



The Territorial Expanse of the Pan-Grave culture thirty years later

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Introduction

This article will present some fresh data on the Jebel Mokram Group of Eastern Sudan (Figure 1), 30 years after Karim Sadr's seminal work, *The Territorial Expanse of the Pan-Grave Culture* pointed out systematically the close relationship between the Jebel Mokram Group of Eastern Sudan and the Pan-Grave culture of Egypt and Nubia (Sadr 1987).

Typical Jebel Mokram Group finds were first collected in the Khashm el-Girba region by Shiner, and labelled as 'El Hagiz Group' (Shiner *et al.* 1971, 395-412), but the Jebel

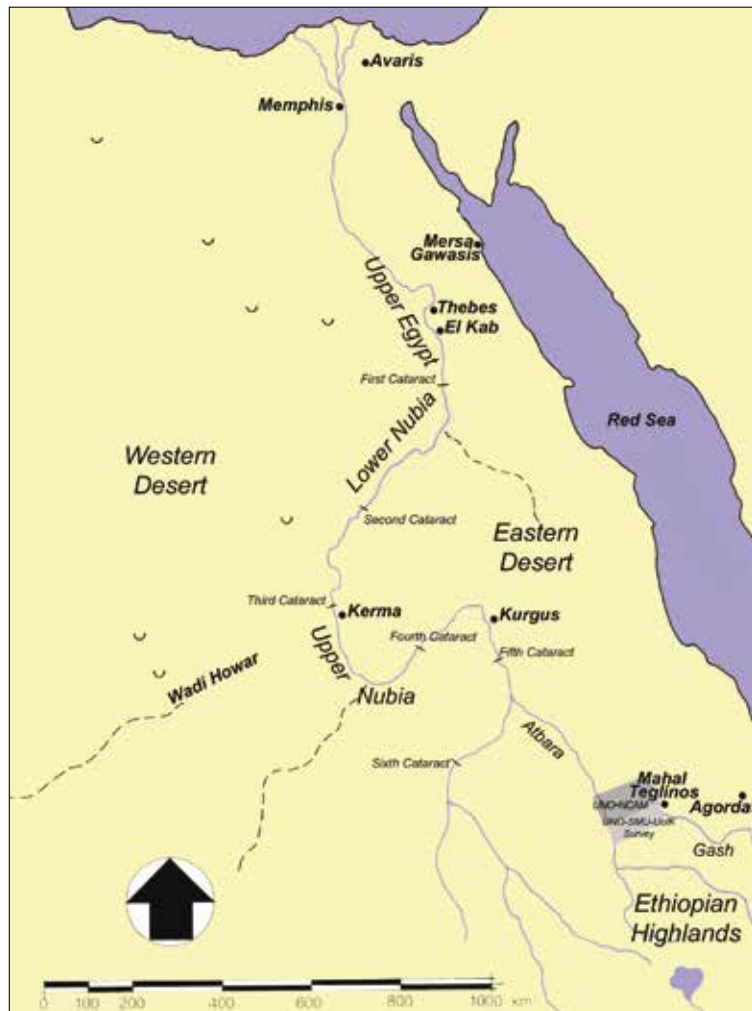


Figure 1. Location of the area in Eastern Sudan investigated jointly by the Italian Archaeological Expedition of the Istituto Universitario Orientale and by the American-Sudanese Butana Archaeological Project in the Eighties, and of the area under investigation by the Italian Archaeological Expedition to the Eastern Sudan of the University of Naples "L'Orientale" in the framework of a collaboration with the National Corporation for Antiquities and Museums since 2010.

Mokram Group culture was defined on the basis of the specific features of its ceramics, of the other aspects of the material culture and of its settlement pattern only in the early 1980s, when the cultural sequence of Eastern Sudan was outlined, thanks to the investigation conducted there by an Italian team of the Istituto Universitario Orientale (presently University of Naples "L'Orientale") and by the Butana Archaeological Project, a joint expedition of University of Khartoum and Southern Methodist University (Fattovich *et al.* 1984, 182, fig. 6; see also Marks and Fattovich 1989). In the meantime, the label Hagiz Group shifted to a cultural phase following the Jebel Mokram Group itself. A crucial contribution on this component of the cultural sequence of Eastern Sudan was given by Karim Sadr, who was mainly interested in the territorial studies and in the general issue of the adoption of nomadic pastoralism in the region, a process in which the Jebel Mokram Group was regarded as an important turning point (see Sadr 1987; 1990; 1991).

At that time, the possibility that Pan-Grave elements could occur in Eastern Sudan had already been mentioned by Manfred Bietak in his *Denkmäler der C-Gruppe und der Pan-Gräber-Kultur* on the basis of the very few elements known of the archaeology of the region before the start of its systematic archaeological exploration (Bietak 1966, 70). This was confirmed when the available data on Eastern Sudan and in particular on the phase labeled as Jebel Mokram Group had dramatically increased, thanks to the joint Italian and American-Sudanese investigations: the above mentioned article by Sadr published in 1987 was precisely a product of this venture. Actually, Sadr elaborated and proposed a typology for the pottery of the Jebel Mokram Group, and in the meantime he also stressed the similarities with the ceramics of the Pan-Grave culture of Upper Egypt and Lower Nubia, as well as the discontinuity from the previous Gash Group ceramic production (Sadr 1987, 270-274, fig. 4-5; 1990, 70, see also Fattovich 1989, 226; 1990, 19, Sadr 1991, 45-47, 106).

All these elements were clearly considered relevant for understanding the origins and nature of the Jebel Mokram Group and its relations with the preceding Gash Group. In particular, even if the Jebel Mokram Group certainly should be regarded as a part of the local regional tradition (the *Atbai Ceramic Tradition*, see Fattovich *et al.* 1984, 176; see also Marks and Sadr 1988, 80, Sadr 1987, 276; 1990, 70) for its distinctive traits and similarities with the Pan-Grave culture, it was often considered the result of intrusive elements that arrived in Eastern Sudan or was related to external contacts affecting the region at a certain point in the second millennium BC (see Fattovich *et al.* 1984, 182; Fattovich *et al.* 1988-1989, 348).

In his first discussion of this issue, Karim Sadr conducted a systematic comparison between the Jebel Mokram Group and the Pan-Grave ceramic assemblages

confirming their close ties (Sadr 1987, 270-279). To interpret these ties, he compared the large area characterized by Pan-Grave elements, including Lower Nubia, Upper Egypt, presumably the Eastern Desert, and the Eastern Sudan, with the present situation of the broad area inhabited by Beja groups, suggesting that in Jebel Mokram Group times Eastern Sudan may have been a part of a large cultural region including different economic areas (Sadr 1987, 281-282). Stressing the discontinuity from the earlier Gash Group not only in terms of ceramic style but also of settlement pattern, Sadr first suggested that this may have resulted from a migration of groups bearing a new culture to Eastern Sudan (Sadr 1987, 286-287). Three years later, in a second article devoted to the subject, however, Sadr was more cautious about the elements of discontinuity between the Jebel Mokram Group and the previous Gash Group that he had stressed in his previous work. Taking for granted as was often done (see e.g. Säve-Söderbergh 1941, 139) that the ancient Egyptian ethnic name Medjay was an equivalent to the archaeological Pan-Grave culture, he hypothesized a Medjay takeover of the area between the Gash and Atbara rivers, in which the local population changed its symbolic system, as suggested by the affirmation of a new ceramic style, with an apparently more quantitatively limited movement of people into the region (Sadr 1990, 81-82). In the same article, in support of his second interpretation, he stressed that the settlement pattern of the Jebel Mokram Group was characterized not only by differences but also by continuities with that of the Gash Group (Sadr 1990, 74-77; Fattovich *et al.* 1988-1989, 334, 348), and that the subsistence economy in the two phases was always agropastoral with perhaps only a difference in the higher degree of relevance of the pastoral component in the Jebel Mokram Group (Sadr 1990, 73-74). In this second interpretation, the main factor explaining the differences in subsistence and settlement pattern between the Gash Group and Jebel Mokram Group is represented by environmental changes related to the increasing aridity affecting the region over the period 3000-1000 BC (Sadr 1990, 77-79), while, for the rest, the main centers and crossroads in the regional network and the role played by the region in the long-distance exchange network remained substantially unchanged (see Sadr 1990, 79-80).

It should be mentioned that in the years following the publication of the articles by Sadr, for a while, the traditional (see e.g. Bietak 1966, 70-71, 76) relationship between the Pan-Grave and the Eastern Desert was seriously questioned because Pan-Grave materials were surprisingly lacking e.g. in the collections of the – unsystematic – surveys conducted in the Eastern Desert by the Centro Ricerche sul Deserto Orientale in the early 1990s (Sadr *et al.* 1995, 226; see also Näser 2012, 81). The identification between Pan-Grave culture and the Medjay people of the Egyptian texts is also presently rejected by some scholars (see e.g. Liszka 2015, 50). Nevertheless, since then, after the extension of the surveys to central and more south-eastern areas of the Eastern Desert,

and the discovery of Pan-Grave materials there, at least the connection between the Pan-Grave and the Eastern Desert can be considered if not certain at least highly likely (Manzo 2012, 80-81).

The absolute chronology is certainly an important aspect in the discussion about the relationship between Pan-Grave culture and Jebel Mokram Group. In his first work on the Jebel Mokram Group, Sadr only briefly discussed the issue, and on the basis of a single radiocarbon date and of some similarities with Egyptian and Nubian materials he suggested that the Jebel Mokram Group could have emerged in Eastern Sudan only after 1500 BC, and was, therefore, *c.* 300 years later than the Pan-Grave sites in Upper Egypt and Lower Nubia (Sadr 1987, 283).

It is noteworthy that the chronological difference between the Pan-Grave culture of Egypt and Lower Nubia and the Jebel Mokram Group of Eastern Sudan seems to be almost completely cancelled by the fresh evidence from recent investigations at the sites of Mahal Teglinos-K1 and UA53 (Manzo *forth. a*), in the framework of the ongoing research conducted since 2010 by the Italian Archaeological Expedition to the Eastern Sudan (Manzo 2012; 2013; 2014a; 2014b; 2017, 7; Manzo *et al.* 2011; 2012). Also the parallelisms more recently remarked upon between some Jebel Mokram Group ceramic materials and those from Kerma assemblages in the Fourth Cataract area (Manzo *et al.* 2012, 64) seem to support a beginning of the Jebel Mokram Group before 1500 BC.

The new absolute chronology of the beginning of the Jebel Mokram Group was proposed on the basis of a stratigraphic sequence in the excavation unit VI, in the western sector of the site of Mahal Teglinos (K 1) (Figure 2), where three Jebel Mokram Group living floors overlap at least a couple of Gash Group living floors and charcoal samples from the living floors and the features (pits and post-holes) associated with them were submitted for radiocarbon analysis (Manzo *forth. a*). As will be explained below, the radiocarbon dates and the assemblages from this sequence not only obviously impact on the general understanding of the Jebel Mokram Group, of the Pan-Grave culture, of their relationship and of the origin of the Jebel Mokram Group, but also provide some insights into the way the transition from the earlier Gash Group to the Jebel Mokram Group took place and on the relationship between these two cultures of Eastern Sudan.

New Data and Interpretations on the Transition between the Gash Group and Jebel Mokram Group

The reconstruction of the transition between the Gash Group and Jebel Mokram Group can be explored through the study of the changes in the frequency of the main ceramic classes occurring in the assemblages associated with the living floors of both groups recorded at K1 VI. This was already attempted by Sadr with the materials from excavation unit K1 III, not far from K1 VI, where the recently investigated



Figure 2. Map of the excavation units investigated at K1-Mahal Teglinos in the 1980s and 1990s (gray colour), 2013 (blue colour), 2014 (red colour), and 2015-2016 (green colour), showing the location of trench K1 VI.

sequence was brought to light (Sadr 1987, 286, fig. 12; 1990, 69, fig. 6).

In general terms, the trends in the frequency of the different ceramic classes noted in the assemblages from the stratigraphic sequence in K1 VI largely coincide with the ones outlined in K1 III (Figure 3). Nevertheless, it should be stressed that in the quantitative study of the diachronic distribution of the ceramic classes from K1 VI, only the as-

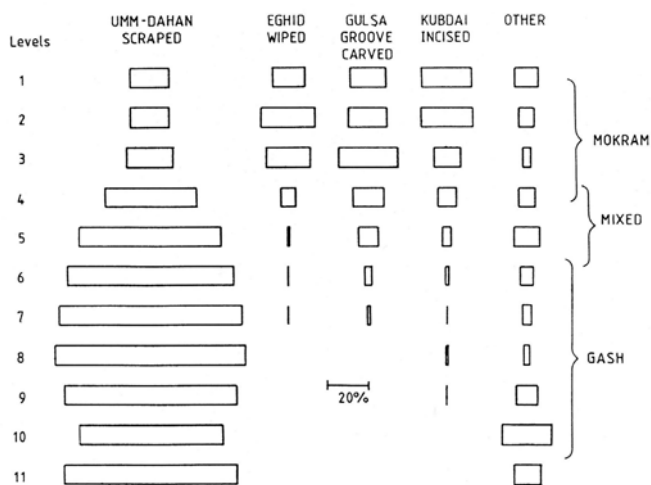


Figure 3. Battleship graph with the frequencies of the main ceramic types in the stratigraphic sequence of excavation unit K1 III at site Mahal Teglinos (K1) (from Sadr 1987).

semblages associated with the living floors were taken into consideration. This was done in order to enhance the reliability of the ceramic sequence by avoiding the possibility that assemblages from fillings and other soil strata, possibly characterized by the co-occurrence of Gash Group and Jebel Mokram Group material resulting from post-depositional factors, could give an erroneous impression of a gradual transition between the two phases. Of course, in order to get a more precise idea of the transition between the two phases, it would have been preferable that the sequence of living floors was continuous as much as possible, i.e. that there were no significant gaps in the occupation of this specific spot. Indeed, this could not be guaranteed from the beginning of the investigation in excavation unit K1 VI, but apparently, also judging from the associated radiocarbon dates (see below), we were lucky enough to obtain this.

The frequency¹ (Figure 4) of the ceramic types associated with the latest Gash Group living floor in K1 VI, SUs 30 and 45, represents a quite characteristic late Gash Group ceramic assemblage, as already known from earlier investigations in the central sector of the site (see Capuano *et al.* 1994, 114).

¹ In the elaboration of the frequencies, only rim sherds or body and base fragments whose characteristics could suggest the type of vessel from which they were derived, were taken into consideration. The sherds clearly ascribable to the same vessel even if not fitting were counted as a single fragment.

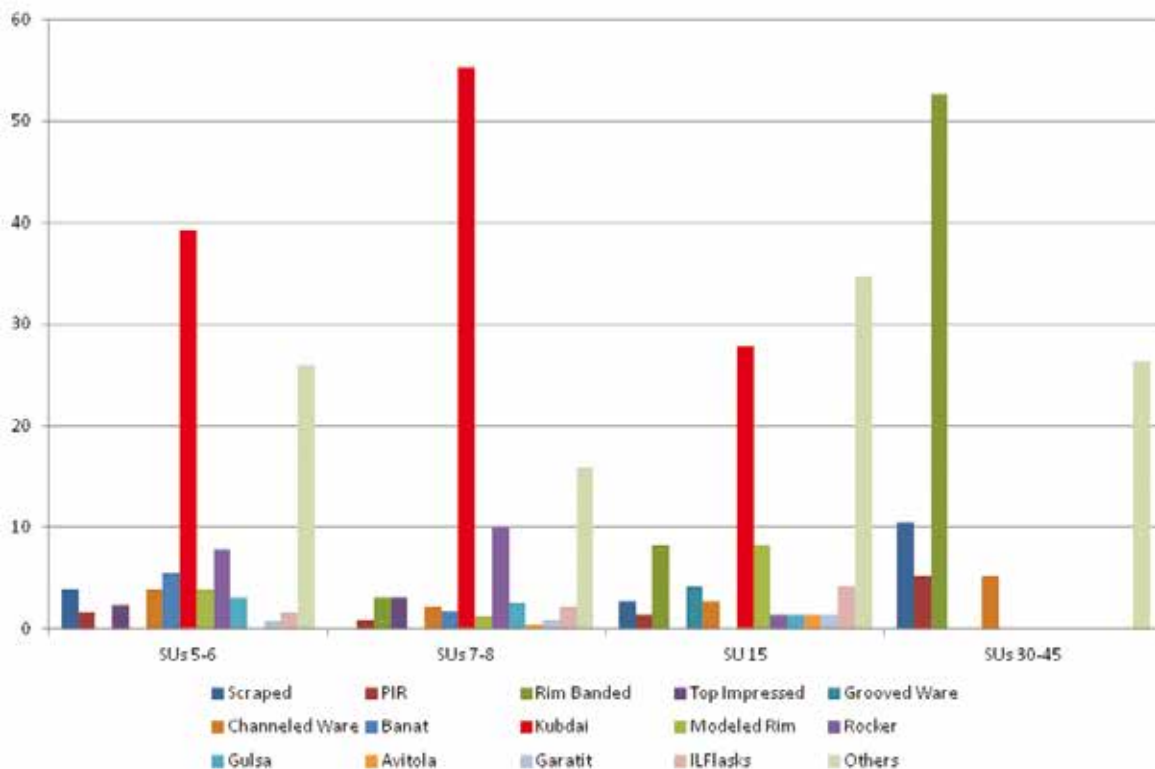


Figure 4. Frequencies of the main ceramic types in the stratigraphic sequence of excavation unit K1 VI at site Mabal Teglinos (K1).

Very typical of this horizon are the rim banded cups and bowls (Figure 5a-c), exceeding 50% of the collected material and, less abundant, representing on the whole \approx 16% of the assemblage, the scraped ware, including bowls sometimes characterized by pinched and indented rims and jars (Figure 5d), as well as the channeled ware, characterized by a decoration consisting of parallel regular grooves formed by a comb (Figure 5e), representing \approx 5% of the assemblage. The rest consists of fragments of various less frequent Gash Group classes and of undecorated, sometimes black-topped plain vessels (Figure 5f).

The Jebel Mokram Group assemblages are characterized by the Kubdai² incised ware (Figure 6a-c), bowls whose upper parts are characterized by crossing oblique parallel lines forming a grid pattern, sometimes framed by horizontal lines of impressions and sometimes black-topped (see Sadr 1987, 273, fig. 5), ranging from the 27% in SU 15 to over 50% and \approx 40% in SUs 7-8 and SUs 5-6 respectively (see again Figure 4). Other components of the Jebel Mokram Group ceramic assemblages are the Gulsa groove carved bowls (Figure 6d-e), characterized by oblique or vertical parallel grooves covering most of the body, the Avitola punctate bowls characterized by impressed notches covering the body (Figure 6f), the Garatit complex-impressed bowls (Figure 6g), with geometric sectors filled by impressions and often delimited by incisions covering the vessels, and the Banat fine cups (Figure 6h-i), with set-off rims and rim bands on the lip (see Sadr 1987, 272-273, fig. 5). With few minor exceptions, all these classes were practically unknown in Gash Group assemblages, as

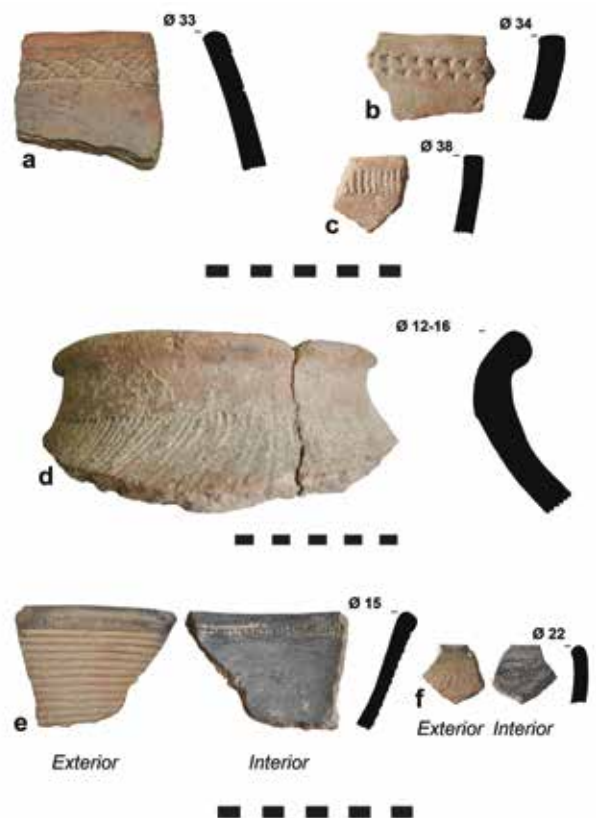


Figure 5. Fragments representative of the main late Gash Group ceramic types from assemblages of excavation unit K1 VI at site Mabal Teglinos (K1) (scale bars in cm): a-c) rim sherds of rim banded bowls from K1 VI B4 SU30 (a) and K1 VI B5 SU31 (b, c); d) rim of a scraped ware jar from K1 VI B4 SU30; e) rim sherd of a channelled ware cup from K1 VI B4 SU30; f) rim of a black-topped cup from K1 VI B5 SU31.

² The ceramic types of the Jebel Mokram Group were conventionally named by Karim Sadr after modern toponyms of the region.

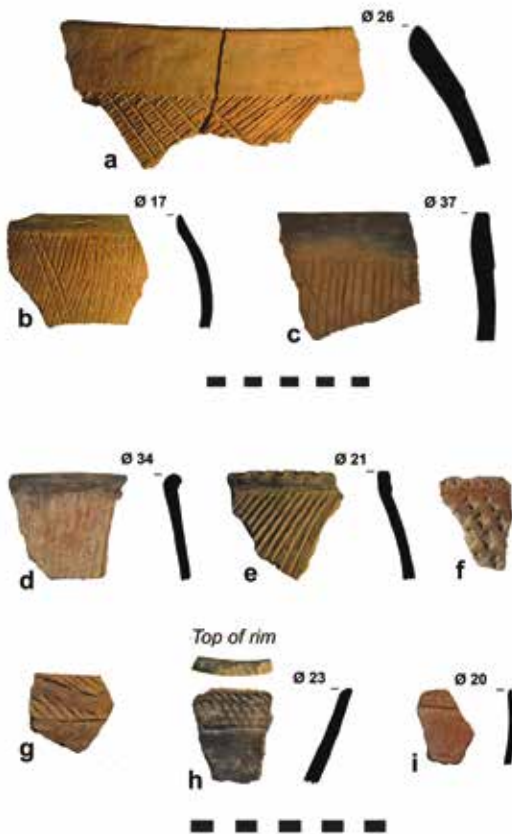


Figure 6. Fragments representative of the main Jebel Mokram Group ceramic types from assemblages of excavation unit K1 VI at site Mahal Teglinos (K1) (scale bars in cm): a-c) rim sherds of Kubdai incised bowls from K1 VI B4 SU5 (a), K1 VI B5 SU15 (b), and K1 VI D3 SU6 (c); d-e) rim sherds of Galsa groove carved bowl from K1 VI B5 SU32 (d), and K1 VI D4 SU7 (e); f) body sherd of an Avitola punctated bowl from K1 VI C3 SU50; g) body sherd of a Garatit complex-impressed bowl from K1 VI D3 SU7; h-i) rim sherds of Banat fine cups from K1 VI B3 SU9 (g), and K1 VI D3 SU7 (h).

were also other Jebel Mokram Group traits, like the thickened set-off rims, the rims often separated from the body by a groove or an incision, a feature also characterizing some of the above-mentioned types as well as the undecorated black topped vessels (Figure 7a), and a less common class of closed bowls or jars with thickened rim and decoration consisting of crossing bands of oblique lines along the rim (Figure 7b-c). Also typical of the Jebel Mokram Group is a class of sometimes black-topped bowls with rocker continuous edge impressed decoration often crossed by incised lines (Figure 7d), the plain bowls with impressions on top of the lip (Figure 7e), and the bottles and flasks with triangular or rounded thick everted rim and impressed decorations on the lip and rim (Figure 7f).

It should be remarked that the channelled ware, as well as the rim-banded bowls (Figure 7g), and the scraped ware often associated with pinched indented rim (Figure 7h), already occurring in Gash Group times, are present although rarely in the Jebel Mokram assemblages. Noteworthy, the scraped ware, often characterized by pinched indented rims is the main

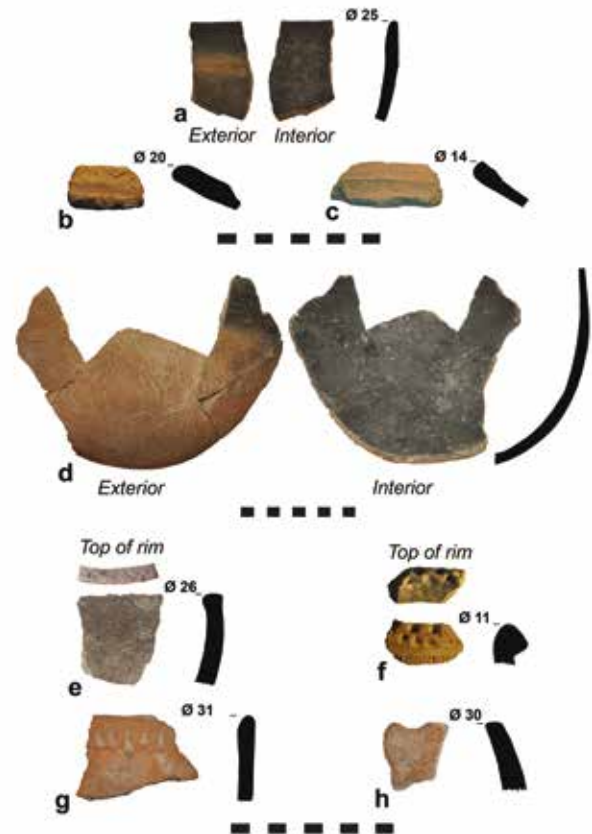


Figure 7. Fragments representative of other Jebel Mokram Group ceramic types from assemblages of excavation unit K1 VI at site Mahal Teglinos (K1) (scale bars in cm): a) rim sherd of a black topped vessel with thickened set-off rim from K1 VI D3 SU13; b-c) rim sherds of closed jars with thickened rim and decoration consisting of a rim band of crossing oblique incised lines from K1 VI B3 SU9 (b) and K1 VI D3 SU7 (c); d) fragmentary bowl with rocker continuous edge impressed decoration crossed by incised lines from K1 VI B5 SU8; e) rim sherd of a plain bowl with impressions on top of the lip from K1 VI C4 SU1; f) rim sherd of a bottle or flask with triangular thick rim and impressed decorations on the lip from K1 VI B4 SU5; g) rim sherd of a rim banded bowl from K1 VI C5 SU8; h) rim sherd of a scraped bowl with pinched indented rim from K1 VI C4 SU1.

characteristic of the *Atbai Ceramic Tradition* (Fattovich *et al.* 1984, 176-178; Fattovich 1990, 10-11; Marks and Fattovich 1989, 453; Marks and Sadr 1988, 71), and its occurrence also in Jebel Mokram Group assemblages fully justify its inclusion in it. Moreover, the rim-banded decoration is a typical marker of the Gash Group (see again Capuano *et al.* 1994, 114). Nevertheless, in Jebel Mokram Group assemblages the frequency of these classes is reduced to one third if not less of what it was in Gash Group assemblages (see again Figure 4). The decreasing trend of the frequency of the channelled ware is less consistent at the transition between the Gash Group and Jebel Mokram Group: interestingly this was an innovation occurring only in late Gash Group assemblages and an element already considered as related to the Pan-Grave culture (see Fattovich 1991a, 45; Manzo 1997, 80-81, pl. 4 C).

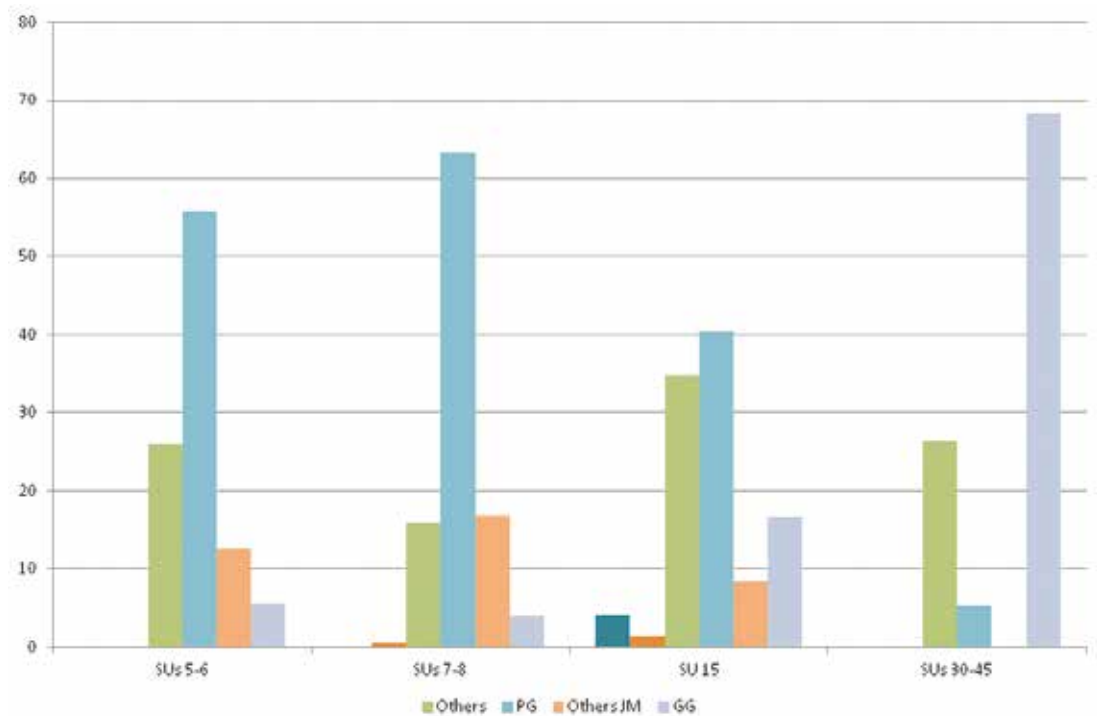
Therefore, the discontinuity between Gash Group and

Jebel Mokram Group ceramic assemblages already noted by K. Sadr (see above) emerges dramatically from the quantitative study of the sequence in K1 VI. It can be added that this difference can immediately be perceived simply by looking at the color of the Gash Group and of the Jebel Mokram Group pottery: in the first case red and reddish brown fabrics prevail, in the second brown and gray colors are dominant, while the clay matrix and the inclusions do not seem to change,³ suggesting a continuity in the sources of clay and temper, but innovation(s) in the way they were processed and shaped into a pot, and in this case in particular in the surface treatment and firing process.

The main factor determining the difference between the Gash Group and the Jebel Mokram Group ceramic assemblages is the strong Pan-Grave imprint, clearly evident in the Jebel Mokram Group assemblage and already stressed by K. Sadr (1987). Actually, the ties K. Sadr pointed out between the classes of the Jebel Mokram Group pottery and the Pan-Grave ones should be regarded as still valid, as he made

Grave related ceramic classes – like the Kubdai incised, the Galsa Groove-carved, and the Banat fine (see Sadr 1987, 270-279), as well as the channeled ware (for comparisons see Bietak 1968, 121, Taf. 16, P13) and the vessels with set-off rim, to be regarded a typical trait of the Pan-Grave (Giuliani 2007, 650, fig. 2 B1-2) – are grouped, it seems that they represent more than 40% of the pottery in SU 15, the earliest Jebel Mokram Group assemblage of K1 VI, while the few Pan-Grave-like sherds in the latest Gash Group assemblage, SUs 30-45, were only *c.* 5% of the ceramics (Figure 8). In the meantime, the types related to the Gash Group tradition - like the scraped bowls with pinched indented rims, in general the scraped ware, the rim-banded bowls and cups (see above) - all together more than 68% of the Gash Group assemblage in SUs 30-45, decrease to *c.* 16% in SU 15 and respectively to *c.* 3% and 5% in the later Jebel Mokram Group assemblages of SUs 7-8 and SUs 5-6. Of course, this shows that a big change took place, but also that the regional cultural tradition did not completely disappear. Actually, the fact that some ceramic

Figure 8. Frequencies of the Gash Group, Pan-Grave, and other minor Jebel Mokram Group types in the stratigraphic sequence of excavation unit K1 VI at site Mahal Teglinos (K1).



reference to the systematization of the Pan-Grave material culture by M. Bietak (1968, 117-123). Indeed, it should be stressed that the work of Bietak was mainly relying on the collections from cemeteries, i.e. on assemblages where the occurrence of the types of ceramics generically labelled as Middle Nubian, shared in the early second millennium BC by C Group, Pan-Grave, and Kerma cultures and widely occurring in domestic sites, is minimal (see Gratien 2000, 124; Hafsaas 2006-2007, 171; see also Gratien 2006-2007, 151-152, 154, 158-159 and Säve-Söderbergh 1989, 262).

Going back to the composition of the Jebel Mokram Group ceramic assemblages, if the frequency of the Pan-

types related to the earlier regional tradition continued in Jebel Mokram Group times may reflect the merging of the foreign and the local ceramic traditions.

Interestingly, the first phase of the Jebel Mokram Group, represented in our sequence by the assemblage from SU 15, is characterized by a frequency of other vessels, i.e. undecorated or not typically Jebel Mokram Group or Gash Group in type, above 30%, suggesting that the transition was also a moment of experimentation and innovation. This may also explain why some of the Jebel Mokram Group vessels, although occurring in association with an overwhelming number of Pan-Grave related vessels, are different both from the Gash Group tradition and from the Pan-Grave culture itself. Nevertheless, for the moment we cannot exclude the possibility

³ Petrographic and chemical analysis are being conducted to clarify this specific point.



that the absence of these types from the known Pan-Grave assemblages in Lower Nubia and Egypt may be related to the fact that the Jebel Mokram Group assemblages investigated in Eastern Sudan are from settlement areas, while the Pan-Grave evidence in the Nile Valley was mainly collected from funerary contexts and, thus, perhaps does not represent the Pan-Grave ceramic corpus in its entirety, but only the classes specifically related to the funerary function. Also the fact that the groups with Pan-Grave material culture in Egypt and Lower Nubia were living in close proximity and in symbiosis with Egyptians and other Nubian cultures may have affected the composition of the Pan-Grave ceramic assemblages in those regions: for example Pan-Grave closed and sealable shapes are so far almost completely unknown, perhaps because the functions of middle and long-term storage of dry and liquid materials was performed by the Egyptian bottles, flasks and jars often occurring in the Pan-Grave assemblages. On the contrary, in the Jebel Mokram Group assemblages fragments of bottles, flasks and small jars distinct from the Gash Group ones occur. Therefore, until a Pan-Grave settlement is recorded and investigated, it will be impossible to clarify if these sealable closed shapes from the Jebel Mokram Group assemblages should be listed among the Pan-Grave like types or originated in Eastern Sudan.

The C¹⁴ dates associated with the earlier Jebel Mokram Group living floor and the latest Gash Group living floor may give an idea of the timing of the changes we noticed in the ceramic production. They are as follows:

Beta 404212 (AMS dating): charred wood sample from SU15, the soil stratum containing the materials from the earliest Jebel Mokram Group living floor. Uncalibrated date 3450±30 BP, calibrated 2 σ 1880-1680 BC.⁴

Beta 404209 (AMS dating): charred wood sample from SU 20, the earliest Jebel Mokram Group living floor itself. Uncalibrated date 3530±30 BP, calibrated 2 σ 1960-1750 BC.

Beta 401122 (AMS dating): charred wood sample from SU 30, the soil stratum containing the materials associated to the latest Gash Group living floor. Uncalibrated date 3570±30 BP, calibrated 2 σ 1950-1760 BC.

It can be immediately remarked that these radiocarbon dates are very close, despite the fact they are associated with two different cultural phases (Figure 9). This shows not only that the transition may have taken place around 1800 BC, as also suggested by the Bayesian statistical analysis performed by means of the OxCal 3.10 software (Manzo *forth. a*), but also that the transition characterized by the above described dramatic change in the qualitative and quantitative composition of the ceramic assemblages was very quick. Thus, around *c.* 1800 BC in Eastern Sudan the transition between the Gash Group and Jebel Mokram Group was marked by a cultural discontinuity, mainly caused by the apparently sudden occurrence of Pan-Grave elements in the ceramic assemblages.

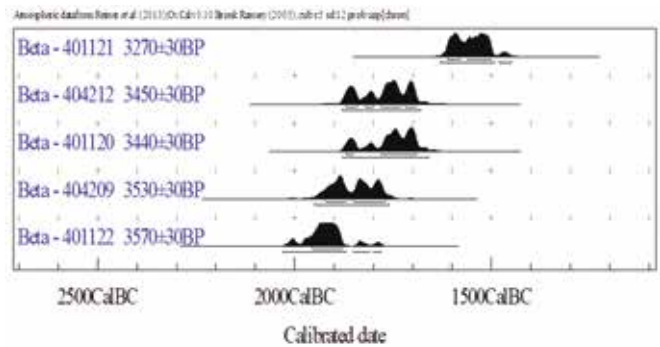


Figure 9. Plot of the radiocarbon dates in the stratigraphic sequence of excavation unit K1 VI at site Mahal Teglinos (K1); to be remarked is the fact that the Beta 401122, from the latest Gash Group living floor, largely overlaps the earliest Jebel Mokram Group dates.

The question should be posed if a similar discontinuity can be perceived also in other aspects of the two cultures. As far as the subsistence scenario is concerned, this is apparently characterized by the increasing relevance of cattle breeding in Eastern Sudan suggested for this phase by the archaeozoological data associated with Jebel Mokram Group assemblages, but also representing the continuation of a progressive trend already started in Gash Group times (Gautier and van Neer 2006, 229-230, tab. 6) (see Figure 10). Moreover, the increasing seasonal mobility of at least a part of the population of Eastern Sudan is suggested by some characteristics of the Jebel Mokram Group settlement pattern. In particular, despite the fact that a very high frequency of Gash Group sites were also used in Jebel Mokram Group times, suggesting a certain degree of continuity between the settlement patterns of the two phases (Figure 11), several new settlements established in Jebel Mokram Group times were located in the grazing areas between the Gash and the Atbara rivers (Figures 12 a-b) and for this reason the number of sites dramatically increased in that phase (Figure 13). It should be stressed that a qualitative difference between the Gash Group and Jebel Mokram Group sites is made evident by the decreasing average size of the sites (Figure 14) and by the tiny thickness of the stratigraphic deposit of the Jebel Mokram Group sites, which suggested their identification with seasonal camps (Fattovich 1990, 19-20; Manzo *et al.* 2012, 45; Marks and Fattovich 1989, 456; Marks and Sadr 1988, 79-80; Sadr 1990, 74-77; 1991, 47). The bigger emphasis in Jebel Mokram Group times on the exploitation of sectors of the region less productive from the agricultural point of view, but suitable for cattle breeding is also evident if the distribution of the sites is considered (Figure 15), showing that the Jebel Mokram Group sites mainly concentrate on the tertiary land areas, while the Gash Group ones cluster in the primary and secondary agricultural lands. Going back to the pottery, it should be remarked that the decreasing average dimensions of the diameter and wall thickness of the vessels from Gash Group to Jebel Mokram Group already remarked by Sadr (1990, 70-71) and also evident in the ceramic assemblages

⁴ The calibration curve used is Intcal13 see Reimer *et al.* 2013.

Figure 10. Frequency of cattle and sheep/goat in archaeozoological assemblages from Eastern Sudan; to be remarked is the increasing frequency of cattle, already starting in Gash group times and representing c. 80% of livestock in Jebel Mokram Group times.

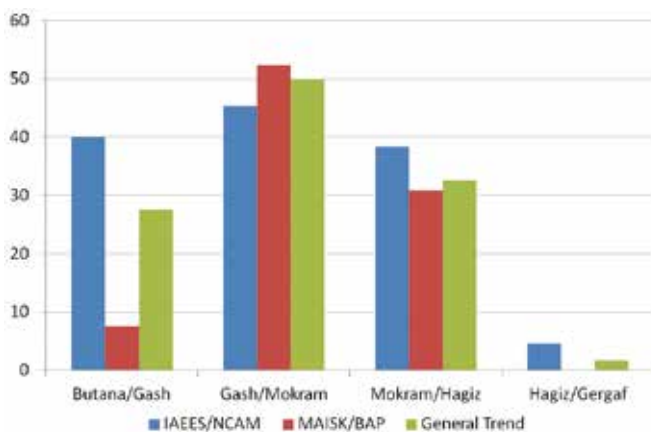
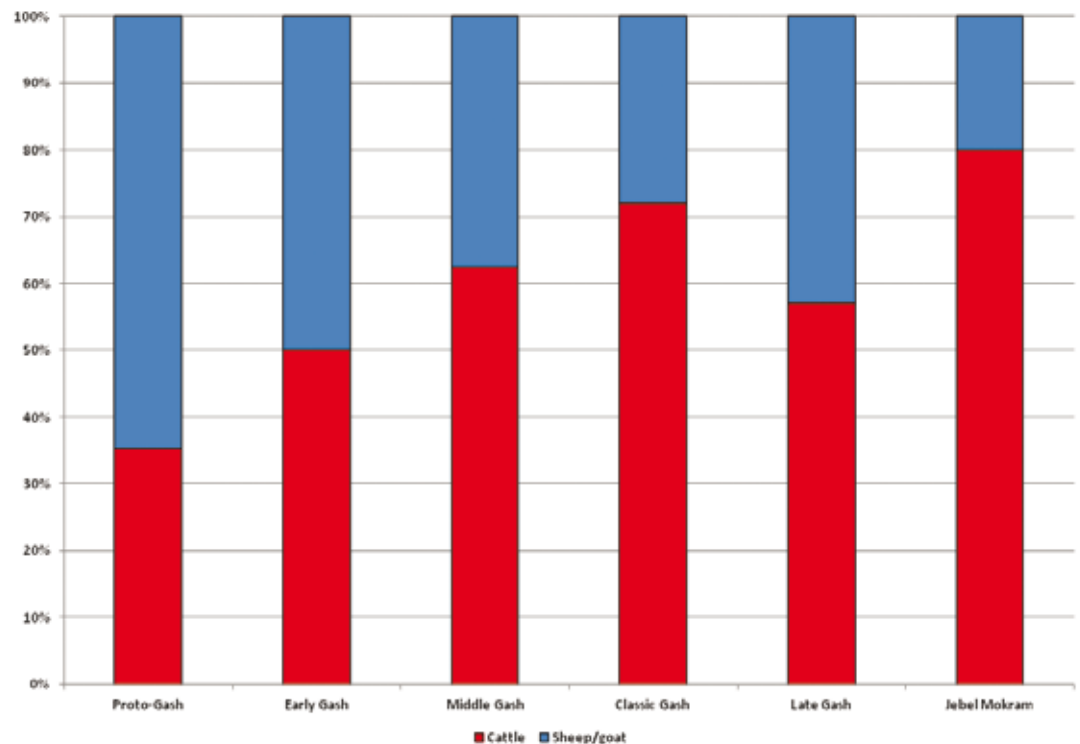


Figure 11. Graph showing the frequency of sites characterised by occupational continuity in the cultural transitions in Eastern Sudan, according to the data collected in the 1980s (MAISK/BAP survey), since 2010 (NCAM/LAEES survey) and general trends. It is to be noted that c. 50% of the Gash Group sites were re-occupied in Jebel Mokram Group times.

from the sequence of living floors in excavation unit K1 VI (Figures 16 and 17) may be interpreted as a feature related to the easier portability of the vessels, fitting well in a context characterized by an increased mobility.

Therefore, in the light of these last remarks, it should be stressed that some traits of material culture as well as the characteristics of the settlements and their distribution through the region may point to changes also in the style of life and economy associated with the transition from Gash Group to Jebel Mokram Group. Nevertheless, as already stressed when dealing with the pottery, this does not mean that the regional tradition completely disappeared. On the contrary, also in the subsistence economy some continuity

with the Gash Group is evident. In particular, the relevance of domesticated sorghum already evident in Gash Group times continued and most likely even increased in the Jebel Mokram Group agro-pastoral adaptive system (see Alemseged Beldados 2015, 79-80, Table 8.2; Alemseged Beldados and Costantini 2011; Costantini *et al.* 1983, 18).

Finally, as far as the role of Eastern Sudan in the macro-regional setting is concerned, the involvement in the broad network of relations also extending to Upper Nubia and Egypt characterizing the Gash group times (see e.g. Fattovich 1991a; Manzo 1997; 2017, 48-51) and suggesting that Eastern Sudan may have been part of the land of Punt (Fattovich 1991a; 1991b; 1996), seems to have continued also after 1800 BC. Actually, it was already suggested that Eastern Sudan continued to represent a crucial node in the long-distance exchange network also in Jebel Mokram Group times, although without any clear evidence supporting this hypothesis (Sadr 1987, 273; 1990, 80). To confirm this, in recent years imported material pointing to contacts with Egypt and Nubia (Manzo *forth. b.*), as well as more obsidian, likely to have arrived from more southern regions, which can be added to the piece collected in the first phases of the exploration of Eastern Sudan (Fattovich *et al.* 1984, 185), have been discovered in Jebel Mokram Group assemblages.

To sum up, according to the new data made available by the recent fieldwork conducted in Eastern Sudan, several elements appear to suggest that some regional features continued, although in a radically changed framework characterized by a bigger emphasis on the pastoral mobile component and perhaps even by a new cultural identity. It is noteworthy that despite this discontinuity, perhaps Eastern Sudan was maintaining its traditional centrality in the macro-regional network.

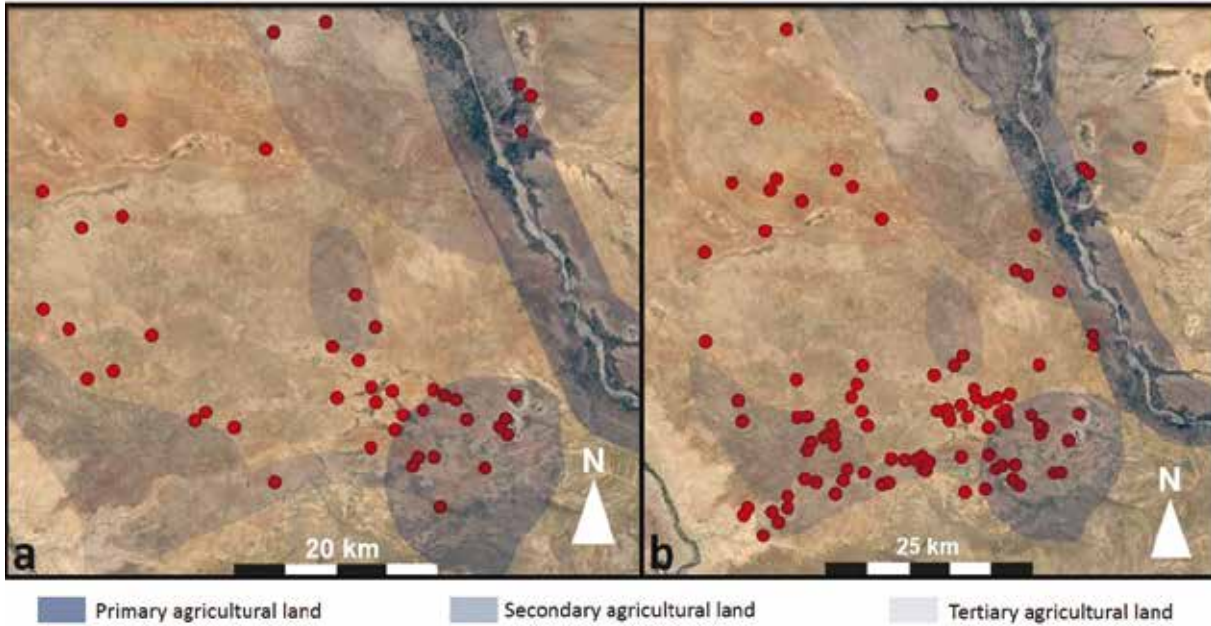


Figure 12. a) Map showing the location of the Gash Group sites; b) Map of the Jebel Mokram Group sites; to be noted is the larger number of sites in the later phase and their location mostly in the steppe between the Gash and the Atbara rivers less suitable for agricultural exploitation.

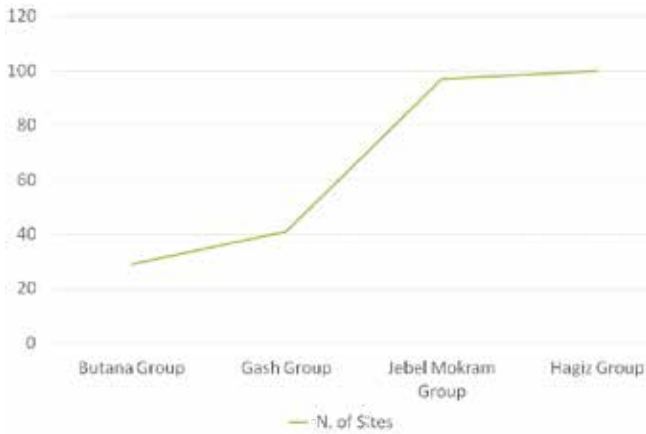


Figure 13. Graph showing the number of settlements in the investigated area in Eastern Sudan in the different phases.

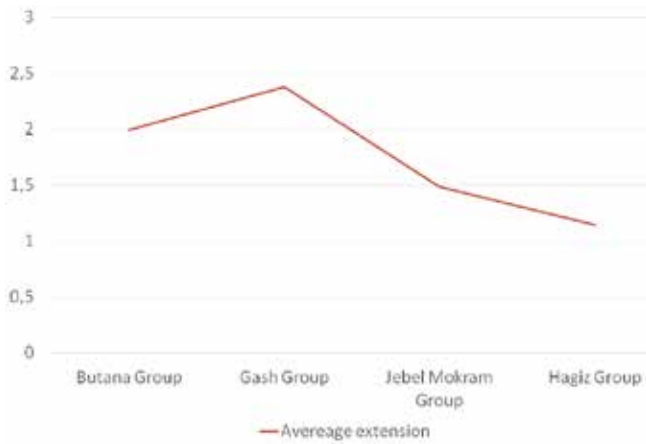


Figure 14. Graph showing the average dimension in hectares of the settlements in the investigated area in Eastern Sudan in the different phases.

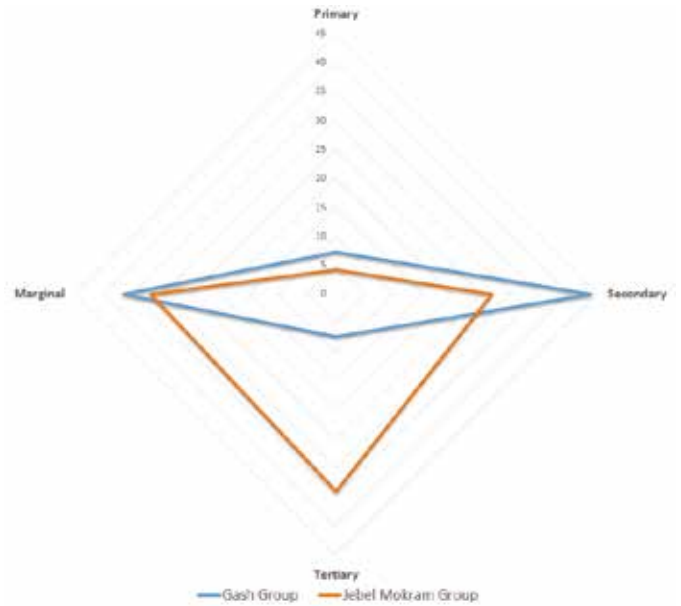


Fig. 15. Graph showing the frequency of Gash Group and Jebel Mokram Group settlements located in the areas suitable for agricultural exploitation (primary and secondary soil) and in the ones more suitable for grazing (tertiary soil) and in marginal areas.

If, in light of what was said in the introductory paragraph, the traditional connection between Pan-Grave and Eastern Desert is accepted, the discontinuity between the Gash Group and Jebel Mokram Group may have originated from an intensification of the contacts between Eastern Sudan and, in particular, the Eastern Desert, as is perhaps suggested by the wide occurrence of Pan-Grave elements in the Jebel Mokram Group pottery. Of course, Pan-Grave elements were already occurring in late Gash Group assemblages (see

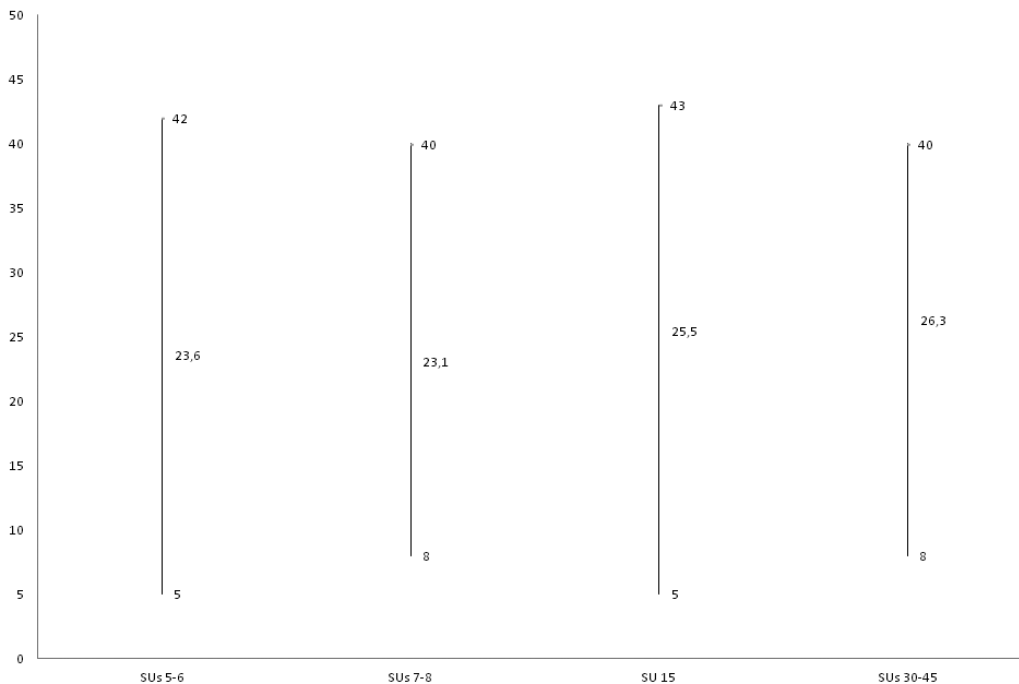


Figure 16. Graph showing the maximum, minimum and average diameter of the vessels in the transition from Gash Group to Jebel Mokram Group, as in the Gash Group (SUs 30-45) and Jebel Mokram Group assemblages (SUs 15, 7-8, 5-6) from the stratigraphic sequence of excavation unit K1 VI at site Mahal Teglinos (K1).

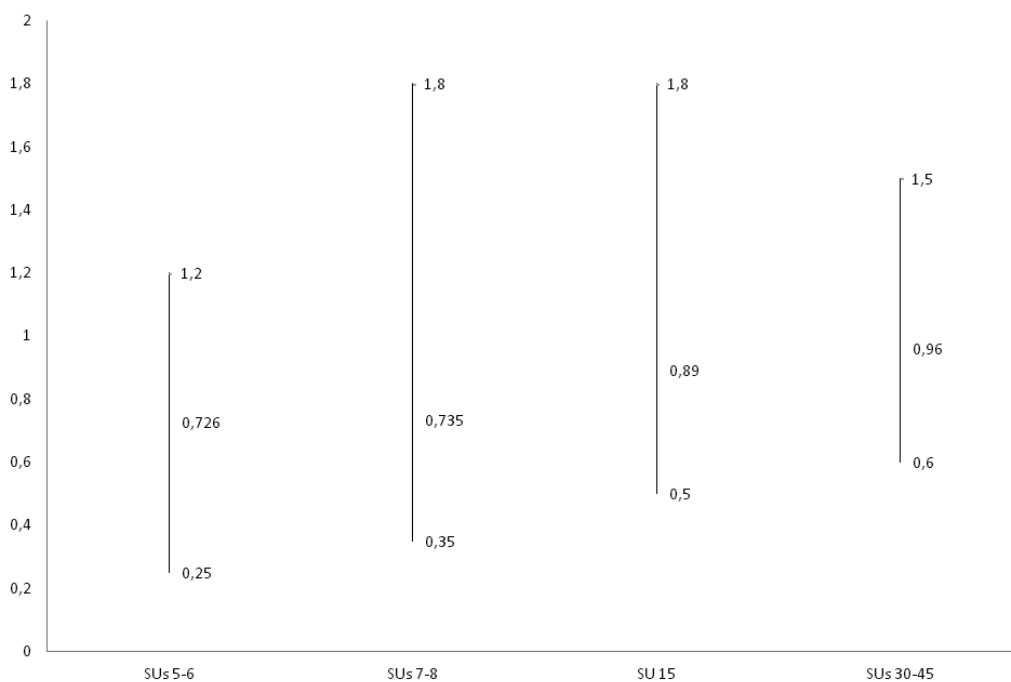


Figure 17. Graph showing the maximum, minimum and average wall thickness of the vessels in the transition from Gash Group to Jebel Mokram Group, as in the Gash Group (SUs 30-45) and Jebel Mokram Group assemblages (SUs 15, 7-8, 5-6) from the stratigraphic sequence of excavation unit K1 VI at site Mahal Teglinos (K1).

above), but the overwhelming Pan-Grave traits in the Jebel Mokram Group pottery can hardly be explained only by the continuation of the pattern of interactions already started in Gash Group times and perhaps related to the seasonal movements in the areas between Eastern Desert and Eastern Sudan. Actually, the number and the variety of Pan-Grave ceramic traits characterizing the Jebel Mokram Group pottery from the very beginning and the rapidity characterizing the stylistic change in the ceramic assemblage at the transition between Gash Group and Jebel Mokram Group (see above and also Sadr 1990, 69) suggest that *c.* 1800 BC a significant change occurred in the relationship between Eastern Sudan and the Eastern Desert.

The general explanation for this change may be provided either by a migration of groups from the Eastern Desert around *c.* 1800 BC or by a newly established pattern of regular and repeated seasonal movements of mobile livestock herders based on the southern fringes of the Eastern Desert that were now interacting more intensively with Eastern Sudan (see also Sadr 1987, 280-282, 286-287). The two scenarios are not mutually exclusive and the settlement in Eastern Sudan of groups arriving from the Eastern Desert does not exclude that an intense interaction with that region was also maintained through recurrent seasonal interactions.

Both scenarios suggest that the movement of groups of people from the Eastern Desert into the Eastern Sudan may



be a factor in such a change, and are certainly consistent with the remarks that can be proposed if the classes of vessels in the Jebel Mokram Group assemblages characterized by Pan-Grave traits are taken into consideration. Actually, the fact that they are mainly bowls and cups, likely to have been used in the preparation and consumption of food, suggests that this kind of intensified interaction may have been related to the movement of people rather than of potted commodities – even if this cannot certainly exclude that the exchange of un-potted commodities was taking place in the meantime. Moreover, if we admit that in this context, as often happens in Africa (Gosselain 1998, 103; MacEachern 1998, 123), the pottery was manufactured by women, the spread of Pan-Grave-like types in Eastern Sudan may be also explained by a consistent arrival of potters from the Eastern Desert possibly through intermarriage, although for the moment it is impossible to specify if this was related to exchange of women or other dynamics such as rape or pillage.

Certainly, if the sudden quantitative abundance of the Pan-Grave traits seems to fit well with the hypothesis that some groups of people from the Eastern Desert for some reasons repeatedly or permanently moved into Eastern Sudan, the factors determining the migration(s) and/or the change in the patterns of seasonal movements remain obscure. Some suggestions regarding this specific aspect will be proposed in the next paragraph, where the dynamics outlined for Eastern Sudan will be placed in a broader macro-regional framework. Whatever it is, both in the case of repeated movements and in that of true migrations towards Eastern Sudan, favourable cultural conditions for the spread of the new styles in the region and for their adoption by the local potters explaining the increasing frequency of the Pan-Grave related classes also in the later phases of the Jebel Mokram Group (see again Figures 4 and 8), should be hypothesized. Actually, it is indisputable that, as also suggested by Sadr (1990, 82), for the inhabitants of Eastern Sudan starting from *c.* 1800 BC the dominant cultural reference was represented by the Pan-Grave tradition. This is again shown by the fact that the overwhelming frequency of the Jebel Mokram Group cups and of the bowls used presumably in food and drink preparation and consumption, activities particularly related to the manifestation of identity (see Smith 2003, 44-46), are of Pan-Grave type, while the typical rim-banded bowls and cups with red-slipped lip characterizing the latest phases of the Gash Group, almost completely disappear after the first phase of the Jebel Mokram Group. Moreover, that a deep identity change took place in Eastern Sudan with the transition from the Gash Group to the Jebel Mokram Group may be confirmed by the admittedly few available elements of the Jebel Mokram Group funerary traditions, a further aspect potentially very informative from the perspective of the study of identity (Smith 2003, 38-39). Apparently, the extended supine position dominant in the mature and later phases of the Gash Group (Fattovich 1993, 238, 241-242, 253; 1995, 294-196; Fattovich *et al.* 1994, 15; Manzo 2016, 192-194; 2017,

41-42; see also Fattovich 1990, 19) was abandoned, and the generalized adoption of the contracted position took place (Manzo 2017, 47) (Plate 1). In the meantime, the Gash Group funerary stelae were supplanted – a process perhaps already started at the end of the Gash Group (Fattovich 1989, 231; 1993, 237-239) – by circles of stones possibly originally delimiting tumuli (Fattovich 1989, 233; 1993, 230, 264; Fattovich *et al.* 1994, 16; Manzo *forth. a*; Manzo *et al.* 2012, 9-12, 19-20).



Plate 1. Burial with skeleton in contracted position intrusive in the Gash Group western cemetery at Mahal Teglinos (K1, excavation unit BPLF-Z/BPQA-E), likely to be ascribed to the Jebel Mokram Group.

Jebel Mokram Group and Pan-Grave culture in a macro-regional perspective

It should be stressed that the new data on the occurrence of Pan-Grave traits in the Jebel Mokram Group of Eastern Sudan may also provide useful elements for our general understanding of the process leading to the appearance of the Pan-Grave culture in the Nile Valley, in light of what has been said, admittedly originating somewhere in the Eastern Desert (see also Manzo 2017, 51-54). Actually, the re-assessment of the chronology of the Jebel Mokram Group, with a beginning not around 1500 BC, as previously thought, but around 1800 BC (see above) not only makes the earliest phase of the Jebel Mokram Group roughly contemporary with the Pan-Grave sites in Egypt and Lower Nubia (see Bietak 1968, 150-157; Gatto 2014, 13), but also with some Pan-Grave occurrences in the *Kerma Classique* assemblages in the Fourth Cataract area in association with typical materials of that region (Emberling *et al.* 2014, 332-334, pl. 11; Emberling and Williams 2010, 33-35, fig. 31-32; Paner 2014, 74, pl. 32) (Figure 18). It should also be emphasized that in Egypt and Lower Nubia the Pan-Grave



Figure 18. Distribution of the sites with Pan-Grave elements in north-eastern Africa (based on Bietak 1966, 66, with the addition of the Jebel Mokram Group sites and of some sites mentioned in Forstner-Müller and Rose (eds) 2012, Manzo 2012 and Paner 2014).

presence is represented by well delimited concentrations of typical tombs characterized by the distinctive material culture and funerary ritual (see e.g. Bietak 1968, 150-157; Gatto 2014, 13), suggesting the presence of exogenous groups, presumably arriving from the Eastern Desert. As stressed above, some elements may suggest a somewhat similar situation in Eastern Sudan in Jebel Mokram Group times. On the contrary, in the Fourth Cataract region the situation may have been different, as there we are apparently dealing with single Pan-Grave elements in otherwise typical Kerma assemblages (see again Emberling *et al.* 2014, 332-334; Emberling and Williams 2010, 33-35), suggesting perhaps more limited interactions and certainly different patterns of contacts with the Eastern Desert and its inhabitants.

In any event, the fact that a roughly contemporary appearance of Pan-Grave elements in Egypt, Lower Nubia, the Fourth Cataract region and Eastern Sudan seems now proven, completely changes our perspective, and it no longer seems necessary to hypothesize the two “expansionary fronts pushing the borders of the Medjay outwards in different

directions, at different times, and under different circumstances” (Sadr 1987, 288). On the contrary, the circumstances leading to the appearance of Pan-Grave elements in the Nile Valley and Eastern Sudan took place roughly at the same time and may have been related, if they were not the same. The available data from Egypt, Lower Nubia and Eastern Sudan may suggest that something happened around 1800 BC favoring the presence of, and intense contacts with, groups from the Eastern Desert in the regions around it. In all these cases, this may again be related to a change in the pattern of seasonal movements of the inhabitants of the Eastern Desert that were now interacting more regularly with some sectors of the Nile Valley and Eastern Sudan and/or to the migration and settlement in these regions of groups originating in the Eastern Desert (see also Gatto 2014, 13-16).

This model may certainly fit well into a general scenario characterized by the presence in the Eastern Desert of presumably mobile groups of livestock – mainly cattle – breeders, perhaps also alluded to in hieroglyphic inscriptions of this specific period, like one from Gebelein mentioning an officer collecting bulls for the ‘divine offerings’ in the region of the Medjay (Vernus 1986, 141) or even the annals of Amenemhat II mentioning the tribute of a region of Medjay consisting of cattle and gold (Altenmüller and Moussa 1991, 9-10). Some insights into a factor that perhaps contributed to the origin of the processes leading to an increased interaction between the inhabitants of the Eastern Desert and their neighbors, evident in the archaeological record roughly at the

same time in several distant regions, may be gleaned from other texts, namely certain passages in the Semna dispatches, reports sent to the Egyptian central administration from the fortress of Semna, describing the situation on the southern border of Egypt in the second half of the Middle Kingdom, and more precisely in the reign of Amenemhat III (c. 1831-1786 BC according to Shaw 2000, 483; see also Obsomer 2007, 72 and note 118). In some of these reports drought and famines in the Eastern Desert are mentioned (Smither 1945, 9, dispatch 5).

Interestingly, roughly in the same period, in the first centuries of the second millennium BC, increasingly arid conditions are perhaps also evident in Eastern Sudan. At that time the drying up of a small pond that may have covered, since the more humid phases of the Holocene, the western sector of the site of Mahal Teglinos (K 1), precisely where the Gash Group and Jebel Mokram Group settlements partially investigated by excavation unit K1 VI were located, was completed, and wind erosion had already impacted on the soil formation processes related to the activity of the streams crossing



the area between the Gash and the Atbara rivers, possible evidence of their decreasing carriage (Manzo 2014a, 377, 386; 2017, 11-13). Indeed, as stressed above, this dynamically changing environment may also have favored the affirmation and diffusion of cultivated sorghum in Eastern Sudan, thanks to the fitness of this cereal to more arid conditions.

Indeed, aridity and related droughts and famines may explain the more active involvement of the inhabitants of the Eastern Desert in symbiotic economic relationships with the surrounding regions, and even the migration of some groups that may be reflected in the archaeological record by the contemporaneous appearance of Pan-Grave elements in Egypt, Lower Nubia and Eastern Sudan.

As far as the Nile Valley is concerned, in Egypt and Lower Nubia, from the late 12th-early 13th Dynasty onwards (see e.g. Bietak 1968, 117; and more recently Ayers and Moeller 2012, 107; Manassa 2012, 133; Raue 2002, 22-23; 2012, 52), this process, although possibly originating from environmental changes, may have also been related to specific situations taking place there, like for example the increasing use of groups from the Eastern Desert as labour force. At that time they were perhaps also involved in the management of trade and the exploitation of mines in the Eastern Desert itself (Espinel 2011, 233-234; Näser 2012, 85; Weschenfelder 2014, 360, 362-363). Moreover, after the 12th Dynasty, the possible weakening of the Egyptian monitoring system against the infiltration of groups from the desert in the region of the Egyptian border in Nubia, and the decreased control on Lower Nubia itself, may have favored the penetration and settlement of groups from the Eastern Desert in that sector of the Nile Valley (Török 2009, 96-100; Smith 2003, 76; see also Espinel 2011, 231-232; Gatto 2014, 13-16, 24-25).

The situation may have been different further south in Upper Nubia, the core of the economic and political sphere of influence of the Kingdom of Kush, which at that time was increasing its extent and strength during the passage between *Kerma Moyen* and *Kerma Classique* (Bonnet 2014, 81-83; Valbelle 2014, 107). On the one hand this specific situation may have limited the penetration of groups from the Eastern Desert into the parts of the valley under the more direct control of Kush, on the other this was a favorable framework to the establishment of mutual ties between the Kingdom of Kush and the inhabitants of the Eastern Desert. Archaeologically these dynamics may be made evident not only by the previously mentioned occurrence of single Pan-Grave elements in the *Kerma Classique* cemeteries in the Fourth Cataract region, i.e. the strategic part of Upper Nubia closer to the Red Sea and from where crucial tracks penetrating the Eastern Desert start, but also by the availability of gold, gemstones and Red Sea shells to the Kerma people, as these commodities were obtained in and via the Eastern Desert (Manzo 2012, 76, 82).

For the moment, it can be suggested that the Kingdom of Kush may have established an indirect control over some parts of the Eastern Desert based on a network of alliances rather than a rigid administrative and military control. Never-

theless, the relations between Kerma/Kush and the Eastern Desert certainly deserve further investigations, as some evidence of a more direct involvement of the Kingdom of Kush in the Eastern Desert can be identified at least for the *Kerma Classique* period. At that time, a large Kerma enclosure, whose size strongly suggests that this was a state sponsored building, was perhaps related to the tracks leading to the gold mining regions of the Eastern Desert (Bonnet and Reinold 1993, 20), and possibly also to the control of the movements towards the Upper Nubian Nile Valley by groups from the Eastern Desert. Moreover, a new reading was recently proposed for an already known hieroglyphic inscription on the Korosko Road and it was suggested that this text may mention the name of a king of Kush (Davies 2014, 35-36), implying not only the interest of the Kingdom of Kush in the Eastern Desert, but also a direct presence in the area. As a matter of fact, the extension of the political sphere of influence of the Kingdom of Kush to the Eastern Desert and over its inhabitants during the Second Intermediate Period may also be supported by the well-known painted inscription in the tomb of Sebeknakht at Elkab, where a Kushite raid on Upper Egypt with the support of Wawat, Khenthennefer, Punt and, precisely, the Medjay is described (Davies 2003, 52).

As far as relations between Eastern Sudan and Upper Nubia characterizing the Gash Group times are concerned (see above), they may have continued also in the new situation determined by the above described intensification of relations between Eastern Sudan and Eastern Desert, precisely thanks to the possible increased interaction between the Eastern Desert and its inhabitants, and the Kingdom of Kush in *Kerma Classique* times. As already stressed, the Egyptian imports occurring in Gash Group assemblages suggested that Eastern Sudan may have been part of the land of Punt (Fattovich 1991a; 1991b; 1996), and it is perhaps not by chance that in the above mentioned inscription of Elkab, Punt and Medjay are mentioned together at the end of the list of the allies of Kush. It should be remarked that this association between the Medjay and Punt is not isolated, because it also occurs in other later Egyptian texts, that go back to the New Kingdom (Bietak 1966, 78; Giuliani 2004, 286; Sadr 1987, 287). The continuity suggested above on the basis of some recent archaeological finds of the role of Eastern Sudan in the long-distance network also in Jebel Mokram Group times seems to fit well into such a model.

Therefore, the occurrence of Pan-Grave elements in the Jebel Mokram Group assemblages of Eastern Sudan, as well as in Egypt and Nubia from 1800 BC onwards, may be considered as evidence of more intense interactions with the Eastern Desert, and of a more active involvement of the inhabitants of the Eastern Desert in their relations with the surrounding regions. This may have been induced by environmental factors, and, as far as Egypt and Lower Nubia are concerned, by specific political and economic circumstances and also, more to the south, by the still little understood process of extension of the political sphere of action of

the Kingdom of Kush to the east and to the south east of Upper Nubia. This last factor may have affected not only the Eastern Desert, but also Eastern Sudan itself.

Interestingly, in Egypt, Lower Nubia and in the Fourth Cataract area c. 1500 BC, the Pan-Grave elements disappeared from the archaeological record, with the only possible remarkable exception represented by few sherds from later New Kingdom assemblages at Elephantine (Raue 2002, 23). The almost generalized disappearance of the Pan-Grave culture in Egypt and Nubia may be a possible consequence of the acculturation of the groups from the Eastern Desert settled in the Nile Valley (but see De Souza 2013, 117), but perhaps it was also due to a changed political and administrative situation emerging at the beginning of the New Kingdom, preventing further infiltrations and arrivals in the Nile Valley. On the contrary, apparently, the Pan-Grave cultural legacy lasted longer in Eastern Sudan, possibly up to the beginning of the first millennium BC, as suggested by the occurrence of pre-Akumite-like ceramics in some late Jebel Mokram Group assemblages (Manzo *et al.* 2012, 65; Manzo *forth.* a). This aspect certainly deserves further investigations, but it may be perhaps related to the continuity of contacts between Eastern Sudan and Eastern Desert also after 1500 BC, and possibly to the fact that, at that time, the Pan-Grave legacy still represented the dominant cultural reference for the inhabitants of Eastern Sudan.

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