Life on the Fringe

Living in the Southern Egyptian Deserts during the Roman and early-Byzantine Periods

Edited by
Olaf E. Kaper



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LIFE ON THE FRINGE

CONTRIBUTIONS BY THE NEDERLANDS-VLAAMS INSTITUUT IN CAIRO

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Life on the Fringe

Living in the Southern Egyptian Deserts during the Roman and early-Byzantine Periods

Proceedings of a Colloquium Held on the Occasion of the 25th Anniversary of the Netherlands Institute for Archaeology and Arabic Studies in Cairo
9 - 12 December 1996

Edited by

Olaf E. Kaper

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Life on the Fringe

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PREFACE

During the year 1996, the Netherlands Institute for Archaeology and Arabic Studies in Cairo (now renamed Nederlands-Vlaams Instituut in Cairo / Netherlands-Flemish Institute in Cairo) celebrated its twenty-fifth anniversary by organizing a number of special scholarly and cultural activities. These included exhibitions related to ancient Egypt, special lectures on various topics, and a one-day symposium on "Archaeology and Arabic Studies in the Low Countries". To conclude the jubilee year, the NIAASC convened two scholarly gatherings: one on Roman Egypt and one on legal issues in the contemporary Middle East.

The first of these two occasions was the international and interdisciplinary archaeological colloquium entitled: "Life on the Fringe: Living in the Southern Egyptian Deserts during the Roman and early-Byzantine Periods", which was held from 9 to 12 December. The aim of this conference was to provide a platform for archaeologists and other scholars involved in current field work at sites in the Eastern and Western Deserts in the period under consideration. As a result, the colloquium included presentations dealing primarily with individual sites as well as papers of a more analytical character, in which particular phenomena were studied with regard to larger parts of the geographical area in question.

But perhaps the most prominent feature of the conference was its interdisciplinary scope. Social and economic history, the study of architecture and numerous other aspects of material culture, physical anthropology, archaeozoology and archaeobotany, history of religion and philology all had a part to play in the lectures and the discussions, which thus served as a fruitful and enriching experience for all of the participants.

From the outset, the organizers insisted on combining high academic standards with a practical and informative approach: exchange of information and ideas was the colloquium's main goal. Not only was this achieved to a great degree during the conference itself by means of ample time for well-structured discussion, but it is also reflected in the present volume.

These proceedings, the second volume in our new series "Contributions by the NVIC", contains most of the papers presented at the 1996 conference. Some of these are annotated versions of the papers as they were presented on that occasion, whereas other contributions appear here in a more adapted form. The papers are preceded by an introduction co-written by the organizers of the colloquium, Olaf E. Kaper and Willemina Z. Wendrich. This introduction gives an overview of the various Egyptian desert sites and their historical importance, with specific reference to the papers published here. Following the actual papers, the volume contains the text of Jean Bingen's brilliant concluding lecture, prepared during the conference

itself on the basis of the papers presented there, but also including a great number of the author's own observations. To underline the aspect of exchange of information mentioned above, the volume is concluded by an impression of the discussions held during the closing session. In the same vein, significant remarks made during the discussions following the individual presentations are occasionally included with the relevant papers here. The index of geographical terms located at the back of the volume will further add to its value as a practical tool for research into the manifold aspects of the history and culture of Egypt in the Roman and Byzantine periods.

On behalf of the Board of Directors, the Advisory Council, and the entire staff of the NIAASC, I should like to express my gratitude to those who contributed to the conference and to its publication.

The conference and publication was financed generously by the Royal Netherlands Embassy in Cairo. I should like to thank His Excellency the Netherlands Ambassador Ronald Loudon for his support and for his opening address at the colloquium. Petra Stienen, then Project Officer for the Embassy's Local Cultural Fund, deserves special mention for her enthusiasm in making both the colloquium and this publication possible. Her successor, Marc Verschuur, has been most supportive and flexible in the final stages of the publication process. For the success of the colloquium itself, I am grateful to Carla Burri, Director of the Istituto Italiano di Cultura for kindly offering us the use of its lecture hall (the number of participants far exceeded the NIAASC's modest seating capacity). The sessions were chaired by Donald Bailey, Gawdat Gabra, Colin A. Hope, Valerie A. Maxfield, Anthony J. Mills, David P.S. Peacock, Helen Whitehouse, and by the present writer. The editor's task of accurately reproducing the relevant parts of the discussions was significantly facilitated by the detailed notes taken by the conference assistants: Shinu Abraham, Jenny Cashman, Anne Haeckl, and Jos van Lent. The entire NIAASC staff unfailingly lent its support to the organizers in many ways before and during the colloquium.

With regard to the preparation of these proceedings, thanks are due to Julia Harvey for reviewing the papers written in English by non-native speakers of the language. Hans Barnard has produced the map of the Eastern Desert at the back of the volume, and Maarten Raven has supplied the photograph for the front cover. The editor-in-chief of CNWS Publications, Willem Vogelsang, together with the other members of the editorial board kindly agreed to include this volume in our new series.

But most of all, the success of the conference is due to its two organizers, Olaf E. Kaper and Willemina Z. Wendrich. I am confident that I speak on behalf of all of the participants when I say that they did a marvellous job in developing and articulating the idea and taking care of the manifold details of its realization. Finally, Olaf Kaper is to be congratulated for the outstanding quality of his editorial work.

This colloquium and the resulting proceedings may be seen as a direct continuation of a tradition started at the institute by Edwin van den Brink, who organized two conferences on the archaeology of the Nile Delta in 1986 and 1990, with the same underlying ideas in mind. Olaf Kaper acted as conference assistant in 1990. And indeed, while this volume is seen to the press, a workshop on ethno-archaeology at the institute is being prepared by Willemina Wendrich for December 1998.

I sincerely hope that under its new name, the NVIC will be able to further continue this line of scholarly activities.

Johannes den Heijer
Director, Nederlands-Vlaams Instituut in Cairo
(Netherlands-Flemish Institute in Cairo)

EDITORIAL

This volume contains 20 of the lectures held at the colloquium, printed in alphabetical order of the names of their (first) authors. The final lecture at the conference, by Professor Jean Bingen, is the only exception. Because it provides an overview of the preceding topics of the colloquium, the most suitable place for it was in the back of the volume.

The spelling of geographical names has been standardized in the English contributions. No consistent policy could be followed, however, because (1) not every term was known to the editor in its Arabic form, and (2) several names are already widely known in a particular spelling (such as "Luxor"), and introducing an alternative spelling (such as "al-'Uqsûr") would not simplify matters. However, an attempt has been made to reflect the Arabic sounds of the names in question. For the Eastern Desert, the names usually correspond with the spelling adopted for the *Tabula Imperii Romani* ("Coptos", ed. D. Meredith, 1958).

Since this is the record of a colloquium, it has been decided to also incorporate an impression of some of the many discussions engendered by the papers. The topics raised during the discussions provided additional information to the papers, and they were often of a more general nature which makes it worthwhile incorporating them. Similarly, an extensive record of the final session of the conference appears at the end of the volume. The record of the discussions and verbal interventions has been checked for accuracy with the speakers involved.

The English of all contributions by non-native speakers of the language was corrected by Dr Julia Harvey.

O.E.K.

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As a service to the reader, and as an expression of our gratitude to the speakers concerned for their contribution to the success of the colloquium, we include here a list of lectures which will be published elsewhere.

Adel Hussein Mohammed, Bahgat Ahmed Ibrahim, Magdi Hussein Mohammed,
"Excavations at ʿAin Labakha in the Kharga Oasis".[1]

Gillian E. Bowen,
"The Spread of Christianity into the Western Desert".[2]

Laurence Blondaux,
"The Conservation of Archaeological Wall Paintings".[2]

Walter E.H. Cockle,
"The School Texts from the Roman Imperial Quarries at Mons Claudianus".

Colin A. Hope,
"Kellis in the Mothite Nome: Regional Contacts".[2]

Carla Marchini,
"Glass from the Dakhleh Oasis".[2]

J.El Molto, Peter Sheldrick,
"Death and Dying in the Roman Period of Egypt's Dakhleh Oasis".[2]

Ursula Thanheiser,
"Fruits, Nut, Spices, and Other Luxurious Commodities at Kellis".[2]

Wim van Neer, Anton Ervynck,
"Sero Venientibus Ossa: Archaeological Research into the Food Economy of Roman Sites in Egypt's Eastern Desert".[3]

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[1] The excavations at this site are to be published by the IFAO; as announced by N. Grimal, *Bulletin de l'Institut Français d'Archéologie Orientale* 97 (1997), 393.

[2] Lecture to be published in a monograph by the Dakhleh Oasis Project.

[3] Now published as: W. van Neer, "Archaeozoological Data on the Food Provisioning of Roman Settlements in the Eastern Desert of Egypt", *Archaeozoologia* 9 (1997), 137-54.

EAST AND WEST IN ROMAN EGYPT
AN INTRODUCTION TO *LIFE ON THE FRINGE*

Olaf E. Kaper and Willemina Z. Wendrich

1. The Colloquium

The idea for a colloquium on the topic of the outposts of the Roman frontier in Egypt (the *limes Aegypti*) was born in 1995 in Cairo. Our respective archaeological activities in the Roman period of the Dakhleh Oasis and the Eastern Desert gave rise to the wish to compare and contrast the two regions. The conference was to bring together for the first time the archaeologists and various specialists who study the Eastern Desert and Red Sea sites and those studying the Western Desert oases.

The level of archaeological activity in these areas of "east" and "west" has increased dramatically in recent years. Several large- and small-scale projects have started work along the *limes Aegypti*, involving large numbers of specialists. In fact, we had to limit the number of potential participants to the conference by omitting the sites in the Sinai and the southern Nile Valley, even though some, such as Qasr Ibrim, also had a specific border function. The title "Life on the Fringe" was meant as a challenge, to induce the speakers to discuss the relations of the desert sites with the Nile Valley, and their level of dependence on the Egyptian cultural "mainstream". The period to be covered was set to coincide with the period of the most intense activity at the sites, i.e. the first through the sixth centuries CE.

The conference lasted four days, and succeeded in bringing together 28 speakers and additional colleagues of some 12 different nationalities.

2. Sites in the Eastern and Western Deserts

There was a variety of motives for Egyptian involvement in the desert, which has determined the distribution of sites in the Eastern and Western deserts. One important motive was international trade. The wadis of the Eastern Desert gave access to the Red Sea and the sea routes to Arabia, India, and the coastal regions of sub-Saharan Africa. The principal ports on the Red Sea were Berenike and Myos Hormos (Quseir al-Qadim), and two main roads connected these to the town of Coptos on the Nile. Other major roads ran between Edfu (Apollonopolis magna) and Berenike, and between the city of Antinoopolis and the Red Sea ports (the *Via Hadriana*).

In the Western Desert, the oases provided a series of natural points of access or departure for the Saharan trade. One important route led through the Kharga Oasis southwards, currently known as the "Forty day road" (*Darb el-Arbaʿin*), the date of which is still disputed. Permanent settlements developed wherever possible along these routes.

In addition to the commercial value of the desert routes, there was considerable economic interest in the Eastern Desert on account of its mineral wealth. Many different decorative stones were sought in the desert, such as graywacke in the Wâdi Hammâmât, granodiorite at Mons Claudianus, and "imperial" porphyry at Mons Porphyrites (Maxfield & Peacock, below). In addition, there was mining of minerals and gemstones, such as beryl and emerald at Mons Smaragdus. Gold was mined in the Eastern Desert into the Byzantine period, e.g. at Bîr Umm Fawâkhîr (Meyer & Heidorn, below), albeit on a smaller scale than in earlier periods. The Western Desert had no significant quarries or mines during this period, except for salt mines (Siwa) and alum mines.

The Western Desert was intensively occupied and travelled during Roman times because of the fertile land of the oases, which proved to be a major incentive for farming and settlement. The perennial water supply and fertile soil allowed a specialized production to develop within the oases, mainly dates and olives (cf. Kuhlmann, below, on Siwa) but also wine, which was traded with the Nile Valley. The cultural background of the oases was rooted in the Nile Valley, but there was regular contact with other Mediterranean countries, as was also confirmed by the study of skeletal material found at Dush (Heim, below). The population and the culture of Siwa always had a more westward orientation.

More rarely, there were religious motives for travelling to the desert. In the late Roman period, the isolated oases became a place of banishment for unorthodox thinkers such as Nestorius, or a place of refuge for religious groups such as the Manicheans. In the Eastern Desert, Christian anchorites moved into natural caves or abandoned miner's huts in their attempt to withdraw from the world.

The high economic value of the trade routes, the mines and quarries, and the oases led to the participation of the army in life on the fringe. Along the trade routes, fortified way stations and watch towers were built (cf. Zitterkopf, below), and the army was employed to guard the water points. In this way, travellers could be both protected and taxed, which was important because of the often high value of the traded goods. The great quarry sites of Mons Claudianus and Mons Porphyrites were protected by resident army units for whom large fortresses were built. Inscriptions found at Coptos and Berenike have shown that specialized Palmyrene soldiers were involved in policing the desert routes during the third century (Wendrich, below). Perhaps the same soldiers were also patrolling the Western Desert, because their unit is mentioned once at Oxyrhynchus (P.Oxy. XLIII 3115, dd 271 CE).

In Kharga and Bahariya a series of fortresses was built during the late empire, but a small army presence may have been maintained in all major settlements at an earlier date too. Military presence in the oases became crucial during the late empire, when Bedouin attacks on the Great and the Small Oases increased in scope.

3. Life on the Fringe

The communities which developed in the Western Desert oases were wealthy and prosperous. Their population increased considerably in the Roman period and urban centres developed with religious architecture on a large scale which was probably funded by the authorities (Kaper, below). The permanent nature of these oasis communities is reflected, for instance, in the local production of ceramics (cf. Ballet, below).

The settlements in the Eastern Desert were less permanent in nature, but they could nevertheless offer bearable and even comfortable conditions. The mining and quarrying caused a considerable infrastructure to be set up in the desert. The settlements were sometimes inhabited by a large workforce, and supply routes had to be put in place both for the provisioning of the crew and for the transportation of the materials extracted, which could be of enormous size (cf. Maxfield and Peacock, below). Only the coastal towns housed a larger permanent population. At Berenike there are traces of local industries, such as ship building and maintenance, also mentioned in relation to Myos Hormos (Bülow-Jacobsen, below), and there was a local production of fired bricks, metal and glass (Wendrich, below). However, the pottery employed in the Eastern Desert sites and the Red Sea ports was imported entirely from Egypt and abroad (Ballet and Tomber, below).

Whereas the Western Desert oases were mainly self-sufficient in terms of their food provision, and they could even export some of their crops, in the Eastern Desert this aspect required extensive organization. Nearly all of the food for the quarries, way stations, and the harbour towns had to be imported. Some green vegetables were grown in local garden plots (Van der Veen), probably using waste water (Cappers), but large-scale cultivation was not possible. The daily bread for the quarries was brought in regularly from the "new town" of Qenâ or from Qûs, where the families of the workforce lived (Cuvigny, below). In spite of these difficulties, the diet in the Eastern Desert could be varied and healthy. Based on pork, chicken, and Red Sea fish, the meals were enriched by fruit and vegetables and imported items such as wine (Tomber, below), oil, pepper, fish sauce, and even snails.

The evidence for religious beliefs and activities found in the deserts presents us with an essentially Egyptian picture. Generally speaking, the West was the domain of Amun, the East belonged to Min/Pan; the different dedications resulting from the different histories of exploration of the two desert regions (cf. Aufrère, below). The private devotion of the inhabitants and travellers of the Eastern Desert appears from the numerous *proskynema* inscriptions found around the many small-scale religious shrines along the routes, and from references in ostraca (cf. Bülow-Jacobsen, below), but also from the terracottas found at Mons Claudianus (Bailey, below).

An interesting new aspect is the apparent tenacity of pagan beliefs in the remote town of Berenike into late Roman times (Wendrich), which stands in contrast with

the eager conversion to Christianity of the rest of Egypt, which is also evident from the Christian remains from the fourth century in the Great Oasis (Bayumi, below).

The burial customs of east and west were markedly different. In the oases, the burials conformed to contemporary practices in the Nile Valley in the use of rock-cut tombs, sometimes with decoration (Whitehouse, below), mummification (Lichtenberg, below), and a range of grave goods (Dunand, below). By contrast, there were no cemeteries in the Eastern Desert during the Roman period. Apparently, the dead were transported back from the desert to their place of origin (cf. Bingen, below). The stay in the Eastern Desert never became permanent. Only in the later Roman period did graves make their appearance, as at Bîr Umm Fawâkhîr (Meyer & Heidorn, below).

The true desert dwellers in the ancient landscape of the Eastern and Western deserts, however, were the Bedouin. In the Eastern Desert the Blemmyes nomads are mentioned regularly in the textual evidence, such as in the ostraca found at Mons Claudianus. The history of archaeological research in the desert has been Nilocentric in this respect, because little attention has been paid to the Bedouin populations. Apart from posing a threat to the settlers and travellers on the desert routes in both east and west, there is evidence that during the late Roman period they also became involved in policing activities in the Eastern Desert (Wendrich). So far, not much is known about their way of life in antiquity, because of the scarcity of archaeological and documentary remains left by nomadic populations in general. Amidst the abundance of information now available on the Egyptian settlers in the deserts, their voice is not easily heard.

4. The Fringe and the Valley

The sites in the desert regions may have been widely different from one another in terms of purpose and organization, but they all shared a cultural background in the Nile Valley. Relations with the Nile Valley were intensive in both east and west. There is abundant evidence for the strong and intimate cultural ties between the oases and the Nile Valley from the recent inscriptional and archaeological discoveries at sites such as ʿAyn Labakha, Ismant el-Kharab, and Dush. In the Eastern Desert, the desert roads served as veritable "umbilical cords" (Cuvigny) linking the various isolated communities to the Nile Valley on which they depended for food and letters.

Life on the fringe of Roman Egypt was anything but living in a cultural backwater. The areas of "east" and "west" have been kept off the map of Roman Egypt for too long, and deserve to be studied on a par with other sites in the Roman world. The recent archaeological work in the Egyptian deserts is providing many exiting results and many possibilities for future research. We hope that the present volume will provide a useful overview of the work which is currently in progress, and that it will assist in filling some of the blank spots on many people's maps.

RELIGIOUS PERCEPTIONS OF THE MINE IN THE EASTERN DESERT IN PTOLEMAIC AND ROMAN TIMES

(= Autour de *L'Univers minéral* VIII)

S.H. Aufrère

1. Introduction

L'Univers minéral dans la pensée égyptienne (abbreviated *Um*) was published a few years ago. This work not only presents an overall picture of the beliefs concerning minerals and metals - both precious and nonprecious - but also of building materials in general over a long period of Egyptian history, from the time of the pyramids until the Graeco-Roman era. Judging by the texts written in hieroglyphs, minerals, metals and chemicals were considered as essential components in the course of the universe (a*Um* VI, X, XII). Therefore, the Egyptian temple - as is quite clear from the architecture of the sanctuaries of the Late Period - was conceived as a composite substitute for the mineral and vegetable universe (a*Um* IV, XII). Consequently, the temple was an architectural echo of the environment (Aufrère 1996a-b), and a reflection of the Real: thus we may speak of the existence of a special identity between the microcosm and the macrocosm. Even the gifts of mineral resources brought by the different allegorical figures representing the mining districts to the temple is in keeping with a religious interpretation of the traditional economy, although apparently distant from reality (*Um*, 731-87). In the minds of the Egyptians, the exploitation of the desert's resources was in keeping with the beliefs representing the divine forces governing it (Aufrère 1993, 1996, 1997).

In this paper, I would like to shed new light on this theoretical conception of the universe based on the texts, and support it by means of documents which emphasize daily life as well as the perception of the environment (Aufrère 1994, 1996a). In short, to reconsider the question in the light of information provided about the economy, the geography, the location of the mineral resources, their transportation, and the crafts involved in working the desert's resources.

My purpose here is to present some elements for contemplation, after all, current scholarship denounces a lack of pragmatism on the part of the Egyptian priesthood, as well as its tendency to ignore the universe surrounding it. Yet, when we consider the entire range of Egyptian, Greek and Roman documentation on the deserts, we can see that they focus on the same object. When dealing with the "golden triangle" of the Eastern Desert, Sinai and Nubia, these texts could supply the keys to a general religious interpretation of the mineral resources of the Eastern Desert - via myths and syncretisms (a*Um* X). The Egyptian priesthood itself interpreted human activities without changing their traditional aim: to eventually integrate them into its way of thinking. For what appears to be a resurgence of more ancient conceptions, is in fact an adaptation by priests anxious to subscribe to the universe of the Real.

Thus, in accordance with tradition and by virtue of this principle, the ruler systematically follows the example set by deities considered to be specialists in the working of particular products.

2. *The Nomes and Their Links to the Traditional Economy of the Neighbouring Deserts, Sources of Minerals*

For thousands of years, the various nomes of Egypt divided the working areas of the desert among themselves. For some - even after the establishment of some additional nomes - the activities linked to the desert represented an important source of revenue. Some were traditionally associated with the Arabian Desert whereas others were more concerned with the Libyan Desert (*Um*, 753, 759; Aufrère 1995).

The religious texts of the Greek and Roman temples are clear enough to enable us to understand that areas in some parts of the deserts were under the control of a certain nome, due to the economic activities of the cities in that nome, that is, mining or related activities; this state of affairs undoubtedly led to a religious perception of the Eastern Desert. Dendara, for example, whose divine host was involved with mineral production, is located at the entrance to the Wâdi Qenâ,[1] one of the roads leading to the ᶜAtâqa mountains and, beyond that, to Sinai where the same deity was worshipped under the name of "Hathor, lady of turquoise" (*Um*, 507).

Since the earliest dynasties, ancient Egyptian prospectors had to thoroughly explore all the mining areas of the Arabian mountain range. Because of this, Coptos, and probably also present-day Qûs, became deeply involved in the practical organisation of mining expeditions. The Thebans were not so suited to playing this kind of role because the plateau of the Arabian desert, at this specific latitude, does not make penetration of the desert easy. It appears that Amon was considered to be a prospector deity only by association with Min the Coptite; furthermore, the Theban religious texts do not reflect the concern with the prospecting of mining deposits which is so characteristic of the texts at Dendara and Edfu (Edfou I^2, 84.9-11), even though Amon-Re appears to be the owner of the gold mines of the East and of Nubia (Castiglioni 1991). If Amon is superficially associated with gold mining (Ziegler 1981), this is by virtue of his solar nature. When Amon-Re has to appear as a prospecting deity, however, that is as a lunar force, he is represented by the appearance of Min, as in the temple of Seti I at Kanayis (Schott 1961, esp. 136). His character as a deity of the mines is clearly shown by a statement by Isis at Kanayis: "I give you the gold deserts; the mountains give you gold, lapis lazuli and turquoise which are in them" (Schott, *loc.cit.*). Texts referring to the links between Min and

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[1] Cf. *Um*, 132-33. Wâdi Qenâ leads to Gebel el-Zeit and to the copper mines of Wâdi Dara and the gold mines of Wâdi Urf and Wâdi Munqul; cf. J. Leclant, G. Clerc, *Orientalia* 60 (1991), 247.

Haroeris and the desert were inscribed on the walls of the main temples at Coptos and Qûs (PM V, 135-36). Even though almost all traces of religious worship at Qûs have disappeared, Haroeris seems to have played a notable role, together with Min, in the working of the Eastern Desert. The latter is suggested by several documents from the Middle Kingdom discovered at Marsa Gawâsis and dated to the reigns of Sesostris I and Amenemhat II. Thus, Qûs - that is to say Apollinopolis parva - was from ancient times closely concerned with the expeditions into the desert for which the town provided the contingents. In the Roman period, the growth of the town of Qûs may be explained by its old mining tradition. Furthermore, until a relatively late date, both Qûs and Coptos were associated with the tribes of the desert.[2]

Min, the old divine force of earliest times, thus remained the figurehead of mine prospecting (Yoyotte 1952), after all, Coptos and to a certain extent also Panopolis (Akhmim) lie at the traditional entrances to the Eastern Desert.[3] Panopolis controlled a road leading directly to the Wâdi Qenâ, bypassing the Wâdi al-Assiûty which would be too long a detour. Incidentally, the allusions to Coptos and to Panopolis in the epithets of Min are linked; the god is namely "Lord of Ipu who presides at Senut, who resides in Dendara",[4] or "Min, Lord of Coptos, Lord of Ipu, Lord of Senut, the great god who resides in Edfu" (Edfou II^2, 85.2) in the galena and chrysocolla offering inscriptions. The presence of this desert track probably explains the very close links between the worship of Triphis in the Wannina temple[5] - built during the reign of Ptolemy XIII (PM V, 31-2) - and the perfumes of Punt, as expressed on the walls of the famous "Punt chamber" of Petrie's publication in which the figures of Sekhmet, Triphis and Min are depicted (Baum 1994). In the Middle Kingdom, such a transverse link with the Eastern Desert is conceivable because a nomarch of the XVIth nome – Khnumhotep II, a contemporary of Sesostris II – was in charge of relations with the Eastern Desert populations and of the precious minerals trade, particularly galena (Staubli 1991, 30-34; *Um*, 133). One could even say that the founding of Antinoopolis revived this old tradition of the XVIth nome, as Beni Hasan – the ancient Menat-Khufu – lay only a few miles to the north of Sheikh 'Ibâda (Antinoe), in the additional XIVth nome (known as the Antinoopolite nome; Gauthier 1935, 182-4). Antinoopolis was founded in the reign

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[2] On the Roman past of Qûs, see Garcin 1976, 22-27.

[3] Seventeen hunters are mentioned at Wâdi Bîr el-ʿAîn as coming from "the Panopolite (nome)" cf. Bernand 1977, 18.

[4] Roman mammisi of Dendara: F. Daumas, *Les Mammisis de Dendara*, Cairo 1959, 186.10.

[5] Triphis is invoked in an inscription at Akhmim carved by Tiberius Claudius, in year 12 of Trajan (cf. Bernand 1972, n° 79). Triphis is a local form of Hathor (Bernand 1972, 214-15; cf. Gauthier 1903, 168-9). Together with Pan (= Min), this deity is probably the one who governs economic activities in the Eastern range.

of Hadrian, and it was connected to Berenike by the Via Hadriana.[6] In fact, there can be little doubt about this, because this road enters the Nile Valley at the latitude of the Speos Artemidos, slightly to the north of Antinoopolis.

Among the names of the expedition members going to the Wâdi Hammâmât, there are several anthroponyms formed with the name of the god Nemty. In his own district, this god was the equivalent of Min in Coptos. The god also appears as a prospector's deity, ruling specifically over silver ore production. A very ancient myth, echos of which appear in the Papyrus Jumilhac, recalls that gold was forbidden in the XII[th] nome (*Dw-fjt*), because the god had imposed a gold ban (taboo) (*Um*, 384-87). Texts concerning the Ptolemaic and Roman geographical processions describe the XII[th] nome as being closely associated with silver mining (*Um*, 387), just as other nomes – the Coptite and Apollinopolite nomes – were associated with gold.[7] This local myth is undoubtedly used in order to explain the specific nature of the area. Although we have no particular evidence for this, there is no doubt that the particular privilege of the inhabitants of the XII[th] nome was to prospect for silver ore in the Eastern range, and more probably galena (argentiferous galena), the richest deposits of which may be found on the Gebel el-Zeit peninsula, near the Red Sea, below the 28[th] Northern parallel (Castel & Soukiassian 1989).

It is also clear that Kom Ombo (*Nwbt*, "Gold town") controlled access to a huge mining district – the "Ombos mountain" of the Egyptian texts[8] - the backbone of which is located on the watershed between the Wâdi Kharit and the Wâdi Hodein tributaries.[9] The Wâdi Kharit tributaries also provide access to Berenike, so much so that several Roman forts guarded the track, watching over water points such as El-Abraq, about 85 km southwest of Berenike (Bernand 1977, 179-181; Berenike 1995, 372 ff.), far away from the place - Northern Somalia – where elephant hunting parties were held during the reign of Ptolemy II.[10]

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[6] Cf. Gauthier 1935, 182-84; Berenike 1994, 5-11. Moreover, the Oryx nome (XVI[th] nome of Upper Egypt) seems to be closely linked to Haroeris (cf. Gauthier 1935, 184) because *Hr-wr* = Besa, the ancient name of Antinoopolis. Meanwhile, Haroeris is invoked on the Wâdi Gawâsis stela of Khnumhotep II.

[7] Texts in the Medinet Habu treasury speak of the "gold of Coptos" (*nbw n Gbt*); cf. *Um*, 355.

[8] The *nbw n Nbjt* "gold of Ombos" is mentioned in Medinet Habu; cf. the previous note.

[9] Hume 1937, pl. 175. Wâdi 'Allaqi and its tributaries are easy to reach from the Nile Valley at the latitude of Dakka, in Nubia (Hume 1937, pl. 182). Such physical conditions explain why the Egyptians ruled Lower Nubia, as it gave access to the gold mines of this area.

[10] On this subject: Bernand 1972, 44, n° 9 bis. An elephant graffito was found in the El-Abraq fort (Berenike 1995, 376, Fig. 21). See, for elephant hunting: H. Scullard, *The Elephant in the Ancient World* (London, 1970) (reference kindly provided by W.E.H. Cockle). This site has a sanctuary associated with a spring protected from the sun by a wooden structure. Thanks to its water supply, this area was particularly well stocked with game; in around 1832, wild asses, gazelles and ostriches could be found there. The road had been known since the XIII[th] Dynasty, as a graffito discovered by Golenischeff in the Wâdi Kharit proves (Golenischeff 1890, esp. 19), also testifying to the presence of a sandstone quarry.

For this reason, Kom Ombo is a more convenient site for the exploration of the Etbaye mining area than Aswan. The location of this city explains why it came to replace Aswan as the chief town of the Ombite nome.[11] It is very probable that Ombos renewed the ancient tradition which gave it its name.

Edfu is closely linked to the desert, for the town is located at the entrance to the Wâdi 'Abbâd. The dedications at the Paneion of El-Kanayis reflect local Egyptian beliefs. During the reign of Ptolemy VI and Cleopatra II, a certain Dionysos dedicated an inscription in the Wâdi Diyeiba to "Pan who is favourable and Apollo, also called Aroeris" (Bernand 1977, 136-37), because Pan was linked with Apollo at the El-Kanayis Paneion (Bernand 1977, 137; 1972a, 145 (n° 72); the dedicant is named Apollo). Surprisingly, this tradition developed in Graeco-Roman times, as is shown by religious texts at Edfu. These ideas developed by virtue of a resumption of gold and mineral mining under the protection of Horus of Edfu, i.e. Apollo. But in several places at Kanayis and along the Coptos track it was "Pan of the good road" (Bernand 1972a, *passim*; Bernand 1972b, *passim*) who was usually invoked; some of these texts mention expeditions to the Troglodytes (Bernand 1972a, 110 [n° 43]; 122 [n° 44]; cf. also 75 [n° 18]) - the *Iuntiu-setiu* of the religious hieroglyphic texts from Ptolemaic times (*GDG* I, 59).

3. Greek and Roman Pharaohs and Min

As a result of the renewed exploitation of the desert in Graeco-Roman times, whose yields contributed to an economic growth such as had never been seen before, the Egyptian priesthood had to adapt itself. A new concept appears: an identification of the ruler with Min. The Ptolemaic or Roman Pharaoh was considered to be the image of the "prospector of Punt, like the plateau of his mountain range" (*sr-bj3 n Pwnt mj ḫrt Ḫtjw=f*; Dendara III, 182.9-10), or he is "like Min, chief of the deserts" (*sw mj Mnw ḫrj-tp ḫ3swt*; Dendara I, 112.4). With the deserts being scoured by specialised expeditions in order to exploit its mineral wealth, it is not surprising to see some concepts dealing with the working of these very deserts appearing among the Egyptian texts. Parts of these references derive from older Egyptian traditions.

For the Egyptian priest in the time of Augustus, Tiberius, Trajan, or Hadrian, the yield of the deserts, or those items which came from there - gum Arabic, resinous and odoriferous products, and perfumes from the countries of the Red Sea (Chermette & Goyon 1996) - had to be the result of divine activity; and the gods would certainly wish to receive their share of the products extracted from their

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[11] Gauthier 1935, 111-14. Before Alexander's conquest the Ombite nome was regarded as being independent of the I[st] nome of Upper Egypt (Gauthier 1935, 111). During the reign of Ptolemy II (second century BCE), the district's strategos ruled the entire Dodekaskoinos.

domain. In the eyes of the Egyptian priesthood, the ruler - a Ptolemy or a Roman emperor - was always regarded as the one whose role it was to supply the temples with metals and minerals, and to protect the roads, even if the reality was very different.[12] The Egyptian text sets forth an ideal rather than reality.

4. Min, Pharaoh and the Mining Tradition According to Egyptian Texts

The congruence between the Egyptian texts and economic activity is particularly evident when one concentrates on minerals. In reliefs depicting galena and chrysocolla offerings in the Ptolemaic and Roman temples, the fictitious dialogue between Min and the king shows the king in the role of the god as a prospector in the Eastern Desert, the epithets of each shed light on the nature of the traditional links between the divine forces and the Arabian mountain range.

Pharaoh acts as an image of Min: "the one who searches for his eyes in *To-neter*, being the [prospector]" (*ḥḥ jrtj=f m T3[-nṯr] [s]w m [sr-bj3]*),[13] or as "the explorer of the Eastern Desert: who looks for his eye in *To-neter*, being the good prospector of Punt, who searches for the products in order to magnify his sight" (*mḏdw n ḫ3st j3btt ḥḥ jrt=f m T3-nṯr, sw m sr-bj3 nfr n Pwnt ḥḥ ḫt r sᶜ3w dg3=f*; Edfou II², 85.6-7), or: "the man from the East, the prospector of Punt who searches for his eye in *To-neter*".[14] In these sentences, the traditional link between Punt and *To-neter* is expressed, regions referring to the Berenike area in the land of the Troglodytes: the more southern one, that is Punt, and the Arabian ridge further to the north in which the mineral wealth is concentrated opposite Coptos: *To-neter*. The epithet "the one who searches for his eye / his eyes" alludes to the loss of the eye of Horus and to the filling of the *udjat*-eye, known from three versions from the Greek period (Dendara, Edfu and Philae; *Um*, 199-303). In this context, the symbolism of the eye includes the lunar aspects associated with prospecting for mines, because minerals grow under the influence of moonlight. Thus, the search for the eye (*jrt*) - conceived of as a female deity - appears as the aim of a process consisting of bringing the mythical eye (of Horus), which the deities have filled with precious minerals and apotropaic vegetables, back into the Nile Valley.

A second set of epithets confirms the first. The ruler acts in accordance with the image of "the *Medjai* of *To-neter* who equips the *udjat*-eye with its elements" (*Mḏ3j n T3-nṯr ᶜpr wḏ3t m ḫt=f*; Edfou I², 84.5-6), or: "the good *Medjai* of the desert, the

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[12] It was in this role that Hadrian established the Via Hadriana between Berenike and Antinoopolis (Bernand 1972a, 61; Bernand 1977, 37-38).

[13] Mamm.Dendara, 186.12-13; cf. Edfou V, 192.2 (Min-Rê [...]).

[14] Gauthier 1931, 183-84; cf. Piehl, *Inscript. hiérogl.*, 2e série, pl. 58; Edfou I², 399*ult.*-400.1 [*sic*]: "Min, the Coptite One, the great god, whose residence is Edfu, the good Medjai from the Eastern Desert, the great prospector of Punt" (*Mnw Gbtjw nṯr ᶜ3 ḥrj-jb Bḥdt Mḏ3j nfr n ḫ3st j3btt sr bj3 wr n [P]wnt*).

prospector, being Horus who protects the way to Punt, who equips the eyes with their protection" (*wnn=f m Md3j nfr n ḫ3st sr-bj3 sw m Ḥr ḫw mtn n Pwnt ᶜpr ᶜnḫ.wj m s3w=sn*; Edfou I², 425.13-14), or: "the good *Medjai* who traverses the mining districts to fill the eye of Horus with its components" (*Md3j nfr phr št3w mḥ jrt-Ḥr m sšw=s*; Edfou III, 144.4).

The Medjai (Lupo de Ferriol & Pereyra de Fidanza 1991; Vernus 1986) first appear in Egyptian history during the First Intermediate Period when tribes from the area of the Second and Third Cataracts settled in the Nile Valley, taking advantage of the weakness of Egypt. In time, the Medjai ethnic group joined the ranks of the mercenaries who served the rulers of Egypt, and they played a crucial role in the reunification of the Two Lands. Robust, used to the desert, the Medjai became the men who would patrol the Etbaye for Pharaoh in order to protect the fringes against other tribes. Their frequent stays in the desert made them specialists in the field of prospecting for mines and, in the same way, in the field of the rarities gathered on the Red Sea shore. Sometimes, the hieroglyphic writing pictures the Medjai as a man with a dog, holding a stick at the end of which is a leather purse containing his crop of precious stones.

In Roman times, the Medjai do not disappear; they seem to survive among the Bedja tribes, which settled on the outskirts of the valley ensuring trade with the caravans. According to Strabo,[15] the exploitation of the emerald mines was controled by "Arabs". The use of this word is probably incorrect; it must refer to the Medjai/Bedjas, who share some characteristics with the present-day Bisharîn (Gauthier 1931, 184), living in the Berenike area. They are the nomads of the mines. The relationship between the Roman emperors and these restless nomads is still the same when al-Maqrîzî describes them several centuries later (*loc. cit.*). The Egyptian texts contain the figurative image of "the good Medjai of Punt", who is said to be good because he is the one with whom one can negotiate in order to exploit the emerald mines. Moreover, the words said by Horus of Edfu, a deity associated with prospecting, anchor them firmly into the tradition: "I give you the southern deserts, the Medjai, the Troglodytes carrying their tributes, their chiefs being prostrated, holding their products, smelling the earth in front of your palace" (*dj-n=j n=k ḫ3swt rsjwt Md3jw Jwn.tjw-stjw ḥr b3kw=sn wrw=sn m ḫr f3.w m jnw=sn sn-ḥr t3 r rwt-wrt=k*; Edfou I², 84.9-10).

Another epithet, "Horus who protects the road of Punt", expresses the idea of the sovereign opening up the roads and digging the wells; this epithet is particularly apt for the Roman activities in the desert.

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[15] *Geog.* XVII; Garcin 1976, 24. On the association of the Bedjas (Buja) with the mines: *ibid.*, 50-57; 51, n. 1.

Thus, on the whole, the epithets picture the emperor as the divine prospector and the good Medjai, by means of analogy and tradition, even though such epithets remained utterly fictitious.

5. Min and Pan of the Desert

Two divine forces combined their destiny in the Eastern Desert. Even though the features of the god Min are Egyptian, his name is Greek: Pan. Thus the personality of Pan of the Desert, based on concepts and religious beliefs originating from the Nile Valley, merged with that of the ancient deity from Coptos and Akhmim. In Greeks texts, the role of Min/Pan can be appreciated on the basis of the epithets.

Thus, the god is *chrysodotes*, a "gold-giving" deity; *oreobates*, "who walks in the mountains", and "Pan of the good road". These epithets do not represent translations of Egyptian expressions, even though they bear some resemblance to similar concepts, for example, the notion of *oreibasia*, which is specifically attached to Pan and which refers to "his function of protector of travellers and hunters" (Bernand 1977, 19).

The first epithet of Pan - *chrysodotes* - has a Coptite connotation;[16] it refers to the economic activity of the region, for it deals with the "gold of Coptos" coming from the Wâdi Fawâkhîr.

The area of Wâdi Semna was extremely rich in terms of mining; the Romans worked both gold and lead ore here, as well as diorite. At Semna, in the Wâdi Semna, a Paneion has been found along with a large stela, dated to year 40 of Augustus (11 CE), which demonstrates the importance of the mining works in this region. An ithyphallic figure of Min was drawn in the margins of the Greek text almost as a caricature; it reveals the close links between the figures of Min and Pan of the Desert. This inscription, found in 1897-98 by W.F. Hume (Bernand 1977, 120-21; Bernand 1972b, 81-93), cannot be omitted here. I quote A. Bernand's translation:

> "L'an 40 de César (= Augustus), le 1er (jour du mois de) Payni, à la Bonne Fortune: quand Poplius Iuventius Rufus était tribun de la légion III (Cyrenaic), commandant de Bérénice, directeur général des mines d'émeraude, de topaze, de perles et de toutes les mines d'Égypte, il a été dédié dans la Roche-aux-Serpents un sanctuaire à Pan, dieu très grand, pour

[16] Bernand 1972b, 232 (n° 158) (the El-Buwayb Paneion). This is an inscription dedicated by "Pachrates, the son of Imuthes, stoneworker, coming from Coptos" (cf. *ibid.*, 242 (n° 171); *ibid.*, 239 (n° 163) (El-Buwayb Paneion); 240 (n° 166) (El-Buwayb Paneion): inscription of a man bearing an Egyptian theophorous name: Harimouthes.

> son propre salut, par Poplius Iuventius Agathopous, son affranchi, gouverneur, administrateur et bienfaiteur de toutes les mines d'Égypte.
> Voici l'acte d'adoration de Tholémaios, curateur de la cohorte de Florus, de la centurie de Bassus, et qui a été préposé (à ce bâtiment).
> Voici l'acte d'adoration de Mersis et de Sôter, tous deux architectes, et qui ont construit ce bâtiment."

This inscription indicates the importance of Berenike - even though this was not the place where Poplius Iuventius Rufus, tribune of the III[rd] legion (Cyrenaic), "chief director of the mines and of all the mines of Egypt", was supposed to live; the desert's mining administration was based at Coptos. This situation is one of the reasons for Berenike's specific status as a district, recognised by Hadrian in 137 CE (Gauthier 1935, 193).

The well-known interest of Tiberius in the Eastern Desert and Egyptian concepts - we know of eight inscriptions dating to his reign in the Wâdi Hammâmât - are along the same lines as those of Augustus. In the Paneion of Wâdi Hammâmât and in the small sanctuary of Berenike Tiberius (Bernand 1972b, 79) subscribed to traditional Egyptian cults: he is shown presenting offerings to Min of Coptos and to "Isis who resides in Gebel Zabara" (Golenischeff 1890, 88; pl. IV, VI). Thus he guarantees the prosperity of Berenike. The recently (1995) discovered stela at Mons Porphyrites shows that Pan was also associated with the mining of porphyry (Van Rengen 1995, and Maxfield & Peacock in this volume).

The Augustus stela from Wâdi Semna has echoes in a more recent stela which probably comes from Coptos, and which concerns the nature of the trade between Coptos and Berenike. In Bernand's translation (Bernand 1977, 254) it reads:

> "Pour le Roi Ptolémée (VIII Euergetes II) et la Reine Cléopâtre (III) sa femme, Dieux Bienfaiteurs, et pour leurs enfants, Sôterichos, fils d'Ikadion, de Gortys, un des archi-gardes du corps, envoyé par Paôs, parent du roi et stratège de la Thébaïde, pour la collecte de pierres précieuses, préposé aux bateaux et devant assurer la sécurité des caravanes qui font descendre de la montagne de Coptos les cargaisons d'encens et les autres produits étrangers, (a dédié cette stèle) à Pan de la Bonne Route et à tous les autres Dieux et Déesses, la 41[e] année (du règne), le 10 (du mois) de Thot (2 octobre 130 CE)."

It is obvious that Augustus and his successors continued a traditional activity. By "montagne de Coptos" (Coptos mountain), we should probably not think of the rocky plateau to the east of the town, as stated by Bernand (*ibid.*, 259), but rather this expression refers to all mining areas which can be reached via the wadis

extending from Coptos (Hume 1937, pl. 170). It is quite clear that the expression refers to the road which leads to the gold mines of Gebel Fawâkhîr on the way to Quseir as well as to the one reaching Berenike. This very notion appears in Pliny and in the classical geographers. The notion of "massif" is closely linked to the manner of proceeding in a mountainous area via the most important wadis, then going upstream along tributary wadis to the watershed.

Let us return to the other epithets of Pan which have a lunar echo. *Oreobates* comes close to the idea of "the good Medjai who wanders through the mining districts" in the Egyptian texts. It should also be stated that the moon, regarded as a wandering star, plays a notable role in the nocturnal jaunts.[17] Indeed, one traditionally walked from station to station at night. Thus, most travellers tended to trust in a kind lunar god, walking under the moonlight which was supposed to seed the bowels of the mountain with precious minerals and metals, according to an old belief. The Paneia, the presence of which we observed in the Eastern Desert, essentially appear as diurnal resting places (e.g. Kanayis, Hammâmât, El-Buwayb, Semna); the devoutness of the travellers reveals itself there, as well as that of all those whose activities take them to the desert. Note that Pan is associated with Hermes-Thoth, who controls the lunar influences (Bernand 1972b, 246 [n° 178]). On the one hand, this deity was the god of travellers, on the other, he was also considered to be the father of Pan (Graves 1967, 88).

6. Aphrodite and Isis

Whereas Min/Pan, and to a certain extent Horus of Edfu/Apollo, were frequently mentioned in the Egyptian desert in Ptolemaic and Roman times, the name of the ancient goddess Hathor disappeared completely from those places where she was traditionally considered to be the natural owner of mineral riches. Yet, in former times, Hathor never appeared without her male *alter ego*. In the Middle Kingdom, "Horus, Lord of the Deserts", an alternative name for Min, who was closely related to Sopdu - another deity linked to the Eastern Desert and to the Sinai - formed a couple with "Hathor, Lady of the Galena".

In the temple of Dendara, she is the one who encourages the king to prospect in the desert as well as to receive what emanates from the Horus eye, and which Min is supposed to bring back to Egypt. Owners of the mineral riches, of the wonders of nature, of the shells gathered on the sea shore, Hathor and Aphrodite were as

[17] Golvin & Reddé 1987, 45 and after the testimonies of Strabo (*Geog.* XVII 45; Bernand 1972a, 51) and Pliny (*Nat.hist.* VI 26; Bernand 1972a, 52).

one.[18] The popular Greek, Roman and Egyptian beliefs united in this dual personality who was regarded as an equivalent of the moon coming back to Egypt with the features of the Distant One. They were considered as a cornucopia, the prospecting was reflected by the myths rendering the syncretisms popular at the time. The myth of Min and Hathor provides an image of the prospector searching for the beloved object, such as his own eye – the moon –, which echoes the myth of Pan and Selene (Graves 1967, 88).

It is well-known that ever since the reigns of the first Ptolemies, the rulers cast themselves in the mould of the religious thurifers. The use of Egyptian myths for their own benefit was not neglected by either the Ptolemies or the Roman emperors. They did not hesitate to play the divine roles created for them on an imaginary level. The problem of the laudatory epithets used by the rulers probably lies in these fictitious interpretations. Firmly rooted in tradition, they depict a situation referring directly to the economy. The relationship between Min of Coptos and *Isis-Hathor of Berenike[19] is a reflection of the Egyptian legend of the eye of Horus. Therefore, the road leading from Coptos to Berenike was placed under the protection of Min searching for the Horus eye in the Berenike mining area, where Isis-Hathor lived under the aspect of gold and emerald (Aufrère 1984). When the district of Berenike was created by Hadrian (Gauthier 1935, 193), the emperor probably reapplied the legend of the search for the Horus eye to benefit Antinoopolis, because Berenike and its area yielded minerals, gold, perfumes, gum resins, in short: all the products fit to adorn the beautiful Hathor and, in a Greek and Roman sense, to honour Aphrodite, lady of love and beauty.

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[18] Cf. a*Um* IX. This is shown by a stela dated to the 1st year of Trajan which records the digging of a well and the building of the surrounding wall of Hathor (Aphrodite) at the Dendara temple: Bernand 1972a, 62.

[19] This relationship between Isis and Min of Coptos is also attested at Coptos itself (cf. *Um*, 139). Isis was perhaps worshipped at Berenike: Berenike 1995, 225, 235-36. On the sanctuary: *ibid.*, 86-87.

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TERRACOTTA FIGURES FROM MONS CLAUDIANUS

Donald M. Bailey

Very few Hellenistic and Roman terracottas found in well-organized excavations have as yet been published, and little is known of their chronology. We know also little of the way that they were used by the inhabitants of Egypt, in the *metropoleis* or in the villages of the *chora*. Although no doubt purchased by both the Greek and the Egyptian members of the population they appear to reflect the interests of the latter group perhaps more than the former.

In early Ptolemaic tombs at Alexandria, Egyptian versions of Tanagra figures have been found (as Adriani 1952, pls V-VII), but the typical terracotta of the Hellenistic and Roman periods, in all its exuberant variety, known from many published catalogues of unprovenienced material, most probably came mainly from the houses of city and village dwellers, recovered from the unrecorded activities of the *sebakhin*, who destroyed ancient mounds for their nitrogen-rich fertile content. Many also were found during the activities of dealers licensed to excavate these sites at the beginning of this century and a little earlier.

The figures found in houses were regarded as protective of households and often of childbirth: they are representative of the popular religion of the Graeco-Egyptian masses, as Françoise Dunand has discussed in some detail in her publication of material in the Cairo Museum (Dunand 1979). Such terracottas have also been recovered from temples, as at Bacchias and Theadelphia in the Fayûm, where, no doubt, they were votives (Grenfell *e.a.* 1900, 37, 52; for other sites, see Nachtergael 1995, 261-63). Others, however, were buried in tombs, for example in graves at Hawara (Petrie 1911, pls XIV-XVI).

Petrie published many terracottas from his 1904 work at Ehnasiya, but of the 166 figures he illustrates (Petrie 1905, pls XLV-LIIA, LXIXA), 61 or fewer (it is not clear) came from houses to which he gives a date, and an unknown number were found in undatable circumstances or were bought from the local *sebakhin* (as were many acquired during the Egypt Exploration Fund's work at Naukratis). The dates of the houses at Ehnasiya, said to be not earlier than the third century, I suspect cannot be wholly relied upon.

During the Michigan expedition of 1928-1935, many terracottas were found in the houses and the South Temple complex at Karanis, but remained unpublished by the excavators. A useful guide to them, a doctoral thesis by Marti Lu Allen, has appeared, but relies on description alone, without illustration (Allen 1985). Only 154 terracottas were retained by the excavators, several hundred fragmentary examples being summarily recorded and then discarded; a few more from Soknopaiou Nesos are also described. The author of this study leans towards the view that most of the Nile-silt Graeco-Roman terracottas (not just those from Karanis) are products of the

Fayûm, whereas I believe that they were made in many parts of Egypt. The chronology suggested, mostly falling between the first and third centuries CE, is guided by the dates given by the excavators of Karanis to the various contexts in which they were found, but the main criterion is "an analysis of style and technical details", the normal, and so far inescapable, method used by most writers on such terracottas, for example, in catalogues of uncontexted collections, of which very many have been published in recent years (for example, Bayer-Niemeier 1988, Dunand 1990, Ewigleben and von Grumbkow 1991, Fischer 1994, Fjeldhagen 1995, Pons Mellado 1995, Török 1995).

Such terracotta figures were made into the fourth century in dwindling numbers, but still quite competently (for example, an empress statuette in Cairo, Dunand 1979, No. 106), but Christianity killed them, except for a limited repertoire including animals - horses and camels, mainly - and what are perhaps orans figures, as Török 1993, G18-28, which became common and are traditionally dated in the sixth and seventh centuries CE, but have line of development from the fourth century; many of the later examples come from workshops at Aswan.

The terracottas found at Mons Claudianus, some 61 in all, came principally from the rubbish heap, the south *sebakh*, immediately to the south of the fort, and some were found in the fort itself. I am most grateful to Roberta Tomber and Jean Bingen for supplying close context-dates for these. The necropolis and the Sarapis Temple were examined only briefly during the excavations, and a few terracotta heads (of which I have not as yet got sufficient detail or photographs to include them here) were found in the latter; the distance is such that it is unlikely that votive terracottas from the temple, discarded for one reason or another would have reached the south *sebakh*. At the fortified village of Mons Claudianus, from which most of the figures ultimately came, we have terracotta usage, therefore, equivalent to that of villages and towns in the Nile valley: they were effective for the protection and well-being of their particular owners.

The majority of such distinctive Graeco-Roman terracottas from elsewhere, coming as they have from unrecorded places, have often been regarded as of Roman date, but it is becoming more evident that many are of the Ptolemaic period, and recent Polish stratigraphic excavations at Athribis have shown for certain that several types, not just the Egyptian Tanagras, have an origin in Ptolemaic times, from at least as early as the third century BCE (see Myśliwiec & Szymańska 1992). The Mons Claudianus terracottas are incontrovertibly Roman in date, but some may descend from Ptolemaic versions. The ongoing work at Tebtunis promises to supply dated material, as Pascal Ballet has indicated (Ballet 1992, 18).

The terracottas from Mons Claudianus would have been thrown away at Karanis, such is their fragmentary nature. They have the saving grace, however, of being closely dated by meticulous excavation, the chronology of the material found with

them, and by the documentary material with which they were associated. From all this we can see that few are likely to be earlier than the reign of Trajan, and most are unlikely to be later than the Antonine period. This is most useful for those objects for which complete surviving comparanda can be recognised (or, more correctly, the comparanda benefits from the dated material from Mons Claudianus). Although it is very probable that many terracotta types were made for a considerable stretch of time, it is still valuable that we have at least some from a closely dated period, whether or not the types themselves were made before and continued to be made after that period.

The terracotta figures and objects found at Mons Claudianus and included in this paper are known to the author only from photographs and sketches: my visits to Egypt have never coincided with the opening of the magazine at Dendara. Personal examination might have enabled the recognition of some of the unidentified fragments. I will therefore show only some of more easily recognised objects.

Fig. 1.1

A head of Isis, 4.1 cm high, from an Antonine context in the fort. After Harpocrates, Isis (and figures that have been identified as Isis) is the deity most often found amongst the Greek and Roman terracottas made in Egypt. A terracotta bust of Isis in the Louvre, probably once attached to a lamp of the second century CE, is near in its facial features and hairstyle (Dunand 1990, No. 409). The head of a much earlier terracotta excavated at Athribis and dated to the first half of the second century BCE is also not unlike ours (Myśliwiec & Szymańska 1992, 123, fig. 6); it depicts a worshipper of Isis, and a likeness to Cleopatra I has been suggested.

Fig. 1.2

Here we have the upper part of a woman, 11.0 cm high, found in the dump in front of the fort, draped and with an elaborate hairstyle, ringlets falling to her shoulders, and wearing a substantial wreath. Both her hands are raised, perhaps to support a basket, broken away, on her head. She is from a Trajanic level. Most basket-bearers are nude, however, except occasionally for very low-placed drapery, and static, as, for example, Dunand 1990, Nos 485-93, so this might argue against the Mons Claudianus figure carrying a basket. However, a clothed basket-bearer of this static type from the Fayûm was once in the Fouquet Collection (Perdrizet 1921, pl. CIII, top left). A very fine basket-bearer in Hamburg has much the same sinuous pose as ours, but is again nude (Ewigleben & von Grumbkow 1991, No. 64). It is difficult to decide what these figures represent; their baskets normally hold a cobra. They give the impression of being cult-servants or of taking part in a religious procession, but their nudity seems improbable for these purposes. They may be fecundity figures linked with Aphrodite-Hathor. The most well-known basket-bearers are those of the

deified queen, Arsinoe Philadelphos, but these being the daughters of some of the most powerful Alexandrians of the Ptolemaic period, were unlikely ever to have been seen nude in public, even in a religious procession: the Roman-period naked *kanephoroi* cannot be a hangover from this Ptolemaic practice. Perhaps the Mons Claudianus figure has something in common with an example in the Louvre (Dunand 1990, No. 549), who appears to be a dancer, and seemingly clothed; she supports an Isis crown on her head: she is near rather than close to ours, but as so very often with these enigmatic terracottas, a religious rather than a secular purpose is probable.

Fig. 1.3

Although not shown clearly on the photograph, a sketch of this torso (which is 4.5 cm high) on the Excavation Register Card shows that it is wearing a body-chain; it also seems to be naked, but this is uncertain; it was found outside the fort in the south rubbish-dump, and is of the Trajanic period, although a slightly earlier date is possible. There is a possibility that it belongs to a well-known group of figures, probably connected with Hathor, who stand naked with their arms and hands close to their sides. These often wear single diagonal body-chains, but occasionally have a full body-chain. Compare Fischer 1994, No. 809 for single chains and Dunand 1979, Nos 52-3 for full body-chains. Although likely to be of first to second-century CE date, considering its find-spot, this type of figure goes back to the third century BCE at Athribis (Myśliwiec 1996, pl. XIV, 1) and no doubt elsewhere; indeed the type goes back to the Middle Kingdom (compare Reeves & Taylor 1992, 101). If the Mons Claudianus terracotta is clothed, it may be seated rather than standing and be one of the beneficent demon figures (compare Fischer 1994, Nos 961-2; unclothed figures of the seated type do not seem to have body-chains). Several fragments of these seated beneficent demons come from the site (see Figs 4-5). For this interpretation of the so-called orans figures, see Schürmann 1989, 274-5, 1043, and its discussion in Nachtergael 1995, 272-73.

Fig. 1.4

Head of a figure of a clothed woman with an elaborate hairstyle and pierced ears (5.5 cm high). It is broken from a beneficent demon figure like those mentioned above, seated and with the hands held wide to protect and bless its owner, his family and his property. The head comes from the southern rubbish-dump outside the fort at Mons Claudianus, and is Trajanic or later, within the second century. The head is close to one in Frankfurt, attached to a body to which it does not belong and which is of the fourth century CE (Bayer-Niemeier 1988, No. 261). The head also is not unlike that of a standing but naked figure in Cairo (Dunand 1979, No. 122).

Fig. 1.5

This is one of the half-dozen or so outstretched hands of beneficent demons found at Mons Claudianus, which as we have seen above can come from seated female figures, both clothed or naked, and from standing figures, often naked: most of the Mons Claudianus hands come probably from seated examples. The one illustrated, which is 4.6 cm long, comes from a Trajanic or later context; at least one other came from an Antonine deposit.

Fig. 1.6

This fragment of a standing figure, 7.6 cm high, from an Antonine-period well at Mons Claudianus is decidedly male, wearing a short tunic. Figures precisely like this have not been traced, but some, mostly servant figures, either cultic or, less likely, secular, have phalluses reaching to the ground. These include examples in Frankfurt and Tübingen (respectively Bayer-Niemeier 1988, No. 204 and Fischer 1994, No. 396). Harpocrates frequently has his glans resting on the ground, as Fischer 1994, Nos 593-94, and there is a possibility that the Mons Claudianus figure is of that deity, but I think it unlikely.

Fig. 1.7

From a Trajanic or rather later context in the south *sebakh* came a fragment of a tambourine beaten by a right hand (6.0 cm high). Nothing very close to it has been traced, but cult-servants or processional figures, probably devotees of Isis, in the Louvre are similar (Dunand 1990, Nos 522-27), as is one in Tübingen (Fischer 1994, No. 887).

Fig. 1.8

Two fragments of miniature lamps broken from terracotta figures of various deities were found in the rubbish-dump south of the fort. They are of the second century CE, Trajanic or later, and one is illustrated here (Length 4.1 cm). There are a considerable number of such figures in museum collections, and it seems very likely that they were used in household shrines: compare Bailey 1988, Q 1978 (bust of Osiris); Bayer-Niemeier 1988, No. 129 (Harpocrates), Nos 363 and 369 (Eros) and No. 379 (bust of Athena); busts of Athena with such lamps are also published in Dunand 1990, No. 15, and Ewigleben & von Grumbkow 1991, No. 75; Fjeldhagen 1995, No. 59 (Bes). It is impossible to identify the figures to which our Mons Claudianus examples were attached.

Fig. 1.9

Some animal figures were also found, including the left foreleg of a Spitz-type hound, 6.7 cm high, which comes from the southern rubbish-dump outside the fort;

its date is uncertain within the second century; other fragments of such hounds were also found, from second-century contexts. Of the illustrated example, a collar for its pendent bell survives, and a join runs up the side of the leg, continuing eventually to the tip of the ear, and it came probably from a three-piece mould, as do examples in the Louvre, where the forepart was made in one mould and the two halves of the body made in further separate moulds (Dunand 1990, No. 863-64). Most ancient terracottas come from two-piece moulds, and three-piece moulds are rare (but seemingly not for these hounds). Two moulds-parts in Cairo come from such tripartite moulds, one for a forepart, the other for a left side of two of these dogs (Edgar 1903, pl. XXVII, 32199-200. Several similar terracottas are in Frankfurt (Bayer-Niemeier 1988, pl. 111), and all but the bottom right dog were made in three-piece moulds; there is a slight possibility that the Mons Claudianus fragment comes from a two-piece mould, with the head turned to its right, as with the Frankfurt odd-dog-out, with the seam running up the left leg and continuing round the whole animal. The Spitz-hound was not the lap-dog it appears to be, but was the Sothic-dog of Isis, connected with the dog-star Sirius, the heliacal rising of which marked the first day of the year and the coming of the inundation. Isis is sometimes shown riding the hound, as Dunand 1979, No. 36, and also on coins, like one of Vespasian, where she appears in the pediment of the Iseum Campense in Rome (Turcan 1996, 91).

It is the lack of Harpocrates that is the most surprising factor amongst the terracottas found at Mons Claudianus. As mentioned earlier, Harpocrates is represented more often than any other personage in the terracottas of Hellenistic and Roman Egypt. The nearest we have to the god is perhaps part of a Trajanic-period group with a two-handled pot with a hand holding it (not illustrated). Although frequently occurring in the Nile Valley, no Bes figures were found: childbirth was only a remote possibility at such a site (although there is evidence for the existence of women there) and his presence was perhaps not required.

As has clearly been shown, the terracottas from Mons Claudianus are a pathetic lot and few in number, but they have the merit of being fairly closely dated, which is more than can be said for most of the terracottas from classical-period Egypt. They are obviously only a few of the types that reached the fort, as much of it is unexcavated, but they show that popular religion was taken seriously by some of the residents there and that such objects were felt to be worth transporting across the desert, if not as part of an itinerant trader's stock, at least personally by individuals to whom they had spiritual value and integrity.

British Museum



Figure 1. Nine terracottas from Mons Claudianus (no common scale).

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Discussion

Helen Whitehouse (Ashmolean Museum): It is interesting that the terracottas were primarily found in rubbish dumps, given their spiritual quality. How does the fact that they were discarded when broken relate to their religious value?

Donald M. Bailey: The terracottas were produced in huge quantities and were not very expensive. The ones that were repaired rather than discarded may have had greater personal value.

CULTURES MATÉRIELLES DES DÉSERTS D'ÉGYPTE SOUS LE HAUT ET LE BAS-EMPIRE: PRODUCTIONS ET ÉCHANGES

P. Ballet

1. Introduction

Les travaux, menés depuis une quinzaine d'années dans les déserts égyptiens de l'ouest et de l'est, ont mis en évidence un certain nombre de faits éclairant les modes de production des communautés humaines implantées dans ces régions marginales et leurs relations avec la vallée du Nil, le monde méditerranéen et les confins orientaux dépendant de la mer Rouge et de la zone des détroits.

Les configurations économiques, liées aux ressources naturelles et à la situation géographique de ces espaces, expliquent sinon l'opposition, du moins les différences notables existant entre le désert libyque et le désert arabique (Fig. 1).

On pourrait résumer ces divergences en quelques mots. Exploitations agricoles dans les oasis du désert libyque, Dakhla et Kharga, exploitation de carrières et voies de communication dans le désert arabique, où l'isthme de Coptos, de la boucle du Nil à Myos Hormos, joue un rôle considérable.

2. Le désert occidental: l'exemple de l'oasis de Kharga

A l'époque romaine, dans les oasis du désert libyque, le mode de fonctionnement économique le plus courant est fondé sur des exploitations agricoles, des fermes, à proximité de gros villages. Le dossier de l'oasis de Kharga,[1] et tout particulièrement celui des villages méridionaux de la dépression, nous est progressivement dévoilé grâce à l'étude des textes et aux travaux archéologiques (Fig. 2). A Kysis (Douch; cf. Reddé 1990), un gros bourg fortifié dès le Haut-Empire, voire dès l'époque ptolémaïque, et occupé jusqu'au Bas-Empire, l'étude du parcellaire agricole et des systèmes d'irrigation, entreprise par B. Bousquet,[2] a permis de détecter tout un parcellaire irrigué dans la partie basse de Kysis ainsi que dans les villages tout proches de Manâwir et de ᶜAin Ziyada, vraisemblablement dès le début de la période romaine. Kysis, chef-lieu de toparchie, constitue l'établissement le plus important de la partie méridionale de l'oasis. La récente publication des ostraca d'ᶜAin Waqfa, ou Maks Qibli (O.Waqfa), situé sur la piste menant au Soudan, complète ceux de Kysis (Douch). Ils révèlent en effet les modes de d'exploitation de la terre par système de métayage, les relations entre propriétaires, métayers, économes et agents du fisc, les tours d'eau (O.Waqfa, 14-26). Les informations livrées par les ostraca d'ᶜAin Waqfa

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[1] On consultera avant tout Wagner 1987.

[2] Sur l'organisation de l'irrigation à Kysis: Bousquet & Reddé 1994, 73-90. Un volume portant sur la géomorphologie et l'économie de l'eau sur ce même site est Bousquet 1996.

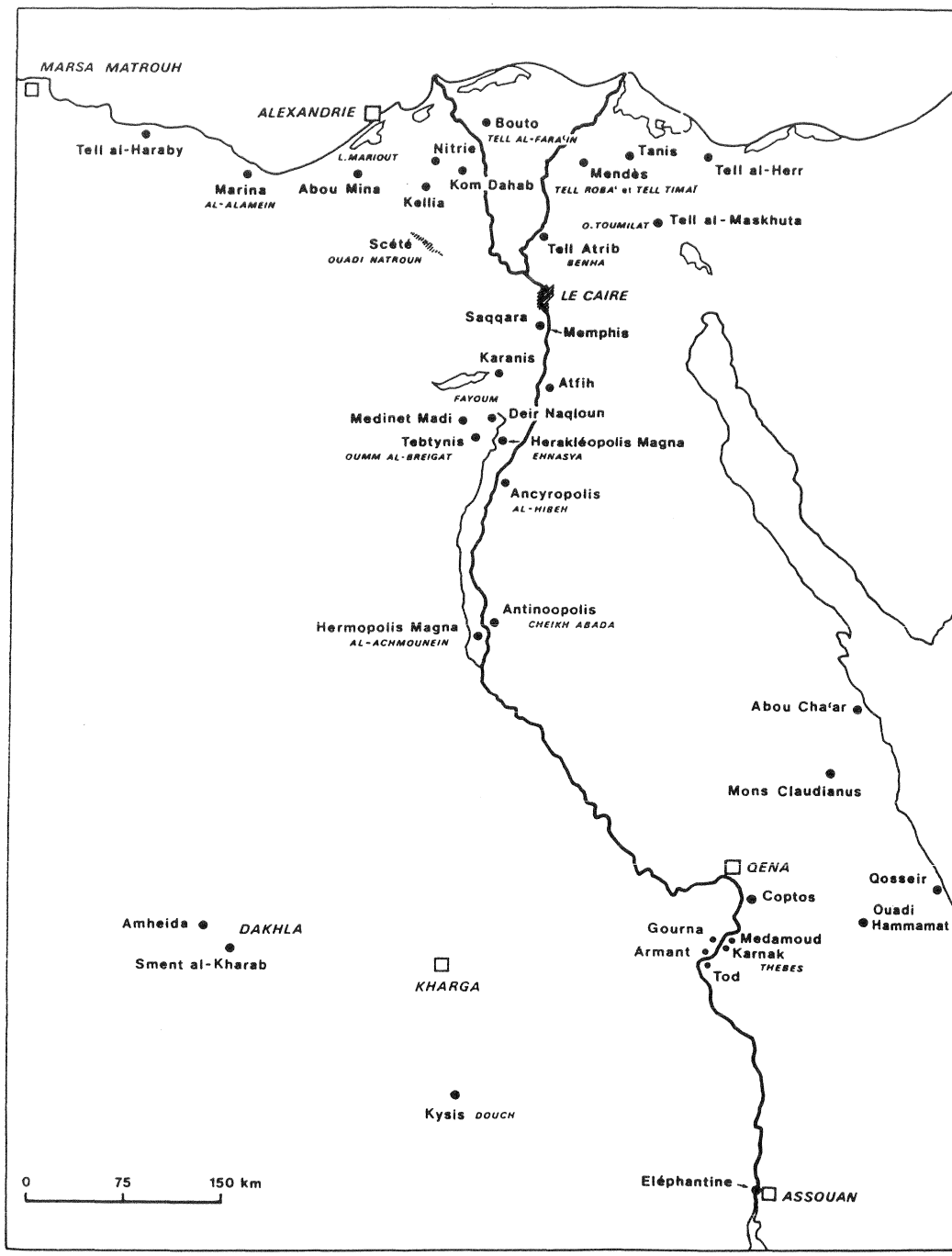


Figure 1. Principaux sites de l'Égypte romaine.

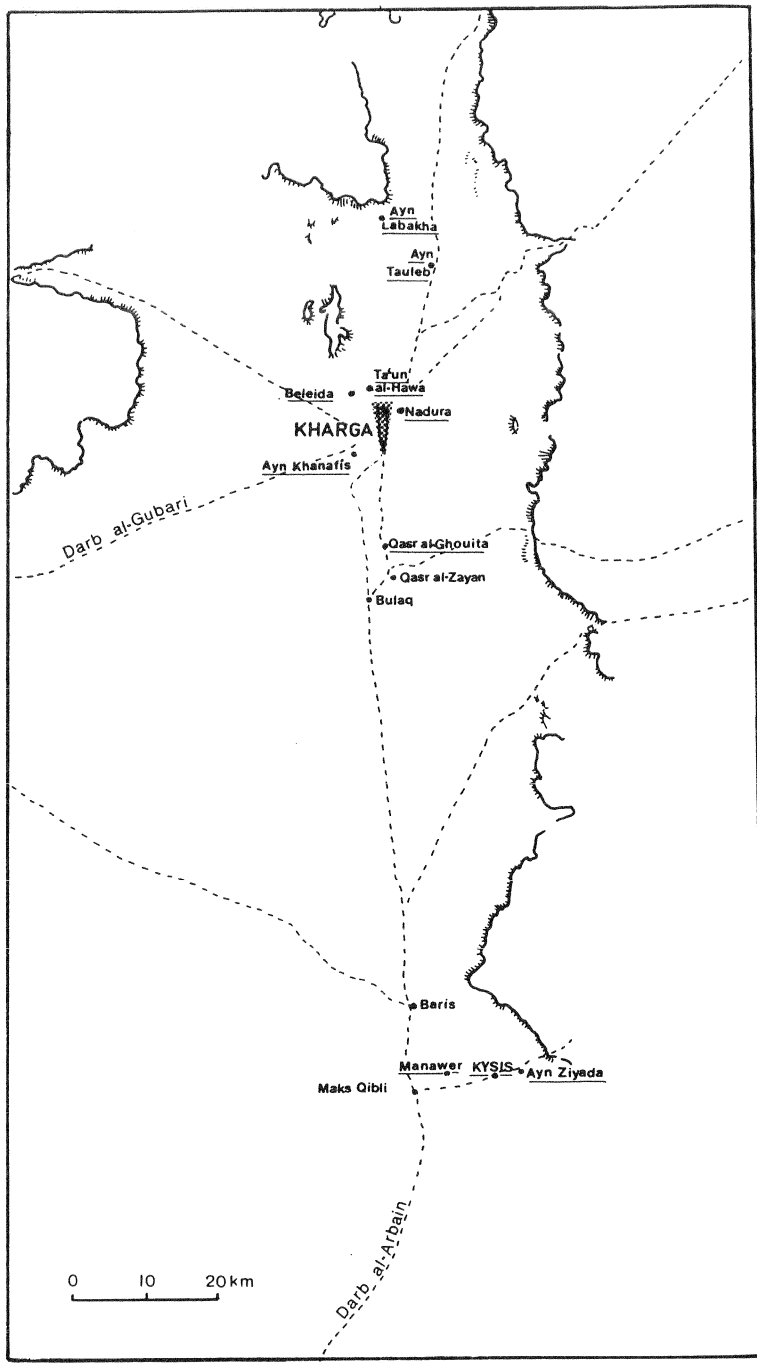


Figure 2. Oasis de Kharga. Sites d'ateliers (soulignés).

apparaissent plus riches sur la vie rurale des oasiens de Kharga que celles fournies par les ostraca de Kysis (O.Douch I-III); le contenu de ces derniers concerne avant tout, dans le cadre de l'annone militaire, des ordres de paiement, des reçus, des listes de bénéficiaires d'attribution et de militaires qui y résident (O.Douch I, VIII).

Toutefois, il ne faut pas négliger la place de l'oasis dans le réseau des communications unissant l'Égypte au monde soudano-nubien et au Darfour, dont témoignait encore récemment l'utilisation du Darb al-Arbaᶜîn, la "piste des quarante jours". L'appréciation de son rôle de redistributeur reste néanmoins une entreprise délicate, pour laquelle les preuves tangibles manquent encore.

Cette introduction assez longue aux problèmes que nous souhaitons ici présenter est nécessaire à la caractérisation des céramiques du sud de Kharga. La production y est en effet considérable; en témoignent la présence des céramiques elles-mêmes en divers contextes de Kysis et surtout les vestiges d'ateliers de potiers. A Kysis même, six secteurs d'ateliers ont été repérés, dont subsistent la semelle des fours[3] et les dépotoirs. Ils sont implantés sur les pentes nord (deux cas) et dans la dépression (quatre cas). L'un d'entre eux (atelier 1) est daté du Haut-Empire (Phase I), trois autres de la phase de transition (Phase II) du III^{e} au début IV^{e} siècle selon toute vraisemblance (Fig. 3). En revanche, aucun atelier du Bas-Empire avancé, plus précisément de la deuxième moitié du IV^{e} au V^{e} siècle (Phase III), n'a été explicitement repéré, malgré l'abondance de la céramique d'époque romaine tardive dans les niveaux supérieurs, les plus récents, de l'habitat et du "fort". Toutefois, certains signes de surcuisson semblent caractériser la céramique jonchant la surface du sommet et des pentes du tell, ainsi que nous l'avons observé lors d'une exploration menée en 1992.[4]

Du Haut au Bas-Empire, la production de Kysis[5] et des villages avoisinants consiste en céramique façonnée à partir des kaolinites locales; la texture est caractérisée par la présence de plaquettes d'argile silicifiées, abondantes dans les productions du Haut-Empire (Figs. 4-6), en quantité plus limitée à partir de la phase de transition (Fig. 7).[6] A ces productions locales, s'ajoutent, à partir du IV^{e} siècle après J.-C., d'autres groupes sans doute originaires du nord de l'oasis de Kharga, voire, dans certains cas, de Dakhla. Il s'agit d'abord des céramiques fines de la "Kharga Red Slip Ware" (Figs. 8-9; cf. Rodziewicz 1987). Les prospections de

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[3] Seul le grand four de l'atelier 2 possède encore intactes la chambre de chauffe et la sole (Fig. 3, four circulaire au deuxième plan).

[4] Mission conjointe de P. Ballet, M. Picon et M. Vichy, lors d'une enquête consacrée au repérage des ateliers du nord au sud de Kharga.

[5] On se reportera à deux brèves présentations des ateliers et de la céramique de Kysis: Ballet 1990 et Ballet & Vichy 1992.

[6] Ce type d'inclusions apparaît dès l'Ancien Empire dans l'oasis de Dakhla: P. Ballet et M. Picon, dans *Balat* III, 78-79, 117-19 (groupe 8 de la classification d'ᶜAin Asil).

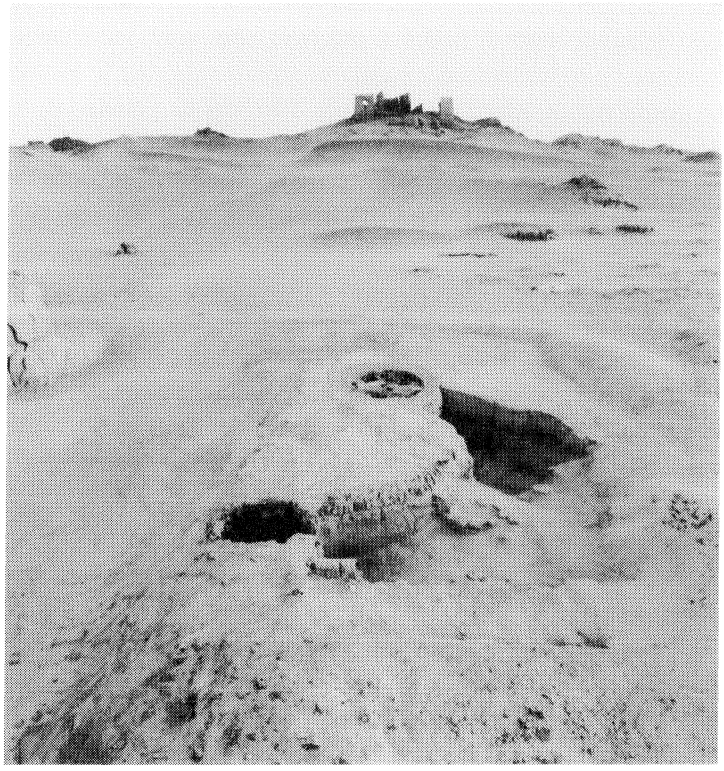


Figure 3. Kysis, versant nord. Atelier 2. Phase II (cliché A. Lecler, IFAO).

1992 n'ont livré aucune attestation certaine de production de "Kharga Red Slip Ware" dans la dépression de Kharga. En revanche, l'hypothèse d'un centre de production localisé dans l'oasis de Dakhla paraît tout à fait plausible.[7] Un deuxième groupe notable, celui des "céramiques à engobe jaune", constitué d'écuelles à décor interne d'entrelacs peints et de bouteilles vinaires (Fig. 10), serait fabriqué à Kharga. La région septentrionale de l'oasis pourrait en être l'une des zones productrices: en témoigne la céramique de l'atelier de Ta'un al-Hawa.

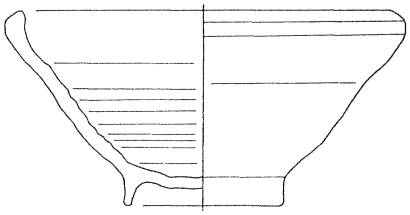
A ce tableau fondé sur l'examen de Kysis, il faut ajouter d'autres ateliers aux abords du chef-lieu de la toparchie: à Manâwir, à l'ouest de Kysis, un dépotoir d'atelier de céramique commune a recouvert, sans doute à partir des II^{e} et III^{e} siècles, la partie intime du temple d'époque perse récemment découvert par l'IFAO (Grimal 1995, 567-72; Chauveau 1996). A ^{c}Ain Ziyada également, à l'est de Kysis, des activités de potiers ont été découvertes en deux secteurs, au nord et au sud du

[7] C'est notamment la thèse défendue par C. Hope. Les données relatives aux ateliers et aux céramiques tardives de l'oasis de Dakhla sont regroupées dans Hope 1987.

village. Les datations sont difficiles à préciser; elles sont indiscutablement de l'époque romaine, avec une tendance marquée, semble-t-il, pour le Haut-Empire.

Dans la partie sud de Kharga, la présence d'ateliers de potiers est donc liée à l'installation et au développement de communautés vouées à l'agriculture et dotées d'un système d'irrigation assez complexe, certains dispositifs, tels que les galeries souterraines, pouvant remonter à l'époque perse (supra, n. 2; Grimal 1995, 567-72; Chauveau 1996).

Du nord de Kysis à ᶜAin Labakha, situé à proximité de l'accès septentrional de l'oasis, une exploration a permis d'élargir l'inventaire des ateliers (Fig. 2). Qasr ᶜAin ez-Zayân excepté, la plupart des sites comprennent des ateliers produisant pour la consommation locale. C'est le cas de Qasr al-Ghouita, de Nadoura, de Beleida, de ᶜAin Khanafis, de Ta'un al-Hawa, de ᶜAin Tauleb et de ᶜAin Labakha.[8] Ces installations artisanales se sont développées au sein de petits centres agricoles, parfois à proximité des complexes cultuels qui y prennent place.[9]



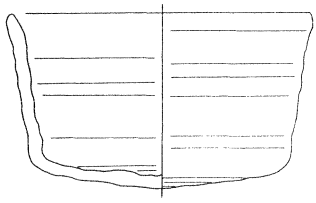


Figure 4 (à gauche). Kysis. Bol à pied annulaire. Production locale. Phase I. 1/3.
Figure 5 (à droite). Kysis. Écuelle. Production locale. Phase I. 1/3.

A certains égards, le panorama céramique révèle quelques aspects de la culture matérielle des oasis occidentales. On adopte parfois des formes très proches de celles de la Vallée, voire même du domaine égéen et nord-africain. C'est le cas des céramiques à engobe rouge, "Kharga Red Slip Ware", qui imitent les sigillées tardives de Tunisie; les bouteilles vinaires à engobe jaune possèdent des parallèles parmi le répertoire de l'agora d'Athènes aux IVᵉ-Vᵉ siècles après J.-C. Néanmoins, cette communauté de formes méditerranéennes n'exclut pas les spécificités régionales: les barillets (*sega*) (Fig. 11) remplacent les amphores, témoignant d'un

[8] Étude conjointe de l'Inspectorat de Kharga, représenté par M. Adel Hussein, et de l'IFAO, avec la participation de R. Boutros, D. Schade, G. Soukiassian et G. Wagner.

[9] C'est le cas notamment de l'un des ateliers de Beleida.

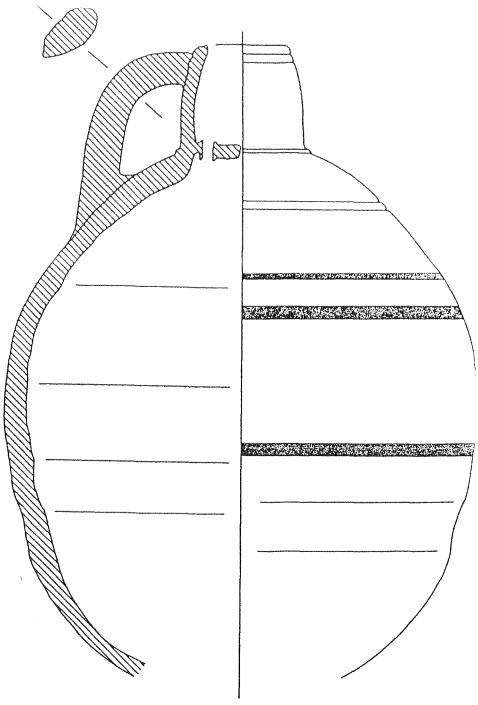
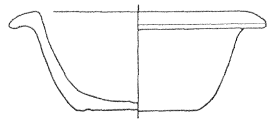




Figure 6 (à gauche). Kysis. Gargoulette. Production locale. Phase I. 1/3.
Figure 7 (à droite). Kysis. Jarre à décor peint sur engobe blanc. Production locale ou régionale. Phase II. 1/4.



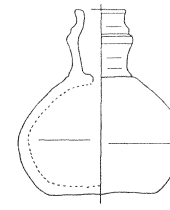


Figure 8 (à gauche). Kysis. Bol "Kharga Red Slip Ware". Production oasienne. Phase III. 1/3.
Figure 9 (à droite). Kysis. Flacon "Kharga Red Slip Ware". Production oasienne. Phase III. 1/3.

conditionnement et d'un stockage du vin propres à l'oasis.[10] Les types de décor peint, particulièrement riches et variés, évoquent par une synthèse subtile les traditions gréco-romaines et celles du domaine soudano-nubien. La céramique commune, jattes et plats, présente quelques traits morphologiques locaux, absents du répertoire de la Vallée.

Arrivons maintenant au témoignage de la céramique comme indicateur d'échanges. Dans l'oasis de Kharga, mais on peut aussi étendre l'observation à Dakhla en ayant consulté nos collègues canadiens, les importations venant d'autres régions d'Égypte, du domaine méditerranéen et du monde nubien représentent une infime fraction de la céramique. Toutefois, il faut mettre en évidence la place non négligeable qu'occupent les céramiques d'Assouan. Pendant le Haut-Empire, elles ne sont représentées à Douch que par quelques amphores du type produit dans l'atelier de l'Aga Khan, sur la rive ouest d'Assouan (Fig. 13; cf. Ballet & Vichy 1992, 114-16, figs. 10-11). Au Bas-Empire, les séries assouannaises sont plus abondantes. Petites cruches, bols, assiettes à marli (Fig. 12) et plats de grande taille sont illustrés par quelques types distribués en d'autres sites d'Égypte: il s'agit bien de produits conçus pour l'exportation.

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[10] Les *sega* sont également attestées dans l'oasis de Dakhla. Elles apparaissent dès la période pré-ptolémaïque.

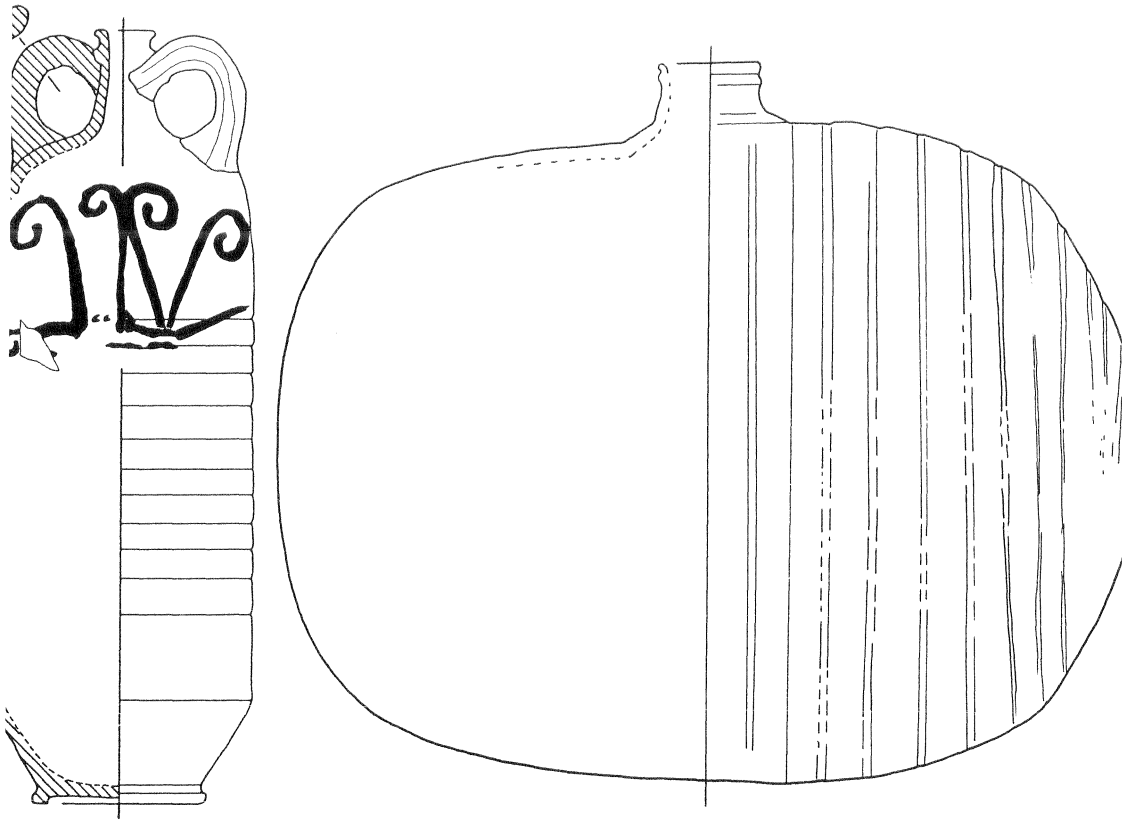


Figure 10 (à gauche). Kysis. Bouteille à "engobe jaune". Production de Kharga nord. Phase III. 1/4.
Figure 11 (à droite). Kysis. Barillet (*sega*). Production locale. Phase III. 1/4.

Une autre source d'approvisionnement est à localiser dans la Vallée, en Moyenne Égypte. Le produit concerné est l'amphore vinaire à pâte alluviale brune *Late Roman Amphora* 7 (Fig. 14),[11] que l'on retrouve également dans les niveaux les plus tardifs de Kysis. Au Bas-Empire, l'extrême sud de l'oasis n'échappe pas totalement

[11] A Hermopolis magna (Ashmunein) et à Antinoopolis (Sheikh 'Ibâda), D.M. Bailey dans: Ashmunein 1980, Fig. 35b; *ibid.*, Ashmunein 1981, 16-20; Ballet *e.a.* 1991.

à l'aire de diffusion des "Sigillées Claires D" (sigillées tardives de Tunisie) et des amphores du Proche-Orient, *Late Roman Amphora* 1, 3 et 4. Leur présence, sporadique, ne parvient pas à modifier le caractère endogène du faciès céramique de Kharga et plus spécifiquement de Douch.

En conclusion, la capacité des productions céramiques s'inscrit dans le cadre d'une économie agricole, fondée sur une apparente autarcie et animée d'échanges céramiques de faible volume. Du Haut au Bas-Empire, des ateliers de potiers sont intégrés à ce dispositif rural, témoignant d'une bonne exploitation des ressources naturelles et des moyens humains. La présence d'eau, objet d'une gestion efficace, est plus importante que l'argile, pourtant abondante dans l'oasis.

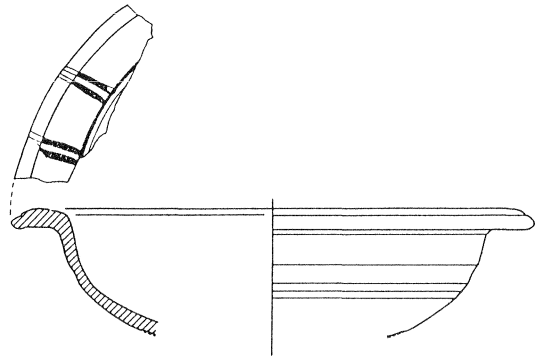
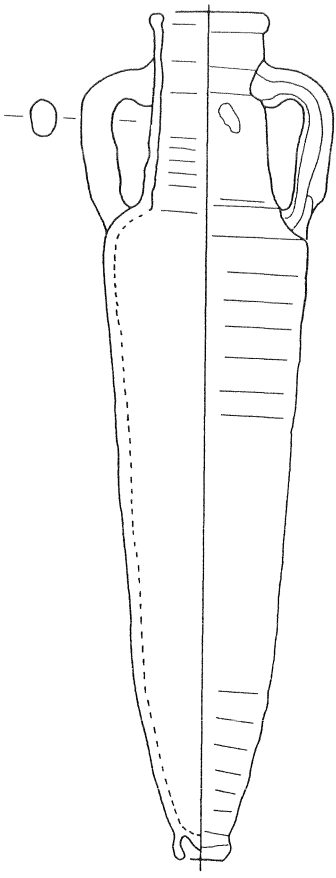


Figure 12. Kysis. Assiette à marli peint. Production assouannaise. Phase III. 1/3.



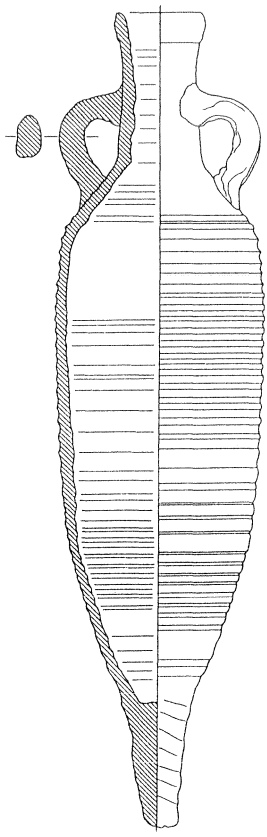


Figure 13 (à gauche). Amphore assouannaise. Type de l'atelier de l'Aga Khan. Haut-Empire. Musée Copte, Vieux-Caire. Inv. N° 8956. 1/6.
Figure 14 (à droite). Kysis. Amphore *Late Roman Amphora* 7. Production de Moyenne Égypte. Phase III. 1/6.

3. Le désert oriental

Emprunté par les caravanes effectuant la liaison entre le Nil et les ports de la mer Rouge, le désert de l'est (Fig. 15) constitue l'une des voies principales reliant le système méditerranéen au couloir maritime de la mer Rouge et à la zone des détroits, bordée à l'ouest par les pays de l'Afrique du nord-est, à l'est par les côtes de l'«Arabie Heureuse». A la suite de l'annexion de l'Égypte par Rome en 30 avant J.-C., sous le contrôle direct d'Auguste en 27 avant J.-C., les activités commerciales en direction de l'Extrême-Orient connaissent un déploiement considérable. Le Nil, le désert oriental et la mer Rouge deviennent les principaux accès à l'océan Indien, permettant de délaisser les routes moins sûres de l'arrière-pays syrien et du nord de la péninsule arabique. Les Ptolémées avaient déjà tenté de développer des bases portuaires en mer Rouge,[12] évitant ainsi, dans leurs visées lointaines, les régions sous contrôle séleucide. Les témoignages archéologiques d'époque hellénistique y sont pourtant rares: des établissements du désert oriental, si l'on fait exception des carrières du Wâdi Hammâmât, exploité de tout temps et pour lequel les travaux récents ont mis en évidence des niveaux de la fin de la Basse Époque jusqu'au Haut-Empire,[13] seules quelques céramiques hellénistiques peuvent être signalées, me semble-t-il, à Samut, située sur la piste d'Apollonopolis magna (Edfou) à Bérénice.

L'une des caractéristiques les plus notables est l'absence d'ateliers de potiers dans ces régions, dans l'état actuel de nos connaissances. Le ravitaillement en produits de base et en mobilier provient de la Vallée ou, éventuellement, de la mer Rouge (Ballet 1996, 809-40). L'origine des céramiques trouvées au désert oriental rend compte du rôle considérable joué par les ateliers de la région thébaine à la zone coptite, qui approvisionnent en grande partie les sites de carriers et les postes de surveillance.

Trois sites peuvent être mis en exergue. Le Mons Claudianus, dont la publication est en cours,[14] représente l'un des plus gros établissements romains du désert oriental ayant fait l'objet d'un large programme de fouilles et d'études: les ressources lapidaires, constituées principalement de grano-diorite, fournirent en matériaux durables les chantiers de construction du monde occidental et notamment de Rome (Peacock 1988).

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[12] Fraser 1972, 173-84, livre un tableau détaillé des échanges entre l'Égypte et les pays du sud et de l'est; Cuvigny 1987, 25-27; Sidebotham 1991, 12-38.

[13] Fouilles de l'IFAO, en 1987 et en 1988, sous la direction d'A. Gasse.

[14] Bingen 1987, 45-52; Bingen *e.a.* 1990, 65-81; O.Claud. I. Seront mentionnés ci-dessous les articles préliminaires traitant de la céramique du Mons Claudianus, étudiée par R. Tomber; on signalera dès à présent une mise au point récente sur l'approvisionnement en céramique au Mons Claudianus: Tomber 1996. L'intégralité du matériel céramique sera publiée dans un volume actuellement en préparation.

Sur la piste reliant Coptos (Quft) à Myos Hormos (Quseir al-Qadim), "l'isthme de Coptos" (Strabon, *Geog.* XVII 1, 45), al-Zarqâ est l'une des stations militaires (*praesidium*) contrôlant les caravanes qui empruntent cette route. On renverra le lecteur aux travaux récemment publiés d'H. Cuvigny, A. Bülow-Jacobsen, J.-L. Fournet et J.-P. Brun (Brun 1994).

L'occupation du Wâdi Hammâmât déborde ce cadre chronologique: la pierre de *bekhen* et les autres ressources lapidaires y sont exploitées depuis l'Ancien Empire. Les travaux, menés en 1987 et 1988 par l'IFAO, ont permis de dégager la base des parois rocheuses et d'atteindre les niveaux de sol antiques.[15] Deux périodes d'occupation ont été mises en évidence: une phase datée de l'extrême fin de la Basse Époque, voire du tout début de la période hellénistique, la seconde du Haut-Empire.

A l'époque romaine, parmi les principaux groupes importés selon toute vraisemblance de la région thébaine, figure en premier lieu celui des amphores brunes

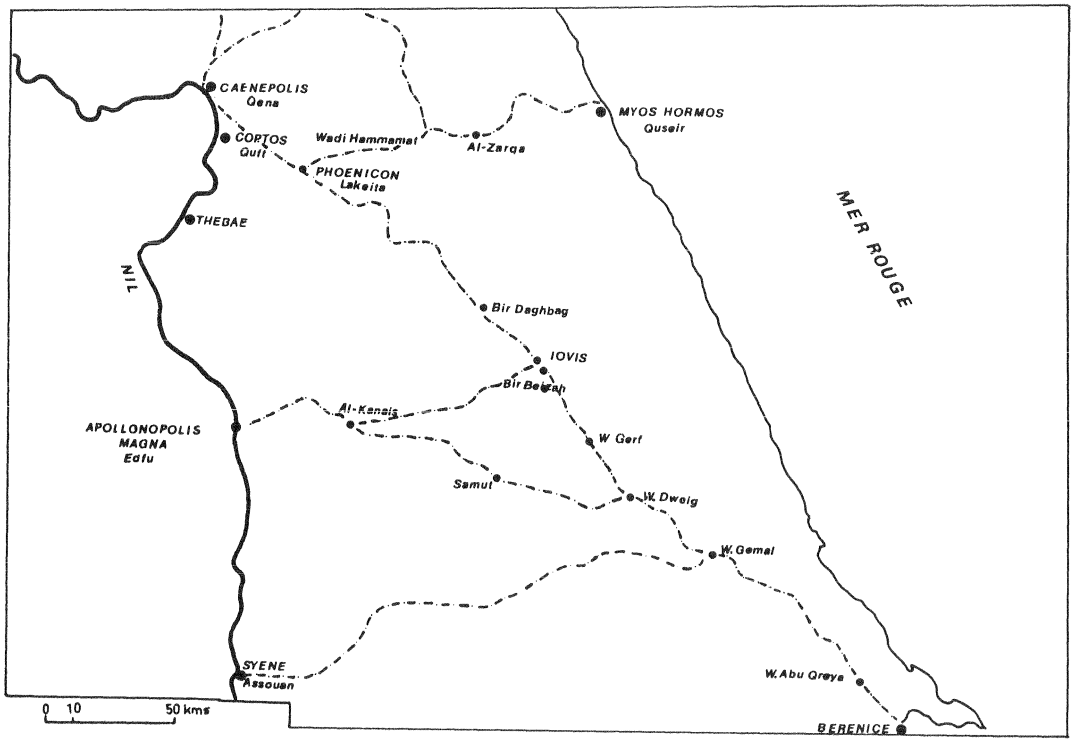


Figure 15. Le désert oriental. Principaux sites et pistes.

[15] Il s'agissait de vérifier si le niveau inférieur des fronts de taille, obstrué d'amoncellement de blocs et de gravats, portait des inscriptions.

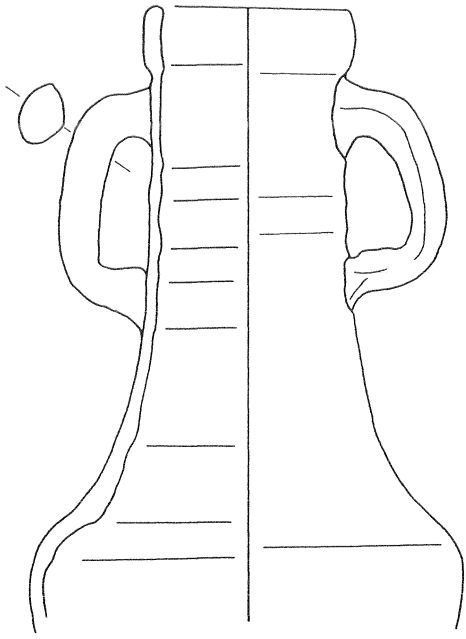




Figure 16 (à gauche). Wâdi Hammâmât. Amphore bitronconique. Haut-Empire. Production thébaine (?). 1/4.
Figure 17 (à droite). Quseir al-Qadim. Amphore bitronconique. Haut-Empire. Production thébaine (?). D'après Whitcomb & Johnson 1982, Fig. 14, g. 1/6.

bitronconiques impériales (Amphore Egyptienne 3)[16] à longue cuve lisse. Leur morphologie est similaire à celle des amphores que l'on rencontre dans le périmètre thébain, notamment dans les contextes tardifs du temple de Sethi I^er^ à Gourna (Myśliwiec 1987, nos 397-402, entre autres). On peut leur attribuer, selon toute probabilité, une origine thébaine. Elles sont largement diffusées dans les trois établissements signalés (Fig. 16) ainsi qu'à Quseir al-Qadim (Fig. 17).

Une production très spécialisée de cruches et de gargoulettes à pâte calcaire est attestée sous le Haut-Empire de Coptos à Thèbes.[17] Caractérisés par un bord plat et, parfois, par un rétrécissement du goulot interne formant filtre, ces vases à eau peuplent les réoccupations tardives, funéraires ou domestiques, des nécropoles occidentales de Thèbes. Ils constituent précisément l'un des principaux groupes thébains diffusés dans le désert oriental:[18] on les trouve dans "l'isthme de Coptos", du Nil à la mer Rouge, au Wâdi Hammâmât (Fig. 18), à al-Zarqâ (Brun 1994, 16, Fig. 8, B 50) ainsi qu'à Quseir al-Qadim (Whitcomb & Johnson 1979, 98.e, pl. 33.e). Quant à la piste méridionale menant à Bérénice, seul le Bîr Abou Qreiya en possède quelques exemplaires.

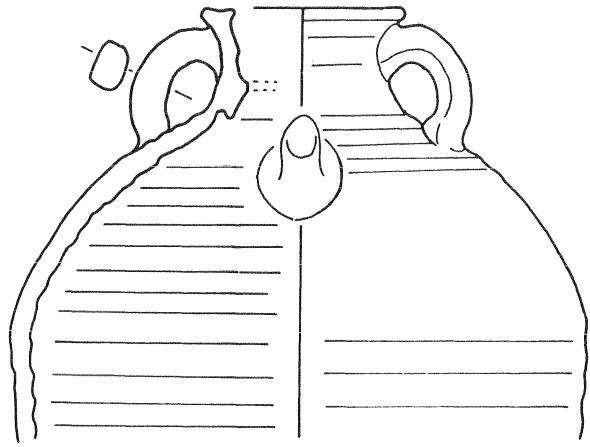


Figure 18. Wâdi Hammâmât. Cruche à pâte calcaire. Haut Empire. Production thébaine ou coptite. 1/3.

[16] Selon la classification des amphores de Maréotide établie par J.-Y. Empereur: Empereur & Picon 1989, 234-35, figs. 11-13 et Empereur & Picon 1992, 148, figs. 3-4.

[17] Gabolde & Grataloup 1988, 87, n° 5; P. Ballet dans Gabolde *e.a.* 1994, 223, n° 84.

[18] A la Basse Epoque déjà, la diffusion de conteneurs expédiés de la Vallée a été observée dans les niveaux perses et post-perses du Wâdi Hammâmât: les jarres à col court, à panse striée et à pâte calcaire relèvent de l'aire de production comprise entre Coptos et Esna.

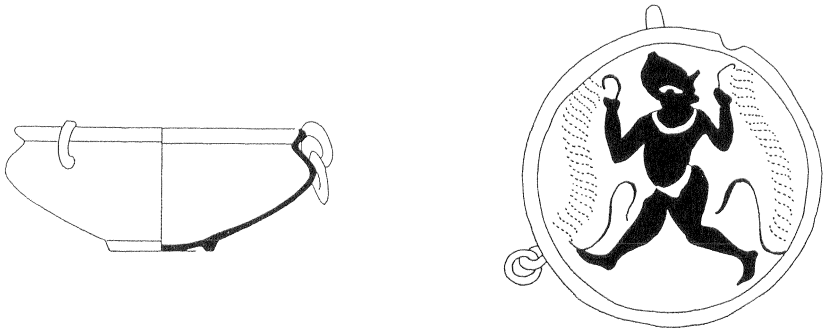


Figure 19. Céramique assouannaise. "Coupe au danseur". Exemplaire de référence. Gebelein. Haut-Empire. D'après Jacquet-Gordon 1985, Fig. 1.4, pl. II, 3. 1/3.

Une autre région productrice diffuse, en quantité notable, ses céramiques: il s'agit d'Assouan, dont les ateliers, du Haut au Bas-Empire, expédient une partie de leur céramique fine et de cuisson, ainsi que quelques amphores.[19] Le premier groupe, celui des céramiques fines, mérite une attention particulière: ce sont en effet des céramiques à décor peint, telles les coupes au "danseur" (Fig. 19),[20] qu'illustre un exemplaire trouvé à Quseir al-Qadim, tandis qu'à al-Zarqâ une variante présente une tête stylisée peinte sur le fond interne (Brun 1994, 20, P 1, Fig. 11). Un autre groupe de céramique fine, les bols à décor de barbotine, est attesté en divers secteurs du désert oriental jusqu'à Quseir. On peut y voir la diffusion de produits, sinon de luxe, témoignant du moins d'une certaine qualité de la demande.

Il faut enfin signaler la présence d'amphores Dressel 2-4 à anses bifides produites par les ateliers du lac Mariout. Elles sont attestées au Mons Claudianus (Tomber 1992, 140-41) et sur la piste de Lakeita à Bérénice.[21]

En dépit du trafic caravanier unissant la Vallée aux ports de la mer Rouge et du poids économique joué par les sites miniers, les importations méditerranéennes sont limitées: les études effectuées par R. Tomber et J.-P. Brun, portant respectivement sur le Mons Claudianus et sur al-Zarqâ, celles que j'ai menées au Wâdi Hammâmât revèlent la part réduite des importations, représentant environ de 1 à 5%, voire

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[19] Au Wâdi Hammâmât est attestée une amphore assouannaise du type de l'atelier de l'Aga Khan: Ballet & Vichy 1992, 114-16, figs. 10-11.

[20] Sur le groupe des coupes au "danseur", Jacquet-Gordon 1985, 409-17; j'en ai précisé l'origine dans Ballet 1996, 814.

[21] Céramique collectée sur la piste de Lakeita à Bérénice, lors d'une mission d'exploration menée par M. Reddé, J.-Cl. Golvin, A. Hagazy et M. el-Soghayar. J'en ai effectué un examen préliminaire à la demande de M. Reddé.

moins, du matériel céramique collecté. Le matériel recueilli de Lakeita à Bérénice, la piste méridionale, reflète la même indigence des importations méditerranéennes.

La faiblesse des importations ne diminue en rien la place du désert oriental dans le commerce international. La présence de céramique importée ne constitue pas, certes, le seul indice du volume et des mouvements commerciaux transitant par le désert de l'est. Toutefois, les fouilles américaines de Quseir al-Qadim, au débouché de la piste de Coptos et principale tête de pont en mer Rouge en direction de la zone des détroits, de la Corne de l'Afrique et de l'océan Indien, ont livré un échantillonnage de céramiques non égyptiennes plus large et plus abondant que dans le désert arabique proprement dit. Elles soulignent le rôle de Myos Hormos au cœur du grand commerce de l'Orient, de l'Afrique et de leurs confins.

4. Le port antique de Kanê (Yémen)

L'étude des céramiques de Kanê (Yémen) a permis de prolonger la réflexion portée sur le désert oriental égyptien au delà des côtes de la mer Rouge (Fig. 20; cf. Ballet 1996, 822-29, figs. 24-30). Elle a confirmé, par quelques modestes témoignages, le rôle de l'Égypte dans le commerce de longue distance.[22] Le port antique de Kanê (Bîr ᶜAli), sur la côte sud-yémémite que baigne l'océan Indien, favorablement situé sur la route Rome-Inde, est signalé parmi les *emporia* du Périple de la Mer Erythrée. Il fait également fonction d'entrepôt de l'encens, recueilli au royaume d'Eleazos, dont il est le principal redistributeur.[23]

La variété des importations céramiques, occidentales et orientales, constitue un témoignage archéologique de premier ordre, confirmant ainsi son rôle de transit et d'escale au sein du grand commerce unissant l'Occident au sous-continent indien. Les données archéologiques permettent de restituer trois principales phases d'occupation, du début du Haut-Empire à la fin du VI^{e} siècle, voire jusqu'au début du VII^{e} siècle après J.-C.

Pendant la première phase, le Haut-Empire, des importations sont originaires du monde italique: on y trouve notamment des sigillées du groupe arétin ainsi que des amphores Dressel 2-4 de Campanie. De l'Égée et de l'Asie Mineure proviennent des amphores et, plus rarement, quelques céramiques fines. La présence d'*Eastern Sigillata* traduit bien la diffusion des céramiques fines du Proche-Orient aux premiers

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[22] Missions conduites en 1994 et en 1996, intégrées aux programmes scientifiques financés par la Maison de l'Orient Méditerranéen, dans le cadre de la fouille de Kanê (Bîr-ᶜAli) menée par l'Institut d'études orientales de l'Académie des Sciences de Moscou, sous la direction d'Alexander Sedov. Sur une présentation générale du site: Sedov 1992. La préparation du volume consacré à la fouille de Kanê est en voie d'achèvement.

[23] Casson 1989, § 27, p. 67. Sur la myrrhe et l'encens sud-arabiques, voir la récente mise au point de Amigues 1996, plus spécialement, 674-75.

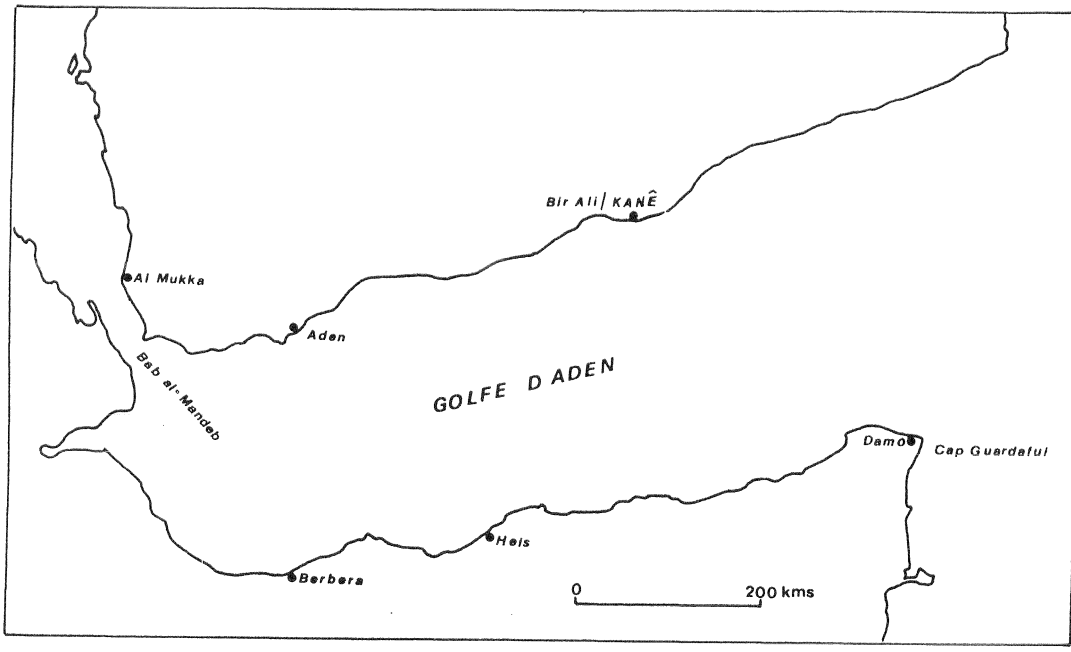


Figure 20. La zone des détroits, de la mer Rouge à l'océan Indien.

siècles de l'Empire. On mettra ici plus particulièrement en exergue les importations égyptiennes.

Sans pouvoir les situer avec précision pendant la période impériale (I^er^ au III^e^ siècle après J.-C.), les amphores égyptiennes sont représentées par le type à anses bifides, dérivé des Dressel 2-4 campaniennes ou des amphores de Cos. On connaît un centre producteur égyptien, celui de Maréotide, déjà signalé à propos des approvisionnements du Mons Claudianus (Tomber 1996). Or, la pâte assez foncée des amphores égyptiennes de Kanê est plus proche des argiles alluviales que des argiles calcaires du Mariout. Il faut soit attribuer à l'Égypte d'autres ateliers de Dressel 2-4, à ce jour non identifiés, soit reconsidérer l'échantillonnage des argiles dans la région du Mariout.

Le lot de Dressel 2-4 égyptiennes est complété à Kanê de quelques amphores bitronconiques (Amphore Égyptienne 3), à pâte alluviale brune micacée. On ne peut, en l'absence d'analyses chimiques, leur attribuer une origine précise, plusieurs ateliers égyptiens ayant produit ce type d'amphore (cf. *supra*); toutefois, les exemplaires de Kanê (Fig. 21) sont extrêmement proches des conteneurs de Haute-Egypte largement diffusés, nous l'avons vu, au désert oriental (Figs. 16-17).

La présence d'amphores égyptiennes à Kanê[24] apporte un éclairage nouveau sur la diffusion des amphores en direction de l'Extrême-Orient. Les types bifides d'Arikamedu avaient été, jusqu'à présent, classés selon deux origines probables: un groupe, sinon coen, du moins égéen et un groupe italique (pseudo-coen).[25] Les données de Kanê permettront sans doute de reconsidérer la question et d'accueillir peut-être au sein des importations "occidentales" de la péninsule indienne des amphores égyptiennes, non signalées à ce jour.

Parmi les importations égyptiennes recueillies dans l'emporion de Kanê, figurent quelques exemplaires de cruches à pâte calcaire, en tout point identiques aux productions de la région thébaine, régulièrement diffusées au désert oriental sous le Haut-Empire (Figs. 16-17). On peut sans doute leur attribuer une fonction de récipient individuel, puisqu'il s'agit de vases à eau, accompagnant les transitaires et les marins.

Enfin, la présence de quelques céramiques fines d'Assouan (Fig. 22) traduit bien l'intense diffusion que les céramiques kaolinitiques de la première cataracte connurent sous l'Empire romain. On trouve également à Kanê un type de cruche ou de bouilloire assouannaise, l'un des principaux produits des ateliers de la première cataracte exportés en Égypte. L'inventaire des céramiques d'Assouan en dehors de la Vallée serait à entreprendre de manière systématique: attestées sur la côte du Nord-Sinaï et en quelques points de la côte levantine, elles prennent place, désormais, parmi les produits ponctuant les sites de transit et les ports des confins orientaux du bassin méditerranéen.

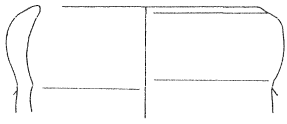




Figure 21 (à gauche). Kanê. Col d'amphore égyptienne bitronconique. 1/3.
Figure 22 (à droite). Kanê. Céramique fine d'Assouan. 1/3.

Ces différentes attestations concernent avant tout les deux premières phases de Kanê, même si l'on observe la présence d'amphores *Late Roman Amphora* 7 égyptiennes pendant la phase III, datée du Bas-Empire tardif. Il ne s'agit pas de conclure au

[24] Ces Dressel 2-4 égyptiennes sont expédiées en Italie au premier siècle de l'Empire; elles sont également attestées, mêlées aux productions locales, dans l'atelier de Yumurtalık, sur la côte sud-est de la Turquie: Empereur 1986, 606; Empereur & Picon 1989, 228-29.

[25] Lyding Will 1991, 151-53; Warner Slane 1991, 204-05.

déclin du dispositif commercial de l'Égypte: la plupart des vases-conteneurs identifiés à Kanê, *Late Roman Amphora* 1 et 4, ainsi que l'amphore dite d'Aqaba ont sans doute été acheminées par le désert oriental ou par cabotage en Mer Rouge. Les deux premiers produits sont eux-mêmes largement représentés en Égypte même.

Les informations relatives aux céramiques égyptiennes de Kanê ne sont pas négligeables: elles confirment la place du système fluvial nilotique et du désert arabique d'Égypte dans le commerce de longue distance vers les régions lointaines de l'océan Indien.

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EXCAVATIONS AT 'AIN AL GADIDA IN THE DAKHLEH OASIS[1]

Kamel Bayumi

This paper deals with a part of Egypt situated about 1000 km away from Cairo, that is, the oasis of Dakhleh. The oasis contains many archaeological remains which go back to the Roman and Byzantine periods, more precisely to the fourth and fifth centuries CE. The archeological site of Ismant al-Kharab is situated in this region and most of its remains can be traced back to the fourth century CE. The Dakhleh Oasis Project has been working at this site and their activities have brought to light many architectural remains and artifacts. Other archeological sites that belong to the fourth and fifth centuries CE in the Dakhleh Oasis are Buyût al-Quraysh, Amheida and 'Ain al-Gadida.[2] The latter site is the subject of this paper. First I would like to provide a brief background to the Byzantine period.

The formal advent of Christianity may be dated to the days of Emperor Constantine, when the Roman empire accepted Christianity as the official state religion. Of course, the Christian creed had appeared earlier in Roman history. It had already appeared during the reign of Emperor Nero in the year 52 CE, but at first the new creed met with fierce persecution, especially when Emperor Diocletian ruled the Roman state (from 284 CE onwards). The Christian creed suffered Roman persecution until the year 323 CE when Constantine made Christianity the official state religion. Constantine's reign marks the beginning of the Byzantine Empire. During this period the empire was divided into two parts.

Egypt formed part of the eastern Roman empire with its capital at Byzantium. The Coptic Christians, however, despised the Byzantine doctrine and refused to give up their own creed. The Coptic patriarchs and the Byzantines engaged in a theological struggle. Under these conditions and as a result of the new persecutions many Coptic Christians fled to the Egyptian oases where they founded new towns, monasteries and churches. Among these was the site of 'Ain al-Gadida.

The site of 'Ain al-Gadida contains one of the oldest Christian buildings, the foundations of which date back to the fourth century CE. First of all, however, I must describe its location in the Dakhleh Oasis. It is located 3 km north of the village of al-Ma'sara, to the west of Ismant (cf. map on p. 148).

After serious examination, it was decided to start excavations at this spot. Previously, it was not known whether the hills at the site were natural hills or

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[1] The original conference paper was translated from the Arabic. It has been revised for the present publication by the editor.

[2] (Editor's note:) The cemetery of Buyût al-Quraysh was designated 31/420-B10-1 by the Dakhleh Oasis Project (Mills 1982, 98, pl. 10b); The huge town site Amheida bears the number 33/390-L9-1 (Mills 1980, 271-72, pl. 14), its cemetery the number 33/390-K9-4 (Mills 1980, 269-71, pl. 13).

whether they covered antique remains. We decided to excavate in order to find out because this site had never been thoroughly investigated before and it was unknown to many. The excavations started after we were granted permission by the Supreme Council of Antiquities. In my capacity as inspector of antiquities I delineated the location for excavation. The site consists of five hills and we decided to begin our work on the largest hill.

We commenced in the spring of 1993 and the work lasted for three months. During that time we systematically excavated this part of the site. The result of our work was that within this very brief time we acquired a better knowledge of the place. Our activities demonstrated the existence of a housing unit. We found a complex of chambers of mudbrick (unfired bricks). We also found demarcations of corridors, entrances and wall cupboards around the rooms. The excavations during this season did not provide us with hard proof of whether the complex belonged to a town, a monastery or a church, because the chambers and the walls we excavated were built on an unsystematic plan and were not connected with each other.



Figure 1. 'Ain al-Gadida, general view of the excavations from the southwest (photo by O.E. Kaper).

During the season of 1994 we recommenced our excavations and our main task was now to find out more about the building itself. Again the work lasted for three months. Other chambers were excavated, but again it was not clear from the plan what its function could originally have been. This time we found ovens for bread and for the preparation of other food, as well as granaries. This shows that many people lived in this place. The find encouraged us to continue and more systematic research was undertaken at the centre of the site. As a result of these new works we uncovered a large chamber of 10 x 3 m. This chamber is surrounded by arched wall cupboards and it is completely plastered with white gypsum plaster. The chamber also has some benches (mastabas) along its walls. It opened onto a large separate suite of five rooms, a hall, and corridors separating the rooms. This implied to us that the building as a whole belonged to an important person, and that the large hall must have been a gathering place. We concluded at the end of this season (1994) that the site had been a town, even though other people held different opinions.

There were almost as many opinions as there were visitors to the site. Dr Colin Hope (lecturer in archaeology at Monash University, Australia), who is in charge of the work at the site of Ismant al-Kharab in the Dakhleh Oasis, stated during his visit to 'Ain al-Gadida that the site as excavated so far could be a complex linked to a monastery, if not a monastery in itself. He based his opinion on the fact that there is no visible church, but that the chambers are often attached to each other. The buildings would have been erected to serve a central monastery, supporting the activities in these buildings. The unsystematic plan of the buildings could be explained by the hypothesis that new arrivals to the monastery required new buildings to be added next to the existing ones.

The antiquities inspector Ashraf al-Sayyid, during his visit to the site, argued that the buildings must have been a housing complex, built during the fourth and fifth centuries CE, and not a monastery, because there is no evidence in the building plan to identify it as a monastery. There are many differing opinions about the identity of the place, therefore it is important to continue the work of excavation. Although I believe that Colin Hope's theory is closer to the truth, a final conclusion about the identity is not yet possible.

During the season of 1995 we again continued our work. Once more the excavations lasted for three months, and this time our efforts resulted in more specific information. It became clear that the spot we were excavating was a separate housing unit with four chambers and adjoining rooms. However, we assume that this house formed part of the monastery as a whole, which was supposedly situated at the centre of the site. The house was built without windows for light, and it was covered with a barrel-shaped vault. We think that this unit was not constructed independently, and that it served other purposes than residence. The adjoining rooms and the equipment provide proof of the same. For example, in chamber 5 (one of the

adjoining rooms) we found three ovens, which proves that this place served the purpose of the central kitchen. The monastery must have been quite large, as is indicated by the existence of no less than three ovens. These elements incline us to believe that there was indeed a monastery at 'Ain al-Gadida.

It seems that the site of the initial excavations contained the adjoining buildings of the monastery. Its unsystematic and random plan indicates that the buildings were joined on later; as the number of inhabitants grew and the number of visitors to the monastery increased, thus supplementary chambers were added to house them.

During the excavations ceramic artefacts were found comprising cooking pots, plates and lamps, all to be dated to the fourth and fifth centuries CE.

The principal material used at this site is mudbrick. The buildings were covered with barrel-shaped vaults. A comparison of the site of 'Ain al-Gadida with the site of Ismant al-Kharab (where the Canadian mission is working under the direction of Dr Colin Hope) shows important similarities. The building methods used are the same, the materials used are the same, and the artefacts found at 'Ain al-Gadida are similar to those found at Ismant al-Kharab. As we know, the buildings at Ismant al-Kharab date to the fourth century CE.

During future seasons at 'Ain al-Gadida, we hope to find clear indications which will allow us to establish for certain the purpose and the date of foundation of the buildings.

Supreme Council for Antiquities
Dakhleh and Farafra Inspectorate, Islamic Section

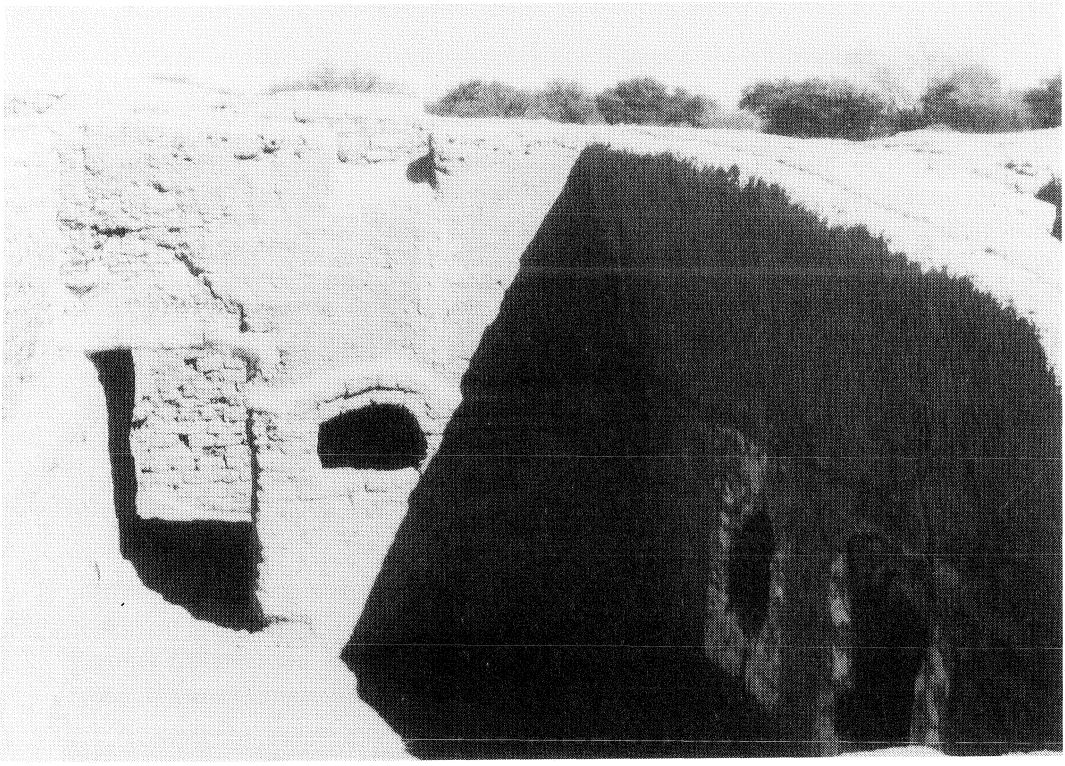


Figure 2. 'Ain al-Gadida, view of a vaulted room seen from the south (photo by O.E. Kaper).

Postscript by Olaf E. Kaper (Dakhleh Oasis Project)

The site excavated by Mr Kamel Bayumi for the Supreme Council of Antiquities (S.C.A.), Islamic section, between 1993 and 1995 had been previously surveyed by the Dakhleh Oasis Project in November 1980. It received the D.O.P. site number of 31/405-N3-1, and a brief description by A.J. Mills was subsequently published in the *Journal of the Society for the Study of Egyptian Antiquities* (no. 11, 1981, p. 185). Its true significance was not recognised at that time, but after the more extensive excavations undertaken by the S.C.A. a better picture can be formed.

The information gathered at the site by the Dakhleh Oasis Project in 1980 comprises the following. The site consists of a series of small mounds, the northernmost of which is the largest, measuring *c.*120 x 60 m. This hill is situated next to a well (the "'Ain el-Gadida"). Several adjacent complexes are visible on the surface of the mound comprising *c.*145 rooms. During the survey, A.J. Mills noted that many of these rooms "seem to belong to a single building, others of which seem to divide off into smaller units of half-a-dozen rooms, separated by narrow lanes or passages". The preservation is up to 3 m. in height.

One room was tested during the survey of 1980, located in the southeastern corner of the largest mound. This room measured 6.20 x 2.30 m, and its preservation was up to 2.80 m in height. It had white-plastered walls and a vaulted ceiling. A niche was located in the room's rear wall, slightly left of centre. Most probably the same room was excavated again curing the recent work by the S.C.A.

There is no reason to assume a correspondence with two villages in Dakhleh, called 'Ain Gadid al Bahariya and 'Ain Gadid el-Qibliya respectively, as recorded by Ibn Duqmaq in the fourteenth century (Osing 1986, 71), because no such recent material has been found at the site.

References

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Osing. J.

1986 "Einige Notizen zu den Oasen", *Göttinger Miszellen* 89, 67-75

Discussion

Colin A. Hope (Monash University, Melbourne): I would like to explain why I suggested that the mound at 'Ain el-Gadida contains a monastery. The ceramics that were found at the site may be dated to the fourth into the fifth centuries CE. The part of the mound which was excavated has a nucleus, partly explored, surrounded by a series of small chambers. The ovens are concentrated in one part and look as if they formed part of a central bakery. The structures in the central mound do not resemble fourth century houses, such as those at Ismant el-Kharab (Kellis). The site, however, may well have been associated with Kellis, as there are some textual references to wells in the neighbourhood of Ismant el-Kharab, and 'Ain el-Gadida is a well site (*hydreuma*). In all, the site looks as if it once was a monastic settlement, consisting of a central building complex, surrounded by small house units. We know that Christianity and Manichaeism were flourishing in fourth century Dakhleh, and documents from Kellis do refer to monasteries in the area. It should also be added that two ostraca and some coins were found during the recent excavations at 'Ain al-Gadida which have not yet been studied.

Gawdat Gabra: More research should be carried out at this site. In order to support and strengthen the work by Egyptian missions such as the one excavating at 'Ain el-Gadida, a department of Coptology should be established at an Egyptian university. This was also the wish voiced by the Coptologists who gathered at the International Congress of Coptic Studies in Münster in July 1996.

René Cappers (Groningen University): Were the monasteries in Egypt self-supporting? And what about 'Ain el-Gadida?

Olaf Kaper (NIAASC): As far as 'Ain el-Gadida is concernced, this may well have been the case, as there certainly was agricultural activity in the immediate surroundings. Perhaps the four other mounds at the site, which have not yet been excavated, will reveal agricultural dwellings.

Colin Hope: The area is currently covered completely by modern cultivation, so it is difficult to determine whether the traces of field systems are current or ancient. There are also few surface artefacts. Nevertheless, in terms of food there must have been plenty of possibilities for a monastery to be self-providing.

Addendum to the discussion by C.A. Hope (1998):

The existence of one or more monasteries in Dakhleh during the fourth century is indicated by several references in Greek and Coptic documents from Ismant el-Kharab. In the Kellis Agricultural Account Book, dated either 361/2 - 363/4 or 376/7 - 378/9, there is reference to *Topos Mani*, which probably is a Manichaean monastery.[3] A further reference in Greek occurs in P.Kell.Gr. 12.[4] This text tells us that a certain Tithoes has gone to the monastery to learn weaving. A Coptic letter, P.Kell.Copt. 12, from the same context as the latter (House 2), from Tithoes' father Shamoun, confirms that Tithoes, the grandson of Tithoes, and son of Shamoun, has gone to the monastery.[5] Another unpublished Coptic document (reg. no. P93.85) may contain an additional reference to a monastery. G. Wagner has pointed out that the etymology of the name of the village of Teneida at the eastern end of Dakhleh is probably to be found in the Coptic word for monastery.[6]

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[3] Cf. R.S. Bagnall, *The Kellis Agricultural Account Book (P.Kell. IV Gr. 96)*, Oxford 1997, 81-82 for discussion.

[4] K.A. Worp, *Greek Papyri from Kellis: I*, Oxford 1995, 35-38.

[5] I. Gardner *e.a.*, *Coptic Documentatry Papyri from Kellis: Volume 1*, Oxford, forthcoming; I. Gardner, "'He has gone to the monastery..'", in: Proceedings of the 1997 International Association of Manichaean Studies Conference, held in Berlin, forthcoming.

[6] G. Wagner, *Les Oasis d'Égypte...*, Cairo 1987, 196.

TRAFFIC ON THE ROADS BETWEEN COPTOS AND THE RED SEA

Adam Bülow-Jacobsen

The excavations of Al-Zarqâ and Al-Muwayh are part of a project whose aim is to describe the installations on the road from Coptos to Myos Hormos (Quft - Quseir) and to understand how it, and they, functioned.[1] The following paper is to be understood as a preliminary report, mainly for the use of others who are working in the Eastern Desert. A proper report on our survey will be published in the near future, with the publication of the ostraca taking a little longer. I am thus faced with the problem of referring to unpublished texts and have chosen to do so in the form of inventory numbers preceded by M(aximianon) and K(rokodilo) for what will eventually become the O.Max. (from Al-Zarqâ) and the O.Krok. (from Al-Muwayh). Although the reader will not be able to check these references, he will at least be able to see that there is specific textual evidence behind a statement.

Since the best way to get to know a story is to read it, we have first and foremost excavated where we were likely to find texts, which in the Eastern Desert almost invariably means ostraca, but stations that were unlikely to yield texts were also probed. Between them, Maximianon and Krokodilô have yielded us over 2000 ostraca, mostly in Greek, but some in Latin. Most of them are letters, but guard lists and official circulars have also emerged from the rubbish dumps.

The question I have chosen to ask in this paper is: What were the transportation needs on this road in antiquity and how were they provided for? The archaeology is not very communicative on the subject. Desert roads in antiquity were usually just trails, and desert trails only stay visible until they are covered by sand or disturbed by another type of traffic, most often the modern road. The only tracks remaining from antiquity in the Eastern Desert that I know of are the very broad ones found by Meredith and seen again by both Peacock and Sidebotham. A piece of cobbled road at the mouth of the Wâdi Qatar seems to be modern.

In order to find out what means of transportation were used we have to turn to the texts that have in recent years come out of the Eastern Desert in great numbers. These texts first of all tell us that there was regular communication between the quarries and the stations, and between the latter and the valley. At Mons Claudianus, and undoubtedly at Mons Porphyrites too, stonemasons went on leave from time to time, and once a month the *kibariates* went down to the valley (See Cuvigny 1996, 140). Further, we sometimes hear of a προβολή (*probole*) bringing both people and

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[1] The project is being carried out by Hélène Cuvigny, Jean-Pierre Brun, Michel Reddé, myself, and others, and is supported by the Institut Français d'Archéologie Orientale, Cairo, and the French Ministry of Foreign Affairs. Since this paper was read another, final, campaign has taken place at Al-Muwayh. The total number of Greek and Latin ostraca is now approaching 2500.

goods, and not least letters.[2] *Probole* means an advance party of cavalry, but in our context I suppose it must be a patrol or perhaps the cavalry escort for the caravans and wagons. There was also the caravan, the *poreia*, that brought provisions. This must have been regular in an irregular way, inasmuch as people expected it without knowing exactly when it would arrive (See O.Claud. II 242, 245). Most importantly, for heavy stuff there were the wagons, the *hamaxai* which came out loaded with necessities and went back loaded with the stone that was the object of the exercise.[3] We know something about these wagons, but not everything. The greatest problem I shall leave to one side, namely which animals pulled them. Peacock has calculated that they could be pulled by donkeys or mules if there were enough of them, but several hundred would have been necessary. Oxen seem to be ruled out by the complete absence of bovine bones and textual references to these animals. Camels are not ideal draught animals because of their height, but are a possibility. Humans cannot be ruled out either, and would be preferable from the point of view of organisation. The often quoted P.Giss. 69 describes a great many κτήνη = draught-animals in danger of getting stuck on their way between Mons Claudianus and Qenâ due to lack of fodder in 118/119 CE (See Theodore Peña 1989). Thus, in this case at least, they were not humans. What we do know is that the wagons had a fairly high loading gauge, as may be seen from the loading ramps that are still present. They were also rather wide, if they made the tracks that perhaps still survive. They were almost certainly completely stiff with nondirigible wheels. From the texts we also know that they could have up to 12 wheels, but 2- and 4-wheel carts are also mentioned. We do not know what kind of weight these wagons could carry. Some of the columns, such as, for example, the 50-footer mentioned in the Giessen papyrus, weighed about 200 metric tonnes, but the Giessen papyrus does not specify that the column was on a wagon and it could have been on rollers.

On the whole, the Mons Claudianus ostraca are rather uncommunicative as far as means of transportation are concerned. We are never told how the *kibariates* got down to the valley or back again, nor do we know which animals constituted the *poreia* or what kind of provisions they carried. I assume they were camels, but I do not remember this being expressly stated anywhere.

The road from Qenâ to Mons Claudianus and Porphyrites was never a major road, however. It served the quarries and nothing else. There was no harbour at the

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[2] O.Claud. II 227, 10; 279, 11; 375, 11; 376, 10; 380, 7. See in particular the beginning of O.Claud. II chapter IV.

[3] The majority of the texts concerning wagons from Mons Claudianus will be published in my treatment of quarrying techniques and administration. They are already mentioned in O.Claud. II 362. The calculations of David Peacock and the measurements of the tracks are to be found in the forthcoming report by D.P.S. Peacock and V.A. Maxfield, IFAO, Cairo 1997.

end of it, and no commercial traffic. The situation is quite different if we move south a little to the road from Quft to Quseir, known in the ostraca (e.g. K005) as "The Myos Hormos Road" (ὁδὸς Μυσορμιτική), and it is the traffic on this road that will occupy the rest of this paper.

The road is part of a system: at just over 30 km from Coptos it splits into the southeasterly road to Berenike (ὁδὸς Βερενίκης) and the easterly to Myos Hormos. I consider it as proven that Myos Hormos is identical with Quseir al-Qadim.[4] Both branches of the road are furnished with stations, but while the ancient names of most of the stations on the road to Berenike are known from the *Itinerarium Antoninianum*, those on the Myos Hormos road are not. As a result of our excavation of two stations on this road, Al-Muwayh and Al-Zarqâ, and the IFAO excavation at Wâdi Hammâmât, several names are, however, beginning to emerge. I shall come back to these identifications later.

Along the more than 180 km of road from Coptos to the harbour of Myos Hormos there undoubtedly passed a multitude of people and goods. All the personnel of the stations and all those inhabiting Myos Hormos and most of the provisions for them must have passed this way. And more importantly, also the vast majority of Rome's imports from India, which Pliny tells us were worth 50 million sesterces a year (*Nat.Hist.* VI 102). Strabo leads us to believe that by his time the road from Myos Hormos had become more important than the one from Berenike (*Geog.* XVII, 1.45). Neither of them gives us the answer to the obvious question: why was there a road from Coptos to Berenike? While Myos Hormos was most easily reached from Coptos, Berenike was much closer to Edfu and there was a perfectly good, direct road. There must therefore have been a need for flexibility, perhaps so that goods could be stored at Coptos before a decision was made about the harbour whence they would be exported or where they would be needed for the maintenance of the people working there while the ships were being prepared. This need, to my mind, can only arise from uncertainty about where the ships would put in on their return from the East. If such uncertainty existed, it could only be due to the wind and weather in individual years, some years permitting some or all of the ships to go as far as Myos Hormos, other years only allowing the fleet or part of it to get as far north as Berenike. When Strabo tells us that Myos Hormos was becoming more important than Berenike, he may in fact be telling us that the rigging of ships had improved by Late Ptolemaic / Early Roman times so that more ships reached further north against the prevailing wind. I shall not attempt to explain this in detail, but only point out that the prevailing wind in the Red Sea is always northerly in the northern part, down to 20°N, whereas south of 20°N it changes with the season: in winter it is

[4] Peacock 1993, 226-32; Bülow-Jacobsen *e.a.* 1994.

southerly, in summer it is northerly.[5] Since ships must nevertheless have regularly reached Berenike at *c.* 24°N and Myos Hormos at *c.* 26°N, this is another instance where we should remember that statistics do not necessarily tell the whole story. In certain circumstances it must have been possible for certain ships to put in at Myos Hormos. This would, of course, represent a considerable gain in time and money, saving some seven days of expensive land transport.

This heavy, if seasonal, traffic between Coptos and Berenike/Myos Hormos has left almost no trace in the texts from the two stations that we have so far excavated for ostraca. There is the occasional mention of a πορεία (M171, K257, K423), but never with any useful context, let alone a description of what the caravan was transporting. Nor is any of the traffic supplying Myos Hormos mentioned, such as that attested by the archive of Nicanor (See Ruffing 1993). One exception now is an ostracon from Krokodilô (K315) which mentions a wagon transport of wood for ship-building in Myos Hormos. In a recent paper (1995) Kai Ruffing has analysed the traffic on the road on the basis of the texts available to him, i.e. the Nicanor archive, the O.Fawakhir[6] and the ostraca from Wâdi Hammâmât (Kayser 1993). Ruffing calculates that it must have taken more than 2000 camel loads per month to supply Berenike (Ruffing 1993, 4-7). These would not of course have passed by any of the stations we are concerned with here, but if Myos Hormos was even more important than Berenike at this time, the traffic to supply it could hardly have been less. Ruffing's calculations are based on the number of houses found in Berenike, assuming that all *c.* 2000 were inhabited. Some of these houses, however, may have served as warehouses. Besides, the number of houses is based on Belzoni's guess. Wellsted estimated 1000-1500 houses (See Meredith 1957, 57). In my opinion this type of calculation should wait until the current excavations at Berenike have yielded a more secure basis. To his surprise, Ruffing also reaches the conclusion that some of the foodstuffs mentioned in these ostraca must have been produced in the desert, for example chicken in Wâdi Hammâmât and vegetables in Wâdi Fawâkhîr. This is overwhelmingly confirmed both by the ostraca from Krokodilô and Maximianon and by those from O.Claud. vol. II, which Ruffing could not know. At Mons Claudianus it is further attested that a certain amount of meat was produced or at least butchered on the spot, not least that of camels and donkeys who had served their term as draft animals, but suckling pigs also seem to have been reared.

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[5] For the directions of the wind: de Romanis 1996. The *Periplus Maris Erythraei* ed. Casson 1989, is full of information relevant to this, not least the appendices.

[6] SB VI 9017, 8-59, orig. publ. (incl. 1-7 which are in Latin, they may be found on CD ROM PHI #7) in: Guéraud 1942. Two more ostraca from this find have been published by Schwartz 1956 (= SB VI 9164). One could add SB VI 9610 (cf. *ZPE* 110 (1996), 124-26).

All these goods, whether produced in the valley or in the desert, travelled along the road with the commercial caravans, the military patrols, and the donkey-drivers.

In the ostracon texts found in the desert the commercial caravans have so far left no trace, apart from a perhaps exceptional order to escort travellers at a time of unrest among the "barbarians" (K5). The evidence for the commercial traffic still comes from the Nicanor archive.

The traffic we do hear about is that which took letters, people, vegetables, etc. from station to station, for the benefit of those who lived at the stations.

Let us look at the means of transportation. The normal way of getting from one station to the next was undoubtedly *on foot*, but this has left no record in the ostraca. In most cases where a carrier is mentioned by name nothing is said about how he is going to get to the recipient. Even when donkeys or camels are mentioned we may assume that the people usually walked alongside.

Donkeys are very often mentioned. It is unclear how they were organised, since we only hear about them as a means of transporting something somewhere when they were going to go there anyway. I think that they were privately owned and there may have been a price for transportation related to the distance and the weight or volume of the goods. These prices are not known except in one case (K252) where we learn that two ladies going by donkey from Krokodilô to Maximianon cost eight drachmas. That is a distance of 52 km. Whether the donkeys served the commercial caravans passing through, or local traffic from station to station, or both, is not clear.

Horses (ἱππεῖς, προβολή) are mentioned quite often. They must belong to the Roman cavalry patrols between the stations who could also be persuaded to take letters or even heavier things. For example, seven matia, presumably of grain, which must have weighed some 20 kg, were given for transportation to a *hippeus*.[7]

Curiously, *camels* are not mentioned very often, but of course they were used extensively. We hear about them in connection with the transportation of water, but they must have been the backbone of the commercial traffic. If so, the *poreia* when mentioned would also mean camels. One letter (M171) tells us that someone has left with the caravan. This presumably means that he walked with the camels, profiting from the company and protection.

Wagons / conductores[8] transported a variety of objects, not necessarily very heavy ones, for example a pair of scissors. Again they must have been passing anyway with goods that were going through to Myos Hormos or Coptos. As usual, we do not know how big the wagons were nor which animals pulled them.

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[7] M90. Traveling with the *probole* M89: τῇ προβολῇ ἐλεύσομαι ἐγὼ δὲ οὐχ οὕτως σπουδαῖός εἰμι, or M762: ἐντὸς τῆς προβολῆς δύνομαι ἐγβιβάσαι τὸ ἡμίμηνιν αὐτοῦ.

[8] M362: ἵν'ἀπελθῶ μετὰ τῶν---κουνδουκτόρων or M689: *per amaxas mittas nobis aquam.*

The conductores present a problem of their own. The fact that it is a Latin word transcribed into Greek need not worry us, of course. There are plenty of those. But what is a Latin *conductor* - a farmer, somebody who rents from the state - doing in the desert? *Conductores* took care of quite a lot of the transportation on the road and the ostraca mention them in ten instances. They were in most cases clearly people who were passing anyway and who could be made to take things along. The objects they transport are not noticeably different from what was transported by other means and they are frequently mentioned together with other means of transportation, such as donkeys, wagons, or horsemen. The few examples that were already known (Rom.Mil.Rec. 70 and 80) have been explained away as examples of the farming of land belonging to the army in order to produce fodder. By this interpretation the *conductores* would thus be responsible for bringing hay to the desert for the consumption of the military horses. I don't believe this. I think *conductor* means what it ought reasonably to mean and what it means in mediaeval Latin and in French: the driver of a wagon. This sense has but rarely been documented as yet and is totally drowned in the literature on *locatio/conductio*, but looked at objectively it would be strange for a sense of the word which is so close to an etymologically natural meaning of the word to crop up without warning in mediaeval French and to be imported from French into mediaeval Latin.[9] I feel convinced that the meaning "driver", or perhaps "escort", has always existed in Latin, but that we have only recently found the pre-mediaeval attestations for it.

In order to avoid violent attacks from the jurists, I should perhaps make it quite clear that I am not trying to change the well-established meaning of "farmer" in the juridical literature.

A special case is presented by two attestations of the feminine *conductrix*, where there is no obvious connection to transportation. These two cases are better explained in the context of prostitution which certainly existed at the stations. Here it must suffice that the sense "brothel keeper" is attested in mediaeval Latin.

The clear impression is that the various animals who assured the transportation usually walked separately, i.e. that a given group traveling along the road always consisted of either donkeys or horses or camels or wagons. This makes excellent sense, in fact the reason for it is so obvious that it must be described somewhere, but I have yet to find where: all these animals walk at different paces. It would be very disagreeable for both donkeys and horses to have to walk together. Either the donkeys would have to trot a bit from time to time, like children trying to keep up with adults, or else the horses would have to wait for the donkeys every so often.

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[9] Cf. v. Wartburg 1946, 2,2 s.v.: after giving many examples of *conducteur* in French meaning "driver" or "manager", the article concludes that this is a development that has taken place in mediaeval French.

The same would be the case if donkeys and camels walked together.[10] On the other hand, we have to assume that cavalry escorted the commercial traffic, at least in times of danger, but this would be different. In this function the cavalry would use its greater speed to move around the caravan and to explore the neighbourhood for ambushes.

To sum up, the documentation we have from the ostraca concerns the people living along the road, usually, one would suppose, soldiers on duty at the stations and their dependents. Their correspondence concerns their daily needs for small luxuries and necessities that were not part of the official rations. Equally, the means of transportation can only be explained by a much larger system that we hardly hear about, but which was the object of the whole exercise. I have collected some citations from the ostraca that illustrate the uses that the "locals" made of the passing traffic. The details of this will appear in the final report, but phrases like "I shall send you when I find a secure carrier" or "the donkey-driver refused to take more than..." or "I did not find anyone to take..." are very common. This is how all private letters and parcels travelled in antiquity: you had to wait until someone was going where you wanted to send your letter. If someone was going in the right direction and you had a friend where he was going, you could send your letter to this friend with a covering note asking him to find somebody to take it further towards its destination. There is even a sharp notice somewhere to a person at Krokodilô (K471): "don't bother to read the letters going to Berenike or Coptos, just send them on!" But this is only true of private letters. Official, military correspondence had other means of arriving. Official circulars from the commander in Coptos were thus sent ἀπὸ πραισιδίου εἰς πραισίδιον, from one station to the next, and seem to have been copied at each station before they were sent on.

In one case we have a day-to-day report on passages from Krokodilô (K458) where the contents and direction of various carriers are listed. Usually the couriers are carrying official letters, so these are not the commercial caravans; it is a list of official couriers and they are all going either to Phoinicon or to Persou, i.e. just like Egyptian roadblocks today, with the officer only wanting to know about the next village you are traveling to, not where you are really going. Presumably, these couriers were going all the way from Coptos to Myos Hormos. Whether the fish mentioned in one passage of this text as passing to Phoinicon are fresh fish is not certain, but I believe they were since they are counted and described as parrot fish, which is one of the tastiest fish in the Red Sea. These fish were clearly being carried to Coptos, presumably for the commander's table.

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[10] K603, however, seems to imply either a *poreia* consisting of donkeys or of a mixture of camels and donkeys: καὶ ἐὰν ἀναβῇ ἡ πορεία ἐλεύσομαι μετὰ τῶν ὀναρίων, i.e. "if the caravan comes out (from the valley to the desert), I shall come with the donkeys".

The impression I get is that many of these donkeys and horses in fact only travelled back and forth between the same two stations. In many cases the letter and the answer to it is carried by the same person. Very often that person was carrying not only the letter, but also the eggs, fish, vegetables, or chicken mentioned in the letter. The things transported can of course be anything, and the following excerpt only serves to illustrate the variety: beer, eggs,[11] fish, furniture, grain, hay, letters, malt, meat, oil, people (M362), pigs, salt, a pair of scissors (M168, M769), vegetables, water, wine.

But how can we know where a letter came from? It was not the custom to write "I am writing to you from ...", but just as in papyrus letters from the valley one writes about an act of adoration to a deity, a *proskynema*, that has been made on behalf of the recipient of the letter to the tutelary deity of the place where one is writing from. For a long time papyrologists argued that letters with a *proskynema* to Sarapis must come from Alexandria, but now we know that there were Sarapis temples in other places as well, Maximianon among them. Similarly there was an Athena temple in Persou. At the same time letters announcing the sending of vegetables nearly always mention a proskynema to Athena, so Persou must have been where the vegetables mainly grew. We must therefore conclude that Bîr Hammâmât, the settlement in Wâdi Hammâmât, or Bîr Fawâkhîr, or perhaps all three, were called Persou. This is not without problems. Firstly we have to decide whether to accept that two places 9 km apart (and everything between them?) could bear the same name. Secondly, there is the absence of a station at Bîr Fawâkhîr, although this is an obvious place for a station to have been. In all likelihood the buildings were dismantled and the stone reused for later structures which covered the site.

Also, the produce announced in the letters gives us a glimpse of where they were sent from. Vegetables from Persou have been mentioned. Fish obviously comes from the Red Sea, or at least it is forwarded from a station in that direction. Κολοκύνθιον, coloquint, is sent and received in small quantities of one or two. They are mentioned once at Maximianon and four times at Krokodilô, usually in connection with other vegetables, but it is never quite clear where they come from. It seems *a priori* unlikely that they would be the desert coloquint which is inedible, although it was (and still is) believed to have medicinal qualities. This item aroused a certain amount of interest among the botanists in the discussion following the original delivery of this paper. According to Marijke van der Veen it could be the bottle gourd, and is perhaps more likely to have come from the valley since it is a

[11] M166: 6 eggs sent from Maximianon to somewhere whence vegetables came (Persou?), where they were not needed - presumably there were chickens everywhere.

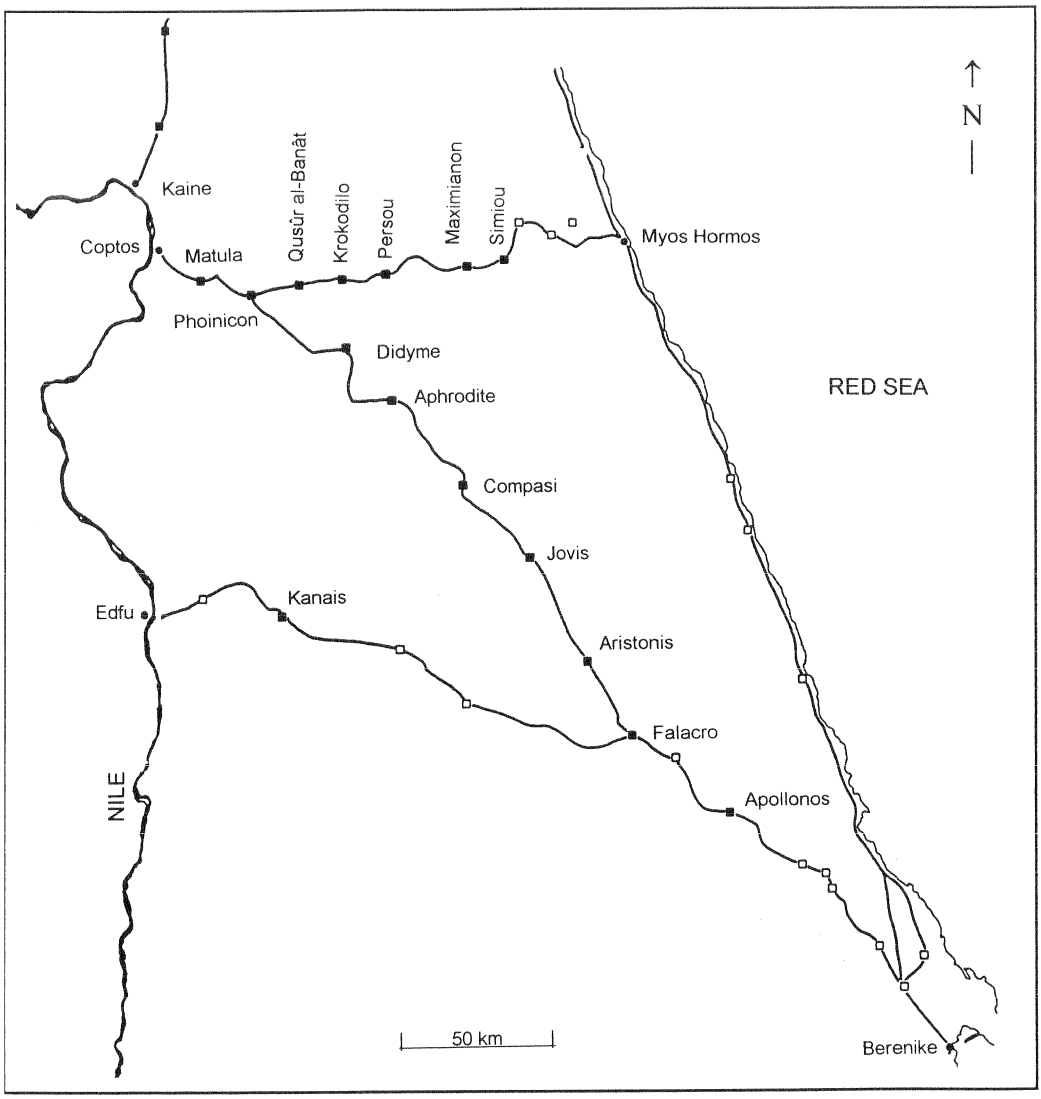


Figure 1. The routes between Coptos and the Red Sea, with the Greek names of the principal stations.

tropical plant and demands a lot of water. The fact that it is mentioned more often at Krokodilô than at Maximianon could mean that it was brought in from Coptos and that the people at Krokodilô received vegetables from both directions.

If a letter is a receipt for something, we are, with all due caution, entitled to believe that the produce mentioned in the letter came from the locality where the letter was found, or at least from that direction. I shall not go into any great detail, but if we have a text from Maximianon acknowledging the receipt of fish, this letter will hardly have been sent from a station closer to the Red Sea, but must concern fish forwarded from Maximianon to a station further west. Similarly, at Maximianon we find many letters announcing the arrival of vegetables but none acknowledging receipt of them, so presumably no vegetables grew at Maximianon, or at any rate not enough for local consumption, let alone for export.

This leads me to the final point of this paper, i.e. the identification of the stations. Three years ago, before we started excavations at Al-Zarqâ, the only points on the road that were identified by their ancient names were Coptos itself and Phoinicon, which was known from the *Itinerarium*. In addition there was near certainty, which has now been confirmed, that Bîr Hammâmât or Bîr Fawâkhîr was called Persou in antiquity.

Now, after two seasons at Al-Zarqâ and two at Al-Muwayh, we know that Zarqâ was Maximianon and Muwayh was Krokodilô. These names were provided by a number of amphorae with addresses that were found at both locations. The identification of Myos Hormos resulted from the frequent mention of that locality which proves that it was where the road ended, i.e. not further north on the coast. The name of Phoinicon is mentioned very often in the ostraca from Krokodilô and it is clear that it was the next station. In fact it is not, since there is the small station of Qusûr el-Banât midway between them, which is treated as nonexistent by the ostraca. The same could be true of the station at Bîr Hammâmât, only 18 km east of Krokodilô. There has been some excavation at both these stations and the ceramics seem to indicate that they are from the later second century, while Krokodilô is early second century. If we continue eastwards we come to Bîr Fawâkhîr / Persou which is 27 km from Krokodilô. The next station is Al-Zarqâ / Maximianon, 25 km from Bîr Fawâkhîr. The stations further on have not yet yielded their ancient names, but under normal conditions we should be able to find one further to the east of Al-Zarqâ, because many of the letters found at Zarqâ must have come from there. And, in fact, the name *Simiou* emerges and can be shown to have been closer to the Red Sea since fish comes from there according to one letter (M639). On the map I have identified el-Hamra as Simiou, but, of course, if el-Hamra, only 13 km from Maximianon, was another of these in-between stations that do not seem to count, like Qusûr el-Banât and Bîr Hammâmât, it may mean that Simiou is Bîr Seyala, 25 km from Maximianon. We know that there was a Tyche cult in Simiou (M639). In the

same letter the writer states that he can be reached in *Siaroi*, which will thus have to be a station even further away towards the Red Sea, since he is going there again to get more fish. The only station available for the name of Siaroi would then seem to be el-Dûwi, but I am far from certain of this. Siaroi could also have been a fishing village on the coast.

As may be seen, we can roughly identify every other station of those physically present. This recalls Zitterkopf and Sidebotham's argument that there are more stations than necessary and that about half of them would be enough (Zitterkopf & Sidebotham 1989, 169-71). The others do not have names yet, but there are names to spare, we just do not know where to allocate them. We also have tutelary deities to whom *proskynemata* could be made, but do not know to which station they belonged. The station names that are as yet unallocated are *Patkoua*, *Thonis Megale* and *Herakleia*, with the *proskynemata* to Philotera and Apollo not placed geographically as yet. The place where Philotera is worshipped, judging from the things sent there from Maximianon, is clearly in a less favourable position than Maximianon, i.e. closer to the sea. Whether the place of worship of Philotera is also the town of that name mentioned by Strabo (XVI 4, 5) seems highly doubtful to me. The Philotera of Strabo must have been much further north, north of ᶜAin Sukhna, since Strabo's account begins at Heroon Polis and mentions Philotera before ᶜAin Sukhna.

Finally, for the first time in papyrological literature there is a *proskynema* to Pan. There are plenty of actual *proskynemata* on rock faces, but never before has one been referred to in a letter.[12] It would seem fair, although not compelling, to assume that letters referring to a proskynema to Pan would come from near the Paneion in Wâdi Hammâmât, and in fact the text (M421) concerns a delivery of vegetables like most letters from Persou.

Copenhagen

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A BOTANICAL CONTRIBUTION TO THE ANALYSIS OF SUBSISTENCE AND TRADE AT BERENIKE (RED SEA COAST, EGYPT)

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1. Introduction

Berenike was one of the ports along the Red Sea coast (23°54'N; 35°28'E). It was founded by Ptolemy II Philadelphus in 275 BCE and was given the name of his mother. It was the southernmost port of the Greek and Roman frontier. The site is situated on the edge of the Eastern Desert along one of the branches of Wadi Kalalat, and measures *c.* 700 m east-west by *c.* 300 m north-south. The natural harbour was screened from the prevailing northerly wind by the Ras Benas peninsula. These winds hampered sailing on the Red Sea in a northerly direction and consequently the more southerly situated harbour of Berenike became an important transshipment port for spices and other merchandise from sub-Saharan Africa, Arabia and India. The transport of these cargos from Berenike to the Nile Valley took place along caravan routes (Sidebotham 1995, 85-87).

The botanical investigation in Berenike is focussed on both subsistence and trade. As far as subsistence is concerned, the key questions are: (1) what kind of food was used by the inhabitants of Berenike? (2) where did it come from? and (3) were commodities traded in Berenike also consumed locally? Key questions dealing with the aspect of trade are: (1) what kind of commodities were traded in Berenike? (2) which of these commodities were imported and which were exported? and (3) from which areas did those commodities originate?

This contribution presents some of the preliminary results based on the excavation seasons 1995 and 1996.

2. Subsistence

One of the objectives of the pilot excavation at Berenike in 1994 was to test the possibilities of living and working in this isolated site with a view to subsequent excavations. The nearest town where food and drinking water can be obtained in considerable quantities is Quseir, a city some 300 kilometres to the north of Berenike. Occupation of this area is further hampered by high temperatures and severe dust storms during the summer period. As a result, previous visits to the site were restricted to short periods only.

The current problems of food and water supply create an image of complete dependence on the import of the primary necessities of life during the previous

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occupation of Berenike. This, however, seems not to have been the case. It is very likely that the local cultivation of certain crop plants was practised. This is supported by some indications from both the present situation and the composition of the subfossil plant assemblages.

2.1. Indications of local cultivation

A first indication is the present local vegetation. Although the desert plants are restricted to the wadi branches, and especially the central parts, they represent a rich vegetation. So far some 50 species have been found, including trees, shrubs and herbs (Cappers 1996, 319-20). From these local species, 15 have been found thus far in soil samples dating to the Roman Period. The presence of a well-developed vegetation (naturally according to desert standards) indicates that water must be available to a certain extent.

A second indication for local crop cultivation is the presence of a sorghum (*Sorghum bicolor*) field and a reasonable number of kitchen gardens in Arab Saleh, a small Bedouin village 12 kilometres northwest of Berenike. Sorghum is a grain which originates from the savanna belt south of the Sahara and is well adapted to arid conditions. This cereal can be cultivated in the desert fringe after sufficient rainfall during the winter period. The soil is only moistened with some additional water supply when the seed stock is put in. The local kitchen gardens produce a variety of crop plants as well as some ornamental plants. Among other things, they produce mango, citrus, fava beans, tomatoes, onions, and lavender. Sorghum seed is frequently found in samples dating to the fifth and early sixth centuries. Species that have been found in Berenike and could have been grown in Roman kitchen gardens are presented in Table 1.

A third indication for local crop cultivation is the presence of a great deal of threshing remains of wheat (*Triticum* spp.) and barley (*Hordeum vulgare*), including fragile fragments of awns. These remains are found in both early and late Roman deposits at Berenike. Unlike sorghum, however, the assumption of local cultivation of wheat and barley is problematic because these cereals place greater demands on the environment than sorghum. This is particularly true of wheat.

2.2. The availability of water

In a desert environment, the limiting factors for plant survival are primarily water and, in connection with this, extreme temperatures. Spring and autumn, however, are characterised by more moderate temperatures. In both these seasons water is the critical factor.

Water is available in three different forms: (1) rainfall, (2) groundwater and (3) dew. Rainfall is limited in amount and restricted to the winter period. Most of it is quickly absorbed by the coarse sand of the flat desert plains and the wadi branches.

Only when heavy rains occur do considerable lakes persist in depressions for several months. From the eastern part of the mountains the rainwater slowly flows away as subsurface water to the Red Sea.

Beet	*Beta vulgaris*
Coriander	*Coriandrum sativum*
Cucumber	*Cucumis sativus*
Cumin	*Cuminum cyminum*
Dill	*Anethum graveolens*
Fennel	*Foeniculum vulgare*
Fenugreek	*Trigonella foenum-graecum*
Garlic	*Allium sativum*
Onion	*Allium cepa*
Watermelon	*Citrullus lanatus*

Table 1. Plants that could have been grown in kitchen gardens.

During winter, spring and autumn the air cools down at nights which causes the condensation that is dew. The proximity to the Red Sea ensures the presence of sufficient amounts of atmospheric water. Whether this dew originates from moist sea air moving inland or from the upward distillation of moisture from warmer, moister layers of sand below the cooler upper layers, is still under discussion (Crawford 1989, 137-38). Water supply originating from condensed dew is sufficient for plants adapted to arid conditions, with cultivated plants also coming into consideration. This is particularly true of sorghum and the caper bush (*Capparis spinosa*), subfossil seeds of which have frequently been found. Most cultivated plants, however, can only grow when a sufficient amount of water is available.

Four possible sources of water were (or could have been) available for agricultural purposes: (1) wells, (2) water stored in Fort Kalalat, (3) waste water, and (4) surface water.

Today, three wells are present on the west and southwest sides of Berenike. Especially nearby the sea, however, the water is brackish and only suitable as drinking water for certain animals, such as camels and donkeys.

A large fort in Wadi Kalalat, well over 8 kilometres to the southwest of Berenike, was used as a *hydreuma*. It is not yet clear whether the double-walled circular structure inside the fort is a well or a cistern. In the latter case, this watering station had a capacity of 800,000 litres for every metre of depth (Sidebotham & Zitterkopf 1996, 386). It is likely that at least a part of the fresh water was consumed in Berenike. It is questionable, however, to what extent this water may have been used for agricultural purposes, even if its calculated capacity exceeded the consumption of the garrison of the time. If the circular structure is interpreted as a cistern, it is unlikely that the effort to fill this basin would counterbalance the advantages for local grain cultivation on a large scale.

		Africa		**Arabia**	**India**
		BE	**OP**		
D	saffron	E		I	
D	indigo	I			B
F	olive oil	E	I		
F	grape/olive	E	I		
F	wine	E	I	?/I	B
F	grain	E	I	I	B
F	long pepper	I			E
F	black pepper	I			E
F	rice		I		E
F	sesame oil		I	I	E
F	dates			B	E
F	spices		E		
M	cyperus	E		I	
M	yellow clover	E			I

M	makeir	I E		
M	aloe	I	E	
M	lykion	I		E
M	costus	I		E
M	nard (spike-)	I		E
M	sugar cane	I		E
R	storax	E	I	I
R	aromatics	I E		
R	mokrotu	I E		
R?	duaka	I E		
R	cassia	I E		
R	kankemon	I E		
R	cinnabar	I E		
R	frankincense	I E	E	
R	myrrh	I E	E	
R	bdellium	I		E
R	malabathron	I		E
W	teakwood		I	B
W	ebony		I	B
W	sissoo		I	B

Table 2. Trade items of botanical origin according to the *Periplus* (D = dye; F = food; M = medicine; R = resin, gum, bark; W = wood; I = import item; E = export item; B = both import and export item; BE = Berenike; OP = other ports).

The use of waste water is only suitable for crop cultivation practised on a small scale. As can be seen in today's kitchen gardens, waste water can be stored in barrels and used to fill small irrigation channels through the gardens.

A fourth possible source of water for agricultural purposes is surface water. Surface water is present in the Roman settlement Shenshef, some 22 km in a straight line SSW of Berenike. Thanks to the narrowing of the wadi and the shallow sand layer, this surface water is present even after a considerable period without rainfall. Irrigation of small fields may have been possible without extreme effort. The functions of this settlement, however, are still unclear.

During their site survey of Shenshef, Aldsworth and Barnard found a flat elevated area on the southwestern edge of the wadi which conspicuously did not contain the remains of buildings. This area was possibly used for agriculture purposes, though it is not near the present location of the surface water. Two corings did not reveal traces of a tilled layer, although it is questionable whether traces of that kind would have been discernible in the loose sand.

3. Trade

Before archaeobotanical data of Berenike were available, the reconstruction of the Roman trade concerning products of botanical origin could only be based on contemporary written sources. An important historical document concerning Roman trade in Berenike is the *Periplus Maris Erythraei*. This manuscript is dated to between 40 and 70 CE. According to Casson (1989, 7-8), the author must have been an Egyptian Greek and seems to have been a merchant too. The *Periplus* is a guideline for merchants whose home ports were Berenike and Myos Hormos (probably Quseir al-Qadim). It describes the trade route to India, including important harbours on the African and Arabian coasts. Import and export items from all these harbours are mentioned. On the basis of this document a summary is made here of the trade in all types of plant products (Table 2). On the level of plant species, a comparison is made with the archaeobotanical evidence from Berenike.

3.1. A comparison of written and archaeobotanical sources

In the *Periplus*, 34 different plant products are mentioned. In Table 2 these have been clustered into five categories, the assignment of some of which is arbitrary. This is partly the result of the unequal labelling of the categories and partly the result of the uncertain identification of some of the Greek terms.

For the sake of convenience, information about different harbours are merged per continent, with the exception of Berenike itself. Consequently the letter "B" indicates that some harbours along the Arabian and Indian coasts exported trade items, whereas others on the same continent imported these items. According to the *Periplus*, eight different trade items of botanical origin were exported from Berenike

to outlets particularly along the African and Arabian coasts: saffron, olive oil, grapes/olives, wine, grain, cyperus, yellow clover, and storax. In return, harbours along the African coast provided Berenike with makeir and a variety of resins, gums and bark extracts, whereas the export of the Arabian harbours to Berenike concerned aloe, frankincense and myrrh. Items traded from India to Berenike were: indigo, long and black pepper, lykion, costus, spike nard, bdellium, and malabathron.
Thus far, more than 110 different plant taxa could be identified from Roman deposits in Berenike, including about 50 cultivated species (Cappers 1998). Because the identification of plant remains is based on morphological and anatomical features, it is very difficult or even impossible to identify amorphous products like liquids, resins or gums. It must also be realised that the description of the trade products in the *Periplus* is also selective to some extent. Sometimes only generic terms are used, for example: "other spices and aromatics" (Periplus 10) and "the rest of its exports are through its connections with the other ports of trade" (Periplus 28). It has also been suggested that items that were traded in small quantities were left out of consideration (Miller 1969, 73). This was probably also true for trade objects with a more opportunistic character. These shortcomings of course hamper an objective comparison of the archaeobotanical data set with the enumeration of the *Periplus*. In the next sections some of the plant species found in Berenike will be discussed in more detail.

3.2. Pepper

The *Periplus* mentions both long pepper (*Piper longum* L.) and black pepper (*Piper nigrum* L.). Long pepper originates in northern India and was traded in Barygaza, whereas black pepper grows in southern India and was traded in Muziris and Nelkynda. Leaving the liquids aside, long pepper is the only food product which has not been found thus far, despite its characteristic morphological features.

The Indian trade is well known for the supply of pepper and this is supported by the number of peppercorns that have so far been found in Berenike: 1156. Pepper was the staple article of commerce between Rome and India and the supply to Berenike must have been enormous, allowing for some waste of this spice.

The huge number of peppercorns from Berenike contrasts sharply with the archaeobotanical evidence for this species from other countries. First of all, it is striking that as yet peppercorns have not been attested in India by subfossil remains. The reason may be that only a limited number of mainly historical sites have been excavated in India thus far.

Other Egyptian sites that have yielded peppercorns are: Shenshef, Quseir al-Qadim and Mons Claudianus. The presence of peppercorns at these Egyptian sites indicates that not all the pepper was transported to Alexandria for reshipping to Rome. Mons Claudianus was not located along one of the main trade routes connect-

ing Berenike with the River Nile, suggesting that the delivery of pepper was not accidental. Quft probably played a role in the distribution of pepper to this settlement.

Archaeobotanical evidence for Roman peppercorns outside Egypt is only available from Germany. In fact, the earliest find of pepper dated to the Roman Period comes from the legion settlement to the north of Oberaden (Kucan 1984, 51-56; 1992, 245-246). A second pepper find has been recorded from Straubing (Küster 1992, 389). The peppercorns found in this harbour were lost in transit. Obviously, both German records are borderline cases. Oberaden is located some 60 km beyond the imperial frontier and Straubing is located along the Donau, part of the Roman frontier.

3.3. Cereals

In the *Periplus* three different names are used with respect to cereals: "grain", "wheat" and "rice". Obviously, rice was not considered as a grain, see, for example, the description of Syrastrênê (the present Kathiawar Peninsula in northwest India): "The region, very fertile, produces grain, rice, ..." (Periplus 41).

In both early and late Roman deposits in Berenike, reasonable amounts of rice have been found. The *Periplus*, however, makes no mention of the transport of rice to Berenike. A possible explanation is that there was also an indirect connection with India: rice was traded by Indian or Arab sailors from India to the "Far Side" Ports (located along the current northern coast of Somalia) and the island Socotra. From these nearby locations rice was transported to Berenike by Roman traders.

The possibility of indirect trade with India may be supported by the presence of a member of the noncereal category. Teakwood, which also originates from India, has also been found in Berenike (Vermeeren 1998). According to the *Periplus* (36), this wood was only transported from Barygaza (northwest India) to Omana (border region between current Iran and Pakistan) and Apologos (at the head of the Persian Gulf, north of present-day Basra). Most probably, its presence in Berenike may be explained by assuming the reuse of wood from ships, although indirect trade may not be excluded in this case either.

A weighty argument against local cultivation, at least as far as wheat is concerned, is the grain transfer business in Berenike. Although Casson believes that it was only meant for local consumption, the *Periplus* mentions the export of grain to several ports along the trade routes. Probably, the export concerned only wheat, whereas possible local cultivation of cereals was restricted to sorghum and barley and intended as feed for stock.

3.4. Grape/Olive

The export of grapes or unripe olives from Egypt is rather ambiguous. The Greek word ὄμφαξ means either unripe grape or olive. It is translated by Fabricius as grape (1883, 45). Casson chose unripe olive (1989, 249), assuming that the climate of the area ruled out the transport of grapes. This argument, however, is not convincing. Even if unripe olives and grapes were harvested when the seeds were very immature, making it improbable that they would be detected by archaeobotanical research, the presence of reasonable numbers of the mature seeds of both olives and grapes indicates that transport of both fruits was possible. Moreover, even peaches (*Prunus persica*) and apricots (*Armeniaca vulgaris*) were consumed in Berenike, fruits for which long-distance transport is far more problematic.

An argument in favour of grapes is that vines are successfully cultivated in Egypt whereas the olive tree is a Mediterranean species, only sporadically cultivated in northern Egypt. The plausibility of grapes is also supported by the mention of Diospolis, present-day Luxor, from where the unripe olives/grapes came: "... some of the unripe olives that come from Diospolis" (Periplus 7; translation Casson). This site is located 40 km south of Quft, the terminus of the southern Berenike–Nile roads.

3.5. Indian species not mentioned in the Periplus

Berenike has also yielded some species from India that are not mentioned in the *Periplus* at all: coconut (*Cocos nucifera*) and Job's tears (*Coix lacryma-jobi*). Pieces of several coconut specimens have been found. Considering its presence in Berenike to be due only to drift seeds is not reliable. Water currents from source areas make no contact with the isolated Red Sea coast. Moreover, the prevailing northerly wind direction makes it unlikely for fruits to drift so far in a northerly direction.

Of Job's tears, a grass species closely related to maize, only one seed has been found thus far. This seed, actually the lower fertile flower of the inflorescence which is enclosed by a tough and modified sheathing bract or involucre, was traded as a bead.

4. Conclusions

The results of the two excavation seasons show that local agriculture on a small scale could have been practised. Especially in the spring, the environmental conditions are favourable. Small kitchen gardens were probably present. The same may be true of sorghum fields. Local cultivation of other cereals is more problematic, although barley is a good candidate.

The description of the import and export of plant products as described in the *Periplus Maris Erythraei* differs in comparison with the archaeobotanical record of

Berenike. Archaeobotanical research, therefore, has shed new light on these aspects of the subsistence and trade at this site on the fringe.

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Discussion

Cynthia Sheikholeslami (American University in Cairo): Two questions: (1) When was cultivation of rice introduced into the Nile Valley? (2) Could coconuts have been used as food supply for sailors rather than as a trade item?

R. Cappers: (1) There is papyrological evidence of rice consumption in Egypt during the early Roman period. Rice cultivation was practiced by the Romans in Palestine during the first and second centuries CE and it is assumed that rice cultivation was only introduced into Egypt after the sixth century CE. (2) Warmington mentions several classical literary sources on coconut, who refer to coconuts being used in Greek temples. An undated coconut sample is kept in Florence. Because there are no ancient literary references to trade in coconuts, coconuts in archaeological contexts were formerly dismissed as mere contamination. At the Indo-Roman port site Arikamedu, however, a great deal of coconut was found, and now, at Berenike, we have found coconuts at a Roman port site in Egypt. Therefore, coconut has been found at both ends of the trade line. At Berenike, the coconuts all had broken shells, which suggests that lots of coconut was around. Presumably, if coconuts had been a rare commodity, they would have been treated with greater care.

Follow-up question: Are you certain that the Berenike coconuts were an Indian species of coconut?

Answer: The known trade routes give an indication about the origin of the coconut. India was the secondary area of origin for coconuts, from an early period onwards. The coconuts could very well have been traded to Berenike from there.

Addendum to the discussion by R. Cappers (1998):
A radiocarbon date has now been obtained on the coconut from Berenike (locus BE96-13.002), giving 1935 $\pm$ 35 B.P., which falls within the expected time range. The 68% (1σ) confidence level yields the following ranges: 26-36 cal. CE, and 60-124 cal. CE. The 95.4% (2σ) confidence level yields: 0-142 cal. CE, 174-188 cal. CE, and 194-198 cal. CE.

KAINÈ, VILLE NOUVELLE: UNE EXPÉRIENCE DE REGROUPEMENT FAMILIAL AU IIe S. È. CHR.

Hélène Cuvigny

Dans les carrières du Mons Claudianus, la plus grande partie de la main-d'œuvre spécialisée (carriers et tailleurs de pierre regroupés sous l'appellation σκληρουργοί d'une part, forgerons d'autre part) était constituée d'artisans égyptiens et formait une communauté que l'administration désignait sous le nom de *pagani* ("civils"). La communauté des *pagani* se scindait elle-même en deux groupes principaux, les Syénites et les Alexandrins (Cuvigny 1996a). Dans un ostracon trajanien datable des années 110-115 d'après la stratigraphie et certains recoupements onomastiques, les artisans de Syène étaient 130, les Alexandrins 210 (O.Claud. inv. 1538). L'activité dans le *metallon* battait son plein: c'était l'époque des grandes commandes de colonnes pour le forum de Trajan.

Sous Antonin, l'extraction se poursuivit, sans doute sur une échelle plus modeste. En même temps,[1] des nouveautés furent introduites dans la pratique administrative, grâce auxquelles on connaît ce qu'étaient alors le montant du salaire des *pagani* et son mode de versement. Ils percevaient chaque mois un salaire en espèces attractif, d'après les critères de l'époque, ainsi qu'une ration de blé en grain (Cuvigny 1996b). Mais cet argent et ce blé ne leur étaient pas remis directement au *metallon* par l'administration impériale. Chaque mois, les ouvriers déléguaient quelques-uns d'entre eux pour "descendre" (καταβαίνειν) dans la vallée du Nil retirer les salaires et les rations frumentaires. Ces mandataires revêtaient pour l'occasion le titre de κιβαριάται ("intendants aux vivres", du latin *cibaria*, la nourriture). Mais le rôle des *kibariatai* ne s'arrêtait pas là: leurs collègues les avaient chargés, dans des listes d'instructions inscrites sur des ostraca et intitulées ἐντολή ("instructions"), de procéder à de multiples transactions (prêts, remboursements de dettes, achats...) qui réduisaient fortement leur crédit en numéraire et l'excédaient même parfois. Quant au blé, rarement le *kibariatès* le rapportait tel quel au Mons Claudianus: le plus souvent, il avait mission de le remettre à la mère ou l'épouse de l'ouvrier qui le moulait et en faisait des pains; ce sont ces pains, placés dans des paniers munis d'une étiquette au nom de l'ouvrier, que le *kibariatès* remportait au *metallon*, avec d'autres vivres dont l'ouvrier avait passé commande: presque toujours des dattes, lentilles ou oignons achetés au marché ou bien des préparations maison (vinaigre, viande ou poisson en saumure).

Faut-il alors penser que les *kibariatai* se rendaient chaque mois à Alexandrie ou à Syène pour prendre contact avec les familles de leurs mandants? Une telle

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[1] Pour être exact, dans les deux dernières années du règne d'Hadrien (136-138).

organisation, inutilement coûteuse en temps et en argent, est improbable. Un petit nombre d'ostraca antoniniens - des lettres et des *entolai* - montrent où est la solution. Jamais les noms de Syène et Alexandrie ne sont mentionnés dans les textes émanant des *pagani*; les lieux de résidence des familles, dans les rares cas ils sont indiqués, sont toujours Καινή et Ἀπόλλωνος:

Καινή

O.Claud. inv. 8598: *entolè*

(l. 2) (ἀρτάβη) ἰς Καινῆ<ν> δι[ὰ] Ἴ̣σιτος

"(porte) l'artabe à Kainè, à faire boulanger par Isis".[2]

O.Claud. inv. 4312: *entolè* de Tithoès fils d'Hèrakleidès, "Syénite"

(l. 5-8) τὰς λυπὰς (scil. δραχμάς) ἕως καταβῶ κατενήκις[3] μοι εἰς Καινὴν οἴνου κ(εράμια) γ.

"tu me verseras mon solde créditeur à Kainè lorsque[4] je descendrai. Trois amphores de vin" ou "(garde) mon solde créditeur jusqu'à ce que je descende. Tu m'apporteras à Kainè 3 amphores de vin".

Les parallèles ne permettent pas de trancher entre les deux interprétations. Quoi qu'il en soit, l'ouvrier Tithoès envisage de "descendre" prochainement du Mons Claudianus et c'est à Kainè qu'il demande à recevoir son salaire ou son vin.

O.Claud. inv. 7863: *entolè*

(l. 9-12) γυναικὶ *vac.?* (δραχμὰς) ιδ καὶ λ[αμ]βάνις ἐπιστολὴν ἢ [ἀ]π̣[οχ]ὴν ἐν Καινῇ σεῖτο<ν> τῇ γυναικί, ἄρτοι ἰς ὄρος.

"à ma femme *vac.?* 14 drachmes, fais-toi remettre une lettre ou un reçu (?) à Kainè, le blé à ma femme (ou: "fais-toi remettre une lettre ou un reçu (?), le blé à Kainè à ma femme"), les pains au désert".

O.Claud. inv. 4674: lettre dont la teneur suggère que son auteur, Psenpnouthis, est *kibariatès*; en ce cas, Hôriôn, le destinataire, serait un artisan *paganus*

(l. 4-7)] ἡμιαρτάβιν σεῖτου δοῦναι τῇ γυναικί σου ἰς Κενήν

l. Καινήν

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[2] Dans l'*entolè* O.Claud.inv. 6607, cette Isis fait le pain d'un autre ouvrier.

[3] κατενήνκις fait difficulté: ce verbe suggère que le *kibariatès* 'descendra' l'argent ou le vin à Kainè. Mais d'où? Du Mons Claudianus? D'une localité sur le Nil en amont de Kainè? A moins qu'il ne faille prendre ici καταφέρειν au sens de "déposer, verser de l'argent" ("pay down, discharge") qu'il a parfois.

[4] ἕως καταβῶ serait dans ce cas mis pour ὅταν καταβῶ.

"[tu m'as écrit (?) de] donner une demi-artabe de blé à ta femme à Kainè"

O.Claud. inv. 6027: lettre de Sôtèrichos à Serènos[5]
(l. 6-7) ἐλθὸν δὲ εἰς Κενὴ<ν>, εὗρεν τὴν μητέραν σου
l. ἦλθον, ηὗρον
"Étant allé à Kainè, j'ai trouvé ta mère"

'Απόλλωνος

O.Claud. inv. 5283: *entolè* d'Isidôros fils d'Apiôn, "Syénite"
(l. 5-7) τὸν σεῖτον ἰς 'Απόλλωνος Σενπαχουμι καὶ ὃ ἄν σε αἰτήσῃ κοπ<τ>ούρας
"(remets) à Senpachoumis, à Apollônos, le blé et ce qu'elle te demandera pour le moulage"
Connu par d'autres *entolai*, Isidôros a toujours recours à une boulangère étrangère à sa famille et doit donc la rémunérer.

O.Claud. inv. 4339: *entolè*
(l. 2-3) τὴν ἀρτ[άβην - - - -] ἰς 'Απόλ[λωνος
"mon artabe ... à Apollônos ."
L'identité de la boulangère est en lacune.

O.Claud. inv. 8455: *entolè* de Didymos fils d'Apollônios, "Alexandrin"
(l. 3) ὁ σεῖτος ἰς 'Απόλλωνος Σεραπιάδι ε̣ . . . ι̣ς̣, ἄρτοι ἰς ὄρος
"(remets) mon blé à Serapias ... à Apollônos, (apporte) les pains au désert"

O.Claud. inv. 5123: *entolè* du *pais*[6] Isidôros, "Alexandrin"
(l. 6) ὑπόδημ(α) ἀπὸ 'Απόλ(λωνος)
"(rapporte) une paire de chaussures d'Apollônos".

O.Claud. inv. 2568: *entolè*
(l. 2)] μητ(ρὶ) ἰς 'Απόλλω̣ν̣[
"à ma mère à Apollônos."

L'identification de Καινή ne fait aucun doute: ce nom, qui signifie "(ville) nouvelle", subsiste aujourd'hui sous la forme Qenâ. Καινή/Qenâ est la tête des

[5] Ce nom est porté par deux auteurs d'*entolai*.
[6] Probablement pas un esclave, mais un apprenti.

voies romaines desservant le Mons Claudianus et le Mons Porphyritès (et quelques autres exploitations moins importantes). On n'y connaît pas de vestiges antiques[7] et elle n'est pas attestée dans les sources écrites avant la période romaine: il y a de fortes chances pour que sa fondation, sur la rive droite du Nil, face à la vieille cité de Tentyra (comme Villeneuve-lès-Avignon fait face à la cité des papes), soit contemporaine de la mise en service des deux *metalla*[8] et de leurs satellites. Kainè n'était pas seulement le port où abordaient des navires spécialement conçus pour le transport des monolithes et où se formaient les caravanes à destination des carrières: nous avons vu que les ouvriers, ou du moins certains d'entre eux, y avaient leur famille. Il était exclu de faire comme dans la mine de Vipasca, d'admettre femmes, enfants et vieux parents dans les *metalla* du désert Oriental étant donné la difficulté de se procurer l'eau et la nécessité d'importer toute la nourriture; on fixa donc dans la vallée du Nil, aussi près que possible des lieux où travaillaient les hommes, cette parenté venue en principe d'Alexandrie et Syène, mais probablement aussi d'ailleurs.[9]

Une lettre dont l'auteur, Tertius, est peut-être un soldat[10] donne un aperçu fugitif de l'urbanisme à Kainè au II^e^ s.; Tertius demande à son correspondant d'emporter divers objets à Kainè pour les remettre à une femme dont il décline l'adresse:

> εἶνα ἀποδοῖς εἰς Καινὴν Ἡρακλοῦτι πρὸς τὸ κουρίῳ ἰς τὴν συνοικίαν ἐχόνομα τῆς φόσσης
> "afin que tu les remettes à Hèraklous, près de la boutique du barbier, dans l'immeuble à côté du canal, à Kainè" (O.Claud. inv. 8208).

Des συνοικίαι, immeubles locatifs de rapport, n'étaient attestés en Égypte jusqu'ici qu'à Alexandrie et dans plusieurs localités du Fayoum (Husson 1983, 271-75); bien entendu, cette seule mention ne permet pas de savoir si ce type d'habitat était répandu à Kainè et constituait une réponse urbanistique à l'afflux de migrants vivant à la marge des *metalla*.

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[7] PM V (1937), 122 ne signalent pas de vestiges architecturaux, seulement un petit nombre d'objets mobiles (stèles, table d'offrande) dont certains d'époque pharaonique; quelques-uns de ces objets sont signalés avoir été achetés à Qenâ, ce qui ne préjuge pas de leur origine.

[8] Le Mons Claudianus aurait été ouvert par Claude, d'après son nom (le plus ancien texte daté qui en provient remonte à Néron); le Mons Porphyritès a été "découvert" en l'an 4 de Tibère (Van Rengen 1995).

[9] L'onomastique des "Syénites" est plus caractéristique de Thèbes que de Syène.

[10] Son nom latin, le fait qu'il demande des légumes frais, luxe réservé, dans le désert, aux militaires, l'emploi d'un mot latin pour désigner le canal.

Dans les O.Claud., Apollônos est cependant tout autant attestée que Kainè comme terminus d'un itinéraire régulièrement parcouru par les hommes et les biens. Parmi les six localités de ce nom répertoriées par le *Dizionario* de Calderini, trois se trouvent en Moyenne ou Haute-Égypte; ce sont, du nord au sud:

- Ἀπολλωνόπολις Ἑπτακωμία (Kûm Isfaht, *c.* 195 km au nord de Qenâ)[11]
- Ἀπολλωνόπολις μικρά (Qûs, *c.* 30 km au sud de Qenâ)
- Ἀπολλωνόπολις μεγάλη (Edfou, *c.* 170 km au sud de Qenâ)

Si notre Apollônos n'est pas le nom d'un site jusqu'ici inconnu, Qûs me semble le candidat le plus satisfaisant: (1) cette localité est proche de Qenâ; (2) il était possible, au départ de Qûs, de rejoindre la route de Koptos à Myos Hormos (à l'époque islamique Qûs remplacera Qīft comme tête de la route de la mer Rouge); (3) la route romaine de Koptos à Myos Hormos, l'ὁδὸς Μυσορμιτική, est non seulement celle des caravanes du commerce oriental, mais elle passe aussi à travers une zone de mines et de carrières, ce qui expliquerait que des familles de carriers et de mineurs aient été installées à Qûs;[12] plusieurs ostraca du Claudianus semblent indiquer que des transferts de main-d'œuvre intervenaient parfois entre *metalla*: les familles ne suivaient pas forcément; il devait arriver aussi que des hommes d'une même famille travaillent les-uns dans des *metalla* desservis par la route de Myos Hormos, les autres dans des *metalla* desservis par l'ὁδὸς Κλαυδιανοῦ ou l'ὁδὸς Πορφυρίτου qui convergeaient sur Kainè.

Qûs, à l'opposé de ce que je pense pour Qenâ, n'est pas une fondation romaine: elle existait dès l'Ancien Empire. Notre documentation n'explique cependant pas pourquoi les familles des carriers auraient été installées à Apollônopolis mikra et non à Koptos, terminus plus naturel de la route et plus proche de Kainè.

Les déplacements de population ne sont pas exceptionnels dans un contexte de mise en exploitation de mines; le cas le plus connu est celui des mines d'or de Dacie où, dans le contexte plus vaste de la colonisation de toute une province désorganisée et dépeuplée par la guerre, vint s'installer une main-d'œuvre rompue au travail de la mine et issue de peuplades dalmato-illyriennes (on cite surtout les Pirustes et les Baridustes); elle se regroupa par origine dans des agglomérations appelés *vici* ou

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[11] Le seul lien connu de cette Apollonôpolis avec les *metalla* est P.Giss. 69, demande pressante adressée au stratège du nome Apollonopolite d'envoyer à Kainè toute l'orge disponible dans son nome afin de nourrir les animaux rassemblés en vue du transport d'une colonne de 50 pieds. Ce texte ne suppose pas de lien privilégié entre Kainè et Apollônopolis Heptakômia: les denrées destinées au ravitaillement des carrières pouvaient venir de n'importe quelle partie de l'Égypte, par exemple du Fayoum (SB XIV 12169).

[12] Dans *Itin. Anton.* 165.5, Qûs est nommé *Vico Apollonos*: on se souvient que certaines des agglomérations où l'on avait regroupé les Dalmates immigrés en Dacie s'appelaient *vici*, les autres étant des *castelli*; il s'agit sans doute d'une coïncidence et le *vico* d'*Itin. Anton.* doit simplement correspondre au grec κώμη. A noter que les ostraca trouvés dans les sites de la route de Myos Hormos ne mentionnent jamais Apollônos; mais un nombre infime d'entre eux émanent d'un milieu de carriers.

castella,[13] d'où le nom de *castellani* par lequel les habitants semblent avoir été désignés.[14] Les sources ne disent rien des modalités de cette migration: a-t-elle été forcée, spontanée, encouragée? Le problème est clairement posé par Noeske, qui opte pour l'émigration spontanée de ces Dalmates - appartenant d'ailleurs à toutes les couches de leur société d'origine: il ne s'agissait pas seulement de travailleurs manuels, mais aussi d'entrepreneurs et d'hommes d'affaires (Noeske 1977, 342). On ne sait pas non plus si les mineurs illyriens vinrent en famille, mais on peut le supposer. Quelques inscriptions et tablettes cirées d'Alburnus Maior mentionnent des femmes d'origine illyrienne, épouses et mères de famille, mais on soupçonne qu'elles appartiennent à une couche plus aisée de la société, qui pouvait s'offrir des pierres tombales ou s'acheter, telle cette Andueia fille de Bato, la moitié d'une maison (CIL III p. 944, TC VIII).

Même s'il n'y a pas eu transfert autoritaire de populations, les encouragements n'ont pas dû manquer: le salaire plutôt avantageux de la main-d'œuvre, dont j'ai montré ailleurs qu'il semblait procéder des mêmes barèmes qu'au Mons Claudianus (Cuvigny 1996b), devait faire partie de ces incitations. Dans le jargon du Mons Claudianus, l'usage d'un mot tiré du latin (*kibariatès*) pour désigner le pivot du système de ravitaillement et de messagerie suggère que l'administration impériale est intervenue pour aider la communauté des *pagani* à mettre sur pied cette structure originale autogérée qui intégrait les femmes. Le déplacement de ces épouses, mères, filles et sœurs, l'organisation de leur vie dans un cadre nouveau où le chef de famille était à la fois proche et absent, n'a pu non plus se faire sans le soutien de l'État.

Les deux parties y gagnaient. L'empereur faisait des économies de gestion, se contentant de fournir chaque mois la masse salariale et le blé; les ouvriers bénéficiaient d'un service personnalisé grâce auquel ils percevaient pour ainsi dire leur salaire à la carte et gardaient un contact étroit avec leur famille: on ignore avec quelle régularité ils avaient permission de descendre rendre visite aux leurs mais du moins avaient-ils la satisfaction de mastiquer chaque jour le pain fait à la maison (ce qui présentait l'avantage supplémentaire de limiter l'importation de combustible au *metallon*). La piste Claudianus-Kainè, que montaient et descendaient les *kibariatai* auxquels on avait confié instructions, lettres aux proches, pain de ménage, représentait pour les familles séparées un véritable cordon ombilical. Cet aspect psychologique n'est pas à négliger: on connaît l'aversion des Égyptiens, de l'antiquité pharaonique à nos jours, pour le désert; elle n'est que la manifestation d'un syndrome de dépression et d'anxiété bien connu dans les petites communautés isolées en

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[13] Cf. par exemple le *vicus Pirustarum*, nom d'un quartier d'Alburnus Maior. Sur ce sujet et pour d'autres exemples de migration de main-d'œuvre minière, on se reportera à Andreau 1990, 90-92.

[14] Il n'apparaît qu'en CIL III 7821, où il est écrit en toutes lettres, ce qui a permis de restituer dans les autres inscriptions *k(astellum)*, toujours abrégé *K* (Wollmann 1989, 112).

milieu difficile: ce sont les "troubles des avant-postes"; États et entreprises ne doivent pas lésiner sur les moyens d'aider les individus qu'on envoie dans le désert, sur des plates-formes pétrolières ou encore dans l'espace à surmonter le stress de la solitude et du dépaysement. Les commandes impériales de monolithes, exclusivement destinées à des constructions de prestige à portée idéologique, ne souffraient ni retard ni imperfection: le système mis en place au Mons Claudianus montre que les empereurs étaient conscients de la nécessité de ménager la main-d'œuvre qualifiée pour qu'elle donne le meilleur d'elle-même dans les meilleurs délais.

CNRS

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LA VIE DANS L'EXTRÊME : DOUCH, Ier S. È. CHR. - IVe S. È. CHR.

F. Dunand, J.-L. Heim, R. Lichtenberg

INTRODUCTION

F. Dunand

Les recherches que nous présentons sont le résultat d'un travail d'équipe. Venus d'horizons différents, nous avons un même champ d'action: les nécropoles d'époque romaine de l'oasis de Kharga (Douch, Aïn Labakha). Et nous voudrions montrer à quel point la mise en commun des informations - anthropologiques, paléopathologiques, archéologiques - permet d'enrichir et d'approfondir la connaissance des populations antiques; car nous essayons de réaliser une "paléo-ethnologie", c'est-à-dire l'étude d'une population antique dans son environnement.

L'exploration du site de Douch a commencé en 1976, sous l'impulsion de S. Sauneron, alors directeur de l'IFAO. C'est en 1978 qu'a débuté la fouille des nécropoles, sous la conduite de J. Gascou, puis de G. Wagner; nous avons poursuivi le travail jusqu'en 1993, dans le cadre des fouilles menées par l'IFAO. Nous avons publié en 1992 la première "tranche" des travaux (1978-1985) et préparons actuellement la publication de la deuxième phase (1986-1993).

Douch, l'antique Kysis, située à l'extrémité Sud de la Grande Oasis, offre les principaux aspects d'une grosse bourgade antique: un temple en pierre dans son enceinte de brique crue, qui a dû servir à la fois de magasins et de lieu de refuge; une ville; plusieurs nécropoles. Un deuxième temple, en brique, correspond à une technique de construction caractéristique des oasis. La présence d'un système d'irrigation assez sophistiqué est un des éléments les plus remarquables de cet ensemble. L'exploration du temple et d'une partie de la ville n'ont rien apporté qui soit antérieur à l'époque romaine; cependant plusieurs tombes sont à dater de l'époque ptolémaïque, et l'exploration en cours par l'IFAO du site voisin de Aïn Manâwir a révélé la présence de constructions d'époque perse.

Plusieurs groupes de tombes ont été identifiés autour du tell de Douch; notre travail a porté principalement sur l'ensemble qui apparaissait le plus important, installé sur une butte rocheuse au N./N.O. du tell. Deux types de tombes prédominent:

- les tombes à descenderie, situées sur le pourtour de la butte; elles peuvent comporter une superstructure à voûte "nubienne" ainsi qu'un ou plusieurs caveaux;
- les tombes à puits, creusées plus ou moins profondément dans la butte, mais aussi dans la plaine adjacente; ces tombes semblent représenter le type le plus ancien.

Dans les deux cas, la proximité des champs cultivés a entraîné des infiltrations d'eau qui ont fortement endommagé le mobilier des tombes et même leurs occupants, aggravant les dégâts commis dès l'antiquité par les pillards. L'aménagement et l'architecture des tombes ne présentent guère de différences par rapport à celles de la Vallée qui leur sont contemporaines, ce qui n'est pas surprenant, car, c'est sans doute la nature du terrain qui commande, avant tout, leur disposition.

BILAN DES RECHERCHES EN ANTHROPOLOGIE PHYSIQUE

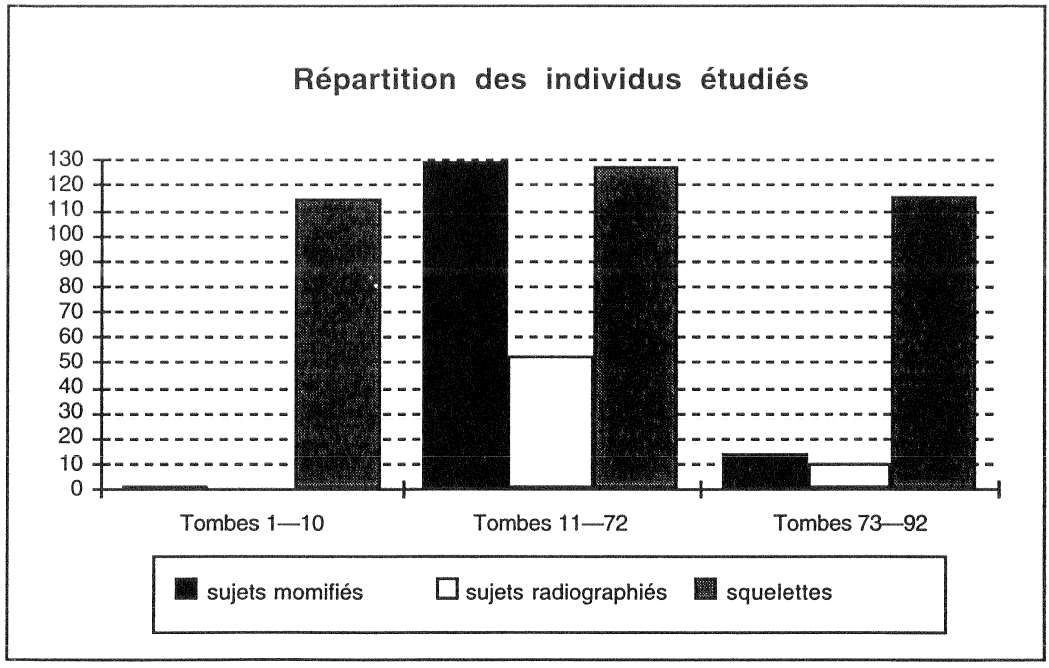
Jean-Louis Heim

1. Introduction

L'ensemble des 92 tombes fouillées dans la nécropole de Douch a permis d'identifier 657 individus des deux sexes et de tous âges, nombre certainement très inférieur à la population inhumée compte tenu de la destruction d'un certain nombre de corps en raison de la qualité de la momification, des conditions de conservation dans le sol et des pillages successifs qui ont bouleversé un grand nombre de tombes. Originellement, tous les corps étaient momifiés: certaines momies ont été conservées pratiquement intactes et ont donné lieu à des radiographies à partir desquelles, à l'issue d'une correction dimensionnelle, leur étude anthropométrique a été conduite. D'autres, réduites au seul squelette, ont permis un examen ostéologique plus complet dans la mesure où les os, les dents, le crâne ont donné lieu à un examen direct sur les pièces elles-mêmes.

Au total 433 individus ont fait l'objet d'examens anthropologiques (soit les deux tiers du matériel humain recueilli) dont 143 momies parmi lesquelles 62 ont été radiographiées sans compter les 5 momies provenant des tombes dites "du pigeonnier", actuellement en cours d'étude. Au total, l'étude anthropologique de Douch a porté sur le matériel suivant:

	Hommes	Femmes	Enfants	Total
Tombes 1 à 10	54	53	8	115
Tombes 11 à 72	104	61	23	188
Tombes 73 à 92	66	37	27	130
Total	**224**	**151**	**58**	**433**



Il s'agit là d'une très importante série obtenue pour l'Égypte ancienne et la plus importante actuellement connue pour la période concernée. Voici à titre indicatif quelques ensembles parmi les plus complets ayant fait l'objet de recherches en anthropologie physique:

Nécropoles	**N. de sujets**	**Région**	**Époque**	**Auteurs**
Gizeh	près de 900	Nord	16-30e D.	Pearson & Davin
Siwa	66 crânes	Désert lib.	Ptol./Rom.	Derry 1927
Mirgissa	319	Hte Nubie		Billy 1976
Groupe X	350-500	Basse Nubie	Romaine	Batrawi 1945
Manfalout	23 crânes	Hte Égypte	Ptol.	Strouhal 1972

La nécropole de Douch comprend 4 groupes de tombes identifiées qui correspondent à une population couvrant chronologiquement une période comprise entre l'époque ptolémaïque (éléments des tombes 70 et 77) et les débuts de la période chrétienne (tombe 92 et tombes du "pigeonnier").

(1) Au nord du tell: tombes collectives numérotées de 1 à 10 d'ouest en est.
Les squelettes (et probablement quelques momies) provenant de ce groupe ont fait l'objet d'une publication séparée (Billy 1992). Cette étude préliminaire a montré que:

- 16% des hommes mourraient entre 21-40 ans contre 19% des femmes.
- 30% des hommes mourraient entre 40-59 ans contre 19% des femmes.
- mais les femmes dépassant 60 ans atteignaient 10% contre 5,6% chez les hommes.

(2) A 600 m à l'ouest, s'étend le groupe des tombes collectives 13 à 92 qui constitue la nécropole principale sur laquelle ont porté essentiellement nos recherches depuis 1976. Dès 1986, les fouilles de la nécropole (à partir de la tombe 73) ont été conduites en portant un soin particulièrement attentif aux squelettes et momies et au relevé systématique des corps dans leur contexte sépulchral. C'est principalement sur ce matériel que repose l'essentiel de nos observations.

(3) Les tombes 11 et 12 isolées, situées à mi-chemin entre les deux premiers groupes ont livré les restes fragmentaires d'une quarantaine d'individus, non étudiables en raison de leur état.

(4) Enfin, les tombes dites "du pigeonnier" situées nettement plus à l'ouest contenaient 5 momies actuellement en cours d'étude. Ces momies, différentes par la technique de momification, semblent postérieures à celles provenant du reste de la nécropole. Elles dateraient très probablement de l'époque chrétienne.

L'importance de notre échantillon permet de traduire assez fidèlement la population de Douch, compte tenu du fait qu'elle semble assez homogène dans sa diversité individuelle, hormis quelques cas particuliers qui pourraient suggérer un flux génique somme toute assez restreint, sans qu'il s'agisse d'un isolat pour autant.

2. les adultes

L'étude anthropologique a été entreprise directement sur les squelettes, à partir des clichés radiographiques des momies et de l'observation directe des spécimens. Les momies de Douch, contrairement à beaucoup d'autres sites égyptiens et à la quasi-totalité des momies andines, ont été inhumées dans une position longitudinale, les membres inférieurs étendus dans le prolongement du tronc et les membres supérieurs disposés parallèlement au corps ou légèrement fléchis sur le bassin. L'absence totale d'inhumation en flexion ainsi que la grande rareté (2%) des momies en position "osirienne" (avant-bras croisés sur le thorax) ont permis l'observation des diverses parties du squelette.

2.1. Stature et proportions corporelles

La population de Douch présente dans l'ensemble une constitution plutôt gracile à tendance longiforme avec des membres inférieurs relativement longs par rapport au tronc. La stature moyenne est plutôt faible et s'inscrit en-dessous de 1,60 m. Il existe néanmoins des variations individuelles, sexuelles et des tendances probablement génétiques relevées par la comparaison entre les tombes. La stature a été estimée d'après la longueur des momies en place (mais dans ce cas la taille est un peu plus faible de 4,5 cm en moyenne que la stature calculée), ou d'après les formules obtenues par les os longs, notamment par le fémur qui fournit des résultats relativement fiables. La meilleure estimation est obtenue par la conjonction de l'humérus et du fémur (en centimètres) selon les formules d'Olivier et Tissier (1975):

Hommes: 1,469 (humérus + fémur en position) +54 + ou - 3,5 cm
Femmes: 1,239 (humérus + fémur en position) +68 + ou - 3,2 cm

La stature d'ensemble de la population de Douch a été calculée sur 220 individus, soit la moitié des momies et squelettes étudiés à savoir:

	Femmes	Hommes	dimorphisme sexuel (rapport centésimal entre les deux statures)
N	90	130	
min	1,40	1,48	
max	1,66	1,74	0,938
moyenne	**1,53**	**1,63**	
écart-type (cm)	5	6	
10 premières tombes			
N	53	54	
stature moyenne	1,56	1,66	0,939
Tombes 20 à 65			
N	24	33	
Moyenne	1,52	1,62	
Variations	1,37 - 1,58	1,54 - 1,74	0,937
Écart-type (cm)	4,2	5,8	

Tombes 74 à 92			
N	13	43	
Moyenne	1,56	1,65	
Variations	1,50-1,63	1,58-1,74	0,945
Écart-type (cm)	4	4	

Des 10 premières tombes, nous ne connaissons que les moyennes par sexe, aussi nous n'en donnons les valeurs qu'à titre indicatif. Les résultats obtenus ci-dessous ne concernent que le matériel que nous avons personnellement étudié et qui proviennent des tombes 20 et suivantes.

Dix sujets, soit moins de 10% seulement des individus mesurés, atteignent ou dépassent 1,70 m alors que 65% des hommes ne dépassent pas 1,65 m. En ce qui concerne les femmes, 62% ont une stature inférieure ou égale à la moyenne féminine (1,53 m). Autrement dit, on constate une tendance plus affirmée des femmes a être inférieures à leur valeur moyenne que les hommes (53,5%)

Les résultats sont proches de ceux publiés par Masali (1973) pour les époques prédynastiques et dynastiques avec une tendance légèrement plus faible à Douch.

	Époque prédynastique	**Époques dynastiques**
Hommes	1,65 (méth. de Manouvrir)	1,62-1,72 (méth. diverses)
Femmes	1,57	1,53-1,58

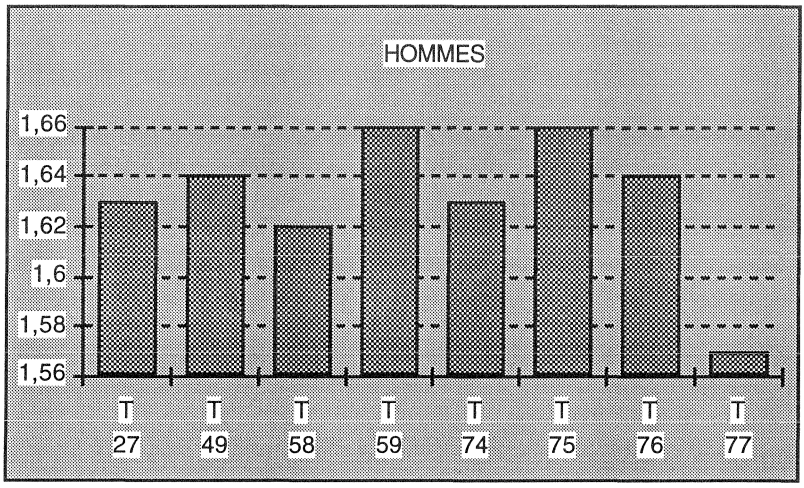
Il est difficile d'interpréter de tels résultats. Les valeurs staturales des deux périodes anciennes proviennent de sites de la vallée du Nil où le brassage des populations lié à la densité relative des sites urbains et de centres religieux ou administratifs importants a donné lieu à un flux génique plus important que dans les oasis, dont la situation relativement éloignée de la vallée et la prédominance de la vie rurale ont certainement favorisé un certain taux d'endogamie au cours des générations successives. Un tel phénomène n'est pas propre à l'Égypte antique: on le retrouve dans nos sociétés contemporaines où les statures en milieu rural s'inscrivent légèrement en-dessous de celles des populations urbanisées.

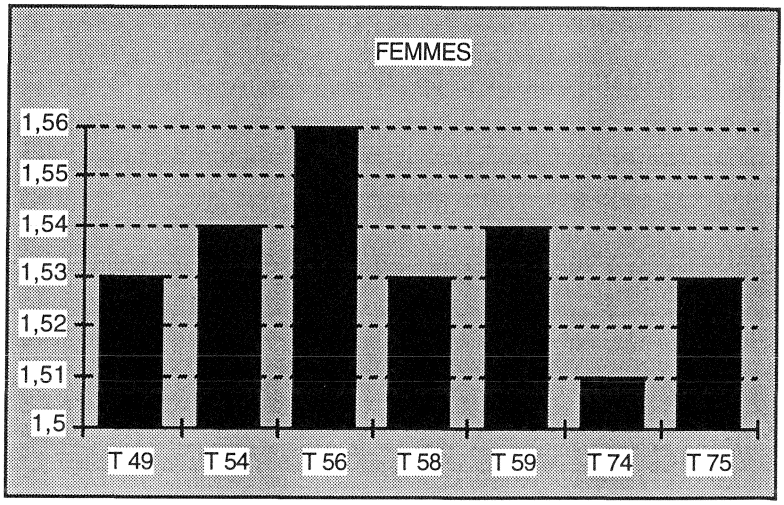
Parmi les dix sujets les plus grands, tous de sexe masculin et répartis dans plusieurs tombes ou diverses chambres, deux s'inscrivent indiscutablement dans la morphologie typiquement méditerranéenne, alors que deux autres s'en écartent nettement: la momie n° 27.2.1.5, laquelle, avec sa forte carrure, sa capacité crânienne, l'une des plus élevées de la nécropole, son orthognathisme total, son hyper-brachycrânie et sa planoccipitalie, apparaît nettement comme un élément arménoïde ou dinarique provenant du Nord (Balkans) ou d'Asie Mineure. Le

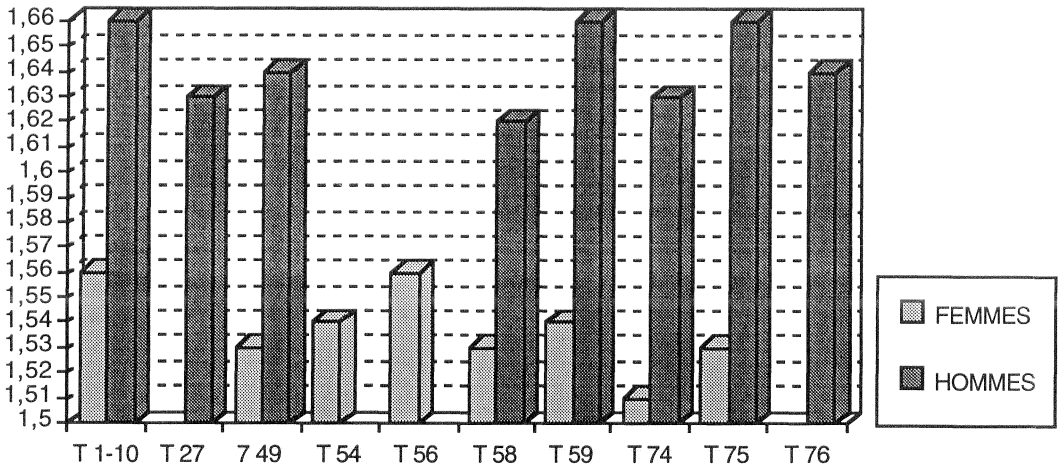
squelette n° 59.1.1.1 s'inscrit davantage dans le type nordique par sa forme crânienne et la robustesse de son squelette post-crânien. La présence pour le moins de ces deux cas indique la possibilité d'un apport exogène provenant du nord ou de la vallée du Nil.

La répartition des statures est dans l'ensemble homogène quelles que soient les tombes malgré quelques variantes:

- les statures masculines des tombes 27 et 74 correspondent exactement à la moyenne masculine d'ensemble, alors que cette constatation concerne les femmes des tombes 49, 58 et 75;
- la tombe 74, qui a livré le plus grand nombre de sujets, présente l'écart le plus élevé entre les deux sexes (0,926), fait lié à la petite stature des femmes; en revanche, si cette tendance se retrouve également pour la tombe 59, le dimorphisme (0,927) résulte de la plus grande stature masculine.







Statures masculine et féminine selon les tombes.

Les proportions corporelles ont été établies d'après les relations entre les divers segments appendiculaires et par l'indice inter-membral. Dans l'ensemble, il s'agit d'une population où prédomine la tendance longiforme (52%) contre 30% de brévilignes et 18% de proportions moyennes. La morphologie longiforme est légèrement plus accusée chez les femmes en raison d'une carrure plus faible et de la longueur relativement plus importante du membre inférieur. L'indice inter-membral est le suivant:

	Hommes	**Femmes**
Nombre d'observations	52	37
Moyenne	6823	6729
Écart-type	21	23
Variations	62,3 - 72,6	60,3 - 71,9

A titre d'exemple, les variations de l'indice relevées dans un échantillon de populations européennes actuelles diverses s'étendent de 67,7 (structure longiforme) à 71,4 (morphologie brévilligne). A Douch, les variations couvrent largement l'échantillon de référence et le débordent même très nettement par ses valeurs les plus faibles (donc les plus longiformes).

En d'autres termes, l'étude du squelette post-crânien fait apparaître une population assez variable dans ses proportions où prédomine largement une stature assez

faible; le dimorphisme sexuel est comparable à celui des autres populations, malgré un aspect menu chez les hommes, une différence sexuelle négligeable pour la morphologie corporelle (0,98) et inférieur à celle des Européens actuels pour ce qui concerne la stature (0,93).

2.2. Le crâne

Sur les 283 crânes identifiés dans la nécropole de Douch dont 101 femmes et 138 hommes, nos recherches personnelles ont porté sur 165 têtes (112 crânes + 53 têtes momifiées) correspondant à 46 femmes adultes, 86 hommes et 33 enfants et adolescents.

Dans l'ensemble, la morphologie crânienne est assez homogène: les crânes sont relativement graciles et peu de sujets présentent une robustesse marquée; les os de la voûte sont très rarement épais; le prognathisme marqué est peu répandu. L'état dentaire est souvent déplorable avec de nombreuses pertes *ante mortem*; 15% des crânes montrent les signes évidents d'une excérébration.

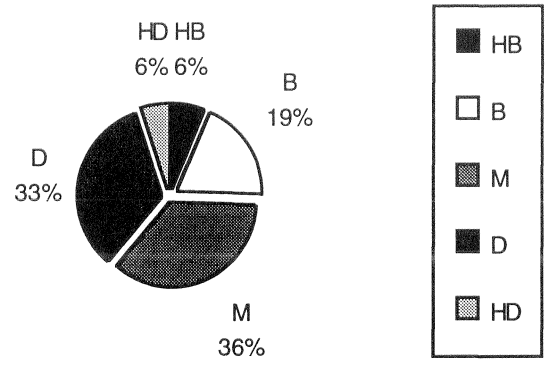
L'étude préliminaire (Billy 1992) portant sur les 10 premières tombes avait relevé en moyenne la mésocrânie, mais la brachycrânie semble plus élevée avec 27% des sujets. La face est généralement basse, le crâne relativement plus élevé que sur les autres échantillons égypto-nubiens, l'orthognathisme marqué, surtout chez les femmes. Malheureusement nous n'avons pu confirmer ces résultats car le matériel a été disséminé sur le tell et ne permet aucun inventaire.

L'indice crânien horizontal a pu être calculé chez 108 crânes adultes (T20 à 85) auxquels on doit ajouter les 107 crânes des 10 premières tombes.

L'indice exprime en moyenne la mésocrânie, aussi bien chez les hommes (76,1, N=127) que chez les femmes (77,1, N=97). Ces deux valeurs sont identiques à celles des 10 premières tombes (77 pour les 2 sexes). Il n'existe donc aucun dimorphisme sexuel concernant ce caractère. Les variations minimales et maximales vont également dans le même sens depuis l'hyper-dolichocrânie (exclusivement masculine) à l'hyperbrachycrânie (présente dans les deux sexes):

Hommes: 76,1 (66,8-87,3)
Femmes: 77,1 (70,9-87,3)

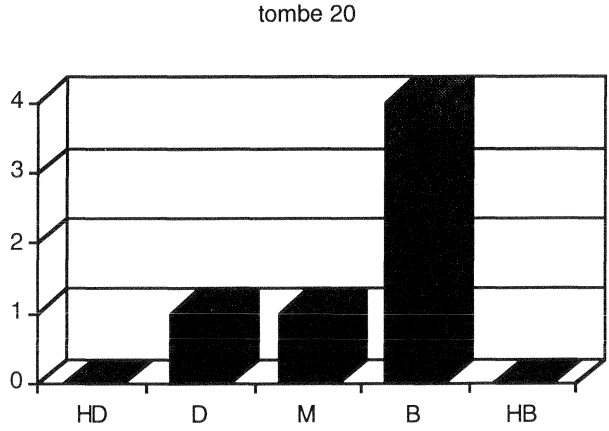
Si l'on considère les valeurs individuelles de tous les sujets, il apparaît en revanche une certaine diversité, plus marquée chez les hommes (écart-type = 5,4) que chez les femmes (4), se répartissant de la manière suivante:

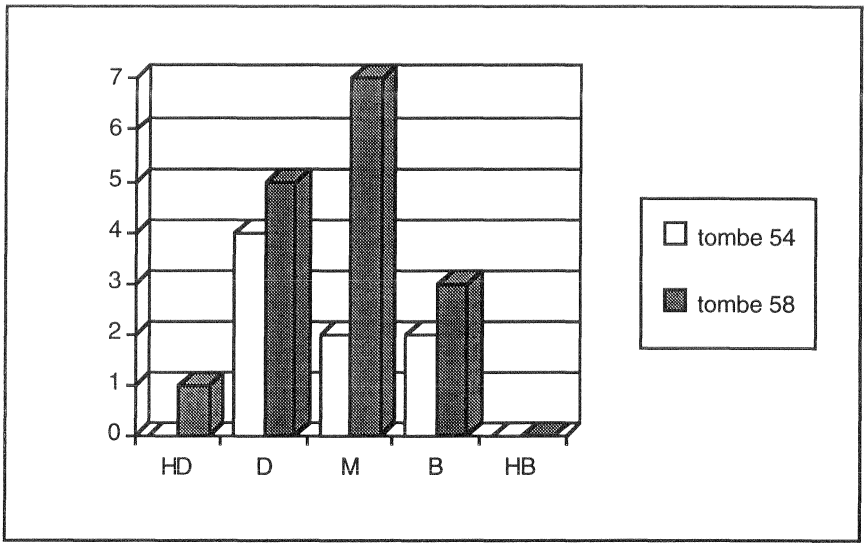


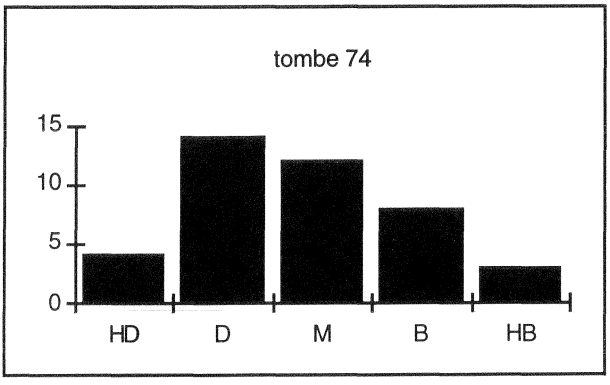
HB : hyper-brachycrânes, B : brachycrânes ; M : mésocrânes ; D : dolichocrânes, HD : hyper-dolichocrânes

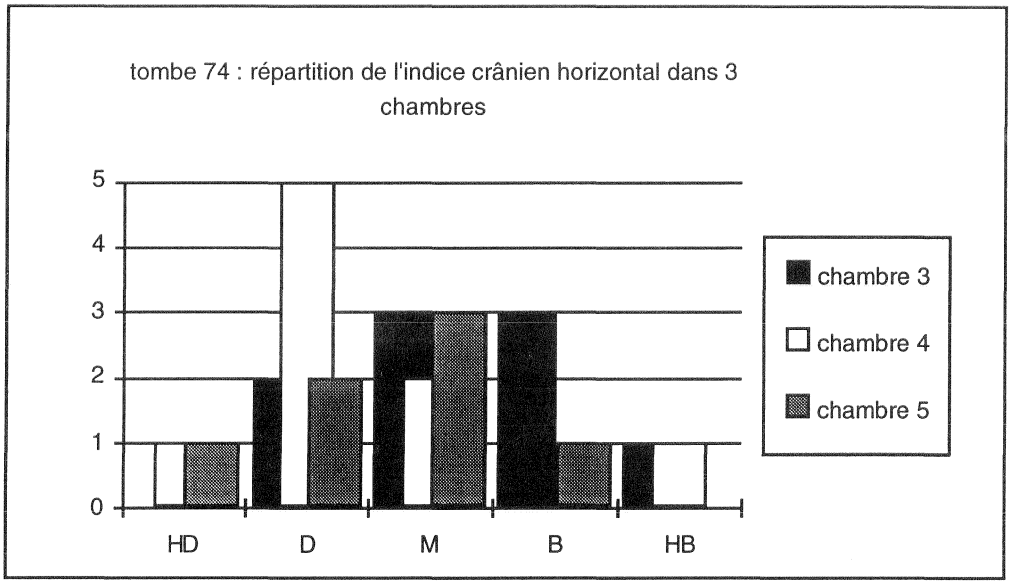
Répartition de l'indice crânien horizontal dans la population de Douch

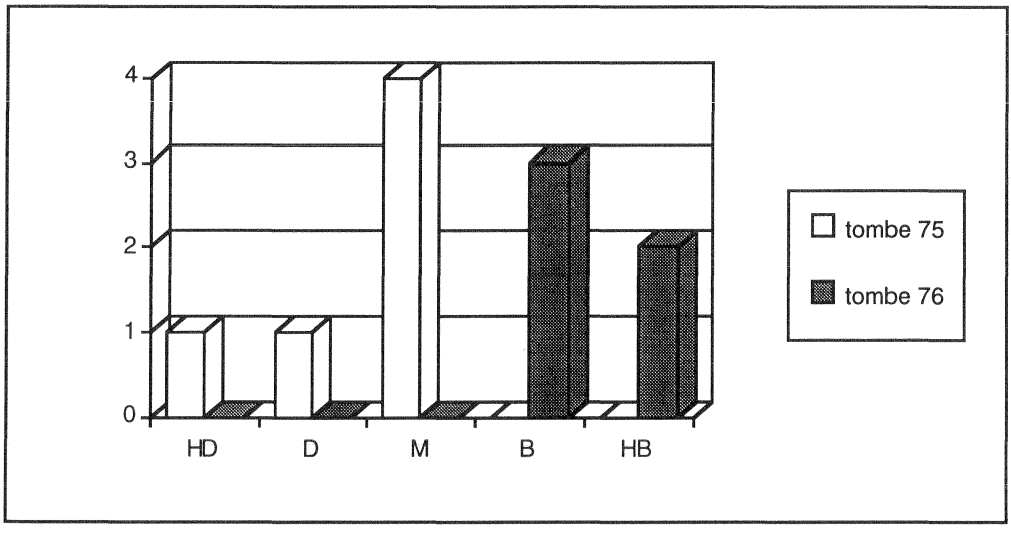
- 7 hyper-brachycrânes dont 2 de la tombe 76, 1 dans les tombes 27, 65 et 74.
- 21 brachycrânes dont 4 dans la tombe 20, et présents dans les tombes 54 et 58, 1 dans la tombe 59, 8 dans la tombe 74 dont 3 de la même chambre, 3 pour la tombe 76.
- 38 mésocrânes relevés dans 8 tombes, principalement la tombe 74 mais répartis dans 6 chambres, alors que la tombe 75 comporte 4 cas sur les 11 crânes.
- 36 dolichocrânes: 5 dans la tombe 59 dont 4 dans la même chambre, 14 dans la tombe 74 dont 6 proviennent de la chambre 4 et 2 de la chambre 5, 1 dans les tombes 75 et 77.
- 6 hyper-dolichocrânes: 4 proviennent de diverses chambres de la tombe 74 + 1 de la tombe 58.




7
6
5
4
3
2
1
0
HD
D
M
B
HB
tombe 54
tombe 58


tombe 74
15
10
5
0
HD
D
M
B
HB


tombe 74 : répartition de l'indice crânien horizontal dans 3 chambres
5
4
3
2
1
0
HD
D
M
B
HB
chambre 3
chambre 4
chambre 5


4
3
2
1
0
HD
D
M
B
HB
tombe 75
tombe 76

Il convient de signaler que la tendance brachycrâne s'observe davantage chez les femmes. Les indices les plus élevés se rencontrent essentiellement dans les tombes 27, 54, 58, 74 et 76 pour les 2 sexes ainsi que dans la tombe 49 (1 fillette brachycrâne) et dans les tombes 20 et 76 pour les hommes. Il est à rappeler que la tombe 20, avec 4 sujets masculins brachycrânes, regroupe à elle seule près du tiers de cette catégorie pour toute la nécropole. De plus, les tendances inverses observées dans les tombes 75 et 76 confirment l'impression générale d'un lien de parenté entre les sujets, ce qui en fait n'a rien de surprenant pour des tombes à vocation familiale. Hormis ces quelques cas, la répartition de l'indice crânien horizontal est diversifiée dans toutes les tombes. Dans toutes les catégories de l'indice crânien, on rencontre des sujets graciles, robustes ou moyens.

La *hauteur crânienne* offre une grande diversité et comporte des crânes bas, moyens et hauts. Par rapport à la longueur antéro-postérieure (I.H/L), les crânes les plus hauts représentent un peu plus de la moitié de la population en raison de la mésocrânie et de la dolichocrânie qui sont nettement plus fréquentes que les crânes courts. La tendance basse par rapport à la longueur du crâne ne dépasse pas 21% de la population. La hauteur au basion apparaît proportionnellement plus faible que la hauteur au porion.

Les individus dont le crâne est le plus élevé, autant par rapport à la longueur (hypsicrânes) que par rapport à la largeur (acrocrânes) concernent principalement des dolichocrânes provenant des tombes 27, 49 et surtout 58 et 59. D'autre part le dimorphisme sexuel n'est pas en cause et si la proportion de crânes bas est plus importante dans le sexe masculin, c'est également chez les hommes que l'on retrouve le plus de crânes hauts (25 contre 13 femmes).

Les crânes bas (chamaecrânes, tapeinocrânes et bas) proviennent des tombes 20, 27, 29, 49, 58 (1 cas) et 59 (2 cas), et concernent la plupart des individus de la tombe 54. On voit donc, malgré la diversité, se dessiner quelques tendances particulières à certaines tombes. La faible hauteur crânienne de la tombe 54 et, dans une certaine mesure, des tombes 20 et 27, confirme la probabilité de gènes communs.

Le front: L'indice fronto-pariétal transverse qui rapporte la largeur minimale du front à la largeur maximale de la boîte crânienne fait apparaître une nette prédominance des fronts larges (eurymétopisme), ce caractère étant le fait de l'étroitesse relative du neurocrâne. Ce fait se confirme également par rapport à la largeur de la face (indice fronto-zygomatique) et à la largeur bigoniaque de la mandibule qui accuse la même tendance. Le front large ou à tendance large intéresse en effet 62% des sujets de tous âges et des deux sexes avec toutefois un nombre relativement plus élevé dans le sexe masculin. Il en est de même d'ailleurs pour les sténométopes ou sujets au front étroit qui sont majoritairement des hommes. Il convient également de noter que le front étroit se rencontre plus fréquemment chez

les brachycéphales 62,5%), ce qui n'a rien d'étonnant puisqu'il s'agit d'une mesure relative. Autrement dit, les variations de l'indice fronto-pariétal sont distribuées d'une façon assez uniforme dans la population de Douch, les tendances constatées tenant principalement à la répartition non identique des deux sexes.

La forme du front est exprimée par l'indice frontal transversal qui objective le degré de divergence ou de parallélisme des crêtes frontales. Un fait apparaît certain: nous n'avons relevé qu'un seul cas de parallélisme véritable (indice > ou = à 100). La majorité des crânes présentent des crêtes de type intermédiaire, équitablement réparti entre hommes et femmes. La divergence est plus rare (9 cas) et toujours associée à un front étroit, fait rencontré avec une fréquence non négligeable dans la tombe 54. De même la tendance à la divergence des crêtes frontales est plus prononcée dans la tombe 20 (caractère familial probable) alors qu'elle est moindre chez les sujets de la tombe 56.

Enfin, il convient de noter que le métopisme, total ou partiel, est rare: 8 crânes sont concernés dont 4 et 2 respectivement des tombes 74 et 58.

Le profil occipital est le plus souvent convexe mais la présence d'un chignon occipital n'est pas exceptionnelle (12% des cas) avec des fréquences non négligeables dans les tombes 74 (25 cas), 49 et 75 sans différences liées au sexe.

Il est difficile de préciser la fréquence des os surnuméraires dans l'ensemble de la nécropole: les radiographies ne font pas toujours apparaître clairement ce caractère, et leur identification est délicate en raison de la conservation du cuir chevelu. Nous avons reconnu la présence de ces os sur 61 crânes provenant essentiellement des tombes 27, 59, 74, 75, 76 et 77 qui n'ont livré que des squelettes. Ces os ont été néanmoins reconnus sur trois têtes radiographiées provenant des tombes 20, 49 et 58. Bien que leur fréquence constatée pour l'ensemble des crânes soit notablement élevée par rapport à d'autres populations (21%), il convient de souligner leur fréquence particulièrement élevée dans certaines des tombes:

tombe 27: 7/10	soit 70%
tombe 59: 5/9	soit 55%
tombe 74: 37/71	soit 47,8%
tombe 75: 5/11	soit 45,5%
tombe 76: 6/8	soit 75%
tombe 77: 1/5	soit 20%

En d'autres termes, plus de la moitié des sujets présentait des os surnuméraires ce qui laisse supposer une fréquence relativement importante par rapport à d'autres populations. Tous les os suturaux sont localisés aux carrefours articulaires (lambda,

ptérion, astérion) ou le long de la suture lambdoïde. Seul trois cas d'os épactal sont présents dans la tombe 74.

Ces fréquences vont de toute évidence en faveur de la nature familiale des tombes, fait largement confirmé par d'autres caractères.

La forme du *ptérion*, lorsqu'elle peut être définie, est principalement en "H". 2 crânes présentent toutefois la disposition en "K", un seul en "X".

La *capacité crânienne* a été calculée d'après les formules de Olivier et Aaron qui s'écrivent:

3882(Lmax. x l.max. x H Ba-B)+123+-67 cc

3933(Lmax. x l.max. x H Po-B)+278+-73 cc

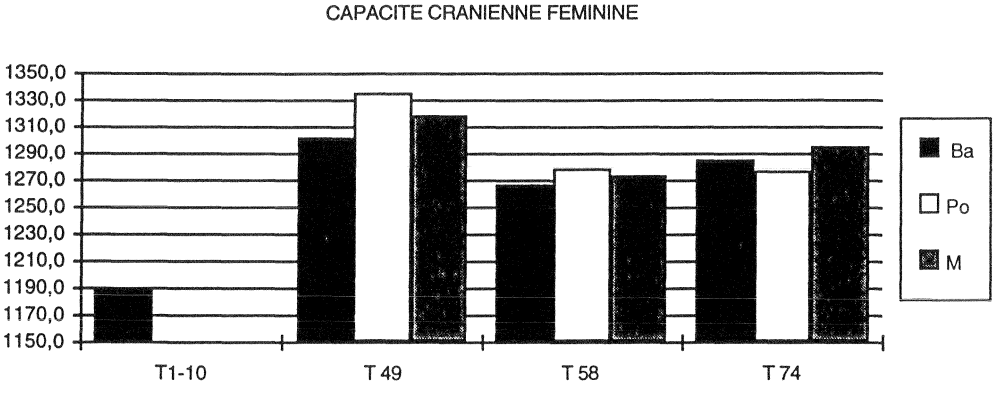
(dimensions crâniennes en millimètres)

Nos mesures ont donné les résultats suivants sur 110 sujets adultes (en cm^3):

	Femmes	**Hommes**	**Dimorphisme sexuel**
N. individus	42	68	
Moyenne	1297	1416	0,91
Variations	1137-1537	1198-1643	
Écart-type	89	896	

Pour les 53 femmes provenant des 10 premières tombes, la capacité crânienne est de 1197 cm^3 (au basion), mais comme la différence moyenne entre mesures obtenues avec le basion (Ba) est d'environ 1% supérieure au mesures au porion (Po), la différence apparaît négligeable. En fait, si l'on considère individuellement certaines tombes, et notamment celles qui ont permis le plus de mesures, on constate la tendance inverse c'est-à-dire la supériorité de la capacité crânienne au porion, ce qui confirme le fait souligné plus haut concernant la hauteur du crâne. Autrement dit, il n'y a pas de différence entre les deux observateurs et les deux groupes de tombes.

Différences entre les tombes:



L'amplitude de variation est de 489 cm^3 et confirme la grande variabilité de ce caractère au sein d'une population qui paraît au prime abord relativement homogène par sa structure anatomique.

2.3. La face

Les variations notables mises en évidence sur le neurocrâne se retrouvent également au niveau de la face.

L'indice facial supérieur calculé sur les tombes 18 à 85 varie de l'hyper-euryénie (59,6) à la lepténie (33,6) avec une valeur moyenne (50,3 pour les hommes, 51,2 pour les femmes) objectivant la mésénie. La face est donc modérément haute et étroite avec une proportion équivalente de faces plutôt basses ou larges et de faces moyennement hautes. La répartition est indépendante du sexe, les deux tendances se distribuant d'une façon équivalente chez les hommes et les femmes. De même on ne constate pas de différences nettes entre les tombes malgré la fréquence très faible ou nulle de faces léptènes dans les tombes 49, 54, 56 et 58. Les 10 premières tombes montrent toutefois des valeurs légèrement supérieures (51,5 pour les hommes et 53,2 pour les femmes).

Etant donné que mésocrânie et mésénie apparaissent comme les deux tendances dominantes dans la morphologie crânienne de la nécropole, on pourrait s'attendre à une prédominance des *crânes "harmoniques"* où une face moyennement élevée répond à la mésocéphalie. En fait, la fréquence des crânes harmoniques et dysharmoniques est sensiblement la même compte tenu du faible nombre de crânes courts ou larges. Le caractère typiquement harmonique (mésocrâne / mésène; dolichocrâne / leptène; brachycrâne / euryène) concerne plus du quart des sujets, la fréquence s'élevant à 43% si l'on associe en outre la dolichocrânie à la mésénie:

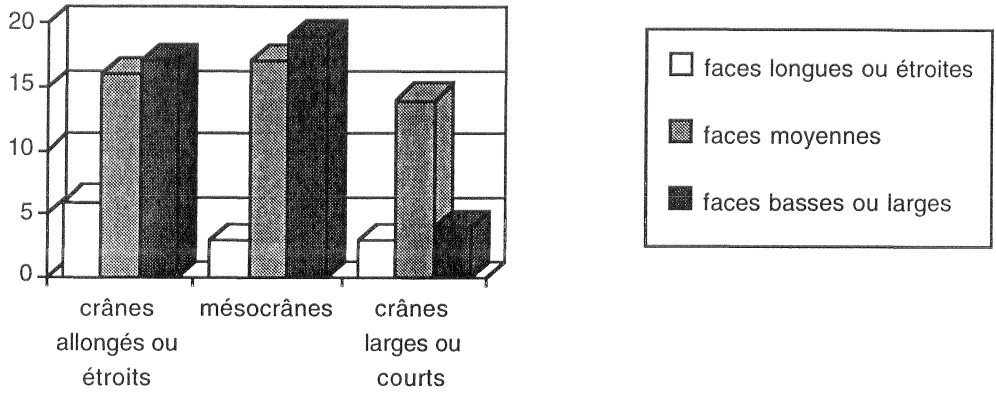
Crânes harmoniques ou à tendance harmonique:

- association brachycrâne/euryène: 4 cas;
- association dolichocrâne/leptène: 6 cas;
- association mésocrâne/mésène: 17 cas essentiellement des tombes 27, 58 (5 cas) et 59;
- tendance dolichocrâne/mésène: 16 cas.

Quant aux crânes typiquement dysharmoniques rencontrés à Douch, ils représentent 41% des cas et concernent les associations suivantes:

- brachycrânes/leptènes: 3 cas
- dolichocrânes/euryènes (faces larges ou basses) comporte 17 cas provenant des tombes 27 (chambre 2), 49, 54, 58 (chambre 2) et 74 (chambre 4).
- mésocrânes/euryènes ou leptènes: 21 cas

La présence de tel ou tel type d'association dans un certain nombre de tombes reflète certainement le lien familial entre les occupants.



Cela montre bien qu'aucune tendance très nette ne s'affirme et qu'il s'agit d'une population assez ouverte qu'il ne convient en aucun cas d'assimiler à un isolat.

Le *prognathisme* est mis en évidence par plusieurs angles dans le plan sagittal ainsi que par l'indice gnathique de Flower. Les résultats objectivent une tendance générale à l'orthognathisme associé à un mésognathisme ou même à un prognathisme de la région alvéolo-sous-nasale.

Le prognathisme proprement dit est rare et se rencontre d'une façon générale dans diverses tombes. Dans les cas (exceptionnels) où il est très marqué, il concerne principalement les femmes et confirme le lien familial entre les sujets (tombe 58).

L'indice nasal a pu être calculé dans une centaine de cas et couvre toutes les variations entre l'hyper-chamaerhinie (ouverture nasale très large) et la leptorhinie, et se distribue de la façon suivante:

- hyper-chamaerhinie: 5 (4 femmes, et 1 homme)
- chamaerhinie: 43
- mésorhinie: 25
- leptorhinie: 31

Aucun cas d'hyper-leptorhinie n'a été relevé.

Il n'existe pas dans l'ensemble de répartition significative selon le sexe sauf pour les cas extrêmes de la distribution où les 4 des 5 hyper-chamaerhiniens sont du sexe féminin. En raison du nombre inégal de sujets des deux sexes, on constate une légère tendance à la mésorhinie chez les hommes (indice moyen = 49,3) et la chamærhinie chez les femmes (indice moyen = 52,9), c'est à dire une ouverture nasale plus large, ce caractère s'inscrivant d'ailleurs avec une face à tendance moins haute dans le sexe féminin.

La répartition selon les tombes ne montre pas de tendance particulière, sauf pour la tombe 27 (tendance à l'ouverture nasale étroite) et la tombe 58 (tendance à l'ouverture nasale large).

La morphologie du bord de l'ouverture nasale n'est guère mise en évidence sur les radiographies. La présence de fossette ou de sillon prénasaux apparaît sur 37 crânes provenant des tombes 27 (6 cas) et 59 (5 cas), 74 (20 cas), 75 (5 cas) et 82 (1 cas). Il est probable qu'une telle fréquence devait être à peu près la même dans toutes les tombes. Ce caractère est généralement considéré comme un caractère "africain" en raison de sa fréquence plus élevée chez les Noirs.

Le caractère "négroïde" classiquement défini par la coexistence chez le même individu du prognathisme, d'un indice crânien faible (non brachycrâne), d'une ouverture nasale large présentant une gouttière ou un sillon prénasal est représenté dans 13 cas provenant des tombes 49, 54, 58, 59, 64 et 74. En fait l'observation des têtes montre l'existence d'os nasaux redressés, de cheveux fins ou tout au plus ondulés, jamais frisés ou crépus. Deux crânes secs (74.5.1.4 et 5.1.6) montrent la coexistence de tels caractères réputés "négroïdes" sans qu'il soit permis de le confirmer sur les parties charnues ou sur les cheveux.

Quoiqu'il en soit, la composante mélano-africaine semble tout à fait exceptionnelle dans cette nécropole, bien que l'existence possible de gènes d'origine soudanaise ne soit pas totalement à exclure.

Les orbites présentent une très nette tendance à une hauteur élevée (hypsiconques) qui concerne plus de 72% des sujets, les orbites basses n'atteignant pas 8%.

La forme de *l'arcade dentaire* (indice maxillo-alvéolaire) fait également l'objet de variations étendues entre la dolicho-uranie et l'hyper-brachy-uranie, la tendance à l'arcade large ou courte l'emportant nettement dans le sexe masculin.

2.4. Mandibule

Sur 76 mandibules adultes étudiées, l'indice mandibulaire présente une grande diversité entre les mandibules dolichognathes (30 cas), brachygnathes (24 cas), mésognathes (16 cas) et hyper-brachygnathes (6 cas), la valeur moyenne de l'indice se situant dans la classe mésognathe, classe qui en fait est la moins représentée dans les 2 sexes (20%). La tendance sexuelle est pratiquement nulle car la distribution des mandibules dolichognathes et brachygnathes est comparable.

La divergence des branches montantes semble assez nettement liée au sexe dans la mesure où la totalité des 14 mandibules dont les branches montrent le parallélisme sont masculines, alors que la divergence des branches intéresse les deux sexes dans des proportions équivalentes.

Le menton est le plus souvent bien marqué et l'extroversion des gonions (ou angles mandibulaires) concerne 95% des mandibules. Il s'agit d'un caractère typique de ce groupe concernant aussi bien les hommes que les femmes.

2.5. Les dents

Les dents sont généralement en très mauvais état bien que les caries occupent une place relativement faible dans la pathologie dentaire, celle-ci relevant principalement d'une usure précoce et prononcée avec les conséquences habituelles concernant les lésions apicales, les granulomes et les abcès. Certaines formes d'usure très prononcée des dents labiales par rapport aux dents jugales se rencontrent sur une dizaine de sujets provenant de la tombe 74 notamment des chambres 3 (1 cas), 4 (6 cas) et 5 (3 cas) en rapport probable avec un mode d'activité (peut-être professionnelle?) des occupants de la tombe. Les pertes *ante mortem* sont très nombreuses, notamment sur le secteur jugal avec une fréquence importante de la résorption des bords alvéolaires, parfois même totale. Les agénésies (notamment des 3èmes molaires) ont été relevées sur 20 sujets provenant principalement des tombes 74 (13 cas), 59 (3 cas) et 65 (2 cas sur les 3 sujets de la tombe) signant une fois de plus le caractère familial des tombes.

2.6. Pathologie osseuse

La pathologie générale de la nécropole est développée dans le présent article par l'un de nous (R. Lichtenberg) notamment à partir des examens radiographiques des momies et des os. A ce propos, les stries d'arrêt de croissance sont particulièrement fréquentes, traduisant un état de santé médiocre en particulier au cours des premières années de la vie.

L'examen macroscopique des os fait apparaître de nombreuses pathologies dont les diverses formes d'arthroses (coxarthroses, gonarthroses, spondylarthroses, syndromes fémoro-patellaires, etc...) dominent très largement le tableau avec les scolioses, les signes patents de décalcification, les fractures et de nombreuses altérations de nature diverse: traumatique, infectieuse ou dégénérative, notamment celles liées à l'ostéoporose. Quelques cas d'asymétrie de longueur des membres ont été relevés.

Des pathologies nettement plus rares méritent d'être mentionnées: cancers possibles, un cas de lèpre semble probable d'après les altérations faciales (74.3.1.5). Le sujet 58.1.1.9 présente une forme de nanisme achondroplasique pouvant être interprété comme une affection du groupe des mucco-poly-saccharidoses (chondrodysplasie spondylo-épiphysaire ou syndrome de Hurler). Quelques cas semblables ont été décrits dans la littérature.

L'étude paléopathologique de la nécropole de Douch fera prochainement l'objet d'une étude plus complète en attendant qu'un diagnostic plus précis puisse être proposé pour un certain nombre de cas. Notre présente étude se devait toutefois d'en souligner l'intérêt.

3. Les enfants

Les enfants mis au jour dans la nécropole correspondent à 13,4% des sujets identifiés. Leurs restes osseux ou momies proviennent des 10 premières tombes et des tombes 20, 49, 54, 58, 59, 73, 74, 75 et 77. En général, ils ne dépassent pas 3 ou 4 par tombe, hormis la tombe 73 où nous avons pu en identifier pour le moins une vingtaine qui compte d'ailleurs la quasi totalité des foetus, nouveau-nés ou tout jeunes enfants qui ne dépassent pas 3 ans et demi, sauf 1 cas d'environ 5 ans. Il semble que la concentration de tels enfants dans une seule tombe, à proximité d'ailleurs d'une tombe complexe et particulièrement riche en occupants, ne soit pas le fait du hasard mais bien d'une intention d'inhumer à part les tout jeunes enfants du reste de la population. La stature varie de 70 cm à 1,50 m selon l'âge et la capacité crânienne de 1047 à 1253 cc. Ces deux variables ont atteint les limites des valeurs adultes dès l'âge de 7 ans ce qui laisse supposer une croissance relativement rapide.

Les tendances anthropologiques observées chez les enfants répondent à peu près à ce que nous avons mis en évidence chez les adultes avec une grande diversité apparente des caractères, même sur notre échantillon restreint. On y retrouve des brachychéphales et des dolichocéphales, la hauteur crânienne est très variable ainsi que la forme du front ou la morphologie faciale. Le prognathisme est nul ou modéré et l'ouverture nasale à prédominance étroite, les orbites hautes ou très hautes, caractère qui se maintient chez les adultes.

Le nombre d'enfants mis au jour ne permet pas une étude longitudinale complète bien que leur morphologie soit tout à fait comparable avec ce que l'on connaît dans d'autres populations. Par exemple, la forme corporelle est de type longiforme jusqu'à l'adolescence. La croissance transversale qui va suivre fera apparaître alors une proportion plus élevée de brévilignes.

4. Conclusion

Les habitants de Douch répondent par conséquent à une prédominance du type classiquement désigné comme "méditerranéen" avec un dimorphisme sexuel normal, une structure menue à tendance longiforme, une stature assez faible, un crâne à prédominance mésocéphale ou dolichocéphale, un prognathisme modéré, un menton bien marqué. Toutefois, il s'agit d'une population assez diversifiée si l'on considère individuellement les caractères, ce qui laisse supposer un groupe assez ouvert à des échanges géniques extérieurs, bien que ces échanges ne dussent point en règle générale dépasser un certain rayon régional. Tout en demeurant une zone de passage et un lieu stratégique, le fonds de la population, liée à sa terre par un mode de vie rural au cœur d'une région probablement fertile, a gardé malgré tout une certaine homogénéité; la diversité rencontrée oscille dans les limites normales d'une population, assez polymorphe certes, mais demeurant somme toute à prédominance locale.

La présence de traits qualifiés de "négroïdes" chez quelques sujets montre malgré tout qu'un apport possible de quelques populations ou d'individus isolés de type soudanais a pu se produire occasionnellement sans pour autant influer sur la nature fondamentalement "méditerranéenne" de la population. De même, l'existence de sujets nettement différents (arménoïdes ou typiquement nordiques) implique des apports en provenance d'Asie mineure et même d'Europe continentale. Douch, l'ancienne Kysis, était une place forte importante sous la domination romaine ainsi que l'attestent les fortifications qui bordaient le *limes* de l'Empire; de ce fait, la présence d'individus exogènes n'a rien d'étonnant puisqu'une discrète assimilation avec les populations locales a pu s'effectuer à une époque où la présence romaine s'était étendue tout autour du bassin méditerranéen.

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VIE, MALADIES, MORT ET MOMIFICATION SUR LE *LIMES*

R. Lichtenberg

Notre travail sur la population de Douch a essayé de préciser quelle était la vie quotidienne, quelles étaient la pathologie et les causes de mort, enfin quelle était la qualité de la momification.

Contrairement à la démarche traditionnelle qui consiste à explorer les momies conservées dans les Musées, de provenance souvent inconnue, nous avons choisi d'étudier sur place les momies provenant d'un même site, ce qui nous permet d'avoir une "population" homogène et non des individus disparates. Ce choix pose un problème technique: réaliser des radiographies sur le terrain, dans des conditions le plus souvent précaires.

Ainsi, la technique radiographique utilisée s'apparente très étroitement à la radiologie de guerre, sur le champ de bataille. Pour ce faire, nous disposons d'un

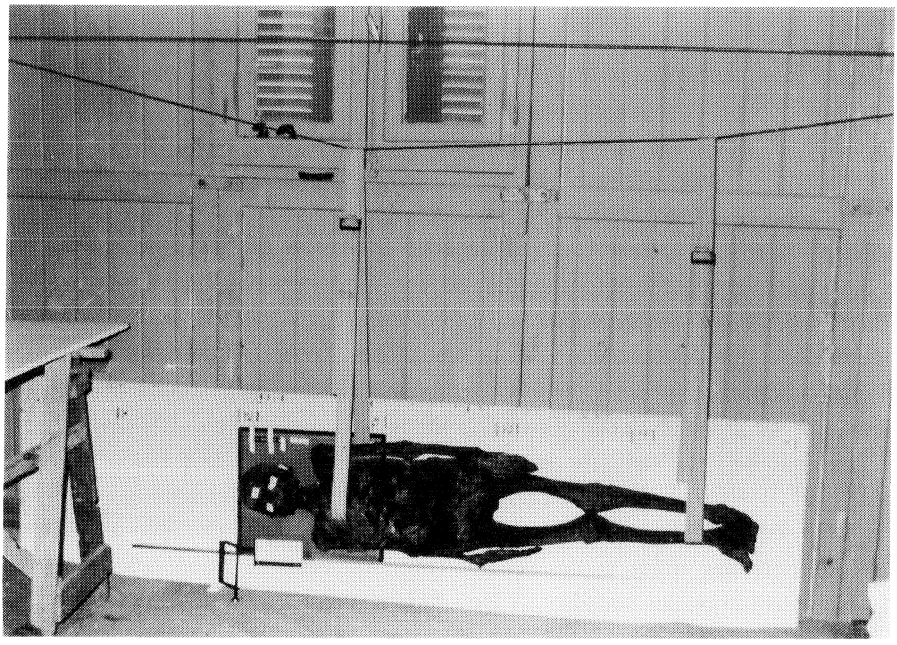


Figure 1. Momie suspendue dans les sangles, prête à la radiographie. On distingue la mire plombée, placée à droite de la tête (cliché Dr R. Lichtenberg).

appareil de radiographie portatif de conception relativement ancienne, mais fiable et robuste, qualités essentielles dans les conditions d'utilisation difficiles. N'ayant pas de statif permettant d'orienter le tube radiogène, on a disposé l'appareil à poste fixe. Ce sont les momies qui sont placées dans la position convenable: elles sont suspendues à l'aide de sangles de parachute, ce qui permet de réaliser les incidences les plus variées (Fig. 1). La seule contrainte est que les momies soient suffisament rigides pour être suspendues.

En fait, si effectuer des radiographies est relativement aisé, le problème le plus difficile à maîtriser est celui du traitement des films. Il faut installer une chambre noire et maintenir les bains à la bonne température afin d'obtenir un développement régulier, ce qui n'est pas toujours simple dans le désert où la température varie beaucoup. Si le développement requiert tous nos soins, le fixage et le lavage sont moins importants, car ces opérations sont systématiquement reprises de retour en France afin d'assurer la pérennité des images.

Les radiographies sont en règle générale prises à une distance de trois mètres (téléradiographies), ce qui limite l'agrandissement à moins de 5%. Une mire plombée est placée dans le champ radiographié, ce qui permet une correction précise de l'agrandissement géométrique et des mesures anthropologiques sans erreur. Cette technique radiométrique est si fiable qu'après comparaison avec les mesures anthropologiques classiques on a pu mélanger les données métriques anthropologiques et radiographiques.

Au cours des différentes campagnes de travail de 1982 à 1991, 68 sujets ont été radiographiés parmi lesquels 12 têtes isolées. 56 momies complètes ont été radiographiées, c'est à dire tête et ensemble du corps, ce qui permet de faire un bilan assez précis de leur état. En général, environ 8 clichés sont réalisés pour chaque momie, comprenant au minimum deux incidences orthogonales de la tête et les clichés de l'ensemble du corps. La radiographie n'est pas seule utilisée. On procède toujours à un examen clinique approfondi, complété par des photographies anthropométriques, prises dans des conditions strictes (Fig. 2 et 3). En fait notre démarche s'apparente à celle d'un médecin légiste.

Le bilan de l'état sanitaire de cette population comporte:

- l'étude des *stries d'arrêt de croissance*. Ces stries, décelables uniquement par la radiographie, sont visibles au niveau des os longs, par exemple à l'extrémité inférieure des tibias et des fémurs (Fig. 4). Elles reflètent des périodes de malnutrition ou des maladies. À Douch, leur incidence est très élevée, atteignant presque 2 sujets sur 3 (34 sur 56). Pour rendre la statistique encore plus représentative, nous avons radiographié les fémurs et les tibias correspondants de 44 momies réduites à l'état de squelette, ce qui nous donne un total de 100 sujets. Sur cet ensemble les stries d'arrêt de croissance ont été observées dans 54% des cas. Gray, sur 138 momies de Musées, ne les trouve que dans un peu

plus de 30% des cas (Gray 1986). Il est très probable que ces momies, par ailleurs de meilleure facture, provenaient de classe sociales plus élevées et de populations vivant dans la Vallée, donc ayant eu une vie plus facile. Dans le cas des familles royales, ces stries sont tout à fait rares: Wente ne dénombre que 3 cas, soit seulement 10% (in: Harris & Wente 1980). Les stries d'arrêt de croissance constituent ainsi un bon reflet du niveau de vie des populations.

- *l'arthrose* est extrêmement fréquente. Apparaissant très tôt dans la vie, elle résulte probablement d'une activité physique précoce: le portage devait être la règle, conséquence de la rareté des animaux de bât (Dunand *et al.* 1992). En effet, si les habitants de Douch avaient reconstitué un cadre de vie semblable à celui de la Vallée, avec une agriculture par irrigation rendue possible par la présence d'eau venant de la nappe phréatique, le plus souvent par des puits

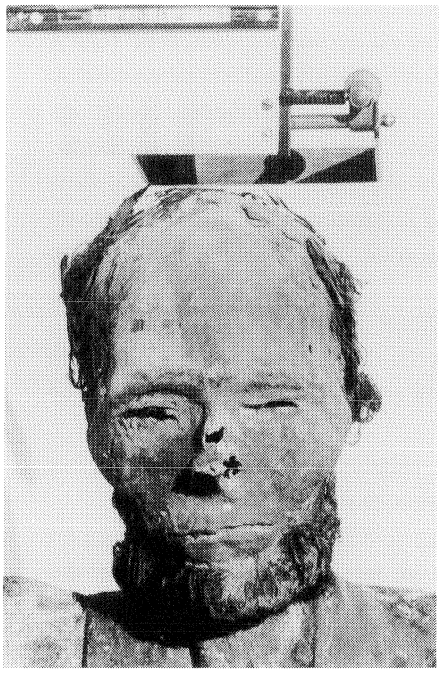




Figure 2 (à gauche). Photographie de face de la tête d'une momie d'homme ayant conservé ses cheveux et son collier de barbe. Noter les altérations du nez par les dermestides (cliché Dr R. Lichtenberg).
Figure 3 (à droite). Tête d'une momie de femme. Présence de tampons de lin dans les orifices narinaires témoins de l'excérébration ainsi que le tampon fermant l'orifice buccal (cliché Dr R. Lichtenberg).

artésiens, mais aussi par un système très élaboré de "qanâts" (Bousquet & Reddé 1992), l'avance du désert et l'épuisement progressif des nappes rendait l'élevage problématique. Même si les articulations des membres sont parfois le siège de quelques très beaux cas d'arthrose, celle-ci atteint essentiellement le rachis: 33 fois sur un total de 43 adultes dont l'âge est évalué à 20 ans ou plus, soit 76%, ce qui est considérable, en comparaison des chiffres de Gray (19%).

- La *déminéralisation osseuse* n'est pas rare. Elle est patente sur plusieurs momies de femmes âgées. Un cas est exemplaire: fracture du col du fémur (Fig. 5 et 6) associée à des tassements vertébraux et à d'autres fractures, survenus dans un tableau de décalcification importante résultant d'un adénome de l'hypophyse. La tombe P1, encore incomplètement fouillée, contient 6 sujets, 2 bébés, 2 enfants de 5/6 ans, un adolescent de 17/18 ans et un adulte âgé de sexe masculin. Tous présentent un aspect particulièrement déminéralisé de leur squelette.
- d'autres maladies sont liées au mode de vie de cette population: nous avons décelé deux cas de *bilharziose*, ce qui a priori est surprenant dans cette région subdésertique. Les oasites avaient reconstitué une agriculture d'irrigation comme dans la Vallée. Ainsi, ils allaient pieds nus dans leurs champs inondés, conditions idéales pour être contaminés par la bilharziose. Cette maladie est représentée dans sa forme urinaire dont témoignent les calcifications vésicales et aussi dans sa forme digestive, avec opacité de la région hépatique. La filariose (filaire de Médine) dont nous avons observé deux cas reste une maladie endémique en Égypte.
- D'autres maladies ont été identifiées: *appendicite*, *typhoïde*.
- Les *traumatismes* sont assez bien représentés. En dehors de la fracture du col du fémur déjà citée, on a observé des fractures du crâne, des fractures-tassement de vertèbres.
- *L'état dentaire* est globalement mauvais avec abrasion dentaire marquée dès que l'on avance en âge. En revanche, les caries sont rares.
- L'étude de la *longévité* (Fig. 7) ne montre pas de différence sensible par rapport aux populations de la Vallée, dont l'étude a été menée par Bagnall à partir des documents papyrologiques (Bagnall & Frier 1994). Elle s'établit à Douch à environ 38 ans. Il faut préciser qu'il s'agit d'une évaluation qui ne peut être que grossière étant donné l'existence quasi certaine d'une mortalité périnatale effroyable. Sans doute a-t-on trouvé à Douch deux tombes (19 et 73) qui ne contenaient pratiquement que des restes d'enfants ou de foetus. Mais ces restes demeurent rares: la mauvaise momification rend compte de la disparition fréquente des restes des petits enfants. De plus il est probable que ces pauvres paysans ne pouvaient pas assumer facilement les frais élevés de la momification pour leurs enfants nouveau-nés.

- Le bon état de certaines momies nous a permis de déceler qu'elles étaient *circoncises*, ce qui ne laisse pas de poser un problème étant donné que cette pratique n'était autorisée qu'aux prêtres à l'époque romaine. Nous avons noté 4 circoncisions sur 11 cas où il était possible de se prononcer, ce qui est élevé.
- À Douch, petite bourgade reculée, la *momification* est de qualité satisfaisante. Et surtout, elle s'applique pratiquement à toute la population. Si les restes humains sont réduits à l'état de squelettes pour la moitié d'entre eux environ, il est évident que les squelettes sont en fait des momies altérées par les mauvaises conditions de conservation. La proximité des tombes et des champs irrigués est la cause de nombreuses infiltrations d'eau dans certaines tombes. Sans doute la technique de momification la plus simple, qui a pour résultat des momies "noires", est le plus souvent observée. On a cependant plusieurs exemples de la momification de "première classe", qui conduit aux résultats les plus satisfaisants. L'éviscération crânienne est observée dans 40 cas sur le total de 68 têtes étudiées (Fig. 8 à 11) et l'éviscération abdominale, bien que beaucoup plus rare, est quand même observée dans 6 cas sur 56 (Fig. 12 et 13). Les momies les mieux faites ont parfois des traces d'or sur le visage, il s'agit d'un rituel funéraire que nous avons observé 8 fois sur 65 têtes.

La disposition des membres varie: si, en règle générale les membres supérieurs sont disposés parallèlement au tronc, avec assez souvent les mains ramenées sur les parties génitales chez les hommes, nous avons observé 3 sujets avec les membres supérieurs en position osirienne. Cette position, très souvent observée sur les momies royales, a même été considérée par certains comme spécifique des pharaons. Nous voyons qu'il n'en est rien. Les membres inférieurs sont le plus souvent disposés parallèlement, mais dans 7 cas sur 56 on les a trouvés croisés, sans que cette disposition accompagne la position osirienne des membres supérieurs.

Les conditions de vie dans l'oasis de Douch au début de notre ère étaient tout à fait comparables à celles de la Vallée. Mais l'épuisement des nappes phréatiques superficielles et les changements climatiques ont rendu l'existence de plus en plus difficile et rude. Le désert a progressivement gagné du terrain, ce qui a fini par entraîner l'abandon du site.

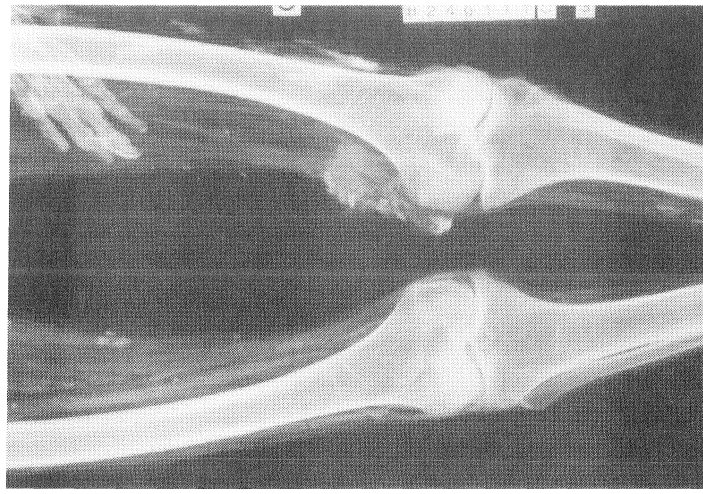


Figure 4. Radiographie de face des cuisses et des genoux d'une femme montrant des stries d'arrêt de croissance fémorales inférieures et tibiales supérieures. Noter la bonne visibilité des ménisques des genoux (cliché Dr R. Lichtenberg).

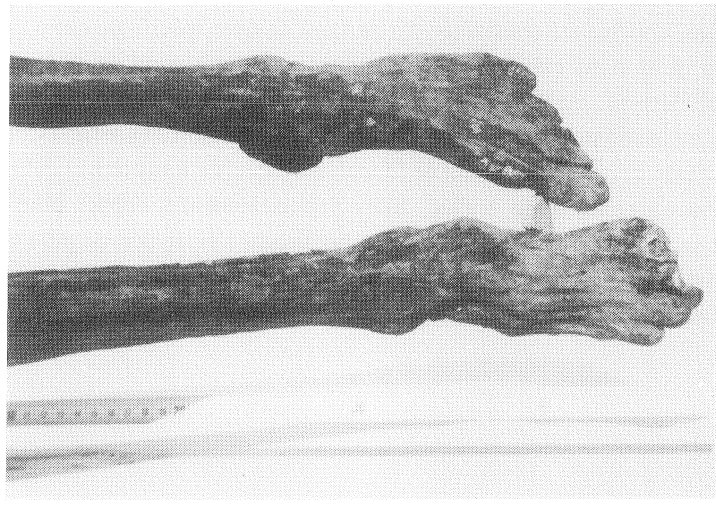


Figure 5. Extrémité inférieure des jambes et pieds d'une femme âgée. Le raccourcissement du membre inférieur gauche plaide en faveur de la présence d'une fracture du col du fémur gauche (cliché Dr R. Lichtenberg).



Figure 6. Radiographie de la moitié supérieure du fémur montrant la fracture du col du fémur, certainement cause de la mort (cliché Dr R. Lichtenberg).

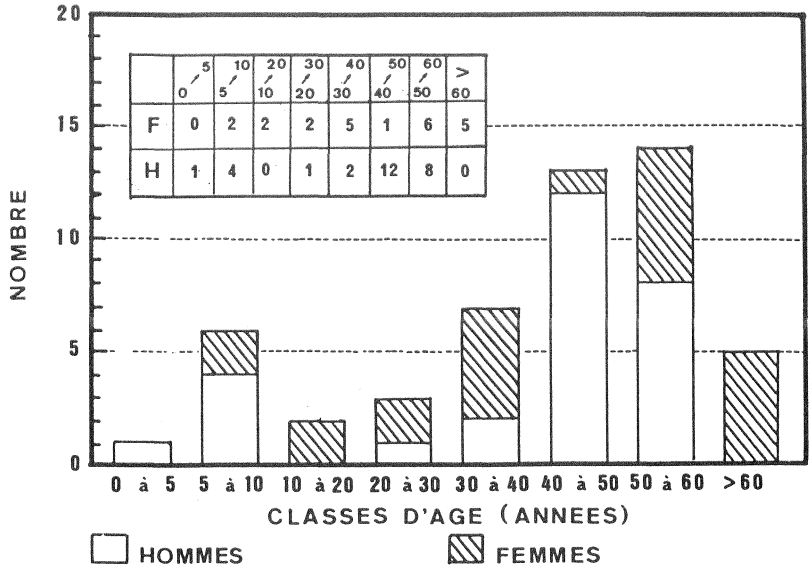


Figure 7. Tableau donnant l'âge à la mort en fonction du sexe de la population radiographiée à Douch.

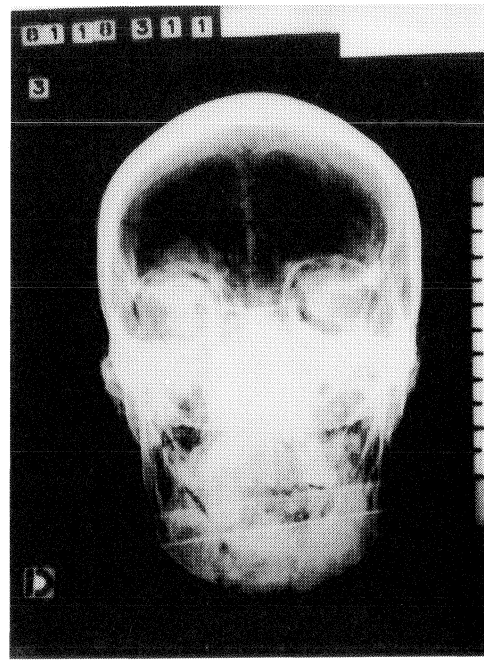


Figure 8. Radiographie de face du crâne d'un homme adulte. Présence de résine au niveau des orbites et des cavités de la face (cliché Dr R. Lichtenberg).

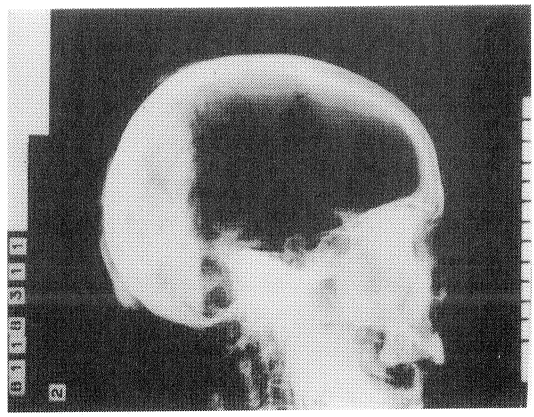


Figure 9. Radiographie de profil du crâne du sujet de la figure 8 montrant le niveau résineux occipital et la résine occupant les orbites, les sinus de la face et l'oro-pharynx. Ce sujet avait des feuilles d'or sur le visage (cliché Dr R. Lichtenberg).

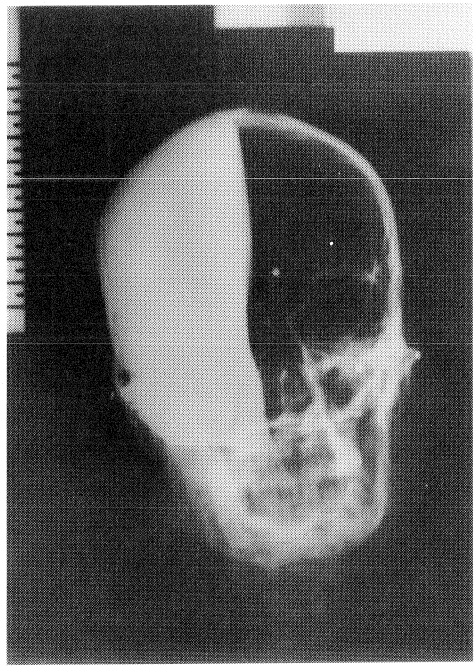


Figure 10. Radiographie de face du crâne d'un homme (cf. Fig. 2). La résine, introduite dans le crâne par les narines s'est solidifiée dans une position inusitée. Le sujet a dû être immédiatement placé en decubitus latéral droit après l'introduction de la résine, d'où le niveau sagittal (cliché R. Lichtenberg).

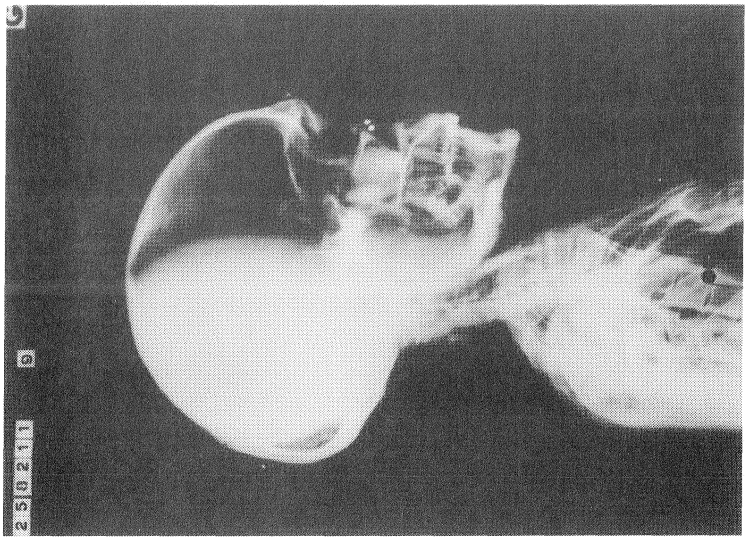


Figure 11. Radiographie de profil du crâne du sujet de la Fig. 9 montrant le niveau de résine tout à fait anormal. Par ailleurs le sinus maxillaire droit et l'oro-pharynx sont opacifiés par la résine, de même que la trachée (cliché Dr R. Lichtenberg).

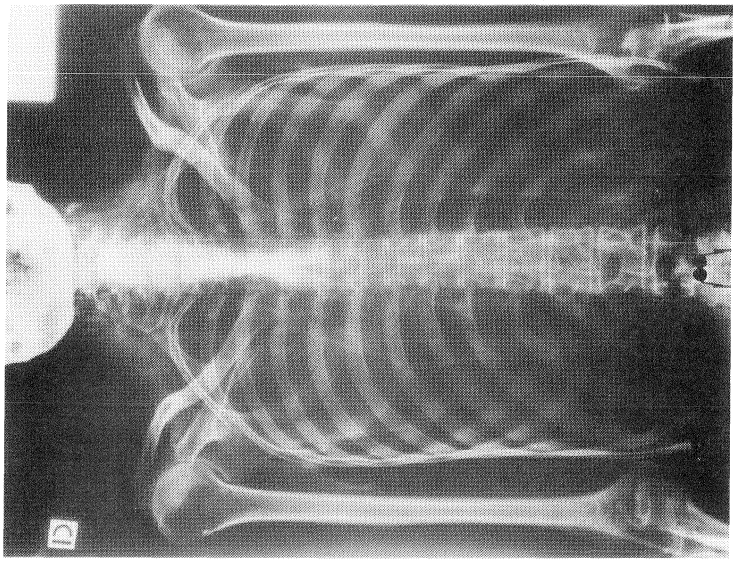


Figure 12. Radiographie de face du cou et du thorax d'un homme. La résine, introduite en abondance par le nez a rempli aussi l'oro-pharynx et la trachée jusqu'à sa bifurcation, permettant d'affirmer l'absence des poumons enlevés par l'orifice d'éviscération abdominale (cliché Dr R. Lichtenberg).

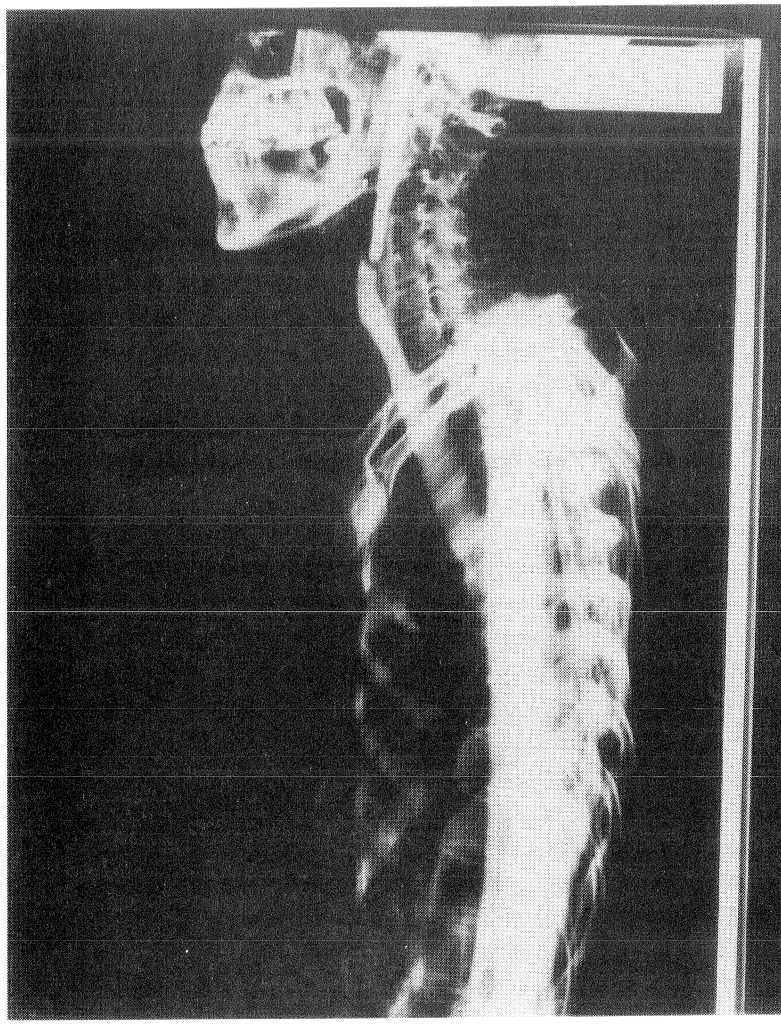


Figure 13. Radiographie de profil du cou et du thorax du sujet de la Fig. 11, montrant l'opacification de l'arbre pharyngo-trachéal (cliché Dr R. Lichtenberg).

PRATIQUES ET CROYANCES FUNÉRAIRES

F. Dunand

1. Introduction

Les momies de Douch sont anonymes. Il n'y a pas d'inscriptions funéraires qui nous donnent leurs noms ou leur âge; nous ne savons rien de ce qu'était leur situation, ni les circonstances de leur mort. C'est pourquoi il est si important de "faire parler" les données de l'anthropologie et de la pathologie, en les combinant à celles de l'archéologie. Ainsi, c'est la présence d'anomalies génétiques au niveau du rachis cervical qui a permis d'affirmer que deux momies d'hommes retrouvées dans la Tombe 20 de Douch, très soignées et très belles, appartenaient à la même famille: nous n'avions sur ces sujets aucune information. À cette occasion, nous avons pu constater, ce qui s'est souvent vérifié par la suite, que les corps bien momifiés, dont la conservation apparaissait satisfaisante, correspondaient généralement à un mobilier de bonne qualité. La tombe est donc le reflet de la différenciation sociale, qu'il s'agisse du traitement du corps ou du mobilier dont le mort a été pourvu.

2. Le corps préservé

La momification est une pratique générale, ce qui implique des degrés dans la qualité; mais le pillage des tombes a contribué à uniformiser l'état actuel des momies. À Douch, elles ont rarement conservé l'intégralité de leurs "enveloppes" traditionnelles: dans beaucoup de cas, seuls quelques tissus plus ou moins déchirés adhéraient à leurs membres; les pillards ont le plus souvent arraché masques et cartonnages dans l'espoir de découvrir quelques bijoux. Cela dit, il est probable que de nombreux défunts étaient inhumés sans "enveloppes" protectrices, simplement avec leurs linceuls et bandelettes: bandelettage assez soigné d'ailleurs, qui donne aux corps l'aspect de grands paquets oblongs, compacts et solides.

L'emploi de sarcophages paraît relativement rare, peut-être à cause du manque de bois. En revanche, de nombreuses momies portaient des masques ou étaient revêtues de cartonnages. Les masques sont généralement en tissu recouvert d'une couche de stuc doré et peint (Fig. 14), quelquefois simplement modelés en stuc très épais; ils peuvent se prolonger par une plaque en tissu stuqué, décoré, qu'on attachait au torse de la momie. Les cartonnages également en tissu stuqué et peint, et dont le décor est emprunté au répertoire traditionnel des scènes funéraires, enveloppent le corps tout entier. C'est une technique répandue dans toute l'Égypte, mais à Douch le choix et l'agencement des motifs, l'emploi des couleurs, nous font penser qu'il y avait dans l'oasis un ou plusieurs ateliers de production ayant un répertoire et un style très caractéristiques. À l'époque ptolémaïque, au lieu d'un

cartonnage entier, on utilise plutôt des plaques découpées et "collées" ou attachées directement sur la momie (Fig. 15).

Dépouillé de ses enveloppes protectrices, le corps mort apparaît quelquefois, paré de bijoux; bijoux de peu de prix, pour la plupart, mais témoignages du tendre soin que des parents ont pris de parer leur enfant mort, car, presque toujours, les bijoux que nous avons retrouvés l'ont été sur des corps d'enfants: un petit garçon de 18 mois, dans la tombe n° 54, portait des boucles d'oreilles décorées de têtes de chien.



Figure 14. Masque de femme stuqué et doré, cartonnage avec inscription hiéroglyphique (inv. 309) (cliché Dr R. Lichtenberg).

3. Les rites de l'offrande

Une part importante du mobilier de la tombe est constituée par le matériel céramique, utilisé pour les offrandes alimentaires: cruches à bec, jarres, bouteilles, pots globulaires (Fig. 16), écuelles, gobelets, gourdes encore enveloppées d'une couche de fibres de palmier (pour garder l'eau fraîche) (Fig. 17), *siqa* en forme de petit tonneau ovoïde (encore utilisées dans les oasis)... Ces objets ont dû servir dans la vie quotidienne: beaucoup d'entre eux sont ébréchés, fendus; beaucoup ont le fond et les parois couverts d'une épaisse couche de suie. Constituaient aussi des offrandes les fruits trouvés en grand nombre dans les tombes: noyaux de dattes, figues de sycomore, grenades...

On a trouvé beaucoup d'offrandes florales dans les tombes, sous forme de bouquets et de couronnes tressées. Plusieurs espèces (acacia, sycomore, lin, palmier, grenadier, olivier) étaient connues dès l'époque pharaonique, mais d'autres comme la marjolaine, le romarin, le thym, le myrte ne sont apparues qu'à l'époque gréco-romaine, lorsque les transplantations d'espèces cultivées s'accélèrent, entraînant des changements dans le régime alimentaire (et dans le paysage égyptien).

Un usage funéraire bien attesté à Douch, mais qui ne semble pas avoir été relevé ailleurs, est celui de l'offrandes de cheveux, ou de poils, coupés court, enveloppés d'un linge, déposés dans un pot (Fig. 18) ou bien dans une anfractuosité de la paroi d'un caveau. Or l'usage égyptien, à l'occasion d'un deuil, était de se laisser pousser la barbe...Mais il pourrait s'agir d'un usage propre à une confrérie religieuse, et qui avait un "modèle" mythique, celui d'Isis, censée avoir coupé une mèche de ses cheveux en signe de deuil pour son époux Osiris.

D'autres objets ne sont probablement pas en rapport avec l'offrande. Ce sont de "beaux objets", en verre (Fig. 19) ou en faïence, donc importés, sans doute destinés à marquer le prestige social de leur propriétaire. Ce ne sont pas à proprement parler des produits de luxe; mais dans une société dont le niveau de vie devait être assez bas, où le mobilier des tombes est surtout constitué d'une céramique locale plus ou moins grossière, la verrerie, la faïence, la céramique fine signalent un niveau de vie un peu supérieur à la moyenne.

L'emploi des oushabtis disparaît à l'époque romaine, voire plus tôt. On en a cependant trouvé deux exemplaires dans des tombes, mais on peut se demander s'ils ont toujours la fonction qui leur était attribuée aux époques plus anciennes. Plus courante à l'époque romaine est la présence dans les tombes de figurines féminines nues. On en a retrouvé dans deux tombes: l'une (tombe n° 23), très tardive, a la posture traditionnelle de l'"orante", mains ouvertes et écartées dans un geste de prière (Fig. 20); l'autre (tombe n° 80), beaucoup plus ancienne, est d'un type plus rare. Ces figurines, qui existent depuis le Moyen Empire, sont souvent désignées, probablement à tort, comme "concubines du mort". Sans doute sont-elles plutôt destinées à affirmer que la vie sexuelle des défunts, hommes et femmes, continuait

dans l'au-delà. Mais pour la figurine de la tombe n° 80, je me demande si l'on n'a pas tout simplement déposé dans la tombe d'une jeune fille ou d'une jeune femme une "poupée" à laquelle elle tenait...

4. De l'immortalité osirienne à l'au-delà chrétien

Le mobilier des tombes se réfère manifestement aux croyances traditionnelles. La présence d'Osiris s'impose: sous la forme de statuettes de bois stuqué et peint, du type généralement désigné comme Ptah-Sokar-Osiris (Fig. 21); mais aussi dans le décor des cartonnages, des sarcophages, des lits funéraires... Il peut également avoir la forme symbolique du pilier Djed. Isis est là, elle aussi, souvent sous la forme de son amulette, le "nœud d'Isis". Anubis est omniprésent, parfois sous une forme inhabituelle (tête de chien et corps de serpent) (Fig. 22), plus généralement sous ses aspects traditionnels (homme à tête de canidé, chien accroupi ou dressé). Bès est moins attendu dans ce contexte, sinon peut-être dans le cas de femmes mortes à la suite d'accouchement; mais de toutes façons sa popularité est très grande à cette époque tardive. On a également de très nombreuses représentations de l'oiseau-âme (ba), sans doute fixées à l'origine sur l'enveloppe de cartonnage ou sur le sarcophage. Ceux-ci sont décorés de scènes évoquant les rituels fuéraires et les mythes de l'au-delà: le mort sur son lit d'embaumement, ou dans la barque qui le conduit à sa tombe; des frises de divinités accroupies, tenant des sceptres ou la plume de Maât, évoquant ces "assesseurs" d'Osiris en présence desquels le défunt devra se justifier. Ce sont les figures habituelles de l'au-delà égyptien, empruntées aux vignettes du Livre des Morts, et qui devaient faire partie des "répertoires" dont disposaient les artisans chargés de décorer le mobilier funéraire. Ainsi, on continue d'utiliser jusqu'au IV^{e} siècle de notre ère des schémas de représentation mis au point un millénaire, voire deux millénaires plus tôt: ils correspondent encore à l'image qu'on se fait de l'au-delà et des dieux qui y règnent, image rassurante pour ceux qui auront à affronter le "passage" ultime.

Les pratiques traditionnelles persistent; et pourtant des changements se font jour. La nécropole principale de Douch a été utilisée jusqu'au IV^{e} siècle de notre ère et ses occupants appartiennent manifestement au milieu "païen". Or le IV^{e} siècle est l'époque où le christianisme, déjà présent en Égypte deux siècles plus tôt, se diffuse sur tout le territoire, et il est bien attesté à Douch: il y a beaucoup de noms typiquement chrétiens dans les ostraca qui proviennent de la "forteresse". De plus, un papyrus exhumé lors de fouilles clandestines de la nécropole, à la fin du siècle dernier, a conservé le texte d'une lettre adressée par un prêtre chrétien à un de ses confrères au sujet de l'envoi à Douch d'une momie qui doit apparemment y être inhumée.

En 1990/91, nous avons fait un sondage sur une aire située en lisière de la zone de cultures antiques, tout près du pigeonnier romain: des structures de briques

écroulées y avaient été repérées, ainsi que des entrées de puits creusés dans le sol. Il s'agissait bien d'une nécropole, à 800 m environ de la nécropole principale, et très probablement d'une nécropole chrétienne. Plusieurs indices vont dans ce sens: le type de tombe, comportant une chapelle de briques avec enclos adjacent, dans lequel sont creusées des fosses individuelles à faible profondeur, est assez proche de celui des tombes de Bagawat; les momies sont enveloppées dans un grand suaire maintenu en place par des cordelettes nouées (et non dans des couches superposées de linceuls et de bandelettes). Surtout, le procédé employé pour momifier les corps est visiblement différent des méthodes traditionnelles: d'épaisses couches de sel forment une croûte sur la peau et sur les vêtements; les corps sont bien conservés, mais ils répandent une très mauvaise odeur (ils n'ont pas été éviscérés). C'est ce traitement qu'ont observé E. Prominska sur des momies de moines du couvent de St Marc, dans la région thébaine, et R. Grilletto sur des momies provenant de tombes "coptes" d'Antinoé. Dans une des fosses, près de la momie d'un adolescent, on a trouvé une monnaie romaine datant d'environ 378 p.C. Mais le travail, sur la nécropole chrétienne de Douch, devra être repris de manière approfondie pour être concluant.

Si nous voulions faire le bilan de notre étude sur la population de Douch à l'époque romaine, ce bilan ne pourrait être que prématuré et partiel. En l'état actuel, cependant, cette communauté humaine ne nous apparaît pas très différente de celles de la Vallée, pas davantage dans son mode de vie que dans ses caractéristiques physiques. Sur le plan de ses croyances, nous la voyons passer des pratiques et croyances traditionnelles à des rituels nouveaux; mais cela a dû se produire à peu près de la même façon, à cette époque, dans toute la chôra égyptienne, et il n'est pas sûr que cela ait impliqué pour les gens un véritable changement dans leurs habitudes et leurs façons de vivre. Si dans quelques domaines la population de Douch présente des traits particuliers, il faut sans doute en voir la cause dans les contraintes d'un environnement qui, à terme, et après une assez longue phase de relative prospérité, a dû rendre difficile, voire tout à fait impossible, cette "life on the fringe".

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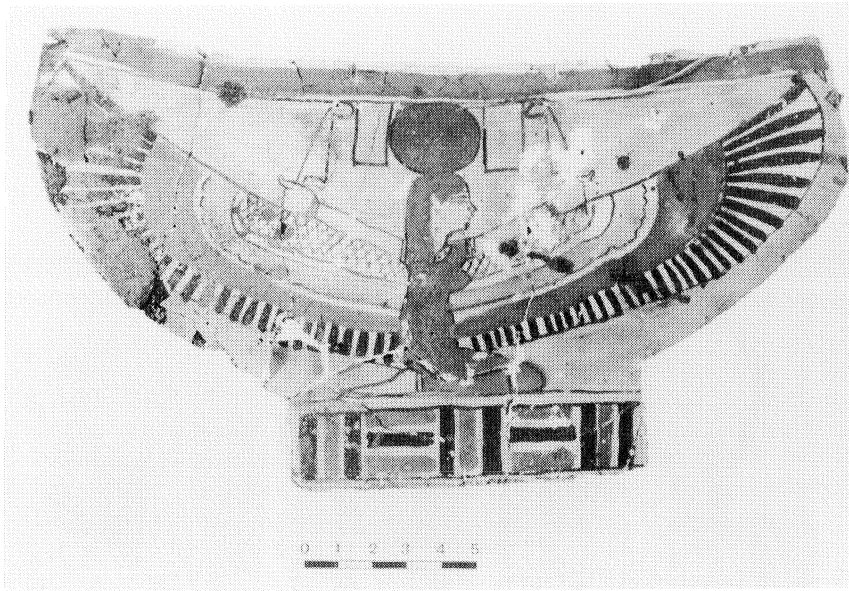


Figure 15. Plaque de cartonnage découpé, stuqué et peint: la déesse Nout (inv. 1712) (cliché A. Lecler, IFAO).



Figure 16. Pot rond à décor peint de tiges de vigne et de grappes de raisin, rouge sur fond rose (inv. 1034) (cliché A. Lecler, IFAO).

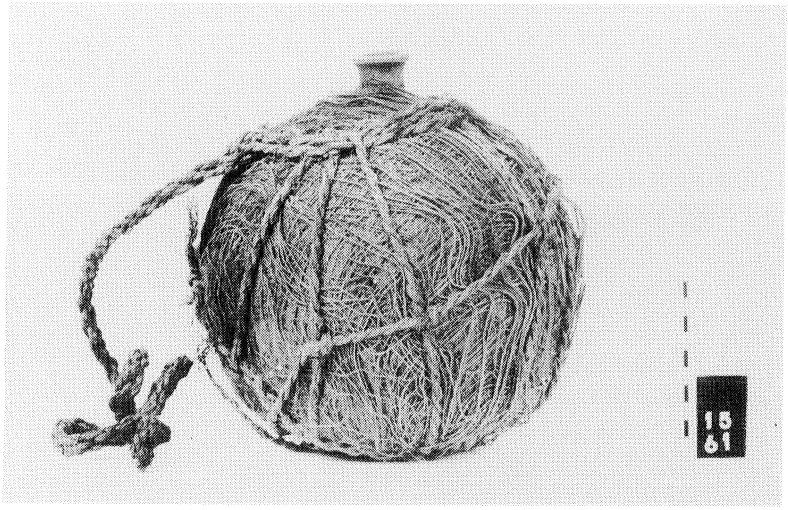


Figure 17. Gourde sphérique entourée de fibres de palmier et d'un réseau de cordelettes (inv. 1561) (cliché A. Lecler, IFAO).



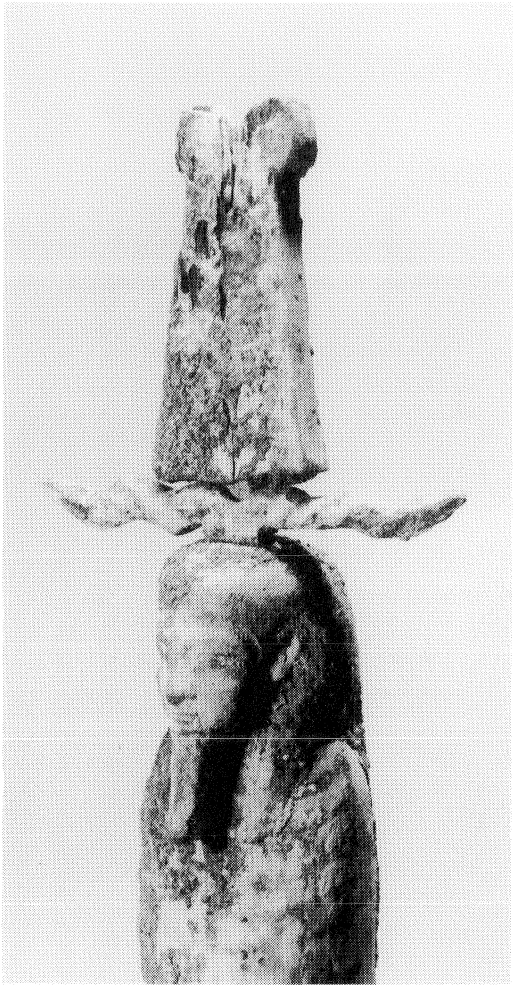
Figure 18. Pot globulaire avec couvercle en forme de coupelle, contenant des cheveux et des poils coupés dans un linge (inv. 1582) (cliché A. Lecler, IFAO).



Figure 19. Vase à anses en verre vert (inv. 292) (cliché A. Lecler, IFAO).



Figure 20. Figurine féminine en terre cuite, nue, faisant le geste de "l'orante" (inv. 1047) (cliché A. Lecler, IFAO).



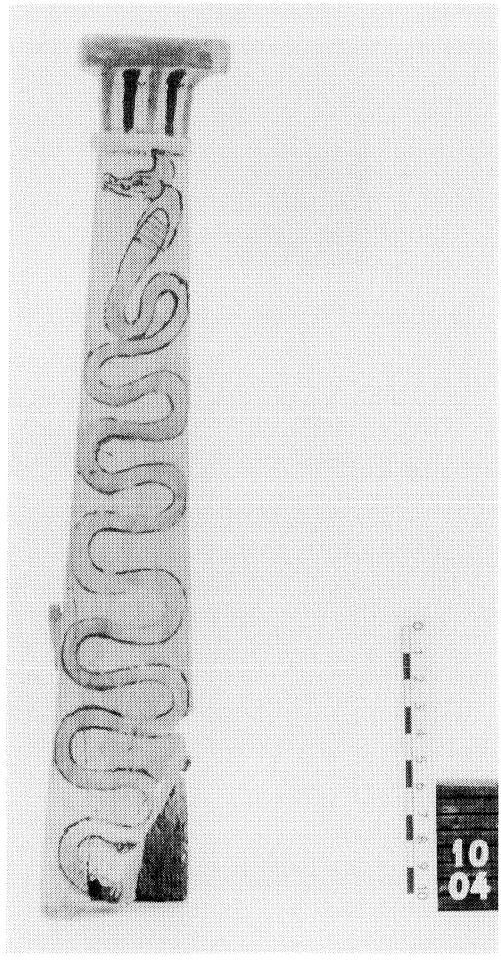


Figure 21 (à gauche). Statuette en bois stuqué et peint (détail): Ptah-Sokar-Osiris (inv. 1425) (cliché A. Lecler, IFAO).
Figure 22 (à droite). Élément de lit funéraire en bois stuqué et peint: Anubis à corps de serpent (inv. 1007) (cliché A. Lecler, IFAO).

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TEMPLE BUILDING IN THE EGYPTIAN DESERTS DURING THE ROMAN PERIOD

Olaf E. Kaper

1. Introduction

On the whole, the extent of preservation of ancient architectural remains throughout Egypt is remarkable, even though the causes of this preservation are largely accidental. Usually, subsequent inhabitants of the area around an ancient temple site have extracted building stones from the older buildings, or they have burned the limestone building blocks for lime, but in Upper Egypt in particular many antique remains have escaped total destruction and some have even survived relatively intact. The need for building materials was always much greater in the delta than in Upper Egypt, which may help to explain the dismal state of preservation of the ancient temples of the north, to which I will return again below. Thus, it is specifically in the south where the preservation of the temples allows a study to be undertaken into the major periods of temple construction and decoration. The large number of surviving royal names and the random nature of the evidence also give such a study a statistical value, which allows comparison between different regions.

Recent excavations by the Dakhleh Oasis Project of a number of temples in the Dakhleh Oasis have yielded new information on the dates of their construction. We now know of three decorated temples in this oasis which were built and extended between the early years of rule of the emperor Augustus and the reign of Pertinax at the end of the second century CE. In order to assess the significance of these dates attested in temple buildings "on the fringe", I have reviewed the archaeological evidence for temple building from the different parts of the country during the Roman period. Below, I will first list the dated temple buildings from the Roman period in Upper Egypt and then compare these with the surrounding fringe areas in the Eastern and Western Deserts.

2. The Temples of the Nile Valley

The catalogue of a 1997 exhibition in Marseilles on the topic of Roman Egypt: *Égypte romaine, l'autre Égypte*, contains a survey of the temples built during this period compiled by J.-C. Grenier.[1] He states that more than 50 sites are currently known where temples were built for the indigenous gods during the Roman period, on the evidence of the surviving Egyptian and Greek dated inscriptions on stone. Of course, it is well known from papyrological sources that there were once many more

[1] Grenier 1997, 175-77. A few additions to this list will be indicated in the tables below. Earlier versions are: Grenier 1987, 81-104, and Grenier 1989, 101-05.

temples in Roman Egypt, and that many settlements boasted more than one. A large town such as Oxyrhynchus apparently possessed some thirty temples (Whitehorne 1995, 3053, 3058-85), but even a small village such as Kerkeosiris in the Fayûm could have as many as thirteen (Bowman 1986, 171). Many of these will have been constructed or decorated during the Roman period, but the papyrological evidence does not indicate during which reigns these buildings were erected nor what their architecture entailed.

The archaeological remains from Roman times show that the building of traditional-style temples continued unabated and even temporarily increased under the new Roman government. Under the Julio-Claudian Dynasty (30 BCE - 68 CE) in particular, a great number of new temple buildings was erected, for instance at the sites of Coptos, El-Qal^{c}a, Shenhûr, and Karanis, while other temples received substantial enlargements during this period, such as those at Dendara and Esna. The reigns of Caligula and Claudius were less ambitious, but under Nero the building programme was again resumed in full. Kákosy (1995, 2911) even speaks of "eine besonders intensive Dekorationstätigkeit in den Tempeln" under Nero, which is true if we compare his reign to those of Caligula and Claudius, but not when compared to Augustus and Tiberius. Apart from extensive relief work on the pronaos at Dendara, a rock-cut temple was extended in Nero's name at Akôris (Tehna el-Gebel),[2] and he may have been responsible for building a new mammisi at Dendara.[3] The earliest decoration in the temple of Deir el-Haggar in Dakhleh also dates to his reign.

It is interesting to observe how the intensity of building activities ascribed to the Roman emperors in Egypt stood in reverse relation to the private interests of the individual emperors and their support for the Egyptian cults in Rome (cf. Kákosy 1995, 2900-27). The most extensive building programmes in Egypt were carried out during the reigns of the emperors Augustus and Tiberius, who were also responsible for severe persecutions of the followers of Isis in their home country. The later emperors showed much more private interest in the Egyptian cults, of Isis in particular, whereas their support for the temples in Egypt waned.

Even though the precise financial and organisational arrangements of the construction works are not known in detail, it seems clear that the Egyptian temples were subsidised at least in part by the state, through the prefect's office in Alexandria. This is shown by the large-scale building programmes which involved building and decorating monumental single temples, e.g. at Dendara and Esna. In addition,

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[2] Called the Western Temple, or Chapel A, in: Akoris 1981-1992, 17-24, 43 ff.

[3] As is supposed by Daumas 1959, XXIII on the basis of a relief in the pronaos of the Great Temple which depicts the donation of a mammisi to Hathor. Cauville 1990, 5, leaves this matter undecided. The earliest cartouches on the walls of the Roman mammisi give the name of Trajan.

Grenier has drawn attention to the purposeful building programmes which can be discerned in certain specific regions. The earliest of these programmes was carried out in Lower Nubia, where a series of temples was constructed under Augustus and Tiberius (Grenier 1997, 177). This Nubian programme entailed building works at the sites of Aswan (including Elephantine), Bigeh, Philae, Debod, Kertassi, Taffeh (cf. Raven 1996), Kalabsha, Dendur, Dakka, and Maharraqa. The second building programme took place in the Theban area mainly under Antoninus Pius (Grenier 1997, 177: "le programme péri-thébain") and it entailed construction works at Medamud (already started by Trajan), Medinet Habu, Deir er-Rumi, Deir Shelwit, Armant, Tôd, and Komir. Such extensive building works could only have been initiated by the central authorities, probably with a political aim in mind.

The temples constructed or modified during the Roman period are listed in chronological order in Tables 1-3, divided according to the conventional chronological grouping of the Roman emperors into the Julio-Claudian Dynasty, the Flavian Dynasty and the Antonine Dynasty. For the brief reigns of Galba and Otho (68-69 CE) only the site of Deir Shelwit may be mentioned, and this has not been listed in a separate table. The amount of construction work involved in each individual case has not been indicated, even though it is obvious that this could be subject to much variation. The tables merely record the fact that building took place. No references to publications of the individual temples been included, as these may easily be found in Grenier 1989. When the building activities are not listed by Grenier, a reference to the literature has been added. When the evidence for a particular site derives from a Greek building inscription only, this is indicated by a reference to its discussion in Bernand 1984. Nearly all of the temples listed are built in the Egyptian tradition, but dated temples in the Greek tradition are included here without distinction. Tables 1-3 mention only the sites situated in the Nile Valley and the Fayûm; the dating of temples in the Eastern and Western Deserts will be dealt with in a separate section (3) below.

Akôris	Nero (Kessler 1981, 260-63)
Aswân	Nero (Cesaretti 1989, 35-37)
Sheikh 'Ibâda	Augustus (Bernand 1984, no. 2)
Aswan (incl. Elephantine)	Augustus; Tiberius
Bigeh	Augustus

Coptos	Augustus; Tiberius; Caligula; Claudius; Nero
Dakka	Augustus; Tiberius
Dendur	Augustus
Debod	Augustus; Tiberius
Deir el-Medina	Augustus
Dendara	Augustus; Tiberius; Caligula; Claudius; Nero
Edfu	Tiberius
Esna	Tiberius; Claudius; Nero
Hermopolis	Nero (Cesaretti 1989, 21-22)
Hu	Tiberius
el-Qal^{c}a	Augustus; Caligula; Claudius
Kalabsha	Augustus
Karanis	Nero (Bernand 1984, no. 8)
Karnak	Augustus; Tiberius
Kom Ombo	Augustus; Tiberius; Caligula; Nero
Luxor	Augustus
Medamud	Augustus; Tiberius
Medinet Habu	Claudius
Philadelphia	Nero (Bernand 1984, no. 9)
Philae	Augustus; Tiberius; Claudius
Shenhûr	Augustus; Caligula; Claudius
Wannina	Tiberius (Bernand 1984, no. 4); Claudius

Table 1. Dated construction sites of temples in the Nile Valley and the Fayûm from the Julio-Claudian Dynasty (Augustus, Tiberius, Caligula, Claudius, Nero; 30 BCE - 68 CE).

Aswan	Domitian
Deir Shelwit	Vespasian
Dendara	Domitian
Esna	Vespasian; Titus; Domitian
Hermopolis	Domitian (Snape 1989)
Karanis	Vespasian (Bernand 1984, no. 10)
Karnak	Domitian
Kom Ombo	Vespasian; Domitian
Kôm er-Resras	Domitian
Medamud	Vespasian
Medinet Habu	Domitian
Nagᶜ el-Hagar	Vespasian
Panopolis	Domitian (Kuhlmann 1983, 45)
Philae	Domitian

Table 2. Dated construction sites of temples in the Nile Valley and the Fayûm from the Flavian Dynasty (Vespasian, Titus, Domitian; 69-96 CE).

Antaeopolis	Marcus Aurelius and Verus (Bernand 1984, no. 24)
Armant	Antoninus Pius
Asfûn el-Matana	Marcus Aurelius; Commodus
Aswan	Nerva
Deir er-Rumi	Antoninus Pius (Lecuyot 1992)
Deir Shelwit	Antoninus Pius
Dendara	Trajan; Antoninus Pius; Marcus Aurelius

Esna	Nerva; Trajan; Hadrian; Antoninus Pius; Marcus Aurelius; Commodus
Giza	Marcus Aurelius and Verus (Bernand 1984, no. 25)
Hu	Nerva
Kalabsha	Trajan
Karanis	Commodus (Bernand 1984, nos. 27, 28)
Kom Ombo	Trajan; Antoninus Pius; Marcus Aurelius; Commodus
Komir	Antoninus Pius
Luxor	Hadrian (Bernand 1984, no. 18)
Medamud	Trajan; Antoninus Pius
Medinet Habu	Antoninus Pius (Hölscher 1939)
Panopolis	Trajan (Bernand 1984, no. 13; Kuhlmann 1983, 41f)
Pelusium	Hadrian (Bernand 1984, no. 20)
Philae	Trajan; Hadrian; Antoninus Pius; Marcus Aurelius; Commodus
Theadelphia	Hadrian (Bernand 1984, no. 19); Antoninus Pius (Bernand 1984, no. 22)
Tôd	Antoninus Pius

Table 3. Dated construction sites of temples in the Nile Valley and the Fayûm from the Antonin Dynasty (Nerva, Trajan, Hadrian, Antoninus Pius, Marcus Aurelius, Commodus; 96-180).

After 180 CE, the Nile Valley only witnessed major works carried out in the temple at Esna, even as late as the reign of Decius (249-251 CE; cf. Derchain-Urtel 1991). Smaller relief fragments dating to Macrinus and Diadumenianus (217-218 CE) are known from Kom Ombo (Grenier 1989, 103), while an unprovenanced relief fragment preserves the name of Trebonianus Gallus (251-253 CE; Grenier 1988, 66-69). The most recent pagan temple known in Egypt, the Tahta sanctuary, is dated to the reign of the emperor Maximinus Daia (305-313 CE), shortly before the official recognition of the Christian faith by Constantine.

observed to start much earlier. Bagnall (1993, 267) summarizes the situation as "the decline of construction, decoration, and inscriptions after Augustus to virtual extinction after Antoninus". This suggests a more or less gradual decline, whereas in fact, the reign of Antoninus Pius itself still saw a high level of building activity in the temples which remains unexplained (Grenier 1997, 175). I do not wish to enter deeply into the likely reasons behind the apparent decline of investment levels in the traditional cults. J. Quaegebeur (1980, 115) has aptly summarised its causes as: "de vervreemdende Grieks-Romeinse invloed, de verarming van het land en de verspreiding van het christendom" (the alienating GraecoRoman influence, the impoverishment of the country and the spread of Christianity). The gradual replacement of traditional cultural expressions by the dominant Greek culture may also be observed in the parallel decline in the use of the Egyptian language in writing during this period (Bagnall 1988, 288-89; Osing 1997, 352-53). It may be possible to ascribe the decline largely to economic causes; at any rate, it seems highly significant that the Egyptian economy as a whole saw a downward trend after the end of the second century, which was accompanied by reduced levels of public spending. At a local level, the deliberate and systematic reduction of temple property by the Roman authorities caused a decrease in the role of the temples in the economy. Bagnall (1993, 268) discusses these economic aspects and speaks of a possible "slow starving to death" of the traditional cults.

It is obvious that a temple cult could be maintained long after the last building or rebuilding of the temple took place. The perseverance of pagan beliefs and practices among the indigenous population is known even as late as the sixth century (Wipszycka 1988), although evidence for cultic practice is particularly difficult to document. We know that the local cult at the temple at Akôris continued at least into the reign of Diocletian, as indicated by an uninterrupted series of Greek religious inscriptions (Bernand 1988, no. 39), and the cult of the Buchis bull at Armant was maintained as late as the year 340 (Grenier 1983, 204-05). In onomastics, the continuing popularity of the pagan gods is reflected by the use of unambiguous pagan names into the sixth century (e.g. Foraboschi 1967, 317 [Tithoes]), but the value of such evidence is doubtful.[4] For present purposes, I wish to concentrate specifically on the decline in building activities being carried out in the temples, which commenced much earlier.

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[4] Cf. the debate Bagnall vs. Wipszycka summarized in Bagnall 1993, 280, n. 121. On the eventual decline and extinction of the pagan beliefs in Egypt, cf. Bagnall (1993, chapter 8) who suggests that this process had already started in the third century, while Kákosy (1984) places it in the late fourth and fifth centuries. On the altered nature of the pagan religion during the fifth century, cf. Van der Vliet 1993.

3.1. The Temples on the Fringe: The Eastern Desert

We will now turn to the "fringe" areas of Roman Egypt, starting with the Eastern Desert sites. Even though there are many small sanctuaries known from this region, only few of them can be dated. Table 4 lists the five sites at which temples can be associated with specific building dates in the Roman period.

During the Ptolemaic period, many small settlements or way stations emerged along the trade routes between the Nile and the Red Sea, often with a shrine attached to them. For instance, as is mentioned by A. Bülow-Jacobsen in this volume, there was a Sarapis temple in Maximianon and an Athena temple in Persou (cf. also Cuvigny 1997, 141), both situated on the road between Coptos and Myos Hormos. The architecture of such shrines could be rudimentary and consist of little more than an overhanging rock, such as the *Paneion* (shrine to Pan) at Al-Buwayb (Cuvigny 1997, 144). In addition, there were small shrines at the quarry sites, often dedicated to Min or Hathor, e.g. the *Paneion* in the Wâdi Hammâmât (I.Ko.Ko., p. 59-213), and the *Paneion* from the reign of Augustus at Semna (I.Pan 51). At the major quarry sites, the long-term nature of the settlements and their larger population encouraged the erection of formal temple buildings in stone. Thus at Mons Porphyrites an Isis temple was built under Trajan, and another was dedicated to Sarapis under Hadrian. The quarries at Mons Claudianus were exploited in large-scale operations under Trajan and Antoninus Pius, which led to an "outburst of epigraphic activity in the first third of the second century" (Alston 1995, 200) at the site. The construction of the present Sarapis temple is dated to Hadrian (I.Pan 42), but the site has yielded two altars dating to the reign of Trajan (I.Pan 37-39), indicating an prior shrine at the site. Cuvigny (1997, 143-44) has suggested that there may have been a *Paneion* at the site before the temple dedicated to Sarapis was built.

Berenike	Tiberius (?), Domitian or Trajan (I.Pan 70)
Mons Claudianus	Hadrian (I.Pan 42 = Bernand 1984, no. 17)
Mons Porphyrites	Tiberius (Maxfield & Peacock, this volume); Trajan, Hadrian (I.Pan 20-21)
Mons Smaragdus	Gallienus (I.Pan 69)
Semna	Augustus (I.Pan 51)

Table 4. Dated construction sites of temples from the Roman period in the Eastern Desert.

The site of Mons Smaragdus, a major mine of beryls and emeralds, possessed several rock-cut shrines at the Gebel Sikkait, one of which is dated to the reign of Gallienus (between 262 and 268; Sijpesteijn 1977, 344).

The increase in temple building during the reigns of Trajan and Hadrian has to be seen in conjunction with the increased exploitation of the quarry sites. In comparing the region with the Nile Valley one is struck in particular by the absence of the name of Antoninus Pius on the temple buildings, but the evidence is too sparse to draw any conclusion from this. There is no lack of evidence from the reign of Antoninus Pius among the epigraphic remains from the Eastern Desert (cf. I.Portes, p. 294-99). Another noticeable feature of the Eastern Desert shrines is that only the Berenike temple was constructed in the ancient Egyptian style. This may relate to the fact that these temples were mainly built by private initiative and for the benefit of a multi-national community. The building inscriptions indicate, for instance, that the temples at Mons Claudianus (I.Pan 42) and at Mons Porphyrites (I.Pan 21) were built of rebuilt by the imperial slave Epaphroditos. The state appears not to have played a decisive part in these cases.

3.2. The Temples on the Fringe: The Western Desert

For Siwa, K.P. Kuhlmann has provided a complete survey of the Roman period remains in this volume. He notes, among other things, that the "Doric temple" at Balad ar-Rûm was built or rebuilt in the reign of Trajan, and that the reign of Hadrian may have witnessed some activity in the Temple of the Oracle (Kuhlmann, below p. 164-66). He concludes that "a marked Roman engagement in Siwa towards the end of the late 1st / early 2nd century CE seems a strong probability".

For the oasis of Baharîya, the temple of Bawiti has preserved evidence in the form of Greek building inscriptions from the reigns of Tiberius (Wagner 1973, 183-89), Domitian (Bernand 1984, no. 12), and Antoninus Pius (Wagner 1974, 24-25). These building inscriptions were formerly attributed to the neighbouring site of El-Qasr in Baharîya (cf. Colin 1997, 92-93 n. 6).

In the Southern Oasis (Oasis of the Thebaid, Great Oasis), a number of temples were already flourishing before the Roman period. The temple of Hibis in Kharga was the principal temple of the Southern Oasis, with a regular series of extensions carried out in the reigns of Psamtik II, Darius I, Hakoris, Nectanebo I, Nectanebo II, and Ptolemy II Philadelphus. The temple at Qasr el-Ghuweita in the Kharga Oasis carries the name of Darius I as its first construction date. Its relief decoration was carved in the reigns of Ptolemy III Euergetes I, Ptolemy IV Philopator, and another Ptolemy. In the south of Kharga, the recently excavated temple of ʿAin Manâwir dates to the Persian period (Chauveau 1996; plan in Grimal 1995, fig. 7). In the Dakhleh Oasis, the temple at Mût el-Kharab has yielded epigraphic evidence from the 22nd and the 26th Dynasties. No unequivocal evidence for Ptolemaic building

activities in Dakhleh has yet been found, but the temple of ᶜAin Birbîya appears to date to this period because its outer gateway received its decoration in the early years of the reign of Octavian (Augustus) in Egypt, which implies that a temple was

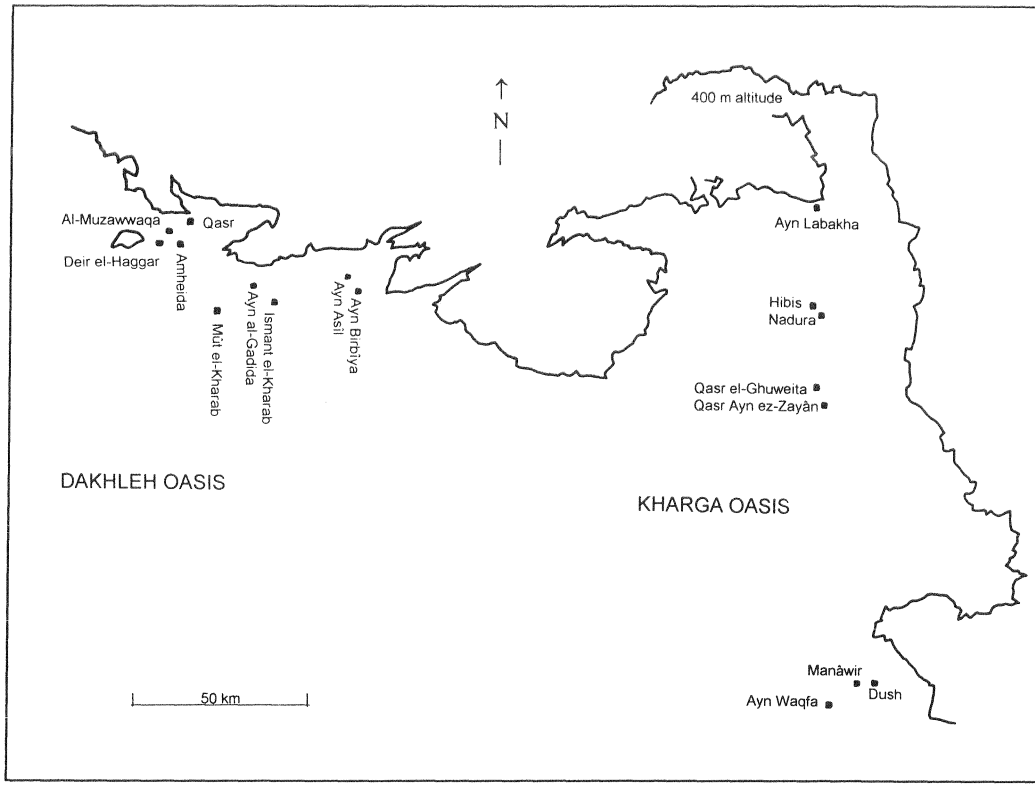


Figure 1. Sites from the Roman period in the Southern Oasis (Great Oasis, comprising both Kharga and Dakhleh).

already in existence behind this gate. The general impression gained about the Southern Oasis before the Roman period is that of a moderately populated region, in which only a few sites maintained a temple cult.

In the Roman period, the Southern Oasis witnessed a population growth of significant proportions. The rate of growth and its final extent still cannot be estimated, but the numerous archaeological remains from the Roman period in the area indicate an explosive expansion (cf. Mills 1985b, 128 for Dakhleh). At present, the only securely datable construction activity from the first two centuries CE is formed by the temple decoration. Dated temple reliefs are in evidence at the sites listed in Table 5 for Kharga and Dakhleh. In addition, we may point to the rock-cut

temple at ᶜAin Labakha (Kharga), where the earliest Greek and demotic graffiti in the temple's sanctuary date to the reign of Antoninus Pius (Wagner 1996, 97).

In Dakhleh, the principal temple was situated in the capital town of the oasis, Mût el-Kharab. This temple was dedicated to Seth, and even though the temple is ruined and remains unexcavated (cf. Mills 1981, 187-88), there is evidence for the cult of Seth continuing in the oasis into the second century CE (Kaper 1997). A rival cult of a god Amon-nakht was set up at the eastern end of Dakhleh, at the site of ᶜAin Birbîya. The latter temple building seems to date originally to the Ptolemaic period, as mentioned above, but its decoration is of Roman date, from the reigns of Octavian/Augustus (the gateway), Hadrian (the pronaos) and Commodus (the sanctuary). Excavations at this temple (Mills 1983, 1985a, 1986, 1990) have not yet been completed and more reliefs might yet be uncovered. At the main temple of Ismant el-Kharab an early section of the temple's decoration can be dated to Hadrian on the basis of a single fragmentary cartouche from the entrance gateway. A pedestal with an inscription from the reign of Nero may suggest even earlier building activities at the site (Hope 1995). Subsequent rebuilding works are recorded by a Greek inscription from the reign of Antoninus Pius (Wagner 1973), and the temple decoration was later resumed under Pertinax (193 CE), whose cartouche is found on

Dush	Domitian (Grenier 1989, 44); Trajan (Bernand 1984, no. 15); Hadrian (Grenier 1989, 57-58)
Hibis	Hadrian; Antoninus Pius (Aufrère *e.a.* 1994, 95-96)
Nadura 'haut'	Hadrian (Grenier 1989, 57); Antoninus Pius (Grenier 1989, 62)
Qasr ez-Zayân	Antoninus Pius (Grenier 1989, 62)
ᶜAin Birbîya	Octavian / Augustus; Hadrian; Commodus (Kaper 1997)
Deir el-Haggar	Nero; Vespasian; Domitian; Hadrian (Winlock 1936; Kaper 1997)
Ismant el-Kharab	Nero (?); Hadrian; Antoninus Pius; Pertinax (Hope 1995; Kaper 1997)

Table 5. Dated construction sites of temples from the Roman period in the Southern Oasis (Kharga Oasis and Dakhleh Oasis).

a relief fragment from the contra temple.[5]

Both in Kharga and Dakhleh, as also in Siwa and in the Eastern Desert sites, a large number of Roman period temples are uninscribed and they are, as yet, undated. In the Southern Oasis these generally take the form of mudbrick buildings (cf. Naumann 1938 for Kharga) which may once have been decorated with painted plaster. None of these has as yet yielded archaeological evidence from before the Roman period (cf. Mills 1983, 129 ff. for Dakhleh).

4. Conclusions

We have to be careful when taking the remains of temples in the archaeological record as representative for the former assembly of temples throughout the country. In the first place we have to note that the material presented above has a distinct geographical bias. The temples listed are situated either in the Fayûm, in Upper Egypt, or in the deserts. Except for Alexandria, none of the delta sites has yielded evidence of temple building from the Roman period.[6] This is a remarkable fact, because even though the delta sites are generally less well preserved than their Upper Egyptian counterparts, there is sufficient evidence for temple buildings erected in the delta during earlier periods. Some random but eloquent examples of Ptolemaic temples in the delta are found at Tell Nabesha (Petrie 1888, 37-47), Behbeit el-Hagar (Favard-Meeks 1991), Taposiris magna (Ochsenschlager 1979), and, less clearly, the "colonnade" temple at Tanis (Brissaud 1997, 22-24).

It seems highly unlikely that no new temple buildings were erected in the north during the Roman period, and I do not consider this possible (unlike Osing 1997, 251). One likely explanation for the dearth of temple remains is the systematic destruction of pagan shrines by Christians following the edict of Theodosius in 391/392. It is evident that such destruction would have been carried out with most zeal in the vicinity of Alexandria, from where bishops such as Theophilus gave directions to this effect. But apart from this, it appears to me conceivable that the temples in the north of the country remained largely uninscribed after the Ptolemaic period, like the contemporary temples in the Fayûm. At present we are unable to date the construction of several temples in the north, such as the temple at Qasr Qarûn or the extensions to the temple at Medinet Madi,[7] because they are not inscribed with the name of the emperor of the day. The earlier temple enclosure and its gateway at Taposiris magna, a sizable stone structure, did not receive any relief decoration either. I have already indicated that the same phenomenon is not unknown

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[5] A photograph of this relief appeared in Kaper & Worp 1995, 112, fig. 3.

[6] As a consequence, *proskynema* texts are also concentrated in the south; Bernand 1994, 59.

[7] On Qasr Qarûn, cf. Aufrère & Golvin 1997, 191-93. On the Medinet Madi temple, cf. Aufrère & Golvin 1997, 195; 198-201.

in Upper Egypt or the areas "on the fringe", and that a sizable proportion of temple buildings in Egypt may always have remained uninscribed.

For the south, the greatest temple construction works in the valley were carried out in the Julio-Claudian Dynasty. These entailed individual buildings but also some building programmes aimed at particular regions, such as Lower Nubia (carried out under Augustus and Tiberius), or the region around Thebes (mainly under Antoninus Pius). Grenier has already remarked that there must have been other building programmes too, including a "programme oasite".

In the Southern Oasis, one would expect a comparable dating for the main phase of temple building in the Julio-Claudian Dynasty. However, it is at present problematic to find evidence of any kind from the Southern Oasis dating to this time. In the monograph on the oases by Wagner (1987), the first century is barely mentioned in relation to the Southern Oasis. The only indication that the oases were flourishing at this time is provided by Strabo, who wrote that they were prosperous regions and housed a large population (*Geogr.* XVII, 1 42), but Strabo never visited the oases himself. The archaeological and epigraphic evidence from the Great Oasis indicates that the major temples which were functioning at this time (Hibis, Qasr el-Ghuweita, ᶜAin Birbîya) had already been built before the Roman period. During the second half of the first century CE the temples at Dush, Deir el-Haggai, and perhaps Ismant el-Kharab, were added. For the moment, without further archaeological information, the temples are our only indicators that economic activity in the oases increased during the second half of the first century.

From the data collected in table 5, it appears that a major building effort was started in the Southern Oasis during the reign of Hadrian, and it was continued under Antoninus Pius. We don't know of any new temple buildings which were founded at this time, but it is significant that nearly all decorated and dated temples in the Southern Oasis preserve evidence of building activities carried out in Hadrian's name. His name appears in the temples at Hibis, Nadura "haut", Dush, ᶜAin Birbîya, Ismant el-Kharab, and Deir el-Haggar. This spate of activity continued unabated under Antoninus Pius at Hibis, Nadura "haut", Qasr ez-Zayân, Dush, possibly ᶜAin Labakha, and Ismant el-Kharab. Later relief work is only known from the temples at ᶜAin Birbîya (Commodus), and Ismant el-Kharab (Pertinax). Moreover, there is evidence of third century extensions to the temples at Hibis and Kellis carried out with private funds (Bernand 1969, nos 120-121, and Hussein & Wagner 1994, respectively).

The principal difference between the temple buildings in the Eastern Desert and those in the Western Desert is the role played by private funding. The Greek building inscriptions in the Eastern Desert invariably name a private individual who was responsible for dedicating the shrine to the emperor. Whether public money was involved in these building projects remains an open question. The same situation is

often encountered in the Nile Valley (cf. Bernand 1984). In the Western Desert, we only know of the privately funded extensions to the temples of Hibis and Kellis just mentioned, and of a private dedication of a temple building at Baharîya (Wagner 1973, 183-89). In the Southern Oasis only one case from the second century CE is known of a private individual named in a Greek building inscription. This is the high priest with the Latin name of Epius Olbius, who added an inscription to the temple at Dush, explicitly mentioning how he collected the funds needed for erecting a new temenos wall (Wagner 1987, 48-50, dated after 116 CE). The scarcity of private sponsors reinforces the suggestion made here, of a state-sponsored building programme for the Southern Oasis.

In the Western Desert, private sponsorship seems to occur mainly in relation to dedications of votive gifts to the temples, such as statuary, as was common practice all over Egypt.[8] Gifts in the form of building extensions to the temples may all date from a time when the authorities had ceased taking care of the buildings.

The intensified temple building at the beginning of the second century CE points to an increased population in the oases around this time. Both in Siwa and in the Southern Oasis the same pattern seems to apply. For the Southern Oasis, it is tempting to draw the conclusion that the greatest influx of new inhabitants into the region took place during the latter half of the first and the early years of the second century CE. The erection of new temples can be seen as a reaction by the authorities to the much increased population in the area or, alternatively, as an incentive to attracting new settlers. The extensive building programme for the oases was implemented as part of the development of the region, doubtless in combination with the erection of other public facilities such as bathhouses, irrigation systems, and military camps. If this interpretation is correct, the building programme for the oases may be compared to the building programme for Lower Nubia which had been carried out one century earlier.

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[8] Greek dedications on votive gifts from the Great Oasis are: Wagner 1990 (Qasr el-Ghuweita); Hussein & Wagner 1993 (Qasr ᶜAin ez-Zayân); Hussein & Wagner 1994 (Ismant el-Kharab); Kaper & Worp 1995 (Ismant el-Kharab); Wagner 1996 (ᶜAin Labakha); and perhaps also Reddé 1992, 29 (Dush).

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ROMAN AND BYZANTINE SIWA: DEVELOPING A LATENT PICTURE

K.P. Kuhlmann

1. Introduction

Compared to other remote areas of Egypt, Siwa Oasis remains something of a white spot on the map of Roman and early-Byzantine rule over what is now called the Western Desert of Egypt. The archaeological evidence appears vague, historical records are few and contain little information on living conditions at the once distinguished Egyptian oracle in the desert reaches of ancient Libya. Even by oasis standards Siwa was situated truly "on the fringe" considering the distances one had to cover in getting there.

For example:

- Memphis - Siwa (560 km as the crow flies): a 12-day journey (Pliny, *Nat.hist.* V, V 50) of some 3000 stadia (Strabo, *Geog.* I 3, 4) through the desert. Al-Maqrîzî cites 14 days between Giza and Santarîya/Siwa (*al-Khitat* IV, LXXII 3). Travelling from Cairo or al-Tarâna/Terenouthis via Wâdi an-Natrûn - al-Maghra - Bîr Abû Gharâdiq - Qâra Oasis to Siwa recent camel caravans took 12 - 14 days, and *c.* 16 days for the 520-km long route via the Fayûm - Wâdi ar-Rayyân - Qâra (Cailliaud 1826, 29-61). 10-11 days are reported for the route via the Fayûm and Baharîya Oasis (220 km; 3 days) to Siwa (340 km; 7-8 days).
- Alexandria - Siwa (480 km as the crow flies; *c.* 560 km via Paraitonion /Marsa Matrûh): 9 days according to Nigidius (Hopfner 1922, 83), some 1300/1600 stadia travelling along the coast to Paraitonion (260 km, cf. Strabo, *Geog.* XVII 1, 43; Arrian, *Anab.* III 3, 3). Al-Maqrîzî gives 11 days (*al-Khitat* IV, LXXII 3). Recently, camel caravans passing through Qâra averaged the journey in 12 days (Cailliaud 1826, 49).
- Paraitonion/Marsa Matrûh or Apis/Zâwiyat Umm ar-Rakham - Siwa (*c.* 300 km): it took Alexander the Great 8 days to cross the flat, gravely desert (*serir*), his party's depleted stores of water allegedly being replenished by a timely downpour of winter rains (Diodorus XVII 49); Strabo cites 5 days (*Geog.* XVII 14). According to Ibn Saʿîd († 1286) camel caravans took 8 days from the Lesser ʿAqaba (*al-ʿaqaba as-sughîra* = Catabathmus minor = al-ʿUqayba, near Fûka?) on the coast to Santarîya/Siwa (Kamal 1987 V, 25).
- Second (or: Lesser) Oasis/Baharîya - Siwa (*c.* 300 km): Al-Bakrî († 1067) quotes 10 days travelling time between Bahnasa al-Wâhât/Baharîya and Santarîya/Siwa

(Kamal 1987 III, 375). In modern times camel caravans averaged 7-8 days between the two oases.[1]

Siwa's remoteness, its status as *al-wâh al-aqṣâ*, "the most-distant oasis"[2] from a Nile Valley perspective, is apparent in the oldest toponymical reference in the Temple of the Oracle dating to the sixth century BCE. Called Ammon/Hammon, Ammoneion or Ammoniakê in classical and Byzantine sources - reflecting, of course, the name of the chief deity worshipped there, Amûn of Thebes - the modern name appears to derive from the Swa or Sûwa. They are first mentioned towards the end of the ninth century as a subtribe of the Luwâta-Berber who inhabited the Barka (Pentapolis) region of Cyrenaica (al-Yaᶜqûbî, *c.* 891).[3] The indigenous Libyan (i.e. Palaeo-Berber) name of Siwa, however, sounded like **Se* or **Sa* to Greek ears and was transcribed as **ṯ3(j)* in hieroglyphic texts from the oasis.[4] More specifically, a partly preserved hieroglyphic inscription in the Temple of the Oracle on Aghûrmî Hill in central Siwa refers to the oasis as **ṯ3(j)-n-ḏrw*. Pronounced something like **Se/Sa-ntar* this toponym translates neatly into "**ṯ3(j)*-on-the-fringe", obviously referring to the oasis' geographical position at the very "limits" or the "end" (*n-ḏrw*, *ntar* in Coptic) of the civilized world. Undoubtedly, **Se/Sa-ntar* gave rise to the enigmatic "Santarîya" in mediaeval Arab sources dealing with the geography of the Western Desert (Kuhlmann 1988, 57). *Al-wâh al-aqṣâ*, i.e. the most-distant oasis may very well constitute a 'translation' of this original name of mixed Libyco-Egyptian origin.

Perhaps surprisingly, no unequivocal reference to the oasis has come to us in pharaonic documents from the Nile Valley (cf., however, Sethe 1920, 51). Even the papyrological evidence remains sparse.[5] In the classical world Ammon/Siwa was, of course, most renowned as an oracular institution ranking in importance with places like Delphi or Dodona in Greece, the Theban overlord of gods Amûn - or Ammon, as his name was pronounced by Greeks - being identified with Zeus or, later, with Jupiter.

References to Siwa by classical authors focus mainly on its 'miraculous' aspects, i.e. the oracle - and in particular the visit there in winter 332/331 BCE by Alexander the Great - or the wondrous "Fountain of the Sun", a sacred spring of Amûn-Ra, as the name would seem to imply. It was situated in the god's domain, somewhere close to one of the temples (Umm ᶜUbaydah) and in Roman times sparked stories

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[1] Cailliaud 1826, 128-44; Wilkinson 1843, 374 ff.

[2] al-Maqrîzî, *al-Khitat* III, III 78; IV, LXXI, 5 = Wiet 1922, 48; 1924, 115.

[3] Kitâb al-buldân, 344; Kamal 1987 III, 99; Laoust 1934, 498.

[4] Fakhry 1944, 20. On the likely pronunciation of *ṯ3* cf. Erichsen 1954, 663.

[5] Wagner 1987, 150-51; 208-12; 369-70; Cuvigny 1995, 73-78.

about related phenomena in other parts of Libya (Pliny, *Nat.hist.* V, V 36). Nowhere is detail provided about Siwa's socio-economic life, its trade connections or natural resources with the notable exception of dates (the best of which were said to grow in Ammon)[6] and the export of the well-known *sal (h)ammoniacum*. Stories about the latter are clad in rather dubious detail about the way it was supposed to have been collected and about its alleged merits.[7]

Salt, of course, is a commodity that exists in overabundance in Siwa and during the olive harvest this natural resource plays an important role in the economy of the oasis (cf. below). It seems reasonable to assume that this was the case in antiquity, too. Like no other oasis in the Western Desert, Siwa is blessed with a huge surplus of water. Well over one third of the depression is covered by perennial lakes fed by artesian wells. These lakes collect the outflow of natural springs and artificial wells used for irrigating Siwan gardens. Allegedly a mere 20 to 60 in 1422 (al-Maqrîzî, *al-Khitat* IV, LXXII 3, n.9), their numbers have increased dramatically in recent years to some 2000, and the total discharge of water amounts to a staggering 500,000 m^3 daily. Paradoxically - or so it appears at first sight - this blessing has become a life-threatening curse over the course of time. As there is no natural or artificial drainage from the depression, the salty brine in these large bodies of stagnant water (*sabkha*) is reduced to a thick crust of gleaming white salt during the summer months. Consequently, the rising groundwater table and the ever-increasing level of salinity have taken their toll on the fertility of the soil as well as on the cultural heritage, causing a problem of severe salt-induced erosion in ancient monuments.

2. The Background to Roman Siwa

What, then, are the known historical facts relating to Roman and Byzantine involvement in Siwa? To begin with, it is important to realise that unlike in the Greater and Lesser Oases to the east, Roman administrators cannot be considered to have become natural heirs to any Egyptian or Ptolemaic predecessors. As far as we know, pre-Roman Siwa was never under the sway of officials appointed by authorities residing in the Nile Valley or in Alexandria. It was not considered to be populated by expatriate Egyptians living "on the fringe", i.e. by the so-called *Libyes Aegyptii* (Pliny, *Nat.hist.* V, VIII 43), who inhabited the other oases (Mela I 23). Despite its cultural ties and affinities to Egyptian civilization the oasis and its oracle were considered an "attraction" of Cyrenaican Libya rather than of Egypt (Pliny, *Nat.hist.* V, V 31).

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[6] Pliny, *Nat.hist.* XIII, XXXIII 111; Theophrastus, *Hist.plant.* IV 3,5.

[7] Arrian, *Anab.* III 4; Athenaeus II 67b; Synesios, *Epist.* 148; cf. below.

Basically a tribal society of settled Libyan Bedouin, the ancient Ammonians were traditionally ruled by the paramount sheikhs or chieftains of a noble family (*archaioi dynastoi*, Diodorus XVII 50, 3). Self-sufficient and relatively prosperous due to Siwa's horticultural potential, the sheikhdom's 'high society' had succumbed to the allure of the superior civilisation of their eastern neighbours and adopted the manners and customs of the Egyptians. At what stage in history this occurred remains uncertain but it is well in evidence from the sixth century BCE on. To visiting foreigners this Libyan *amenukal* (Bates 1914, 115) appeared as an independent local kinglet, a status acknowledged by Greeks from as early as the mid-fifth century, who called the Ammonian ruler *basileus* (Herodotus II 32).

Already during the times of pharaoh Amasis (II, 26th Dynasty), a local ruler with the Egyptian Name Sethirdais ("God Seth has delivered him") claimed privileges which would have been deemed preposterous - even sacrilegious! - in the eyes of Egyptian authority. Following canonical tradition in the decoration of Egyptian temples, on the eastern wall of the holiest of holies of the Temple of the Oracle, pharaoh (Amasis) was depicted making offerings to Amûn and a following of *theoi synnaoi*. On the western (or Libyan) side, however, the figure of the Egyptian king is unexpectedly replaced by that of Sethirdais before a row of gods headed by Amûn-Ra "Lord of counsels" (*nb jrt sḫrw*), i.e. the oracular deity. He receives the divine blessings (i.e. life, health and contentment) normally reserved only for pharaoh. No Egyptian titles which would indicate their official affiliation with the clergy of Amûn or any other Egyptian temple hierarchy are bestowed upon the Ammonian rulers. Yet, as if to stress his position as an independent monarch, Sethirdais even adopted the title *nsw-bjtj* originally designating pharaoh as "King of Upper- and Lower Egypt", but later simply used to convey the Greek notion of *basileus* as documents of the Ptolemaic era will show (Daumas 1952, 190; 219). Also in the temple of Umm ᶜUbaydah, some 400 m south of the Aghûrmî sanctuary, the local king during the times of pharaoh Nectanebo II (30th Dynasty, 360-340 BCE), Wenamun ("God Amûn exists") is shown kneeling before Amûn in his shrine. Only the ostrich feather on his head (instead of the pharaonic headdress) distinguishes him iconographically as a Libyan chieftain and not the Egyptian king performing his canonical duties (Kuhlmann 1988, pl. 29).

Residing in a palace next to the temple on the acropolis of Aghûrmî (Diodorus XVII 50, 3), the Ammonian kings followed the example of their Libyan kinsmen of the 22nd/23rd Dynasties in Thebes and assumed for themselves the office of high priest of Amûn at the oracular complex;[8] the Egyptian authorities seemed to have consented quietly. Ties were maintained by Ammonian priests travelling occasionally

[8] Silius Italicus, *Punica* XV 672 ff.; cf. Kuhlmann 1988, 102-09.

to Egypt (Arrian, *Anab.* III, IV 3) or by 'ordained' Egyptian priests (i. their titles are to be trusted) serving at the oasis' temples (cf. Fakhry 1944, 128).

Habitually, independent foreign kinglets were labelled *wr (ʿ3) ḫ3swt* "(paramount) chief of the hill countries (= deserts)" by the Egyptians. In hieroglyphic inscriptions this title was also adopted by Ammonian kings. It would appear, however, that there was yet another official title, perhaps indigenous to Siwa and therefore not found in Nile Valley documents. A hieroglyphic text refers to Wenamun as *nbw m3ʿ* "true lord", i.e. as the unquestionable, legitimate chieftain. A translation of this title into Greek - probably necessitated by the requirements of diplomatic protocol - might have resulted in *eteos archos*, as in Herodotus (II 32) one reads of "Etearchos, king of Ammon". Like "Kandake", queen of the Ethiopians, Etearchos refers to a title rather than a name, thus making speculations about Greek rule over mid-fifth century Siwa seem misguided (cf. Kuhlmann 1988, 102 ff.).

Nothing is known about Siwa's history before the Egyptian Late Period, i.e. the time of pharaoh Amasis (570-525 BCE) whose mutilated name-ring has survived in the Temple of the Oracle. The last indigenous king mentioned is one Nabis who is said by Silius Italicus to have sent an Ammonian army in support of Hannibal (*Punica* XV 672 ff.). Whatever grain of truth this story might contain, it certainly goes to show that the Ptolemies, long since (322 BCE) in control of Cyrenaican North Africa and on a course of appeasement with Rome, had no influence over the oracle. Alexander the Great had already placed "neighbouring Libya" - very probably meaning Mareotis and Marmarica - under Macedonian rule and had ordered taxes to be levied on the region (Arrian, *Anab.* III, V 4-6). However, the new administrative order did not apparently extend to Ammon. In the second century BCE the Ammonians were evidently still at liberty to choose their friends and allies as they pleased.

Cicero seemed fascinated with the oracle's reputation amongst the Spartans, who ranked it equal to Delphi and are said to have consulted it before any major decision (Cicero, *De divin.* I 43). Strabo, on the other hand, when visiting Egypt during the third decade of the first century CE, was no longer very impressed with the venerable institution and reports that nothing much was going on at Ammon any longer (Strabo, *Geog.* XVII 1, 3). In fact, the oracle could have lost much of his one-time reputation and attraction long before. The younger Cato, for instance, declined to visit it, if one accepts Lucanus' epic account of Cato's journey through the Libyan desert (Lucanus, *Pharsalia* IX 550). However, in the aftermath of Pharsalos the stout republican probably had other things on his mind than calling at the court of a minor barbarian potentate, and in any case Siwa wasn't quite just off his route.

3. Western Siwa in the Roman Period

Cyrenaica became Roman in 74 BCE, yet the new province appears not to have extended to or included Ammon since its 'harbour' Paraitonion (also: Ammonia) remained Egyptian until after the battle of Actium. In the first century CE, finally, Pliny lists amongst the Egyptian nomes one called the "Ammonian" (*hammoniacus*, *Nat.hist.* V, IX 49), extending west of the Delta, apparently as far as the border with Cyrenaica at Catabathmus major/Sollum. It would have included Paraitonion/Marsa Matrûh and Apis/Zâwiyat Umm ar-Rakham on the coast. Given that the oasis should have lent its name to such a vast area, one might conclude that the oracle was (still or again) considered the most important place in the region. In the second to the beginning of the third century CE we find this *nomus hammoniacus* under the rule of a *strategos*, the fiscal affairs being managed by a tax assessor (*eisagogeus)*, and a new legal system having replaced customary tribal law.[9] Two Greek graffiti in the famous tomb of Siamun in the central Siwan necropolis of Gabal al-Mawtâ (cf. below) are believed to date from the first century CE. One of them names a certain Aniketos, the other one Pnepheros ("He-who-belongs-to-Nepheros", i.e. the god Ptah), who held the position of *nekrostolistes*, apparently a kind of necropolis official (Rémondon 1951, 156-61).

It therefore seems probable that the Marmarica coast fell under Roman administration after 31 BCE (Actium) and that the hinterland, i.e. Siwa Oasis, lost its independence between that date and 79 CE (Pliny's death). Managing the temples and their estates, organising oracular festivals and catering for foreign visitors attending them (e.g. accommodation for pilgrims), maintaining trade relations and the running of local caravanserais, as well as the collection of taxes and administering the law should by then have ceased to be the sole prerogatives of the paramount sheikh and, one may assume, the members of his family or clan.

All in all, the information which may be gleaned from written sources is weak in detail, giving just a faint idea of the underlying picture. Fortunately, this picture is beginning to develop and to assume more definite shape.

Bilâd (or Balad) ar-Rûm in the western district of al-Marâqî is best known as the site of the so-called "Doric" temple discovered in 1792 by W.H. Browne (Browne 1799, 27). It recently acquired dubious fame in the news media when a Greek archaeological mission working there since 1989 alleged that it had found proof that the temple was, in fact, yet another tomb of Alexander the Great. Digging close to the main gate of the *temenos* wall, the excavators found several fragments of a large inscription in Greek dating to the reign of Trajan (cf. Nur el-Din 1995, 45-46). Judging by press coverage including photographs, the text seems to deal with some

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[9] P.Fajum 23a; Berichtigungsliste I, 129; cf. Wagner 1987, 252-53; Cuvigny 1995, 73-78.

building activity (*oikodomesan*) dedicated to the emperor and further contains references to an *eparchos Aigyptou*, some administrative matter (*epitrope*), as well as to several persons (*[N]erva Traianos, epi Serviou, Artemidoros*) and to at least one date (*Mechir*).

Similar to other monumental remains in the oasis, the building (Jomard 1823, pl. 19) is a blend of Egyptian temple architecture (e.g. cavetto cornices, torus mouldings, broken-lintel doorways, sun disc with uraei) with Greek architectural elements of the Doric order (e.g. triglyphs, guttae, richly carved entablatures). In Cyrenaica, for example, Doric monuments continued to be erected well into the reigns of Trajan's successors Hadrian and Antoninus Pius, preference for the style vanishing around the middle of the second century CE (Stucchi 1975, 244; 322).

By the time of Trajan (98-117 CE), then, Ammoniakê had become a fully integrated part of the Roman empire. A stela allegedly found in the early 1920s at the acropolis of Aghûrmî and now kept in the Museum of Alexandria seems to indicate Roman involvement at the Ammoneion during Hadrian's reign (Breccia 1929, 71-72). From the beginning of the third century dates a record of a legal dispute which took place in one of Siwa's towns (P.Graux 934 rt. = Cuvigny 1995, 73-78).

Recent excavations conducted by the German Institute of Archaeology at the oracular complex in central Siwa have uncovered the remains of extensive building activities at Umm ᶜUbaydah which are likely to have occurred under the Romans. The site contains the remains of the "contra temple" situated at the southern end of a *dromos*-like avenue providing the stage for the famous oracular processions with the barge of Amûn (Kuhlmann 1988, 134 ff.). For many centuries Umm ᶜUbaydah was used as a convenient quarry, and subsequently as a burial place, leaving hardly any exploitable stratigraphy *in situ*. Situated some 400 m south of the Aghûrmî acropolis and its temple (of the oracle), the nucleus of this building - that is to say the sanctuary proper and a preceding courtyard with colonnades - appears to have been erected under pharaoh Nectanebo II. Adjacent to it, an enormous platform-like structure of large limestone blocks was added towards the east, perhaps concurrently with a cistern and huge enclosure wall. In one place, the latter was found overlying the foundations of a much narrower wall which almost certainly formed part of the 30th Dynasty ensemble. Relying on preliminary attempts to classify the (predominantly local) pottery as the only means of dating available at this stage, a "Hellenistic-Roman" date seems most likely.

For early imperial times, Lucanus' testimony sets the area "in front of the gates" of the Aghûrmî acropolis - *ante fores* - as the staging place for public oracular

processions.[10] As the topography of Aghûrmî Hill only ever permitted access to the acropolis from the southern side, following a path still used today, "*ante fores*" can only be taken to refer to the area stretching south from the foot of the hill. Trial trenches dug there yielded a 20-m stretch of what looks like a pavement perfectly arranged along a straight line linking the Aghûrmî and Umm ᶜUbaydah sanctuaries. A wall - indicated by two remaining courses which run all along the western edge - seems to have screened off this *dromos* if, indeed, the structure may be identified as such.

In the *dromos*-area a third temple originally making up the Ammoneion complex was discovered some 50 m further southwest of the presumed road. Unfortunately, nothing but the foundations have survived, and being situated on privately owned land only the southwestern corner could be excavated so far. The recorded data, therefore, do not yet suggest what the building's original plan might have been. It was, however, aligned at right angles to the presumed avenue and constructed of similarly large limestone ashlars as the "platform" at Umm ᶜUbaydah. Mason's marks featuring combinations of two Greek letters (ΛΑ, οΕ) are preserved on some of the blocks. Although evident on some imperial buildings in North Africa (Adam 1994, 40), the tradition of such marks is essentially Greek (Herrmann 1991, 83-89) and therefore perhaps more likely to point to a Greek work-force being employed in erecting this monument. The quarries of Gabal at-Takrûr south of the Ammoneion complex have preserved the graffiti of Greek workmen - amongst them the stone-mason Paideas and an "encaustic painter" - which have been dated epigraphically to the late fourth - early third century BCE (Brashear, in: Kuhlmann 1988, 85 ff.). The small "ο"(mikron) employed in one of the mason's marks, however, is similarly repeated in the Aghûrmî stela dating to Hadrian. Diodorus' account of the Ammoneion does not mention the building.

Relying on the newly discovered historical evidence from Balad ar-Rûm as well as the Hadrian stela (cf. above), a marked Roman engagement in Siwa towards the end of the late 1st / early 2nd century CE seems a strong probability.

4. Eastern Siwa in the Roman Period

Roman involvement is more apparent at archaeological sites in the eastern parts of Siwa. Qasr al-Ghushshâm (today: ᶜAin al-Qurayshat) - the "Castle of the Tyrants" or the "Stronghold of the Unenlightened" (i.e. by Islam) - refers to a temple on the north shore of Lake Zaytûn which as recently as the early 19th century ranked amongst the highlights of Siwa's cultural heritage. Not unlike the so-called "Doric" temple at Balad ar-Rûm, the building (*c.* 7.20 x 27 m) of limestone ashlars (e.g.

[10] *Pharsilia* IX 544 ff.; cf. Kuhlmann 1988, 134 ff.

75/85 x 27/30 x 23 cm) blended Egyptian architecture (cavetto cornice, torus mouldings, broken-lintel doorways, sun disc) and Greek elements (Ionian dentil frieze) into a hybrid Graeco-Egyptian form typical of most post-pharaonic monuments in Siwa.[11] The roof was accessible by means of a spiral staircase located in the northwestern corner near the entrance. Nowadays, the monument is reduced to a mere heap of rubble, though many of the collapsed roofing slabs (*c.* 240 x 60 x 55 cm) are still preserved.

In 1904 a "buste d'empereur Romain" of glass (now in the Cairo Museum; JdE 37936) was found there. During the 1980s the area immediately south of the "Ionic" temple was excavated by the Egyptian Antiquities Organisation. Purportedly (A. el-Demery, *pers. comm.*), a hoard of coins was discovered, amongst it coinage with the names of a Ptolemy, a Roman emperor (Antoninus?) and a Cyrenaican city (Tocra).

As it turned out, ᶜAin al-Qurayshat was a major centre of oil production; well over thirty oil-presses are in evidence so far. They consist of two (or three) square (e.g. 160 x 160 cm) or rectangular troughs of roughly similar size (e.g. 147 x 125 cm, 163 x 152 cm) built adjacent to each other; inside and outside they are covered with a thick coat of gypsum plaster. The floor of (the middle) one is raised to *c.* 20 cm below the rim, that of the other (two) is lower (*c.* 50 cm), probably because the latter served as container(s) for the olive mash. A runnel connects the shallow trough - it obviously received the bales of pulped olives - to one or two smaller oil receptacles. There are no distinct traces of surrounding walls or other masonry where the press beam might have been engaged.

A kind of administrative "palace" (*c.* 15.40 x 16.20 m) borders the manufacturing site to the east, featuring a large hall with a dais at its centre and benches running alongside the walls; the hall also includes a well. The entrance was marked on either side by small spiral-shaped columns engaged into the masonry. Most interesting from an archaeological point of view is a large kiln which might provide clues for evaluating and dating Siwan pottery. Some 100 m further to the east, at the foot of a gentle rise, are the remains of what appears to have been a settlement.

There were other "towns of Ammon" (*Ammônos poleis*) on the north shore of Lake Zaytûn, notably the sites of Abû Shurûf some 30 km (skirting the large *sabkha*) east of the Ammoneion/Aghûrmî,[12] Salam and Old Zaytûn. The temple of Abû Shurûf (Fakhry 1944, 75, fig. 3), 5 km to the east of Qurayshat, occupies a low hill and is made of crude limestone masonry, plastered over in a haphazard way. The vestibule possessed a barrel vault roof (80 cm) and features a small, round-topped niche (80 x 48 x 40 cm) to the left of the door giving into a five-room ensemble. A

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[11] Jomard 1823, pl. VIII: looking SE onto the portal facing West.

[12] A day's travel according to Diodorus XVII 49, 6; cf. Strabo, *Geog.* I 34.

flight of steps leads from the anteroom to the roof. The building shows no visible traces of Egyptian architecture and is believed to convey a "late-Roman" appearance (cf. Stucchi 1975, 574).

The little stone temple of Zaytûn (5 km further east), on the other hand, is Egyptian in design (cavetto cornice, sun disc [inserted, missing today]; Fakhry 1944, 80, fig. 7), but with 'reinforced' corners (pilasters; 24 x 24 x 3 cm). It faces north and is built of carefully dressed limestone blocks (e.g. 47/89/102 x 26 x 24 cm) similar to those in Abû' l-ᶜAwwâf (cf. below). The ceiling consists of a primitive type of corbelled roof, i.e. a type of trapezoid 'cloister vault' with a flat top (195 cm) and three bevelled slabs (total height 80 cm) instead of vaulted stone members. At the SW edge of the village, completely engulfed by the houses of the abandoned village, is another building (*c.* 4.37 x 4.90 [?] m) of almost identical masonry (e.g. 73/86/92/104 x 25 x 23/43 cm), also with 'reinforced' corners (pilasters; 35 x 35 x 2.5 cm). Consisting of a single room with the entrance facing west, its design recalls that of the temple at al-Maᶜâsir (cf. below). A nearby cemetery is believed to be "probably" of Roman date (Fakhry 1944, 79 ff.) which is likely to be the date of the two buildings, too.

Some 800 m west of the temple are the remains of two square stone buildings (*c.* 10.80 x 10.40 m and 14.60 x 13.60 m), placed in line (*c.* 9.50 m apart) and almost completely engulfed by debris and sand; they are labelled "tomb-temples" (Fakhry 1944, 81). Both structures face north and are made of carefully dressed ashlar masonry (e.g. 90/70 x 30 x 50 cm). The northern (larger) one contains a well (?) in its SE corner (*c.* 260 cm in diameter) with a 10-14 cm rim for fitting a lid (?). The circular structure is built of small-sized stones set in mortar and shows signs of fire. Without excavating, it remains unclear what purpose the buildings might have served and if the circular structure was, indeed, originally a well or might have been used as an oven or kiln.

Some 2 km NNW of the Zaytûn temple is another unexcavated site, some remains of stone-masonry walls being visible there.

4.5 km WSW from Zaytûn, on what is now an island in the large Zaytûn-*sabkha*, the temple of Bîlîf occupies an area of some 30 x 10 m. It has been destroyed by illicit diggings, and what remains of the ashlar masonry is completely covered by a hard crust of salt mixed with sand. A large cavetto cornice from a doorway and part of a column shaft are visible amongst the rubble.

Further "inland" from the lake, some 2.5 km NNE of the Zaytûn temple, the necropolis of Abû' l-ᶜAwwâf is situated on the edge of a system of three large depressions containing enough moisture to sustain palm trees and other growth. Digging a low mound honeycombed with rock-tombs already partially excavated in 1900 (cf. Steindorff 1904, 133), the Egyptian antiquities authority is currently working in this area. Little is preserved of its former splendour as perhaps the most

impressive archaeological site in East Siwa during the early 19th century. A diminutive (25 x 16 x 13 cm) limestone altar of the horned type (v. Sieglin & Schreiber 1908, figs. 178c; 182c) in front of one of the rock-tombs appears to be the only item that remained untouched *in situ*. In 1819/1820 large parts of several magnificent buildings of limestone masonry were still preserved,[13] leading one to believe that the necropolis was a burial ground for some well-to-do officials or landowners in Roman Siwa and the employees on their estates.

Four buildings are known, each with a different floor-plan.[14] The largest and most splendidly adorned tomb[15] consisted of an open courtyard, the main burial having been effected at the rear in a central *aedikula*-like chamber flanked by a similar but narrower *aedikula* on either side. The lateral walls of these cubicles show two narrow ledges which must have been intended for 'shelving' several bodies one above the other, making it likely that the large ᶜAwwâf tombs served as family mausoleums. The masonry of fine limestone (e.g. 89/90/94 x 30/32/35 x 30 cm) was superbly dressed and the architecture combined Egyptian and Greek features. The façades of the *aedikulae* followed the design of an Egyptian false door with a triple frieze of uraei and sun discs (Jomard 1823, pls. V-VI) whereas the (false) pilasters and the portal through which one entered into the courtyard (Jomard 1823, pls. III, 5-6; V) are of Greek design. The capitals of the pilasters (56 x 56 x 4 cm) 'reinforcing' the corners appear to have been bevelled (?) yet modelled after the Corinthian order (Jomard 1823, pl. III, 6), and the bases are of the Attic variety showing (from top to bottom) a convex moulding, small fillet, prominent torus and plinth reminiscent of the Roman-Tuscan type.[16] As Attic bases are popular in Cyrenaica from the early second century onwards one has supposed a possible connection (Stucchi 1975, 574). The portal, however, would seem to recall much earlier examples from Cyrenaica as well as from Hellenistic Alexandria.[17]

Two of the other three buildings (Fakhry 1944, 77, figs. 5-6) have been compared to *oikos*-type temples of Hellenistic date in Cyrenaica (Stucchi 1975, 573). Originally, however, the antechamber of one of them had been domed over with a 'hanging' (or sail-type) cupola,[18] the latter clearly an indication of Roman crafts-

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[13] Cf. Jomard 1823, pls. IV-VII, 1-3; erroneously taken to represent a site 800 m west of Zaytûn temple, cf. Fakhry 1944, 81.

[14] Cf. Jomard 1823, pl. VII, 1-3; Fakhry 1944, 76; 77.

[15] Jomard No 3 = Fakhry 1944, 76, fig. 4.

[16] Robertson 1959, 201; cf. Chitham 1994, 48 ff.

[17] Stucchi 1975, figs. 57, 63; Pensabene, 1993, No. 982: mid-second century BCE.

[18] Showing the rear wall and (higher) SE corner of the building's antechamber; Fakhry 1944, fig. 6; cf. Jomard 1823, pl. IV.

manship of which the earliest known examples in Egypt date back to the 2nd/3rd centuries CE (Grossmann 1982, 251).

Apparently, Steindorff found vases of glass and mosaics in the nearby rock-tombs (cf. *loc.cit.*), which further reinforces the view that the necropolis of Abû' l-ᶜAwwâf probably dates no earlier than the Roman period in Siwa.

Looking due south of Abû' l-ᶜAwwâf one sees Salam at a distance of 1 km, which was probably the settlement to which the necropolis belonged. On the highest rise are the remains of a stone temple facing north, its elongated, narrow outline (presently untraceable) recalling that of Bîlîf and Qurayshat. The surroundings show parts of other stone structures partially exposed by illicit diggings.

Of the two easternmost sites, Timeira and al-Maᶜâsir, some 26 km resp. 21 km ENE of Abû' l-ᶜAwwâf, al-Maᶜâsir has preserved a great number of oil presses similar to the type at Qurayshat. The press beam appears to have been attached to a palm-tree pole anchored in the ground. Fragments of round *trapetum*-type crusher basins (as described by Cato, *De agri cult.* XX-XXII) are also to be found. Some distance to the east of the manufacturing site, a single-room stone temple (*c.* 5.80 x 4.50 m) occupies a low scarp. It faced south and had a large Egyptian-style portal, its cavetto cornice with a sun disc flanked by two uraei still lying near the entrance amongst the rubble of torn-apart masonry. The masonry, in appearance, building technique, and size (72/79 x 28/32 x 18/27 cm) resembles closely that at Abû' l-ᶜAwwâf and Zaytûn.

Not many ancient remains are visible at Timeira, some 8 km east of al-Maᶜâsir, yet the site appears to have been substantial. Like al-Maᶜâsir, Timeira connected the Zaytûn area with the track leading via Qâra Oasis to the coast, and there is little doubt that both sites flourished in Roman times. The nearby "Bitter Lake" appears to be the one attained by Alexander the Great on his march to Siwa, some 100 stadia (*c.* 20 km) distant from the first "towns of Ammon" situated in the Zaytûn area (Diodorus XVII 49, 6).

5. Cemeteries of Western and Central Siwa

A salient feature of West Siwa (districts of al-Marâqî and Baha' ad-Dîn) are the many rock-tomb cemeteries visible in this part of the oasis. Their existence here is readily explained by the fact that, unlike further east, the northern escarpment comes quite close to the shores of the lakes as well as the cultivated area. The majority of tombs consist of one or two cave-like chambers where the deceased was put to rest, sometimes on a wooden bed. Frequently, niches intended for additional burials have been cut into the side walls. There are no real architectural features present and the tombs were closed by simply fixing a squared slab of stone into place with plaster.

At Dihîbah in the district of al-Marâqî, the antiquities' authority has excavated such a necropolis of rock-tombs. Two of the tombs are unusually large and showed

proper architectural design. Each had a forecourt and subsequent burial chamber on a more elevated level which was accessible by means of a few steps. There was evidence that the burial took place inside a trough built against one of the rear corners of the room. The courtyard featured columns and an entablature of which fragments of a dentil frieze remain (el-Demery 1996, 13-19).

The conical hill of Gabal al-Mawtâ ("Hill of the Dead") appears to have been the main necropolis of Central Siwa, although tombs are visible along the lower reaches of the southern side of the double mountain of Shâlî (Old Siwa), too. Gabal al-Mawtâ might have served as the necropolis of a likely (but archaeologically yet unproven) predecessor township of nearby mediaeval Shâlî, as well as for Aghûrmî (some 1.7 km east), the acropolis there being the residence of the royal family and the clergy of Amûn. Recent excavations at the Temple of the Oracle have unearthed evidence of possibly royal or priestly burials underneath and in close vicinity of the sanctuary. However, considering the limited space available in the holy precinct it appears unlikely that Aghûrmî could have served as a burial ground for generation after generation of members of the royal family and clergy.

Gabal al-Mawtâ is a veritable rabbit warren of hundreds of rock-tombs which were robbed and lived in, and sometimes thoroughly damaged in the process. Most noteworthy is the famous polychrome tomb of a man called Siamun ("Man of Amûn"; cf. Fakhry 1944, 132-59), whose remarkable portrait (Kuhlmann 1988, pl. 37 and pl. I) easily compares with many of his modern-day descendants of Berber origin. It is quite unlikely that it represents a Greek, as is widely held (e.g. Fakhry 1944, 134; Koenen 1983, 145). Various attempts have been made to date this tomb to the Late Period and Hellenistic era,[19] but so far little stringent evidence has been adduced to support any other than a vague late Hellenistic or even early Roman date (Kuhlmann 1988, 85, n. 594). The amphoras shown in one of the murals (Kuhlmann 1988, pl. 39) might correspond to wares of the second century BCE to the second century CE (M. Jones, *pers. comm.*), if they are not wholly imaginative. The hieroglyphic inscriptions and parts of the decoration (e.g. demon figures, cf. Kuhlmann 1983, pls. 34-35) convey the impression of a date rather later than Ptolemaic[20] - early Roman, perhaps, if the graffiti in the tomb are indeed of the first century CE (cf. above) and may be used as a *terminus ad quem*.

The rulers of Siwa are unlikely to have kept a work-force of foreign experts (i.e. architects, gangs of stonemasons and painters) in their continuous employ. To warrant this, one should expect much more public building to have been undertaken in the oasis. The Temple of the Oracle was erected by a Greek work-force (probably

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[19] Morenz 1969, 66, n. 108; Parlasca 1966, 304: third century BCE.

[20] For Roman inscriptions and tomb decorations, cf. e.g. Parlasca 1966, pl. 2, 1-2; Osing *e.a.* 1982, pls. 13-19; 20-34. See also el-Farag (†) *e.a.* 1985, 1-8, pls. 9-17.

Cyrenaican in origin, cf. below), the sanctuary of Umm ᶜUbaydah by Egyptians, and the painter of Siamun's tomb, too, is likely to have come to the oasis either in the course of some major building project being initiated there (cf. Kuhlmann 1988, 85), or else might have been persuaded to travel to Ammon by the owner of the tomb himself. The latter must have been an individual of considerable social standing and wealth. Certain elements of the decoration, e.g. the protective vulture and falcon deities (cf. scene of "opening the mouth"; ceiling) as well as the frieze of cartouches are borrowed from royal Egyptian iconography and seem to suggest that he may have been connected with the royal family of Ammon. Other details like the touching scene representing a balding, aged Siamun seemingly bidding a last farewell to the figure of a little boy (his son?), scantily covered in a loose cloak (a chlamys; Kuhlmann 1988, 84) are without immediate Egyptian parallels. They recall the tradition of Greek funerary stelas,[21] with which the painter appears to have been acquainted.

Inconclusive as the date of Siamun still remains, it is unlikely that Gabal al-Mawtâ will have served as a necropolis only from as late as Roman times. A well exists on the western slope of the hill making the mountain a choice location for settlement at any given time in history, unless, of course, tradition had it marked long ago as a city of the dead.

6. Economic Aspects of Roman Siwa

If during the reign of Trajan, the Romans had established their own administration in the oasis and were collecting taxes, the question of just what they taxed remains.

The customary wheat-tax of the Nile Valley is difficult to imagine. Oasis soils in general suffer from increased salinity caused by insufficient drainage and are therefore not really suitable for growing a taxable surplus of wheat. It is hardly a coincidence that records of *sitos* (grain) - occasionally specified as *pyrgos* (wheat) - refer to the latter as being sent *into* the oases rather than being exported from there (Wagner 1987, 285 ff.). Most of the *sitos* is named as *krite* (barley) or more specifically even as "oasis barley" (Wagner 1987, 287), not surprisingly because barley has a much higher tolerance of salt than wheat (cf. Kuhlmann 1988, 79 ff.). Even Olympiodorus in his glowing description of the Oasis Magna as a true "Island of the Blessed" concerning its agricultural potential, can only mention barley and sorghum as the main crops there (Photius 179).

Herodotus and Strabo were basically right when referring to the oases as "mounds of salt" constantly in need of being topped up with soil (Herodotus IV 181-85) and to climatic conditions as being unfavourable for seed corn to take root (*ou*

[21] Well attested, e.g., in Hellenistic Alexandria, cf. Breccia 1912, pls. XXVIII; XXIX; Pagenstecher 1919, 33 ff.

rhizotrophei: Strabo, *Geog.* XVII 3, 23). During pharaonic times the taxable commodities were principally wine and basketry products, the fields of the oases mentioned as donkey and goat pastures rather than as being suitable for tilling and growing grain (cf. Helck 1961, 237; 240; Giddy 1987, 70-89). A heap of taxable goods depicted in the tomb of Amenophis-Huj in Baharîya Oasis, finally, resists any attempt to identify the produce with certainty, yet it is doubtful that it is wheat (Kuhlmann 1988, 81).

At best, wheat could be grown on choice plots of land which had good drainage and only at a scale satisfying local needs. There is little doubt, however, that the Romans organised and supervised the local oil production, making it likely that Siwan taxes were levied chiefly on this commodity. Until today, Siwa relies on the horticulture of some 250,000 olive trees, and an approximately equal number of date palms as its chief economic basis, not much different from what the situation must have been in antiquity (cf. Arrian, *Anab.* III. IV, 1). The eastern part of the depression especially is renowned for its extended olive groves and is therefore called al-Zaytûn, "the Olives". From the few references made to Siwan oil in papyri (Wagner 1987, 297) it would seem that the *elaion Ammoniakon* (Ammonian oil) enjoyed a special reputation during the second and third centuries CE (P.Oxy. 2423, vs. III, 22). During the third century it sold for 220 drachmas as opposed to only 200 drachmas for the so-called oasis variety (*elaion auasitikon*; P.Oxy. 2783, 6-9).

Olives, if they are to be eaten - as undoubtedly they must have been - need to be pickled in a salty brine and this is where the *sal hammoniacum*, the salt of the Ammonians mentioned above, comes in as an economic asset. Even today, at the Greater Bairam feast, all villagers take to the northern shores of Lake Siwa in order to quarry large quantities of salt from there. The latter is contained in thick, compacted layers near the shoreline and is accessible after removal of a 50-80 cm crust of silt (cf. Synesios, *Epist.* 148). It is then used for pickling olives during the autumn harvest. There is no reason to assume that things differed much during the Roman period except, perhaps, that large amounts of salt were needed for another purpose long since become obsolete, i.e. embalming. At Dihîbah (cf. above) lies a ruined dry-stone building associated with the necropolis. In one of the rooms a large amount of salt was found and it is difficult to imagine that it could have been needed there for any other purpose than mummification.

7. Late Antique and Byzantine Siwa

The transition from the late Roman into the Byzantine or Christian era also lacks detailed documentation. In the early fourth century Siwa became part of the diocese of Alexandria (Epiphanius, *Adv. haereses* II 2, 68) and towards the end served as a place of banishment for Theban heretics (Athanasius, *Ad imp. Const. apol.* 32). The emperor Justinian installed a strong military presence (*limes, phylakteria*) at

Ammon's 'port'-city of Paraitonion,[22] and at around the same time (535 CE) the *Synecdemos* of Hierocles states that Ammoniakê formed part of the eparchy of Libya Inferior which included six towns headed by Paraitonion (Kamal 1987 II, 76). During the sixth century some desert fathers are said to have installed themselves in Ammoniakê (John Moschus 123), but there is no telling whether Ammoniakê means the oasis proper or refers to somewhere else inside or on the fringes of Ammonian territory (e.g. Mareotis, Nitria). At the beginning of the seventh century, writing shortly before the Arab conquest of Egypt, George of Cyprus lists Ammoniakê as possessing a Byzantine fortress and still being part of the dioceses in the eparchy of Libya (Gelzer 1909, 787); it remained such at least until the last quarter of the ninth century (Parthey 1866, 56). However, when in the course of the seventh century, Samuel of Kalamun in the Wâdi al-Muwaylih[23] was taken hostage by marauding Maxyan tribesmen and was abducted by them to their stronghold in Ammoniakê/ Siwa, he found the inhabitants were pagans worshipping the sun (Alcock 1983, 18; 91). This might mean that the Siwan Berber either followed animistic practice, or were still clinging to the cult of the old Egyptian sun god Amûn-Ra/Ammon.

According to Eusebius (*De theoph.* III 13), Ammon had ceased to deliver oracles during the fourth century, but Corippus chronicling Justinian's Libyan wars during the first half of the sixth century alludes to the oracle as still functioning and being consulted by the Libyans (*Johan.* V 147 ff.; VI 145-48). Around the same time, Procopius got his geography all mixed up, placing a temple of Ammon and of Alexander the Great at Augila Oasis instead of in Siwa and Baharîya, respectively (*De aedific.* VI, II 17). Pagan temple rituals were apparently practised until the time of Justinian (527-565), who is said to have built a church there (*loc.cit.* VI, II 20). A group of *hierodouloi* is singled out for special mention by Procopius (*loc.cit.* VI, II 18). If referring to a body of female temple personnel, these *hierodouloi* are perhaps the late successors of the "songstresses of Amûn" - well attested from documents relating to his cult in Thebes and also figuring amongst the Siwan clergy, as is evident from Diodorus' account of Alexander's visit. During the oracular processions which took place along the *dromos* connecting the Aghûrmî and Umm ᶜUbaydah temples, "a multitude of girls and women singing hymns along the whole way and praising the god with traditional songs" followed the god's barge (XVII 50-51). In this context, it is interesting to note that the so-called Siwan Manuscript - a 19th century writ preserving a mixture of mediaeval Arab literary sources on Siwa and oral traditions about local history and law[24] - mentions Balad ar-Rûm at the

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[22] *Codex J.*, edict XIII, XVIII; Procopius, *De aedific.* VI, II (332) = Kamal 1987 II, 131.

[23] Contingent to the Wâdi ar-Rayyân, south of Fayûm.

[24] Stanley 1911, 35-41; Fakhry 1973, 39; Bliss 1985, 108-31.

western confines of Siwa as inhabited by women of ill repute and the place of a church.

There is some doubt as to the true meaning of Balad/Bilâd ar-Rûm ("the village of the Greeks") or Dayr ar-Rûmî ("the Greek Monastery/Fort") as the place is also called. Understandably, the toponyms have been taken to refer to a colony of Greek settlers responsible, last but not least, for erecting the neighbourhood's "Doric" temple. In Arabic, *rûm* may indeed mean "Greek" in a general sense, but originally it is derived, of course, from *Romaioi* and, therefore, referred to the Eastern Romans or Byzantines. Arab historians uphold the distinction between *Yunaniyûn* ("Ionians" or mainland Greeks) and *Rûm* (*Romaioi*, "Romans", i.e. Byzantines).[25]

If, again, the Siwan Manuscript may be relied upon to have captured some historical truth, a different picture emerges. With reference to Balad ar-Rûm, the manuscript mentions a church and cemetery of *batarka*, i.e. Christian "patriarchs", while concerning the ancient kings of Siwa one reads that the position was held by "a Greek and Christian" (Stanley 1911, 36). There can be little doubt, then, that there was a time when Christian church officials controlled the oasis (cf. above). Also, since George of Cyprus mentions a Byzantine fort in the oasis (cf. above), it seems more probable that Balad ar-Rûm refers to Byzantine installations rather than a settlement of pagan Greeks.

Naturally, this does not rule out that the Roman administration might have employed Greek builders from neighbouring Cyrenaica or Egypt. At the "Doric" temple, curved side grooves were used for lifting up blocks, a method not used by Roman builders who preferred bosses, grips and lewisses for that purpose (Adam 1994, 48-51; fig. 101). There is, indeed, solid evidence that in earlier times the Ammonians themselves had engaged a Greek work-force in their endeavours to embellish the oasis with buildings of monumental character. The German excavations at the oracular complex have uncovered technological proof that already during the sixth century BCE (i.e. the Archaic Age in Greece), none less than the famous Temple of the Oracle itself was erected by Greek stonemasons who, at that time, are most likely to have come from amongst the immigrant settlers in Cyrene. The freestanding pseudo-isodome walls of the temple have no constructional parallels in Egyptian architecture (Kuhlmann 1988, 32), and there are telltale marks of the saw-toothed claw chisel (*xois tracheia*) not used by Egyptian stonemasons, as well as lewis holes showing that pincers (*karkinos*) and pulleys were utilised to hoist up building material. Just as unusual as the latter procedure is the technique of *anathyrosis* in Egyptian building, which at Aghûrmî is of typical Greek appearance.

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[25] E.g. al-Hamdânî, al-Masʿûdî around the mid-tenth century, cf. Kamal 1987 III, 139; 215.

In 708 CE the Umayyad governor of North Africa, Mûsa Ibn Nusayr, and his general Târiq Ibn Zayâd failed to conquer Siwa.[26] For the middle of the 12th century al-Idrîsî documents that Santarîya (Shâlî?) had been founded a short while before and that Islam had gained a foothold in Siwa, at that time a "small hamlet" possessing a *minbar* (i.e. mosque and *imâm*) and a flock of Berber and Arab believers (Langlès 1803, 398 ff.; Kamal 1987 IV, 105). Around 1422 al-Maqrîzî puts the number of inhabitants at *c.* 600 Berbers known as the Sîwa (*al-Khitat* IV, LXII 3). According to Ibn Saʿid († 1286), towards the end of the 13th century Santarîya/Siwa enjoyed the protection of the sultanate of Egypt (Kamal 1987 V, 25), but it was not until 1820, when Muhammad ʿAlî sent a military expedition to Siwa (Fakhry 1973, 104 ff.), that the independently minded Berber sheikhdom became a fully integrated part of the modern Egyptian nation.

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[26] Al-Maqrîzî, *al-Khitat* IV, LXXI 5. According to Ibn Wasîf Shah; cf. Langlès 1803, 368; cf. also Carra de Vaux 1898, 294; v. Hammer 1814, 244.

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THE ARCHAEOLOGY OF AN INDUSTRIAL LANDSCAPE: An Interim Report on the Work of the Imperial Quarries (Mons Porphyrites) Project

Valerie Maxfield and David Peacock

Quarried in the harsh and remote environment of Egypt's Eastern Desert fringe, imperial purple porphyry is a stone with a significance which brought it to the heart of Empire - and has, indeed, ever since Roman times, led to its adoption as a symbol of authority. Porphyry - purple - a stone fit for emperors - is to be found in the centre of Rome, used in columns in the Temple of Venus and Rome, the Basilica of Maxentius and the Temple of Romulus Augustulus; it was employed for imperial sarcophagi as late as the time of Marcian (457 CE), and lined the walls and ceiling of the so-called Porphyra, the imperial birthing chamber in the Palace at Constantinople - Porphyrogenitus, born to the purple!

This was a stone so highly prized that it was thought worth going to extraordinary lengths to obtain it. It is found in one place only, in Egypt, in the Gebel Dokhan, towards the eastern edge of the Red Sea Mountain range (Fig. 1). As the crow flies, the site is very close to the western edge of the coastal plain, only about 8 km away, but it is extremely difficult of access. The main, vehicular route into the site approaches from the southwest, from the site of Badia, which lies on the main road to the Nile. From Badia the road takes a tortuous route, curving around the eastern edge of the mountain massif, passing over a small col to enter the Wâdi Umm Sidri and thence turning southwards into the Wâdi Abû Ma'âmel where the quarries were sited and where the administrative heart of the complex lay. The 32-km journey ends at a point just 8 km north of where it started. Foot traffic - human and equine, but probably not camel - can take a shorter, but by no means easier, route via a zigzag pass which crosses directly over a saddle in the mountain ridge which divides the two sites.

The paved road which once eased the journey into the complex has now all but disappeared; the route into the site now traverses a harsh boulder-strewn environment, the floor of the wadi deeply intersected by flood channels created by the deluges which rarely, but forcefully, engulf the mountains. This remoteness and inaccessibility has, until recent years, helped protect the site. The breakdown of the Roman road system with its associated way-stations and watering posts, has meant that the stone has not been quarried to any extent since the fifth century. No-one since has had both the will and the power to create the infrastructure necessary to support work on any scale. A concession was awarded in 1887 to W. Brindley, but the project fell through owing to the difficulties of transporting the stone (Weigall 1909, 91). Weigall's own visit to the site in 1907 was occasioned by a site inspection on behalf of the (then) Department of Mines, investigating the possibility of reopen-

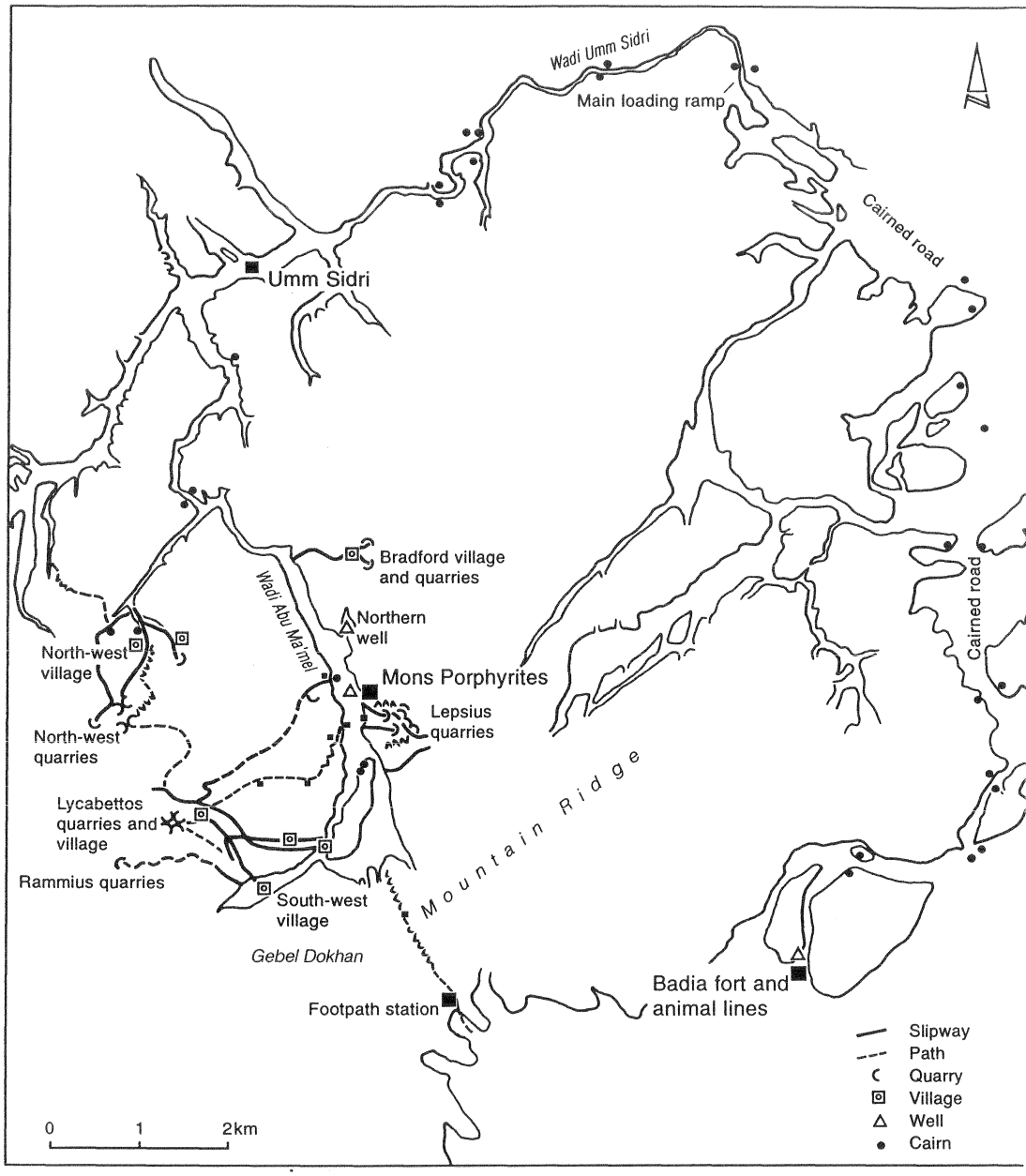


Figure 1. The industrial complex at Mons Porphyrites.

ing the quarries. There was small-scale working for King Fouad in the 1930s but little more.

The general inaccessibility of the site and the impracticality of reactivating the quarrying, together with the dryness of the climate, in what is a hyper-arid region with no settled population, have ensured the remarkable survival of a virtually untouched Roman industrial landscape. Or at least it was untouched until recently. In the last decade or so the situation has changed radically. Military controls on movement in the Eastern Desert, imposed as a result of hostilities in the Middle East, and which have effectively kept people away from the area, have been relaxed. As a result tourism has positively exploded along the coral-fringed Red Sea coast; the resort town of Hurghada lies just 40 km from the site of Mons Porphyrites. The proliferation of 4-wheel drive vehicles now allows a freedom of movement in the desert hitherto available only to those on camelback. Unregulated tourism as well as the looting of antiquities is now threatening the integrity of sites long-protected by their remoteness.

It was against this background that the Mons Porphyrites Project was set up in 1994, with the intention of undertaking a thorough study of the complex before major degradation set in. It was established with a 5-year project design aimed at a comprehensive survey of the settlements and associated quarries, and selective excavation. The aims of the project may be summarised as being:

- To elucidate the chronological development of the settlements and quarry-field
- To obtain evidence for the quarry-working technology
- To undertake a detailed geological study of the quarry-field in order to characterise the various subtypes of the porphyry, linking this with an investigation into the distribution and uses of porphyry
- To retrieve evidence on the administration and day-to-day functioning of the site, through the retrieval of ostraca and other written materials
- To throw light on the mechanisms of provisioning the site particularly through the archaeobotanical and -zoological materials
- To undertake a full epigraphic survey
- To extend the ceramic typology for Egyptian pottery of the Roman period

The concession over which the project operates, covers an area of about 100 ha, chosen so as to take in all of the elements crucial to an understanding of the complex as an integral functioning whole. The designation of this area was based on knowledge obtained from the work of those who visited and recorded the site in the 19th and earlier 20th centuries. The site at Mons Porphyrites was rediscovered in 1822 by James Burton. In the following year he returned with John Gardner Wilkinson, and it is this latter's account of the journey they undertook together which brought the site of Porphyrites to scholarly attention (Wilkinson 1832, 42-49). Neither published anything further on the site (apart from the appearance of an abstract of Burton's

diaries in the *Morning Chronicle* for October 23, 1824), but the field notes and sketches of both survive, as does the manuscript of a book which Wilkinson produced on his travels in Upper Egypt (Burton's journals are in the British Library, Wilkinson's in the Bodleian).

Burton and Wilkinson were followed by a series of other explorers - antiquaries and geologists - who, between them, sketched the outlines of an extensive complex of settlements and quarries, and recorded inscriptions some of which have since disappeared. The most systematic study, prior to the present project, was that of Kraus, Röder and Müller-Wiener who, in a 5-day campaign of work, produced plans and descriptions of the main settlement with associated temples and water-supply, and brief summaries of the quarries and outlying settlements (Kraus *e.a.* 1967, 157-205).

Figure 1 illustrates the constituent components of the complex which is spread out along almost the full length of the closed-in valley of the Wâdi Abû Ma'âmel ("the Valley of the Workings"). It comprises a settlement core with associated water supply, surrounded by quarry sites each with its own satellite village, the whole linked together by a complex of ramps, slipways and paths. A cairned road leads out of the valley via a small way-station at Umm Sidri towards the exit from the mountains, where an embanked road leads direct onto a loading ramp. From here stretches of a cleared road with marker cairns are intermittently visible, leading towards the "service station" at Badia, where a small fort is associated with a well and a large set of animal lines, and thence towards the Nile, 120 km distant.

The major settlement and administrative focus of the site lies on the east side of the Wâdi Abû Ma'âmel, at its widest point. An irregularly-shaped fort extends along a ridge above the wadi floor, with an open settlement spreading southwards from it and a necropolis to the north. Two temples (one dedicated to Sarapis, the other to Isis) have been identified on this east side of the wadi. The fort contains a large water-storage tank which must have been supplied by hand from the well which is situated in mid-wadi. The wadi floor at this point lies at a height of about 600 m above sea level, while the mountains which surround it rise in places to 1600 m. It is at the tops of these mountains that the exploitable stone is to be found. Here the situation contrasts markedly with the layout at Mons Claudianus where the whole site lay high up on the Red Sea/Nile watershed, and the exploitable stone lay within easy reach of the core of the complex (Peacock & Maxfield 1997a). The result is a compact layout with a single settlement focus. At Mons Porphyrites the time taken to make the steep climb up to the closest of the quarries (the Lepsius group, 400 m above the fort on the east ridge) is about 45 minutes. To reach Lycabettus by the shortest route would take something like one and a half hours, the North-West Quarries, two and a half. Here, perhaps, is one of the explanations for the dispersed pattern of settlement, whereby each quarry group has its associated residential focus.

The one exception to this generalisation is the Lepsius group, the one group to lie in easy reach of the core complex.

Another reason for the scattered nature of the settlement lies in the overall development of the complex, and the chronological relationships of its various parts, one to another. Evidence provided by surface sherding of all elements of the site together with limited excavation in and around the fort, have started to suggest a developmental sequence with the earliest foci of activity all appearing to lie in the northern part of the complex.

One certain and one probable inscription of Tiberian date are now known. The earliest, and one which dates the foundation of the whole enterprise, comes from a newly-discovered settlement (and associated quarries) on the east flank of the Wâdi Abû Ma'âmel, 1.7 km to the north of the fort (named the Bradford quarries, after their discoverer). Here a pathway leads from the wadi floor up to a small group of one triple-celled and six single-celled buildings, of generally rough construction, scarped into the steep slope. Above them lies a better-built rectangular structure, a niche in its back wall, in front of which, face down, lay an inscription which declared that "Caius Cominius Leugas, who discovered the quarries of the porphyry stone and the *knekites* and black porphyry, and who found also many-coloured stones, dedicated a sanctuary to Pan and Sarapis, very great gods, for the well-being of his children". The inscription is dated to July 23, 18 CE. To the left of the text is a figure of Pan-Min, the ithyphallic god of the Eastern Desert (Fig. 2). Surface pottery from this small settlement was of a broadly early character, consistent with the *terminus post quem* established by the inscription. While of major significance for their date, the workings associated with this settlement were small and unimpressive, but, notably, of black porphyry.

The second (probably) Tiberian inscription derives from the North-West group. Here there are two separate settlements and associated quarry-fields, one at the true end of the approach-wadi, the other some distance up a side wadi which feeds into it from the west, shortly before its end. This latter, initially noted by Wilkinson (1832, 46-47), straddles a steep ravine some 400 m above the valley floor. It is a very substantial and well-built complex (at 90 x 50 m, larger than the main fort), scarped into the hillslope, making use of every inch of usable ground. A large rock-cut cistern, though supplied by natural runoff when the wadi was in spate, will generally have had to be filled by hand from the nearest available water-supply. From this village it is a steep climb up to the quarry-field which lies some 600 m above, up a mountainside with a slope of roughly 1:2.3. Access could be gained either via a zigzag path running to the south, or straight up the cairned slipway which ran down the ravine through the centre of the village, down to a loading ramp sited at the point of exit of this side wadi. The quarry-field associated with this settlement is extensive. Three separate slipways branch off the main access route,

leading to ten separate quarry workings, here exploiting a purple porphyry which can be generally distinguished by a pinkish tinge to the felspars, but there is a black facies and some stones exhibit both colours.



Figure 2. Inscription of Pan-Min from the Bradford village.

The second, smaller, northwest village lies on (relatively) flat ground at the head of the valley. It consists of a U-shaped building, with fifteen single, linked rooms fronting onto an open courtyard which faces the slipway leading up to the associated quarries. On the opposite side of this slipway is an isolated rectangular structure,

possibly a supervisor's house, or perhaps a temple. To the north of it was found the outline of a large stone foot, roughly carved from a natural flat slab of greenish-black porphyry; if it was originally associated with the building, it could suggest an association with the Sarapis cult. Two black porphyry quarries lie to the south, served by the single slipway and a zigzag path. The operation here is small and, probably, short-lived. Surface pottery from this smaller settlement is of an early character, similar to that from the Bradford village, while that from the main northwest village, though still early, is to be placed somewhat later within the first century, with activity continuing through the second and perhaps beyond (Quarry 10, in the main northwest group produced material of 4th-5th century date).

The inscription in question, a *proskynema* to Pan, is associated with this north-west grouping. It was recorded in 1935 by C.H.O. Scaife as being found "amongst the boulders in the torrent bed of the NW village mentioned by J.G. Wilkinson", that is the large village - the smaller was not then known and, in any case, has no "torrent bed" (Scaife 1935, 62-63; SB V 8164 = SEG VIII 649 = I.Pan. 18). It is dated to "year 16" in an unknown reign, and is attributed to Tiberius 16 (*i.e.* 29 CE) on the assumption that the Apollonius son of Longinus who made the dedication is to be identified with the man of the same name who dedicated in the Wâdi Hammâmât (IGRR 1238). On present evidence, the date of the main northwest village does not go back as early as 29 CE; that of the small village does, so that an original association with this latter could be conjectured. The fact that the inscription is small - *c.* 50 cm long, 26 cm broad and 10 cm thick at the lettered face - and easily portable, means that it could have been carried from the one to the other, perhaps when the earlier site was abandoned. Alternatively, the findspot, as described by Scaife, could be construed as referring to that part of the wadi which lies below the junction of the approaches to the two villages, hence allowing an association with either. Its exact findspot will never now be known. Tregenza recorded that by the time he visited the site (in 1949) it had been removed to the museum in Alexandria (Tregenza 1955, 136).

The dates established for these northern sites indicate a foundation earlier than that of the main fort complex. Extensive surface sherding of the core settlement and the rubbish dumps which lie around it has produced nothing to suggest a date earlier than the late first century. Tregenza found a Domitianic coin, of 91 CE, at the main fort (Meredith 1952, 108), but of the few legible coins produced by the current excavations, none goes earlier than the final year of Trajan. It is, at present, impossible to decide between a late Domitianic or Trajanic establishment date, very little of the primary deposits having, as yet, been investigated. The earliest piece of written evidence directly associated with the main settlement area is an inscription of 113 CE which comes from a temple of Isis which lies immediately to the south of the fort (Couyat 1909, 28 = Meredith 1953, 128-129, no. 2 = Bernand 1977, no.

20). A further text of possible relevance to the date of the opening up of this main site comes, not from Porphyrites itself, but from the associated fort of Badia. Excavations here, in the rubbish dump to the south of the fort, produced an ostracon for which a palaeographic date of "early, probably still first century" CE has been suggested (Van Rengen in Peacock & Maxfield 1997b, 26). The text is that of a letter which requests the sending of palm-leaves "to crown the hydreuma". It notes that "the prefect (*hegemon*) has arrived", indicating an event of some significance. The hydreuma in question is very possibly the ornate pillared well which lies at the centre of the Wâdi Abû Ma'âmel, opposite the Porphyrites fort. This is one of just two water-sources known in the heart of the complex (though Badia has its own supply). The other lies in a side wadi to the north of the main site, and not far from the Bradford quarries. The small amount of pottery it has produced is earlier than that from the main site and again points to the generally earlier character of the northern grouping.

The shift of settlement focus southwards would appear to be linked with the opening up of new quarries. Not only was the site in the Wâdi Abû Ma'âmel closer to these quarries, but it was also larger and able to accommodate more of the increasing number of administrators and supervisors, as well as workers, demanded by an expanding industry. A concentration of material spanning the second century indicates a flourishing community during those years, with activity continuing through the third into the fourth and perhaps the fifth centuries. Although the overall settlement area was extensive, the site actually occupied by the fort was severely constrained. The site chosen was that of a ridge, on the east side of the wadi, well above the flood level. In order to maximize the space available the west wall of the enclosure was pushed as close to the edge of the ridge as possible (as a result of which it has since been undermined by erosion, and is slowly collapsing). The resulting enclosure was long and narrow, about 0.40 ha in area, just 46 m wide. At a date no earlier than the later part of the second century, it was extended about 10 m eastwards, up the slope, adding somewhat over 400 m^2 of additional useable space.

The date range of the material from the open settlement which spread along the top of the ridge south from the fort, is comparable to that from the fort and its rubbish dumps. As noted above, a temple was dedicated to Isis in 113 CE and another to Sarapis, between 117 and 119 CE (Meredith 1953, 126-128, no. 1 = Bernand 1977, no. 21). This latter inscription mentions the same Epaphroditus Sigerianos as is attested at Mons Claudianus - one of a number of indicators of organisational and functional links between these two major quarry complexes.

Neither the Lepsius nor Rammius quarries have produced any datable material, but the former are closely associated with the fort above which they lie (Fig. 3). The

fort and the transport system must have been here in place, or else the material from these quarries would have been taken out to the east.

The original development of the southwest village, which lies on low ground at the very head of the Wâdi Abû Ma'âmel, is probably to be linked with the exploitation of the Rammius quarries which lie high above them to the west. A cairned path leads from the southwest corner of the village up towards the quarries whose siting is such as to permit of no closer settlement. There has been no excavation at the southwest village, but surface survey indicates two structural phases within the buildings and has produced pottery indicative of occupation from the later first to the third centuries. Just two sherds attest some level of activity at a later date. The



Figure 3. Mons Porphyrites: view north-north-east across the Wâdi Abû Ma'âmel. The fort lies *c.* 1 km distant on the bluff just above the wadi floor (base of slope, left) with the associated village on the next bluff south (right), and the temple south of that. The Lepsius quarries are largely sited towards the top of the mountain (top right of picture), with slipways leading towards them. The path, right foreground, leads towards the Lycabettus quarries.

Rammius quarries themselves are very limited in extent. The approach to them is via an exceptionally steep zigzag path, and there is no associated slipway. Quarried blocks must just have been allowed to free-fall into the valley below. Clearly the quality/quantity of exploitable stone was not such as to justify the development of a more complex infrastructure for extraction such as developed at the northwest quarries. The perceived life-span of the southwest village is much longer than that of the Rammius quarries, and its continuing existence appears to have been in association with the considerably more extensive Lycabettus quarries. A path leading out of the northwest corner of the village approaches Lycabettus mountain from the south. The small quantity of late material would fit an association with Lycabettus, which appears to have been the major focus of activity in the fourth century.

The Lycabettus quarries, though less extensive than the northwest group, were of major importance and were worked over a long period. They lay a long way from the main fort, and no less than five "villages" were associated with them at one time or another. Two lay at wadi level, the southwest village and a small cluster of houses sited at the base of the mountain where two slipways converge (described and planned by Kraus *e.a.* 1967, 171). The large quantities of porphyry chippings which lie on the ground at this point suggest that the workers based here were charged with the dressing of blocks brought down the slipways, before their onward journey. Two small (newly-discovered) groups of houses lay on the roads up the mountain. The major settlement lay as close to the top as the topography permitted, at a height of about 1200 m, straddling a hump-back just below the quarries (Fig. 4). Material from this settlement was almost exclusively late Roman in date (with just a minimal amount of late 1st/2nd century pottery). This links in with the evidence of two inscriptions found nearby. A small cemetery, which lies on the hill behind the settlement, produced a Christian tombstone (Scaife 1934, 122-123 = Bernand 1977, no. 29), while an inscription of fourth century date, originally noted by Wilkinson on the cairned slipway, records repairs (presumably to the road) for lowering of the columns for Jerusalem (Scaife 1935, 58-61 = Bernand 1977, no. 28). The pottery assemblage from the houses at the foot of the slipways is likewise dominated by material of late Roman date, and Tregenza found there a coin of Constantine I (Tregenza 1955, 123).

The opening of the Lycabettus quarries, however, would appear to go back to the Trajanic period at least. A footpath approaches the quarries direct across the mountain from the main fort (Fig. 3, right foreground) and a small building along this route has produced an inscription of probable Trajanic date (Meredith 1953, 140, no. 14 = Bernand 1977, no. 19). A second text, a dedication to Isis Myrionymos dating to 137/138 CE, may likewise derive from a structure along this road (Meredith 1953, 129-130, no. 3 = Bernand 1977, no. 22). It was originally noted by Wilkinson and Burton who found it just above a small building which lies at the

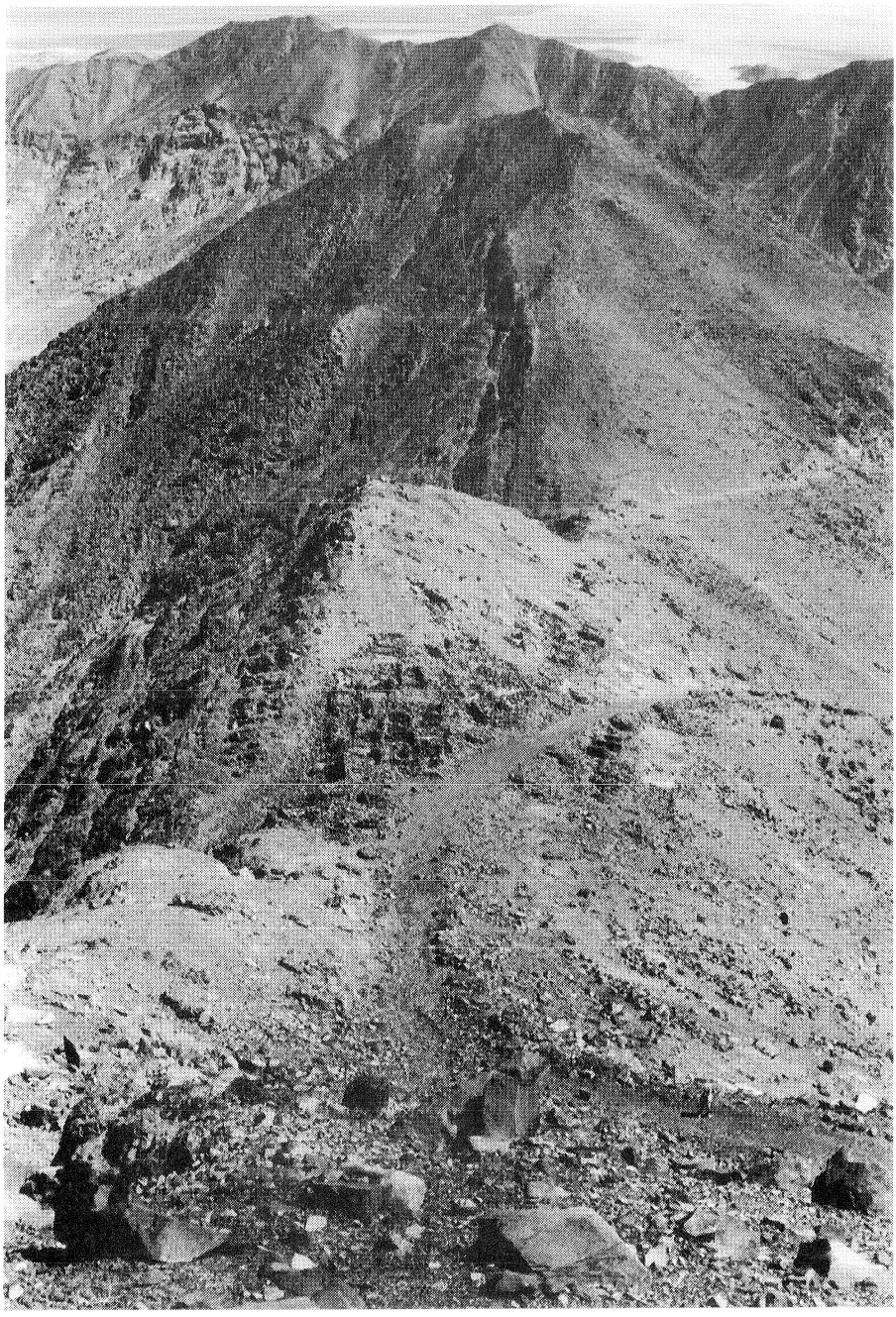


Figure 4. Mons Porphyrites: view down from the quarries towards Lycabettus village (centre). A cairned slipway leads down to the right. Beyond the mountains lies the site of Badia (not visible) and the main Nile-Red Sea corridor.

point where the Lycabettus footpath descends into the Wâdi Abû Ma'âmel. They assumed an association with the nearby building (which they hence identified as a temple), but, as Meredith pointed out, the fact that the inscription, which was cut onto a circular block, was found above the building, suggests that it may have rolled down to its findspot from the pathway which rises steeply up behind.

Neither of the two smaller groups of houses associated with the Lycabettus complex has produced any dating evidence, but the lower of the two was built so as to block one of the routes up; it at least was therefore not primary. Taken together, this evidence might suggest that originally the Lycabettus quarries were worked from settlements in the valley below - the main fort settlement and the southwest village - and that subsequently workers' accommodation was provided at various venues closer in touch with the quarry faces and the slipways that serviced them.

Developments at the associated site at Badia would appear, not surprisingly, to follow a similar pattern to that established in the core complex. The site was founded in the second half of the first century. It clearly postdates the initial small-scale exploitation of the northern quarry group and can be seen to come into existence as the scale of activity increased and the need for a sophisticated support structure became apparent. The animal lines are secondary, dating to the Antonine period. In this they parallel the development at the other major quarry complex at Mons Claudianus, where the lines were constructed no earlier than 144/145 CE (Maxfield & Peacock forthcoming) and it may be that the development of these distinctive features, which are unique to the routes servicing the quarries, is generally a second-century phenomenon. The animal lines at Umm Sidri (midway between the loading ramp and the Porphyrites fort) are poorly dated, though such evidence as there is (seven badly abraded rims from surface sherding), hints at contemporaneity with the lines at Badia.

The animal lines at Badia were clearly intensively used. Where tested by excavation, their interior is packed solid with organic deposits rich in straw and dung (which promises to provide invaluable evidence for the diets of the animals involved in the quarries). Indeed, the site as a whole had a lengthy existence. Structural alterations were effected in the fort interior well into the fourth century and pottery from the interior and from a rubbish dump just outside the gate includes types of the late fourth/early fifth centuries.

The continuing symbolic significance of the unique purple stone produced by the Porphyrites complex (adopted by the Christian Church as well as by the Byzantine emperors) ensured the survival of the extractive industry in this remote mountain location on Egypt's eastern fringe just as long as there was a central power structure with the authority to coordinate both the on-site work and the transportation of the stone from quarry to consumer. When this authority collapsed the quarries were abandoned.

ACKNOWLEDGEMENTS

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Discussion

Lisa Giddy: Have you been able to determine whether the wells were perennial or seasonal?

David Peacock: There were pockets of water of Holocene date, so there was plenty of water there, and these fossil waters were being exploited.

Giddy: So you cannot determine the times of occupation on the basis of the water supply?

Valerie Maxfield: No, we can not. However, looking at comparable evidence from Mons Claudianus, it can be expected that it was exploited at all months of the year. We can also compare the fort of Badia, still in existence, where the water supply is steady.

Giddy: Did the quarry sites have their own water supply?

Maxfield: No, they didn't. It appears they had storage systems, also some with lids.

Chip Vincent (Egyptian Antiquities Project/ARCE): Is there any evidence for the method of transporting the stones to their final destination?

David Peacock: There is only little direct evidence. We assume that there were sledges and rolls, and we know of cart tracks in the desert from nearby the site in the direction of the Nile. Such carts were probably pretty massive; one ostracon refers to a 12-wheeled vehicle.

Vincent: Is there any evidence of ropes or any other method of handling?

Peacock: At Mons Claudianus, there were holes made for ropes. At Mons Porphyrites, however, there is nothing like that. It has been suggested that the rock cairns along the ramp may have been used with ropes, but we are not convinced of that.

Cynthia Sheikholeslami (AUC): What evidence is there concerning the economic value of the stone. How much did one have to pay for it?

Maxfield: This was an imperial project, so normal economic considerations do not apply here.

Peacock: Porphyri did not have a proper price.

Sheikholeslami: Did they use convict labour?

Peacock: We don't know the exact composition of the workforce. There is evidence that Christians were used at some point, but the situation changes through time.

Maxfield: Looking at the evidence from Mons Claudianus, the work was free and salaried. Hopefully the ostraca will provide more information.

THREE SEASONS AT BÎR UMM FAWÂKHÎR IN THE CENTRAL EASTERN DESERT

Carol Meyer and Lisa Heidorn

Bîr Umm Fawâkhîr, long thought to be a Roman caravan station, can now be identified as a 5th-6th century CE Byzantine gold-mining town. It has been the subject of three seasons of archaeological survey in 1992, 1993, and 1996, undertaken by the Bir Umm Fawakhir Project of the Oriental Institute of the University of Chicago. The site is one of the first archaeologically studied gold mines within Egypt, or even within the Byzantine Empire at this date. We begin with a brief discussion of the site and its surface remains and then turn to the new findings concerning the mines, mining, and the miners.

The site of Bîr Umm Fawâkhîr lies in the Precambrian mountains of the central Eastern Desert of Egypt, approximately half way between the Nile at Quft (ancient Coptos) and the Red Sea at Quseir. This is one of the shortest routes between the Nile and the Red Sea, and has consequently been used for at least 5000 years. The most famous locale on the route is the Wâdi Hammâmât, noted for its pharaonic *bekhen*-stone quarries as well as the numerous graffiti carved into the sides of the wadi. The road was further developed in the Ptolemaic and Roman periods to facilitate traffic to the Red Sea. The remains of a series of fortified caravan stations and about sixty intervisible watch-towers - presumably used to signal the arrival of the fleet at the coast - mark the 1st-2nd century Roman road. Although the route and stations have been surveyed, only recently have the stations at Wekalat el-Zarqâ, El-Muwayh, Bîr Hammâmât, and El-Hamra been excavated.[1]

Bîr Umm Fawâkhîr itself lies about five kilometres northeast of the Wâdi Hammâmât, just east of a natural gate in the mountains. Here the mountainside is riddled with ancient mine shafts and at its foot are several wells. The modern settlement at Bîr Umm Fawâkhîr - about twelve buildings in all - lies in a fairly wide, flat, sandy area (*c.* 7.5 km square) surrounded by jagged mountains dissected by numerous wadis (Fig. 1). The mountains close in again as the modern road continues southeast towards Quseir and the Red Sea (the Roman road looped northeast). No subsistence agriculture has ever succeeded in this hyper-arid desert at any time in history or prehistory, though flash floods occasionally fill the wadis and produce a sudden growth of desert plants like camel thorn.

The ancient settlement at Bîr Umm Fawâkhîr lies in a long narrow wadi not visible from the modern road. When the visitor turns a spur in the hills, however, the main street and houses of the ancient town come into sight. The entire length of

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[1] Grimal 1994, 420-24; 1995, 592-94; Bülow-Jacobsen *e.a.* 1995.

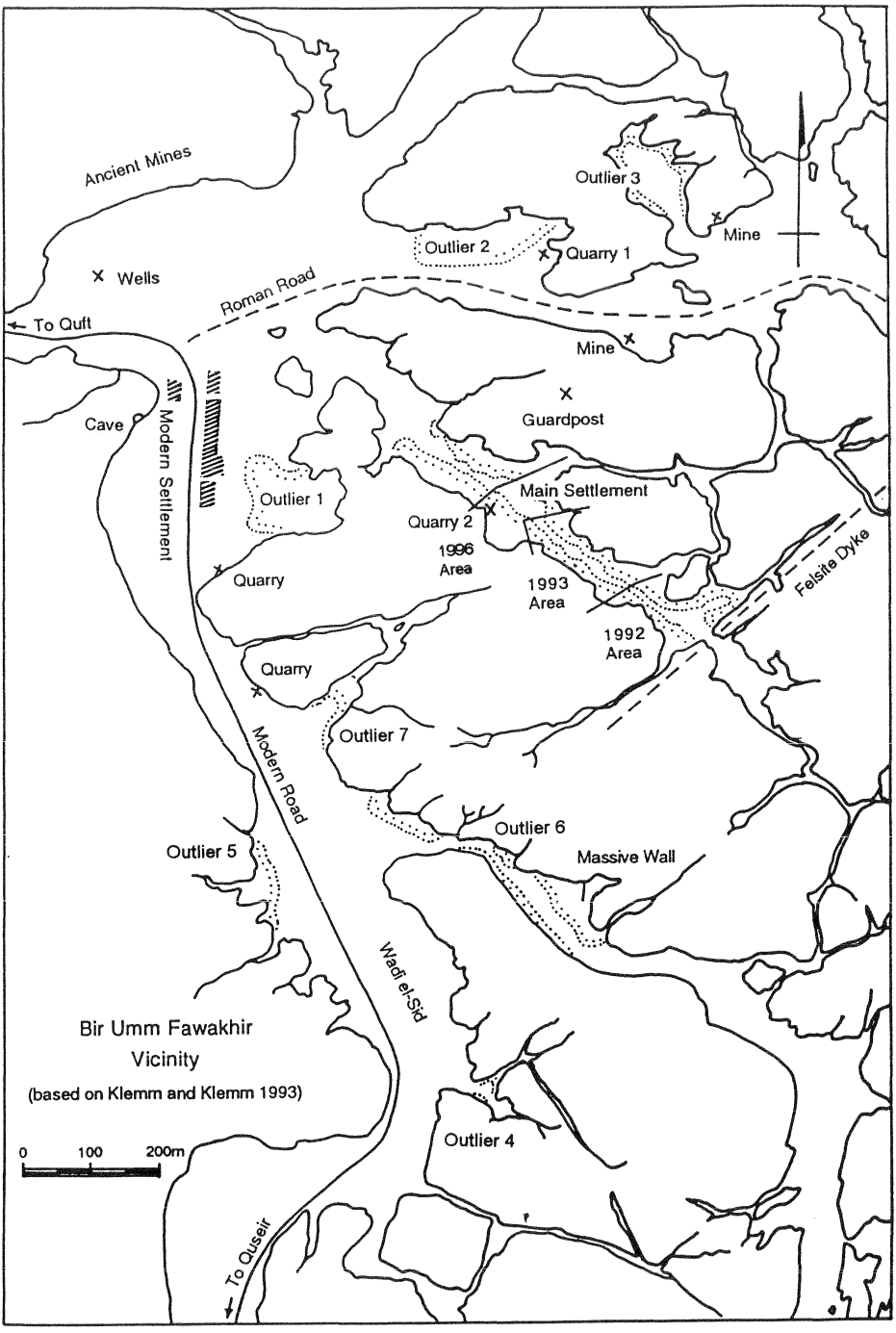


Figure 1. Bîr Umm Fawâkhîr.



Figure 2. View of southeast end of Bîr Umm Fawâkhîr (photo by Henry Cowherd).

the wadi encampment is about a half a kilometre. The best views of the layout of the town, however, are obtained from the surrounding cliffs (Fig. 2); from there the sandy wadi bed that served as the main street and the individual nature of the house units becomes clear. Preservation at the site is generally good, and some of the house walls stand a metre or more in height, retaining their original door jambs, stone benches, wall niches for storage, and various other built-in features.

The project began mapping the town in detail in 1992, starting from the far south-east end, partly because it is delimited by a high felsite dyke and partly because the buildings are better preserved in this area. The hope was that a good map would help clarify the layout of the town. This has indeed proven to be the case (Fig. 3). In all, 152 out of an estimated 216 buildings in the main settlement have been mapped in detail. The basic pattern of the houses is a two- or three-room structure built of dry-stone masonry. These units are often joined into larger, agglomerated buildings; the largest compound mapped so far (Building 106) has twenty-two rooms. Scattered around the houses is a series of one-room outbuildings, either a smaller rounded type or a larger rectangular structure. It is not yet known whether they were used for storage, workshops, kitchens, animals, latrines, or something else altogether. Possible exceptions are two small huts at the southeast end of the site and Building 75, which may have been guard stations.

Ancient trash heaps lie adjacent to or upslope from many of the buildings. The interior of the unexcavated houses appear relatively clean, and most of the rubbish seems to have been dumped on piles outside. Although individual houses had rooms



Figure 3. Bîr Umm Fawâkhîr: buildings mapped in 1992, 1993, and 1996.

added on or altered, the site as a whole was not rebuilt, so the trash heaps have not been reworked or redeposited as is frequently the case in longer-lived sites.

During the 1993 season we identified an area which now called the "plaza" (Fig. 4), a group of houses that opens onto a central sandy space rather than onto the main wadi street. With this as clue, we identified three more groups of houses facing each other and presumably functioning together to some extent.[2] Overall, however, there is no attempt at formal town planning.



Figure 4. The circle of buildings in the foreground encloses the "plaza" area. Quarry 2 lies across the wadi main street at the foot of the hill on the left (photo by Henry Cowherd).

The current estimate for the population of the main settlement is a little over a thousand people, far larger than any modern settlement in the area. Two methods were used to arrive at this figure. The first involved taking an average of roofed floor space per person in a house (9-10 m^2 per person is a remarkably consistent ratio cross-culturally). The second method involved counting the number of houses and multiplying by an average figure for the estimated number of inhabitants (low figures of 3.5 and 5 people per house; the elderly or disabled may have returned to

[2] These are: part of Building 66, B70, and part of B71; part of B74, B73, and part of B65; part of B66, B51-54, and B67.

the Nile Valley). The resulting estimate of 1000+ people in the main settlement assumes that no one lived in any of the eight outlying clusters which have been identified to date.

Four cemetery areas have been found on the heights surrounding the site. The graves are either natural clefts in the granite slopes, or small cists built of granite slabs and roofed over with cobbles. All burials noted have been thoroughly looted, but the considerable amount of pottery scattered around them indicates that the graves are of the same date as the main settlement. The graves are barely large enough for a body, but if pertaining to a Christian population they are less likely to have grave goods anyway; the pottery may thus represent the remains of funeral or commemorative meals.



Figure 5. Guard post on peak overlooking the main settlement. Ancient graffiti are scratched on the boulders (photo by Steven Cole).

All the buildings surveyed thus far appear to be domestic. Possible exceptions may be Buildings 92 and 66, which have internal circular features that might be community bakery ovens. We have identified no fortifications, large central buildings, warehouses, or workshops. Crosses stamped on the pottery and *chi-rho*'s on the wine jars point to the Christian milieu of this period, but there is as yet no identifiable church. This, along with other more official buildings, may have been located near the modern road where the wadi wash is heaviest, and surface remains are scarce. Alternatively, the modern settlement may cover ancient ruins. North of the modern mosque is a remnant of a cut stone wall. The sherd scatter associated with it largely dates to the Roman period.

The lack of any built defences is surprising, particularly in a desert where security is often a concern, and considering the product of the area, gold. The survey has, however, located a number of guard posts high on the ridges overlooking the main settlement. The largest of the posts has only a few rough boulder walls for shelter from the sun and wind, but some of the boulders are marked by ancient graffiti (Fig. 5). The post commands an excellent view of all three roads leading to the wells, many of the mines, and much of the main settlement.

In addition to mapping the main settlement in detail, the project initiated a walking survey, that identified eight outlying clusters of ruins of the same date as the main settlement (Fig. 1). The house construction and the pottery in the outliers is comparable to the main settlement. One of the clusters of ruins, Outlier 2 located on the Roman road between the wells and Quarry 1, was investigated in more detail in 1996 because of its exceptional preservation. One house appears to be preserved to its original height of about two metres (Fig. 6). Also, two cylindrical grain silos were noted next to two of the houses. The silos are made of granite cobbles set in heavy mud plaster. Such features have not been detected elsewhere at the site and are interesting because their association with individual houses does not point to day-to-day central control over grain rations.

Bîr Umm Fawâkhîr means "Well of the Mother of Pots" and it is literally impossible to walk over the site without stepping on sherds. The pottery will, however, not be discussed in detail,[3] but it is important to note that in the absence of any useful written evidence the sherds are the basis for the general 5th-6th century date for the site. Although the pottery corpus makes no claim to being comprehensive, systematic sampling of selected loci did at least ensure that we collected a more representative proportion of utilitarian types. In addition to the controlled samples, a number of surface sherds with particularly interesting forms or decorations were also drawn and described.

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[3] But see Heidorn, in: Meyer 1994, Meyer 1995, and Meyer, *e.a.* forthcoming, for the corpus.

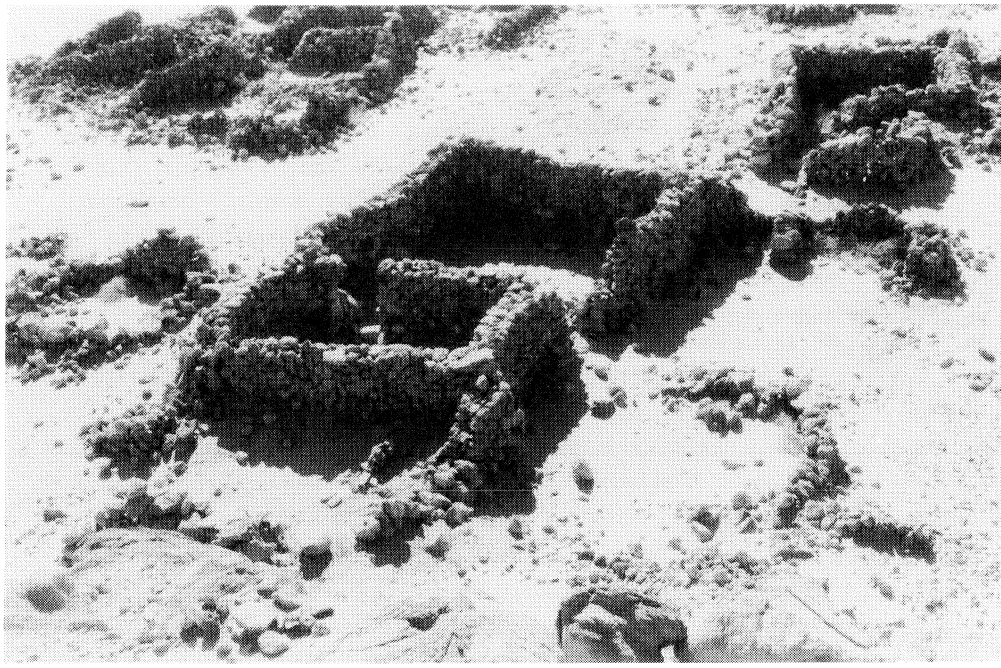


Figure 6. One of the best-preserved houses in Outlier 2 (photo by Steven Cole).

Although epigraphic material is not completely lacking, it is so far limited to dipinti, i.e., dockets painted in red ink on the shoulders of wine jars. Most of the dipinti occur on Late Roman 1 amphoras, which are usually found in late 5th-6th century contexts in Egypt and Nubia. Typically there are two inscriptions in different handwriting. The first type is large, written by a brush in a highly cursive, flowery manner on the shoulder between the handles. This type of inscription often consists of two lines and seems to refer to the contents and capacity of the jar. A smaller notation under the handle area is, by contrast, written in a neat Byzantine cursive with a fine pen. These latter inscriptions usually consist of three lines, the first being a personal name in the genitive, the second a descriptive term of some sort, and the final line being a number.

Apart from sherds and crushing and grinding stones, which will be discussed below, surface finds from Bîr Umm Fawâkhîr are meagre. There are a few lamp fragments, including one frog lamp; a few pieces of Byzantine glass; some faience; fragments of hollow clay figurines, including a barely recognisable horse's head; a sandstone trough fragment; a flint scraper; and a few scattered mudbricks.

Until Zitterkopf and Sidebotham (1989) assigned a 5th-7th century date to the Fawâkhîr sherds, the site had always been discussed in association with the 1st-2nd century Roman caravan stations along the road between Quft and Quseir. Its

sprawling layout, however, looks nothing like the orthogonal, fortified *hydreumata* elsewhere on the Wâdi Hammâmât route, and the pottery from the main site is not comparable to the Roman material from any of the other stations, or from Quseir al-Qadim on the coast. Compounding the problem of Bîr Umm Fawâkhîr's date was the long-held belief that the Byzantine rulers were too weak to control the desert, abandoning it bit by bit to nomadic tribesmen (Maspero 1912). Although its dating was corrected, its function remained uncertain. Four possibilities were considered: a caravan station, a military post, a granite quarry, or a gold mine.

The caravan station hypothesis was rejected for the reasons just mentioned, and also because a caravan station would require only a small resident population, not one of over a thousand people. The military installation hypothesis was rejected because of the lack of any defences and regulated town-planning. The granite quarry hypothesis, however, could not be dismissed so easily. Quarrying does require a large labour force, and there are in fact two quarries at the site, plus two much smaller quarry-workings. In the end, however, we concluded that the quarries were minor Roman activities, possibly only exploratory. The chisel marks on partly cut blocks are identical to the marks at a known major Roman quarry at Mons Claudianus to the north. There is Roman pottery in Quarry 2 and around a feature near the modern road, and the Romans had an unparalleled passion for elegant stones. Finally, some partly cut blocks from Quarry 2 were built into later Coptic/ Byzantine houses. The last hypothesis - a gold mine - has proven the most likely. The granite is gold bearing. The mountain sides around the site are riddled and trenched with mines, and there are scores of ore-crushing and grinding stones (Fig. 8). Hard rock mining does require a large number of labourers, and hence a sizable settlement. The rest of the paper will therefore focus on what Bîr Umm Fawâkhîr can tell us about mines, mining, and miners in late antiquity.

One of the questions addressed was the amount of gold extracted from the Fawâkhîr mines, and for this it is necessary to consider the geology of the region. The Precambrian mountains of the Eastern Desert represent a complicated geological zone, but the economically important feature for Bîr Umm Fawâkhîr is the granite stock, called the Fawâkhîr granite, intruded into older Precambrian rocks. The granite is naturally jointed and in places exfoliated, and it has been quarried to no great extent for building stone. The Fawâkhîr granite is also an aquifer, carrying water in tiny cracks until it is stopped by the dense ultramafics to the west. Here the wells, all-important in the desert, are sunk and probably always have been. Most of all, however, the quartz veins injected into the granite are auriferous, particularly towards the edge of the stock. The mines in the Wâdi el-Sid about 4 km southeast of Bîr Umm Fawâkhîr have been called the richest in all of Egypt. The main vein was worked out only in the 1950s by modern deep mining, and a secondary vein is believed to have been exhausted then also. The estimates of yields of grams of gold

per ton vary widely, apparently according to the methods of evaluation. Modern mining techniques may claw out an entire mountainside and crush it, whereas the ancient miners followed the veins as closely as possible. What is consistent is that the estimates for Bîr Umm Fawâkhîr yields are far lower than for the Wâdi el-Sid mines, too low to be economically viable in normal circumstances. This may explain why the Fawâkhîr veins were exploited only in late antiquity, after the richer lodes had been worked out by ancient techniques, and why virtually nothing has happened there since.

The ancient miners used two techniques at Bîr Umm Fawâkhîr, open-cast trenches following a quartz vein from the surface and underground mines cut horizontally or diagonally into the mountainsides. Some of the latter still have stone-built revetments or platforms at their mouths, presumably to aid in raising and lowering workers, baskets, ropes, and whatever else was needed (Fig. 7).

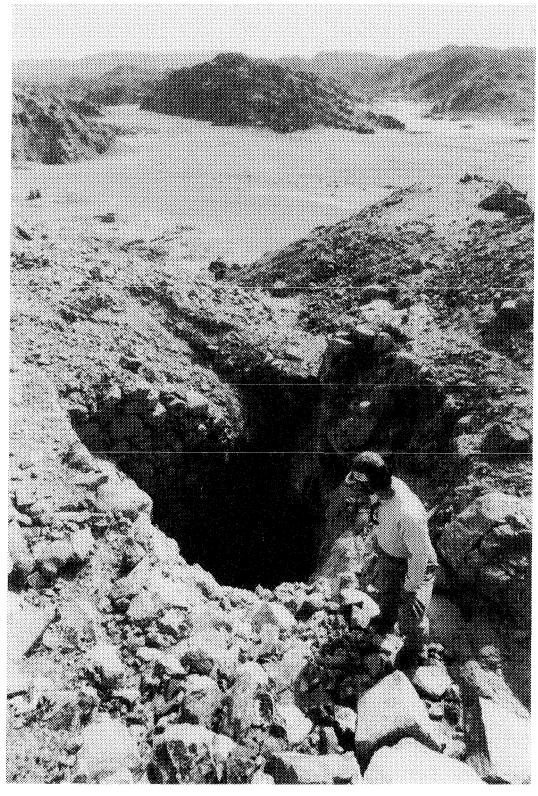


Figure 7. Entrance to a mine shaft with a revetment wall. The main settlement lies in the wadi in the upper right corner. The Roman road runs through the wadi in the upper left corner (photo by Henry Cowherd).

Here we turn to the first century BCE account of Diodorus Siculus on Egyptian gold mines (Book III, chapters 12 and 13 mainly), based in large part on Agatharchides' second century work. On the one hand Diodorus did use the best sources he could find and he says he tried to check them, but on the other it is not at all clear whether he or Agatharchides ever saw a gold mine, and there is some question as to whether Agatharchides was basing his account wholly or in part on Spanish mines. Diodorus is repeatedly cited as the sole written source on Egyptian gold mining, all the way from pharaonic through Roman times and later, on the assumption that nothing changed for two millennia or so. This paper therefore treats Diodorus as a source to be tested rather than accepted uncritically.

Diodorus begins (in the translation by Oldfather):

> "For the kings of Egypt gather together and condemn to the mining of the gold such as have been found guilty of some crime and captives of war, as well as those who have been accused unjustly and thrown into prison because of their anger, and not only such persons but occasionally all their relatives as well... For no lenience or respite of any kind is given to any man who is sick, or maimed, or aged, or in the case of a woman for her weakness, but all without exception are compelled by blows to persevere in their labours, until through ill-treatment they die in the midst of their tortures."

We have no idea what a Byzantine prison establishment looked like. Also, the kings of Egypt were long gone by the 5th century, replaced by distant rulers in Rome and Constantinople. Half a millennium after Diodorus, the economic situation and the entire political system had changed around the mines. Also, Diodorus' account does not agree with the sprawling layout of Bîr Umm Fawâkhîr. There are no signs of central planning, much less the regimentation of a military fort or camp. House construction is quite idiosyncratic and includes small built-in comforts such as benches and niches. The dwellings are apparently uniform from one end of the site to the other, and one would expect at the least a differentiation of the keepers and the kept. The large number of wine jars may have been used only once for wine, but that still represents a considerable amount of an imported luxury in the desert. The silos in Outlier 2 do not look like central distribution of daily rations. There are no defensive works to speak of, either to keep people in or out. The workers were not slaves, and it is necessary to emphasise this because it is a common assumption. Egypt has never been a slave society on the order of, say, ancient Greece or Rome, and even Diodorus does not call the miners slaves. In short, the civil status of the workers at Bîr Umm Fawâkhîr is less certain than Diodorus' account might indicate. He continues:

> "The gold-bearing earth which is hardest they first burn with a hot fire, and when they have crumbled it in this way they continue the working of it by hand. ... And the entire operations are in charge of a skilled worker who distinguishes the stone and points it out to the labourers; and of those who are assigned to this unfortunate task the physically strongest break the quartz-rock with iron hammers, applying no skill to the task, but only force."

In 1996 four of the ancient mine shafts were inspected for evidence of firesetting. The longest of the mines runs horizontally for about 100 metres; it is tall enough for a short person to walk upright and has two short side passages and an air shaft. There are, however, no signs of fire, no charcoal or ash, and particularly none of the characteristic fire-spalled niches. Rather, the working faces have oblong holes pounded in them, apparently for hammering out the next piece of rock. The Fawâkhîr granite is jointed and fractured, and in places downright rotten. In short, there would have been no need for fire-setting here.

The account continues:

> "The boys there who have not yet come to maturity ... laboriously gather up the rock as it is cast down piece by piece and carry it out into the open to the place outside the entrance. Then those who are above thirty years of age take this quarried stone from them and with iron pestles pound a specified amount of it in stone mortars, until they have worked it down to the size of a vetch."

Mortars, in the sense of deep basins for pounding, are not common at the site, and the ones recovered are limestone, highly unsuitable for crushing quartz. On the other hand, there are scores of small (*c.* 20 x 20 cm) crushing blocks with pecked depression in the centre (Fig. 8). Most of them appear to be in secondary use, but one was found *in situ* near the fourth mine inspected. At the mouth of the mine fist-sized and smaller chunks of quartz are scattered around a crushing stone where the workman walked away from it nearly 1500 years ago. This makes sense. Ore mined in virtual darkness would be immediately reduced at the mouth of the mine to pick out the pieces worth the considerable effort of further reduction, and the rest tossed downslope. Evidence from Bîr Umm Fawâkhîr supports another of Diodorus' descriptions:

> "Thereupon the women and older men receive from them the rock of this size and cast it into mills of which a number stand there in a row, and taking their places in groups of two or three at the spoke or handle of each mill they grind it until they have worked [it] down to the consistency of the finest flour."

There are scores of rotary mills or querns at the site, both the upper and lower stones (Fig. 8). Like the crushing stones, these mills are made of granite, porphyritic granite, or basalt. What is not clear is the function of the grinding stones, oblong slabs of granite (*c.* 80 cm long) with a shallow dished depression on top, presumably paired with an upper hand stone like a Mexican mano. It is not known whether the grinding slabs represent an earlier stage in ore reduction (coarse versus fine grinding), or whether they were used for something else altogether such as flour, or whether they were earlier in date, as has been suggested (Klemm & Klemm 1991).

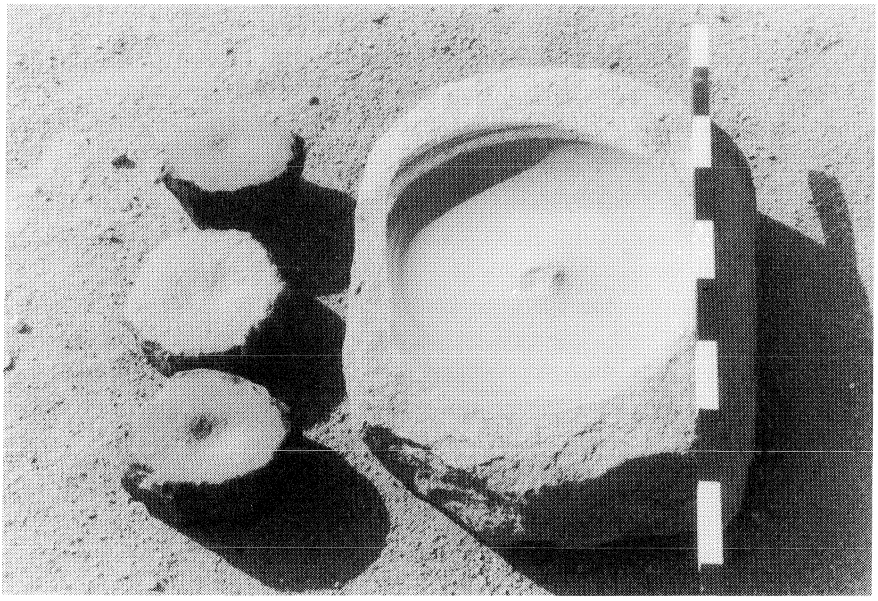


Figure 8. Three dimpled ore crushing stones and the lower half of a rotary grinding stone (photo by Henry Cowherd).

Another aspect of Diodorus' account that seems to hold up is the presence of a complete or nearly complete population with women and children in addition to the miners themselves. None of the bones from the cemeteries have yet been analysed, so the only corroborating evidence is earlier and later. The Roman period Coptos tariff on animals and supplies crossing the desert also includes rates for soldiers' wives and prostitutes. Excavations at Quseir al-Qadim, ancient Myos Hormos, also suggest the presence of women at the Red Sea port end in the first and second centuries (perfume flasks, a girl's burial), and by the Mamlûk period (13th and 14th centuries) the evidence becomes overwhelming: henna, bracelets, combs, kohl jars, a veil, and children's caps and shoes (Whitcomb & Johnson 1979, 1982).

Diodorus goes on to describe gold washing and refining. Nineteenth century travellers' accounts do mention gold-washing tables at Bîr Umm Fawâkhîr, but they have been destroyed by modern mining activity. It is far less certain, however, that the final refining was carried out on site; it would make much more sense to carry the washed gold to the Nile valley for final purification where fuel is less costly.

It has become increasingly clear that the Eastern Desert was not in fact abandoned in the Byzantine period to nomads, as had previously been thought. In addition to the gold mines at Bîr Umm Fawâkhîr, recent archaeological work has demonstrated the Byzantine occupation of the fort at Abû Sha'ar (Sidebotham 1994), continued exploitation of the imperial porphyry quarries at Mons Porphyrites (Kraus *e.a.* 1967), heavy utilisation of the port at Berenike, and activity on the Berenike road (Berenike 1995), Wâdi Nakheil (Prickett, in: Whitcomb & Johnson 1979), and other smaller sites. There is also mention of an *alabarch*, a customs official (Johnson & West 1949). Most *alabarchs* were concerned with trade in and out of Alexandria, but there is a late 6th century reference to an *alabarch*'s office in Antinoopolis, which was the terminus for the desert road across to the Red Sea and down the Via Hadriana to Myos Hormos and Berenike.

Considering Egypt - and Egyptian gold - in relation to the Byzantine empire explains a great deal about the existence of the settlement at Bîr Umm Fawâkhîr (Kaegi in: Meyer *e.a.* forthcoming). There was a tremendous need for gold in the 5th and 6th centuries for the payment of armies and wars, navies, hostage ransoms, diplomatic gifts of gold to improve the loyalty of dubious allies, and major building programmes such as Hagia Sophia and the far-flung churches and monasteries from Ravenna in Italy to St Catherine's in Sinai. It has been assumed that the reuse of old coins, plate, the confiscated treasures of pagan temples, and war booty was insufficient to account for the volume of coinage. Gold supplies from East Africa, Turkey, Armenia and other parts of the Caucasus, the Urals, the Balkans, and at a later period sub-Saharan Africa have all been suggested, but never Egypt, which is a little surprising as it was famous throughout antiquity as a source for gold. The desperation for gold may explain why the low-grade ores at Bîr Umm Fawâkhîr were worked in the 5th and 6th centuries and never thereafter.

It is a long way from the granites of Bîr Umm Fawâkhîr to the glittering court at Constantinople, but it is becoming clear that understanding why so large a settlement existed in so remote a locale at this time has to take into account contemporary activity elsewhere in the desert, the towns and villages of the Nile Valley that supplied the miners, and the government that urgently required their product.

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Discussion

Adam Bülow-Jacobsen (University of Copenhagen): Where was the Roman fort? We know it must have been there somewhere because it is mentioned on ostraca.

Lisa Heidorn: Yes, that's true, but there is no evidence at the main settlement or at Wâdi el-Sid.

Bülow-Jacobsen: Could it have been under the teahouse?

Heidorn: More probably under the modern settlement. We have found little Roman pottery in the main settlement area.

Willeke Wendrich: The plan of your settlement looks very much like the gold-mining site of Hitan Riyan which we have surveyed near Berenike. The burials at that site, however, are cairn burials and therefore different from the Bîr Umm Fawâkhîr types.

"LAODICEAN" WINE CONTAINERS IN ROMAN EGYPT

Roberta Tomber

The rich documentary evidence available from Roman Egypt has much to contribute to the study of ancient trade. In many cases evidence from ancient texts is complemented by archaeological data, and this short contribution is intended to draw attention to such an instance.

The presence of Laodicean wine in Roman Egypt is well documented, appearing in three important texts. All of these are discussed in detail by Rathbone in his article "Italian wines in Roman Egypt" (1983), which has provided the impetus for this note, and the texts are therefore only summarised here. Firstly, Strabo (*Geog.* 752.9), presumably referring to the Augustan period, writes that Laodicea ad Mare provided the Alexandrians with "the bulk of their wine" (Fraser 1972, 167). Secondly, the Nicanor Archive (O. Petrie), a group of receipts for a family shipping firm operating from Coptos on the Nile to the Red Sea ports of Berenike and Myos Hormos between 6 BCE - 68/69 CE (Fuks 1951; Sidebotham 1986, 50), itemises Laodicean wine as having reached the Red Sea. The final text, the mid-first century *Periplus Maris Erythraei* (Casson 1991, 8), provides a detailed practical account of the ports and goods in the Red Sea, the Gulf of Aden and the western Indian Ocean for traders in Roman Egypt. Like the Nicanor Archive, it includes Laodicean wine (*Periplus* 6) as one of the wines (albeit in small quantities) to be sold at the ports of Adulis, Ethiopia, and Barygaza, on the Gulf of Cambay in northwest India.

Given this written evidence for the transport of Laodicean wine to Alexandria and from Coptos to the Red Sea ports and eventually beyond, the absence in Roman Egypt of ceramic containers from that source area has aroused much interest. The veracity of the Nicanor Archive and the *Periplus* seems to have been borne out in another case involving wine amphorae, for both documents also refer to Aminaean or Italian wine (Rathbone 1983, 85), and a suitable Campanian amphora has been identified at Alexandria (Riley 1979, 151), throughout the Eastern Desert (*e.g.* Hayes 1996, 159; Tomber 1994 and 1996), and at Arikamedu in India (Lyding Will 1991, 152; Warner Slane 1991, 204).

The apparent absence of amphorae from the proposed source area of Laodicea ad Mare in northern Syria was particularly convincing given the distinctive, and therefore readily identifiable, clay of the region, which was used to produce the common and widely distributed "Late Roman Amphora 1" from the late-fourth to the seventh centuries CE (Peacock & Williams 1986, Class 44; Empereur & Picon 1989, 236-39). Such was its dearth that Fraser addressed the issue for the time of the Ptolemies, while Rathbone extended the debate to the early Roman period. Fraser (1972, 165-68) convincingly argued that during the second and first centuries BCE

Laodicean wine was transported to Alexandria in at least some of the very numerous Rhodian amphorae present there.

More recently, extensive prospection of kiln sites in the eastern Mediterranean has provided conclusive evidence for the production of early Roman amphorae at Yumurtalık (Empereur & Picon 1989, 228, Fig. 2). The type has a well-known shape, characterised by solid peg base, bead rim, carinated shoulder and particularly distinctive bifid handles. Frequently referred to as the "Dressel 2-4" (Peacock & Williams 1986, Class 10), the same form was produced throughout the eastern and western Mediterranean and is known to have been a wine container. Additional examples of the type have been found much closer to Laodicea ad Mare at Séleucie de Piérie (see Empereur & Picon 1989, Fig. 18), and analysis indicates another source from an as yet undiscovered production site in the region. It is likely, therefore, that Dressel 2-4 amphorae were produced along this entire coastline and would have provided a suitable container for the wine from Laodicea ad Mare. The kiln site at Yumurtalık has been loosely dated to the second or third centuries CE (Empereur & Picon 1989, 228). Dating of the Dressel 2-4 form in general, from numerous production and occupation sites throughout the empire, has been carefully assessed from stratified deposits, and indicates that its *floruit* was between the late-first century BCE and the mid-second century CE.

Excavations between 1987 and 1993 at the imperial quarry of Mons Claudianus in the Eastern Desert, directed by Professor Jean Bingen under the aegis of the IFAO, recovered approximately six tonnes of Roman pottery spanning from the late-first to early-third century CE. Amongst this exceptionally large sample, was a small but recurring group of Dressel 2-4 amphorae in a consistent fabric similar to that used in the production of Late Roman Amphora 1 (Fig. 1), and likely to originate from this coastline, including the environs of Séleucie de Piérie. It is tentatively suggested here that these vessels may have been containers for Laodicean wine, not for the period of interest to Fraser - during the second and first centuries BCE, but for the period relevant to the Nicanor Archive and the *Periplus*, the first century CE, and perhaps beyond. These vessels are distributed throughout the entire sequence at Mons Claudianus, and their production or at least use may continue into the early third century, although deposits at Mons Claudianus suffer from a high degree of residuality (Bingen 1996). The current excavations at another imperial quarry site in the Eastern Desert, Mons Porphyrites, directed by Professor David Peacock and Dr Valerie Maxfield, may refine the end date of this type. Nevertheless, in this context it is interesting to note a final written reference from Upper Egypt in the second century CE, concerning the delivery of three Laodicean wine amphorae (Rathbone 1983, 86, n. 17: O.Strasb. 788).

The physical appearance of these Dressel 2-4 vessels shows some variety, but generally they are buff (Munsell 10YR 8/4 - 7/4) to pale orange-brown (near 5YR

6/6) in colour, sometimes with a cream (10YR 8/3) self-slip on the outside. Their fabric is characterised by a clean matrix containing abundant well-sorted course inclusions (varying from 0.2 - 1.0 mm in different vessels, but frequently 0.2 - 0.5 mm) of quartz, limestone and black and red fragments, in varying quantities.

A small number of samples were examined in thin section and reveal that rounded quartz and limestone inclusions dominate, with a sparse scatter of pyroxene (most probably augite), feldspar and rare serpentine. It is hoped that a further programme of thin section analysis will confirm this identification, but both the colour and range of inclusions in the Dressel 2-4 fabric is similar to that known for Late Roman Amphora 1, and it is likely that they share a similar source area. However, the Dressel 2-4 fabric is distinguished from the later one by having a much higher proportion of inclusions, resulting in an abundantly tempered, gritty or granular fabric, similar in texture, albeit not in inclusions, to the well-known "black-sand" fabric of Campania (Peacock & Williams 1986, 87-88), also used to produce Dressel 2-4 vessels.

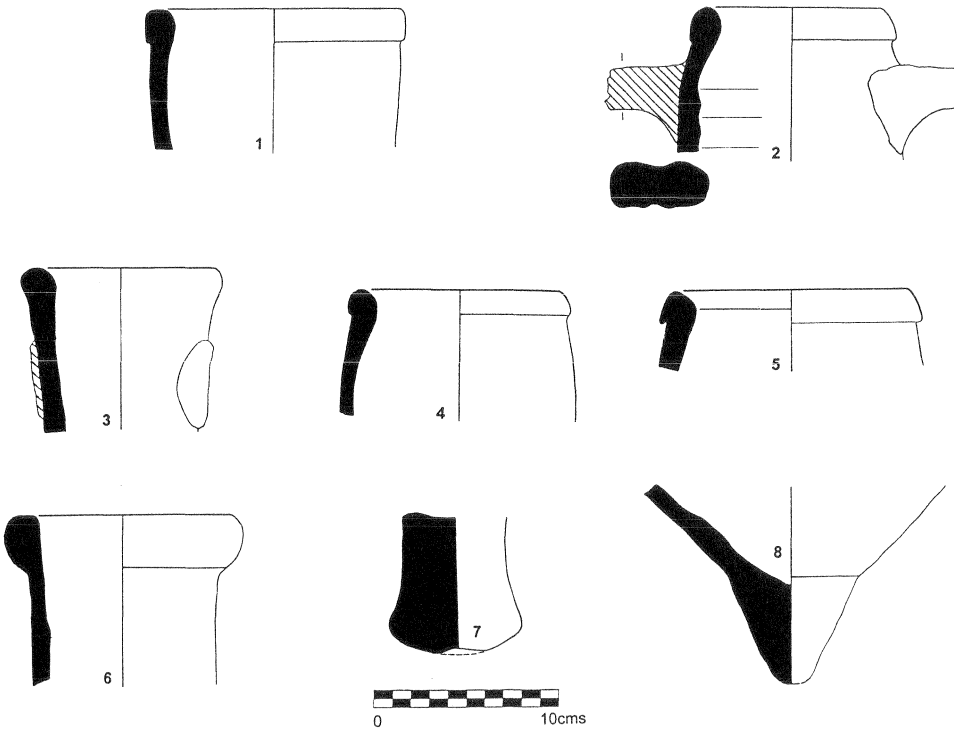


Figure 1. "Laodicean" Dressel 2-4 amphorae from Mons Claudianus.

The similarity in form and the superficial similarity in fabric between the "Laodicean" and Campanian amphorae make it difficult to distinguish the two in older pottery reports, and therefore many occurrences of the "Laodicean" fabric may have gone unnoticed. For example, the type may be included amongst the Dressel 2-4 amphorae recorded at Quseir al-Qadim, with the description of the vessel on Plate 27a a particularly good candidate (Whitcomb 1982). Recovery of complete Laodicean vessels may well enable differentiation between them and other Dressel 2-4 sources, as typological distinctions frequently exist between the different centres. At this point, however, a more detailed description of the Laodicean form is premature, particularly given the range of variations visible on Figure 1.

Although the type is difficult to identify from publication alone, renewed interest in the Eastern Desert over the last decade has given the present writer the opportunity to examine pottery from a number of different locations. In this way, in addition to Mons Claudianus and Mons Porphyrites, the Laodicean Dressel 2-4 has been noted at the quarry sites of Barud (Tomber 1994) and Fatireh el-Beida in the Eastern Desert (see the map at the back of this volume for locations), on the Via Hadriana near Makhareg Gharb, Marsa Dabr, and Mahattit Ziyar Romaniya (Sidebotham & Zitterkopf 1997), and finally at the Red Sea ports of Berenike and (seen amongst the spoil heaps on a brief visit) Quseir al-Qadim, the latter of which is now generally accepted as the ancient port of Myos Hormos (see Peacock 1993; Bülow-Jacobsen *e.a.* 1994).

This note has provided archaeological evidence for a possible container in use for the transport of Laodicean wine on local roads and trade routes from the Nile to the Red Sea ports, and evidence from India is now awaited. More widespread recognition of the type will no doubt lead to further identifications both in the Eastern Desert, Lower Egypt, and particularly Alexandria. In this way, a fuller picture of trade routes within and beyond Egypt will be obtained.

Museum of London Archaeology Service

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GARDENS IN THE DESERT

Marijke van der Veen

1. Introduction

The definition of a desert is a dry, barren, often sand-covered area of land without water or vegetation, and thus suggestive of desolate space; habitation and cultivation are restricted to isolated oases. The title of the conference: "Life on the Fringe - Living in the southern Egyptian deserts during the Roman and early Byzantine periods" also conjures up negative associations, in that the word "fringe" refers to life on the edge, on the periphery of something else, in this case on the periphery of the civilisation in the Nile Valley and the Roman world at large. Thus, the title of the conference implies that Roman life in the Egyptian deserts was not just different from that in the Nile Valley, but was marginal and inferior, referring to physical hardship as well as social and cultural isolation. The concept of "marginality" is, in fact, often used in contexts where a certain inferiority is implied (Young & Simmonds 1995), but I hope to demonstrate in this paper that this perception of life in the desert may not always be justified.

Evidence recently recovered from the Roman quarry settlement at Mons Claudianus, located in a remote part of the Eastern Desert of Egypt, indicates that life at this site did not simply consist of physical hardship and social isolation: the inhabitants of the site had access to ample and, at times, luxurious foodstuffs and they were in regular touch with relatives and friends. The evidence also demonstrates that the inhabitants went to some length to obtain fresh vegetables, which clearly formed an important component of their diet, both culturally and nutritionally. In this paper I will suggest that the absence of rainfall in the desert and the consequent lack of plant growth, combined with the long supply routes to the site, did not form insurmountable constraints, but that these constraints were overcome because it was perceived essential and important to do so.

2. Mons Claudianus

The site of Mons Claudianus is situated in a remote part of the Eastern Desert, some 500 km south of Cairo and 120 km east of the Nile, at an altitude of *c.* 700 m, in the heart of the Red Sea mountains (Fig. 1). All the evidence indicates that this was a permanent settlement, designed for long-term occupation, which was at its most intense during the late first and second centuries CE. Between 1987 and 1993, excavations were carried out by a team of archaeologists and papyrologists under the aegis of the Institut Français d'Archéologie Orientale du Caire with the permission of the Egyptian Antiquities Organisation. The project was directed by J. Bingen,

with H. Cuvigny as *chef de chantier*, and the team consisted of international specialists.[1]

The ancient settlement served to house the men working in the quarries, which were the source of some of the finest granodiorite used in the public buildings and temples in Rome - witnessed still in the columns in Trajan's Forum and the Pantheon (Peacock & Maxfield 1997). Significantly, it was the extremely remote location of the Mons Claudianus quarries that was responsible for the prestige attributed to building projects using this material (Peacock 1992). The stone was first transported to the Nile Valley and from there to Alexandria and Rome. Along the Roman road from Mons Claudianus to the Nile Valley there are a number of small forts, spaced at intervals of 20 - 25 km, which functioned as way-stations providing water, food and shelter for the people and animals involved in the transportation of the stone, as well as for the caravans bringing food and other supplies to the site. Just before Qenâ (Caenepolis) the road joins the one coming from Mons Porphyrites, the other major quarry settlement in the Eastern Desert (Fig. 1).[2]

We do not know exactly how many people lived at the site of Mons Claudianus; the number will have fluctuated over the years, but the presence of 920 people on a particular day has been recorded (MC inv. O. 1538 + 2921; Peacock & Maxfield 1997, 95). The ostraca found at the site refer to four groups of people: soldiers and officials (the site was administered by the army); skilled, civilian workers (stone masons, smiths, quarrymen); unskilled workers; and women and children (O.Claud. I and II). The skilled workers and many of the soldiers came from villages in the Nile Valley and it is clear from the ostraca that their families still lived there (Bülow-Jacobsen 1992; Cuvigny 1996).

Strikingly, there is no archaeological evidence for permanent settlement in the Eastern Desert, with the exception of the Roman quarry settlements themselves and the way-stations, nor is there evidence that agriculture was ever practised (but see below for the evidence for gardens or vegetable plots). The area was, and is, sparsely inhabited by Bedouin (Hobbs 1989). Most of the Eastern Desert is today classified as hyper-arid, with a mean annual rainfall of 5 mm - though this figure does not reflect recurrent rainfall, but rather "accidental" cloudbursts; indeed, there

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[1] The archaeological team was led by D.P.S. Peacock (Southampton, quarries) and V.A. Maxfield (Exeter, survey and excavations); the pottery is being studied by R. Tomber (London). The biological remains are studied by S. Hamilton-Dyer (Southampton, faunal remains), L. Bender Jørgensen (Copenhagen, textiles), S. Winterbottom (Carlisle, leather) and myself (plant macrofossils). The documentary evidence is being studied by a team of papyrologists: J. Bingen (Brussels), A. Bülow-Jacobsen (Copenhagen), W.E.H. Cockle (London), H. Cuvigny (Paris) and W. van Rengen (Brussels).

[2] Survey and excavations at this site started in 1994 (Maxfield & Peacock 1995 and 1996, and this volume).

are frequently years without any rainfall. The present conditions have prevailed since *c.* 3000 BCE, i.e. since well before the Roman period (Butzer 1961, 1976; Zahran & Willis 1992). In effect, the settlement at Mons Claudianus must have been supplied with food from elsewhere, mostly from the Nile Valley, a round trip of some ten days in antiquity.

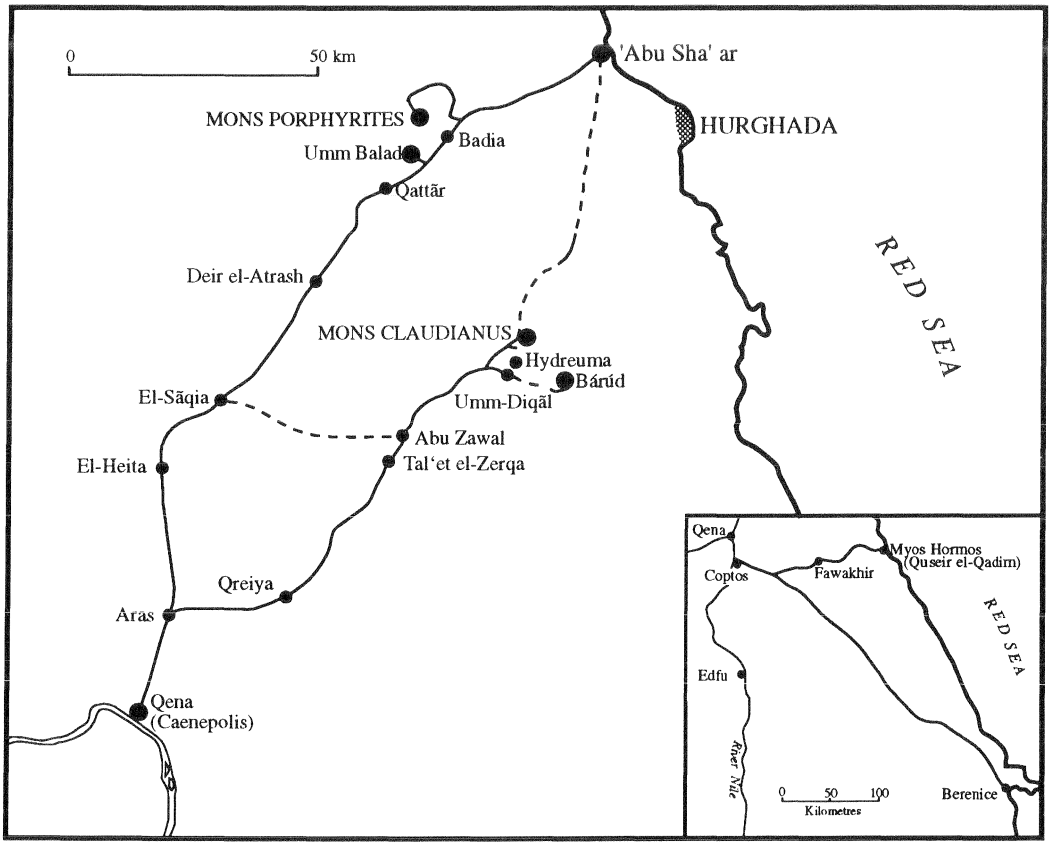


Figure 1. The Eastern Desert with the sites mentioned in the text and the Roman roads through the desert (after Fig. 1.1 in Peacock & Maxfield 1997).

The same arid conditions that made (and make) agriculture impossible in the area are responsible for the remarkable preservation of the site, and more specifically of the foodstuffs thrown away by its inhabitants. Apart from the site itself - a walled settlement or fort, animal lines (stables), storeroom, well, cisterns, a cemetery,

temple, and bath house - there are three large middens located immediately outside the walls of the settlement, as well as refuse deposits inside many of the rooms, often filling these to ceiling height. These deposits are full of organic materials (as well as other finds), such as wood, charcoal, seeds, fruits, straw, chaff, fibres, textiles, leather, and animal and fish bones. Large-scale excavations took place at the main fort, as well as small-scale trial trenches at the Hydreuma, a watering station just over 1 km to the south-west, and at Barud, a quarry settlement *c.* 10 km to the south (Peacock & Maxfield 1997). The analyses of the faunal and botanical remains have demonstrated that the inhabitants of these sites had access to a healthy, balanced diet of carbohydrates (wheat, barley, pulses), protein (meat, fish, pulses, nuts), sugars (dates, figs, grapes), fats (meat, olive oil, and oil-containing seeds), and minerals and vitamins (fruits and vegetables) (Hamilton-Dyer 1994, forthcoming; Van der Veen 1996, 1998, forthcoming). They also obtained a wide range of flavourings (condiments); they made beer and the ceramic evidence attests the import of wine, olive oil and fish sauce (Tomber 1996, forthcoming). The foods contain both staples, such as wheat, barley, pulses, dates, grapes, olives, onions, and fish, *and* luxury foods (that is foods not essential for human nutrition), such as game, oysters, snails, artichoke, pomegranate, herbs, nuts and pepper. Four different sources of food supply could be identified (Van der Veen 1998), with the Nile Valley the prime provider, although fish came mostly from the Red Sea coast, and some desert species (plants and animals) were used; finally, there is evidence for the local cultivation of vegetables. It is this local production that provides the focus for this paper.

3.1. Evidence for Gardens: Seeds

The botanical assemblage contained evidence for thirteen vegetables and green herbs (Table 1). Some of these, i.e. onion and garlic, have a long history of cultivation in Egypt (Zohary & Hopf 1994). The remains consist of the base plates of the bulbs, as well as of fragments of skin. The history of artichoke cultivation is not well known; the plant originates in the Mediterranean region and was known to the Greeks and Romans. According to André (1981) the Romans only knew the cardoon (*Cynara cardunculus*), which is cultivated for its edible leaf stalks, while the globe artichoke (*Cynara scolymus*) which is grown for the tender, fleshy bracts and the fleshy receptacle of the flower heads, was not cultivated before 1466 CE. The remains of *Cynara* found at Mons Claudianus consist of the involucral bracts of the flowerhead, and they are suggestive of bracts from which the fleshy base has been removed, thus indicating that the inhabitants were eating the remains of the flowerhead, not the leaf stalks, and were thus eating the globe artichoke cultivar, not the cardoon. Wiklund (1992) who studied the distribution and variation of the *Cynara* genus across the Mediterranean, has, in fact, argued that both cultivars should be

regarded as belonging to one single species, as there is a more or less continuous range of morphological variation between the typical wild *C. cardunculus* and the cultivars of cardoon and artichoke.

Allium cepa, onion	*Lepidium sativum*, cress
Allium sativum, garlic	*Lactuca sativa*, lettuce
Cynara cf. scolymus, globe-artichoke	*Cichorium endivia/intybus*, endive/chicory
Cucumis cf. sativus, cucumber	*Ocimum basilicum*, basil
Lagenaria siceraria, bottle gourd	*Mentha* sp., mint
Brassica spp., cabbage, turnip	*Ruta cf. chalepensis*, common rue
Beta vulgaris, beet (leaf/spinach beet)	(*Portulaca oleracea*, purslane)

Table 1. Vegetables and green herbs found at Mons Claudianus, the Hydreuma and Barud. See Van der Veen (forthcoming) for further details.

The seeds of cucumber and melon are very difficult to separate, but using identification criteria described by Vermeeren (forthcoming) both species appear present at Mons Claudianus. The cucumber (*Cucumis sativus*) is indigenous to India and the date for its introduction into the Old World is not known, but the plant was known by the Greeks and Romans and was probably cultivated in Roman Egypt (Konen 1995). The bottle gourd (*Lagenaria siceraria*) is native to Africa south of the equator, but it appears to have been cultivated in Egypt from the pharaonic period onwards (Simmonds 1976). The young fruits can be eaten as a vegetable, the mature fruits are used as a container for liquids, after the flesh has been scooped out. The bottle gourd is the "kolokynte" of the documents, and not *Cucurbita maxima*, pumpkin or squash, as suggested by LSJ, and as widely thought amongst papyrologists (A. Bülow-Jacobsen, H. Cuvigny, and W. van Rengen, *pers. comm.*). Since pumpkin or squash (*Cucurbita maxima*) is of American origin, it did not reach the Old World until after Columbus. A recent review of the use in Roman Egypt of fruits of the family of the Cucurbitaceae, to which both the bottle gourd and the pumpkin belong, also identifies the "kolokynte" as *Lagenaria siceraria*, not *Cucurbita maxima* (Konen 1995). Both are also different from the wild *Citrullus colocynthis*, colocynth or wild gourd, a desert plant belonging to the same family. The fruits of this plant, commonly found in the Eastern desert, are much smaller and

are poisonous to humans in large quantities, even though the seeds are edible; the fruit pulp is used medicinally and the green fruits are sometimes eaten by animals.

The seeds of *Brassica* spp. contain a number of related species, which are difficult to separate on the basis of the seed morphology alone. They include the cultivars cabbage (*Brassica oleracea*), turnip (*Brassica rapa*, syn. *B. campestris*), and swede (*Brassica napus*), as well as wild species. The identification of the seeds of these different species is based on the prominence of the reticulum on the seed testa (Berggren 1981), but there is much variation between species and, consequently, some overlap. Most of the seeds were not preserved well enough to allow an identification to species, but several were tentatively identified as *Brassica cf. oleracea*, i.e. the species that gave rise to the various cabbage varieties (green, white and red cabbage, kale, savoy, Brussels sprouts, cauliflower, broccoli, and kohlrabi), one seed may represent turnip (*Brassica cf. rapa*), while several others represented intermediate forms between *B. rapa* and *B. napus*. For convenience they have all been subsumed under the name *Brassica* spp. in the tables. It is worth noting here that swedes and the hearting cabbage varieties such as cauliflower, Brussels sprouts, and broccoli developed late; in classical times mostly leafy varieties were grown: Theophrastus mentions curly leafed, smooth leafed and wild types (Simmonds 1976; Zohary & Hopf 1994).

Beet (*Beta vulgaris*), was well known by the Roman period; leafy forms (called either leaf beet, spinach beet, English spinach, or chards), rather than swollen root varieties (beet root, sugar beet) were cultivated. The seeds of the wild and cultivated species cannot be distinguished, but they are here interpreted as representing the cultivated species (partly because of their association with other vegetable seeds, and partly as the ostraca record the presence of beet as a cultivated species - see below). Cress (*Lepidium sativum*) is eaten in its seedling stage and is, today, often combined with white mustard (*Sinapis alba*), the "mustard and cress" punnets found in British supermarkets. Lettuce, endive/chicory, basil, mint and rue are either salad plants or plants providing aromatic leaves, though some of these are also used medicinally. Finally, purslane (*Portulaca oleracea*) was found in large numbers. However, as the plant is a common arable weed in Egypt as well as a cultivated vegetable plant, used in salads and stews, it is not clear whether the seeds arrived at the site as arable weeds mixed with crops or cereal chaff, or as seed to be grown as vegetables. Certainly, purslane was known and eaten in Roman Egypt and is mentioned in ostraca from Wâdis Hammâmât and Fawâkhîr (Ruffing 1995).

The presence of so many vegetables at Mons Claudianus indicates that its inhabitants had a very good supply of food. Vegetables, and especially cabbage and leaf beet, are a vital source of vitamin C and iron. The Romans were familiar with the nutritional value of the cabbage and Cato discusses the beneficial properties of the plant, including the useful advice to eat as much cabbage as you can before

drinking a lot at parties (Cato, *De Agri Cultura* CLVI-CLVII). Nutritionally less important, but offering variety and different flavourings are the salad plants such as lettuce, endive and cress, as well as the green herbs basil, mint and, possibly, rue. Other condiments found at the site are coriander, fennel, dill, celery, cumin, aniseed, ammi, and pepper, which are used as seeds, rather than greens (some of which may also have been used for medicinal purposes).

	Mons Claudianus	Hydreuma	Barud
Brassica spp., cabbage, turnip	55	1	24
Beta vulgaris, beet (leaf or spinach beet)	27	3	3
Lepidium sativum, cress	58	12	29
Lactuca sativa, lettuce	1	0	0
Cichorium endivia/intybus, endive/chicory	2	0	0
Ocimum basilicum, basil	5	0	0
Mentha sp., mint	0	3	1
Ruta cf. chalepensis, common rue	2	0	1
(*Portulaca oleracea*, purslane)	106	7	0

Table 2. Number of seeds of vegetables and green herbs thought to have been grown in the desert, as found at Mons Claudianus, the Hydreuma and Barud. See Van der Veen (forthcoming) for further details.

In the context of this article the most important aspect of this presence of vegetables is the fact that the evidence also indicates that some of these vegetables were cultivated locally, that is in the desert. Cabbage, beet, cress, lettuce, endive/chicory, mint, basil, and rue (and purslane) are all eaten fresh, as green leaves and the seeds of these species are not eaten (although oil is extracted from lettuce seeds). Hence the presence of seeds of these species is significant: all these species are eaten before the plants produce seeds, that is before they have "bolted" and it is unlikely that seeds would arrive at the settlement if these plants were imported as leaves, or "greens". Nevertheless, as five of these species (lettuce, endive/chicory, mint, basil,

and rue) are present only as a few seeds (Table 2), these seeds may have come in accidentally, attached to the leaves of these plants. In contrast, cabbage, beet and cress seeds were found in such numbers that this cannot have been the case, and they must have been grown at the sites themselves, i.e. in the desert.

Vegetables are usually underrepresented in archaeobotanical assemblages (Willerding 1991) and their presence here is noteworthy. Not only are there at least thirteen different plants which were probably eaten as vegetables (see below), but they are also surprisingly common, though we must be cautious not to equate numerical abundance with importance in the diet. There are considerable differences in the numbers of seeds produced by each plant, and the cultural and natural processes involved in the formation of the archaeological record influence the chance of certain foods being recovered. Moreover, not all the vegetable species discussed here are present in the form of seeds: for example onion and garlic are represented by skin fragments (as well as base plates), which cannot be counted in any meaningful way. It is possible, however, to give some indication of the relative abundance of these vegetables by expressing the number of seeds of green leafed plants (i.e. those listed in Table 2, but excluding purslane) as a proportion of the total number of seeds of food plants (omitting plants represented by fragments other than seeds). This proportion is 9% which, when considering that vegetables are generally underrepresented, is remarkably high, suggesting that vegetables, or at least some of them, were indeed a relatively common component of the diet.

3.2. Evidence for Gardens: Ostraca

Of the ostraca recovered from Mons Claudianus there are many that mention vegetables and several that clearly indicate that vegetables were grown in the desert. Many of the private letters contain requests for vegetables or mention the delivery of vegetables, for example beet (e.g. O.Claud. 150, 228 and 232), cabbage (e.g. O.Claud. 226, 229, 255 and 256), endive/chicory (O.Claud. 228), lettuce (O.Claud. 226, 370) and "vegetables" unspecified (e.g. O.Claud. 238, 256, 258 and 270) (Bingen 1997; Bülow-Jacobsen 1992, 1997). Eleven species have been recorded in the ostraca published to date (Table 3), though more may follow once the entire archive has been published.

The term vegetables, *lachanon*, may be a general term, such as our word "greens" referring to all green-leafed vegetables, though this is not certain. Bagnall notes that it is often mentioned in documents in very substantial quantities, sold by the artaba; it also appears to have been kept in dry form, and is sometimes traded as seed (Bagnall 1993; Bingen 1997). Mustard may represent the condiment or the greens of this plant, and may represent *Sinapis alba*. The seeds of the latter species, together with those of *Brassica nigra*, are used in the production of mustard, but the plant is also used as a salad plant (the seedlings are eaten like cress). *"Molocheia"*

refers to *Corchorus olitorius*, jute (Bingen 1997, 122), which, while used as a fibre plant today, was used as a vegetable in the past, especially in Africa and the Middle East (Simmonds 1976), and still is in Egypt today. *Surmadion* is thought to be the diminutive form of *surmaia* and may represent a type of radish (horseradish, *Armorica rusticana*, or black radish, a variety of *Rhaphanus sativus*: Bingen 1997, 107).

Vegetables unspecified:	10	Mustard:	1
Cabbage:	10	Asparagus:	1
Beet:	3	Turnip:	1
Lettuce:	2	*Molocheia*:	1
Endive/chicory:	1	*Surmadion*:	1
Cress ('nose-smart'):	1		

Table 3. Vegetables identified in the ostraca and the number of ostraca in which they are mentioned (published ostraca only: O.Claud. I and II).

While most of the ostraca mention vegetables in the context of: "I have sent you" or "please send me", some explicitly refer to the growing of vegetables (O.Claud. 227, 258, 270, 278, 279, 280, and 370). As these documents were written in one of the nearby Roman forts or way-stations and were sent from there to Mons Claudianus, they imply that the vegetables were grown in the desert, rather than in the Nile Valley. One ostracon, O.Claud. 370, mentions the word "garden" (Van Rengen 1997), whilst in another we hear of "seeds" (O.Claud. 232) - this in a letter also mentioning the receipt of a bundle of beets. Further, a request for water and manure is mentioned in connection with a comment that "the vegetables have not grown yet" (O.Claud. 280: Bingen 1997). Thus, both the archaeobotanical and the documentary evidence provide clear evidence that vegetables were grown in the desert.

4. Garden Cultivation

Gardens are small plots of land used for the growing of vegetables, fruits and/or flowers. The growing of garden crops (horticulture, from the Roman *hortus* = garden) can be contrasted with the growing of field crops (agriculture, cereals mainly, but also pulses, oil crops, and fodder crops) and the growing of trees (forestry). Garden cultivation or horticulture usually implies a fairly intensive type of cultivation, associated with a high input of labour and fertiliser per area of land,

and this investment is set off against the relatively high value of the crops, which is linked to these crops being eaten fresh, rather than dry, such as cereals or pulses (Janick 1963). Vegetables especially have a relatively short "shelf-life", as their freshness relies on a high water content in the leaves: in dry conditions they soon wilt (the leaves wither) and become unappetising, whereas they will rot if stored in damp conditions; in each case they rapidly lose their vitamin content and thus their nutritional value during storage. Consequently, in order to reduce the time needed for transport and sale, garden crops are often grown in plots near the house (i.e. in the garden), or close to towns (i.e. in suburban market gardens).

It is not easy to provide a watertight definition of fruits and vegetables. The botanical definition is concerned with the actual parts of the plant that are eaten: vegetables are usually herbaceous (annual and biennial) plants of which the leaves, stem, root, or tuber are eaten, while fruits are perennial plants of which the (usually) sweet and fleshy fruit (the mature ovary and other flower parts) are eaten. There are, however, plenty of exceptions: artichoke is regarded a vegetable even though it is the fleshy flowerhead which is eaten, cucumber, tomato and bottle gourd are fruits, yet are regarded as vegetables, probably because they are not sweet, while rhubarb, of which the leafstalk is eaten, is regarded by some as a fruit because it is eaten in some cultures as a dessert. This points to another definition of fruits and vegetables: vegetables are plants that are eaten as part of the main meal, while fruits are eaten as a dessert or snack (Westing 1963). As a result, the classification of plants into these types of categories is not without problems and most groupings consist of mixtures of these definitions. Nor should we forget that we do not always know exactly how people in the past may have used these plants and whether they distinguished between main meal and dessert in the same way as we do, and hence caution is necessary when grouping food plants under modern headings. In this article the second definition given above is used: all plants commonly eaten in savoury dishes (though excluding sweet fruits and plants used as seeds) are referred to as vegetables.

Gardening has a long tradition in Egypt (Eyre 1994; Murray forthcoming) and there certainly is some artistic evidence for the cultivation and harvesting of fruits and vegetables dating back to the early pharaonic period. In dry areas such as Egypt the gardens would need to be irrigated at very regular intervals, and the watering of small garden plots is depicted in the Middle Kingdom tomb of Khnumhotep at Beni Hasan (Fig. 2). The picture shows square beds and a canal ending in a round pond surrounded by green tendrils, as well as gardeners collecting water from the pond, watering the plants manually and digging the soil. At Amarna such small plots, made up of squares divided by low mudbrick walls and built on top of desert sand, have been recovered during excavations at the "workmen's village" (Shaw & Nicholson 1995; Wilson 1988, Fig. 18). No evidence of such plots at Mons Claudianus was

recovered, probably because occasional storm floods will have destroyed such ephemeral features. Water could have come from any of the wells; most of the quarry settlements and way stations are located at or near wells. While the gardens will have required frequent watering, the presumed very small size of garden plots meant that this need not have been an impossible strain on what must have been a scarce resource.

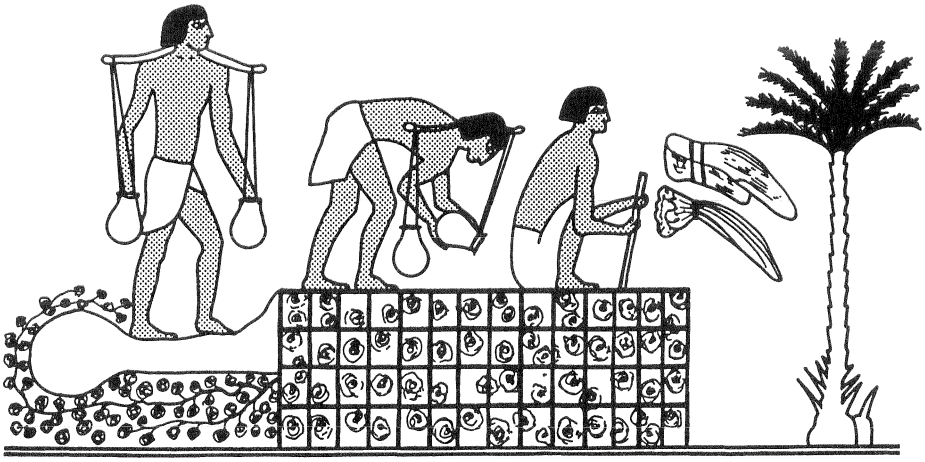


Figure 2. The watering and tending of a small vegetable plot, as depicted in the 12th Dynasty tomb of Khnumhotep at Beni Hasan, Egypt (after Fig. 2 in Eyre 1994).

As noted, garden plots are usually heavily manured in order to obtain the highest possible yield; not only do the plants need a good supply of nutrients, but the organic matter incorporated into the soil for nutrients also helps maintain soil moisture. Thus, in addition to water, any gardens at Mons Claudianus will have needed a fertiliser as the desert sand does not contain sufficient nutrients to allow plants to grow. Animal dung is the most obvious source of fertiliser and given that camels and donkeys were used in large numbers to transport the stone to the Nile Valley and that droppings of these animals, as well as of sheep and goats, were found in the archaeological deposits, the utilisation of animal dung is likely. As noted above, one ostracon (O.Claud. 280) records a request for "excrement", which Bingen interprets as human faeces, which is known to have been used as a fertiliser in oases gardens in the Sahara (Bingen 1997, 119). But in addition to animal dung and human faeces, there is a third possible source, namely the midden deposits or *sebakh*, which are highly organic in nature and which were (and are still today) an important source of fertiliser in the Nile Valley (Schnebel 1925).

When considering whether all or only some of the vegetables were grown in the desert three aspects need to be taken into consideration: firstly, the length of time between sowing and harvest; secondly, the ease of cultivation; and thirdly, the ease of transport and storage (Hessayon 1985). Artichoke and asparagus are the least likely candidates for cultivation in the desert: their cultivation takes 1.5 and 2 years respectively, their cultivation is difficult, but they can be easily transported without immediate deterioration. Onions and garlic take *c.* 5 months to grow and can be easily transported and stored; cucumber and bottle gourd are difficult to grow (they need protection from wind, a soil rich in humus, and a lot of water), but they are relatively easy to transport and they grow in 12-14 weeks. In contrast, the salad plants, as well as leaf beet and cabbage, are the most likely species to be locally cultivated, as they take relatively little time to grow, varying from 2 weeks for cress, 6-14 weeks for lettuce, 12 for beet, and 20-35 weeks for cabbage (though certain varieties need only 10 weeks in warm countries); they are also relatively easy to grow, but difficult to transport: they wilt soon after harvest. Radishes are also easy and quick to grow (3-6 weeks in summer; up to 12 in winter), as are turnips (6-12 weeks) - and an experimental garden at Mons Claudianus in the winter of 1992 produced edible radishes after 7 weeks (Bülow-Jacobsen 1997). Herbs, such as basil and mint, can be kept in pots and used over a period of time. To summarise, we can envisage local cultivation of cabbage, beet and cress, and probably also that of lettuce, endive, basil, and mint; whilst that of turnip and radish is possible, onion, garlic, cucumber, bottle gourd, artichoke, and asparagus are unlikely local crops.

5. The Location of the Gardens

We cannot pinpoint the exact location of the vegetable gardens. The ostraca referring to the growing or sending of vegetables are mostly letters which were sent from one of the desert stations to Mons Claudianus, suggesting that the vegetables were not cultivated at Claudianus itself. One group of letters was written by a certain Dioscorus, who was probably a soldier, but we do not know where he was stationed (Bülow-Jacobsen 1997); another group was written from Raïma, but the location of this fort is not known (Bingen 1997). Thus the ostraca imply the cultivation of certain vegetables at one or possibly two, unidentified desert locations away from Mons Claudianus. Nonetheless, the seed evidence indicates that some vegetables were grown at Mons Claudianus, the Hydreuma and at Barud (Table 2) - at all three sites from which seed data have been analysed to date. The numbers of seeds of cabbage and cress in different deposits at these sites and of beet at Mons Claudianus indicate that this must have been a relatively common activity - we are not dealing with one packet of seeds having been lost on one occasion, but with vegetable seeds being lost or thrown away at regular intervals.

How to explain the contrasting evidence from the ostraca and the archaeology? Why would the soldier Dioscorus, and the soldiers based at Raïma be sending vegetables to Mons Claudianus when vegetables were being grown at Claudianus itself? Various explanations can be offered: firstly, we only have ostraca from Mons Claudianus, and not from the other desert stations such as Raïma, so we cannot know whether vegetables were also sent in the opposite direction. Secondly, while many of the letters are written by soldiers, the identity of many others is not known for certain. Soldiers and civilian workers often had the same names (H. Cuvigny, *pers. comm.*) and few letters mention the profession of the writer or the recipient, so that it is difficult to establish from the documents whether both soldiers and civilians were engaged in the writing of letters and the growing of vegetables. A final, and perhaps the most plausible, explanation is that the ostraca and seeds represent evidence from two *different* groups of people, i.e. the ostraca represent primarily the activities of the soldiers, and the seeds primarily those of the workmen.

Indeed, the soldiers and other army officials comprised only a relatively small group within the overall population at the site: MC inv. O. 1538+2921 refer to a total of 920 people, of which only *c.* 60 were soldiers (Maxfield 1996, 19). We do not know the exact length or even nature of outpost duty of the soldiers, but postings of 5 months, 18 months and three years have been recorded, with the latter seemingly exceptional (Maxfield forthcoming). We do not know for certain whether and how often soldiers were moved between desert posts within their period of duty in the Eastern Desert (though MC inv. O. 7047 seems to imply that they were: Bülow-Jacobsen 1997, 44), but many did have friends and relatives at the various stations. We can also argue that a period of five or less months is insufficient to invest in the creation of a vegetable garden since only some of the salad plants will grow in such a short period and sowing can only take place at certain times of the year. For this reason it is most likely that the maintenance of vegetable plots was allocated to specific individuals and took place at particular locations. The correspondence of Dioscorus and that from Raïma suggests that some soldiers may have had such a "duty" (Bingen 1997; Bülow-Jacobsen 1997). The fact that both were located at one of the desert stations implies that soldiers at these forts had more time on their hands than those stationed at Mons Claudianus itself, where there was more work to administer. If this was the case, then the ostraca suggest that the soldiers at some of the desert stations grew vegetables and shared their produce with friends and relatives at Claudianus, hence the need for correspondence and the sending of parcels.

The workmen therefore made up the bulk of the population at Mons Claudianus. They, especially the civilian craftsmen, came from the Nile Valley to do a job and they probably stayed at the site until this was completed. Their family and friends were primarily located in the Nile Valley, and they will have had few contacts with

people in the other desert stations and consequently had little or no need for letters and parcels between these desert forts. Instead their contacts will have been only between Mons Claudianus and their home village. They may well have stayed at the site for a longer period than the soldiers and their time must have been less regulated than that of the soldiers. Not only is it likely that they had plenty of opportunity to grow vegetables outside their working hours but, what is more important, they would not have had any need to record this activity in writing or to send their produce to family or friends in the Nile Valley. Thus, if *they* grew vegetables, the only evidence which they may have left behind is that of the seeds which they spilt or threw away.

To conclude, while many questions regarding the growing of the vegetables remain unanswered at the moment, it is clear that the inhabitants of Mons Claudianus, the Hydreuma, and Barud had access to a range of vegetables, some of which both the botanical and the documentary evidence clearly indicate were cultivated in the desert rather than supplied from the Nile Valley. Moreover, the botanical evidence suggests that the growing of vegetables was a common occurrence, and took place at many different locations. It is not clear exactly who cultivated these vegetables, but it is likely that both soldiers and civilians were involved.

6. The Importance of Vegetables

The evidence from Mons Claudianus indicates that the need for fresh vegetables was strong enough for the inhabitants to construct vegetable plots in the desert, even though the environmental conditions were unfavourable. This evidence is by no means unique: ostraca from the Wâdis Hammâmât and Fawâkhîr which record the correspondence of soldiers posted at the way-stations along the road from Coptos to the harbour at Myos Hormos, also frequently mention vegetables and imply that vegetables were grown at Wâdi Fawâkhîr, and possibly also at Wâdi Hammâmât (Ruffing 1995). Again, the correspondence is primarily between soldiers located at the various desert stations. Clearly these soldiers wanted to supplement their standard food allocation, which they did through purchase, private exchange and/or by producing foods themselves (they appear to have kept chicken at Wâdi Hammâmât: Ruffing 1995).

The evidence is not restricted to Egypt: there is a growing body of evidence from Europe that fresh vegetables were also in demand at the forts on the northernmost frontiers of the Roman Empire. In Britain, at Chesterholm (Vindolanda) just south of Hadrian's Wall, the root and base of a stalk of cabbage (*Brassica* sp.) was recovered from a well (Blackburn 1970) which is very suggestive of local cultivation (Dickson 1994). At Wallsend and Housesteads (Griffith 1993), both on Hadrian's Wall, at Croy Hill (Goodburn 1978) and Rough Castle (Máté 1995), both on the

Antonine Wall, and possibly at Moresby in Cumbria (Grew 1981), small, often irregular plots have been discovered, sometimes defined by shallow gullies, which are suggestive of allotments or small garden plots. As the plots are located outside the walls of the fort, it is not known whether they were tended by soldiers or by inhabitants of the *vicus*. It is clear from the archaeobotanical record in Britain that vegetables were not yet commonly grown in this part of the Roman empire, hence the need for soldiers to arrange their own supplies.

In fact, in northwestern Europe, the introduction of horticulture is very much a phenomenon associated with the Roman period: across Europe many vegetables and herbs such as coriander, dill, celery, beet, cabbage, carrot, and even asparagus and bottle gourd, as well as many fruits and other herbs are found for the first time on Roman sites (Dickson 1994; Murphy & Scaife 1991; Kreuz 1995; Pals 1997; Van Zeist 1991). Several of these plants are interpreted as imports from the Mediterranean region or beyond (e.g. olive, date, melon, pepper), while others are thought to have been taken into local cultivation (e.g. coriander, and possibly also the bottle gourd, which has now been found at two sites in France and one in Germany, well north of its tropical origin: De Hingh 1993; Kreuz 1995). The first evidence for gardens in Britain dates to the Roman period: at Colchester linear cultivation beds were interpreted as a possible suburban market garden (Crummy 1984, Murphy & Scaife 1991), and at Fishbourne formal gardens were found associated with a palatial residence (Cunliffe 1981; Dickson 1994). Vineyards have been recorded at Wollaston, Northamptonshire (Meadows 1996) and Thoresby, Lincolnshire (Webster & Petch 1967), considerably further north than vine cultivation is possible today. All the evidence suggests that the cultivation of vegetables first became widespread in the Roman period, and the adoption of these new crops (as well as new fruits and herbs) may possibly represent evidence for the process of Romanisation of the local population (Kreuz 1995). In Egypt vegetable growing has a much longer history, but even here the available evidence suggests a considerable expansion in the range of vegetables grown during the Roman period (Murray forthcoming).

7. Life on the Fringe?

Our perception of life in the desert as representing an inferior life is inaccurate and needs to be modified. Core/periphery models are usually written from the perspective of the core and while there often exists an intricate interrelationship and interdependency between the two, this is frequently ignored (Bailey 1989; Young & Simmonds 1995). Mons Claudianus is a case in point. The site may have been located on the geographical fringe of the empire, but its prime function, namely the provision of a prestigious building material, lay at the very *heart* of the empire. Roman emperors were in constant need of new ways to express their power and it was, interestingly in the context of this article, the actual *remoteness* of Mons

Claudianus that gave the use of the stone such prestige. Rome needed the stone, and this need created the settlement in the desert. As a result, Mons Claudianus was as much part of the centre as it was part of the periphery.

The evidence for the food supply to the site also highlights the inadequacy of the core/periphery concept: the archaeobotanical and documentary evidence combine to indicate that Mons Claudianus was *no* malnourished, *nor* undersupplied desert station, but a settlement that had access to most foods that were available in the Nile Valley. Despite being posted to or working in a remote part of the Roman world, the inhabitants of the site led a full life, with access to foods that significantly enhanced the quality of their lives. While the soldiers and workmen at Mons Claudianus undoubtedly experienced life in the desert as different and hard, neither the physical distance from the Nile Valley, nor the environmental constraints of the desert environment prevented them from maintaining contact with their relatives and friends or from eating the types of foods that they had become accustomed to. Fresh vegetables played an important role in the diet and culture of people living in the Roman empire and this was no different for the people living at Mons Claudianus. They created gardens in the desert so that they could have fresh vegetables, and by doing so they deliberately modified their marginal environment in order not to be living on the fringe of the empire, but to be part of it.

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Discussion

Cynthia Sheikholeslami (American University in Cairo): Was mudbrick manufactured on-site or was it imported from the Nile Valley?

Marijke van der Veen: There was on-site production of mudbrick. We know this because the mudbricks found there contained fragments of Mons Claudianus granite.

Sheikholeslami: Did they import silt to manufacture the mudbricks?

Van der Veen: No, there was enough available locally.

FRINGES ARE ANCHORED IN WARP AND WEFT: THE RELATIONS BETWEEN BERENIKE, SHENSHEF AND THE NILE VALLEY[1]

Willemina Z. Wendrich

1. Introduction

One could say that Berenike was situated on several fringes: geographically it was a desert site; functionally it was a harbour town on the border between sea and land; organizationally it was a remote part of a political as well as a religious province. The position on the fringe differed from one period to another during the eight centuries that Berenike was inhabited. This paper is an attempt to survey the remoteness of Berenike, concentrating on the archaeological evidence for a fabric made up of a warp of Roman organization and a weft of Egyptian daily life.

2. The Desert Town of Berenike

Working in Berenike today immediately draws one's attention to the fact that this harbour town is remote from the Nile Valley and its resources. Even with a good road system and modern transportation the logistics involved in organizing housing and food for a relatively small group of people is considerable.[2]

For ancient Berenike Meredith quotes population estimates from Belzoni and Wellsted (Meredith 1957, 57). Belzoni's conservative estimate is that there were 2000 houses with a population of some 10,000. Wellsted notes that there were 1,000-1,500 houses, which would still amount to a population estimate of at least 5,000. The remains of the main town of Berenike cover an area of *c.* 300 x 350 m. Estimates of the population differ for the subsequent periods in its history, but apparently right up until its abandonment in the early sixth century CE the town still covered an area of *c.* 200 x 250 m. Based on the outlines visible on the surface, the number of relatively small buildings which do not seem to represent warehouses, temples or public buildings may be estimated to be around 100 (Aldsworth & Barnard 1996, folded map figure 2-1). A complicating factor is that the top part of the site was levelled with bulldozers in 1973. Although the damage seems to have affected mainly the top 30 cm of the soil, this action removed all traces of wall

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[1] The excavations at Berenike are co-directed by Steven E. Sidebotham and the author. The work is mainly financed by: The Netherlands Organization for Scientific Research, Foundation for History, Archaeology and Art History (NWO-SHW); the National Geographic Society; the Samuel H. Kress Foundation; and several private donors.

[2] In 1998 the team consisted of 36 foreign archaeologists, four supporting staff, three inspectors of the Supreme Council of Antiquities and 70 Ababda Bedouin workers. The results in this paper are a synthesis of the work of all team members. I would like to thank Steven Sidebotham and Anne Haeckl in particular for their contributions to this paper.

lines, still visible in other parts of the site. Although population estimates are precarious, an estimate for this late period, supposing the occupation per house to average five persons, is 500. Compared to previous estimates this seems to be a small number, but the fact that the population probably varied greatly should be taken into account. During the first and second centuries CE, as well as during the fourth to fifth centuries CE, the town expanded and witnessed great activity. Furthermore, the population may have fluctuated within a year. The ships to Africa and Arabia departed from the harbour before September. The ships sailing for the East African coast departed in July and, depending on the winds, the return trip could take up to a year and a half. Going to India also required a July departure and the ships could return within a year (Casson 1989, 283-91). Ships for the Red Sea harbours could depart at any time between January and September. Most of the activity in the harbour was, therefore, during the summer. Murray suggests that the settlement of Shenshef, 35 km south of Berenike, was built to house the people of Berenike during the seasons in which activity was low, the most important reason being that Shenshef had a permanent source of water (Murray 1926). The recent survey and excavations at Shenshef do not directly refute this possibility. The refuse dumps are similar in their contents to those at Berenike, containing luxury items such as pepper (Cappers 1998, 305) and fine, rare glass wares (P. Nicholson, in: Berenike 1997, forthcoming). On the other hand, the connections to the Nile Valley were presumably regular and trustworthy, so why settle in the desert when Coptos was only a 12-day trip away. Although Shenshef had water, the food still had to be brought in, whereas Coptos offered easy access to food and other commodities. The building methods at Shenshef (cf. Fig. 1) are comparable to those at other desert sites, such as the mining settlements in the Mons Smaragdus area, but at Shenshef there are no indications of mining or quarrying activities. The current lack of explanation as to why the settlement was there is thus the most important reason for supposing that Shenshef was a seasonal satellite of Berenike.

It takes a great deal of effort to maintain even a small settlement in the desert and one wonders what kind of life the people of Berenike must have lived. In order to outline the opposite ends of the scale, we may ask whether Berenike, built mainly of coral heads, was a shanty town where seamen huddled together during the shipping season waiting for the ships to depart, or whether it was a wealthy thriving port where merchants and their families lived all year round? To colour the image we will analyse the resources (building materials, pottery, food, basketry, glass, and textiles) and their provenance for the different periods of occupation. The Ptolemaic Period will not be taken into account here, since this falls outside the scope of the present conference. Furthermore, Ptolemaic presence has been attested in three trenches, but as yet little additional information is available.



Figure 1. One of the more than fifty structures at Shenshef, built of locally quarried applite (photo by H. Barnard).

Over the centuries the building materials used were found locally: fossilized coral heads, anhydrite and gypsum (Harrell 1996). The gypsum ashlars were used mainly as corner stones for coral-head walls. The latter were often built in two rows, forming the wall faces, with a core of smaller chunks. The coral walls were probably plastered, although little evidence survives *in situ*. Wooden planks and grass matting were used to stabilize the courses and provide horizontal bonding. Some edifices were built solely of gypsum or anhydrite ashlars. All of these found so far seem to have had a religious function.

In the fifth century CE the town would have had a mixed appearance of stone and plastered coral head walls. The shanty town image does not hold water, especially not when looking at the furnishings of the houses. Excavation of garbage dumps dating to the fifth and sixth centuries CE revealed many fragments of intricate textiles. Fragments of both finely woven cotton resist-dyed textile wall hangings and thick bed and pillow covers in a double weaving technique known as compound weft-faced tabby were retrieved (Wild & Wild 1996). Similarly, the glass finds from the same dumps show an enormous variety of very high quality glass products. Several fragments of cameo glass were found, a technique which involves making a

vessel in two layers of differently coloured glass, one of which is cut away (P. Nicholson in: Berenike 1997, forthcoming).

But was Berenike a wealthy merchants' town where well-to-do families lived? The evidence for female presence on the site is scanty, but it is there. Beads have been found in most trenches, as well as bracelets, bangles, and a beautiful earring for which parallels are known from the Fayûm mummy portraits. Furthermore, an undatable burial of a female has been found in the industrial area to the west of the main site, as well as a foetus under the floor of a fourth-century building (building F, trench BE95/96-7). The latter does not seem to be a burial, though, but formed part of the refuse deposits underlying the floor.

The presence of women does not, however, prove that families resided in Berenike since every harbour probably had its contingent of public women. The clearest indication of family life would be the presence of children on the site. The only indication of the presence of children so far is an amulet and a small stone statue depicting Harpocrates.

3. Berenike, the Harbour

Berenike is located between Wâdi Mandit and Wâdi Umm Selim el-Mandit on an outcrop of fossil coral. The occasional influx of fresh water and silt from the wadi branches made Berenike one of the few areas on the Red Sea coast which were suitable for founding a harbour, since it diminished the growth of the coral reefs off the coast. On his plan from 1826, Wilkinson suggests that the harbour area was located in the small bay south of the town (cf. Aldsworth *e.a.* 1995, 19). However, no evidence has been found for harbour constructions in that area. In 1998, a large wall was found underlying building F on the northeast side of the town. Further research should clarify whether this wall, which was surrounded by wooden poles, could be part of a jetty or pier, or not. If so, this probably represents the oldest phase of harbour construction, since the wall was underlying an extensive refuse dump dated to the first and second centuries CE. The location of the mooring possibly shifted over time, because the presence of a warehouse at the southeast corner of the site, dating from the fourth to the sixth centuries CE, fits a location for the harbour to the south of the town.

Over time the town shifted slowly to the east, as is clearly visible on both the western and the eastern sides of the town. In the west there are extensive early Roman household refuse dumps which cover the Ptolemaic occupation. In the east the early Roman refuse has a commercial character, consisting mainly of pottery and metal. This dump covers the beach as well as early harbour installations. In the fourth century CE the town was extended even further to the east, and built on top of the levelled early Roman refuse.

Apparently Berenike had some kind of border control or customs office. A small archive found in the first- to second-century refuse dump to the west of the site provides some insight into the procedure of allowing goods through to the harbour area. Usually these texts mention the name of the person and the kind and amount of goods he was allowed to bring, presumably, as is mentioned explicitly on some ostraca, in order to equip a vessel for a trip. The goods are mainly wine and cereals. The fact that in some of these only relatively small quantities are mentioned indicates that these *laissez-passer* documents do not all refer to trade commodities (Bagnall *e.a.* forthcoming).

Although the trade goods were supposed to be transferred from Berenike to the Nile and from there to Rome, clearly some of the imports were available for the Berenike inhabitants. Peppercorns, for instance, have been found in bulk in the fourth- to fifth-century CE storage room (BE95/96-5), but also in the dumps containing the household refuse of that period (Cappers 1998, 311-12).

Some materials were imported from the Far East but never seem to have made it to the Nile Valley. A prime example is teak, which occurs regularly in Berenike but has not been attested elsewhere in the Roman world. We have to take into account the possibility that teak either does not survive or has not been recognized at other sites. Still, the occurrence of teak at Berenike is quite frequent. Several teak planks were used in the construction of coral head walls and fragments of waste wood indicate that teak was worked at Berenike (Vermeeren 1998, 343). It is possible that this wood was not imported as a trade commodity but rather reused from ships which had been repaired or built from scratch at one of the Asian harbours.

Evidence for far-reaching trade contacts is abundant. In a storage building on the southeast side of Berenike a large number of Ayla amphorae have been found in a fourth-century CE layer. The same building has yielded numerous peppercorns from all periods, but especially in the fifth- to sixth-century deposits, and Indian pottery from the early Roman layers (first to second century CE). At several points along the coast excavations have reached this early Roman pottery dump and the pattern of deposit is quite persistent. Several Indian sherds have been found, as well as a Tamil-Brahmi graffito (Mahadevan 1996). Most of the indications for long-distance trade are provided by the plant material (Cappers 1998). From a study of the beads it is clear that there were also contacts with Sri Lanka (P. Francis, in: Berenike 1998, forthcoming).

4. The Political, Military and Religious Fringe

The customs archive mentioned above gives an indication that in the first to second centuries CE Berenike was not a zone outside Roman authority, but rather that there was clear control over the movements of goods and people. There are also indica-

tions that this control was performed by the Roman military. A reconstruction of the diet from the early Roman refuse dumps (cf. Fig. 2) indicates that the population was thoroughly Romanized, with favourites such as pork, chicken and *garum* being present, commodities which usually follow in the wake of the Roman military (Van Neer & Ervynck 1998, 385).

For the beginning of the third century CE there is another piece of evidence for a military presence in Berenike. An inscription dedicated to the emperor Caracalla and his mother Iulia Domna mentions the rank of *eparchos*, which is the Greek translation of the military rank of *praefectus*. The person who dedicated this inscription, Aurelius Mokimos, was an archer from Palmyra (Verhoogt 1998, 193-96).

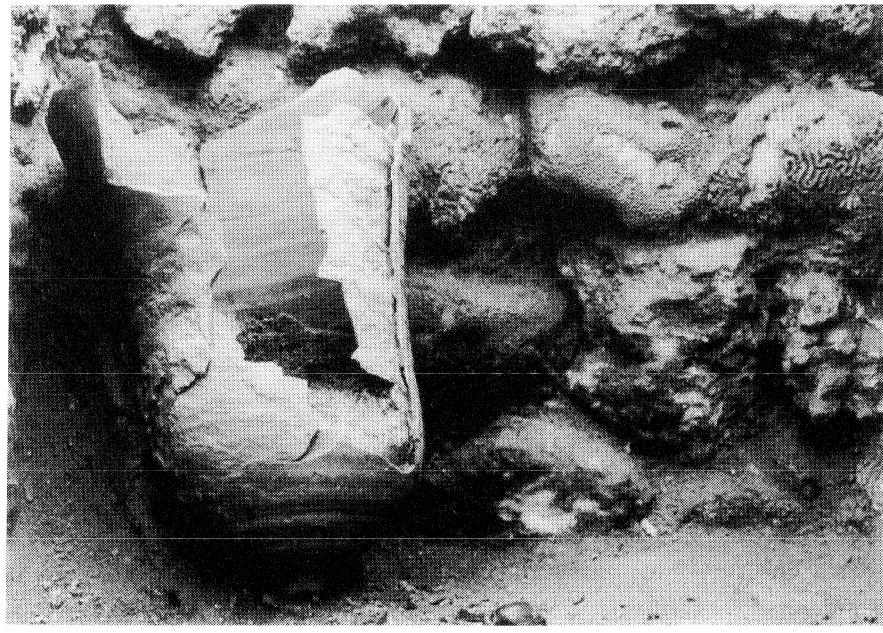


Figure 2. Vessel with *garum* remains leaning against a coral head wall, as found in trench BE96-8 at Berenike (photo by B.J. Seldenthuis).

In 1997 more evidence for the presence of a Palmyrene contingent was found in the same area (trench BE97-16) in the form of a bilingual inscription mentioning the Palmyrene god Hierobol. A similar dedication is already known from Coptos (Bernand 1984, no. 85). It is thus clear that Palmyrenes were involved in the protection of the trade routes, being present at both Coptos and Berenike.

Throughout the fourth and into the fifth century CE there were numerous decrees closing temples and banning pagan worship in favour of Christianity. In the light of

these decrees, the finding of a group of offering tables in a fifth- to sixth-century CE context at Berenike has led to the supposition that this was possibly a cache of pagan temple furniture (Sidebotham *e.a.* 1996, 243). Continuation of work in this and an adjacent trench (BE95/96-6 and BE97/98-16) indicates that the building in which these objects were found had been in use as a religious shrine at least from the beginning of the third century CE to the beginning of the sixth century CE. Excavations in 1998 on the northern side of the town revealed another building in which an abundance of temple furniture has been found (Trench BE98-23). Here the position of Berenike on the fringe becomes very clear. In parallel with the temple at Philae, which was closed in the sixth century during the reign of Justinian I (*c.* 535 CE), the pagan shrines at Berenike seem to have been in use perhaps up to the time the site was abandoned at the beginning of the sixth century. It is remarkable, however, that during the abandonment of the site the offering tables and incense burners were left behind.

Indications of Christianity at Berenike are extremely scarce, although not completely absent. During five seasons of work only two oil lamps with possibly Christian symbols and a cross made of mother of pearl were found. None of the buildings excavated so far seem to have been a church.

From the evidence concerning the diet of the inhabitants in this late phase, as well as from the pottery, the basketry, and the cordage, it is clear that the population at this time was desert-oriented, rather than strongly linked to the Nile Valley and the world beyond. The animal bones show that the main source of animal protein came from sheep and goats, rather than pigs, chickens and abundant fish as in the earlier periods. The cordage shows a high percentage of goat-hair string, while the basketry is often covered with leather, a feature which did not occur in the Nile Valley. The ceramics are a well-burnished handmade ware, often bi-tone, with incised decorative patterns filled in with white. This type of pottery is known from desert sites such as Sikkait (Mons Smaragdus). It does not occur in the Nile Valley, with the exception of the area south of Aswan. The distribution of this type of pottery, together with the evidence for a desert-oriented population, have led to the supposition that during the latest phase of occupation nomadic Blemmyes were living in Berenike. They probably lived there alongside a more Romanized population, but might have held the political, religious and (judging from the fact that there was still international trade) economic power.

To conclude, I think it is valid to say that although remote, the harbour town of Berenike was not isolated. Until the late fifth century it was anchored into the fabric of the Nile Valley, and even in its latest phase of occupation there were still contacts, albeit not so much with the north, but more with the south.

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ROMAN IN LIFE, EGYPTIAN IN DEATH: THE PAINTED TOMB OF PETOSIRIS IN THE DAKHLEH OASIS

Helen Whitehouse

The subject of this paper is one of the two painted tombs which are the best-known feature of the necropolis of Qâret el-Muzawwaqa at the western end of the Dakhleh Oasis, about 2.5 km away from the temple of Amun at Deir el-Haggar and some 6 km southwest of the town of el-Qasr. It is, indeed, from them that the site draws its modern name, "the decorated hill"; cut into the shale slope with a commanding view southwards over the desert, the tombs of Petosiris and Petubastis are admirably situated, according to the tenets of ancient Egyptian funerary belief, for their owners to enjoy eternal life and renewal within and from the pyramid-like mass of the hill. Appropriate to this situation is their decoration with scenes drawn from the traditional repertoire relating to the passage of the deceased through the underworld.

The cemetery, which consisted of both rock-cut and brick-built tombs (but predominantly the former) was recorded by nineteenth-century travellers such as Cailliaud (1826, I, 221), who reported that the surrounding area was covered with remains of human mummies, cartonnage, and mummified rams. These were still visible when the site was visited and briefly recorded by Herbert Winlock in his journey of 1908 through the oasis (Winlock 1936, 35-37 site 12). The necropolis was more thoroughly investigated by Ahmed Fakhry in 1971-72, but the results of his work were only published in 1982 in the posthumous volume on the oasis assembled by Jürgen Osing and others. This included the publication by M.A. Nur el-Din of the demotic ostraca of Ptolemaic date which were found in a mudbrick building near the tombs, and carry a variety of texts, notably a group recording the payment of *htp-nṯr* dues (Osing *e.a.* 1982, 103-17).

Osing's detailed account of the decoration and inscriptions within the tomb of Petosiris is fundamental to its study, and the present paper is not intended as an accessory to that documentation, rather an attempt to suggest some further avenues of enquiry into this fascinating monument.[1] Of the Graeco-Roman tombs so far discovered in Egypt, that of Petosiris offers probably the most vivid evidence for that mixture of cultural and religious traditions which has in recent years become a focus of interest in the study of post-pharaonic Egypt; it has often been cited as a prime example of the phenomenon of the "double style" characterised by Castiglione (1961), where the identity of the tomb-owner is defined in Graeco-Roman imagery, but the religious function of the tomb is expressed in traditional iconography, seen

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[1] For an opportunity to visit the tombs of Petosiris and Petubastis in February 1996, I am grateful to Anthony Mills and Adam Zielinski, who are currently engaged in a conservation project there.

as a deliberate separation of the "real" and "other" worlds. Among surviving tombs, the closest parallel is provided by no. 21 in the Roman necropolis at Tuna el-Gebel (Gabra *e.a.* 1941, 39-50, pls 8-17; further, Grimm 1974, 122), belonging to an unknown woman who is shown in contemporary dress amidst religious scenes in traditional pharaonic style. But the dominant image of Petosiris as a Roman constitutes an altogether stronger statement of his chosen persona in his tomb, accompanied by other noteworthy features and unusual emphases, which are the more striking for appearing as they do in this ostensibly remote "fringe" area.

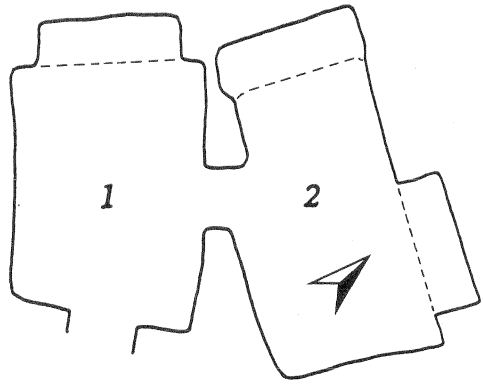


Figure 1. Plan of the tomb of Petosiris, after Osing *e.a.* 1982, pl. 63b.

The tomb of Petosiris follows a simple plan (Fig. 1): it consists of two rooms linked by a short passage, oriented north (back) to south (entrance), somewhat irregularly hewn out of the rock matrix, then plastered and painted. The first room has a *loculus* or recessed shelf to take a sarcophagus or body in the back (north) wall, the second room has two such *loculi*, in the north and east walls. The neighbouring tomb of Petubastis has a single room with *loculi* in the east and west walls and a small niche in the north wall (plan: Osing *e.a.* 1982, pl. 65a). We do not know whether any mummified bodies were in fact placed on these shelves (the existence of shafts for the actual burials is possible but unlikely): as is clear from the early descriptions of the site and the defacement of the interiors of these tombs, they had been long since disturbed, and any contents removed. The provision of these burial niches, which extend from approximately halfway up the height (1.60 to 1.80 m) of the walls to the ceiling, seems to have determined the layout of the decoration, which is executed in two registers of roughly equal size, the division being set at the height of the shelves. Each register is treated as a complete entity, with a brown-red ground line and a canopy of sky - a single frieze of stars - terminating at the corners in the usual point resting on a vertical support. Figures 2-3 give a résumé of the scenes in the upper and lower zones thus created, following Osing's detailed description.

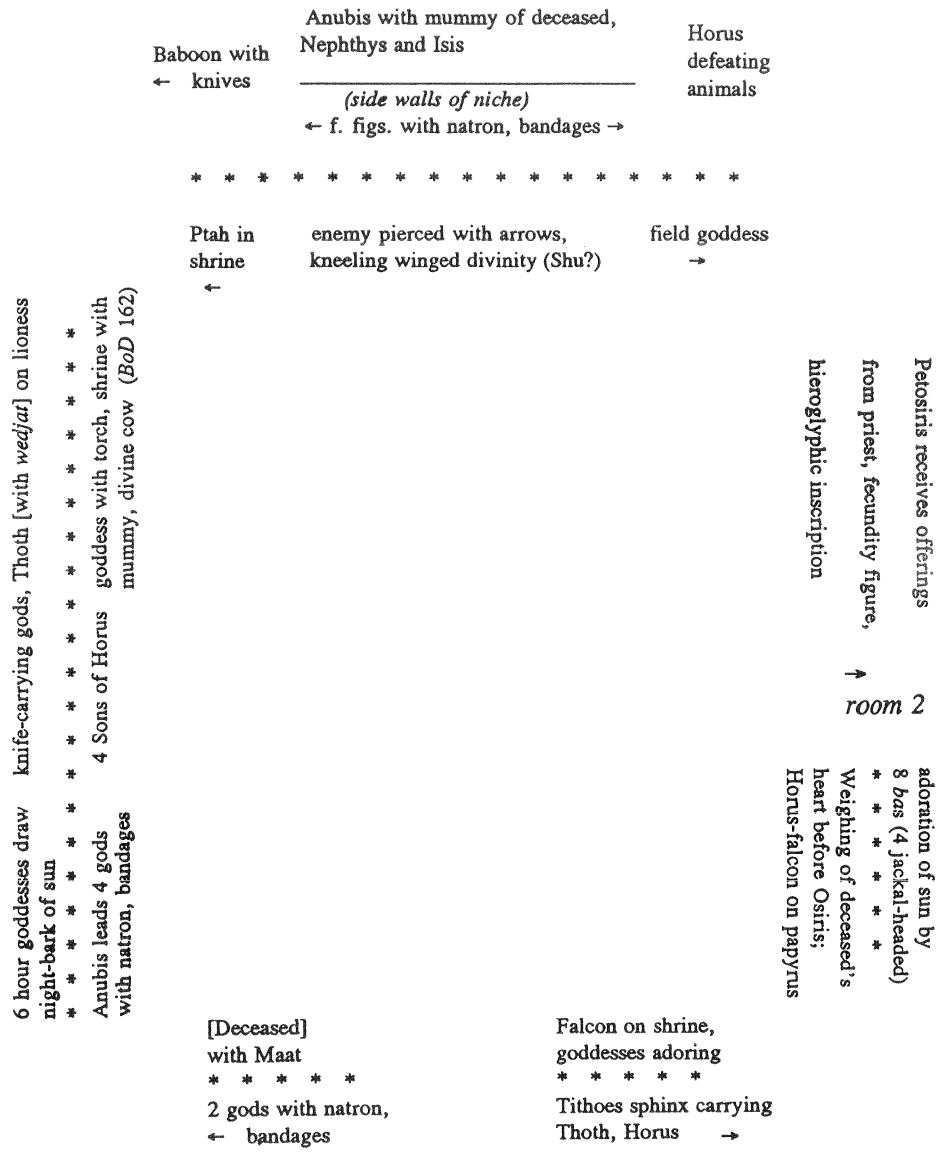


Figure 2. A résumé of the principal scenes in room 1 of the tomb of Petosiris, upper and lower registers; arrows indicate where a scene is related to that on the adjacent wall.

Figure 3. A résumé of the scenes in room 2 of the tomb of Petosiris, upper and lower registers.

Whether or not they were actually used, each of the *loculi* in the tomb of Petosiris is decorated with a key scene referential to their purpose: Anubis officiating over the mummy of the deceased on a funeral bed, with the mourning goddesses Isis and Nephthys flanking (Osing *e.a.* 1982, pls 26b, 28a, 29b). The tomb was thus apparently designed for three burials of equal status; it is not clear, however, whether all the representations of a deceased man, which are not uniform in their type and placing, should be understood to represent Petosiris, or a generic "deceased" whose participation in the ritual scenes could extend to any person in the tomb. The figure is shown in Egyptian dress, with a bead collar, and either a long tunic with short sleeves, or a shorter kilt (Osing *e.a.* 1982, pls 25a, 29a,b: in the first of these, to the right of the doorway in room 1, the figure of Petosiris (?) before Maat is largely lost, only the hem of his long tunic and his feet remaining). The same ambiguity extends to the several representations of *ba*-birds: the more "personal" of these are confined to the second room, where a single bird receives libation in similar scenes on either side of the entrance from the outer room (Osing *e.a.* 1982, pl. 27d,e), and on the adjoining south wall a pair adore a vulture (pl. 28b).

Among the images of divinities, the presence of the sphinx Tutu (Tithoes) is noteworthy (Osing *e.a.* 1982, pls 25.a, 27.d), reflecting his particular prominence in the oasis,[2] so too the distinctive association of Osiris with Harsiese, Isis, and Nephthys, perhaps reflecting their cultic grouping in a local temple (Kaper 1997, 208).

All these pictures are executed in a conventional Egyptian style with areas of solid colour defined by black outlines; there is a conspicuous lack of shading. We can easily imagine an illustrated papyrus as the source; an analysis of the decorative programme and style in comparison with the content of the latest hieratic funerary papyri could be useful.[3] The execution is not very *soignée*, but the impression is certainly vivid and self-confident. The presentation of the tomb owner himself thus comes as a surprise, breaking through the scheme of double registers to occupy the full height of the wall, and also breaking through the artistic conventions: in the northeast corner of room 1, to the right of the *loculus* which he was presumably destined to occupy, is Petosiris (Fig. 4), identified at the beginning of the vertical hieroglyphic inscription to the left. The text of the hymn which follows, continuing to the right of the figure in horizontal lines, lays particular emphasis on the *ba* of the

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[2] In his communication to the "Life on the Fringe" conference, Colin Hope drew attention to the appearance of Tutu on mummy cartonnage in the western cemetery at Ismant el-Kharab. For the temple of Tutu at Ismant el-Kharab (Kellis), and his general significance, see Kaper 1991.

[3] A cogent review of the dating problems posed by these papyri is provided in Jan Quaegebeur's posthumously published paper (1997).

deceased, its free flight as a bird to and from the tomb, its participation in the Festival of Sokar and the mysteries of Osiris celebrated in the month of Khoiak: "May you take wing as an ibis, may you alight as the alighting hawk, without your *ba* encountering any obstacle in the Underworld, for ever!" (Osing *e.a.* 1982, 92). Three discernible standards, hawk, ibis, jackal - to which a fourth, another jackal, should probably be added - appear above the right-hand panel of text in allusion to the burial procession or the Feast of Sokar, as elsewhere in tomb decoration and also in late versions of the Book of the Dead (Osing *e.a.* 1982, 62 n. 275, citing parallels also in tombs in the Bahariya and Siwa oases).

Framed by the two text panels, the figure of Petosiris himself would have gazed out confidently for eternity, had his face had not been symbolically defaced; despite the ravaged surface, we can see that he is clean-shaven and his hair is cut neatly short. He wears a long pink tunic with narrow dark vertical stripes (*clavi*); these are most clearly visible on the lower part of his tunic, the hem of which falls just above his ankles. The tunic is largely covered by a deeper-coloured purple-pink mantle with halter-like folds falling from his shoulders; out of the folds, his right hand emerges to hold an object now almost obliterated but certainly to be understood as the floral garland commonly held by the deceased as portrayed in masks, portraits and sculpture (see, for instance, Walker *e.a.* 1997, 80-81 nos 57-59). His extended left hand is intended to hold a papyrus scroll, which - through the painter's oversight, or possibly because it was added later - actually passes behind his clenched hand. The painting is crudely but expressively executed, with heavy outlining, and lavish shading used for the draped folds of his outer garment - to be understood as the rectangular Greek *himation* rather than a toga. He is posed with the weight on the left leg, the knee of the right slightly flexed and the foot poised as though for movement; he wears leather thong sandals. Above and to left, over the column of text in hieroglyphs, is his *ba*, with a pink-painted human face on a grey-white plumed body, an effect more reminiscent of an Athenian owl than the traditional Egyptian bird.

Painted in the same style as Petosiris is the little figure making offering to his right, though his accoutrements are strictly Egyptian - the shaven head and fringed white garment of a priest. He delicately balances a plate of loaves, and pours a libation over an offering-table the surface of which is turned to face the viewer, as others elsewhere in the purely Egyptian parts of the tomb's decor. This animated figure, his gaze turned towards the recipient of the cult, forms a striking contrast to the other offerer in the scene, who is portrayed in Egyptian style as a pink-fleshed fecundity figure looking - unseeingly, it would seem - straight ahead of him. Nothing could emphasize more succinctly the distinction between the two genres of representation used in the tomb than this point at which they meet, where not only the figures but even the intervening vegetation clearly show the work of two different hands -

the climbing vine in the shaded, free style of the Graeco-Roman half of the picture, in contrast to the lotuses, solid in colour and outline, that should lie atop the fertility figure's offering tray but seem rather to sprout from a bunch of grapes in the vine.

The presentation of Petosiris as a full-length figure in contemporary dress is akin to that familiar in funerary images executed in other media - painted shrouds or hangings, especially those which have been attributed to Saqqara (Bresciani 1996, esp. 21-22) and the more summary depiction of the deceased on Graeco-Roman funerary stelae such as the Upper Egyptian examples published by Aly Abdalla (1992), or those from Kom Abu Billou (Hooper 1961). In both these categories the scene is often specifically the introduction of the deceased by Anubis to Osiris. In tomb 21 at Tuna el-Gebel, the unknown woman, dressed in a short-sleeved tunic of green with black *clavi* and sleeve-bands, and a red mantle, is being purified by Thoth and Horus, while the black form of her corporeal shade (?) stands to one side, echoing her gesture (Gabra *e.a.* 1941, pl. XIII.2); the choice of dress here may emphasize that she is at the liminal point of her transition from earthly being to participant in the rituals of the underworld. The Petosiris painting is so far unique, however, in portraying the deceased not in his or her *post mortem* interaction with divinities but in a key aspect of ancient Egyptian mortuary practice, as the recipient of funerary cult. It also shows in the clearest way the relationship to the underlying model in three-dimensional sculpture - the depiction in Hellenistic and Roman funerary sculpture of the deceased as a standing figure in a mantle or toga which is draped around both shoulders, with the folds enveloping the right arm in the so-called "arm sling", and the free end falling over the left arm (Polaschek 1969). In this form worthy members of Roman society were commemorated in Egypt, as elsewhere in the empire - for instance, the lightly-bearded man from Ihnasiya el-Medina (Herakleopolis Magna), Cairo JE 48026, dated to the close of the first century CE (Grimm & Johannes 1975, 20 no. 20, pls 29, 31, 34-35); the statue type was familiar in the oasis as well as in the Nile valley, as evidenced by the fortuitous discovery at el-Qasr of a "togate" statue of a young man with a garland (Kharga Museum: Wagner 1987, 193).[4]

An unusual aspect of the presentation of Petosiris is the strong colouring of both tunic and mantle - the norm for a man would be white, as attested in painted shrouds and mummy portraits, where the variant of a coloured mantle over a white tunic seems exclusive to military personnel. The pinkish-red and purple of Petosiris' clothing is seen not infrequently in the funerary portraits of women; perhaps it had

[4] The transfer of this sculptural form into wooden sarcophagi may also be noted, for example British Museum EA 55022, dated mid-first century CE: Walker *e.a.* 1997, p. 36 no. 10 with parallels and bibliography.



Figure 4. The northeast corner of room 1 of the tomb of Petosiris.

a particular significance in the oasis, comparable to the choice of a red ground for a group of mummy shrouds for which Corcoran (1995, 55-58) has suggested a solar symbolism. Also significant is the scroll which he carries, an addition which may be compared with the papyrus roll seen in the hands of the man depicted on the painted shroud or hanging of the Saqqara group now in Moscow (Pushkin Museum I IA 5749, well illustrated in Doxiadis 1995, 21 no. 14). This is not likely to be an attribute connected with Petosiris' status in his earthly life, but, like the garland in his right hand, a specifically funerary one, a document containing the ritual for his passage through the underworld, perhaps, or his introduction to it (cf. Quaegebeur's discussion of such "letters of recommendation" with specific reference to the image in P. Rhind II, where Thoth proffers a papyrus to Anubis as he leads the dead woman towards him: 1990, 786-95).

The presentation of a figure in contemporary dress is also found in the neighbouring tomb of Petubastis, but in a different form: the two *loculi* here are not decorated with the scene of the mummy's preparation, but at what was presumably the head (north) end of the shelf in the eastern wall is a rather crudely executed portrait bust (now incomplete). This may represent the intended occupant (Fig. 5; Osing *e.a.* 1982, 75-76, pl. 22d) - a clean-shaven man, with short, neat hair, a white tunic with black *clavi* and also apparently some device indicated by a black line along the right shoulder;[5] the left shoulder of the tunic is not visible, but is covered by a diagonal band of scattered strokes which could indicate something patterned or textured - a mantle or stole. Despite the lack of colouring or distinctive features, the latter is perhaps the likelier identification; as an attribute apparently indicating religious or priestly affiliation, it is occasionally shown on portraits of men or women, such as the man depicted on a painted shroud from Hawara (now in Dublin, National Museum 1911.442: Petrie 1911, 15, pl. 12; more recently, Grimm 1974, 48, 127 B1, pl. 8.4), over whose white tunic and mantle a polychrome stole is shown extending diagonally across the chest from the left shoulder. The figure depicted by the bust is perhaps Petubastis himself, whose priestly office in the service of Thoth of *St-w3h* is recorded in the hieroglyphic inscription on the ceiling (Osing *e.a.* 1982, 80).[6] The summary depiction is quite different to the consistently Egyptian style of the rest of the tomb's decoration, in which the deceased Petubastis appears many times. Two demotic graffiti on the north wall, one naming Petubastis

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[5] The obvious parallel is with the depiction of the decorative roundels or squares found on the shoulders of late Roman tunics, a style of dress attested in Egypt at least in the later part of the third century CE, although an example found at Palmyra has been tentatively dated to the second (al-As'ad & Schmidt-Colinet 1995, 47 Fig. 72, 51).

[6] For *St-w3h* as the designation of the whole western area of the oasis in which Muzawwaqa is located, see Kaper 1992, 124-29, where Amheida is suggested as the site of the temple of Thoth.

and both apparently concerning some temple or tomb service, have been dated to the first century CE, and since the decoration of this tomb is simpler than that of Petosiris, it has been suggested that it predates its neighbour (Osing *e.a.* 1982, 71). Petosiris' clean-shaven face and short hairstyle would suggest a date not later than the first quarter of the second century.

The same hand that painted the "Roman" part of the offering scene in the tomb of Petosiris was also apparently responsible for the zodiac ceilings in its two chambers. Together with the comparable ceiling in the tomb of Petubastis, these constitute the other feature which has attracted particular attention to these Dakhleh monuments. The ceilings belong to the group of private, funerary zodiacs studied by Neugebauer and Parker (1969, listed 204-06), which includes the coffin lids of the Theban "Soter" group, and - more significantly for both form and location - the "zodiac tombs" of Athribis, on the opposite side of the river to Akhmim, and Sâlamûni, just northeast of Akhmim. The latter, four extant tombs with a total of six ceilings (Neugebauer & Parker 1969, 98-102 nos. 73-78, pls 52-56), provide the best compositional parallel for the Dakhleh examples: like these they feature a circular zodiac within a square field representing the starry firmament, supported at each corner by a kneeling female figure, probably representing a cardinal point. In the Sâlamûni zodiacs, as on the Petubastis ceiling, the twelve signs are placed in compartments around a central circle containing a dominant motif, identifiable as Isis-Sothis or Harpocrates where sufficient detail survives. The Petubastis zodiac, however (Osing *e.a.* 1982, 100-01, pls 36-37; texts, pp. 80-81), has a portrait bust of a man with short hair and draped garment, now largely missing but with sufficient left at either side to show that although frontal, it is executed in Egyptian style; differing in this respect from the "Roman" portrait in the *loculus*, the implication is nonetheless that this is the same figure, and the zodiac is thus personalised, representing that eternal future to which the inscriptions allude with a prayer for his *ba* akin to that in the Petosiris text, in which the wish that Petubastis "may enter heaven with the gods that accompany Sokar-Osiris daily" may be seen to find pictorial expression in the ceiling design.

By comparison with this and the Sâlamûni ceilings, the two zodiacs in the tomb of Petosiris are more complex, and they still await full interpretation: the Mithraic emphasis detected by Pingree (Osing *e.a.* 1982, 100) seems without foundation.[7] Such an interpretation is beyond the scope of this paper, but some of the composi-

[7] If present, it would have implications for the dating of the tomb: the elements detected by Pingree relate to the Roman cult of Mithras (bull-slaying imagery, cosmological aspects, and grades of initiation) as developed in the first half of the second century CE and rapidly diffused through the empire in the third quarter (for a review of some manifestations of Mithraism in Egypt, see Harris 1996). For a critique of Pingree's interpretation, see Appendix.

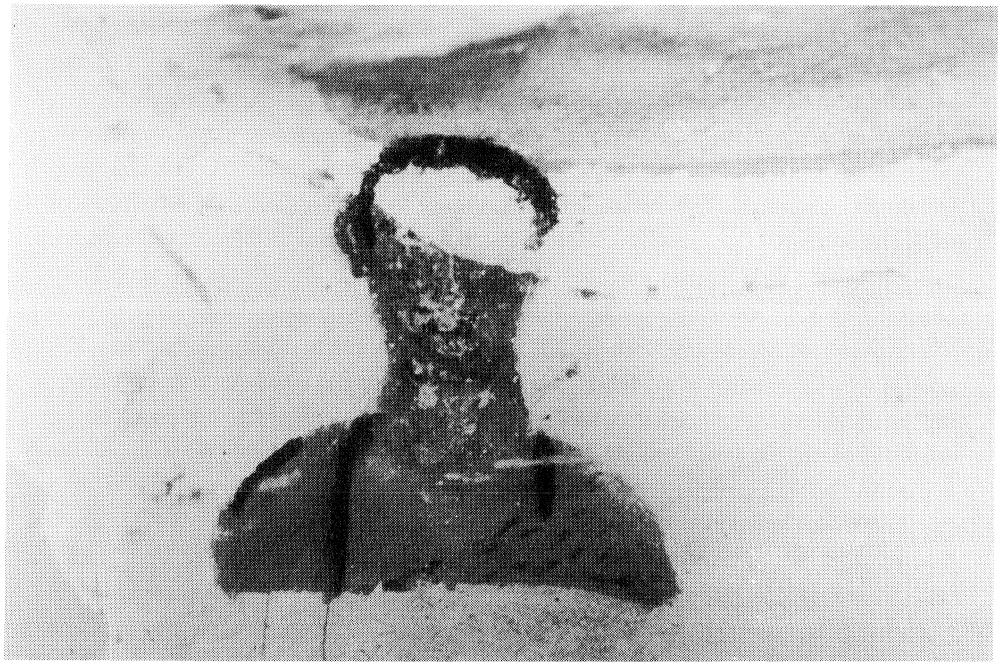


Figure 5. Portrait of Petubastis in the northern end of the shelf in the eastern wall of his tomb.

tional features displayed by the Petosiris zodiacs may be noted here: while maintaining the basic circle-within-a-square design (somewhat distorted by following the contours of the ceilings), they abandon the compartmentalised scheme for the zodiac signs and introduce extra elements within this zone as well as more complex imagery in the central circles, with the busts of personified planets (?) on the outer ceiling, the apotropaic figure of Horus on the crocodiles flanked by planetary (?) busts on that of room 2, where the zodiac is split and reversed - Aries to Virgo, clockwise, and Libra to Pisces, counter-clockwise - with the intrusions of the morning solar barque on the west side (*sic*) and three figures on the east: the moon as a winged *wedjat*-eye, the rising sun as a scarab, and a divinity with four ram's heads (Osing *e.a.* 1982, 97-98, pls 40-41). The appearance of many birds in the outer starry heaven here echoes the strong emphasis on bird and *ba* imagery elsewhere in the tomb. Instead of the kneeling female figures of the Sâlamûni and Petubastis zodiacs, the four supporters on both these ceilings are standing, nude winged females, perhaps winds; their alignment does not relate to that of the tomb, but the distortion of the format to follow the contours of the ceilings would make such placing difficult, even if a more than decorative function were intended. On the ceiling of room 1 the zodiac is bound not by a plain outer border but with a circling snake and

crocodile, tête-à-tête, with their bodies forming a continuum (Osing *e.a.* 1982, 96-97, pls 38-39) - a device perhaps symbolizing opposed aspects of eternity (cf. the identification of Sobek with Kronos: Kákosy 1956).

The basic scheme of the supported circle within a square reflects that of the best-preserved temple zodiac, that of the ceiling from the second eastern Osiris chapel at Dendera (Dendara X, 173-76, pl. 60, 86), dating to the middle of the first century BCE (Aubourg 1995; Cauville 1997); the standing goddesses at the corners here are explicitly identified as the cardinal points, along which the zodiac is accurately aligned. This is the format also of the lost Akhmim zodiac dating to 109 CE (Neugebauer & Parker 1969, 86-89 no. 65, pl. 45; cf. the marble zodiac, *ibid.*, 103 no. 80, pl. 40b), and - in so far as can be judged from the small number of surviving or recorded examples - it is that typical of usable astrological reference charts, exemplified by the ivory tablets found at Grand in France, where the signs of the zodiac in their 12 compartments surround a central circle with sun and moon, and are themselves surrounded by the 36 decans, grouped in threes, with winged male figures of winds occupying the corners of the outer firmament (Abry *e.a.* 1993, where the Dakhleh ceilings are briefly analysed by Gury, p. 120; the chronological sequence there suggested may be right, but the corpus of material is too small at present to secure it). In later Roman art the format of the circle within a square, with significant personifications at the corners, is employed in a broader cosmic sense, witnessed in the composition of mosaics with subject-matter referring to the cycle of time and the seasons (cf. Balty 1995, 291-97; a good, early example is the Calendar Mosaic of Antioch: Campbell 1988, 61-62 no. 25 b ii, pls 183-85); the format is also found in the Dakhleh Oasis in the fragmentary centrepiece of the ceiling of the mammisi in the temple of Tutu at Ismant el-Kharab, currently being excavated.

The small group of funerary zodiacs to which the Muzawwaqa ceilings belong represents a privatisation of the astronomical ceilings that had been the preserve of temples and royal tombs, and it has been suggested that they demonstrate a renaissance in astral mortuary beliefs (Kákosy 1969). Their personalisation is most explicit in the two Athribis ceilings (non-circular zodiacs), which give the birth horoscopes of the two occupants of the tomb, the brothers Ib-pmeny, born in January of 148 CE, and Pa-mehit, born April 141 (Neugebauer & Parker, 96-98), ensuring thus, perhaps, their perpetual rebirth, just as the other tomb zodiacs in a more general way may be intended to perpetuate the tomb owners by their demonstration of the eternal cycle of time; the presence of two different zodiacs in the tomb of Petosiris is another aspect requiring further investigation. Olaf Kaper (1995, 189) has noted the similarity between the iconography of the Athribis ceilings and the astronomical ceiling of the temple at Deir el-Haggar, not far from Muzawwaqa. Given the poor survival rate of Romano-Egyptian tombs, it may be that many more tombs were

decorated thus, but the congruence between this group in the area of Akhmim and the various Dakhleh monuments is striking, and the phenomenon seems on current showing apparently confined in both area and chronology.

In its general layout, the tomb of Petosiris belongs roughly to the Graeco-Roman tradition of rock-cut chambered tombs with recesses for the dead. The more sophisticated and architecturally-developed of these, the "triclinium tombs" of Roman Alexandria, have recently been reviewed by Venit (1997, esp. 703-08) in her interpretation of the painted tomb from Tigrane Pasha Street in Alexandria. The decoration here provides an interesting contrast to the Petosiris iconography in its use of traditional religious themes much transmuted by Graeco-Roman influence; of the range of dates proposed for the tomb, from the mid-first century CE to the late second, Venit (1997, 719, 722) favours the early second. Any earlier dating indeed seems precluded by the striking adoption in the Tigrane Pasha tomb of the kind of ceiling scheme typical of Roman cross-vaults, where the structure of the concrete groins is emphasized in the decoration, an increasing trend from the Hadrianic period onwards which results in quartered decorative schemes being applied even to barrel vaults. The central alcove of the three in the Tigrane Pasha tomb (fitted with carved representations of massive stone sarcophagi) is decorated with a variation of the scene with the mummy on its bed which all the Petosiris *loculi* display (Venit 1997, 711 figs 7-8), here without the active figure of Anubis but merely flanked by the mourning goddesses. The dominant location, in the central of the three recesses in the "triclinium" layout and facing the entrance, is also that selected in the main chamber of the Kôm es-Shuqâfa catacomb, decorated in relief, and dating probably to the second half of the first century CE (Venit 1997, 707); here Anubis is working on the mummy and Horus and Thoth flank the bed (Schreiber *e.a.* 1908, pl. 27).

In a striking reversal of the Petosiris phenomenon, the sculpted male and female figures which flank the entrance to the main tomb in Kôm es-Shuqâfa and perhaps represent the major occupants, are wearing pharaonic dress, although their facial features and hair are shown in the style of contemporary Roman portrait sculpture (Schreiber *e.a.* 1908, 102, 257-74, pls 23-24). Evidently these Alexandrian deceased wished to be seen even in their personal manifestation in the tomb as Egyptian, where Petosiris, out in the westernmost oasis, 650 km distant and perhaps half a century later, wanted to be Roman, surrounded by Egyptian rituals as developed and expressed over thousands of years and granted eternal renewal by the heavenly zodiacs overhead: many questions of date and meaning, the aspirations and beliefs implied by these chosen images, and their relation to the other extant tombs of Roman Egypt, remain to be posed and answered.

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APPENDIX: THE ZODIAC CEILINGS

I am most grateful to Professor J.R. Harris for a detailed critique of the interpretation presented by Pingree (Osing *e.a.* 1982, 100), points from which are incorporated in the following note:

The Mithraic association of the Zodiac ceilings is not convincing and was perhaps unduly influenced by the presence of the two (admittedly inexplicable) bull's heads at the western side of ceiling 1, and the prominent position of Taurus at the top of the zodiac there. The placing of Aries and Taurus (or vice versa) on either side of the "twelve o'clock" division is not, in fact, unusual in circular zodiacs with compartmentalised schemes (Gury, in Abry *e.a.* 1993, 124). It may also be noted that the clockwise direction of zodiac 1 is related to the figures' facing outwards: in the Petubastis zodiac, and those in the Sâlamûni tombs, the figures face in, and the zodiacs run counter-clockwise. The change of direction between the two halves of zodiac 2 remains to be explained.

Also unconvincing is the reading of the ceilings as "artistic expressions of the escape of the soul from the material to the spiritual world", which seems an unnecessary over-interpretation when they are considered in the context of the other zodiac ceilings. The soul's escape via seven planetary gates - Saturn, Venus, Jupiter, Mercury, Mars, Moon, Sun - is not in itself a Mithraic idea but may be related to the concept described by Origen (*Contra Celsum*, vi.22), with Neoplatonic and Gnostic additions. The moon does indeed seem to be present in zodiac 1, as an Isiac bust with *wedjat*-eye, but as Pingree notes, there is not much room for a hypothetical sun-symbol in the opposite sector; in ceiling 2, the presence of four purely Egyptian solar and lunar symbols (plus another Isiac bust, this time lacking the eye) seems to express some entirely different concept. As noted above (and cf. Osing *e.a.* 1982, 96, 98), the identification of the Graeco-Roman style busts at the centre of both ceilings with specific planets is tentative (so too the reading of the barely visible bull and jackal in ceiling 1 as the Northern Constellations; the idea that the north is the region of Ahriman is Zoroastrian, not Mithraic). There is no reason why their position on the ceiling should be determined by the Mithraic grades, which are irrelevant to the "gates" concept and inconsistently described here; their placing might, more convincingly, be related to the zodiac signs. That the zodiacs would represent "the material creation from which the soul must escape" is improbable, even more so the reading of the snake-crocodile *ouroboros* in ceiling 1 and Horus-on-the-crocodiles at the centre of 2 as symbols of "the evil of material creation". The birds in the outer firmament of both ceilings ("souls that have escaped") are indeed remarkable, but, as noted above, they may be related to the emphasis on birds elsewhere in the decorative programme of the tomb; the specific content of

ceiling 2 is notable - 3 each of vulture, ibis, and falcon, and two unidentified smaller birds.

Much remains inexplicable in these ceilings, and some of their ambiguities may result from local misinterpretation of unfamiliar source material (for instance, in the attributes of the planetary(?) busts), but they give a strong impression of being purposeful compositions - that purpose as yet unclear.

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ROMAN CONSTRUCTION TECHNIQUES IN THE EASTERN DESERT

Ronald E. Zitterkopf

1. Introduction

Only in relatively recent times has the level of human activity in the Eastern Desert achieved that which occurred in the Roman period. The number of ancient structures scattered throughout the Eastern Desert attests to the large transitory and semi-permanent population. Surveys[1] of the road stations on the major trade and supply routes through the interior of the Eastern Desert have revealed significant information on the construction techniques employed to build these stations.

This paper concentrates on the road stations in the interior of the desert and thus excludes the Roman emporia on the Nile River periphery and the Red Sea coast, as well as the facilities at the numerous quarries and mines, such as the vast quarry settlements at Mons Claudianus and Mons Porphyrites. The principal trade and supply routes (see Figure 1) in the interior of the Eastern Desert, on which the subject road stations are located, are:

- The Via Hadriana, which connects Antinoopolis on the Nile River to the Red Sea coast and then skirts the coast to Berenike (Sidebotham & Zitterkopf 1997).
- The Road from Abû Sha'ar to the Nile (Sidebotham *e.a.* 1991; Zitterkopf forthcoming), recognizing, however, that the primary purpose for this route over most of its life was the quarry-related traffic between the Nile and Mons Claudianus and Mons Porphyrites.
- The Road from Quseir al-Qadim to Quft (Zitterkopf & Sidebotham 1989).
- The Berenike Roads, including the branches to Edfu and to Quft.[2]

Inspection of the topography shows that these roads follow natural routes through the desert. Travel along these routes has likely existed since humans first traversed the Eastern Desert. The routes, and some of their structures, predate the Roman period of occupation, and likewise postdate it. Construction activities during the Roman occupation are only one part of the continuum - borrowing from techniques that took place before, and contributing to those that followed.

Construction techniques employed in these buildings along the principal Eastern Desert trade and supply routes will be looked at by an examination of the perimeter

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[1] Sponsorship and funding provided by the University of Delaware and the University of Leiden for many of the surveys is gratefully acknowledged.

[2] Wright & Herbert 1993a; Wright & Herbert 1993b; Sidebotham & Zitterkopf 1995; and Sidebotham & Zitterkopf 1996. The survey of the Berenike Roads will be covered in detail in a forthcoming monograph by the University of Delaware and the University of Michigan.

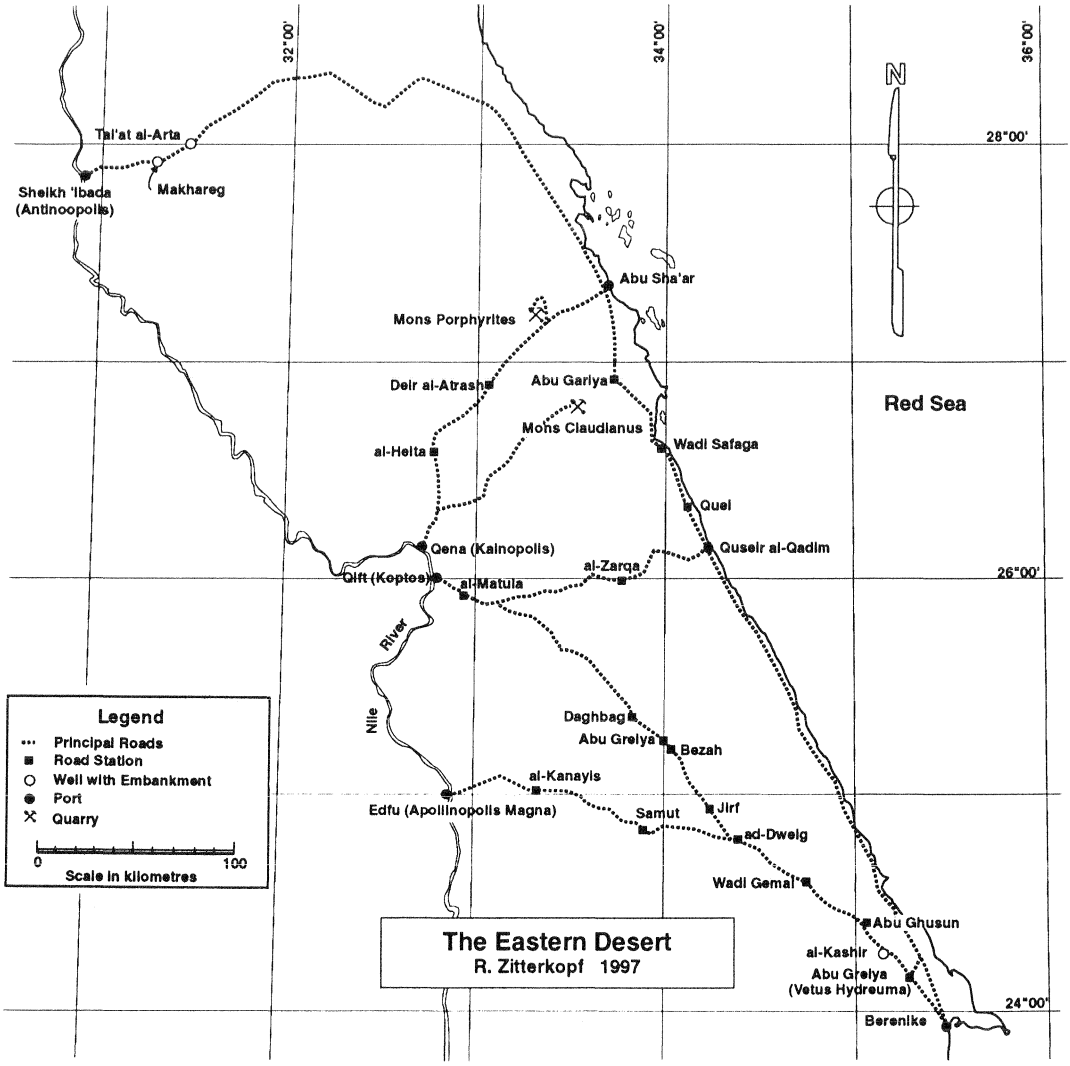


Figure 1. Map of the Eastern Desert showing principal routes and sites mentioned in the text.

walls. Figure 2 shows the perimeter wall outlines of some representative stations. The stations on these routes range from large structures of more than 100 m in length to relatively small structures of 20 m in length.

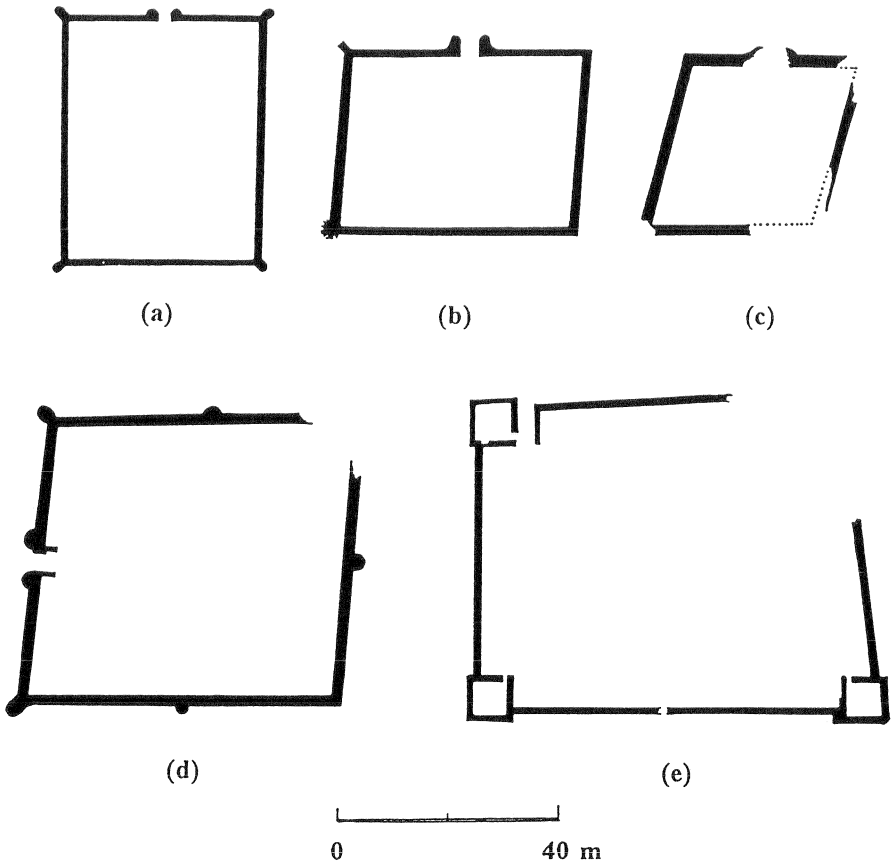


Figure 2. Perimeter wall outlines of representative road stations in the Eastern Desert: (a) Beyzah (Wright & Herbert 1993a: Fig. 15); (b) Jirf (Wright & Herbert 1993b: Fig. 2); (c) Wâdi Safaga (Sidebotham & Zitterkopf 1997: Fig. 11); (d) Abû Qreiya (Wright & Herbert 1993a: Fig. 11); (e) Samut (confer Wright & Herbert 1993b: Fig. 2). Full publication of the plans for the stations at Beyzah, Jirf, Abû Qreiya, and Samut is forthcoming by H.T. Wright, S.E. Sidebotham, R.E. Zitterkopf *e.a.* in a monograph on the Berenike - Edfu/Coptos Roads.

2. Material

2.1. Stone

In most cases, the road stations are built from field stones freely available on the surface, thereby resulting in a construction which is a mixture of available stone types. On the other hand, where the building stones were extracted from the surface

with levers and wedges or where they came from an area with uniform surface litter, the resulting construction is of a homogeneous material.

Very few ornamental stones are found at these stations. With the occasional exception of door jambs and lintels, there is scant evidence of the stone being worked other than a rudimentary squaring of the stone for placing in walls.



Figure 3. Mudbricks coexist with stone construction at al-Heita.

2.2. Unfired Brick

Although stone was the dominant building material, unfired brick was also used in the perimeter walls at a limited number of locations such as al-Matula, Deir al-Atrash, and al-Heita (Fig. 3). Most of the bricks show evidence of straw or other organic material as a binding agent. Often the sun-dried brick is combined with stone, with the upper part of the structure being built of brick.

Mudbricks are a good building material as they are easy to repair. If cracks appear, they are easily filled. The scarcity of rain in the desert means the mudbricks are not subjected to rain erosion; the very existence today of well-preserved ancient walls proves their durability (Spencer 1979). Furthermore, mudbricks are able to withstand settlement, including earthquakes, because the cracks can be so easily repaired. Nevertheless, stones remain the prevalent building material in these Eastern

Desert stations, as the stones for construction were obviously more readily available than the clay and silt for the bricks.

2.3. Sand and Gravel

In at least one case, at al-Khashir, the station consists of sand and gravel mounds encircling a putative well. These mounds have a long axis of about 90 m and are over a metre in height.

No fortified structures of stone have yet been identified on an extensive stretch of the northern trans-desert part of the Via Hadriana. The only facilities on this stretch of road are wells with mounds of detritus resulting from the excavation, and, presumably, subsequent cleaning of the wells (Sidebotham & Zitterkopf 1997). Examples are at Makhareg and Talᶜat al-Arta. Amphorae and other ceramics remain in copious quantities on the surface at these sites, suggesting extremely infrequent visits after the Roman-Byzantine occupation. Confirmation whether any type of stone structure exists under the mounds must be determined by boring or excavation; this seems doubtful, however.

3. Construction Methods

Construction stones for the stations were almost invariably taken from the immediate surrounding area. Although it is feasible that the stones could have been brought to the construction site by carts and wagons, the prevalent rough terrain and the nearby source of adequate stones indicate that they were transported by using animals as load bearers rather than draught animals. A pack animal is also easier to obtain and maintain than a draught animal. Although camels were undoubtedly used, the most common pack animals may have been donkeys, equipped with a pack saddle or pannier of leather or basketry. A donkey with a pannier can routinely carry a load of *c.* 70-90 kg (White 1984, 129). Recognizing that any use of animals meant an additional burden on the food and water supply, one cannot discount that transportation of the building stones at a specific construction site may have been partly or solely by the human work force.

Once the load was delivered to the construction site, humans were feasibly the sole source of power at these Eastern Desert road stations and no mechanical devices, other than simple tools, were employed. In general, the size of the stone presently observed in the walls is such that it could be carried and placed by only one person and, consequently, the walls could be constructed without use of mechanical lifting equipment. Where large stones were used, they were typically incorporated into the lower part of the wall. If necessary, such large stones can be rolled and levered into place. Once the wall rises in elevation, positioning such stones becomes more difficult without the use of mechanical assistance.

No evidence has been detected that scaffolding was used as the elevation of the construction in these desert stations increased. Scaffolding was employed in Egypt since before the Roman occupation (Arnold 1991, 231-36). However, the perimeter walls of the stations in the Eastern Desert could have been built without the use of scaffolding as their width allows sufficient space for the workers to function on the top of the wall as it rose. Stairways (Figure 4) could have also been built progressively with the wall permitting workers to carry the stone to the higher courses, thus obviating the need for scaffolding or a temporary construction ramp. In addition, it is probable that ladders were used, but those of wood were probably soon recycled as firewood when the ladders fell into disuse.



Figure 4. A stairway in the north-west corner of the station of Al-Zarqâ.

The type of stone construction at these stations is dry stone wall, defined as being built totally or mainly without the use of mortar. Walls at some locations do occasionally show a silt and clay mortar. For example, use of a mud mortar is evident at al-Kanayis.

The strength, safety, and durability of the dry stone structure are almost entirely dependent upon each stone being locked into place, which, in turn, is almost wholly dependent upon the skill of the workers placing the stone. In dry stone wall con-

struction, the stones in a course must cover the spaces between the stones in the course immediately below (Fig. 5). Too much space between stones and uncovered joints will result in the stones working loose and eventually collapsing.

The optimum stone for the construction of dry stone walls is a long flat stone with squared corners. This provides the maximum amount of contact between stones, producing a stable wall. A flat face of the stone serves as an outer face of the wall, as this helps to provide a smooth exterior. On these rectangular stones, the length should not be in the line of the wall but should be perpendicular to the longitudinal axis. Burying the stone into the wall locks it in place. However, these long rectangular stones were not always locally available. Many of the stones in the wadis are rounded boulders, such as those at Abû Gariya as shown in Figure 6. The larger interstices between the boulders in the wall are filled with smaller stones.

4. Perimeter Walls

In terms of quantity of building material, the primary feature of the road stations on the principal Eastern Desert routes was the massive perimeter walls.

4.1. Layout

It is doubtful that much preliminary planning went into the construction of most of the buildings, including their layout. Although a few of the stations, such as al-Kanayis, have a very irregular layout, the perimeter walls at the stations are generally quadrilateral in plan, but with uneven perimeter wall lengths.

Some of the stations, as at Beyzah (Fig. 2a), are rectangular in plan, with quite accurate right angles at the corners, proven by having interior diagonals of nearly equal length (54.8 / 54.6 m). Squaring of corners could be achieved with the simplest of instruments, if any. The same could have been accomplished with some form of tape measure, such as a knotted cord (Adam 1994, 11). Other forts, such as that at Jirf (Fig. 2b), show a uniform interior length of opposing walls (41.55 / 41.55 m and 30.58 / 30.75 m respectively). However, the diagonals are not equal but measure 49.37 and 53.85 m. This indicates that a measuring tape of some type was used to lay out the length of walls but that an instrument to achieve right angles was not used nor was there a knowledge of geometry employed to make a right angle by means of measuring. A more extreme example is the fort in Wâdi Safaga (Fig. 2c). Although two interior corners are missing, projections of the existing walls to obtain the location of the corners show that the internal lengths of all four sides are nearly equal (measured at 30.2 / 29.1 / 29.6 / 29.6 m) which proves that a measuring technique was used to establish a uniform length for each of the four walls. One could expect a nearly square shape to the facility. However, the diagonals were measured as 36.0 and 47.0 m, representing a rather skewed structure.

4.2. Foundations

Although adequate foundations are a necessity in the construction of large structures, the typical Roman foundation of gravel or rubble in a trench is not required in the Eastern Desert (Adam 1994, 125). No base needed to be provided as the walls sit on sand and, in several cases, directly on the bedrock. Surface observations have shown no special foundations at any of the stations but this cannot be confirmed without excavation.

The situation observed at these road stations is construction on naturally bedded sand and gravel; this provides more than ample bearing capacity as rubble walls such as those observed in the Eastern Desert could be built to *c.* 16 m height on such a foundation.[3]

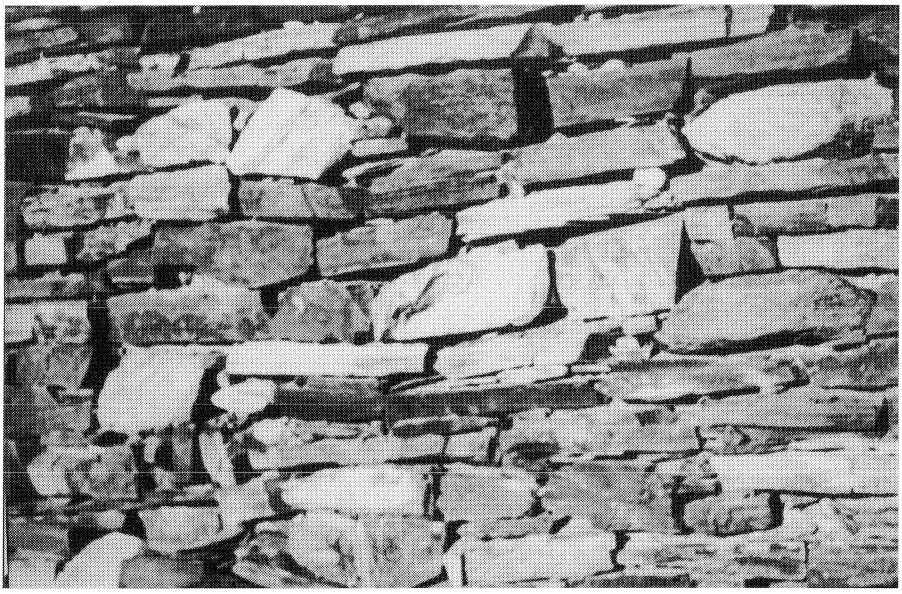


Figure 5. This wall at Al-Zarqâ demonstrates good dry stone construction technique. Stones provide a good bond as they alternate to cover the space between the stones immediately below.

[3] Maximum wall height is calculated as the safe bearing capacity of the underlying bearing surface divided by the density of the wall. The approximately 16 m height available in the Eastern Desert is derived from a bearing capacity of 39,000 kg/sq m for naturally bedded gravel and coarse sand and an assumed density of granite rubble walls of 2,450 kg/cu m (Marks 1930, 527, 1538). Even construction on fine loose sand would provide the support necessary for a rubble wall of *c.* 4 m high, which covers all but a few of the structures.

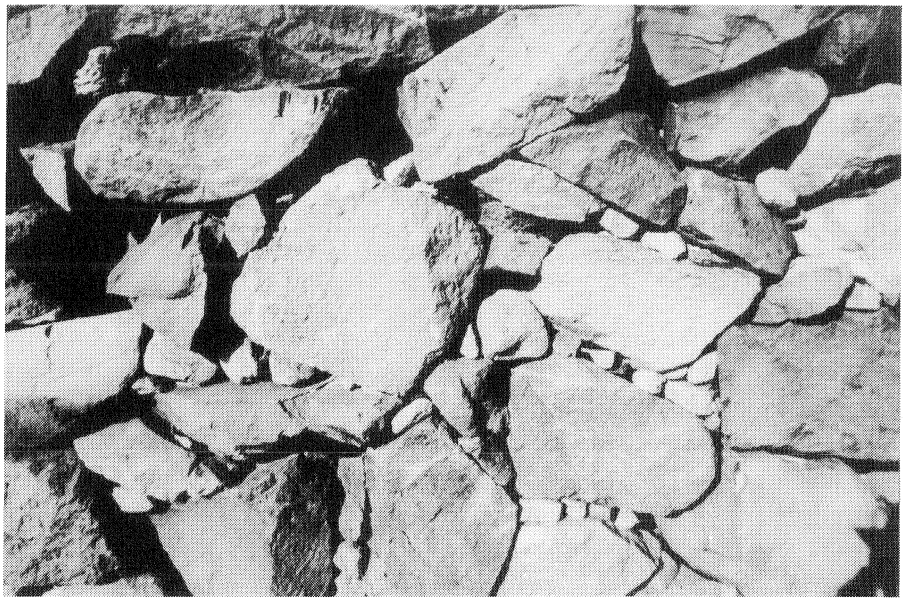


Figure 6. Rounded boulders were used to construct the perimeter walls at Abû Gariya. Note the small stones in the interstices.

4.3. Perimeter Wall Construction

In the construction of massive walls, the stones in the lowest level of the wall should be the largest and the squarest, and also the strongest. They support the entire wall above. Although the *in situ* sand, gravel, and rock upon which these structures are located provide an adequate to excellent bearing surface, the lower parts of the wall must transfer the stress from the parts of the wall above to the underlying sand.

The lowest stones in the wall, the foundation stones, are placed in two lines with the flattest and most nearly square side of the stone abutting the width desired. A line scratched in the surface on both exterior sides, or a stretched cord, could have been employed to achieve a straight exterior surface. The interval between this double row of base stones is filled with gravel, small stones, and other rubble. Courses are added horizontally in lifts. This is often quite evident in the structures, where visibly different stones are evident in a subsequent lift (Fig. 7). The typical fort wall consists of an outer and inner line of stacked stones with a rubble fill in between. It is very possible that any one section of wall had two crews working at the same time, one on the outer side and one on the inner side. The wall is topped off with flat coping stones to tie the two sides of the wall together.

Where the stones are not accurately placed so that they bond with each other, that portion of the structure will collapse. At various stations, an irregular inclusion of different types of stones, which are obviously not part of the originally constructed horizontal courses, may be evidence of repair of this kind of structural defect.

As the walls were constructed higher, they were sloped inward as protection against collapse outward (Fig. 8). Not only is the interior fill an expedient as it requires less skill and time to place, it is also a support as it prevents the wall from collapsing inward. This taper in the wall, or batter, provides stability to the wall. The batter observed at the larger road stations may be as steep as 1:10 (at least 1 part horizontal for each 10 parts of height), but it is generally not as vertical.

There are also many examples of the walls being buttressed or being thickened to make them sturdier. Increasing the thickness of the walls was probably done subsequent to initial construction.

Many of the perimeter walls on the larger Eastern Desert facilities have wall walks and parapets. The wall walks, or catwalks, allow the top of the walls to be occupied by sentries. The parapets provide a protective position in the event of danger. The size of the wall walks and parapets varies from station to station but a typical width for a wall walk is about 1 m or less, and the height of the parapet is observed to be as much as 1.4 m.



Figure 7. The variation in stones at Deir al-Atrash illustrates that the stones were placed in horizontal lifts.



Figure 8. Batter in wall at Abû Qreiya, north of the station at Beyzah. Note the fill material between the outer courses of stone.

4.4. Towers

An integral part of the perimeter walls are the towers. At these facilities in the interior of the Eastern Desert, a reference to "towers" denotes a bulbous widening of a wall or, less often, a rectangular addition to the wall, except when stated otherwise. Not all stations had towers. When they exist, they were usually placed at the corners and flanking the front gate. Occasionally a simple buttress was constructed at a corner in lieu of a tower.

The towers have an implied defensive purpose. More important than their protective features, however, is their capacity as a structural feature. They provide stability to the walls. For example, the break in the wall caused by a gate opening can be anchored by a tower.

Any abrupt change in direction of a fort wall, such as a corner, provides lateral stability without the need for a tower. Some stations have corner towers; other do not (cf. Fig. 2). Only on the larger forts are there sometimes intermediate towers between the corners. As the walls between corners increases, the ratio between the unsupported length and the height can become too great and result in collapse. In those cases, the intermediate towers can serve as buttresses.

The towers are generally solid core, and thus can be occupied only on the top. Notable exceptions are the mudbrick towers at al-Heita which show evidence of passageways inside the corner towers at the lower structure (Sidebotham 1991, 593) and the square stone towers at Samut which contain several interior rooms each (Fig. 2e).

The towers were not always built contemporaneously with the walls. The existence of a construction joint at ad-Dweig shows that a corner tower was added after the wall was constructed.

5. Labour

In order to assess the amount of work expended for construction, the large fort in Wâdi Gemal serves as an instructive example. This fort is assumed to be the Apollonos of ancient sources and, consequently, it is one of the watering stations mentioned in a tablet found at Coptos about a Roman work party going out into the Eastern Desert for repair and construction activities (Kennedy 1985).

As only one corner remains, the true size of the Wâdi Gemal fort is not known but we can determine a minimum size from the extant remains. As the walls are buried in sand up to nearly full height, surface examination provides only a few clear measurements of the walls. One wall adjoining the extant corner exists to a length of at least 119 m and the other to at least 78 m - providing a perimeter of at least 394 m. At the end of one of the extant wall portions, the wall width at the base is *c.* 2.8 m. The average wall height is assumed to be about 4 m. Comparison to other forts in the Eastern Desert provides a hypothetical cross section of the walls at Wâdi Gemal. Assuming the existence of catwalks and parapets on the perimeter, the area of the wall cross section is estimated to be 8.2 sq. m. On the basis of the minimum perimeter and the assumed cross section, the volume of stone in the perimeter walls is calculated to be more than 3,200 cubic metres. With a weight of dry rubble masonry estimated to be 2450 kg/cubic metre (Marks 1930, 527), the weight of these perimeter walls would be almost 8 million kg or 8 thousand metric tonnes.

The work power to construct the walls of this fort can be calculated by estimation, keeping in mind the harsh climate and working environment for the workers. This is at best an educated guess, when one considers that factors such as disease, extreme heat in summer, low supplies of food - or even worse, low supplies of water - and other environmental factors may have had significant effects on the rates of work. One can assume the following labour rates for the workers: the skilled

workers on these walls achieved 3 cubic m/day;[4] each had three helpers to lift the blocks and each of these helpers accomplished 1 cu m/day; and that one worker can gather and/or break 3000 kg of stone each day in the wadi (Rankin 1883; 254). Assume also that these building stones are located an average of 200 m away, less than twice the length of the fort. A strong person should be able to carry 1000 kg a day over that distance based on 20 trips of 50 kg carried (White 1984, 129), or even 40 trips of 25 kg each.

At these rates, it would have taken 14,900 man days to construct the perimeter walls at Wâdi Gemal, which is equivalent to a crew of 100 working 149 days. Note that this does not include supervisors, food service and other camp personnel, animal caretakers, and the like. Nor does it take into account time lost for illness or injury. Moreover, it addresses only the construction of perimeter walls and does not include any of the construction inside the perimeter walls and other ancillary structures. Based on the assumptions above, it was a considerable effort in an unyielding environment.

6. Preservation

Several of the road stations are quite well preserved. The massive walls negated many of the potential stresses to which buildings would normally be subject, and, in their remote desert locations, the structures were subjected to a fairly minimum number of stresses. In addition to natural weathering, the factors that have detrimentally affected the structures include: flash floods; earthquakes; reuse of materials in another structure; and intentional or unintentional vandalism. Although wind-blown sand may obscure a structure, it does not destroy it.

The major threat to the integrity of the forts appears to have been flood flows (*suyûl*). The majority of the forts are located in wadi bottoms and many exhibit partial or near-total destruction from flood flows. Corners at the stations are frequently missing, such as those at Wâdi Safaga (Fig. 2c), Abû Qreiya (Fig. 2d), and Samut (Fig. 2e). The station of Wâdi Gemal is almost completely destroyed; at Abû Ghusun only one wall survived the flooding (Sidebotham & Zitterkopf 1995, 45), and the same applies to Daghbag (Sidebotham & Zitterkopf 1995, 48, 50). The station at Quei on the Via Hadriana reportedly had one surviving corner earlier this century (Murray 1925, 149), but today no surface evidence of walls remains. The ancients were surely aware of the harmful potential of flooding; however, the floods were infrequent enough to forgo the effort of constructing on higher ground - a mistake that is still made today.

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[4] The amount of rubble masonry one person can construct in a day has been estimated as 1 cu meter (Rankine 1883, 254). On the other hand, workers constructing modern stone walls in the United Kingdom are known to achieve a daily rate of 4 cu meters (Garner 1984, 4).

Several forts in the Eastern Desert exhibit signs of flood protection measures. A good example is the fort adjacent to the temple at al-Kanayis. It has massive stones set in the wadi outside the northeast perimeter of the fort. As the fort has no towers, these stones are unlikely to be meant as foundation for a tower. As these stones are on the upstream side near the thread of the wadi, a logical explanation is that they were a foundation for a barrier against flood flows but, as the part of the perimeter wall behind these foundation stones has been destroyed by water flow, the constructors were apparently unsuccessful in their attempts.

The other potentially catastrophic force in the Eastern Desert is earthquakes. Almost invariably, the stations were built on rocks or sand - but those built on sand are more susceptible to the occasional earthquake. We know earthquakes occur in the area, occasioned by a major fault line in the Red Sea (Drake & Girdler 1964). Records of earthquakes in and adjacent to the Eastern Desert exist since the pharaonic period (Meltzer 1985). Although major flood damage is readily apparent, earthquake damage is much more difficult to assess as the present evidence of wall collapse could have resulted from other natural factors.

There was destruction by human intervention. Numerous later huts, windbreaks, and fire circles attest to the removal of stone from the structures for reuse. In fact, it is highly likely that the stone we see in the Roman structures today actually derived at least in part from an earlier structure on the same site. An example is Abû Qreiya, the ancient Vetus Hydreuma, where stone from the west fort in the wadi bottom may have been cannibalized for the construction of the east fort.

Unfortunately, the primary threat to the forts today appears to be the numerous tourists and other visitors to these stations, who are inflicting both intentional and unintentional damage.

7. Conclusion

Surveys of the stations on the principal roads in the interior of the Eastern Desert show a standard construction approach, influenced by the physical factors of the desert environment. The most evident feature of these road stations is the stone perimeter walls; these perimeter walls are a masonry mass consisting of a rubble core between two roughly dressed stone faces.

Although the structures are not complex, they are efficiently constructed using the material at hand. One must appreciate the massive size of some of the structures and the large number of skilled and unskilled workers needed during construction. Although there may have been little variety in material and methods, the very permanence of the fortified structures still standing today are a testament to the ancient engineers and the skill of the craftsmen placing the rubble stone.

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LIFE ON THE FRINGE: SOME CONCLUSIONS*

Jean Bingen

For four days the Netherlands Institute has been – dare I say it – living on the fringe, the fringe of Roman Egypt, or rather, the fringe of the Roman Empire and the early Byzantine world. Such a fringe could just as easily have been a dialectical concept for historians or a vague contour on a map. We were asked to put concrete elements onto this fringe: people, animals, plants, pots, paintings, mummies and, last but not least, ever present in the slides: the desert, the Western and Eastern deserts of Egypt, the desert, the antithesis of life.

Our fringe mania has been rather selective. Our fringe is definitely a desert fringe and we had but few words for the permanent fringe problems of the empire in the Nile Valley: at the First Cataract or in Lower Nubia. However, for the people in antiquity living in these regions, the desert was truly much more of a daily concern than the fact that they were living on the fringe of an empire, although they could not escape many of the consequences of that historical situation. I would like to introduce here, as a counterpoint, a second fringe, the fringe of the cultivated area of the valley, the interface between water and a sterile landscape, between normality and danger, between good and evil.

The Egyptian fringe of the Roman Empire with its deserts should not be considered a homogeneous whole. In the East, the roads leading from Coptos to the desert harbours on the Red Sea, Myos Hormos and Berenike were designed for people sailing beyond the fringe or coming from abroad. Even the faunal and botanical remains and ceramological analyses in and around Berenike have yielded concrete evidence supporting such a historical approach for this particular pattern of roads, harbours and desert. On the other hand, still in the East, the quarry roads leading to Mons Porphyrites and to Mons Claudianus from Kainê are occasionally monstrous cul-de-sacs existing for their own sake. They sometimes demonstrate similar, but often quite different relations between men, the valley and the desert as it exists along the Red Sea. Finally, to the west of the Nile in Upper Egypt the desert stretches wide around the oases, each of which has its own typical economy and a permanent population which stubbornly maintained links with traditional Egyptian culture and followed the administrative rulings of Imperial Egypt.

How did people perceive the scale of the desert? The problem of space is the most conspicuous element in all attempts to brave the dangers of the desert. Should our approach as historians to the Egyptian desert fringe of the empire be the same?

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* (Editor's note:) This lecture was written and delivered at special request, as a concluding overview of the topics raised during the colloquium.

We, as first impressions could imply, should not so much study the idea of immeasurable space as the interaction of man with the desert and his control of certain techniques, such as rather sophisticated caravanning or an ability to find local supplies of water in a desert environment, and also – less positively – man's control over the psychological barriers inhibiting ordinary people who face the evils of the desert.

I will begin by caricaturing the abstract way that desert problems were sometimes treated not so very long ago, as if they were a patchwork of colours on a map. Cairo, as everybody knows, lies on Latitude 30°3'N. If you feel the urge to contemplate the desert from its fringe, go to the most westerly limit of the city near the Giza pyramids. But do not then slavishly follow the 30°3'N parallel, because the next town or village you encounter will be Ghadames, near the Libyan border with Algeria, and the one after that will be Beni-Abbes and some hamlet, I forget the name, on the Atlantic Coast. However, except in the crazy world of modern tourist explorers – of whom I have been one – people never go into the desert for pleasure and certainly never just to wander gratuitously. If they were ever obliged to do so, it would be for a definite purpose, they would take the most convenient route in the right direction in order to find somebody or something not too far away. If nowadays in the immensity of the western Sahara you still meet people leading camels along the 30°3'N parallel, it is because certain peoples, such as the Tuaregs and their vassals, have long since mastered the problems of long-distance caravanning. However, it is more probable that you will meet some of the lorries that are gradually strangling the economy of the long-distance caravan. However, long-distance caravanning would be a rather anachronistic parameter for any approach to the problem of the desert in Upper Egypt. The "forty-days road" (*Darb el-Arbaʿîn*) which links Nubia to Middle Egypt through the Kharga Oasis, is probably only a medieval feature. Between the Western oases and the Nile people had to overcome only short stretches without a water supply at the stopping places. The long route between Coptos and Berenike, when properly functioning with its fortified cisterns, has nothing in common with the slow desperate progress through empty horizons of the caravans we meet with in the Tenere, where distances are just under what would kill the camel or his driver. The latter situation, moreover, has nothing in common with Upper Egypt where the deserts are on a relatively human scale when seen, for instance, from the Tanezrouft. Nevertheless, for the good people of Egypt these deserts were not small-scale at all, principally because these people were normal people.

Let us stay in Upper Egypt for a while longer and repeat the same rather ridiculous exercise I attempted for the pyramids. Luxor, as you also know, lies on a latitude of 25°41'N. It is by mere chance that 200 km westward on the same parallel you cross the northern part of the Oasis of Kharga, and after that the whole

length of the Oasis of Dakhleh. Do not drive your camel further west. There is not so much as another hamlet on the 25°41'N parallel, even on the Atlantic coast. This is not an accident. The accident is meeting people at Luxor or Kharga or Dakhleh. In the mid-Sahara, which extends from the Sahrawi Coast to the Gulf of Arabia, you find three geographical anomalies, each more or less oriented from south to north. They are the Kharga Oasis depression, the Nile Valley, and the Red Sea with its coastal mountain ridges. Without these anomalies there would not have been any life on the fringe, and this seminar would not have taken place. I must add immediately that many other important things happened over a period of many thousands of years. For our present topic what is important is that nowhere else did the Roman Empire extend so far to the south or so far away from Rome.

At this conference we have been comparing experiences acquired from the numerous excavations and surveys that have been conducted over the last fifteen years in two of these geographical anomalies, in the Western and Eastern deserts of Upper Egypt. Most of these desert sites date from the Roman and early Byzantine period. Our meeting gave us the chance to place the artefacts and the written documents into the geographical context in which they were found, and also to evaluate the cultural, anthropological, and historical links between the settlements of the desert on the one hand and the valley or the Roman Empire on the other. The papers we have heard reveal a lot on this level, even down to a Roman snail in Berenike, and, more generally, a lot about the interactions between the desert conditions and people living or passing through such areas for various reasons.

A simple - certainly too simple - approach to the problem of the interactions would be to divide the human presence in both our deserts into three types or models: the people that live permanently in the desert, those who dwell there for a limited period, and those who are merely passing through. Using such distinctions for the two deserts of Upper Egypt would be completely artificial.

I would like to emphasize that despite their theoretical Middle Saharan common location, the identical archaeological methods used, and the similarity of many of the artefacts we find East and West of the Nile Valley, there is no structural unity between these two deserts. This is perhaps a contradiction of one of the mottos of this seminar, the stress on unity, something that is perhaps true on an archaeological level but not on an anthropological or a historical level.

Every study of the Western desert of Upper Egypt is essentially based on the typical economies of some of the larger oases, each of them a constellation of green spots. Any study of the Eastern Desert proves to be very different. On a Saharan scale, the Eastern Desert is nothing but a narrow stretch between the Nile and the sea. With the exception of the harbours on the Red Sea desert coast, human activities were usually temporary and were developed for one reason or another by people coming from the Nile Valley. They could be soldiers, foreign traders or representa-

tives of the imperial authorities in Alexandria, Rome or Constantinople. To the west of the Nile, the oases are naturally suited to hosting human settlement on a permanent basis, to the east of the Nile any desert settlement is a purely artificial enterprise. In the west the natural conditions focus our interest in the oases on the extent to which an intrusion from the valley changed the standards of life. In the east, the interest lies in the incentives which created the artificial conditions of life.

At first sight we would assume both sides, that is the inhabitants of the Eastern Desert and the oases, to have had a common perspective towards the way Egypt was perceived as another country. From both sides, Roman and early Byzantine documents refer to the Nile Valley with the same word: *Aiguptos*. People would leave the oases for *Aiguptos*. In Mons Claudianus, every soldier dreamt of being sent back to *Aiguptos* as soon as possible. In fact, on both sides *Aiguptos* is a reference to the same distant space, the green valley, but the relative value it implies for the *oasitai* and for the people artificially concentrated in Mons Claudianus had a totally different connotation. The Eastern desert was an empty dry possession of the emperor. Seen from there, *Aiguptos* was something people were lacking and it meant a world of vegetation, water in the ditches, a feeling of solidarity around the family home or in the overheated barracks of Coptos, Thebes or Syene with all the distractions inside and outside such barracks. Conversely, for the *oasitai*, *Aiguptos* was just another part of Egypt ruled by the same emperor, the same prefect of Egypt. After all, the Great Oasis, called the Oasis of the Thebaid, was an Egyptian nome ruled just like the nomes in the valley. Further to the north, the Small Oasis was even an integrated part of an epistrategy and it was associated with some of the nomes in the valley.

This integration into the culture of the valley appears in other areas too. Since the pharaonic period, the religion of the oases had been Egyptian and many Egyptian gods are represented on the walls of the temples and tombs in the oases. Amon-Ra was worshipped as the principal deity in the most important temple of the Kharga Oasis, in its metropolis Hibis, and a great number of purely Egyptian divinities are associated with his cult. Olaf Kaper presented remarkable evidence on the development of the traditional cults in the oases in the first century in an original pattern including associations with the emperors. The mummy cartonnages from Dush shown by Françoise Dunand are a humble but typical catalogue of Egyptian religious motives. Social and economic ties with the valley were numerous and seem to have been easier than we would imagine. We have heard of an *oasites* selling property he owned in the valley to another *oasites*. The desert was no obstacle to *oasitai* wishing to sell or buy animals or wares in the markets along the Nile. The progress of irrigation technology in Egypt had its consequences for the oases and may account for a growing agricultural production. If we neglect local peculiarities, the standard element in the onomastics of every region in Egypt, the private names are mainly

Egyptian. Even the Greek names, if used, show that the pattern of onomastics in the oases was no different from the one in Egypt.

However, because they were living in an ecosystem quite different from that of Egypt, the *oasitai* developed the sedentary economy you find in many Saharan oases, one based on a rigorous use of the numerous permanent wells and a rational partition of the soil. The perennial agricultural rhythm of these people isolated in the middle of the desert was of course different from the one imposed by the annual flood in Egypt. The evidence presented by Pascale Ballet of abundant local ceramics proves that the economy developed the local possibilities, where available. In this case, making pots was a necessity when you consider the burden it would have been to transport the necessary numbers of pots and amphorae across the desert. We should note that the Eastern Desert never had such a possibility and depended entirely on the valley and abroad for imports of ceramics and amphorae.

The *oasitai* seem to have learned rather quickly that they were now living on the fringe of a huge Roman Empire with its cumbersome administrative and military machinery. There were certainly a lot of permanent factors: people were using water as it should be used, they discarded pot and amphorae shards everywhere and, as our palaeo-anthropologists have demonstrated, they died peacefully after living short or long lives. The new element was Rome, or more exactly the Romans, their officials, and they were greedy visitors. In 68 CE the priests of the principal temple of Kharga at Hibis took a rather expensive decision. As they had already done for two earlier edicts of the prefects of Egypt, they had the famous edict of the Jewish prefect Tib. Julius Alexander copied onto the gateway of the temple. They of course had an ulterior motive for this. The prefectural edicts contained rules punishing extortion by officials travelling from one place to another with their suites, and the exaction of illegal taxes for the official's own profit. The priests put these rules on their gateways in a desperate attempt to escape these nuisances. If extortion or exaction threatened, did they really think that it would be enough to call the attention of the greedy official to the prefectural interdictions? Illegal taxes and exaggerated travel and sojourning costs were much too advantageous for the officials to abandon because of some Greek words on an Egyptian pylon. In his edict of 49 CE, the prefect Vergilius Capito admitted that the people of the Western Desert, the Land of the Libyans as he calls it, suffered more than others from these extortions and exactions because they lived on the fringes of an empire.

A later facet of the Roman Imperial Peace meant people were sent there on purpose, because it was now definitely the fringe: a place of exile. They were sent to the oases because Kharga, seen from Rome or even Alexandria, was the end of the world. If asked, the *oasitai* would perhaps have considered this a rather subjective view, but exiles still arrived. Some of them were probably responsible for the rather early Christianization of at least part of the *oasitai*, and not necessarily the

humblest ones. If Guy Wagner is right, the oldest known Christian member of the bourgeoisie ruling the towns of Egypt is a certain Geminius, *amphodarch* "master of the borough", in Kysis (Dush) in 244/249. The man was prudent; we only know of his Christian convictions because he used what seems to have been a secret password: ἐν εἰρήνῃ, "in peace". Manichaeism is another cultural intrusion dating from the late Roman presence in the oases, as is now well attested in Kellis, Dakhleh. The way it was brought is not clear. The army, as we shall see below, was another vehicle of new cultural trends, even on the fringe.

In the Eastern Desert during the Roman period there were two sorts of permanent dwellers. From recent research on the western coast of the Red Sea, we have learned a lot about the viability and limits of one category of permanent dwellers, i.e. the inhabitants of the Red Sea harbours, even though they were rather late in time and artificial in nature. For the moment, I do not think we can yet estimate what percentage of the harbour population was really permanent. However, the truly permanent inhabitants in the Eastern Desert were the peoples of the desert, the nomadic tribes, which were never clearly defined. The ostraca of Mons Claudianus call them *barbaroi*. Their guerrilla warfare, at least in the Roman period, formed a permanent threat to the safety of the routes and the quarries and mines, and even to the soldiers patrolling the desert or posted in isolated stations. The ostraca describe the extent of the fear the *barbaroi* inspired even in the soldiers. On one occasion, the latter were not only accused of abandoning their injured comrades to the *barbaroi* but also the civilians they were supposed to have been protecting. For nomadic tribes, the *razzia* is normal practice when strangers intrude into their desert, and they may even have considered it to be an aristocratic type of behaviour. However, in the documents the fear of the poor people who had to traverse or to stay in this terrible desert is perhaps a revealing indicator of the feelings they may have had when they were living on the fringe or, rather, beyond the fringes of ordinary life. But there were other, more pedestrian reasons which inspired that same distressing feeling of insecurity about the desert.

It is often said that in the past routes through the deserts and open seas were preferred, if available, for travel or for transporting wares, in order to avoid hostilities or the taxation dues of inhabited regions, or else just as a shortcut. In fact, this motivation has always been an epiphenomenon. A maritime empire such as that of Athens or a caravan realm such as Palmyra used sea or camel transport because they were obliged to adapt to their surroundings. These empires succeeded in adapting the economic counterpart of their new political power to its geographical environment. They made use of the technical superiority they had acquired with their ships and their camels. The Phoenicians and their routine mastering of deep sea navigation are an exception, because nobody ever took to the open sea for pleasure. Nor did anyone enter the desert without an imperative reason. The desert was a

place of peril, of diabolical dangers, and it was advisable to obtain the help of the god Pan to protect you.

Entering the Eastern Desert was the only way to reach a Red Sea harbour for people in the valley who had business there. We possess an amusing catalogue of people passing through the desert in a tax list dating from 90 CE (I.Portes 67). Coptos, near the Nile on the edge of the desert, was at the mouth of the tracks leading to Myos Hormos in the east and to Berenike in the southeast. This tariff list concerns goods and persons travelling to or coming from the Red Sea. It only mentions people and goods obliged to pay taxes for the benefit of the desert administration. The inscription lists as its first category of taxpayers the people concerned with sailing or shipbuilding, from the captain to the steward, the ordinary seaman, the carpenter, and the caulker. Taxes were also paid on the mast and the yards of the ship, valuable equipment that had to be brought to the bare coast of the Red Sea. A second category is constituted by women, the prostitutes first because they paid an enormous toll of 108 drachmas, followed by honourable ladies who hoped to embark on a sea journey, and then soldiers' wives. On the basis of several ostraca, Hélène Cuvigny has described the miserable fate of these prostitutes, dragged to whichever station would be the most lucrative for their masters. As a third category in the tollhouse tariff we find the mummies which were transported to or from the desert on their way to their last resting places. The tollhouse also sold permits to enter the desert to the men of a caravan, to women regardless of their level of fiscal respectability, for camels, donkeys, and carts transporting people. Soldiers posted to the desert didn't pay anything. The list is rather dry and conceals the lively, noisy, multicoloured groups having their first or their last contact with the valley at the Coptos desert station. A group of ostraca from Coptos adds another touch to that picture. They contain receipts drafted in Myos Hormos or Berenike for the transport of all sorts of goods including wheat and wine. These are rather pedestrian commercial activities on desert tracks we imagine were chock-a-block with Oriental rarities and perfumes. The long lines of donkeys which set out from Coptos on a journey through the desert to transport food to the people in the harbours functioned rather like today's pipelines bringing water along the Red Sea coast. Life on the fringe starts with bread and wine and the conditions of survival they make possible.

The tracks passing through the Eastern Desert took shape under the first Ptolemies. Alexander the Great's expedition revealed to the Greeks the value of war elephants and a new sea route to India had been discovered via Babylonia. However, the Gulf and the access to Indian elephants were in the hands of the Seleucides. Sydney Aufrère has shown that the Ptolemies developed old pharaonic traditions of mastering desert conditions in search of precious metals or stones under the protection of the god Min. An opening along the eastern shores of Africa and Arabia was a possible alternative. As far as we can follow their policy through the foundation of

cities with Ptolemaic eponyms, they first tried the route from the Gulf of Suez. This was the wrong choice due to the unfavourable wind conditions in the northern part of the Red Sea. They could only avoid the winds by going through the Eastern Desert. They first chose a relatively short route from the Nile near Edfu to Marsa ᶜAlam and Berenike, partly perhaps to make the way shorter for the elephants that were captured and brought up from East Africa. Eventually, two other tracks would serve most of the traffic between the Nile and the sea. The southern one, the desert road from Coptos to Berenike, seems to have been the favoured one in the Ptolemaic and early Roman periods. It was a longer track through the desert but an easier way to Coptos, which avoided part of the navigation on the Nile. It involved the organization of a long track with a series of wells, as well as an understanding of the conditions of sea travel, which lay at the root of founding such a track. This first led to the discovery of the navigation conditions along the African coast, and later of the changing wind directions and sea currents in the Indian Ocean.

The most illustrative feature of the renewal of trade on the Berenike track in the early years of the Roman Empire has recently had new light thrown on it by De Romanis. For a long time, the *Italici*, Italians living south of Rome, were the pioneers of long-distance trade in Greece and the Mediterranean East, and as such they were the forerunners of the Roman conquest. It is no accident that we find these Italians and their agents leaving their names roughly chiselled on rocks along the track as soon as the Romans had consolidated their seizure of Egypt. Once again *Italici* were heading for the fringes of the Roman world to sail further or to meet traders from abroad. In this context, the most valuable gain for the historian is provided by the archaeologists of Berenike, and especially by the botanists and zoologists who provide evidence that there was local food production as well as food imported from abroad. This evidence has destroyed one of the arguments concerning the non-viability of these Red Sea settlements, i.e. that they could not survive without huge imports from the Nile Valley.

The recent IFAO excavations and survey of the Coptos-Myos Hormos route have shed new light on the life on this military and commercial road, as we have heard from Hélène Cuvigny. Different types of populations were interacting along the track. First, a chain of fortified wells and cisterns with their garrisons served as bases for the cavalry or *dromedarii* patrolling along the road and in the neighbouring desert. Other people were linked to the caravans trading between the Nile and the sea. A third, rather indefinite category was present for different reasons somewhere between the valley and the coast. As always in the desert, encounters were occasions for social communication. For instance, resident people would ask travellers for news from the valley or the coast, or to take with them a letter or a cloth, a piece of fish, or some vegetables.

The epigraphic survey of the track and the ostraca adds new colour to the traffic to and from Myos Hormos by demonstrating the presence of numerous Orientals from Syria and elsewhere. It shows that a steady flow of traffic between Myos Hormos and the Arabian Coast opposite was certainly possible. The third century CE saw an important permanent colony of Palmyrene businessmen in Coptos, which can now be explained by the existence of a caravan route from Palmyra to the Arabian Coast opposite Myos Hormos. This is just one more indication that the concept of the "fringe" does not mean impermeability.

The two important tracks from Qenâ, to Mons Porphyrites and Mons Claudianus respectively, and to some related quarry or mining sites such as Tiberiane, illustrate a quite different sort of desert road. As mentioned before, the Myos Hormos and Berenike roads made it possible for inhabitants of the Roman Empire and for strangers to go beyond the fringes of the empire. The two quarry tracks were created to send large groups of human beings, animals, and machinery deep into the desert to extract valuable stones for the emperor. Due to the same desert conditions, an identical road organization was adopted, consisting of a chain of stations with fortified cisterns or wells, the only additional difference being that the road-makers had to find or create a long smooth slope to bring the stones along the wadis to the Nile. As on the two Red Sea roads, a heavy burden was placed on the military for the maintenance and protection of the tracks and of the cisterns, and for the building of military stations. But there the comparison ends. I have already mentioned that the problem of the tracks in the Eastern Desert was not so much the distance as rather the volume of people using them.

In the texts found at Mons Claudianus there is ample evidence that regarding this major quarry station as being on the fringe of the empire was an intellectual perversity of Roman rule. The first real fringe was a man leaving his family for a long trip and an extended stay in the wadis; the second fringe, at least for the people at the lower end of the scale, was often the time between their last pint of water or piece of bread and perishing, the limits of what they could endure, the fringe of security, to use the word which, as we will see, made two Roman officers nervous.

We have heard at the conference how in 18 CE one Cominius Leugas, probably a Gallic freeman or a peregrine attached to the powerful family of the Cominii, not only discovered porphyry in Mons Porphyrites but also black porphyry and a mysterious yellow stone, not to mention granite which was not usually found there. It is not necessary for us here to discover how Leugas got there nor how his group organized its survey of the mountainous desert. What we do know is that in the first century CE, prospecting for stones was extended to a much larger area of the Eastern Desert, including Mons Claudianus. Valerie Maxfield has shown us the landscape of Gebel Dokhan. The conditions of access, life and work were so hard that in the black porphyry quarry and its rock temple to the god Pan, the team

discovered that they were the first to visit the area since the Romans abandoned the place. We have admired the acrobatic slipways between the quarries and the wadi, and the long erratic road from the wadi to the last loading ramp, and the ensuing long smooth track to the Nile, 160 km to the southeast.

Mons Claudianus, as I have said, was one of those new Roman settlements organized deep in the desert. It is probably, at least for the time being, the most illustrative instance of a large fort linked to a quarry complex. When we realize that at its production peak there were at least a thousand people concentrated in this area, we can understand why the water supply was a problem for everybody, from the highest command levels down to the poor guy isolated in an outside post with a rotten waterskin. O.Claud. I 2 is a letter in good classical Latin from a field officer on his way back to the Nile. It was sent to another officer who stayed behind in Mons Claudianus. He wrote on the way that he found that a newly-dug well deep in the wadi was producing an abundance of water. He adds that this discovery will inspire him with a feeling of "not a small amount of safety", *non minimam securitatem*. *Securitas* is the keyword when living or working on the fringe. In such an enterprise the balance between the people who are actually producing and those whose task it is to transport water and food, or to patrol the tracks and man the stations, is a matter of efficient management, because unproductive people (soldiers, camel drivers, stewards, the wives and children of the VIPs, allowed to join them in the desert) also require a lot of food and water. The production process itself, in the quarries, especially the vital metallurgy, also requires a lot of water. What a nightmare it must have been for hundreds of men and animals to fear that one day news would come that the wells had dried up and no water caravan was due.

In the first century CE, probably during the reign of the emperor Claudius, a first rather small settlement was set up near some quarries at Mons Claudianus. In the late first century, the main activity of the quarry field was transferred more to the east, to the Wâdi Umm Hussein on the south side of an impressive granodiorite massif. The real development of the new settlement began in the reign of Trajan. An initial village was occupied then and the work involved the construction of a big fortified station. This first village later fell into disuse; at the last stage of the site's history, it was levelled and replaced by a granary and an enclosure for draught animals with the characteristic lateral and central benches used to protect the saddlery to be trapped by the donkeys and the camels.

When in full activity under Trajan and Antoninus, the big station was not only the centre of a first-class network of quarries, but also the military centre for several satellite stations, and it was responsible for the security of the Claudianon road. Last but not least, it took care of the delivery of the giant columns, huge granite baths, decorative basins, and other such whims of the god-emperor. It was useful for this purpose to keep the men and animals engaged in this work in good shape, exhausted

perhaps, but still alive. Such was the inhumane settlement created on the fringes of the empire, and also on the fringes of economic rationality and human endurance.

There were two main groups of workmen, the civilians or *paganoi* and the members of the imperial *familia*. Hélène Cuvigny has introduced the impressive list of *paganoi* and *familia* showing their water allowances; the *familia* received half of the *paganoi*'s rations. There were surely many individuals associated in one way or another with these groups. When facing the conditions of life in the desert: thirst, hunger, cold, injury, sickness, death, people were not equal, but many were less equal than others. The ostraca sometimes allude to desperate situations. We must not forget that the most destitute dwellers in Mons Claudianus would not have been able to write complaints on an ostracon, nor have had the support of more fortunate people. When the activities at Mons Claudianus were transferred to the Wâdi Umm Hussein, the first thing undertaken was the digging of a well deep in the wadi, now a huge excavation half-filled with sand. Close to this well we have found more than a hundred water tickets dating from a period of eight days. Each ticket was worth one waterskin filled with water, for the use of quite a large team. One waterskin a day was granted to the temple, another to the *xenia*, the guesthouse; the piglets, refined food and good protein for the senior officers, had one ticket a day. We do not know what exactly the rules for access to the water were. We can only hope that there were not too many people treated less well than the piglets. However, water was surely supplied from other wells in the neighbourhood as well. This is illustrated by a later organization called in our ostraca the *hydrophoria*. The military command put a variable quota of camels (between 72 and 89 for the weeks concerned in our documentation) at the disposal of a *decanus*. The *decanus* left some of the camels to graze and used the others, as necessary, to caravan to the wells, loading each camel with four waterskins. If necessary, he also hired private camels, sometimes several. All this could amount to 20,000 litres a day, but not every day. The import from the peripheral wells was added to the flow of the local one. There were also periods when the system was not very efficient, especially in satellite forts where people depended on the goodwill and the honesty of the central organisation. Many ostraca testify to acute problems, for example when the local cistern ran dry and the people could not wait for the normal water delivery. One man writes "you don't believe me. Come here, and you will see what we need". A waterskin is not only the most sensible way to transport water, an amphora weighs more than three times its contents of water, but is also used to store water during those long days in the outposts before the arrival of fresh water. The ostraca teach us what a precious thing a single waterskin was on the fringe. In one particular case a waterskin went missing, and initial enquiries had no success. More had to be made, and the case even turned into a state affair. But waterskins in desert conditions suffer wear and tear, they mould and rot and lose their tightness and impermeability. Some men

complain that their water was provided in an old waterskin and they were forced to live on stinking unpotable water. Sometimes waterskins of fresh water arrived empty because they leaked.

It is interesting to note that these cries for urgent help basically appeal to the solidarity of the group or to the authorities' sense of humanity, we can only hope successfully. But help was not always easy to give. The transport of water in a waterskin was a strictly controlled matter, and often depended on a donkey or camel. It is amusing to find a rescue method in the desert unknown in the valley. It is the *soubalarin*, from the Latin word *subalare*, a tight rucksack which enables you to carry a few litres of water on your back along difficult trails. In one letter a man is angry. He wants to rescue his friend at an outpost who is short of water, but because of a mistake by the latter he has no *soubalarin* at his disposal. However he is generous and he promises to bring water in an amphora, an awkward, heavy solution but there was no other rucksack and they were living on the fringe.

I could have used many other necessities of life to illustrate how narrow the margin of safety, of *securitas* was. Several papers have shown how the basic food items (bread, wine, oil, lentils, dates, and onions) were brought in by a regular monthly caravan, at least for certain categories of workers. But even for them, the end of the month must have been difficult and many people had to ask a refundable advance on their wages or food allotment. Marijke van der Veen has traced many kinds of food that were available in Mons Claudianus in the ostraca and in the botanical samples. On the basis of this, we could imagine a mythical life of luxury, but only for the very few who could pay or who had links with the official transportation offices, the people of the caravan, or, more efficiently, the camel drivers bringing letters or wares from one station to the other for the high officers. Where there was abundant water some people were allowed to grow vegetables. With the help of a friendly camel driver they could even send some of these to Mons Claudianus, where other privileged people would exchange them for fish brought there from the sea. In fact, Mons Claudianus appears, in this and many other aspects, to be an abnormal extrapolation of the kind of life on the fringe as known along the trade routes to Myos Hormos and Berenike.

The first abnormality was, as I have mentioned, the concentration and isolation of so many people in one region, even if for a desert the place was not entirely deprived of water. A second abnormality was the insane disproportion between the aims of the enterprise, to obtain huge granite artefacts for the glory of the emperor, and the heavy logistics required by the quarrying, such as the maintenance of a long desert road with a chain of stations, permanent protection of the road and of the settlements, and, last but not least, the heavy engineering and manpower required for quarrying and transporting the granite megaliths. David Peacock has shown that it is primarily the exceptional difficulties of the enterprise that made the Mons Claudianus

stone a valuable symbol of prestige for the emperor, produced on the most remote fringe of the empire, and brought from there to the symbolic heart of an immense area of power. But realities can be stronger than the vanity of emperors. Attacks by the surrounding nomads multiplied the costs of protection and of the maintenance of too many non-productive men and animals involved in the quarrying and the transportation. After the reign of Antoninus the pressure from all sides on the Roman *Limes* mobilised the army for more urgent tasks. Half a century later Mons Claudianus would be deserted.

The extreme case of Mons Claudianus must not conceal the fact that the early Byzantine history of the other parts of the desert fringe also met with difficulties, decay, and abandonment. Mons Porphyrites survived until the sixth century, partly because its production was more adapted to the desert conditions of transport, situated at the end of a route which was perhaps less exposed to the attacks of nomads and, I would guess, was gradually transformed into a pilgrim route leading from Qenâ to Abu Sha'ar and Jerusalem, with perhaps new export possibilities for the porphyry. After that, the quarries were left to their solitude. The harbours of the east coast and their trading roads survived, but also suffered from the weakening of the central authority in Egypt and from the changes to the trading routes in the Near East in the early Middle Ages.

For a long time the Western Desert oases were protected by the immensity of the desert surrounding these patches of humble prosperity. Attacks from nomadic tribes from Libya affected the northern oases and the Fayûm, and even the Nile Valley in the third century; other tribes later disturbed the entire southern border of Egypt. From the third to the fifth centuries, the oases were attacked on a larger scale by nomadic tribes coming from the south, such as those called the *barbaroi* in an ostracon from Dush. These tribes, the Blemmyes, Nobades, and Mazikes, were adapted to guerrilla warfare deep in the desert. The attacks were destructive and no longer on the limited scale of the daily pressure exerted by the nomadic tribes in the east. The new insecurity explains why soldiers from units of the valley are more frequently mentioned in the written documents of Kharga. They do not seem to have changed many things in material life, as witnessed by the archaeological remains. Surely they must have been new active agents in the Christianization of the oases. But here too, the weakening of the central authority in Egypt let Dakhleh and Kharga slip into the normal routine of life in the Saharan oases, and it was not until the medieval economic incentive of the 40-day caravans that life was given for some days a year to a new trading route.

For several centuries, life in Outer Egypt had been life on the fringe. Life on the fringe is a strange mixture of determinism and human intrusion in the face of extreme geographical conditions. History is the steady renewal of human intrusion on the facts. In some cases, intrusion from outwards was a positive factor in the

Roman Eastern and Western Deserts. It improved agricultural conditions in the West, it even grew vegetables in the Eastern Desert, it organized routes, it decorated Rome with huge columns, and enriched powerful imperial slaves. It created harbours and new links between India and Europe. However, part of this gain was perishable and the whole phenomenon simultaneously generated suffering, sickness, death, prostitution, corruption, and a loss of cultural identity. When these regions were no longer part of the fringe of a well-organized empire, they reverted to their sleepy geographical and social determinism. Did the oases then become happier places? We shall never know the answer to that, the desert fell silent again until the fatal arrival of motorized tourism and, perhaps not so fatal, swarms of archaeologists.

Université Libre de Bruxelles

CLOSING SESSION DISCUSSIONS

chaired by Anthony J. Mills

recorded by Shinu Abraham, Jenny Cashman, Anne Haeckl, and Jos van Lent

Anthony Mills: I would like to call upon various collegues to comment upon aspects of "life on the fringe" in the Eastern and Western Deserts that have been mentioned or touched upon, but not discussed in depth during the conference. Although military matters have come up frequently, no one has addressed them directly. Could Valerie Maxfield comment?

Valerie Maxfield (University of Exeter): The army has indeed come up in various contexts, but especially in relation to the Eastern Desert due to the more "artificial" nature of the settlement there - imperially controlled mining operations, etc. - in comparison to the more "natural" mode of settlement in the oases of the Western Desert. The Roman army always had a "civilian" role as well as a military one, and it is the civilian role of the army that was paramount in the Eastern Desert. The detachments of soldiers were small - Hélène Cuvigny has talked about the Mons Claudianus water rationing ostracon that mentions 60 soldiers (interestingly, the exact number of soldiers in two cavalry troops) at Mons Claudianus on a single day.

The question of the proper terminology for the "forts" along the roads of the Eastern Desert has also come up. The exact term for them is *praesidia*, which means "garrisons", and refers to the men stationed there rather than the building in which they were stationed. These desert *praesidia* were not true forts and not strictly military in nature. Again, Hélène Cuvigny has made it clear that women were present there and that non-military activities occurred therein. The army was important in the commercial network in the area; it kept control, deflected raids, patrolled, and engaged in building activities. The early so-called *hydreumata* in the Eastern Desert were constructed by legionary detachments and auxiliaries. Patrolling cavalry detachments were seconded to garrisons, and possibly *dromedarii* as well, since there are mentions of *cohortes dromedarii*. These detachments accompanied the caravans to Myos Hormos and Berenike.

Adam Bülow-Jacobsen (University of Copenhagen): I am not sure the military used camel-riders on the Coptos-Myos Hormos road. In these texts, horses rather than camels are specifically mentioned. Moreover, the road stations were located at intervals that correspond to the distance horses can go without drinking water; i.e. two or three hours apart on horseback.

Hélène Cuvigny (CNRS): *Dromedarii* are only mentioned twice in the Mons Claudianus ostraca.

Bülow-Jacobsen: One wonders whether the *dromedarii* could have been civilian as well as military.

Willeke Wendrich (NIAASC): With regard to the unnamed stations mentioned by Adam Bülow-Jacobsen in his paper, I am reminded of the way people even today tell tales about their travels. They tend to notice only the places where they actually stop, and not the ones they bypass. Could the stations not named in the texts have been minor places rather than checkpoints?

Bülow-Jacobsen: Then why were they there?

Wendrich: Perhaps to control the hinterland rather than the road?

Bülow-Jacobsen: Our texts are letters, not travelers' tales. They were letters passed from station to station.

Wendrich: Was the size of the stations a factor?

Bülow-Jacobsen: No.

Wendrich: Maybe the stations were not all contemporary?

Bülow-Jacobsen: That's true. The ostraca cover short spans of time, periods of several years. We have no firm dates at el-Zarqâ, for example. It may be Severan.

Anthony Mills: We have also seen during the conference that the Roman period bleeds or blends into Christianity. Could Gawdat Gabra comment?

Gawdat Gabra: We do not have enough documents about the origin of Christianity in Egypt. The new evidence from the Dakhleh Oasis is therefore very important. Fourth century CE documents and churches like those discussed during the conference are not found in the Nile Valley. It is important to discuss in more detail the evidence for Christianity in the Western Desert. The next Coptic conference, now in the planning stages, should include a section on Christianity in the Eastern and Western Deserts. I think there must have been Christians in the Eastern Desert as well, especially around Coptos and in Berenike.

Mills: The papers in this conference on Christianity in Dakhleh makes the oases of the Western Desert seem much less like a fringe area than previously thought. The oases seem to have been more integrated into metropolitan Egypt. Is this true for the Eastern Desert as well?

Wendrich: We have no texts, and, after only three seasons at Berenike, I feel that we have still just scratched the surface. There was more late (sixth century CE) wealth at Berenike, and there was more contact with the Nile Valley than we expected prior to excavation. Nevertheless, Berenike still seems more a "fringe" site than the towns of the Western Desert.

Donald Bailey (British Museum): Is the fourth century CE abandonment of Kellis a common phenomenon in the Southern Oasis of the Western Desert?

Mills: No, Kellis was abandoned because of encroaching sand, which covered many buildings completely. Elsewhere in the oasis occupation continued after the fourth century. With regard to the oasis as a whole, we should perhaps speak of a decrease rather than a decline. Post-fourth-century occupation exists in the Dakhleh Oasis, but life becomes more difficult on the fringe. Even in modern times, villages in the oasis are still being abandoned because of sanding.

Colin Hope (Monash University): If there is a decline in Dakhleh, it occurs on a more general level in the seventh century CE, and is not connected with the unique case of the abandonment of Kellis to sand.

Adam Bülow-Jacobsen (question addressed to Willeke Wendrich): There is also the question of the process of desertification in the Eastern Desert. Are you familiar with the current Norwegian desertification project? I wouldn't have known about it if they hadn't stopped by our site last year. They are involved in pollen analysis, which suggests that the Eastern Desert was less of a desert in Roman times. They are thinking that the Romans denuded the area of trees, promoting the desertification of the region.

Wendrich: We have a specialist doing wood and charcoal analysis at Berenike, in addition to René Capper's work, in order to address the question of climate change in the region. There is a lot of surface slag at Berenike and evidence for the production of fired brick. This indicates the use of lots of wood, suggesting that there was more vegetation there in Roman times than today.

Marijke van der Veen (University of Leicester): I think we need to separate two issues here: (1) the problem of climate change; and (2) the question of human impact upon local vegetation. In the Eastern Desert, it is a question of human depletion of vegetation on a large scale, not a change in climate. When tree roots are removed, sand begins to move. Nineteenth-century travellers remark on the great stands of acacia trees in the Eastern Desert, while at Mons Claudianus we know that they imported charcoal.

René Cappers (University of Groningen): I think there was no change in climate between the Roman period and modern times. As far as Berenike is concerned, mangrove, tamarisk, acacia, and sea-blithe have been used for making charcoal. These species would have been available only in limited amounts. Theophrastus already mentioned that in his time, the only tree found in the Red Sea area was the acacia, which was scarce because of the warm climate and the lack of water.

Mills: Could Ursula Thanheiser comment on the situation in the Western Desert?

Ursula Thanheiser (University of Vienna): The Dakhleh Oasis had plenty of water. One could irrigate as much as one wanted, in gardens and fields. One problem might have been increasing soil salinity. The situation in the surrounding desert, however, is similar to that in the Eastern Desert.

Mills: Climate is obviously an important factor in desert travel. It makes a huge difference whether one has to carry water or not. I gather from the papers on the Eastern Desert that not much cultivation was possible in the Eastern Desert.

Bülow-Jacobsen: They could not grow enough fodder for animals along the routes in the Eastern Desert.

Wendrich: At Abu Sha'ar we found many bundles of Halfa grass. It was used for roofing, but the quanitities we found were greater than construction activity could account for. We speculate that the Halfa grass was possibly animal fodder.

Thanheiser: Halfa grass is also used to make baskets.

Wendrich: Yes, but we found too much to be just raw material for basketry.

Bülow-Jacobsen: Palm fiber was found at Mons Claudianus.

Wendrich: Palm fiber was used for rope-making.

Anthony Mills: With regard to comparative architecture, could Donald Bailey comment on whether the architecture of the Dakhleh and Kharga Oases is more or less similar to that of the Eastern Desert or the Nile Valley?

Bailey: The construction technique discussed at the conference by Zitterkopf (rubble-filled stone walls) is more or less typical throughout the Greek East in Roman times. It could be that it was just the easiest way to build walls; a simple idea. The lack of carved stone is the main difference with Nile Valley architecture. The temples of Mons Claudianus and Porphyrites are basically constructed of dry-stone walling. However, I do have a problem with the term "dry-stone" construction. Mud mortar may originally have been present but since melted away. I'm not sure that true dry-stone masonry ever actually existed. The architecture of the Western Desert used stone and mudbrick in traditional designs. What is the local stone there? Is it quarried?

Mills: It is mainly sandstone - of poor quality - and a little limestone.

Bailey: Are there any classical style temples in the oases, as is the case in the Nile Valley?

Olaf Kaper (NIAASC): Some examples of temples in mixed styles exist in Siwa, as was mentioned by Kuhlmann at the conference, and there are occasional classical architectural elements, such as columns, in Dakhleh.

Ron Zitterkopf (Kansas): The definition of dry-stone construction I used in my paper covered both true dry-stone walling and stone walling with mud. Bailey's point is well taken.

Mills: Architecture is the product of locally available materials, and in the Western Desert building materials are more like those of the Nile Valley than in the Eastern Desert. I was struck by the fact that the Eastern Desert employs rough stone rather than dressed stone as in the Nile Valley and the Western Desert.

Zitterkopf: Abu Sha'ar does have dressed masonry, but that site is on the coast.

Mills: Is it coral limestone?

Wendrich: It is local limestone.

Zitterkopf: There are some small limestone quarries in the area, but the limestone is of poor quality.

Mills: I would like to ask Helen Whitehouse for her conclusions. In art historical terms, are the oases fringe areas or not?

Helen Whitehouse (Ashmolean Museum): I have noted the extreme differences between the Eastern and Western desert settlements. The oases of the Western Desert were pleasant settled communities, while the Eastern Desert was militarily controlled for economic exploitation. The oases seem to be not so remote. In funerary practices, the Dakhleh Oasis seems to have clung to old traditions. In the Kellis temple, in the mammisi, there seem to have been two decorating teams at work; one adept at an up-to-date Roman style, and one working in traditional Egyptian style. I find the use of colour in the paintings in the Dakhleh Oasis striking; the artist's palette is unparalled elsewhere in the Roman world. I presume this is because of minerals available in the area, but I think it also reflects a local taste for colour.

Wendrich: Prior to this conference, I suspected that the oases would reflect an "island mentality" not unlike that which prevailed on the island where I grew up in Holland. Although we were all Dutch, on the island there was a definite feeling of "us against them" toward the mainlanders. There does not seem to be much evidence for such a mentality in the oases, except possibly for the reversal of imperial names and titles in Dakhleh cartouches that Olaf mentioned. Could this idiosyncracy reflect an "island mentality"?

Kaper: I do not think there was a strong island mentality. The religious beliefs reflected in the temples were the same as those of the Nile Valley. The inhabitants of the oases were fully aware of what was going on in the Nile Valley mainstream.

Colin Hope: People in the oasis spoke of "going to Egypt" when they went to the Nile Valley.

Adam Bülow-Jacobsen: The same was true in the Eastern Desert; people would "go to Egypt" and return.

Gawdat Gabra: No one has brought up the issue of tourism and I would like some discussion of this subject in view of the many years of rebuilding and conservation of antiquities carried out, for instance, by teams in the Dakhleh Oasis. Tourism seems to be a double-edged sword.

Mills: Tourism is a mixed blessing. The present form of tourism is very destructive of monuments and ancient landscapes. I wish wealthy countries would just send funds rather than tourists. However, it is the responsibility of the owner country to ensure that monuments are protected from the depredations of tourism. I can cite the example of Stonehenge as a model, where tourists can no longer enter the centre of the site. I don't know the whole answer, but I am glad to hear it voiced as a concern. Perhaps an international meeting could be organized to address this problem.

Gabra: One can protect monuments by banning tourists and by posting guards.

Mills: I think tourists should be kept away from mudbrick structures. If mudbrick architecture is exposed in excavation, it should be reburied.

Bülow-Jacobsen: This problem is also starting in the Eastern Desert at Mons Claudianus. When I was there in 1983, there was no tourism. The development of Hurghada as a resort changed everything; the tourist industry started funneling tourists to Mons Claudianus. Up to five buses of tourists a day would show up. We have tried to cooperate, but there is no central authority to deal with. Goodwill is not enough. And guards are not the solution in the Eastern Desert, because today people will not live there.

Lisa Giddy: I would like to return from this sensitive issue to the question of fringe areas in the Roman period. Looking at it from the pharaonic perspective, I have been struck by the distinction between geographical fringe and cultural fringe. And yet during certain periods of the Roman domination of Egypt, geographical fringe areas seem to have been culturally integrated with the Nile Valley. One can see a pattern in the way that the waxing and waning of the Nile Valley culture can be registered, indeed "read", in these fringe areas. This was also true for certain periods during pharaonic times and may even perhaps be discerned as far back as Neolithic times. What is interesting is how the Roman period in Egypt, in all its splendour, fits neatly into a very Egyptian pattern with respect to this issue.

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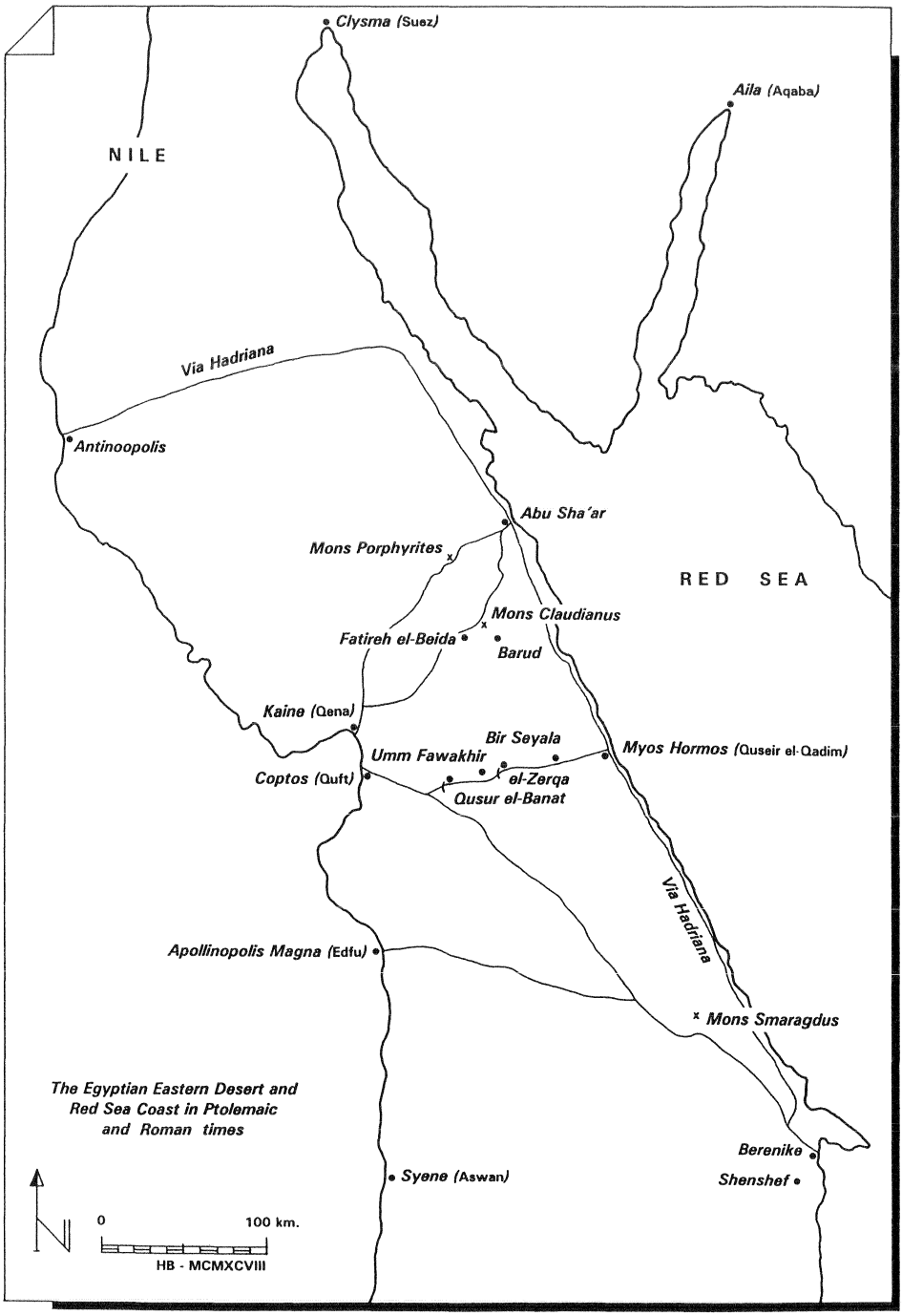
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Selected sites in the Eastern Desert mentioned in *Life on the Fringe* (map prepared by Hans Barnard).

c n w s

Life on the Fringe was the title of a colloquium held in Cairo in December 1996. The word "fringe" should primarily be taken in a geographical sense. It refers to the peripheral regions of Egypt, and specifically to the Eastern and Western Deserts. The seminar was convened by the egyptologist Olaf Kaper and the archaeologist Willeke Wendrich with the aim of bringing together for the first time the archaeologists working in the Egyptian deserts on the border of the Roman Empire. These regions are rich in archaeological remains which primarily date from Roman and early-Byzantine times. The ancient inhabitants of the Nile Valley had widely divergent reasons for making their way into the wilderness, and the modern approaches to understanding the ancient realities of life in the desert are equally widely varied. The contributors to these proceedings are distinguished specialists in the fields of botany, archaeology, ceramic studies, philology, architecture, egyptology, anthropology, art history, and religious studies. The multi-faceted approach to this recent branch of Roman archaeology is yielding exiting results: On a macro-level, new information is emerging on the organization of the Roman world in terms of international trade and transport, whereas on a private level, we learn about the difficulties encountered by the people travelling or settling in these barren regions, and the ingenuity with which they adapted their life to the arid environment. One of the results of the colloquium Life on the Fringe was that its title cannot automatically be applied to the settled communities "on the fringe" in its sociological meaning. Life in the desert did not necessarily imply a life on the margins of society.

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