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TIMES, SIGNS AND PYRAMIDS

**Studies in Honour of Miroslav Verner
on the Occasion of His Seventieth Birthday**

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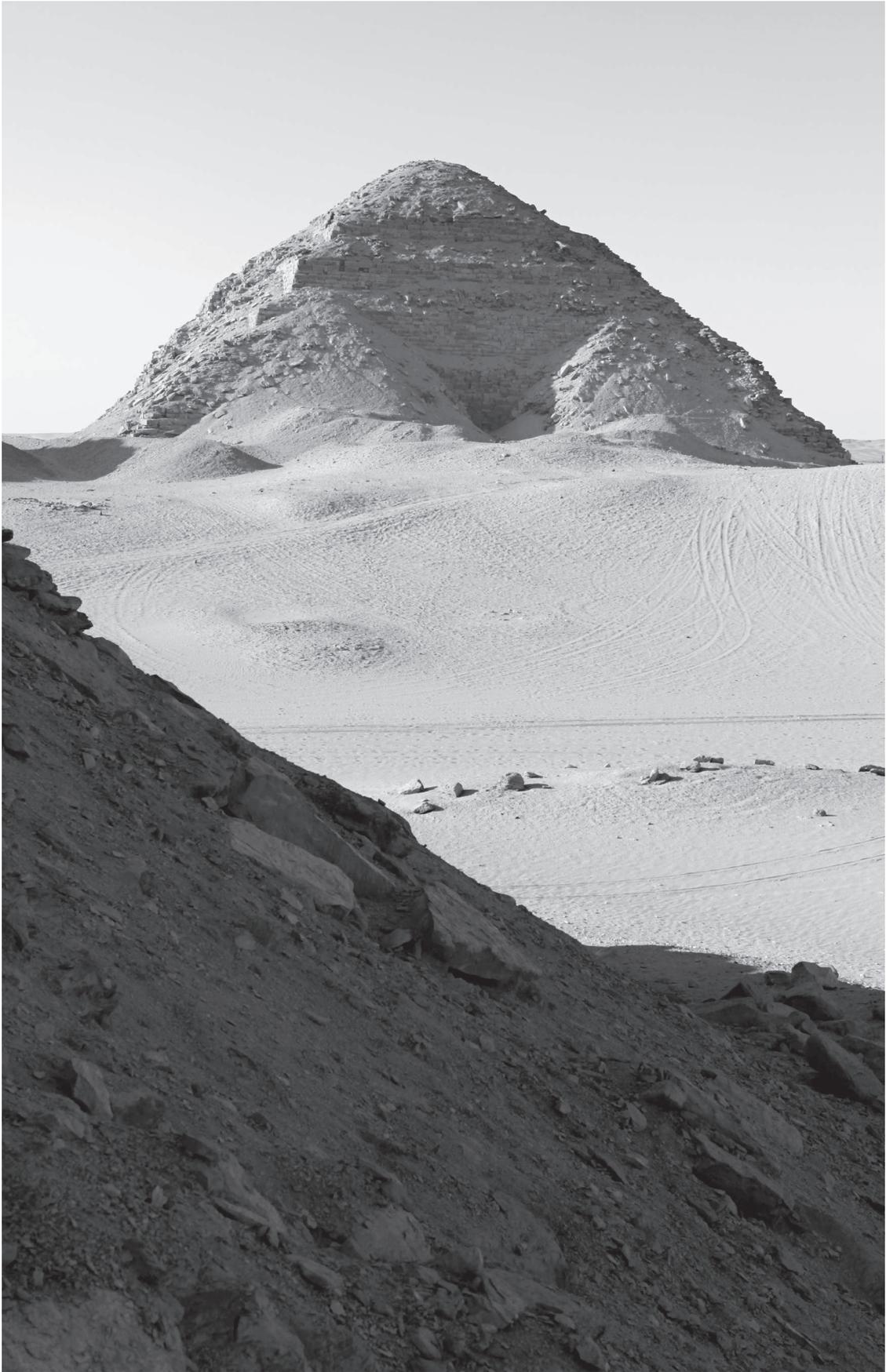
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Contents

| | |
|---|-----|
| Foreword by Z. Hawass | IX |
| Preface | XI |
| | |
| H. Altenmüller, <i>Verstümmelte Opferträger auf einem Relief aus Abusir</i> | 1 |
| T. el-Awady, <i>The problem of B3t</i> | 25 |
| L. Bareš, <i>A new example of the solar text ("kosmographischer Begleittext zur kultischen Sonnenhymnik" from the tomb of Iufaa at Abusir)</i> | 31 |
| M. Bárta, <i>An Abusir mastaba from the reign of Huni</i> | 41 |
| M. Baud, <i>Un « signe des temps » revisité : la direction du culte funéraire royal sous la IV^e dynastie, la nécropole d'Abou Rawach et la chronologie de Gîza</i> | 51 |
| C. Bergmann, <i>On the origins of the hieroglyphic Script</i> | 65 |
| V. G. Callender, <i>Reflections on Princess Khamernernebtj of Abusir</i> | 101 |
| P. Charvát, <i>Seals on the move. Notes on newly discovered cylinder seals and sealings from prehistoric Egypt</i> | 121 |
| H. Goedicke, <i>Three small tokens</i> | 129 |
| M. Haase, <i>Dienten die oberen Schächte in der Cheops-Pyramide zur Belüftung der Grabkammer?</i> | 135 |
| J. Harvey, <i>Two Old Kingdom wooden statues in a private collection in the Netherlands</i> | 157 |
| Z. Hawass, <i>The discovery of the Pyramid of Queen Sesheshet(?) at Saqqara</i> | 173 |
| M. Ismail Khaled, H. Vymazalová, <i>The funerary domain mn^t, new evidence from the Fifth Dynasty</i> | 191 |
| J. Janák, <i>A very brief (negative) confession on papyri NpM 2457 and 5721</i> | 201 |

CONTENTS

| | |
|--|-----|
| P. Jánosi, <i>Some remarks on certain sarcophagi of the Fifth Dynasty</i> - - - | 205 |
| N. Kanawati, <i>The memphite tomb of Qar of Edfu</i> - - - - - | 217 |
| P. Kaplony †, <i>Die Vergänglichkeit des Lebens und der Pyramiden. Die agnostischen Harfnerlieder und ihr geistiger Hintergrund in der Klassik der ägyptischen Literatur</i> - - - | 233 |
| J. Krejčí, <i>Abusir pyramid field and the Mastaba of Ptahshepses - several remarks</i> - - - - - | 253 |
| R. Landgráfová, <i>The oldest known scene of the purification of the king</i> - - - - - | 277 |
| J. Mynářová, F. Coppens, <i>Prostration before God and Pharaoh</i> - - - - - | 283 |
| K. Myśliwiec, <i>Old Kingdom coffins made of Cyperus papyrus</i> - - - - - | 297 |
| A. Roccati, <i>The Inscription of Hezi once more</i> - - - - - | 307 |
| J. Růžová, <i>Jaroslav Černý in Egypt</i> - - - - - | 313 |
| J. Siegelová, <i>Geschenk oder Geschäft? Wovon zeugt die ägyptisch-hethitische Korrespondenz</i> - - - - - | 323 |
| K. Smoláriková, <i>Udjahorresnet and the others</i> - - - - - | 335 |
| H. Sourouzian, <i>La reine et le papyrus</i> - - - - - | 341 |
| T. Spalinger, <i>Königsnovelle and performance</i> - - - - - | 351 |
| R. Stadelmann, <i>Where were the queens of the Early Dynastic Time buried</i> - - - - - | 375 |
| N. Sweitzer, <i>Darb al-Ahmar</i> - - - - - | 391 |
| I. Takamiya, S. Yoshimura, H. Kashiwagi, <i>Khaemwaset and his monument at North Saqqara: A study on multiple aspects of "the first Egyptologist"</i> - - - - - | 401 |
| B. Vachala, <i>Der Brief einer gescholtenen Ehefrau an Ihre Schwester (O Prag 1826)</i> - - - - - | 423 |
| S. Vetokhov, E. Kormysheva, <i>Door to the Tomb of Khafraankh reconsidered</i> - - - - - | 429 |
| C. Ziegler, <i>Nectanebo II in Saqqara</i> - - - - - | 441 |

Foreword

Miroslav Verner is the only Egyptologist I know who did not want a Festschrift in his honor: it took us a long time to convince him to agree to the desire of all of us – colleagues, friends, and students – to thank him for his unique and significant contributions to the field of Egyptology by publishing this volume of essays.

I would like to say that Verner's work at Abusir has immensely enriched our knowledge of the pyramids of the Old Kingdom. His work has provided us with important information about the economy of the royal mortuary temples of the Old Kingdom, the architectural components of the pyramids, and the techniques used in their construction.

Verner has trained many young Czech scholars on his digs. He should be very happy to know that they will follow in his footsteps, not only in the field of excavation, but also in conservation and epigraphy.

In addition to this aspect of his work, I will always be extremely grateful to Miroslav Verner for his enormous generosity in granting my request to take some of my best young assistants to the Czech Republic to study for their doctoral degrees. Two of them have already come back to Egypt and are making important contributions both to the field of Egyptology and to the Supreme Council of Antiquities (SCA).

When I was the Director of Giza and Saqqara, I began to know Verner as a friend and colleague, and our friendship has grown over the years. We often have discussions on pyramids, in which we argue over many things. We sometimes disagree, but always respect one another's opinions and enjoy our debates. Our friendship gave me the opportunity to participate with him in the excavation of the burial chamber of the tomb of Iufaa, a Director of the Palace during the Late Period. We had a wonderful time together, watching the experts, Reis Talal Kerety and Reis Ahmed Kerety, in moving heavy objects safely, so that we could open Iufaa's intact sarcophagus.

Verner is an excellent archaeologist and philologist, and his scholarship is evident in his articles and books. It made me very happy that his popular book on the pyramids was translated into Arabic, so that it would be available to Arabic readers.

FOREWORD

Through Verner's leadership Czech Egyptology has been able to continue its important work during the time of communism. It was Verner's dedication to the science of Egyptology that made him insist on the continuation of the Czech excavation at Abusir, excavation works which have unearthed many significant discoveries for Egyptian history and culture.

I thank him for his contribution to Egyptology, and wish him life, prosperity, and health.

Zahi Hawass

Preface

This volume of studies in honour of Prof. PhDr. Miroslav Verner, DrSc., had a hesitant start, due to the modesty of the dedicatee, who refused to be the recipient of such a work and the editors were forced to inform the contributors of that fact. Finally, however, Miroslav bowed to pressure a year or two later. We are very grateful that he did but, by that time, a number of his friends who had contributed articles at the initial stage of this *Festschrift*, had already agreed to publish their pieces elsewhere. We are profoundly sorry that their contributions are not amongst those in this volume, and we include their names in the *Tabula Gratulatoria*.

It goes without saying that Miroslav Verner's contribution to Egyptology has been marked by a tremendous output of distinguished and important notices, reports, essays and books that have an honoured place in numerous libraries – both private and institutional – all around the world.

Less familiar to colleagues outside of Prague is the fact that, only thanks to him, Egyptology remained functioning in Czechoslovakia over the course of 1970s and 1980s, during the time when other fields of Oriental studies were constrained or ceased by decisions of the communist power or by emigration of the scientists. He is also the person responsible for retaining the archaeological concession in Abusir for the Charles University in Prague which was endangered by the then political leaders.

Beside the academic part, Miroslav's career has also encompassed a long period as a teacher. At this stage in his career, it is noteworthy to mention that he has taught several generations of younger colleagues – many of whom are now on the staff of the Institute – and among his pupils are Czechs, Slovaks, and Egyptians. Especially after the death of Professor Žába in 1971, Miroslav was practically the only person who was able to teach, since his superior at the time, Dr Váhala, was only able to teach Slavonic Language studies! More than this, however, is the fact that by his hard work and strength of will Miroslav has fostered the growth of the Institute so that, today, it is one of the most respected Egyptological institutes in the world.

In addition to the enormous output of his scholarly and academic work, Miroslav has reached out to the general public to inform them of new develop-

PREFACE

ments within Egyptology and for a number of years in the Czech Republic he has been participating in documentary films which have supplemented his written work. These documentaries have broadened public knowledge about Egypt – and no doubt contributed to the desire of Czechs to explore the riches of Egypt for themselves. The films have been diverse in topic (ranging from cultural themes through to history and new archaeological discoveries within ancient Egypt) and they have helped to make their audiences aware of the contributions made to Egyptology by the Czech Institute of Egyptology in Prague. The strengthening of this institute has been a central goal in Miroslav's career as an Egyptologist, and putting his usual emphasis on the cooperative nature of the Czech work, in his own reports he never focuses on the "I" of discoveries and work, but always on those of "the team".

Those who have contributed papers to this Festschrift typify the wide social network Miroslav holds within Egyptology. The collection includes work from both hemispheres and from friends of long standing, both within Academia and without; this is symptomatic of his popularity and perpetual curiosity. It is to be hoped that the reader will enjoy this collection as much as we hope he shall.

Miroslav's triple careers as an academic, archaeologist and Egyptologist has made many demands on his time, but for those of us who have been his friends, he has been not only helpful but patient and accessible – and his ability to tell a good story can reduce his audience to belly-shaking laughter. He wears his scholarship lightly, but his research is renowned and broadly divisible into three fields: his work on chronology in the Old Kingdom, hieratic graffiti and, above all, to his work on pyramids. Because of these three separate fields in which Miroslav has excelled, we have entitled this collection *Times, Signs and Pyramids*. We hope that he approves the title.

*Gae Callender
Ladislav Bareš, Miroslav Bárta,
Jiří Janák, Jaromír Krejčí*

On the Origins of the Hieroglyphic Script

Carlo Bergmann

Egyptologists have assigned the emergence of writing in Egypt to the Naqqada IIIa2 phase (circa 3150 BC). The new evidence presented in this paper however, indicates that at the beginning of the Predynastic era (approx. 5000 BC), tentative first attempts at writing that heavily influenced the later Pharaonic script had already been made, predating Naqqada III by around 1,800 years. These roots of the hieroglyphic script were, at least in part, developed in the Western Desert of Egypt. The new finds are likely to question the "...generally accepted theory that the invention of writing ...corresponds with the birth of the Egyptian state, and its growing administrative and bureaucratic needs."¹ Rather than being the outcome of challenges provoked by necessities to manage surpluses derived from agriculture, trade and warfare in the early Nilotic chiefdoms and later, during the first stages of the formation of the Egyptian state, the primal origins of the Pharaonic script may have to be regarded as a human response to climatic change.

1. Introduction

In his *Egyptian Grammar* Gardiner characterises hieroglyphic writing as "... an offshoot of pictorial art, a very early and important function was to provide a visible record of facts and occurrences, accessible to those who... were beyond the range of the spoken word...(When) the Egyptian discovered the principle of rebus or charade... the limitations of pictorial art as a medium for conveying or storing information (were overridden)... The new departure consisted in using the pictures of things, not to denote those things themselves or any cognate notions, but to indicate certain other entirely different things not easily susceptible of pictorial representation, the names of which chanced to have a similar sound... and it is perhaps... (then when) hieroglyphic writing began."²

To date, the earliest accepted evidence of hieroglyphic script was found by Dreyer et al in the tomb U-j at Umm el-Qaab, Abydos. It dates back to around

¹ W. V. Davies, R., Friedman, *Egypt* (London 1998), 36.

² A. Gardiner, *Egyptian Grammar* (3rd edn., Oxford 1979), 6 et seq.

3150 BC.³ The phonetic devices noted in this comparatively incomplete early “Abydos script” were almost only onoma,⁴ whilst fixations of syntactical conjunctions remained extremely rare. One of the most elaborate syntactical combinations from this period consists of a rebus-spelling containing the three elements “*bnr*”, “*sr*”, and “*nhh*”, which may be read as “the ruler is pleasant, eternally”.⁵

The justification of considering the “Abydos script” as the foremost known beginning of writing in Egypt must however be debatable if attempts to convey and to store messages beyond the limits of face to face communication, that is, in a written proto-hieroglyphic form, had previously existed. In other words: had the “Abydos vocabulary” emerged as an independent cultural invention of those people who dwelt on the banks of the Nile during the period of the formation of the early Egyptian state, or had this “Abydos script” made use of precursor onomastica that had been in existence “since times immemorial”? Despite the richness of prehistoric rock art and other relics from this period, for a long time no traces of earlier proto-hieroglyphic “vocabularies” of which the “Abydos script” could possibly be considered an offshoot had emerged at prehistoric sites in Egypt and her deserts. Yet, this situation has now changed for the better with the discovery of Djedefre’s Water Mountain and of Biar Jaqub.

2. The discovery of Djedefre’s Water Mountain and Biar Jaqub: uncovering the biggest rock art archive between Dakhla Oasis and the Gilf Kebir

I discovered Djedefre’s Water Mountain (DWM) about 60 kilometers southwest of Dakhla oasis in 12/9/2000 and later, during February 2001, the palaeoasis of Biar Jaqub which is about 40 km² in size. Although DWM was brought to the attention of Harding King in 1910 under the misleading designation of a “stone temple”, the British explorer did not visit the site as he considered his informants “...badly bitten with the treasure-seeking mania.”⁶ Ninety-one years after Harding King, when I arrived at the location with my camels, the stone temple revealed itself as a Fourth Dynasty camp site containing the cartouches of Kheops and Djedefre, expedition inscriptions written by the royal followers, a number of conspicuous water mountain ideograms and abundant Neolithic rock art.

³ G. Dreyer, *Umm el Qaab I* (Mainz 1998), 17–47.

⁴ *Ie.*, names and denominations.

⁵ D. Morenz, “Wie die Schrift zu Text wurde. Ein komplexer medialer, mentalitäts- und sozialgeschichtlicher Prozeß”, in L. Morenz, S. Schorch (eds.), *Was ist ein Text? Alttestamentliche, ägyptologische und altorientalistische Perspektiven* (Berlin 2007), 21.

⁶ W. J. Harding King, *Mysteries of the Libyan Desert* (London 2005), 145.

The existence of Biar Jaqub was indicated by Sir Gardiner Wilkinson in his 1835 *Topography of Thebes and General View of Egypt* wherein he refers to the palaeoasis under the name of “Zerzoora” giving a vague idea about its location.⁷ However, Wilkinson’s report did not inspire scientists to search for this “lost” oasis which recent research has shown to have been inhabited from at least around 5500 BC until the end of the Third Intermediate Period.⁸ Situated circa eight kilometers south-southeast of DWM, Biar Jaqub contains an astonishing number of prehistoric settlements as well as the biggest rock art archive between Dakhla Oasis and the Gilf Kebir.

3. Neolithic iconography and attestations of a pre-Pharaonic script

Mingled with the rock art exposed at DWM and in Biar Jaqub are a number of unique signs and symbols which, despite seeming to be embedded in a Neolithic context, give the impression of being clearly related to the Pharaonic script.⁹ Among them for instance, are the single or stacked water-hieroglyph as well as crenellated lines and a surprising number of enigmatic water mountain ideograms (Figs. 1–5), the latter being unparalleled in Saharan rock art.¹⁰ Were all these signs genuine iconographic creations of prehistoric Saharan rock artists? Do they belong to a hitherto unknown precursor system of Pharaonic writing? Or, could some at least have been engraved into the rock faces by Nile valley dwellers during the Fourth Dynasty visits or earlier, as suggested by Kuhlmann?¹¹

In order to disprove Kuhlmann’s assertions, the discovery of a site with certain characteristics was necessary. It would have to a) depict either purely Neolithic rock art or art of an earlier date, b) exhibit a fair number of the above mentioned proto-hieroglyphs, c) be undisturbed by Pharaonic expeditions and be distant from DWM and Biar Jaqub. It needed the combined effort of the winter 2002/3

⁷ “...Zerzoora is only two or three days due west from Dakhleh, beyond which is another wadee; then a second abounding in cattle; then Gebabo and Tazerbo; and beyond these is Wadee Rebeena; Gebabo is inhabited by two tribes of blacks, the Simertayn and Ergezayn.” G. Wilkinson, *Topography of Thebes and general view of Egypt* (London, 1835), 359.

⁸ See Results of winter 2007/08 – expedition, preliminary report on the results of radiocarbon- and TL-datings, in www.carlo-bergmann.de.

⁹ Other signs and symbols, like funerary barques, circular arrangements of antelopes, a rosette, and crocodiles attacking humans have, so far, been related to Early Dynastic religious beliefs but might belong to a much older era. The rosette motif may be an expression of social stratification already existent in Neolithic times.

¹⁰ K. P. Kuhlmann, “Der „Wasserberg des Djedefre“ (Chufu 01/1). Ein Lagerplatz mit Expeditionsinschriften der 4. Dynastie im Raum der Oase Dachla”, *MDAIK* 61 (2005), 258. In 2006/7 S. Kröpelin and R. Kuper published a report of another water mountain site found in north-western Sudan. See chapter 5.

¹¹ *Ibid.*, 257, 258, 271, 275–77.



Fig. 1 Biar Jaqub: water mountain ideograms and Neolithic fauna
(water mountain outpost No. 10)



Fig. 2 Biar Jaqub:
water mountain ideogram
(water mountain outpost No. 11)



Fig. 3 DWM: water mountain ideogram
into which the cartouche of pharaoh
Djedefre (4th dynasty) is inscribed

and winter 2006/7 camel expeditions to identify such a location. At last, accompanied by Mark Borda and Christian Philipp, site WB 2006-1 containing two tableaux of rock art was spotted. The first tableau, facing east is located on an almost impregnable vertical cliffside about 7 meters above the ground and consists mainly of representations of giraffes and oryx antelopes. Associated with these savannah fauna are zigzag (water)-lines, a single stack of such lines, a steatopygous female- (Fig. 4) and a tall and slender male figure with extremely long toes (Fig. 5).

Six more of these types of figures, divided into three female/male pairs are depicted in the easily accessible second tableau which faces south (Fig. 10). The rock art at this site suggests contemporaneity between the representations of the savannah fauna, steatopygous human figures and proto-hieroglyphs. It further reveals that these glyphs were engraved sometime during the “giraffe era” thus, dating to a very remote period. The occurrence and duration of the giraffe age in Biar Jaqub and its wider surroundings including Dakhla oasis has so far not been established as archaeologists have yet to find skeletal remains which can be explicitly assigned to giraffes.¹² Site WB2006-1 is located about 40 kilometers south of Biar Jaqub.



**Fig. 4 WB 2006-1 (detail):
waterlines, a steatopygous female figure
and an addax antelope**

> **Fig. 5 WB 2006-1 (detail): image
of a tall and slender male figure with
extremely long toes (behind two giraffes)**



¹² *Ibid.*, 257, 276. Furthermore, Kuhlmann points out that due to climatic deterioration an environment suitable for giraffes in particular, had ceased to exist long before Cheops' reign. *ibid.*, 275.

4. Radiocarbon dates from the Giraffe Hunter and Nomadic Cattle-Pastoralist (GH & NCP) era; places of discovery; conclusions

4.1 Dating results

Among the samples collected during my winter 2007/08 camel-expedition¹⁵ are specimens obtained from three Biar Jaqub stone circle settlements situated at close quarters to both Neolithic rock art created by GH & NCP (Fig. 6) and to proto-hieroglyphs. They have recently been radiocarbon dated. These new dates help us better to identify the period during which those first attempts towards the formation of a pool of written signs which partly formed the basis of the Pharaonic script were made. These are:

- a) decorated ostrich eggshells (Fig. 7) (KIA 35927, site 2007/08-37b): BP 6,520 +/- 37, calibrated to cal BC 5557–5378 (two sigma ranges, probability 95.4%)
- b) ostrich eggshells (KIA 35928, site 2007/08-39c): BP 6,244 +/- 35 calibrated to cal BC 5309–5073 (two sigma ranges, probability 95.4%)
- c) skeletal fragments: (KIA 35930, site 2007/08-39a) BP 6,390 +/- 40, calibrated to cal BC 5465–5313 (two sigma ranges, probability 95.4%, calibration dataset: Intcal04, Reimer et al, *Radiocarbon* 46(3), 2004)

4.2 The places of discovery

Their place of discovery reveals that the contexts of these diverse artifacts from the GH & NCP-camps are intimately connected. In particular, the proximity of all these various remains including the rock art engraved in a semicircle around the fringes of the camp from which the KIA 35928 dating was derived, indicates that all these features are directly linked. Such circumstances permit us to consider that there is a correlation between the dwellings, the expressions of art and the striking manifestations of an age old corpus of proto-hieroglyphs. Furthermore, in the case of KIA 35927, the extremely rare setting of the remains, which includes a sizable number of fine tempered and thin walled Bashendi B pottery fragments and five decorated ostrich egg shells (Fig. 7), allows well-founded analogies between age and style of the egg shell decorations and the rock art close by.¹⁴ No doubt, those who incised the ostrich eggs with cross-

¹⁵ So far, eight 14C- and two TL-dates have been obtained by the author from Biar Jaqub. They indicate human occupation of the palaeoasis from circa 5500 BC until the Twenty-fifth Dynasty.

¹⁴ To the best of my knowledge the discovery of decorated ostrich eggshells allows us to date the decorative art of Egypt's Western Desert for the first time. This includes rock art and therefore also the proto-hieroglyphs created by Eastern Saharan GH&NCP long before the pharaohs. Furthermore, with the exception of site 2007/08-39a, the rock art sites mentioned in this paper which yielded 14C data, may offer reasonably accurate chronological reference points for analyzing this art as a whole. For a discussion of geometric art engraved on ostrich eggshells



Fig. 6 Biar Jaqub: self-portrait of four giraffe hunters engaged in a hunt (water mountain outpost No. 7)



Fig. 7 Biar Jaqub: fragments of decorative art on ostrich eggshells from a GH & NCP location

hatched and herringbone bands and triangles and who manufactured the pottery are also the ones who adorned the nearby rock faces of their camp with images of giraffes, cattle, steatopygous human figures and a water mountain “ideogram”.

On the basis of the above and with greater clarity than before, Biar Jaqub may now be revealed to be one of the sites from where, around the last third of the 6th millennium BC, the first tentative steps towards formation of a pool of written signs were taken, partly forming the basis of the much later Pharaonic script.¹⁵

4.3 Earlier assumptions about the age of the DWM and Biar Jaqub proto-hieroglyphs disproved

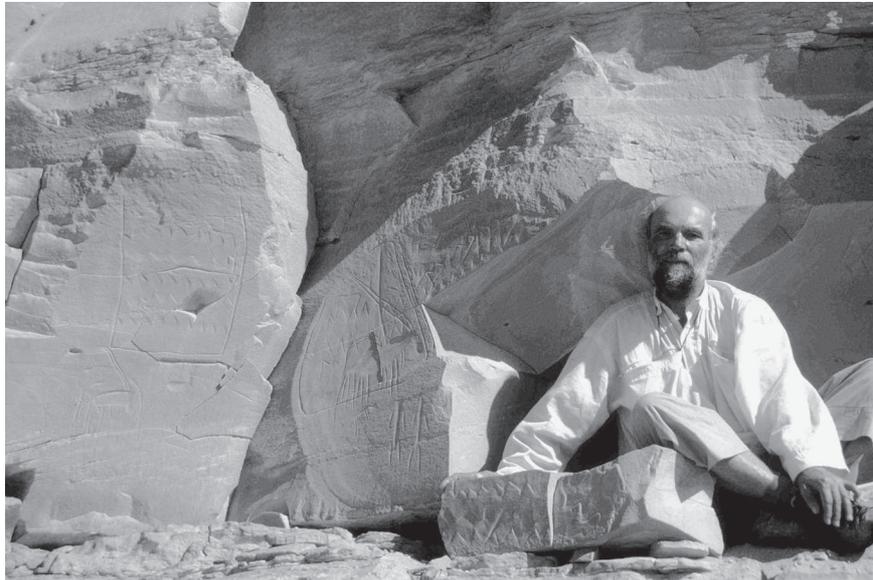
Neglecting the fact that the arrangements of some of the water mountain “ideograms” at DWM and in Biar Jaqub are apparently interrelated with Neolithic petroglyphs of giraffes as well as other animals and that some of these depicted fauna are superimposed onto the water mountain “symbols” (Figs. 8, 9, 41), Kuhlmann has put forward the proposition that the bilateral signs composing the water mountain “ideograms” and thus the water mountain sign itself originates in the Pharaonic period.¹⁶

In the light of the radiocarbon datings presented above, Kuhlmann’s - interpretation has lost its credibility. If water mountain signs and other

found at Capsian and Neolithic sites in Tunisia, Algeria and the Magreb see L. Belhouchet, ‘Les gravures sur coquilles d’oeufs d’autruche en Afrique du Nord: interpretation des decors geometriques’, SAHARA 19 (2008), 77–84.

¹⁵ Thus, parting with the current opinion in Egyptology which holds that ‘... there is no evidence that (hieroglyphic) writing developed from a more pictographic stage.’ Davies, Friedman, *Egypt*, 56.

¹⁶ Kuhlmann, *MDAIK* 61 (2005), 271–75.



**Fig. 8 Biar Jaqub: Neolithic fauna superimposed on water mountains
(water mountain outpost No. 9)**



**Fig. 9 Biar Jaqub: Giraffe partly superimposed on a water mountain
(water mountain outpost No. 1)**

“ideograms” which I detected at the two locations, are regarded as proto-hieroglyphs, that is, as characters of a rudimentary “writing system” which most probably, was used for the religious and/or environmental description of the world as well as for communication purposes, then the origins of the ancient Egyptian script are more than 1,500 years older than so far assumed.

When the inscriptions of Pepy, Ij-Meri and other Fourth Dynasty *mefat* expedition members at DWM are compared with the proto-hieroglyphs visible on the neighbouring rock faces, such an early date seems plausible. In doing so, one will notice that the latter are not consistent with writing that has arrived at an advanced stage of development. To explain such deficiency by assuming poor command of writing by those Egyptians who supposedly left these inscriptions¹⁷, would however, not comply with the evidence found further away from DWM. At the water mountain outposts in Biar Jaqub and at site WB 2006-1, the same kind of proto-hieroglyphs as seen at DWM are associated with Neolithic rock art only. Furthermore, the discoveries of Kröpelin and Kuper, plus those of Noguera and Böckly at Gebel Uweinat (chapter 6), lead one to suspect that water signs and crenellated lines and also water mountain “ideograms”, either engraved into or painted on rock faces, are spread across a sizable part of the Libyan Desert.¹⁸

4.4 Origin, nature and meaning of the DWM and Biar Jaqub proto-hieroglyphs

In the light of the latest discoveries and in consideration of Kuhlmann’s striking miss-assessment of the evidence found at DWM and at Biar Jaqub, it seems appropriate to briefly explore the subject further by asking: “What, in fact happened at the time when writing emerged?” A suitable answer would have to take into consideration that the emergence of pictorial as well as of phonetic elements which both make up the cultural technique of writing with its close ties to oral communication, rationalized visual communication and led to far-reaching implications concerning the possibilities with regards to graphic clarity. In this process the complex system of oral expression (speech etc.) did not completely reify but only the core of it which, when reading a sign or a text got, so to say, imbued with “spirit”. In fact, there are in principle, quite open boundaries between oral and written expression. With the emergence of the script parts, the medial system became more complete but at the same time, more complex at a higher level and with it, in turn, more open, that is, more

¹⁷ As Kuhlmann seems to suggest. See *ibid.*, 254.

¹⁸ With regard to the petroglyphs found in Northern Sudan it is not yet clear to which period these belong. However, regarding the finds of rock art at Gebel Uweinat, a fairly old age seems most probable. It will be exciting to learn, what age correlations exist between these and the epoch assigned to the Biar Jaqub proto-hieroglyphs.

susceptible of interpretation.¹⁹ In my opinion the prehistoric “messages” incised into the rock faces at DWM, in Biar Jaqub and elsewhere are early precursors of this development. However, does this rudimentary “thing language” and “picture writing” already qualify as script?

What, is immediately apparent at DWM and in Biar Jaqub is the practical purpose of the “prehistoric vocabulary” in question which served to denominate, indicate (such as “here is a well”) and possibly, even to describe. The pool of written signs had not yet matured into an information- and -storage system which was reserved for the initiated who could read, and which, to the illiterate, must have seemed like the work of magic.²⁰ Why did script at such an early stage not deal with other aspects of life? Why is the meaning of the DWM- and Biar Jaqub proto-hieroglyphs confined to the single vital subject of water, its qualities, its sources and its supply? An answer may be provided by the following scenario:

Since circa 5300 BC a gradual desiccation of what is now the desert led to resource decay, regionalization and finally, to an exodus of those who inhabited the vast expanses between the Egyptian oases, the Gilf Kebir and Gebel Uweinat.²¹ At the beginning of this decline, the importance of water, owing to the scarcity of this resource, seems already to have been conceptualised in the minds of those who were leaving areas without permanent water, those leaving the region as a whole and those who, despite the increasing aridity, tried to linger in their accustomed homelands whilst at the same time adapting within the realm of their capabilities to the climatic change. As a consequence, the decay of natural wealth and the increased struggle for survival hindered those who clung to the inhospitable environment from elaborating the development of their written vocabulary any further. At last, with the dwindling of the desert steppe population to levels below a critical margin, any such ambition came to a natural halt. What had been achieved up to that point in history is still echoing from a few rock faces found in Egypt’s Western Desert today. Much later along the Nile, when conditions of economic surplus persisted amongst those who had been exiled from the dying savannah and steppe lands, the need was created to resume endeavours toward a more perfect script. In doing so, they partly, had recourse to the stock of fragmentary data belonging to the earlier script which their ancestors had brought to the river shores from the desert. However, before a broader reification of oral communication could materialise, further centuries had to pass, during which the pool of written signs increased and sophisticated rules for its organisation were created. “Only after the script had

¹⁹ Morenz, in Morenz, Schorch (eds.), *Was ist ein Text?*, 20, 21.

²⁰ In this respect, the proto-hieroglyphs of DWM and Biar Jaqub seem to resemble the earliest “Abydos vocabulary”.

²¹ R. Kuper, S. Kroepelin, “Climate-controlled Holocene occupation in the Sahara: Motor of Africa’s evolution”, *Science* 313 (2006), 803.

matured to a certain degree, verbal forms and grammatical elements were phonetically coded in a systematic way and texts were more reified, although by far not completely, and thus, the medial system “script” was brought to a higher stage of maturity.”²²

Being ignorant of the origin and true age of the water mountain glyphs, Kuhlmann has designated depictions of zigzag lines as iconographic creations of the Nile valley dwellers and dated them to the Naqqada II period (3600–3200 BC). In the course of the canonization of the hieroglyphic script such lines became the sign for water and/or liquid.²³ According to the Egyptologist, crenellated lines did not yet exist at that time although they are present in the corpus of the DWM and Biar Jaqub proto-hieroglyphs.²⁴ Nevertheless, Kuhlmann perceived a consonantal skeleton in the water mountain “ideogram” and consequently, read this as “*dw mw*” and “*dw mw nmj*” respectively meaning mountain of the flowing water²⁵, pointing out that “... already in Predynastic times, sign combinations containing the mountain sign (as for instance in “*dw mw*”) were read and therefore, a conjunction of mountains and water lines, at this early stage, may have already possessed more than just pictographic character.”²⁶ It is plausible that what the Egyptologist has assumed for the Predynastic era based on an inadequate examination of the given evidence may, however, also apply to the earlier Neolithic period.²⁷ Thus, two sign combinations (such as “*dw mw*” and “*dw mw nmj*”) or the repeated depictions of the water mountain sign itself²⁸ as well as the conspicuous depiction of a water mountain with spout (Fig. 37) may be interpreted as Neolithic rebus-writing. Seemingly, the latter grapheme consists of a four-sign-combination which may qualify as an early attempt to create syntactic connections for the purpose of conveying elaborate messages. Such sign aggregates already convey the idea of a compound meaning or even of a sentence. Accordingly, mountain signs, zigzag, crenellated or diverging zigzag lines, may not only be interpreted as graphic representations of objects or actions, but also as phonetic elements of a script in its first stage.²⁹

²² Morenz, in Morenz, Schorch (eds.), *Was ist ein Text?*, 22; my translation.

²³ Kuhlmann, *MDAIK* 61 (2005), 257 *et seq.*

²⁴ *Ibid.*, 271.

²⁵ *Ibid.*

²⁶ *Ibid.*, 258; my translation. Concerning signs and symbols dating to the much later Naqqada IIIa2 phase, Dreyer arrives at the same conclusion. Dreyer, *Umm el Qaab I*, 138, 139. See also Davies, Friedman, *Egypt*, 36.

²⁷ Notwithstanding Petrie’s appraisal ‘...that it would be quite an anachronism to look at early signs as letters – we have to deal with a signary, not an alphabet’ (W. M. F. Petrie, *The Formation of the alphabet* (London 1912), 5), in Neolithic speech, any water well situated between hills may supposedly have been named “*dw mw*”. The water mountain ‘ideogram’ is the reified form of this utterance.

²⁸ As for instance, at DWM, water mountain outposts No. 1 and No. 9.

²⁹ This is substantiated by the observation that the Neolithic water mountain sign was obviously

From this perspective the water mountain signs of Egypt's Western Desert are among the oldest evidence of phonetic notations; far older than the seal inscriptions or labels found in the tomb of U-j at Abydos.

4.5 Settlement phases in Biar Jaqub during the GH & NCP-era

Due to the uncertainties caused by the reservoir age effect, ¹⁴C dating of ostrich egg shells remains a tricky subject.⁵⁰ Concerning the cases at issue, even if say, approx. 400 years are deduced from the actual age value of the eggshells on account of the reservoir age, the corrected average time spread that spans the period of cal BC (RA) 5,157–4,673⁵¹ would still not allow a link between the two samples and Naqqada III. This appraisal is supported by the dating of KIA 35930 for which, bone apatite CO₂⁵² was used for the radiocarbon dating which was done by AMS⁵³ on account of the low collagen concentration⁵⁴ in the

altered by members of Djedefre's *mefat*-expedition, who desired to incorporate the name of their king into it. By grinding and polishing the interior of the sign and erasing the zigzag lines, they downgraded it to the level of a pictogram and used it as a mere frame for Djedefre's titles. Had they understood the intended meaning of the original information? Had they identified the two bilateral signs as representing mountains? Thus, by accentuating the latter with two additional strokes possibly indicating gullies descending from a hill (see Fig. 5), they confirmed what had been intended by the Neolithic inventors of the water mountain signs more than 2,000 years before. This confirmation, provided by the followers of Djedefre themselves, is extraordinary proof of how picture and word melt into one another.

⁵⁰ According to the estimation of Prof. Grootes, head of the Leibniz Labor für Altersbestimmung und Isotopenforschung, Christian-Albrechts-Universität Kiel, Germany, the reservoir age of ostrich eggshells found in the Nubian Sandstone environment of the Libyan desert causes radio carbon dating to appear about 400 years older than they actually are. (Prof. Grootes, pers. com.) Contrary to this assessment, Dr. Hüls, the test-supervisor at the same institute, ascertained a low content of secondary carbonate/dead carbon in samples KIA 35927, KIA 35928 and KIA 35923 and therefore argues that the reservoir age may not exceed 100–200 years (Dr. Hüls, pers. com.). Such divergences may be explained as follows: The source material for age testing of ostrich egg shells is carbonate/CO₂. The concentration of this mineral in eggshells depends on the ostrich's pasture. However, as the bird's feed intake also consists of pieces of rock including sedimentary stones and other material rich in calcium carbonate (which is ingested for digestion purposes), fractions of the age-old dead carbon from the sedimentary rock ultimately finds its way into the eggshells, thus adulterating the test results. The precise extent of such adulteration may be accurately determined by future larger scale testing.

⁵¹ Cal BC(RA): reservoir age adjusted radiocarbon age BC.

⁵² ..this sample fraction is usually discarded since carbonates attached to the bone apatite and carbon interacting with soil carbon during diagenesis of the bone sample, could significantly alter the resulting radiocarbon ages. However, removing a significant part of the bone apatite for radiocarbon measurement by acid leaching before CO₂ extraction, has produced reliable and consistent ¹⁴C dates in comparable climate settings. (see Saliege et al., *Arch. Sc.* 22 (2), 1995) Thus, for extracting a proper sample, about 65 wt % of the original sample material was removed by acid leaching; the remaining part was hydrolysed to CO₂ and then graphitised for subsequent ¹⁴C-AMS measurement. Infrared-spectroscopy before and after sample treatment revealed a successful removal of possible secondary calcites and of a significant part of bone apatite, supposedly originating from the exterior of the mineral crystals.' (Dr. Hüls, e-mail of 1/31/2009).

Table 1: Three Biar Jaqub radiocarbon datings from the GH & NCP-era (cal BC (RA): reservoir age adjusted radiocarbon age BC)

| a.) decorated ostrich eggshells (KIA 35927, site 2007/08-37b) | b.) ostrich eggshells (KIA 35928, site 2007/08-39) | c.) animal bones (KIA 35930, site 2007/08-39a+b) |
|---|--|--|
| BP 6,520 +/- 37 | BP 6,244 +/- 35 | BP 6,390 +/- 40 |
| cal BC 5,557-5,578 | cal BC 5,309-5,073 | cal BC 5,465-5,313 |
| cal BC(RA) 5,157-4,978 | cal BC(RA) 4,909-4,673 | ---- |

skeletal remains. Moreover, as shown in table 1, a noticeable difference becomes apparent between the age of the bone sample on the one hand and the reservoir age corrected dating of the ostrich egg shells on the other. Does this difference indicate two settlement phases during the GH & NCP-era in Biar Jaqub?

On the contrary, when neglecting the reservoir age one will notice that the age of the two 14C ostrich eggshell samples is fairly contemporaneous with the 14C-dating of the animal bones. (Table 1) Does such evidence point to a densely populated district during the era in question?

The current Biar Jaqub 14C-data base is too limited to allow such a question to be discussed in great depth. Therefore, both possibilities, neglecting or factoring in the reservoir age, have to be taken into consideration. This assessment leads to two occupation phases for the GH & NCPs in Biar Jaqub:

- a) Occupation phase A, attested by sample KIA 35930 (animal bones), which may be pinpointed to BP 6,390 +/- 40 (cal BC 5465-5313).
- b) Occupation phase B, attested by samples KIA 35927 + KIA 35928 (ostrich eggshells) ranging from BP(RA) 6,120 to BP(RA) 5,844; cal BC (RA) 5157-4673 respectively.

The two settlement phases are separated by roughly 400 years.³⁵ As far as current evidence goes, both phases belong to the Bashendi B cultural unit era.

5. Mid-Holocene Cultural Units of the Dakhla region

5.1 Bashendi and Sheikh Muftah cultural units

Evidently, the 14 C dates presented above refer to a period when the Dakhla region was occupied by two cultural units known as the Bashendi (BU) who

³⁵ Accelerator mass spectrometer.

³⁴ Less than 1%.

³⁵ Mean value.

inhabited the area in approximately the “Middle Neolithic” (7,700–6,200 BP or even younger)⁵⁶ and the Sheikh Muftah (SU) whose occupation roughly spanned the middle of the 6th millennium BP to well past 5,000 BP.⁵⁷ The BU “... might have survived beyond 5,500 BP ...if the features it shares with the Sheikh Muftah and the Nile Valley Predynastic imply some contemporaneity with these latter units rather than, for instance, a simple ancestral relationship to them.”⁵⁸ According to Warfe, the BU may be subdivided into the Bashendi A (dated to 7,600–6,800 BP) and the Bashendi B (dated to 6,500–5,200 BP). Besides separated by time, “...the units differ in subsistence strategies, patterns of adaptation and in site location.”⁵⁹

5.2 Bashendi B nomads: founders of the earliest form of hieroglyphic writing

It is generally accepted that the BU “... groups were not oasis dwellers, but rather the local version of the nomadic pastoralists whose campsites are scattered across the central and eastern Sahara.” Indeed, “... aspects of (their) material culture point to some degree of nomadism,... the scarcity of pottery, at a time when it had already been used in the area for thousands of years, conforms with the pattern for non-sedentary societies.”⁴⁰ “Cattle (bones) were found at virtually all (their) sites...it seems likely that the Bashendi cattle were herded.”⁴¹ Due to their nomadic lifestyle, the Bashendi, in all likelihood, possessed intimate knowledge of the desert. Therefore most of the rock art depicting typical African savanna animals (such as giraffe, elephant, hippopotamus, zebra, buffalo, ostrich, gazelles and hartebeest) which have been discovered since the 1950s in the wider (desert) environs around Kharga and Dakhla oases⁴², may tentatively be assigned to these BU groups. Thus, it is not surprising that BU camps have occasionally been found in close proximity to such rock art sites.

On the basis of a) the geometrically designed decoration depicted on the ostrich eggshells (Fig. 7), b) the dating obtained for these as well as for the

⁵⁶ M. M. A. McDonald, “Neolithic cultural units and adaptations in the Dakhleh oasis”, in C. S. Churcher, A. J. Mills, eds., *Reports from the survey of the Dakhleh Oasis. Western Desert of Egypt. 1977–1987* (Oxford, 1999), 122.

⁵⁷ *Ibid.*, 126.

⁵⁸ *Ibid.*

⁵⁹ A. R. Warfe, “Interregional contacts with the Sudan: Ceramic evidence from the mid-Holocene period”, in G. E. Bowen, C. A. Hope (eds.), *The oasis papers, 3. Proceedings of the third international conference of the Dakhleh Oasis Project* (Oxford 2004), 79.

⁴⁰ McDonald, in Churcher, Mills (eds.), *Reports from the survey of the Dakhleh Oasis. Western Desert of Egypt. 1977–1987*, 127.

⁴¹ *Ibid.*, 120.

⁴² See for instance, H. A. Winkler, *Rock-Drawings of Southern Upper Egypt* (London, 1939).

ON THE ORIGINS OF THE HIEROGLYPHIC SCRIPT

undecorated items and for the animal bones, c) the locations of their discovery, it seems beyond doubt that BU group individuals were responsible for producing the rock art in question. Moreover, they also created a pool of signs which, in later times, became part of the Pharaonic script. The self-portraits of these BU groups, consisting of steatopygous female figures and their slender male counterparts⁴⁵, are found at several sites in the desert. (Figs. 10 and 11)



Fig. 10 Steatopygous female figures and their slender male counterparts



Fig. 11 Giraffes and steatopygous figures. Giraffes are partly superimposed on the humans and vice versa

6. Spatial and temporal distribution of water mountain signs and further implications

I have discovered water mountain ideograms of much younger date in the vicinity of Farafra Oasis. They are an integral part of a ceiling fresco belonging to the early Christian period seemingly to represent watering places for cattle. (Fig. 12) The find proves that the water mountain ideogram which developed at the beginning of the Predynastic period, still prevailed in the Western Desert oases until around 400 AD.

At the Bu Helga site, Gebel Uweinat, Alessandro Meinardi Noguera⁴⁴ found a depiction of a rectangle with upward pointing protrusions on the upper corners. The rectangle is filled with wavy lines and bears resemblance to the water mountain sign. The ideogram is embedded in a scene presenting a chieftain(?) squatting in a pharaoh's pose on a throne(?) whilst receiving captives(?). The human figures are surrounded by cattle. (Fig. 13) This image was detected by applying D-stretch software for enhancing the visibility of rock art that has almost faded away. Note that the human figure to the right of the chieftain appears to resemble the swimmers in Almasy's cave at Wadi Sura, Gilf Kebir.

At the same mountain Hardy Böckly discovered a rock painting consisting of four male figures positioned above a water line. The painting marks one of the descents to the spring of Bir Murr. (Fig. 14)

⁴⁵ The images of giraffe hunters in figure 6 seem to indicate that the Bashendi B did indeed depict themselves and the animals relevant to them in rock art. Note for instance that three of the hunters who are approaching the giraffe from behind seem to be deliberately aiming their arrows at the legs of the animal. Such hunting practices tally closely with ethnological evidence from South-Western Sudan where the Humr, a cattle keeping tribe, are known to have jabbed the hind legs of giraffes with spears during chases performed by men mounted on horses. 'One powerful jab is sufficient. The giraffe spills blood, slows down and comes to a stop... As the giraffe weakens it turns and sways, and may kick out with its front legs. The hunter takes his spear and... kills it by spearing in the throat' (I. Cunnison, 'Giraffe hunting among the Humr tribe', *Sudan Notes and Records* 39 (1958), 53).

Remarkably, the single hunter positioned in front of the giraffe is shown at a greater distance from the animal than his hunting comrades, as if to avoid front kicks from the weakened beast before the final slaughter. Thus, regarding depictions of giraffes in Biar Jaqub, the hunting scene in question is much closer to reality than Kuhlmann would assume.

Furthermore, steatopygous figures (most probably the female counterparts of the slender male hunters) may not represent deities of fertility as Winkler suggests. (Winkler, *Rock-Drawings of Southern Upper Egypt*, 30-35). This view is also backed by figure 11 which, in my opinion, partly represents a group portrait of Bashendi B ladies. Presumably, it would have made no sense to the Neolithic artist concerned, to include such a large number of deities in one illustration. Instead, what he/she perhaps intended to convey was the idea of earthly wealth and plenitude.

Note that Huyge assigns rock art figures found in the environs of Dakhlah Oasis, containing steatopygous females to the Bashendi cultural unit and dates such depictions to the 6th or 5th millennium BC. (D. Huyge, "Grandeur in confined spaces: current rock art research in Egypt", in P. G. Bahn, A. Fossati, eds., *Rock art studies. News of the world 2* (Oxford 2003), 68.).

⁴⁴ Alessandro Meinardi Noguera, pers. com.

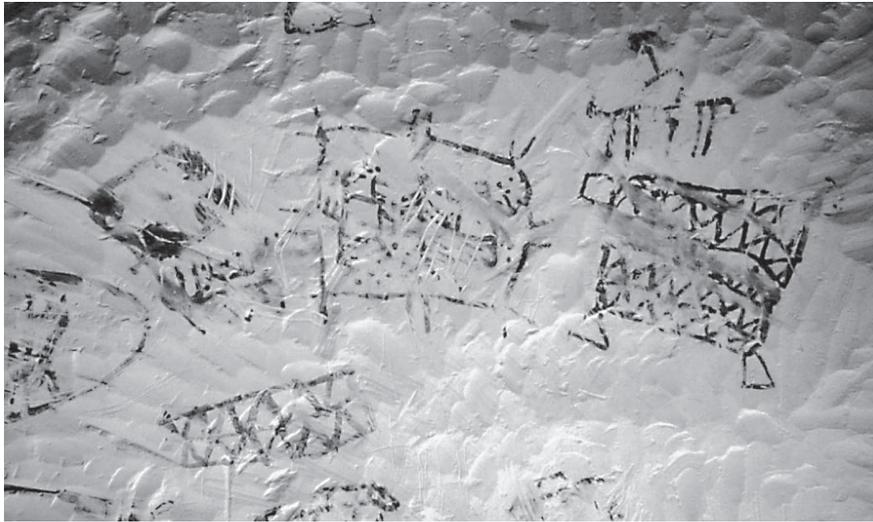


Fig. 12 Image of a water mountain (on the right) being used as a watering place for cattle (Farafra oasis, Early Christian period)



Fig. 13 D-Stretch processed version of a rock painting exposing a water mountain, human figures and cattle found at Bu Helga site, West Uweinat (by courtesy of Alessandro Meinardi Noguera)

These two finds attest to the seemingly age old convention amongst the Neolithic desert populations of using horizontal zigzag or rounded lines to mark locations where water was available, even at remote places like Gebel Uweinat. The migrations of these populations resulted in the dispersal of their

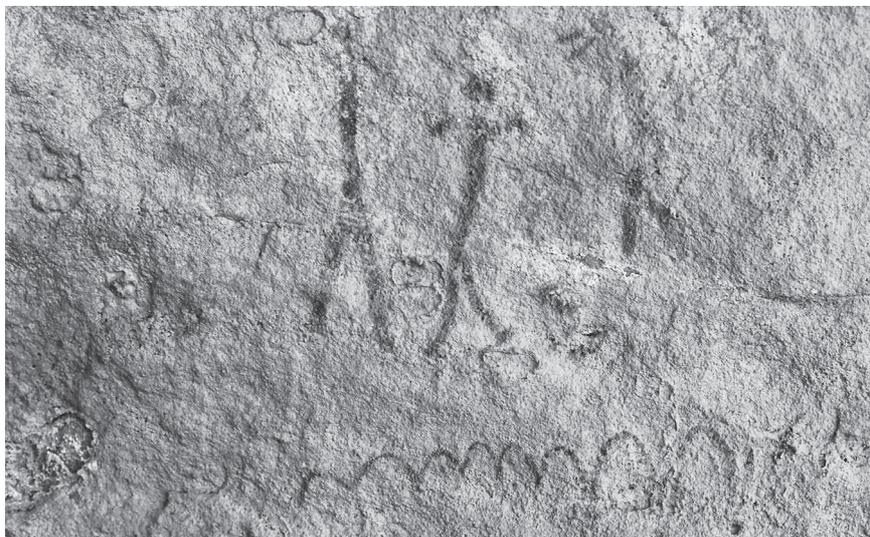


Fig. 14 Four human figures positioned above a water line

culture across land and time. Their pictorial and written signs, iconographic symbolism, fragmentary pre-Pharaonic script, myths, magic, mortuary beliefs, religious ceremonies as well as their early forms of social hierarchy, with its “royal” symbolism and propaganda, finally found their way into the Nile valley where this cultural heritage contributed to Egyptian imagery as well as to the hieroglyphic script. Thus, the cultural attributes of the savannah/steppe societies, the superior “invading race”⁴⁵ of Petrie and Quibbell, contributed, perhaps to a greater extent than so far assumed, to the social and religious panorama developing on the river shores during the period of the ongoing migrations.

Kröpelin and Kuper noted water mountain ideograms at Gala El Sheikh west of Dongola/Sudan. However, by adopting Kuhlmann’s wrong chronological projection without critical appraisal, the two authors arrived at vague and partly wrong conclusions. Quoting Kröpelin and Kuper directly: „the isolated but identical presentation of the „water-ideograms“ more than 700 km south of the Dakhla area... bears implications for the question of early Egyptian relations with Sudanese Nubia. It suggests a line or a network of communication

⁴⁵ This is where Petrie’s and Quibell’s assumption of a ‘new race’ of sturdy hill people who invaded Egypt between the Old Kingdom and the Middle Kingdom resurfaces, albeit in another context, on a grander scale and at an earlier time. W. M. F. Petrie, J. E. Quibell, *Naqada and Abu Ballas* (London 1896), 41, 42, 60–5. In contrast to Petrie’s military speculations, Almasy’s conjecture that the Libyan desert may have been the cradle of the pharaonic civilization, is now being taken more seriously. L. E. Almasy, *Schwimmer in der Wüste* (München 1999), 355, 356.

across the Eastern Sahara as late as the early third millennium BC. ... The new evidence supports the scenario that even after 3000 BC the Libyan Desert was not completely void of human activity. In its southern part, cattle keepers could survive as late as the second millennium BC... Apparently, the Egyptian Nile valley and the oases were connected with these regions and farther African destinations beyond by a network of donkey caravan routes crossing southern Egypt. Even if Egyptian activities from the Egyptian side were probably limited to occasional ventures such as the expeditions during Kheops' reign or Harkhuf's journeys, the "First World" along the Nile must have been a constant lure to the people at its peripheries."⁴⁶

The type of periphery envisaged by Kröpelin and Kuper may not have existed around 5400–4500 BC. The network of north or south bound corridors suggested by the headline of their article, along which the traffic of the region rolled on, in all likelihood, did not exist either. As Kröpelin and Kuper remark, until about 5000 BC, the landscape which today is desert, at that time consisted mainly of savannah and steppe fed by the steadily declining rainfalls of the Mid-Holocene Wet Phase.⁴⁷ Due to such precipitation BU-groups were most probably able to roam all over this huge terrain without limitations just as they were able to camp or to settle wherever they found wildlife or appropriate grazing for their cattle according to their custom. Such a scenario would easily explain the presence of water mountain-ideograms at Gala El Sheikh as well as the ubiquitous occurrence of images of steatopygous human figures further north.⁴⁸

The BU "is a product of nomadic pastoralists who may have ranged well beyond the limits of Dakhleh."⁴⁹ The BU-camps in the region such as the Biar Jaqub site 2007/08-37b may be envisaged as "... annual refuge or aggregation points for mobile cattle-herders... Such localities ... would have become increasingly attractive ... as the wider region began to dry out by the VI Millennium BP."⁵⁰ The stone slab structures of site 2007/08-37b suggest a move towards sedentism, although the "Bashendi B groups from Dakhleh, for instance, appear to have been predominantly mobile in nature."⁵¹ In addition to and as

⁴⁶ S. Kröpelin, R. Kuper, "More corridors to Africa", *CRIPPEL* 26 (2006–2007), 225 *et seq.*

⁴⁷ *Ibid.*, 219.

⁴⁸ Apart from having to prove that their find at Gala El Sheikh does not coincide with either early Christian activities in the Dongola reach, for which the ruins of Gala El Sheikh might have served as an outpost, Kröpelin and Kuper would also have to show how their find is not connected with activities and movements during Napatan times, to which another fortress-like ruin named Gala Abu Ahmed may bear witness in the lower Wadi Howar.

⁴⁹ McDonald, in Churcher, Mills, eds., *Reports from the survey of the Dakhleh Oasis. Western Desert of Egypt. 1977–1987*, 128.

⁵⁰ *Ibid.*

⁵¹ Warfe, in Bowen, Hope, eds., *The oasis papers, 3. Proceedings of the third international conference of the Dakhleh Oasis Project*, 86.

a consequence of the steadily declining precipitation, BU-groups would have been constrained by deteriorating environmental conditions, to turn their attention to water holes and wells much more than previously. This environmentally controlled “cognitive adaptation process” ultimately found its expression in the creation of accordant signs and/or “ideograms”, of which the water mountain sign is the most prominent one.⁵²

Furthermore, the existence of site 2007/08-19 attests that Kröpelin and Kuper’s “corridor theory” is not applicable for the period during which water mountain ideograms were originally created. Site 2007/08-19 which most probably was permanently occupied⁵³, is situated in the vicinity of the place Wilkinson referred to as “another wadee”, more than 100 kilometers southwest of Biar Jaqub. It contains a limited stock of rock art⁵⁴ including a representation of a steatopygous (?) human (Figs. 15 and 16) exhibiting extremely long fingers⁵⁵, petrified bone fragments, an abundance of stone tools as well as two fine-tempered and thin-walled potsherds of Bashendi B provenance detected in the “kitchen area” of the settlement in which ostrich eggshells were extracted and dated to BP 6,492 +/- 35 calibrated to cal BC 5517–5372 (two sigma ranges, probability 95.4%; KIA 35923). This proves that this site is contemporaneous with the Biar Jaqub sites 2007/08-37b and 39c. Its existence therefore, supports the idea that the GH & NCP were probably still spread out over the Eastern Sahara in order to pasture their cattle⁵⁶ up to around 4600 BC at the latest.

⁵² For more detailed information about this transformation process see “Wilkinson’s zweites Zerzura”, in www.carlo-bergmann.de.

⁵³ The existence of rock art and the presence of four grinding moulds (rock-marharkas) in particular, may attest to a permanent habitation.

⁵⁴ Rock art and ostrich eggshells were discovered by Christian Kny.

⁵⁵ I am grateful to Dr. Barbara Schübel, who pointed out that the depiction of extremely long fingers may not be an exaggeration of the Neolithic artist, but a clinical feature belonging to the Marfan syndrome, a genetic disorder which is inheritable. Connected with the syndrome are *inter alia*, ‘...readily visible signs associated with the skeletal system. Many individuals with Marfan Syndrome grow to above average height. Some have long slender limbs with fingers and toes (see also figure 5) that are also abnormally long and slender (arachnodactyly)’ (http://en.wikipedia.org/wiki/Marfan_syndrome). Average life expectancy of patients with Marfan’s who receive no medical treatment is 32 years. (see M. Arslan-Kirchner, Y. v. Kodolitsch, J. Schmidke, “Genetische Diagnostik beim Marfan Syndrom und verwandten Erkrankungen”, *Deutsches Ärzteblatt* 27 (2008), 484).

In the February 2009-Bergmann-Boekly-Marei-4WD-trip to Gebel Uweinat, Hesham Sobhy discovered an almost intact human skeleton. Medical examination of the skeletal remains will have to pay special attention to peculiarities related to the above syndrome in order to ascertain whether or not the anomalies exposed in the engravings can be ascribed to clinical features. If so, the Marfan syndrome would qualify for a wide spread disease in the Western Desert of Neolithic times.

⁵⁶ Note that in the wider environs of site 2007/08-19 three additional BU-camps of considerable size were found during a brief survey of Wilkinson’s ‘another wadee’.



Fig. 15 Site 2007/08-19: rock art in association with two grinding moulds



Fig. 16 Badly eroded fragment of a steatopygous(?) human figure exhibiting long & thin fingers

7. List of Proto-Hieroglyphs at DWM and Biar Jaqub

7.1 Basic signs

7.1.1 SINGLE HORIZONTAL ZIGZAG LINE REPRESENTING WATER

Note that the sign is partly superimposed by a depiction of an ostrich.



Fig. 17 DWM: single water sign

7.1.2 (HORIZONTAL) DOUBLE ZIGZAG LINE



Fig. 18 Water mountain outpost No. 9: "double water sign"



Fig. 19 Close up of Fig. 18

7.1.3 STACK OF HORIZONTAL ZIGZAG LINES PRESUMABLY REPRESENTING DEEP WATER



Fig. 20 Stack of horizontal zigzag lines



Fig. 21 Water mountain outpost No. 2:
stack of horizontal zigzag lines
partly superimposed by a steatopygous
figure

7.1.4 EFFACED PAIR OF HORIZONTAL ZIGZAG LINES



Fig. 22 Effaced pair of water lines

Comment: There is a marginal chance that four of the vertical scratches belong to a quadruped. In this case, the meaning of the superimposition of an animal on water lines is not clear. However, if an attempt was made to deliberately efface the water lines then these signs must have possessed an important meaning of some kind.⁵⁷



Fig. 25 Close up of Fig. 22 with extreme sidelight to enhance the vertical scratches

7.1.5 TWO DIVERGING ZIGZAG LINES POSSIBLY MEANING “OUTPOURING OF WATER”



Fig. 24 Outpouring of water

⁵⁷ A meaningless ‘character’ would perhaps have been destroyed by accident but it would not have been destroyed deliberately. Thus, the depiction may be interpreted as ‘no water available any more’.

7.1.6 SINGULAR HORIZONTAL CRENELLATED LINE (REPRESENTING FLOWING WATER)
AMONGST NEOLITHIC FAUNA



Fig. 25 Water mountain outpost No. 0: crenellated line representing flowing water



Fig. 26 Close up of Fig. 25

Comment: Kuhlmann has reasoned that crenellated lines represent water or rills and runlets. Referring to the Pyramid Texts he further points out that during late Old Kingdom times, a crenellated line signified the state of transhumance amongst nomads ranging the desert steppes. It also denoted the meandering course of a sailing boat beating at sea. Beginning in the Middle Kingdom, the sign later represented a winding village lane or street.⁵⁸ To this view Kröpelin and Kuper contribute the following vague comment without offering a proof to support their scepticism: “Leaving aside the open question if the emblems (water mountains) served a practical or an ideological function, there are arguments critical of Kuhlmann’s hypothesis, especially concerning the crenellated lines and how these can be linked to water.”⁵⁹

⁵⁸ Kuhlmann, *MDAIK* 61 (2005), 271.

⁵⁹ Kröpelin, Kuper, *CRIPEL* 26 (2006–2007), 225.

ON THE ORIGINS OF THE HIEROGLYPHIC SCRIPT

That water actually once flowed in what is now the desert, and that crenellated lines were used as a sign to indicate a creek or a stream long before the pharaohs, is substantiated by a cluster of petroglyphs which I found in a wadi located in the Kharga depression. The rock art which may be tentatively dated to the Giraffe period consists of three fish (Fig. 27) incised into the rocky ground of the wadi's eastern margin and a crenellated line (Fig. 28) depicted on a vertical cliffside about one metre above the fish. Doubtless, the four petroglyphs were meant to belong together, as no further rock art exists in the immediate surroundings. Thus, at the time the petroglyphs were carved, the wadi must have been, at least seasonally, filled with flowing water that supported a presently unknown species of fish.



Figs. 27 and 28 Kharga Oasis depression: three fish found in close association with a horizontal crenellated line at the eastern margin of a rocky wadi

7.1.7 IRRIGATED FIELD

Comment: Following Dreyer I regard lattice type designs as shown in Fig. 29 to be irrigated fields.⁶⁰ Kuhlmann considers these to be counting notches or less probably, the hulls of boats viewed from above.⁶¹ But why should clusters of such lattice designs be connected to each other or to water mountains as can be seen in Fig. 42? Why should even one of them be linked to a double water sign (Fig. 32)? Referring to the state of the development of writing in the Old Kingdom⁶² the Egyptologist declares that such linkages are purely



Fig. 29 DWM: irrigated field

⁶⁰ Dreyer, *Umm el Qaab I*, 131, No. 156; 138, plate 34, figure 156.

⁶¹ Kuhlmann, *MDAIK* 61 (2005), 278–82.

⁶² *Ibid.*, 263, 264, 278–81.

accidental,⁶⁵ postulating instead that the lattice designs at DWM could only denote irrigated fields if all rules were broken, as the hieroglyph for a plot of land in Pharaonic Egypt was commonly written horizontally not vertically.⁶⁴ However, such rules may not have existed in the period of the script creation.⁶⁵

Winkler was apparently more in touch with reality. He found traces of early settlements in a desert depression east of Dakhla oasis and speculated that the site was probably an oasis. Its inhabitants he refers to as “Early Oasis Dwellers”. Noticing that these Neolithic people had used grinding stones and had practised a surprisingly advanced method of weaving, he assumes that they could also have independently discovered the art of growing plants near artesian wells.⁶⁶ “The puzzle is to understand how the idea of cultivating arose here. Influence from outside the Oasis? From where? And if there is no foreign influence, the case is even more enigmatic.”⁶⁷ In any case, the irrigated field (lattice design) – signs found at DWM seem to be manifestations of their activities.

7.2 Basic signs of uncertain provenance and meaning

7.2.1 UNKNOWN SIGN



Fig. 50 Unknown sign

⁶⁵ *Ibid.*, 282.

⁶⁴ *Ibid.*, 281.

⁶⁵ His seemingly persistent refusal to accept the obvious criteria implied by the Neolithic ‘inscriptions’ themselves, has led Kuhlmann into a trap. As with the giraffes, where, in spite of the sheer abundance of depictions of these animals amongst water mountain signs, he did not acknowledge a relationship between the latter, the ‘giraffe age’ and the Neolithic age, he again views the lattice designs from the misleading perspective of hieroglyphic writing thus missing their true significance of the role such ideograms played as precursor signs to the pharaonic script.

⁶⁶ Winkler, *Rock-Drawings*, vol. 2, 27, 50.

⁶⁷ *Ibid.*, 56; see also footnote 78.

7.2.2 UNKNOWN SIGN



Fig. 31 Unknown sign

7.3 Sign combinations

These signs seem to be derived by deliberately combining basic characters. Sign combinations found so far focus on the importance of water and its availability.

7.3.1 DOUBLE ZIGZAG LINE ATTACHED TO IRRIGATED FIELD, INDICATING AN UNSPECIFIED WATER SOURCE FEEDING INTO AGRICULTURAL LAND



Fig. 32 Field irrigated by an unspecified water source

7.3.2 WATER MOUNTAIN SIGNS

7.3.2.1 “Ideal” water mountain sign indicating a hand dug well

Generally, water mountain signs consist of two mountain glyphs added to the upper right and left corners of a rectangular “vat” which contains a number of water lines. (Fig. 35)

Comment: A label found by Dreyer in the Tomb U-j (circa 3150 BC) at Abydos testifies to the use of mountain hieroglyphs in Dynasty 0 times (Fig. 34). Davies and Friedman have interpreted the label’s inscription to mean “mountains of darkness”⁶⁸ that is, “the Western Mountains” (or, my interpretation: the Western Desert). The two signs in question are connected with each other, representing a silhouette of a mountain range as seen from a distance. In Fig. 35 the mountain signs are separated by a horizontal expanse. From the vantage point of someone who spent time in an area such as that between the hills of Biar Jaqub, the flat stretches of land would represent the layered (water-bearing) strata of playa in between chains of low hills. Presumably, wells were dug into this strata and the water mountain “ideograms” bear witness to the location of these wells.

On the occasion of Old Kingdom visits to DWM, one can surmise that the two mountain signs belonging to the water mountain “ideogram” that bears Djedefre’s cartouche, were accentuated by additional strokes possibly indicating gullies descending from the elevations in question. (Fig. 3)

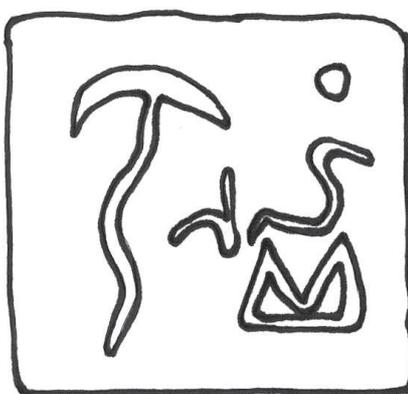


Fig. 34 label from the Tomb U-j reading “mountains of darkness” (my drawing)

< Fig. 35 Ideal type of a water mountain sign

⁶⁸ Davies, Friedman, *Egypt*, 57.

7.3.2.2 Variants of water mountain “ideograms”

7.3.2.2.1 WATER MOUNTAIN WITH AN UPWARD POINTING OF THE TOP WATER LINE (INSTEAD OF MOUNTAIN SIGNS) ON EITHER SIDE OF THE WATER MOUNTAIN VAT INDICATING A WATER HOLE (LOWER LEFT)

7.3.2.2.2 TRUNCATED WATER MOUNTAIN INDICATING A SHALLOW WATER HOLE



Fig. 36 Outpost No. 9: truncated water mountain sign

< Fig. 35 Water mountain indicating a water hole

7.3.2.2.3 WATER MOUNTAIN CONTAINING AN IRRIGATED FIELD AND AN OUTLET/INLET CHANNEL FOR WATER (LOWER LEFT)

7.3.2.2.4 WATER MOUNTAIN WITH HORIZONTAL COMPARTMENTS CONTAINING ZIGZAG OR WAVY LINES



Fig. 37 Water mountain with spout (close up)



Fig. 38 DWM: water mountain with horizontal compartments

ON THE ORIGINS OF THE HIEROGLYPHIC SCRIPT

7.3.2.2.5 WATER MOUNTAIN WITH VERTICAL COMPARTMENTS (LOWER LEFT)

7.3.2.2.6 WATER MOUNTAIN CONTAINING HORIZONTAL CRENELLATED LINES INDICATING
A HOLLOW IN WHICH WATER IS FLOWING



Fig. 39 DWM: water mountain with vertical compartments

> Fig. 40 Water mountain outpost No. 9: water mountain indicating flowing water



7.3.2.2.7 WATER MOUNTAIN CONTAINING BOTH ZIGZAG AND CRENELLATED LINES
INDICATING SEASONAL WATER FLOW IN A WELL



Fig. 41 DWM: water mountain containing zigzag and crenellated lines

7.3.2.2.8 SIGNS AND “IDEOGRAMS” REPRESENTING WATER MOUNTAINS, IRRIGATION CANALS
AND IRRIGATED FIELDS AMONGST SPARSE NEOLITHIC FAUNA

This “collage” which may represent the world’s oldest map or land register⁶⁹ indicates the existence of “village” farming as early as Bashendi B unit times. This interpretation would roughly coincide with the first cultivation of wheat and barley in the Nile valley areas of Fayum and Merimde, thought to have started around 5000 BC.⁷⁰



Fig. 42 DWM: the world’s earliest land register

Furthermore, it may be assumed that the “collage” which conveys multiple information, is not a mere pictogram but qualifies as an inscription dating to Neolithic times. Although the engraving still consists of words only and not yet of a text in a narrow sense, the litany of the consonantal skeleton appears more complex as it offers variations of a complete sentence, such as: field X is irrigated by well Y. In spite of being positioned in the horizon of “picture writing”, in my opinion this elaborate arrangement reveals a deliberate attempt to produce more refined and complex modes of written expressions. It by far exceeds the pictorial canon commonly assigned to the Neolithic period.

⁶⁹ The two pharaonic names found attached to the map/land register are from a later period but related to the overall plan.

⁷⁰ Kröpelin, Kuper, *Science* 313 (2006), 806.

8. Preliminary conclusions

A. An abundance of stone circle settlements of considerable size densely clustered around a “field temple”⁷¹ indicate an unusually high population density during Biar Jaqub’s two GH & NCP-occupation phases, which have been dated to the approximate periods of cal BC 5,465–5,313 and cal BC (RA) 5,157–4,673.⁷² Both spans of time coincide with the onset of the era during which “arid episodes associated with Atlantic cooling events were superimposed on a gradual weakening of the northern hemisphere monsoon system ...(thereby causing) a general trend towards enhanced aridity throughout the northern hemisphere extra-tropics, punctuated by more abrupt changes.”⁷³ Within this context there is a widely held view that regions which “...were well vegetated became progressively more arid after the end of the 7th millennium BP, reaching a state similar to that existing today during the 5th millennium BP.”⁷⁴ It has been suggested that proto-historic societies such as that of the GH & NCP of Biar Jaqub, may have responded to the gradual climatic and environmental desiccation of the Sahara through a combination of increased mobility and sedentism in favourable locations.⁷⁵

⁷¹ But also found elsewhere in the palaeoasis. See earlier reports in www.carlo-bergmann.de.

In this context it came as a surprise when, on one of my surveys of Biar Jaqub, I found exceptional depictions of cattle (Figs. 31, 45) next to images of a large predynastic boat and three addaxes arranged in a circle. (see results of winter 2005/2004 expeditions in www.carlo-bergmann.de) The cattle images are reminiscent of prehistoric wild buffalos (Bubalus antiquus) or Kuri cattle known from the Lake Chad basin (Bos taurus longifrons). Prehistoric wild buffalos are considered extinct in North Africa since around 5,000 BC. “The origin of (the) Kuri cattle breed is obscure and uncertain. One theory considers the Kuri as a pure Hamitic Longhorn, which descended from the ancient Egyptian or Hamitic Longhorn as depicted in the Egyptian drawings. The Kuri probably...migrated (from Egypt) south-west ward through the Sahara corridor to Lake Chad... The breed is adapted to ... hot and humid climate.” (<http://agtr.ilri.cgiar.org/breedinformation/breedpg/cattle/Kuri.htm>) Hence, if the depictions at the field temple represent Kuri cattle, would the find indicate that a link between Dakhla oasis and the Chad basin existed already in Neolithic times?

⁷² The majority of the other sites situated in the vicinity of the ‘field temple’ most likely belong to roughly the same periods.

⁷³ N. Brooks, “Cultural responses to aridity in the Middle Holocene and increased social complexity”, *Quaternary International* 151 (2006), 55.

⁷⁴ *Ibid.*, 30.

⁷⁵ F. Hole, *Environmental instabilities and urban origins. Chiefdoms and early states in the Near East: The organizational dynamics of complexity*, *Monographs in World Archaeology* 18. (Prehistory Press 1994), 125.



Fig. 45 “Field temple”: pair of wild buffalos or Kuri cattle and cub

The small “villages” of the Biar Jaqub palaeoasis and its rock art may reflect the effects of such changes which for instance, were manifested in:

- a) Hunting and gathering beginning to give way to cattle herding “... as cattle would have provided (their owners) with a more predictable source of nutrition in the form of milk, meat and blood than could be acquired from exploiting wild animals and plant species.”⁷⁶ These two livelihood models would have coexisted for a long period of time.
- b) A gradual movement of human settlements from the desert towards environmental refuges (such as Biar Jaqub) where water remained available even during times of desiccation.
- c) Plant cultivation and animal husbandry. The spread of cattle keeping and pastoralism appears to have been encouraged by climatic deterioration.⁷⁷
- d) The exploitation of hand-dug wells at some of the Biar Jaqub playa sites (as evidenced in water mountain signs found throughout the palaeoasis) dug in order to cope with water table levels that fell seasonally.
- e) “Village” farming (irrigation agriculture as evidenced in irrigated field symbols at DWM and Biar Jaqub)⁷⁸ and pastoralism, the latter involving transhumance (large scale seasonal or year around movements in order to exploit remnant water and pasture).
- f) The emergence of a “cattle cult” apparent in rock engravings in Biar Jaqub and throughout the Eastern Sahara.
- g) An increase in social complexity.
- h) The creation of a distinct set of signs and symbols, a process which may have been driven by a set of religious precepts as well as by the cognitive awareness of “...societies which were directly dependent on their immediate physical environment for their livelihoods and food security.”⁷⁹

B. A remarkable cluster of stone circle settlements about 100 km from Biar Jaqub also hints at the possible existence of quite a sizable number of habitable areas located outside the oases belt of the Western Desert (of Egypt) and beyond regions in which elevation induced rainfall occurred. This indicates

⁷⁶ Brooks, *Quaternary International* 151 (2006), 34.

⁷⁷ F. A. Hassan, “Palaeoclimate, food and cultural change in Africa: an overview”, in F. A. Hassan (ed.), *Droughts, food and culture* (New York 2002), 11–26.

⁷⁸ An increase in population in the environmental refuge of Biar Jaqub alone, may have fostered a move towards plant cultivation. Editing more than 500 hunter gatherer and environmental data sets, Binford came to the conclusion that a transition to more intensive forms of food production including storage of the surplus, is stimulated beyond a benchmark of 9.1 inhabitants per 100 square kilometers. (L. R. Binford, *Constructing frames of reference: an analytical method for archaeological theory building using hunter gatherer and environmental data sets* (Berkeley, 2001), 238 *et seq.*).

⁷⁹ Brooks, *Quaternary International* 151 (2006), 44.

ON THE ORIGINS OF THE HIEROGLYPHIC SCRIPT

that there was an all year round supply of surface water sufficient for big game as well as for the cattle pastoralists during the period in question.

C. The proto-hieroglyphs found at DWM and in Biar Jaqub prove that ancient Egyptian writing emerged from an earlier pictographic stage roughly around 5450–4600 cal BC.

D. If, as has been suspected in the past, some of the earliest uses of writing in Egypt “...were to record the receipt of tax, and denote the origin of commodities and their production date...”⁸⁰, it may now be ascertained that the need to create a set of signs mainly focussing on water and its supply, existed long before the pharaohs. These early signs helped GH & NCP to deal with challenges provoked by their steadily deteriorating environment. Thus, the primary origins of the Pharaonic script may not have been initiated by bureaucratic needs but may have to be regarded as a human response to climatic change.

E. The remarkable discovery of an almost complete human skeleton in Biar Jaqub (Fig. 44) which, dating to BP 5,716 +/- 46, calibrated to cal BC



Fig. 44 Skeleton of member of the GH & NPC (by courtesy of Hardy Böckli)

⁸⁰ Davies, Friedman, *Egypt*, 56

4,685 – 4,460 (two sigma range, probability 95.4; KIA 38797), is believed to belong to a cluster of burials that may constitute a Neolithic cemetery, will open the door for further investigations of the living conditions of those who dwelled in Biar Jaqub during Bashendi B times.⁸¹ This examination will procure a more detailed picture of the populace which invented the elementary sign system presented in this paper of which, as one of several sources, the Pharaonic script is an offshoot.

9. Summary and Epilogue

Contrary to the prevailing opinion in Egyptology, it was a “necessity *per se*” that is, the vital needs of life itself, which facilitated the invention of a written language. This process was triggered in the Western Desert of Egypt by the gradual degradation of environmental conditions which began to take effect around 5300 BC. Thus, the precursor of the Pharaonic script resulted from an adaptation response to climatic change that had already come into existence in the Western Desert of Egypt more than 1500 years before the surplus management economy in the Nile valley necessitated an Egyptian record keeping system from which the hieroglyphic script finally emerged.

⁸¹ KIA 38797 would correspond with Biar Jaqub’s occupation phase B if cal BC(RA)-values are taken as a basis for comparison. (see chapter 4.5) The date for KIA 38797 was obtained by a procedure slightly different from what has been described in footnotes 32–34. For removing contaminations (i.e., autogenously generated apatite and secondary calcites) from the original sample material depleted acetic acid was used. Although this method is based on the current state of scientific knowledge the outcome of this 14C age test should not be considered as “hewn in stone” as measuring inaccuracies could result from random failures regarding the complete removal of such impurities. Taking these uncertainties into account the skeleton, according to Dr. Hüls, the test-supervisor, could indeed be 100–200 years older than the measured value. (Dr. Hüls, pers. com.) If this were the case, the find would correlate well with the dates so far obtained for the GH & NCP era.

The exposed area of the burial as seen in figure 44 revealed neither hunting gear nor other grave goods. Does the lack of such items indicate that the individual died during a period of drought and/or scarcity? As indicated by the level of playa remains on the slopes of nearby hills the corpse originally was buried circa two metres below the surface. Thus, at the time of death fellow tribesmen must have been present who performed the burial.

TIMES, SIGNS AND PYRAMIDS

**Studies in Honour of Miroslav Verner
on the Occasion of His Seventieth Birthday**

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