MITTEILUNGEN
DES
DEUTSCHEN
ARCHÄOLOGISCHEN INSTITUTS
ABTEILUNG KAIRO

BAND 68

2012

DE GRUYTER
Mitteilungen des Deutschen Archäologischen Instituts Kairo

erscheint seit 1930

MDAIK 68, 2012 · V, 257 Seiten mit 211 Abbildungen


Herausgeber
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Umschlag: Foto DAI Kairo, Aufnahme: Ute Rummel

ISBN 978-3-11-034749-4
ISSN 0342-1279

Bibliografische Informationen der Deutschen Nationalbibliothek

Die Deutsche Nationalbibliothek verzeichnet diese Publikation in der Deutschen Nationalbibliografie; detaillierte bibliografische Daten sind im Internet über http://dnb.dnb.de abrufbar.

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Produktion: NEUNPLUS1 GmbH, Berlin
Gedruckt auf säurefreiem Papier
Printed in Germany
www.degruyter.com
On the Route to Siwa
A Late Roman Roadhouse at the Cistern Site Abar el-Kanayis on the Marmarica-Plateau

By Anna-Katharina Rieger, Heike Möller, Stephanie Valtin and Thomas Vetter (with contributions by Victoria Asensi, Ursula Thanheiser, Nadja Pöllath and Hans-Christoph Noeske)

1. The location

1.1 The Marmarica-Plateau between the Mediterranean coast and the Sahara

Anyone who moves between the Mediterranean coast and the Qattara Depression, where the Oasis of Siwa is situated, crosses the northern fringe of the Libyan Desert, called the Marmarica-Plateau. The term is taken from the ancient name of the region – Μαρμαρική – as given in the sources. The limestone plateau is plain, stony, and uniform, mainly a dry (full) desert. However, to the North, vivid harbour cities like Paraitonion (Marsa Matruh), Leuke Akte (Ras el-Hekma) and Ainesisphyra (Sidi Barrani) are situated on the Mediterranean coast. 300 km to the south, the Oasis of Siwa constitutes a center of exchange and production in the Northeastern Sahara (Fig. 1). To the west and east lie the fertile regions of the Nile Valley and the Green Mountain, the Gebel el-Akhdar in the Cyrenaica. Nevertheless, even in the semi-arid Marmarica, it was possible to cultivate crops on favourable spots in its northern parts, based on water harvesting systems.

Due to the economically significant regions and infrastructurally developed centres bordering the plateau it is a territory transected by routes for the exchange of goods (Fig. 2). Water is an essential need on these routes through drylands and deserts – either for people or pack animals and livestock. For this purpose a dense net of cisterns, most of them dating back to antiquity, is spread over the Marmarica-Plateau.

The artefacts – mainly pottery – range generally from Graeco-Roman age to recent times at all of the 18 surveyed cistern sites, while nine of them, particularly those further south, were equipped with buildings for shelter and rest for passers-by in the Marmarica-Plateau’s harsh environment (Fig. 2). As revealed by the closer study of one of the cistern sites, all these buildings can be assumed to date back to ancient times: Abar el-Kanayis, the ‘church cisterns’ almost 50 km south of the Mediterranean coast, is one of the continually frequented cistern sites on the Marmarica-Plateau showing not only water supply installations but solid building structures (Fig. 3, 4). Since it is situated on the route to Siwa (Masrab Istabl) that is still in use today, the site was chosen to be examined as an example of the ecological conditions, functional features, chronological range of use, exchange of goods and characterisation of people who frequented cistern sites.

(A.-K. R.)
1.2 The depression of Abar el-Kanayis – its geographical, ecological and hydrological situation

The site of Abar el-Kanayis lies on the Northern Marmarica-Plateau (Fig. 2) to the west of the modern road to Siwa that follows an old trail called Masrab Istabl. A pass between two mesas of the qaret (hills) el-Kanayis was presumably used as a landmark by travelers on the 300-km-journey to Siwa (Fig. 3). A natural depression of approximately 1 km² size is situated southwest of the pass.

The Northern Marmarica-Plateau, where the depression of Abar el-Kanayis is to be found, belongs, from an ecological point of view, to a desert environment, however less extreme than on the Central Marmarica-Plateau, beginning at 90 km coastal distance or the hyper-arid extreme desert, south of 150 km coastal distance. The geological underground of the Marmarica-Plateau consists of limestone, dolomite and marls. Both sand and loess are rare here, not enough to form considerable deposits as dunes. On the Northern Marmarica-Plateau – a zone of less extreme aridity with a natural, predominantly scattered vegetation cover – the relief is characterised by a cuesta plain. The altitudes on the plateau range between 200 and 250 m a.s.l., while mesas and intermittent plains or depressions dominate the topography. In the Arabic terms, relief units and prominent relief features are denoted as continent, hill (qaret), spur (minqar), grazing ground (hatiya), camp (ghot) and depression (deir or ghot).

Vegetation cover, cistern density and rainfall records are indirect evidence that rainfalls and overland flow are common on the Northern Marmarica-Plateau, receiving winterly rainfalls between 80 (north) and 45 mm (south). Overland flow plays an important role for vegetation distribution, sediment relocation from higher locations into depressions, and coherent water drainage patterns. Depressions serve as sinks for overland flow, adding a surplus of water and accumulating colluvial material that serves as water storage (Fig. 3, 5a). The ecological conditions in depressions thus may be more favourable than zonal agro-meteorological parameters indicate.

For the ecological zoning see Th. VETTER ET AL., Routes, generally adopting the view of K. STAHR ET AL., Veränderung von Böden und Vegetation am Übergang von Halbwüste zur Vollwüste zwischen Mittelmeer und Qattara Depression in Ägypten, in: Geoökodynamik 6, 1985, pp. 99–120, where the boundary between semi-desert and (full) desert is marked by the 50 mm isohyet. Th. VETTER ET AL., Routes introduces transition zones based on field observations (see here in Fig. 2); see also Th. VETTER, Zum rezenten Niederschlags-
Compared to the rocky, stony bedrock outcrops, the depressions may indeed appear as *hatiyet*, as grazing grounds, where camel breeding remains feasible (Fig. 5b). Due to the calcareous bedrock, wells or springs tapping groundwater are rare on the plateau, with springs becoming somewhat more frequent on the descent to the Qattara Depression, which is the other side of the karstic underground drainage of the plateau. Shallow leptosols dominate, while in depressions such as Abar el-Kanayis, calcisols may occur due to colluvial import from the catchment areas. Bedrock outcrops constitute a significant fraction of the land surface (Fig. 5a).

Although soils in depressions may show an increase in exchangeable sodium and electric conductivity, plenty of depressions accommodate a denser vegetation cover than is typical for the general ecological conditions. The good underground drainage...
certainly plays an important role in leaching soluble salts. Even though sand is generally rare on the plateau, some patches occur in the Abar el-Kanayis depression and enhance the conditions for drought-tolerant shrub vegetation (Fig. 5). *Acacia* trees, shrubs of species like *Artemisia inculta* and *Atriplex halimus* are today’s endemic plants in the area. Remains of a *Chenopodiaceae* type to which *Atriplex* belongs were scattered in the context of the ancient burials (AKA 70). A spine of an *Acacia* type from an archaeo-

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Fig. 4  Map of the site of Abar el-Kanayis (drawing A.-K. RIEGER/S. VALTIN/B. EMME)
logical stratum dated to Late Roman times reflects that most probably the natural flora at the desert margin was the same in antiquity as it is today\textsuperscript{10}. \textit{Sal­sola}, a shrub belonging to the family of Amaran­thaceae, was also found in that chronological context as well as in the sand layers after the abandonment of the building.

Because of the favourable runoff conditions in the depression, two cisterns were laid out in former times, as testified by the Graeco-Roman pottery frag­

\textsuperscript{10} For the phases see Tab. 1. It remains unclear whether \textit{Acacia} trees grew directly in the depression or the wood was brought from another area onto the Plateau to serve as fuel.
ments (Fig. 3, 4, 8a). The surface runoff flows to the north, even though the surface gradient does not exceed 0.2%. Assuming a size of the cisterns’ catchment area of 1 km² and a harvest of 1 mm of rain, which is a very conservative estimate, the rainwater harvest would amount to 1,000 m³. This volume clearly exceeds the cisterns’ storage volumes of approximately 370 m³. However, it has to be considered that the effectively contributing part of the depression may be smaller, the runoff coefficient may be much greater and, most importantly, there is a high interseasonal rainfall variability.

(Th. V./U. Th./V. A.)

2. The site

2.1 Remains and finds at Abar el-Kanayis

The site itself consists of various parts and features belonging to different time periods: There are the cisterns, their spoil heaps, manholes and bunds as well as two heaps covering building structures, situated to the northeast of the cisterns (Fig. 4, 6a, b). Additionally one can see Bedouin graves and remains of campsites, fireplaces, and shelter footings (Fig. 7a–c) scattered in the depression, associated with fragmented pottery (Fig. 8a). The most recent occupation of the site, leaving remarkable remains, took place in WW II, when a camp of British Commonwealth troops was installed on the eastern side of the track to Siwa, where a butte forms a mark in the landscape (Fig. 7d). Littered cans, bullet casings and other small metal fragments give evidence of the site’s utilisation by the military also on the western side of the track, where the cisterns lie (Fig. 8b).

The oldest find in the depression of Abar el-Kanayis is a bifacial, long tanged arrowhead made from a beige platesilex (Fig. 8c). The material differs remarkably from the reddish silex material available at the site, particularly on the qaret to the north of the depression. The preliminary assessment of the surface find alongside photographs was conducted by K. KINDERMANN and H. RIEMER (Cologne), who see a resemblance with pieces from the Western Desert of the Middle and Late Holocene, at the earliest from the 6th/5th millennium BCE, and with pieces from the Oases in the Western Desert produced up to the 5th millennium BCE. The serrated edges, however, are characteristic of later, i.e. Negade or Predynastic, arrowheads from the Nile Valley. If no comparable finds can be added, it will remain open for discussion.

10 For the phases see Tab. 1. It remains unclear whether the presence of soldiers.
11 We thank K. KINDERMANN and H. RIEMER (Forschungsstelle Afrika) for the assessment of the arrow head.
The wheel-made pieces are not diagnostic and the hand-made fragments belong to a thick-walled Northern Libyan Desert Ware (see A.-K. Rieger/H. Möller, Northern Libyan Desert Ware – News on Shell Tempered and Other Hand Made Pottery from Eastern Marmarica, in: LibSt 43, 2012, pp. 11–31, hereafter A.-K. Rieger/H. Möller, Northern Libyan Desert Ware).

Whether the arrowhead as a surface find could be considered a marker for human activity at Abar el-Kanays during these early times.

There are some more signs of human presence mainly to the south of the depression, for example u- and crescent-shaped stone settings that may have served as tent or shelter footings or simply markings (Fig. 7a). Unfortunately they do not offer any features that could indicate their precise function or chronology. Intentionally accumulated stone heaps are sometimes associated with a small amount of sherds (Fig. 7b). They may have been fireplaces, since some of the stone cobbles show signs of firing, but they show neither typologically recognisable forms nor
chronologically diagnostic characteristics. For one campsite (Fig. 7c) people used the stones from the buildings, indicating a terminus post quem after their abandonment in the 6th century CE. The scattered surface finds consist mainly of pottery sherds dating to Graeco-Roman times, with a clear peak in Late Roman times (Fig. 8a–c).

Apart from the installations for water supply (cisterns and collection bunds), there are also solid structures at Abar el-Kanayis erected to the northeast of the cisterns, thus not facing the water, when coming from southern directions (Fig. 3, 4, 6a). The walls of the buildings are partly destroyed and still visible under a layer of drifted sands (Fig. 6b), partly ruined with some ashlars scattered around or used for recent camp sites (cf. Fig. 7c) or as cover for Bedouin graves.

In the northwestern building, more detailed examinations were undertaken since it is less covered by drifted sands than the southeastern building. Due to the excavation we were able to evaluate the chronology and layout of the northwestern building; the southeastern untouched tell, however, seems to be very similar according to the dimensions, layout and material.

2.2 The northwestern building at Abar el-Kanayis – construction technique and layout

The general layout of the building is still roughly recognisable on the surface: A large courtyard of more than 600 m² is bordered by a row of rooms on its northern and southern sides (Fig. 4). On the northern side, a smaller courtyard completes the building. The northern part of the complex was investigated more closely by opening seven trenches (Fig. 9, trench 2, and 6 to 11).
Even though the amount of loam (as well as water and temper) needed for the walls is high, the depression of 1 km² with ca. 30 cm soil layer provides sufficiently the material.

Above that, mudbrick is used for the mural construction (walls 1, 10, 11, 61, 83, 95, 113; Fig. 11). A remarkable amount of straw and rachis of barley (*Hordeum vulgare*) was found to serve as tempering for the mudbricks (e.g. of wall 96, Fig. 13). Loamy soils and water were available on site in the depression; but the temper – barley straw – had to be brought to Abar el-Kanayis, a place on the desert fringe, where the sebkha soil and water conditions are not at all suitable for crop cultivation.

Two different base wall dimensions are recognisable: Smaller walls, used for the separation of single rooms (wall 10, 113), are quite constantly 1.0 m in width, while the thicker walls around the large and the small courtyard measure 1.2–1.3 m (61, 13). In the staircase on the northeastern wall of the rooms, the usual narrow width of 1.0 m is doubled to 1.9–2.0 m (wall 89, Fig. 9, 12c, 16a) – likely to carry a corridor in the upper part. The three different base wall dimensions correspond to four, five or eight lines of mudbricks in the rising construction, since the mudbricks measure 24 × 24 cm (Fig. 11b), which is slightly smaller than mudbricks found in settlements in Eastern Marmarica on the Northern Tableland. In some instances, courses of mudbricks are still preserved (up to four courses on wall 95, and four bricks side by side, on wall 10, Fig. 11a). The stone fundament is raised high

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15 Even though the amount of loam (as well as water and temper) needed for the walls is high, the depression of 1 km² with ca. 30 cm soil layer provides sufficiently the material.

enough to fulfill its purpose as protection of the loamy building material from the humidity of the underground and occasional splash waters.

In a later phase (see below, pp. 151–153) roughly cut blocks and rubbstones were used for secondary walls (12 and 64; Fig. 10a, 14a) that are rather negligently stacked. The stone-built parts of the later walls reach a maximum of 1.0 m in height; no traces of the rising parts are preserved, but presumably they were also made from mudbricks.

The walls form three rooms on the northern side of the courtyard in the primary layout of the entire complex — each of them covers 15 to 20 m² — and is likely to be mirrored on the southern side. The southeastern room opens to the outside through a large gateway (Fig. 9, 15a). This room may have been connected to the large courtyard by a presumed doorway in wall 61. A doorway to the building was found at its eastern part (Fig. 9). No inner doorways connect the rooms. Two doorways lead from the small court-

The long northern wall backing the rooms is adjoined by stairs leading to a second storey. Six steps are preserved, with complete slabs forming the steps, each reaching a height between 20 and 25 cm (Fig. 16a, b). A presumed seventh step led to the top of the wide stone base along the northwestern parts of the building (wall 89), that served as landing and/or corridor. The stairs were blocked by wall 107 in a later phase – we assume, that the second storey was not in use any more at this time (Fig. 16a). The stone foundations of this part of the northern wall have a width of 1.9–2.0 m and thus have the capacity to carry a second storey made accessible by the staircase (Fig. 12c, 16a). The debris of collapsed construction material reaches the highest extension in this part of the building, which corroborates the assumption of a second storey above the northwestern rooms of the building (Fig. 6b). Whether there had been a second staircase to the northwestern rooms of the upper floor leading up from the large courtyard, was not recognisable after a cleaning of wall 61.
A second courtyard is adjacent to the northern part of the building, surrounded by wall 13, which was made to the same high quality standard as walls 10 and 61 (Fig. 9, 12c). It is based directly on the natural bedrock. The courtyard itself is only filled with blown sands (Fig. 17a, b), corresponding to the stratigraphy in the large courtyard (Fig. 17c); the only artificial feature is the levelling layer, that represents the living floor (Fig. 17a), similar to the rooms defined by walls 10, 11, 61, 95 and 113. A floor in the literal sense of the word was not recognisable in the first phase of the building. The trenches in the courtyards yielded no finds. According to the masonry’s characteristics and the general layout we assume that this smaller court-

Fig. 12a Double-faced walls 61 and 113 (trench 10, view to southeast, photograph B. EMME)

Fig. 12b Wall foundation of four courses of ashlars based on the natural rock (trench 10, photograph S. VALTIN)

Fig. 12c View on wall 89, the secondary courtyard (wall 13) with the corner room showing the different wall dimensions (northwestern part of the excavated area, photograph S. VALTIN)

Fig. 13 Remains of barley (Hordeum vulgare) used as temper for mudbricks (Abar el-Kanayis, context 96, photograph A. THEISS)
The yard was built contemporaneously with the rooms and the large courtyard, although its surrounding wall was erected with a butt joint to walls 10 and 61.

In the northern corner of the smaller courtyard lies a single room separated by a stone wall and enclosing an area of 1.6 × 1.4 m with an entrance (0.6 m wide) in the southeastern wall (Fig. 9, 12c, d). A mudbrick pedestal or bench is added to its northwestern wall 13 (0.5 m deep). Since the stone wall is erected with a butt joint to the courtyard’s wall 13, the room was an addition, but its chronological relation to the courtyard appears to be contemporaneous, since the leveling layer is the same as for wall 13. Based on the debris material, the mudbrick bench was inserted in a following step. The bricks differ in their dimensions from the ones of the walls described above (30 × 15 × 6 cm in the corner room in comparison to 24 × 24 × 5 cm for the walls of the main building), which may result from using different brick sizes for different purposes such as construction of a wall or a small bench.

(A.-K. R./S. V.)
3. The history of the northwestern building

3.1 The phases of construction and utilisation

The diagnostic artefacts at the site, either on the surface or in the stratified contexts, are mainly potsherds. Thus we can provide an archaeologically established chronology for the northwestern building; the southeastern, second building, being its twin, may have been in use at the same time.

Inside the northwestern building, a substantial layer of destruction debris (parts of collapsed walls, burnt mudbricks, ash and charcoal accumulations), recognisable all over the northern part of the building, divides the life span of the building in two stages (Fig. 14, 18a–c): After its erection and first phase of use, the later reuse of the building that is recognisable...
In a first step of stable constructions on the site, the outer walls 10 and 61 running from southeast to northwest as well as 83 and 113 running southwest to northeast were erected, since they are based directly on the bedrock (Fig. 12b, 14, 17). The shorter walls that separate the single rooms (11 and 95) were brought up in a second step of this construction phase, since more substantial levelling layers of compacted soil

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19 The phase of reuse will be considered in B. Grosskopf/ A.-K. Rieger/S. Valtin, Byzantine Burials at Abar el-Kanayis on the Marmarica-Plateau – A Trace of Anchorites in the Libyan Desert? (in preparation).
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20 The scattered ashlars of the second building to the southeast show signs of a strong fire, too.
The threat to the settled regions posed by the tribes of Mazikes or Mastitai are mentioned by Synesios, *Epistulae*, 57, 58, 129, 130 col. 1512; Synesios, *Catastasis I*, col. 1568 ss.; Iohannes Antiochenus, fr. 313; on Goniotai see the report POxy 46, 3292, l.12/13; POxy 33, 2681, l. 6, 9; *BGU* 3, p. 935; *Codex Iustinianus*, Edict 13, mentioning a *Limes Libycus* (cap. 18, 20) and special troops stationed there (cap. 18) as part of the conquest of North Africa; see also M. Brett/E. Fentress, *The Berbers*, Oxford 1996, pp. 50–119, esp. 70–80.

The reasons for the heavy fire and collapse of the building in Byzantine times remain unknown. It may have happened due to a fatal accident, but may also be correlated with raids by nomadic tribes of the Libyan Desert against both Cyrene and the Nile Valley as attested by sources from the 3rd to the 5th century CE, and lead – amongst other necessities – to the military reorganisation and protection measures taken in the region in the 6th century CE. Why the building at Abar el-Kanayis as a part of the route system on the Marmarica-Plateau was not restored to its former dimensions to serve its purpose as a station, may result from the political and social disturbances in the 6th and 7th century CE driven by Berber interest, Byzantine claims and Arab invaders. After the break in the 6th century CE at Abar el-Kanayis, the smaller, simpler walls allowed only for a reduced use of the complex. The destruction material was levelled, forming a layer of 40 to 50 cm in depth, for a new utilisation of the building, where the rooms’ layout was reshaped (Phase 2). The rough construction technique of the

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**Tab. 1** Phases of use in the northwestern building of Abar el-Kanayis (table A.-K. RIEGER/H. MÖLLER)

<table>
<thead>
<tr>
<th>Time</th>
<th>Phase</th>
<th>Use/event</th>
</tr>
</thead>
<tbody>
<tr>
<td>3rd to 5th/6th century CE</td>
<td>Phase 1</td>
<td>Construction (walls 10, 11, 13, 61, 83, 89, 95) and use of the building</td>
</tr>
<tr>
<td>6th century CE</td>
<td>End of Phase 1</td>
<td>Destruction by fire (contexts 33–36, 123, 127, 60)</td>
</tr>
<tr>
<td>6th century CE</td>
<td>Phase 2</td>
<td>Reuse of the building (walls 12, 64, 135), change of the room layout, burials (contexts 9, 70, 111, 119)</td>
</tr>
<tr>
<td>End of 6th century CE</td>
<td>End of Phase 2</td>
<td>Abandonment of the building</td>
</tr>
<tr>
<td>7th to 21st century CE</td>
<td>Phase 3</td>
<td>Use of cisterns only (probably with interruptions), installation of campsites, Bedouin graves, fireplaces in drifted sands (context 3)</td>
</tr>
</tbody>
</table>
new walls differs remarkably from the refined ones of Phase 1 (see above, p. 145 and Fig. 10, 12b). Again the pottery finds within the contexts belonging to this phase are low in number: A highly fragmented, but almost complete jug (K21, Fig. 22) probably dating to Late Roman times and a hand-made cooking pot were found next to residual finds, mainly locally produced Roman amphorae (AE 3.1). In some of the rooms walls were set against the former ones of Phase 1 (e.g. wall 64), maybe as a measure of stabilisation, others were inserted to create new, smaller rooms (f.e. wall 12, Fig. 12). Doorways were blocked, so that the passage between the rooms and into the smaller courtyard in the northeast was not possible any longer (Fig. 9, 10a, 15b). Access was provided on a higher level by small doorways facing southeast. The second storey presumably was out of use in this phase – at least the stairways (context 125) did not function anymore, since they were blocked by the later wall 107 (Fig. 9, 16a). The four burials found in the excavated area were placed in the ground during Phase 2 of the building, which began directly after the destruction since their pits do not cut any layers of drifted sands. Even though the building seems to have lost its character as a roadside inn, the cisterns and the route must have been in use in order to provision these people.

This period of reuse was very limited, and the final abandonment of the building happened at the end of the 6th century CE (end of Phase 2) since the youngest pottery pieces from that phase can be dated to this time (K15, Fig. 21). A piece of palm tree wood (Phoenix dactylifera), coming from the first level of drifted sands above the living floor of the building is dated to the 7th century CE by C14-dating and confirms that the building was subsequently covered by sands from this time onwards. It is difficult to gain a more detailed insight into the activities taking place at the site after the abandonment of the building, since the artefacts in the drifted sand layers belong to the Roman/Late Roman period, while younger material (Medieval pottery) is absent. The only sign of human presence in these centuries are fireplaces preserved in the wind blown sand layers. Thus, we assume that at least herders, maybe also travellers, frequented the depression and the cisterns at Abar el-Kanayis continually. Some campsites, making use of the ashlars from the building, as well as Bedouin graves show the presence and activity of people at the site. Hand-made pottery (NLDW), that existed continuously and without any change in type from Roman times to the 20th century, is scattered around the site (see below, p. 163). The latest intensive period of use is testified by the relics of WW II.

(A.-K. R./H. M./S. V.)

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22 See FN 19.

23 A.-K. RIEGER/H. MÖLLER, Northern Libyan Desert Ware, pp. 23–30.
3.2 The pottery finds in the northwestern building

General overview and spectrum of wares

The material – pottery from the surface surveys and from the contexts of the building in Abar el-Kanayis – does not reach more than 85 individual vessels (Minimum Number of Individuals = MNI). This number is very low, taking into account that Abar el-Kanayis was frequented as cistern site from at least Graeco-Roman times until nowadays with a peak during the existence of the building in Late Roman times. This might be due to the fact that the place was continually used, not recurrently like settlements where more debris is produced in a shorter time24.

As shown above the chronological spectrum of finds in general including surface finds covers mainly the Roman and Late Roman period up to the 6th century CE and corresponds to the existence of the building. There are hardly any finds to prove the frequentation of the site after the time of the abandonment of the permanent construction except some sherds of the Northern Libyan Desert Ware (see below, p. 163). The same applies to pre-Roman finds: Only one amphora handle – a surface find – is of Ptolemaic origin.

The spectrum of pottery with regards to functional groups is quite variable. The range of types represented in each group instead is very limited. This differs from the material that was found on coastal sites and shows once more the different character of the cistern site on the Northern Marmarica-Plateau25:

Amphorae (39%; MNI: 32) and Coarse Ware (33%; MNI: 27) are the main groups on the site, followed by hand-made pottery (15%; MNI: 12) – only Northern Libyan Desert Ware, Fine Ware (6%; MNI: 6) and wheel-made Cooking Ware (7%; MNI: 8) (Fig. 19a)26.

Local wares prevail over imported ones, but a few Amphora imports, as well as Fine Ware and Cooking Ware imports, can still be observed, especially in Late Roman times (Fig. 19b).

This observation is consistent with the fact that in Roman times presumably just until the 4th century CE the production of goods and containers on the coast – as new research in the Marmarica could show – reached its peak, and afterwards nearly stopped since hardly any production sites can be found on the western coast of a later date27. Instead of that, imports show that the demand of commodities – primarily wine and its derivates, but also other goods – from outside still existed in Siwa and had to be replaced by imports from the Eastern, but also Western Mediterranean. Additionally some Egyptian ware made of alluvial clay occurred originating from the Nile Valley28.

Catalogue of finds

The catalogue includes not all diagnostic sherds, but all types found in the excavated areas of Abar el-Ka-
nayis, while surface finds are excluded. It is organised by functional groups, fabrics and types as appropriate. Its aim is to give an overview of the types and fabrics rather than trying to develop a seriation of types bedded into a chronological frame. The latter is not possible due to the limited amount of sherds, and the character of contexts is often of a mixed date.

**Fine Ware: Egyptian Fine Ware**

Only two fragments of Egyptian Fine Ware (Fig. 20, K1, K2) are among the material. The large dish or bowl with in-turned rim (K1) is of ‘calcareous’ clay. The fabric is dense with some very small white inclusions. The surface is abraded and covers a darker reddish yellowish clay with a reddish thin slip on the outside and inside of the vessel and belongs to Egyptian Sigillata Group K.  

K1 – ID 1330, Bef. 11, DM 34 cm.  
Fabric: brownish in colour, homogenous, dense with some very small white opaque inclusions. The surface is abraded and slipped with a dark, thick, reddish slip. The fragment is secondary overfired. In-turned rim, rounded, slightly grooved outside. Type: large red slipped dish/bowl.  
**Context:** Phase 1.

K2 – ID 1114, Bef. 33 and 34, DM: 22 cm.  
Type: plate.  
**Context:** End of Phase 1.

**Fine Ware: Imported Fine Ware**

Imported Fine Wares (Fig. 20, K3–K5) are rare: one diagnostic sherd of African Red Slip Ware (ARS A/D) probably to Hayes 31 (K3) of Roman date (middle of the 3rd to the 4th century CE), an almost complete form of ARS C Hayes 50 B (K4) and a rim of a Late Roman C dish Hayes 3 (K5) produced in the 5th century CE in Turkey, probably the Phocaea region.

K3 – ID 1104, Bef. 10, DM: 42 cm.  
Type: Bowl.  
**Context:** Phase 1.

K4 – ID 1354, Bef. 121, DM: 21 cm.  
Fabric: reddish-yellowish, silty, but dense, hardly any inclusions are visible except some very small white opaque ones. Surface slipped with a light reddish thin slip. ARS C, Hayes 50 B.  
Type: Bowl.  
**Context:** Phase 1.

K5 – ID 1147, Bef. 2 and 3, DM: 25 cm.  
Fabric: light reddish to brownreddish, silty but dense with some white opaque inclusions. Surface very thinly slipped outside, inside abraded. LRC-Ware, Hayes 3.  
Type: Bowl.  
**Context:** Phase 3.

**Amphora: Egyptian Amphora**

All in all a very limited selection of Egyptian Amphora (Fig. 20, K6–K11) was found, subsumed as Egyptian Amphora AE 3 (Amphore Égyptienne 3) (K6–K11).

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25 Abbreviations: Bef. = Befund = context, DM = Durchmesser = diameter, ID = Identity number.

26 M. BONIFAY, Études sur la céramique romaine tardive d’Afrique, Oxford 2004, Type 11.

27 J. HAYES, LRP, pp. 69–73.

28 LRC-Ware is congruent to Phocaen Red Slip Ware, see J. HAYES, LRP, p. 329; see also S. LADSTÄTTER/R. SAUER (mit einem Beitrag von G. SCHNEIDER/M. DASZKIEWICZ), Late Roman C-Ware und lokale spätantike Feinware aus Ephesos, in: F. KRINZINGER (ed.), Spätantike und mittelalterliche Keramik aus Ephesos, Vienna 2005, pp. 143–201, saying Phocaea was the main production site with the biggest export radius, but other pottery workshops producing LRC-Ware do exist.

Fig. 20  Pottery finds from Abar el-Kanayis. Egyptian and imported Fine Wares, Egyptian Amphorae (drawing H. Möller/B. Böhm/S. Valtin)
The finds at Abar el-Kanayis were produced on the western coast of Egypt, either in the Marmarica (see above, p. 154) or the Mareotis region, both made from a very similar fabric due to the same geological condition. Either a silty, reddish, quartzous, more or less carbonate rich, ferrous ‘calcareous’ clay (F1) or a brownish-greyish silty, quartzous and slightly carbonate rich ‘calcareous’ clay with grey-opaque inclusions (F2). No amphorae made of alluvial clay coming from the Nile Valley or Delta seem to have arrived at the site. Three different subtypes can be distinguished, all variations of Dixneuf AE 3-1. They were probably produced from the end of the 1st century CE to the 3rd century CE as related subtypes in externally dated layers elsewhere suggest. Presumably wine and its derivatives was the primary commodity that was packed in these amphorae as recent research in the Marmarica and its economic potentials has shown.

There is no indication of any Egyptian Late Roman Amphora in the find spectrum of Abar el-Kanayis.


K7 – ID 1376, Bef. 105, DM: 15 cm. Fabric: F2, Surface abraded. Rounded rim with small looped handles that are attached directly to the rim. Ribbed inside and outside. Type: Amphora, Dixneuf AE 3-1.2, variant A.


K9 – ID 1320, Bef. 130, DM: 15 cm. Fabric: F2, Surface abraded. Rounded rim with small looped handles that are attached directly to the rim. Ribbed inside and outside. Type: Amphora, Dixneuf AE 3-1.2, variant A.


K11 – ID 1321, Bef. 130, DM: 13 cm. Fabric: F2, Surface abraded. Rounded, and slightly everted, stepped rim. Slightly ribbed outside, inside more deeply. Type: Amphora, Dixneuf AE 3-1.5, variant A(?).

Amphora: Imported Amphora

Imported Amphorae (Fig. 21, K12–K17) are less frequent at the site. Only one base of a Greek Amphora, probably from Cnide (K12, see above, p. 151), dates from Ptolemaic to Roman times, the other imported Amphorae are Late Roman ones. They represent two types: KEAY LII Amphorae from Italy and Late Roman Amphorae (LRA 1) from Cilicia.

K12 – ID 1351, Bef. 92. Fabric: yellowish-brownish, dense, silty with some inclusions, base, solid, ridged spike. Type: Greek Amphora divers.

KEAY LII (K13, K14): One amphora (K13) of KEAY LII is almost complete and carries a titulus pictus on the neck towards its shoulder. The writing (d?ommni­cum) is greyish-black coloured and placed horizontally. Inscriptions on this amphora type are very rare. An extensive analysis is in progress. The fabric differs slightly: One is more granulous than the other, but


37 Probably congruent with D. Dixneuf, Amphores égyptiennes, Groupe C9, see FN 36.

38 D. Dixneuf, Amphores égyptiennes, pp. 81–111.

39 A.-K. Rieger/H. Möller, Kîns. On many of the large-scale production sites wine presses were surveyed in close neighbourhood. In Wadi Qasaba even the remains of a resin chunk was found for lining the inside of the amphorae, common for wine containers; see also A.-K. Rieger et al., Water, Soil and Agriculture. For AE 3 and their contents in general see D. Dixneuf, Amphores égyptiennes, pp. 197–207, 215–222.

40 H. Möller et al., Fabrics.


42 D. Pieri, Amphores tardive, Fig. 9 shows two more KEAY LII amphorae with titul picti.
Fig. 21  Pottery finds from Abar el-Kanayis. Imported Amphorae, Egyptian Coarse Ware  
(drawing H. MÖLLER/B. BÖHM/S. VALTIN)
both have the same beige-brown colour with white and black inclusions, reddish ones, quartz and some mica and are of South Italian origin, probably from Calabria or Sicily. The KEAY LII Amphorae were made in the 5th and the beginning of 6th century CE and became immediately abundant in the Eastern Mediterranean. South Italian wine was carried in the container as indicated by traces of resin inside.


Type: Amphora KEAY LII.


Late Roman Amphora (LRA 1) (K15–K17): They include an earlier LRA 1A and one later developed type LRA 1B1. The fabric of the LRA 1A is quite fine, silty-beige to orange in colour with some small white and brown opaque inclusions and some chaff (K15). The surface is abraded. Grooves decorating the outside walls are very fine and regular. This type occurs from the end of the 4th until the end of the 5th century CE.

K15 – ID 1352, Bef. 3. Fabric: beige to orange in colour, quite fine, silty with some small white and brown opaque inclusions and some chaff. Surface abraded. Small knobbed base, walls ribbed inside and outside. The grooves are very accurately made. Type: Amphora LRA 1A. Context: Phase 3.

The production site of our piece remains uncertain, but Cilicia and Cyprus can be excluded due to a very different fabric. It is the only fragment of that fabric represented among the finds, other LRA 1 are made from a granulous, silty fabric full of many different opaque inclusions visible as well as quartz and mica. They were produced in Cilicia.

The LRA 1B1 replaces the LRA 1A completely by the 6th century CE and continues into the 7th century CE. Since the fabric shows a Cilician origin, it is most likely that our examples (K16, K17) belong to the first half of the 6th century CE, because in the second half of the century production decreased and they were replaced by Cypriot LRA 1 productions. One amphora (K16) carries a red dipinto on the shoulder. The fabric of the earlier form is brownish, silty with some inclusions and of uncertain origin. The later samples have a dense fabric, that is coarse and with many inclusions, easy to identify and typical for Cilician productions. LRA 1 Amphorae of this origin are very common in Egypt in Late Roman times. The earlier form was probably made in the 5th century CE, later mainly from the second half of the 6th century CE onwards. In general they were made to carry wine.

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45 D. PIERI, Amphorae tardive, p. 44 with further bibliography. Traces of pitch and resin are often found on the inside wall of the Amphorae. Chemical analyses underlined that KEAY LII were used as amphorae since residue of wine could be substantiated on some examples.
47 D. PIERI, Typologie, p. 98.
49 D. PIERI, Typologie, p. 98.
53 D. PIERI, Commerce, p. 81–84.
K16 – ID 2561, Bef. 127. 
Fabric: dense brownish with many inclusions visible on the outside: Many greyish angular opaque ones, brownish and reddish rounded inclusions, small white round ones. Surface abraded. Walls ribbed inside and outside. Red dipinto. 
Type: Amphora LRA 1B1. 
Context: End of Phase 1.

K17 – ID 1309, Bef. 90, DM: 7 cm. 
Fabric: dense brownish with many inclusions visible on the outside: Many greyish angular opaque ones, brownish and reddish rounded inclusions, small white round ones. Surface abraded. Rounded rim, handle directly attached. 
Type: Amphora LRA 1B1.

Coarse Ware: Egyptian Coarse Ware

The spectrum of forms is very limited (Fig. 21, 22, K18–K30). Closed vessels are represented mainly by Table Amphorae and two handled jugs (filter jugs?) (K18–K20) of probable Late Roman date54, a few other types of jugs (K21–K25) as well as some small jars (K26, K27). Open shapes are less frequent and reduced to basically two main forms: basins (K29–K30) and bowls (K28). The local Coarse Ware is made of the same or similar fabric as the Amphorae coming from the western coast of Egypt – a ‘calcareous’ silty, quartzous, more or less carbonate rich clay (see p. 157, F1/F2). Only one jug (K24) is made of a mixed alluvial/‘marl’ clay and therefore produced further east in Alexandria and the Delta region. Generally the surface is abraded, a whitish slip occurs often with Fabric F1. No imported Coarse Ware was represented in the material.

K18 – ID 1150, Bef. 79, DM: 3 cm. 
Type: Two-handled Jug/Filter Jug? 
Parallels: M. Egloff, Kellia, pl. 63.5 (middle of 5th century CE). 

K19 – ID 1133, Bef. 60, DM: 4 cm. 
Type: Two-handled Jug/Filter Jug?

K20 – ID 1134, Bef. 60, DM: 4 cm. 
Type: Two-handled Jug/Filter Jug. 
Context: End of Phase 1.

K21 – ID 1136, Bef. 12, DM: 5 cm. 
Fabric: F1. Probably secondarily overfired, greyish-greenish in color. Surface abraded. Rounded, on the inside slightly cut rim. Underneath two rather flat handles are attached. Walls slightly ribbed inside and outside. The body is of ovoid shape. 
Type: Two-handled Jug/Amphoriskos. 
Context: Phase 2.

K22 – ID 1333, Bef. 110, DM: 6 cm. 
Type: Jug.

K23 – ID 1123, Bef. 60, DM: 5 cm. 
Type: Short-necked Jug. 
Context: End of Phase 1.

K24 – ID 1130, Bef. 60. 
Type: Filter jug. 
Context: End of Phase 1.

K25 – ID 1153, Bef. 33, DM: 6 cm. 
Type: Jug. 
Context: End of Phase 1.

K26 – ID 1140, Bef. 33, DM: 10 cm.
Type: Wide-mouthed jar.
Context: End of Phase 1.

K27 – ID 1164, Bef. 33, DM: 8 cm.
Fabric: ‘calcareous’, relative fine reddish in colour, sandy, only a few very small inclusions are visible. Surface abraded. Rounded, slightly everted rim, thin walled.
Type: Thin-walled wide-mouthed jar.
Context: End of Phase 1.

K28 – ID 1101, Bef. 60, DM: 18 cm.
Fabric: F2. Surface abraded. Rounded, towards the inside slightly thickened rim.
Type: Bowl.
Context: End of Phase 1.

K29 – ID 1131, Bef. 60, DM: 22 cm.
Type: Bowl.
Context: End of Phase 1.

K30 – ID 1121, Bef. 60, DM: 37 cm.
Type: Basin.
Context: End of Phase 1.

Cooking Ware: Egyptian Cooking Ware

The quantity of Egyptian wheel-made Cooking Ware (Fig. 22, K31, K32) is very rare. Only two examples of two-handled globular-wide-mouth cooking pots with flat, inside slightly undercut rim K31 made of the local ‘calcareous’ clay (see above, p. 157) are represented in the material next to one single lid made of alluvial clay. All are of uncertain dating occurring in contexts with a terminus ante/ad quem 5th/6th century CE. Especially K32 is a common form already attested in the 1st/2nd century CE until Late Roman times.

K31 – ID 1154, Bef. 33, DM: 22 cm.
Fabric: F1 more silty and quartzous. Surface blackened by soot and grime. Rounded rim, flat, inside slightly undercut. Two rounded handles are joined to the rim, terminated on the shoulder.
Type: Two-handled globular wide-mouth cooking pot.
Parallels: M. EGLOFF, Kellia, pl. 49.4.
Context: End of Phase 1.

K32 – ID 1318, Bef. 130, DM: 14 cm.
Type: Lid.

Cooking Ware: Imported Cooking Ware

Two Late Roman cooking pots (Fig. 22, K33, K34) among the material are made of a non-Egyptian fabric. One vessel is almost completely preserved (K33). Both belong to two-handled ribbed cooking pots with a thickened, rounded rim. The fabric of both pots is similar: light brownish-yellowish in colour, silty, quartzous with opaque reddish and whitish-grey inclusions. The form resembles HAYES ribbed cooking pots of the 2nd and 3rd century CE from the Aegean region although the rim differs. It could be a later variation of that type concerning the context of the 6th century CE and also related to RILEY’S Late Roman Cooking Ware. Their origin remains unidentified; an Aegean origin can mostly be excluded.

K33 – ID 1369, Bef. 127, DM: 16 cm.
Fabric: light brownish-yellowish in colour, silty, quartzous with opaque reddish and whitish-grey inclusions. Surface blackened by soot and grime outside, some traces inside visible. Rounded, thickened rim with two rounded handles joined

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55 Cf. M. EGLOFF, Kellia, pl. 49.5.
56 J. HAYES, The Villa Dionysos Excavations, Knossos: The Pottery, in: The Annual of the British School at Athens 78, pp. 97–169, esp. Fig. 5 and p. 105.
57 With a slight variation see M. CAVALAZZI/E. FABBR, Cooking Ware from the Excavation of a 5th-7th Century Context in Classe (Ravenna, Italy), in: S. MENCHIELI/M. PASQUINUCI/S. SANTORO (eds.), LRCW3. Late Roman Coarse Wares, Cooking Wares and Amphorae in the Mediterranean: Archaeology and Archaeometry. Comparison between Western and Eastern Mediterranean I, BARIntSer 2185, Oxford 2010, pp. 623–633, esp. Fig. 5.10, p. 624 with a 6th century CE datation, coming from the Aegean region. See also: J. VROOM, Late Antique Pottery, Settlement and Trade in the East Mediterranean: A Preliminary Comparison of Ceramics from Limyra (Lycia) and Boeotia, in: W. BOWDEN/L. LAVANY/C. MACHADO (eds.), Recent Research on the Late Antique Countryside, in: Late Antique Archaeology 2, Leiden/Boston 2004, pp. 281–331.
Fig. 22  Pottery finds from Abar el-Kanayis. Egyptian Coarse Ware, Egyptian Cooking Ware, imported Cooking Ware (drawing H. Möller/B. Böhm/S. Valtin)
to the rim, terminated on the shoulder, globular
ribbed body.
Type: Globular cooking pot.
Context: End of Phase 1.

K34 – ID 1377, Bef. 126, DM: 19 cm.
Fabric: light brownish-yellowish in colour, silty,
quartzous with opaque reddish and whitish-grey
inclusions. Surface blackened by soot and grime
inside and outside. Rounded, thickened rim with
two rounded handles joined to the rim.
Type: Globular cooking pot.

Hand-made Pottery

Quite a few vessels of Hand-made Pottery (Fig. 23,
K35–K40) have been found in the stratified contexts
of the building\(^\text{59}\). It could be verified on the basis of the
sherds from Abar el-Kanayis that this type of pottery,
mainly tempered with shells and now subsumed un-
der the name Northern Libyan Desert Ware (NLDW) is
of antique origin and can be associated with the indig-
igenous population of the Eastern Marmarica, with 'Lib-
yans' or Berber tribes (see below, pp. 172–173)\(^\text{60}\).
The spectrum of stratified forms in Abar el-Kanayis covers
two types: bowls and jars with inverted rims, whereas
some carry a horizontal lug. Their fabric in general is
brownish-red in colour, coarse and tempered by cal-
cite grits, along with a few shells, black opaque and
some powdery inclusions (SH 1) or next to calcite grits
and shells tempered with fireclay with variations of
reddish-yellow, reddish-brown, light and dark brown
in colour (SH 2 with varia A and C) (K35–K38). Others
(K39, K40) occur with a brownish-beige fabric, some-
times blackish in colour, tempered by quartz with red-
ddish powdery and white opaque inclusions and chaff
(FW 1) or a greyish-black fabric, sandy with reddish
and yellowish-white powdery inclusions (FW 2(2))\(^\text{61}\).

Especially the jars with inverted rims were prob-
ably mainly used as cooking pots\(^\text{62}\) as shown by traces
of soot and grime. Some occur with incised decor-
atuion such as floral motifs (K40).

K35 – ID 1126, Bef. 60, DM: 23 cm.
Fig. 23  Pottery finds from Abar el-Kanayis. Hand-made Pottery, Lamp, Glass (drawing H. Möller/B. Böhm/S. Valtin)
On the Route to Siwa – A Late Roman Roadhouse at the Cistern Site Abar el-Kanayis on the Marmarica-Plateau

63 Personal communication with M.-D. NENNA (CNRS Lyon).
64 Unfortunately the coin could not be handed out again for further investigations.

### Glass

Besides modern glass, only a few pieces of Late Roman glass (Fig. 23, K42–K45) have been found. They all belong to the 4th to 6th century CE. One rim (K42) belongs to a Late Roman glass lamp. Two ring-bases of a different type, one to a plate (K45) were found in the debris layers of Late Roman time and belong to open forms as well as the rim of a bowl (K43). All are translucent, green or colourless and monochrome and were presumably produced in Egypt.

- **K42** – ID 1350, Bef. 92, DM: 11 cm.
  - Type: Glass lamp.
  - Context: Phase 1.

- **K43** – ID 1192, Bef. 36, DM: 6 cm.
  - Context: End of Phase 1.

- **K44** – ID 1194, Bef. 60, DM: 22 cm.
  - Type: bowl.
  - Context: End of Phase 1.

- **K45** – ID 1193, Bef. 60, DM: 10 cm.
  - Type: plate.
  - Context: End of Phase 1.

### Coins

Only five coins were found at Abar el-Kanayis, four of them in the layers of drifted sands, where mixed materials from Late Roman to recent times appear. According to a first assessment based on photographs, the coins belong to the 4th century CE. Ptolemaic and Alexandrinian (1st to 3rd century CE) coinage and, referring to criteria such as weight and size the time of the Tetrarchy can be excluded. There is also no ‘mass coinage’ from the time of Constantius II (type FEL TEMP REPARATIO/falling horseman) of the years around 350 CE, and from the Valentinian or Theodosian dynasties, therefore the first half or the middle of the 4th century CE can rather be suggested as a date.

- **M1** – ID 1166, Bef. 3. Weight (uncleaned): 1.77 g, DM: 1.9 cm, thickness: 0.2 cm.
  - Follis, Type GLORIA EXERCITVS 2 standards, 330–335 CE.

- **M2** – ID 1167, Bef. 3. Weight (uncleaned): 3.33 g, DM: 1.9 cm, thickness: 0.9 cm.
  - Follis? Late Roman (4th century CE?)

- **M3** – ID 1168, Bef. 3. Weight (uncleaned): 1.43 g, DM: 1.3 cm, thickness: 0.23 cm.
  - AE, probably Type GLORIA EXERCITVS 1 standard (335–341 CE?).

- **M4** – ID 1359, Bef. 3. Weight (uncleaned): 1.53 g, DM: 1.6 cm, thickness: 0.32 cm.
  - AE Frag., Late Roman (4th century CE?).

- **M5** – ID 1338, Bef. 129.
  - AE, probably Late Roman.

### Discussion

We have to keep in mind that Abar el-Kanayis, however, is a place where no production – neither of commodities nor of pottery (when focussing on amphorae rather than Hand-made Pottery) – takes place, but all the more traffic and transport of goods in containers from the coast to Siwa and back again. In other words, all finds are imported, most of them in a regional sense and produced on the coastal sites, but also in an international sense, since imports from the Western and Eastern Mediterranean do exist in the material.

That the spectrum of finds is very limited can be explained by the function of the building as a way station: Thus we mainly expect pottery that is used at the station for preparing food and restocking provisions: jugs/jars, cooking pots including ‘simple’ tableware like dishes and bowls, which can be seen partly
as the inventory of the building, partly as brought there by the people. Many of the ceramic vessels show the typical residues of use on open fire. People stopped by, prepared their food on the site (maybe even brought their food in containers, since there was no possibility to obtain food except by hunting), cooked it, restocked their provisions and left their litter. Other vessels probably broke accidentally while packing and unpacking the draught animals.

From another perspective the pottery also reflects up to a certain point the traded goods that have been transported between Siwa and the coast and vice versa. This includes mainly amphorae as containers for foodstuffs on demand (e.g. local AE 3, imported Keay LI and RLA 1) and some assorted vessels, like Fine Ware, here to be quoted as sherd of African Red Slip Ware (ARS) that show a trade-connection to North Africa, today’s Tunisia and also to the Eastern Mediterranean as evidenced by one fragment of Late Roman C Ware probably produced in the Phocaea region in Asia Minor.

Noteworthy is the appearance of two imported cooking pots of unknown origin, which, at first glance, seem to be from the same category of traded good as the Fine Ware, since they are technically highly developed and therefore a kind of luxury alternative to the standard items. Since one of them does carry traces of soot and grime on the outside we have to conclude, that they have not only been traded, carried to Siwa for selling, but also have been used on the site itself and therefore functioned as a pot for the trader and not only as traded goods. This has to be kept in mind when considering the Fine Ware and glass as well: To what extent was it exported for a certain clientele at Siwa, and to what extent used by the trader because of a certain personal preference?

Nevertheless their proveniences give a fragmentary idea of an exchange network of regional and intraregional scale. Even though the fact could be seen as merely coincidental, at first glance the demand of regional goods seems to be higher in Roman than in Late Roman times, and Egyptian Amphorae (see pp. 155–157) made at the coastal site prevail, while imported Roman amphorae are almost absent. This is noteworthy since in Alexandria, especially after the middle of the 3rd century CE, imports increase and Gazan Late Roman 4 Amphorae are almost as common as AE 3 from Egypt. They are even to a certain extend scattered all over the sites on the northwestern coast, which proves, that there was a trade route towards the west. The same applies to classical African Amphorae and Late Roman D Fine Ware, which can be found in the coastal zones and also in Siwa, but are not represented in the material of Abar el-Kanayis. This fact underlines again the fragmentary nature of the spectrum and random loss of goods in Abar el-Kanayis as the result of a passers-by station.

Even though only a tendency can be shown, in Late Roman times a shift to imported goods mainly from Cilicia is visible in the remains, supported by the absence of Late Roman Egyptian Amphorae. This matches the results of the Marmarica-Survey for the coastal area in that there is probably no pottery production in Late Roman times on the one side and hardly any imports from the Nile Valley and Delta region, the producers of Egyptian Late Roman Amphorae, on the other side². All in all the number of production sites in the Marmarica and Mareotis decreases

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² There is no pottery from the Graeco-Roman period from Siwa published yet. Only L. BAYAX describes Rhodian and North African Amphorae, next to fragments of Dressel 1 A–B and 2–4 amphorae, both probably from Italy, and Dressel 7–11 of uncertain origin from a pottery dump of the mid-Roman period in the Ammonion.


² These are made out of the same or similar clay composition as the pottery that has been produced in the coastal region and on the Northern Tableland in the Eastern Marmarica, cf. A.-K. RIEGER/H. MÖLLER, Kilns (PhD thesis in progress).


² A site in Wadi Hashefi the Northern Tableland could have produced Late Roman pottery (Cooking Ware and bag-shaped Amphorae). Further investigations to corroborate this assumption based on surface finds have yet to be undertaken.

from hundreds of kiln sites to only a few from Roman to Late Roman times\textsuperscript{78}. These results are repeated elsewhere: In Alexandria trade relations with the Eastern Mediterranean, especially Cilicia, grow during the 5th century CE and after the partition of the Eastern and Western Roman Empire, as an abundance of Late Roman Amphorae in the coastal sites to the oasis and vice versa, revealing a certain extent that allowed it to be sold\textsuperscript{82}, however, were used as mudbrick temper (see above, p. 144) on the site. Whether one considers this context of the cereal

**Diet and transported (trade) goods**

Refferring to the traded goods, the amphora spectrum at Abar el-Kanayis, mainly AE 3.1 from the coastal zone, allows one to conclude that in Roman times locally produced wine and its derivates were the premium good that has been transported to Siwa\textsuperscript{78}. Wine was grown extensively on the Northern Tableland and may have partly processed to vinegar for conserving vegetables and fruits\textsuperscript{79}. Later onwards the wine production seems to stagnate on the coast as testified by the disappearance of production sites latest in the 5th century CE. At this time imports from Italy and Cilicia complement or replace the wine supply to the south as shown by the amphorae produced in Italy and Cilicia represented in the spectrum of finds.

Archaeozoological analysis reveals the consumption of fish and pork at the cistern site, which could have been traded in the form of salted foodstuff or garum\textsuperscript{80} (Tab. 2).

Among the archaeobotanical remains coming from the destruction layer date kernels (Fig. 24a) reflect the most famous good transported on the route from Ammon (Siwa) to Paraitonion\textsuperscript{81}; and dates certainly represent part of the vegetal diet of the travelers. A peach kernel (Fig. 24b) (Prunus persica) points to the existence of fruit tree gardens either in Siwa or in the coastal area. Whether it remained in Abar el-Kanayis as part of a batch or the provision of a traveler is unclear. The remains of barley (Hordeum vulgare, Fig. 13), cultivated on the Northern Tableland to an extent that allowed it to be sold\textsuperscript{82}, however, were used as mudbrick temper (see above, p. 144) on the site. Whether one considers this context of the cereal  


\textsuperscript{82} On the AE 3 see A.-K. Rieger/H. Möller, *Kilns*, p. 163, Table 1 and Fig. 22–27.

\textsuperscript{83} See Columella, *De re rustica* 12, about the importance of vinegar in ancient food production and conservation; Strabon, *Geographica*, 17, 1,14 on wine in the northwestern coastal region of Egypt.


to be also proof of its consumption in Abar el-Kanayis or even its export to Siwa, is debatable. A piece of palm tree wood (*Phoenix dactylifera*), dated to the 7th century CE, to the phase after the abandonment of the building, arrived at Abar el-Kanayis from Siwa or the coastal zone as material for transport devices or fuel.

The organic remains from plants and animals as well as the pottery analyses concerning the content of amphorae show that the diet of the people stopping at Abar el-Kanayis comprised besides some meat, eggs and milk products also of dates, peach and barley as the carbohydrate supply and were negotiated on demand either from north to south or south to north.

Livestock was part of the commodity that travelled from north to south – almost 60% of the bone material at Abar el-Kanayis is from sheep and goat (Tab. 2). Since these animals were not raised in large quantities in the oasis, but in the steppe zones in the northern Marmarica, they were sought-after goods in

<table>
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<th>Species</th>
<th>NISP</th>
<th>%</th>
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<td>1.1</td>
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<td>3700.1</td>
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Tab. 2 Faunal composition resulting from the stratified bone finds at Abar el-Kanayis (NISP = number of identified specimens)
Siwa. Vice versa Siwa was not only famous for its dates, but also for oil and salt in antiquity, traded from there to the Mediterranean coast, but any trace of these goods in the remains from Abar el-Kanayis is missing. Also oil was exported from Siwa in a significant amount and may have been in demand in the coastal zones where no evidence of olive cultivation is testified. How it was transported remains unclear. Other goods from remote areas arriving in Siwa (gold, ebony) may have passed Abar el-Kanayis on the Mas-rab Istabl on their way to the Mediterranean coast, even though the important centres of Cyrene or Alexandria were connected to the oasis by direct routes. But the strong relationship between Siwa and Paraitonion is emphasised by the name “Ammonia” for Paraitonion serving as the harbour for Siwa and producing goods not available in the oasis (Fig. 25).

The rather high rate of imported pottery at the site in comparison to places in the northern zones of the Marmarica reflects the demands in the oasis covered by a supra-regional exchange of goods. Evaluating the different proveniences of the imported pottery the Mediterranean Sea seems to be the more attractive trade partner than the Nile Valley and Delta region. The range of locally produced containers, however, counts as evidence that many regional goods were also traded to the oasis.

(A.-K. R./U. TH./V. A./N. P.)

4. The function of the building as a roadhouse

4.1 Architectural comparisons

Looking for buildings comparable in layout, infrastructural position and facilities, the general concept of the structure at Abar el-Kanayis corresponds to a kind of way station along regional or transregional routes that is common all over the Mediterranean and Near East from antiquity to medieval times. But the architectural arrangements differ due to chrono-

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83 G. Wagner, Les oasis, p. 310.
85 See POxy 2423 III 21. We do neither know anything about the production of amphorae in Siwa nor about the use of other oil containers.
87 Strabon, Geographia, 17,1,14.
logical, regional and also religious contexts. If named *pandocheion* (Greek, and later Byzantine influenced Mediterranean regions), *hospitium, mansio* (Latin) or ὑπόθεμα and, later in history, *funduq* (Arabic-Greek), *manzil* (Arabic), *saray* (Persian) or *khan* (Selçuk, eastern Islamic world) – all these terms cover a topographically as well as architecturally wide range of buildings made for people who travel, itinerate, transport and trade goods, i.e. for non-locals who do not reside in a private homestead in the area, they are moving in.

Screening the literature about pre-modern way stations and caravanserais clearly shows the directions of research: There are topographically oriented studies, as well as the ones that concentrate on the development of such buildings as pilgrim houses. One searches in vain for comprehensive (including architectural and written sources) and comparative approaches on ancient way stations, starting with the problem that there is only a small number of well-documented ones. Only the stations along the Roman Imperial roads in the Eastern Desert of Egypt are historically and functionally focussed on – due to their exceptional character.

Even though the main purposes of way stations for travellers, pilgrims or traders, who bring provisions or goods and pack animals with them, are predominantly the same, differences as reflected in the architecture do exist. A constitutive and thus analogous feature is a courtyard as a protected but wide space for persons, goods and animals as well as some separate rooms for administrative use or for the secluded sojourn of several persons. The number of separated rooms as well as additional facilities like baths can point to the use for travellers and pilgrims. The large dimensions of gateways and courtyards or lockable rooms are necessary for the use by traders arriving with piles of goods packed on animals, accompanied by sufficient water supply for men and animals. But still, a thorough comparison of way stations and inns bears methodological difficulties, since there are climatic, socio-economic and infrastructural differences to be considered when looking for analogies: For build-

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89 O. R. CONSTABLE, *Housing the Stranger in the Mediterranean World: Lodging, Trade, and Travel in Late Antiquity and the Middle Ages*, Cambridge 2003, p. 4 about the changing meaning of words used for stopping places; p. 53 about the archaeological and architectural evidence which is “intriguing yet inconclusive”.

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Fig. 25 Map of the ancient route system on the Marmarica-Plateau (map A.-K. Rieger)
ings situated on main routes used by many people a different layout pattern may be necessary because of a greater variety of passers-by than for facilities on a secondary route; cold and water-rich highlands result in different architectural arrangements and facilities for roadside inns than dusty and hot plains. However, the functional layout of a roadhouse with facilities like water and food/forage supply in combination with an infrastructurally convenient position (close to a road or bridge, in the middle between two towns/centers or in a town close to its economic centre) provides the best grounds to call a building a roadhouse, station or inn.

The topographically closest neighbours to the building at Abar el-Kanayis (and similar ones on the Marmarica-Plateau) are the ὑδρεύματα preserved along the routes in the Eastern Desert. Since they are installed and maintained by a central administrative power for reasons of easy supply of the quarry and mining sites and transport of the geological resources between Nile Valley and Red Sea coast, they have a more standardised layout and defensive (military) character. The more elaborate ones possess – of course – water installations, towers, gates, stables or animal-tethering lines combined with the above-mentioned features like courtyards and adjoining rooms. ὑδρεύματα appear as fortified watering stations rather than open cistern sites with further facilities, as the character of the Abar el-Kanayis’ site can be summarised. Thus their layout follows more defined models depending on their protective purpose. The topographically close comparisons result in a slightly different function.

The evidence is very poor when looking for comparable structures to the west of the Marmarica. Only some remains in Mechili or Medinet Bu Hindi can be considered similar structures, both situated on an east-west route crossing the southern parts of the Gebel el-Akhdar. The complex at Medinet Bu Hindi, the crossroads with a route coming from Derna at the coast, is described as a trapezoid courtyard with two gateways, dating to Late Antiquity. More detailed information is not available. Of Mechili, lying ca. 90 km west of Bu Hindi, the only description known to the author is the one by R. G. GOODCHILD as a “watering-point and track-centre”, whose Roman predecessor may be covered by an “Islamic” fortress.

In the Libyan Desert (Egypt, Libya) a survey of this type of edifice and institution has not been yet compiled for Roman and early Islamic times, not to mention a scholarly discussion of development and distribution of such buildings, which may be due to the historically more interesting implications offered by the way stations in the Eastern Desert. However, the finds at Abar el-Kanayis on the Marmarica-Plataeau contribute to the question of roadside inns in that region, since the layout of the complex is comparable to the aforementioned type of building: A large courtyard surrounded by thick walls in combination with several rooms distributed at each end of the courtyard provides shelter for travellers, traders or herders coming along. Goods and other commodities can be stored safely in either the rooms or the courtyard. A second smaller courtyard at the northern end of the building (some wall remains lead to the assumption of a courtyard here as well) may have been used as a pen for the draught animals. People can rest, prepare food, and spend the night in the rooms or even gather with their tents overnight in the courtyard at the cistern site, since foraging op-

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90 See Th. Vetter et al., Routes, where eight more cistern sites with roadhouses are considered.
92 See loc. cit., p. 62 for the layout and date of the building at Medinet Bu Hindi; cf. S. Stuccu, Architettura cirenaica, Rome 1975, p. 480, Tav. V. The caravanserail adjoining the city wall in the southeast of Cyrene, in use from the 2nd century BC to Late Antiquity is not comparable, since it is the westernmost terminus of the infrastructural network on the Marmarica-Plataeu and situated in the city, see M. Luni, op. cit., p. 58. It serves rather as a controlling and controlling point between the inner city and the outside than as a stopover along a route. However, the concept of courtyard, cistern (the visible remains of which go back to the 4th century CE) and some adjoining rooms matches the layout of the building at Abar el-Kanayis.
93 For Mechili see R. G. Goodchild, The Roman and Byzantine Limes in Cyrenaica, in: JRS 43, 1953, pp. 65–72, p. 72. Its character as a waterstation (or caravanserais) has yet to be studied.
opportunities for the animals and a protected storage place for the goods are more necessary than other amenities.

Thus the building of Abar el-Kanayis offered a safe and comfortable stay on the way between Siwa and the coast or on an East-West traverse of the Marmarica-Plateau between the Nile Valley and Cyrenaica. The cisterns provided water, the nearby range-lands in the depression provided food and rest for the draught animals and the livestock of roaming or trading herders.

The starting point for any consideration on who was responsible for the erection and maintenance of the roadhouse has to be the fact that there is no archaeological evidence for an extended influence by state authorities in the Eastern Marmarica south of the coast. Even though many cistern sites on the Marmarica-Plateau were increasingly frequented in Roman times\(^{96}\), nothing points to a long-term infrastructural concept by the Roman administration applied to the route-system comparable to the Eastern Desert, but rather to increased surplus production, resulting in trade, traffic and thus the enhancement of the route infrastructure. A governmental (and bureaucratic) influence may not have reached further south than the Northern Tableland, as the informative PMarm. shows for a region to the west of the investigation area\(^{97}\). Thus we assume, that the buildings at Abar el-Kanayis resulted from a rather decentrally organised collaboration of the inhabitants of the coastal sites, the nomadic inhabitants of the Tableland and the Marmarica-Plateau and the inhabitants of Siwa, regulated by regional economic demands\(^{98}\). They had already started with the installation of vitally important cisterns between the coast and the oasis or along the east-west routes long before Graeco-Roman impacts on the region began. By way of usage agreements, easements, and a tenantry system, with a person on duty at the cistern site who took care of the building as well as the passers-by and the maintenance of the cisterns, the different parties (nomadic Berbers, oasisic Berbers and sedentary coastal based inhabitants from the Graeco-Roman sphere) involved in the traffic may have found a convenient solution for the use of the site in Roman and Late Roman times.

(A.-K.R.)

### 4.2 Water, pots and passers-by

The roadhouse at Abar el-Kanayis as part of the route network of the Marmarica-Plateau served as an important staging post from Roman to Early Byzantine times for people who crossed the desert region between the Qattara-Depression and the Mediterranean coast. The water available from the two cisterns was and is the primary advantage the site offers. Besides the supply with this indispensable resource, two large buildings served as a kind of caravanserai, where people, commodities and draught animals found shelter and protection against weather conditions or other inconvenient occurrences on the plateau. Courtyards and rooms – even though there was no place to stay for longer periods – represented a location in the desert to rest and to meet. Goods as well as provisions and to a certain extent also fodder had to be brought to the site, and in cases of loss and breakage parts of those items remained there.

According to these left-overs (mainly pottery), that provides an insight into the spectrum containers and therefore the goods that were traded, the people who frequented the buildings belonged to a settled society, trading with goods and travelling for exchange reasons, or these persons had at least access to pottery made in the Graeco-Roman influenced sphere of the coast. Another group of users can be associated with nomadically living people, who came to the cistern site to water their flocks and herds, or as guides. At a site like Abar el-Kanayis we are able to focus on representatives of the archaeologically less visible people roaming the Marmarica-Plateau in antiquity, who used the roadhouse at the cisterns, too. Finds of Hand-made Pottery (NLDW) are clearly to be seen as a relict of indigenous people of the Eastern Marmarica, since these ceramic products can be made on the spot without special equipment and fired in an open fire. Besides the chronological importance of the pottery finds they provide information about the socio-cultural groups that gathered at the cisterns of Abar el-Kanayis on the Marmarica-Plateau: While wheel-made pottery like Amphorae, Coarse and Cooking Ware, but also Fine Ware belong to the coastal- or oasis-based traders and travellers with access to such pottery products, the type of Hand-made Pottery re-

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\(^{96}\) TH. VETTER ET AL., Routes.

\(^{97}\) The tax lists by the Roman authorities does not affect dwellers on the Marmarica-Plateau but only in the coastal zone and on the Northern Tableland.

\(^{98}\) See for the regional trading systems between Bedouins and Siwani in recent times \((sadaqa)\) D. P. COLE/S. ALTORKI, Bedouin, Settlers, and Holiday Makers: Egypt’s Changing Northwest Coast, Cairo 1998, pp. 137–143.
Reflects the presence of herders, pastoral nomads or hunters at Abar el-Kanayis who roam on the Marmarica-Plateau or serve as guides for caravans having a nomadic or semi-nomadic background and excellent knowledge of the area.

Even though it had later lost its function as a roadhouse, the remains of the northwestern building again gave shelter to a limited group of people in the late 6th century CE. But even in this and the later periods of the cistern site’s life, when finds are rare and limited to fire places, campsites or scattered handmade pottery, the water supply along the route across the Marmarica-Plateau still functioned and Abar el-Kanayis was still a stop over and staging-post between the Mediterranean Sea and Siwa.

(A.-K. R.)

Acknowledgements

The main part of the study at Abar el-Kanayis was done during the project A7 under the aegis of the Collaborative Research Center (SFB) 586 financed by the German Research Foundation (DFG) in collaboration with the former Supreme Council of Antiquities of Egypt (now Ministry of State for Antiquities, MSA). A more comprehensive view on the archaeology of the region developed with the “Marmarica-Survey” by A.-K. RIEGER (2008–2011), financed by the DFG, supported by a PhD scholarship of the Gerda Henkel Foundation for H. MÖLLER. The colleagues of the Marsa Matruh Department of the SCA with its director TAREK FARIED were of great assistance in every respect. OSAAMA SALLAM and AHMED RIFAT worked with us at the site. A. MARTIN (Rome) and M. BONIFAY (Aix-en-Provence) provided valuable comments on pottery questions, M.-D. NENNA (Lyon) on the glass. B. EMME and B. BÖHM merit great thanks for the diligent and reliable documentation, J. BECKER and J. JUNGFLEISCH for many of the drawings. The colleagues from the Heinrich-Barth-Institute of Cologne University F. JESSE, K. KINDERMAN and H. RIEMER helped with questions of lithic artefacts. I. NEWTON improved the English. Special thanks are also due to the Bedouin workers at the cistern site.

Abstract

An ancient roadhouse was discovered on the route between the Mediterranean Sea and the Oasis of Siwa and partly excavated in the years 2006–2007. The site on the Marmarica-Plateau with two ancient cisterns shows a pattern of use and frequented of this favoured area on the desert margin at least from Graeco-Roman to recent times.

One main phase of occupation and utilisation in Late Roman times is testified by two buildings, one of which was examined more closely: Its architecture, phase of construction and reuse as well as finds like pottery and archaeobotanical and -zoological remains help to understand how the route between Siwa oasis and the Mediterranean coast with harbour cities like Paraitonion was frequented and which goods people transported across the Marmarica-Plateau.
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