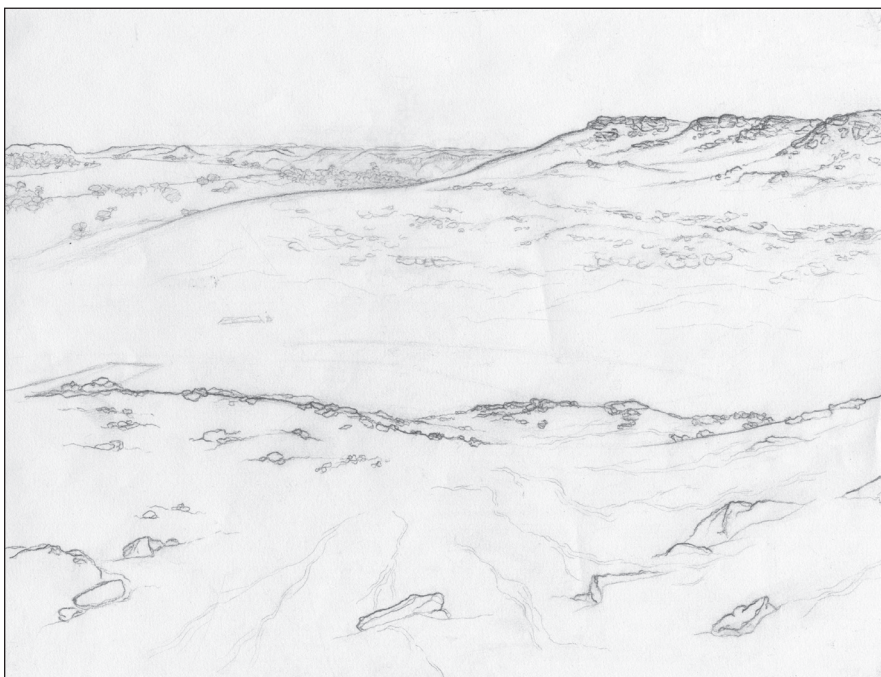
On the primary pencil drawing (Fig. 5), the landscape was drawn as seen, but omitting all modern elements such as the recent buildings in the wadi mouth and the New Aswan Bridge in the distance. Making the drawing on the spot and not from photos gives not only an accurate impression of the depth and perspective but also facilitates a drawing with a slightly broader view than the human eye can see from one point, but without the deformation of a wide angle objective. Tracings of this drawing were used for making the landscape reconstructions themselves. Considering the totally different aspect of the landscape during respectively high and low water of the Nile, two reconstruction drawings had to be made (**Pl. A1** and **A2**). The vegetation may have been denser than as reconstructed but this is done on purpose to allow the shape and type of individual trees to be recognised.



Fig. 4. View of Nag el-Qarmila from the north looking south.

Fig. 5. Primary drawing used for the landscape reconstruction made by Hannah Joris in 2007.

(Compare with colour **Pl. A1** and **A2**.)



In the representation of the landscape during low water, a partially opened dam towards the end of the deep channel of the wadi is shown as illustration of the possibility of retaining water for some time after the inundation period. The cemetery site is indicated by a few little mounds of gravel. Although information on the aboveground indications of the superstructures of Predynastic tombs are extremely rare, it is nevertheless generally accepted they mainly consisted of small mounds of sand and gravel (Crubézy *et al.*, 2002: 454-455). The extension of the cemetery at Nag el-Qarmila can at present not be defined and the limited number of tombs drawn is therefore arbitrary.

Up to now, the excavation of the settlement site has not provided sufficient information to reconstruct the buildings. Rather than “inventing” buildings following information from other sites, which would anyhow have been difficult considering the limited documentation available (Tristant, 2004), it was decided to show only fireplaces (**Pl. A1**), the presence of which is beyond doubt. The aim of the reconstructions is only to show the landscape and its possibilities for human use.

Conclusions

Although the excavations at Nag el-Qarmila are far from finished, it was nevertheless considered interesting to attempt a visual landscape reconstruction. The conditions at the site, where many aspects of the Predynastic environment can be found on a relatively limited surface, are unique and easily allow the visualisation of the possibilities offered by the environment during the periods of high and low Nile. Besides the agricultural potential of the region, the contrast between the alluvial plain and the desert, with the wadi as intermediary, is immediately realised. The same is true for the difference between the living area on the fertile land close to the wadi and the burial site which, although nearby, is located on the dry terrace below the rocky slope.

Finally it should be mentioned that making reconstructions such as the ones presented here, is important for the growing impact of visualisation in our present day information society, including scientific publications. The exponential growth of the number of publications forces researchers to quickly rate the importance of articles for ones own research. Abstracts are of course fundamental for this, but besides that, visually presented information can be judged much faster than written text. The choice and quality of illustrations can be of great importance for the scientific impact of a given publication.

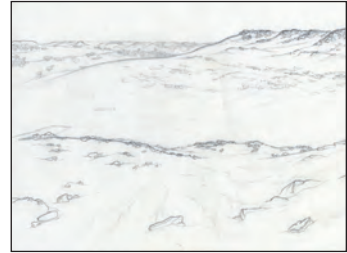
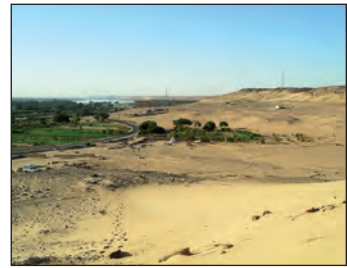
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References

- BUNBURY J.M., A. GRAHAM AND M.A. HUNTER, 2008. Stratigraphic landscape analysis: Charting the Holocene movements of the Nile at Karnak through ancient Egyptian time. *Geoarchaeology*, 23.3: 351-373.
- CRUBÉZY E., T. JANIN AND B. MIDANT-REYNES, 2002. *Adaima. 2. La nécropole prédynastique*. FIFAO 47. Le Caire.
- GATTO M.C., M. DE DAPPER, R. GERISCH, E. HART, S. HENDRICKX, T. HERBICH, H. JORIS, H.-Å. NORDSTRÖM, M. PITRE, S. ROMA, D. SWIECH AND D. USAI, 2009. Predynastic settlement and cemeteries at Nag el-Qarmila, Kubaniya. *Archéo-Nil*, 19: 184-204.
- HENDRICKX S., 2006. Predynastic-Early Dynastic chronology. In: E. Hornung, R. Krauss and D.A. Warburton (eds), *Ancient Egyptian Chronology*. Handbook of Oriental Studies. Section One. The Near and Middle East, vol. 83. Leiden - Boston: 55-93, 487-488.
- HENDRICKX S. AND E.C.M. VAN DEN BRINK, 2002. Inventory of Predynastic and Early Dynastic cemetery and settlement sites in the Egyptian Nile Valley In: E.C.M. van den Brink and T.E. Levy (eds), *Egypt and the Levant. Interrelations from the 4th through the Early 3rd Millennium BCE*. London - New York: 346-399.
- NEWTON C., 2005. Upper Egypt: Vegetation at the beginning of the Third Millennium BC inferred from charcoal analysis at Adaima and Elkab, *JAS*, 32: 355-367.
- NEWTON C. AND B. MIDANT-REYNES, 2007. Environmental change and settlement shifts in Upper Egypt during the Predynastic; charcoal analysis at Adaima. *The Holocene*, 17(8): 1109-1118.
- TRISTANT Y., 2004. *L'habitat prédynastique de la Vallée du Nil. Vivre sur les rives du Nil au V^e et IV^e millénaires*. BAR Int. Ser., 1287. Oxford.



(Fig. 4 and 5, p. 67)

Pl. A1 & A2.

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Nag el-Qarmila (Upper Egypt)

(Top) Reconstruction of landscape during period of high Nile.

(Bottom) Reconstruction of landscape during period of low Nile.

