With donkeys, jars and water bags into the Libyan Desert: the Abu Ballas Trail in the late Old Kingdom/First Intermediate Period

Frank Förster

The Dakhla Oasis, situated some 300km from the Nile Valley in Egypt’s Western Desert, can be regarded as the most southwesterly outpost of pharaonic civilisation. When an exceptionally strong sand storm revealed, in 1947, the first traces of the late Old Kingdom town at Ayn Aseel in the eastern part of the oasis, it came as quite a surprise to the scientific, Nile-oriented community (though some ancient monuments and artefacts of later date had been known before). Over nearly 30 years, the systematic research by missions of the Institut français d’archéologie oriental (IFAO) and the Dakhleh Oasis Project (DOP) has revealed many aspects of ancient life in this remote region, the archaeological potential of which is far from being exhausted. The recent discovery of a long-distance desert route, which extends the known limit of Egyptian influence several hundred kilometres further towards the heart of the continent, is another surprise. In 1999 and 2000, the German desert traveller Carlo Bergmann found several sites which form a chain of staging posts on an almost straight line, the end of which lies close to the Gilf Kebir Plateau in the Libyan Desert, about 400km southwest of its starting-point in Dakhla (fig. 1). The midpoint of the trail is the well known, but for a long time mysterious, Abu Ballas or ‘Pottery Hill’ site where large amounts of pharaonic pottery were discovered as early as 1918 and 1923, respectively (figs. 2–4). Rudolph Kuper, for many years interested in the riddle of these pots, immediately initiated investigations of the new sites within the prehistoric research programme of the Collaborative Research Centre ACACIA at the University of Cologne.

This paper, presenting some of the results of the ACACIA project, will focus on the material evidence, practical use and possible purpose of the trail in the late Old Kingdom

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1 See, for example, the fairly personal account of Ahmed Fakhry, in Textes et langages de l’Égypte pharaonique, 219–22.
2 Bergmann, Der letzte Beduine, 367–460.
or (early) First Intermediate Period. The physical remains of that period are by far the most numerous and informative along the trail. Moreover, there is a strong connection with the oasis’ capital and administrative centre at Balat/Ayn Aseel around the late Sixth Dynasty, allowing the use of the local chronology established by IFAO colleagues. Other periods of pharaonic activity are attested on the route as well, principally through ceramic evidence. This material has been thoroughly studied by Stan Hendrickx, also revealing vessels of the Second Intermediate Period, the later Eighteenth Dynasty and the Ramesside Period. In addition, a few artefacts point to Roman and Islamic times; others can be dated to the Predynastic or Early Dynastic Periods. But whatever happened on the trail during its apparently episodic use over the centuries, the activities in the late Old Kingdom or First Intermediate Period have left the most distinctive and abundant traces.

Clearly these Egyptian enterprises did not venture into barren, hostile regions hitherto totally unexplored. A few years ago, Olaf Kaper and Harco Willems reported on some Fourth or Fifth Dynasty hilltop sites on the periphery of Dakhla which had been used as watch posts in order to control the access roads to the oasis from the east as well as from the south. Similar sites along the southwestern fringes of the oasis, excavated by the ACACIA project, can now be added (fig. 5). Another remarkable discovery by Carlo Bergmann, a desert camp site with hieroglyphic rock inscriptions some 60 km southwest of Dakhla, demonstrates an Egyptian interest in that area already at the time of Khufu and Radjedef. According to the analysis of the epigraphic material by Klaus Peter Kuhlmann, pharaonic expeditions of up to 400 men came here to procure mineral powder used for paint. Although this site, the so-called ‘Radjedef’s Water-Mountain’ (Chufu 01/01), is several kilometres off the Abu Ballas Trail, where no pottery of the early Old Kingdom has yet been found, it is difficult not to conclude that the Egyptian settlers of later times already had knowledge of the regions to the south and west.

Crossing the vast, waterless terrain between Dakhla and the Gilf Kebir must always have been a risky challenge in pharaonic times when, until the introduction of the domesticated camel in the first millennium BC, the principal beast of burden was the donkey. Without any wells in between and only sparse vegetation at best, small groups of desert travellers

11 The economic role of the donkey in ancient Egypt is a topic that has not attracted much scholarly attention. For a general overview see Brewer et al., *Domestic Plants and Animals: The Egyptian Origins*, 99–100 and Osborn and Osbornová, *The Mammals of Ancient Egypt*, 132–6 (with further references). See also the recent study by Janssen, *Donkeys at Deir el-Medîna*. A small clay model of a loaded donkey has been found in Balat, see Boutantin, *BIFAO* 99 (1999), 61, figs. 20–1 (no. 71).
could hardly have carried more than the provision in water and food they and their animals would need for the journey - and this had to be well prepared. An elaborate system of cairns ('alamat') made of loose stones is one of the features of the trail (fig. 6), and sometimes the tracks of the donkeys leading to these points of orientation are still visible after thousands of years (fig. 7). Donkey bones and droppings have been detected at some sites, and small stone circles measuring up to two metres in diameter might well have served as basins for watering or feeding them (fig. 8).

In the late Old Kingdom or First Intermediate Period, some authorities decided to install supply depots at regular distances in order not only to facilitate transits for donkey caravans, but to free their backs for other goods that needed to be transported. A great number of large earthen storage jars, identical to the ones used in Balat at the same time in terms of typology and fabric, had been selected for that purpose (figs. 9–10). Being 50–60cm in height and with a capacity of around 30 litres, however, they exceed the average size of the vessels used in the capital of the oasis (which are 30–40cm in height). At about twenty sites, usually at the foot of prominent sandstone hills, the remains of some 300 vessels of this type have been found, mostly broken and heavily eroded. The original number was probably much higher, and more concentrations may still await discovery. According to descriptions given by John Ball, Prince Kemal el-Din and C.S. Jarvis, more than a hundred jars, still in a good state of preservation and dumped in regular order, were excavated at Abu Ballas in 1923 (cf. fig. 3).

Unfortunately, the site is now bereft of much of its original material due to the activities of off-road tourists.

Some of the storage jars bear incised potmarks that are also known from Balat (which apparently represents the departure point for the trail), especially marks known from the area of the governor's palace at Ayn Aseel. A mark resembling the hieroglyphic sign for $h$, occurs frequently (fig. 10), and a few combinations of hieroglyphs are probably to be considered as personal names, identifying the owner of the content before the vessel has been reused. Large collective storage areas necessitating such identifications of personal ownership are, up to now, only known from the residence. The variety of about thirty different potmark motifs, incised both before and after firing, adds to the suspicion that the trail's storage facilities had been produced in the pottery workshops of the administrative centre, but not specifically for this purpose.

Many of the jars, which were probably closed with a piece of leather when filled or re-

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13 Cf. Riemer et al., MDAIK 61 (2005), 304–5, fig. 7, pl. 45c. For a representation of a resting donkey, incised (next to another one) on a Ramesside storage jar found at ‘Muhattah el-Homareen’ (site Jaqub 99/33), see Kuper, Antiquity 75 (2001), 802, fig. 5.
14 Soukiassian et al., Balat VI, 107; Valloggia, Balat I, 150. Larger vessels do occur in Balat, but rarely (e.g., Minault-Gout, Balat II, 167–8; Castel et al., Balat V, figs. 145–52).
15 See above, n. 3.
17 For the residence of the local dynasty of state-controlled ‘rulers of the oasis’ (hkkh wḥt) see Soukiassian, E.-A 11 (1997), 15–17; Soukiassian et al., Balat VI.
18 Cf. Pantalacci, in Soukiassian et al., Balat V I, 456–9, figs 269 [592b, 1389], 270 [647e].
filled, show mineral stains characteristic for the evaporation of liquids. Water was of course the most basic need in these desert environments. Nevertheless, some of the vessels might have contained grain or other foodstuffs deposited for the donkeys and their drivers. This assumption was recently evidenced by the finding at one of the smaller stations of a jar still containing some barley grain (figs. 11–12). Multiple erosion lines caused by wind-blown sand are visible on the exterior of some vessels. They always occur at an angle of 20–45 degrees compared to the central axis of the jars but at different places, thus indicating a repeated use after they had lain empty for a while. For how long or for how often the jars were used is however difficult to estimate.

The sites along the trail where late Old Kingdom/First Intermediate Period pottery has been found differ much in size and structure. Sometimes there are only a few sherds without any further archaeological context, probably the remains of one or two jars accidently broken during transport. Others yielded more vessels which had carefully been stored in rock shelters close to where people were to spend the night. The most important sites, however, are those where several dozen vessels had been deposited and where simple stone structures, hearths, rock engravings and a number of other artefacts attest a temporary occupation for more than one day or night.

Two sites, the original Abu Ballas site (figs. 2–4) and one named ‘Muhattah Jaqub’ by Carlo Bergmann where some 70 jars have been excavated (figs. 13–14), belong to this latter category. Besides the storage jars, both sites yielded similar cups and bowls, as well as large vats used for the preparation of bread dough (see below). Furthermore there are identical potmarks. These two sites are therefore not only contemporaneous but should be considered elements of the same operation(s). Obviously some people stayed here for a while, probably to keep watch over the provisions until they would be needed. Senet-game boards made of local sandstone (fig. 15), reworked pottery sherds and flint stones used as tools (fig. 16), and a few rock engravings, elucidate how they spent their time at these lonely outposts. Among the latter, there are rows of notches which may be interpreted as a counting of days (figs. 17–18). More sophisticated rock art is attested at Abu Ballas: a scene showing a bearded ‘Libyan’ (?) hunter with two dogs chasing a gazelle (fig. 19), and one depicting a cow suckling its calf (fig. 20). For ‘Muhattah Jaqub’ a spiral motif may be mentioned (fig. 21). Rock shelters, some of which were furnished with small walls made of loose stones as well as with hearths, had been used as resting places (fig. 22). At Abu Ballas, a small cave (c. 2x1.5m, max. height 1.2m) halfway up the southeastern slope of the hill, thus affording a good vantage point, was excavated by the ACACIA-team in 2002 (figs. 23–4).

One of the duties of the men stationed here apparently was to prepare bread on a comparatively large scale, probably in order to supply the members of the caravan to come. Sherds from two large vats, each with a capacity of more than 50 litres, have been found at
Abu Ballas, and three or four are attested for ‘Muhattah Jaqub’ (figs. 25–6). Curiously, one of them has a representation of a standing king wearing the double crown of Upper and Lower Egypt on its outer, flat, bottom, incised before firing (figs. 27–8). Since inscriptions are almost entirely missing from the trail, this depiction of an unnamed pharaoh is the only evidence so far which might attest to activities of an official nature.

The two sites under discussion also provide a clue for understanding the pattern of distribution of the main supply depots. ‘Muhattah Jaqub’ is situated almost 80km northeast of Abu Ballas, where the next large depot has been installed (cf. fig. 1). This distance most probably relates to the donkey’s ability to go without water for two or three days, an ability the Egyptians certainly made use of. Thus, the pack animals either walked c. 40km per day and were watered at the end of every second, or they needed three days at a rate of c. 25–30km to cover the distance, getting their water at the end of every third. Though the former figure can’t be excluded, comparative data, both of ancient and more recent times, suggests the latter to be more realistic under the given circumstances. Moreover, the positions of intermediate, smaller sites where people could spend the night before arriving at a main depot supports such an interpretation. Of course, one cannot expect a mathematically exact distribution of supply depots but one that had been dictated by practical considerations and experience. More difficult terrain along some parts of the route would certainly have increased the journey time, and this is only one of the factors which might have had an impact on daily travel rates. Nevertheless, assuming an average rate of c. 25–30km per day for a pack train consisting of, perhaps, 50–100 donkeys, it can reasonably be argued that the journey from the Dakhla Oasis to the outskirts of the Gilf Kebir Plateau (or vice versa) could take around two weeks. Presumably, the journeys were undertaken in the colder seasons, i.e. in winter or early spring times, when winter rains might even have provided fresh grass in places, especially in the surroundings of the mountainous region of the Gilf Kebir, frequently blessed with cloud-cover.

Setting up such a chain of supply depots must have been a logistical challenge and a laborious task as well. The storage jars weigh 14–15kg on average; filled with water, they could attain c. 45kg in weight, not easy to handle in the heat of the desert. To avoid a loss of precious water if a donkey lost its load, the vessels would have been transported empty, and filled at their final destination. Most probably, the water had been carried separately in light, flexible water bags which usually were made of goat skins (so-called girbas). Though today often replaced by the plastic jerrycan, this device was and still is the most essential equipment of bedouins and other desert travellers (figs. 29–30). A curious clay object found at Balat and said perhaps to represent a hippopotamus may actually be a model of such a water bag. The jars, on the other hand, were probably carried in baskets. At one of the stations used in

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24 Similar vats were found in Balat: Soukiassian et al., Balat III, 112–13, pl. 33; Castel et al., Balat V, 132, fig. 135 [C78]; Soukiassian et al., Balat V/1, 503, fig. 335 [1228/1].
26 Amounts of pressed dry grass, perhaps collected and deposited for use as animal fodder, have recently been found at some of the smaller stations along the trail.
28 Soukiassian et al., Balat III, 127, pl. 45 (no. 15).
Ramesside times (‘Muhattah el-Homareen’), such a means of transportation has been found, still covered with vessels of that period (fig. 31).

Using donkeys, jars and water bags to prepare a way through the desert - how exactly did this work? Without taking into account the additional weight of packing devices such as baskets and ropes, a donkey load may well have consisted of either four empty jars or two large water bags, each filled with c. 30 litres of water (cf. figs. 32–3). Distributing these loads of c. 60kg evenly on the animals’ flanks was of course important. In order to place a water depot of c. 3000 litres at Abu Ballas, for example, 25 donkeys were needed to carry a hundred containers, and 50 more to get the vessels filled. However, during the c. 200km journey from Dakhla to Abu Ballas and back again, the animals as well as their drivers would need provisions, which could only have been provided at intermediate supply stations. The successive installation of these supply stations and the re-filling of their storage capacities was evidently an enormous effort involving many donkey convoys.

Revealing pharaonic advances far into the Libyan Desert and thereby contributing to the early history of trans-Saharan traffic is interesting enough. Furthermore, the archaeological evidence of the trail allows insights into the methods and strategies of long-distance desert travel at the end of the third millennium BC. But what was the reason for using the route in such a manner in the late Old Kingdom/First Intermediate Period? What motivated such an expenditure of resources? The answer probably lay on the backs of the donkeys, once all the stations were ready for use. But whatever the pack animals transported, traces have yet to be found in the archaeological record.

In order to offer a hypothetical explanation, two main aspects have to be dealt with. Firstly, what was the final destination of the caravans (certainly not the Gilf Kebir), and secondly, when exactly did the activities take place? Due to excavated material, the latter can be answered more easily: the cups and bowls used at the stations (fig. 34) have their best parallels in findings from the so-called ‘première phase post-incendie’ at Ayn Aseel. This is the local phase that immediately followed the deliberate destruction by fire of the governors’ residence around the end of the reign of Pepi II. We do not know what this decisive event meant to the line of governors in the late Sixth Dynasty and thereafter. But we do know that some governors still (or again) reigned in the oasis in the First Intermediate Period. Two radiocarbon dates from charcoal samples, stratigraphically connected with those cups at Abu Ballas and ‘Muhattah Jaqub’, center around a calibrated age of 2190 ± 30 years BC (KIA-20683, -20684). Accepting a long duration for the First Intermediate Period, this would lead us to the very end of the Old Kingdom, i.e. the Eighth Dynasty, or the beginning of the following epoch. Some simple motifs, engraved on the rocks of the trail’s stations and known from contemporary button seals, fit well with this chronological context: for example ‘swastikas’ (fig. 35), looped ropes (fig. 36) and the spiral form from ‘Muhattah Jaqub’ already mentioned (fig. 21). The hunting scene from Abu Ballas (fig. 19) can best be compared with

32 Cf. Wiese, Die Anfänge der ägyptischen Stempelsiegel-Amulette, pls. 27 (nos. 555–7), 50 (nos. 1040–1); Pantalacci,
similar scenes painted on First Intermediate Period bowls that have been found at the Qubbet el-Hawa near Aswan (figs. 37–38).³³

Where the trail ultimately led to is, on the other hand, difficult to answer. The nearest places with permanent water are the Kufra Oases in modern Libya, some 350km to the northwest of the eastern fringes of the southern Gilf Kebir, and Gebel Uweinat, some 200km to the southwest. Kufra, however, surrounded by seas of sand, is rather isolated and probably became important for trade-caravans only with the introduction of the camel.³⁴ Therefore, and for other reasons, it is to be assumed that the next leg of the route led towards Gebel Uweinat, the island-like most elevated feature in the whole of the eastern Sahara, which is provided with a number of rain-fed wells at its foot (in Arabic, Uweinat means ‘the small fountains’).³⁵ From here it would be possible to reach more southern regions in the territory of modern Sudan or Chad. To date, however, no evidence has been found in the Gebel Uweinat, nor in the Gilf Kebir proper, that attests to an Egyptian presence there.³⁶

Epigraphic material from Ayn Aseel might help to throw some light on the matter. A few letters of administrative contents, written on clay tablets and stored in the archives of the governor’s palace before it was destroyed, prove the existence of Egyptian relations with distant regions, the names of which are otherwise unattested. One letter records a complaint that a potter has not yet arrived at a place called Rudjet (RwDt), probably one of the villages in the oasis’ (western?) outskirts, in order ‘to prepare a way’ for the chief of a foreign region called Demi–iu (r irt w’īt ḥk3 n Dmi–iw).³⁷ Another letter mentions that something should be taken from a granary that ‘enriches (or fills, sxwd) the way’ of the same chief.³⁸ Apparently, the local administration took some measures to facilitate movements of foreign groups coming

in Pantalacci and Berger-el-Naggar (eds.), Des Néferkarê aux Montouhotep, 238, figs. 4 (no. 3816), 5 (no. 4421), cf. p. 236, fig. 2.


³⁴ In the 1930s, the Hungarian desert explorer Ladislaus E. Almásy proposed that Abu Ballas was a water station marking the first third of a route connecting Dakhla with the Kufra Oases. In his opinion, one of the valleys of the western Gilf Kebir Plateau, Wadi Abd el-Melik (which he claimed was the legendary lost oasis of ‘Zarzura’), was another intermediate stop after two thirds of the distance. See Almásy, Schwimmer in der Wüste, 108–9.

³⁵ For Gebel Uweinat, situated in direct prolongation of the trail (cf. fig. 1), and its exploration see Simons, in Schiffer’s (ed.) Die Sahara und ihre Randgebiete III, 423–9; Czerniewicz et al., Journal of African Archaeology 2 (2004), 81–96.

³⁶ Except for, perhaps, a single sherd found already in 1980 in the southwestern part of the Gilf Kebir Plateau (B.O.S. site Wadi el-Akhdar 80/55) which has only recently been identified by Stan Hendrickx as belonging to a storage jar of the late Old Kingdom/First Intermediate Period.


³⁸ Tablet no. 3685: Valloggia, Les oasis d’Égypte dans l’Antiquité, 96, fig. 81; Posener-Krieger, in Lalou (ed.), Les tablettes à écrire de l’Antiquité à l’Époque Moderne, 45. Laure Pantalacci kindly provided me with a complete transliteration and translation of the text.
to Dakhla, measures that included the delivery or disposal of pottery and grain. A connection between the subject of the letters and the slightly later establishment of the trail’s supply depots seems reasonable.

But where is Demi-iu to be located? Since the place-name can be translated as ‘village (or perhaps better: landing-place) of the island’, it is, again, tempting to think of Gebel Uweinat and one of the wells at its foot. In the 1920s, about 150 people of the Goran tribe, originating from northern Chad, had settled here for some years, and their leader, Sheikh Herri, was known as the ‘king of Uweinat’ (fig. 39). Was the ‘chief of Demi-iu’ a forerunner of Sheikh Herri, 4000 years ago? In recent centuries, nomadic tribes from the south, such as the Goran or Tibu, frequently came to the Uweinat and Gilf Kebir when, during the rainy season or shortly after, the region offered good pastures for their animals. This was probably an age-old tradition.

In northwestern Sudan, where better climatic conditions prevailed in ancient times, there is archaeological evidence indicating that highly mobile groups of pastoralists roamed vast areas of the eastern Sahara around the end of the third millennium BC. Domestic donkeys had served as pack animals, and the specific pottery of these groups has been found, for example, in the Laqiya region, in Wadi Hāriq and up to the Wadi Howar in the south. There is reason to assume that the transhumance cycles of the nomads, who might have been termed ‘Libyans’ by the Egyptians, not only encompassed these areas, but also the Uweinat region and the Nile Valley south of the Third Cataract. The latter includes the region where the Kerma state emerged, an important trading centre probably to be identified with the Yam country of Egyptian records.

The famous biography of Harkhuf and other sources, indicate that by the late Sixth Dynasty, some generations before the stations of the Abu Ballas Trail were established, it had become increasingly difficult to reach Yam due to a confederacy of hostile chiefdoms in Lower Nubia: Irtjet, Setju and Wawat. On his third journey to Yam during the reign of Merenra, Harkhuf preferred a route he called ‘the oasis road’ (wAt wHAt) instead of one closer to the Nile, probably to avoid trouble. This time, however, he found his trading partner not at his residence in Yam, but on his way ‘to smite Tmhw-Libyans to the western corner of heaven’. Harkhuf wisely followed and ‘satisfied’ (sHtp) him, as the text in his rock tomb at the Qubbet el-Hawa near Aswan concisely states. The journey was most successful: Harkhuf returned to

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40 See Hassanein Bey, Rätsel der Wüste, 194–5, fig. facing p. 192.
45 Sethe, Urkunden des Alten Reichs I, 120–31; Lichtheim, Ancient Egyptian Literature I, 23–7; cf. the most recent study by Obsomer, in Bruwier (ed.), Pharaons noirs. Sur la Piste des Quarante Jours, 39–52.
Egypt with 300 donkeys laden with ‘all sorts of good products’ such as incense, ebony, oils, panther skins and ivory. When he passed by, on his way back closer to the Nile, the residence of the ruler of Irtjet, Setju and Wawat, his pack train was escorted by troops from Yam, guaranteeing a safe passage. Among the valuable goods Harkhuf finally delivered to his king there was also the information that ‘Libyan’ tribes coming from the west or northwest were, at least sporadically, in contact with Yam.

So, in short, the Abu Ballas Trail may not have been the first leg of a route destined to open up new territories, or markets, in Kufra, northern Chad or the Darfur region in Sudan when the central power of the Egyptian state was already in an advanced state of deterioration. Rather, it may have been part of a route that ultimately led to the Nile Valley in Upper Nubia. In a time when more direct communication between Egypt and Yam had become a serious problem, the search for an alternative trade route might well have become a requirement. ‘Libyan’ nomadic groups could have acted as middlemen or intermediaries, and one of their leaders who could have managed part of the profitable traffic perhaps had a temporary base at Gebel Uweinat. The main tasks of the local administration in Dakhla would have been to organize communications, engage ‘Libyan’ groups to participate, and to make the most difficult desert stretch between the Gilf Kebir Plateau and the Dakhla Oasis passable for donkey caravans. It almost goes without saying that this scenario raises a number of questions and will remain a mere hypothesis until new material comes to light.

In any case, the archaeological evidence does not attest to a very intense or long use of the Abu Ballas Trail in the period under discussion: the pottery seems most homogeneous and the rock engravings found at some of the stations are comparatively few in number. The four rows of notches at ‘Muhattah Jaqub’ (fig.18) may well represent the minimum number of seasons when all of the trail’s supply stations were ready for use.

In the Middle Kingdom, probably in the Twelfth Dynasty, the steward (imy-r3 pr) Mery left a short semi-hieratic inscription, the only one so far known from the trail, at a conspicuous rock about 30km southwest of Dakhla (‘Mery’s Rock’: fig. 40, cf. fig.1). As it states, Mery set out in regnal year 23 of an unnamed king ‘in order to search out the oasis dwellers’ (r D(r) whtyw, fig. 41). The arrival of foreign groups at Dakhla in the late Old Kingdom or early First Intermediate Period was probably part of the collective memory in much later times, when a chain of forts was set up in Lower Nubia, in order to control direct access to the regions further south.

We do not know how far Mery advanced on his reconnaissance trip, but no Middle Kingdom pottery has been found along the trail. It was not before the early New Kingdom that large amounts of storage jars were once again been dumped between Dakhla and the Gilf Kebir, but this is another story the Abu Ballas Trail has to tell.


47 Burkard’s reading requires the modifications outlined by Darnell, Theban Desert Road Survey in the Egyptian Western Desert, Vol. 1, 73.


http://www.thebritishmuseum.ac.uk/research/publications/bmsaes/issue_7/foerster.html
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Hinrichs, 1933.
Fig. 1: Satellite image showing the chain of archaeological sites along the Abu Ballas Trail. The square in the inset marks the area between Dakhla and the Gilf Kebir crossed by the trail.

Fig. 2: Abu Ballas or 'Pottery Hill' (site Abu Ballas 85/55), the northern (on the right hand) of two lonely sandstone cones, some 200 km southwest of the Dakhla Oasis (photo: R. Kuper).
Fig. 3: Northern pottery depot at Abu Ballas, once consisting of more than a hundred late Old Kingdom/First Intermediate Period storage jars. Photograph taken by J. Ball after excavation in 1923 (Ball, *Geographical Journal* 70 (1927), fig. facing p. 125, above).

Fig. 4: Prince Kemal el-Din at the southern depot at Abu Ballas which included some Eighteenth Dynasty amphorae. Obviously the vessels had been arranged for the picture taken by J. Ball in 1923 (Ball, *Geographical Journal* 70 (1927), fig. facing p. 125, below).
Fig. 5: Map showing Old Kingdom hilltop sites on the periphery of Dakhla, used as watch posts to control the oasis’ eastern, southern and southwestern fringes (Riemer et al., MDAIK 61 (2005), 295, fig. 1). Note the course of the Abu Ballas Trail, suggesting Balat/Ayn Aseel as point of departure.

Fig. 6: The trail’s largest road sign, or ‘alam: a carefully stacked pile of stones more than two metres high (‘Muhattah Umm el-Alamar’, site Jaqub 99/30). The impressive construction also served as a wind-breaker for a small resting area at its foot, delimited by two dry stone walls (photo: R. Kuper).
Fig. 7: Ancient donkey track passing by a simple upright stone slab (photo: R. Kuper).

Fig. 8: One of a number of small stone circles which probably served as basins for watering or feeding donkeys (‘Muhattah Umm el-Alamat’, site Jaqub 99/30, photo: R. Kuper).

http://www.thebritishmuseum.ac.uk/research/publications/bmsaes/issue_7/foerster.html
Fig. 9: Some late Old Kingdom / First Intermediate Period storage jars (as well as the lower part of an Eighteenth Dynasty amphora) found at Abu Ballas (photo: R. Kuper).

Fig. 10: Drawing (S. Hendrickx) of one of the better preserved storage jars bearing a  -potmark on its upper body.
Fig. 11: Lower part of a storage jar still containing remains of barley grain (site Jaqub 00/20, excavated in March 2006, photo: H. Riemer).

Fig. 12: Detail of the remains of barley grain (photo: H. Riemer).
Fig. 13: Sandstone hill at ‘Muhattah Jaqub’ (site Jaqub 99/31). In the foreground the remains of storage jars half-buried in the sand (photo: R. Kuper).

Fig. 14: Some of the jars after excavation (photo: R. Kuper).
Fig. 15: Stone slab incised with a grid of thirty squares and thus most probably representing a *senet*-game board (photo: R. Kuper). The artefact, seen and photographed in front of the small cave at Abu Ballas (cf. figs. 23–24) in October 2000, has since disappeared. Fragments of *senet*-game boards made of local sandstone were also excavated at ‘Muhattah Jaqub’ (site Jaqub 99/31).

Fig. 16: Tools made of reworked pottery sherds (nos. 1–4) as well as of flint and other stones (nos. 5–9) excavated at ‘Muhattah Jaqub’ (Schönfeld, *Wegstationen auf dem Abu Ballas Trail*, fig. 66).
Fig. 17: Row of notches engraved upon a rock face at a resting place at Abu Ballas (photo: R. Kuper).

Fig. 18: Four rows of notches engraved upon rock faces at resting places at ‘Muhattah Jaqub’ (Schönfeld, *Wegstationen auf dem Abu Ballas Trail*, fig. 52).
Fig. 19: Rock engraving at Abu Ballas showing a ‘Libyan’ (?) hunter with two dogs chasing a gazelle (photo: R. Kuper).

Fig. 20: Representation of a cow suckling its calf at Abu Ballas (photo: R. Kuper).
Fig. 21: A spiral motif, one of a few rock engravings at ‘Muhattah Jaqub’ (photo: R. Kuper).

Fig. 22: Dry stone wall surrounding a small resting area beneath a rock shelter at ‘Muhattah Jaqub’ (site Jaqub 99/32, photo: R. Kuper).
Fig. 23: Entrance of a small natural cave halfway up the southeastern slope of the Abu Ballas hill, excavated in spring 2002 (photo: R. Kuper).

Fig. 24: Ground-plan showing the cave's dimensions as well as the position of findings within the rock niche area in front of it: fragments of storage jars, cups and vats (Schönfeld, *Wegstationen auf dem Abu Ballas Trail*, fig. 12). Note the hearth on the lower left and the position, marked by 'B', of the notches shown in fig. 17.
Fig. 25: One of the vats found at 'Muhattah Jaqub' (photo: R. Kuper).

Fig. 26: Drawing (S. Hendrickx) of the vat shown in fig. 25.

http://www.thebritishmuseum.ac.uk/research/publications/bmsaes/issue_7/foerster.html
Fig. 27: Representation of a standing pharaoh, incised on the flat outer bottom of a broken vat found at Abu Ballas (photo: R. Kuper, drawing: S. Hendrickx).
Fig. 28: Detail of fig.27. Note the necklace and the staff, or shepherd’s crook, in the king’s left hand.

Fig. 29: The famous representation of an ‘Asiatic’ caravan in the Twelfth Dynasty tomb of Khnumhotep II at Beni Hasan (Newberry, *Beni Hasan I*, pl. 31). Two of the men carry water bags slung on their shoulders.
Fig. 30: A bedouin boy with a water bag made of a goat skin (from an old postcard by Lehnert & Landrock, Cairo).

Fig. 31: The well-preserved remains of a woven basket or bag uncovered below an assemblage of Ramesside storage jars at ‘Muhattah el-Homareen’ (site Jaqub 99/33, photo: R. Kuper).
Fig. 32: Below: transport of four water jars in two baskets fixed on donkey-back, modern Dakhla (Henein, *Poterie et potiers d’al-Quṣr, Oasis de Dakhla*, 168, fig. 102). Above: a donkey carrying two vessels as depicted in the Eighteenth Dynasty tomb of Mahu at el-Amarna (de Garis Davies, *The Rock Tombs of El Amarna IV*, pl. 24, lower right).

Fig. 33: A donkey carrying two large water bags made of animal skins. Detail from a modern trade caravan in northern Chad (photo: M. Meerpohl).
Fig. 34: Types of late Old Kingdom/early First Intermediate Period cups and bowls found at some stations along the trail (drawings: S. Hendrickx)
Fig. 35: Rock engravings at 'Muhattah Harding King' (site Jaqub 99/35, photo: R. Kuper). On the right, a swastika-like motif which probably developed from a combination of four antelopes’ foreparts as found on late Old Kingdom/First Intermediate Period button seals (cf. Wiese, *Die Anfänge der ägyptischen Stempelsiegel-Amulette*, 84 (fig. 29), 133–5, pls. 24–7).

Fig. 36: Loopoed ropes engraved on a broken stone slab found at site Jaqub 00/21. The hieroglyphic signs on the right may be read as *snb*, ‘health’ (photo: S. Hendrickx).
Fig. 37: Painted bowl, dated to the First Intermediate Period, from a tomb at the Qubbet el-Hawa near Aswan (photo: R. Kuper).

Fig. 38: Another painted bowl from the Qubbet el-Hawa bearing a similar decoration (photo: R. Kuper). Both desert hunting scenes, showing a Nubian and an Egyptian individual, respectively, accompanied by two dogs, can easily be compared to the rock engraving at Abu Ballas (fig. 19).
Fig. 39: Sheikh Herri (on the left), the ‘king of Uweinat’ in the 1920s, and one of his fellows (Hassanein Bey, Rätsel der Wüste, fig. facing p. 192).

Fig. 40: ‘Mery’s Rock’ (site Meri 95/5, photo: R. Kuper).
Fig. 41: The semi-hieratic rock inscription left by the steward Mery (photo: R. Kuper).