

GOZ REGEB, AN ARCHAEOLOGICAL SITE IN EASTERN SUDAN. PROGRESS REPORT ON THE SURVEY OF JEBEL TARERMA AND JEBEL EREMBAT

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Introduction (A. Manzo)

In January 2019, the Italian Archaeological Expedition to the Eastern Sudan (IAEES) of the Università degli Studi di Napoli "L'Orientale" and ISMEO carried out a one-day survey in the area of Goz Regeb (or Goz el-Rejeb), in the perspective of conducting future research activities in the area¹. A short notice on this survey already appeared in this Newsletter (Manzo, Costanzo 2019, 269), together with an article on some inscribed red bricks collected at Goz Regeb (Ferrandino 2019). This article is intended to provide more complete information on the collected materials and on the type and distribution of the structures recorded near Jebel Tarerma and Jebel Erembat (or Harera), the two hills characterizing the site, in the prevision of organizing a systematic archaeological exploration of the area.

Goz Regeb is located ca. 115km North-West of Kassala. Jebel Tarerma and Jebel Erembat are less than 1km East of the river Atbara (Fig. 1). The site is close to a ford traditionally used for crossing the river, a crucial node for the routes connecting the Butana to the regions East of it. Ancient remains were already recorded at Goz Regeb by Ugo Monneret de Villard. In his seminal work *La Nubia medioevale* he briefly described the site, mentioning a funerary structure (tumulus) lined with red bricks characterized by Christian symbols and, in a single case, the inscription "Petros" in Greek letters (Monneret de Villard 1935, 275). Indeed, later on red brick structures were recorded at the foot of Jebel Erembat, suggesting that a village and a church may have existed there, and the fact that some bricks were fused into a vitreous mass was pointed out (Crawford 1951, 94). On the contrary, the hypothesis that structures with stone pillars may have existed on the Goz Regeb hills suggested by Burckhardt (1819, 343, 379-383), is considered untenable, as the supposed pillars are in fact natural rock formations (Crawford 1951, 94; see also paragraph 4 below).

¹ The survey team consisted of Andrea Manzo, Stefano Costanzo, Elena D'Itria, Gilda Ferrandino, Enrico Giancristofaro, Gianmarco Melito, Roua Mohammad Ali Idriss, Suzan Ibrahim Nafe Khalafalla and Rufida Salih Mohammed Salih. The National Corporation for Antiquities and Museums of the Sudan was represented by Rehab Ismail ElFaki.

Moreover, the site was also visited by several amateur and professional archaeologists, like Boyns, Crowfoot, Dingwall and Sandison, who collected archaeological materials presently kept in the storage of the Sudan National Museum in Khartoum². A preliminary analysis of these materials, conducted by Andrea Manzo in November 2018 showed that the area was settled not only in Christian times, but also earlier, starting at least from the 5th millennium BC, and suggested the richness of the heritage of the area and its relevance for a better understanding of the history of eastern Sudan and of its relations with the Butana. Finally, the site was also visited in the Eighties by the Italian Archaeological Mission to the Sudan (Kassala) under the direction of Rodolfo Fattovich. At that time, some further surface collections were made, which are presently kept in the storage of the Museo Orientale "Umberto Scerrato" of the Università degli Studi di Napoli "L'Orientale". This small collection confirms the remarks based on the materials in the National Museum of the Sudan. It should be stressed that the collections in Naples include some Meroitic sherds, which were presented by Manzo, Perna and Zoppi in the 12th Conference for Meroitic Studies held in Prague in 2016³.

THE SITE (A. Manzo)

The Goz Regeb area is characterized by two granite hills (see also paragraph 4; Fig. 2). The easternmost is called Jebel Tarerma, the westernmost is called Jebel Erembat, according to the 1:250000 map of the area by the Sudan Survey published in 1939.

The eastern corner Jebel Tarerma is characterized by a large, ca. 10m in diameter, tumulus made of big and rough stones (Fig. 2a; Fig. 3). This tumulus is surrounded by other smaller, ca. 4 to 6m in diameter, tumuli, some of them badly eroded. Groups of smaller tumuli made of rocks continue also along the southern foot of the jebel, up

² Register of the Sudan National Museum entries 3648, 3796, 5002-5003, 5509-5510, 9515-9520, 9550-9551. The study of the materials in the storage of the Sudan National Museum is presently in progress.

³ These sherds will be published in the paper by A. Manzo, V. Perna and V. Zoppi. "Eastern Sudan in Meroitic and Post-Meroitic Times", currently in press in the proceedings of the 12th Conference for Meroitic Studies.

to the western corner of the hill (Fig. 2e; Fig. 4). These tumuli remind of the tumuli of type 1 of unknown chronology recorded at Jebel Qoqay/Romeladid, ca. 130km to the North (Manzo et alii 2011, 19, Fig. 31). The occurrence of a concentration of flaked lithics, a quite unusual occurrence in a cemetery, may suggest that the spot was used in different periods and for different purposes, as confirmed also by a nearby circle of stones, perhaps marking the base of a hut (Fig. 2b; Fig. 5). Always on the southern side of the jebel, a tumulus apparently surrounded by a ring of stones, ca. 12m in diameter, also occurs (Fig. 2c; Fig. 6). Moving West along the southern side of the jebel, some tombs with an elongated shape, maximum dimension 2-3m, East-West orientation occur. They consist of bigger stones forming the perimeter and delimiting a concentration of smaller pebbles (Fig. 2d; Fig. 7). They remind the tumuli of type 3 recorded at Jebel Qoqay/Romeladid (Manzo et alii 2011, 20, Fig. 33). Their orientation and shape may suggest a date to an Islamic phase. Elongated tumuli, maximum dimension 4m, consisting of big rough stones without the filling of pebbles characterize the western corner of the jebel (Fig. 2f; Fig. 8). They remind of tumuli of type 6 at Jebel Qoqay/Romeladid, but lack of the two stelae marking the eastern and western corner in that site (Manzo et alii 2011, 21, Fig. 36). Also in this case the orientation and shape may suggest a date to an Islamic phase.

In that sector of the foot of Jebel Tarema (Fig. 2f - 2g), also some ceramics occur (see paragraph 3), whose characteristics remind of the late Neolithic traditions in the valley and Eastern Sudan (*Butana Group*), roughly dating to the 4th millennium BC⁴. In the same spot, other handmade sherds with burnished external surface and impressed comb decorations, perhaps Meroitic, occur. Continuing along the northern side of Jebel Tarema (Fig. 2h - 2i), also some 3rd-2nd millennia BC ceramic materials were remarked (see again paragraph 3), possibly related to *Middle Nubian* traditions, in association with some large grinding stones (Fig. 9). The multiphase occupation of this sector is also confirmed by the occurrence of some late Neolithic sherds (Fig. 2l).

Always on the northern side of the Jebel Tarema, a small foothill is characterized by 9/10, ca. 3-4m in diameter, tumuli of big stones, roughly aligned along a North-South line (Fig. 10). Nearby, on top of a further foothill, few mounds are characterized by the occurrence of red bricks. The

fact that some of them are in flat position may suggest that they are *in situ* (Fig. 2m, Fig. 11). Some of these red bricks were also collected along the slopes of this small hill, brought down by erosion. The bricks described in the article by Gilda Ferrandino in the previous issue of this journal (Ferrandino 2019) were collected in this spot. It is possible that also the red bricks with Christian symbols seen by Monneret de Villard (see above paragraph 1) were collected in this area. It should be stressed that the bricks are also characterized by shallow irregular grooves made by fingers on one of the larger sides, opposite to the one where engravings can occur. A complete brick is ca. 33×17×6cm (Fig. 12), and remind of similar bricks, characterized by similar dimensions and similar face with shallow grooves, recorded at site UA126, ca. 37km North-West of Kassala, and associated with badly preserved tombs, one of which was a kind of mastaba, a type of tomb well known also in the Christian sites in the Nile valley (Manzo 2013, 256). It is noteworthy that also the dimensions of a brick from Goz Regeb provided by Monneret de Villard are roughly similar (Monneret de Villard 1935, 275). On the contrary the red bricks characterized by engravings possibly representing Christian symbols from site M6, between Goz Regeb and the Gash delta, were apparently smaller (Fattovich 1984, 399-400, Pl. 1, a-b).

East of the spot characterized by the red bricks structures, some tumuli made of big rocks, similar to the ones recorded along the southern side of the hill, occur. Nevertheless, also on this side of the jebel the funerary use was not exclusive through time, as alignments of stones marking the bases of circular and squared huts occur (Fig. 2n; Fig. 13). These structures, like the one recorded on the southern side of the jebel, remind of the bases of huts recorded at Jebel Abu Gamal 1 (JAG 1), ca. 30km South of Kassala, and dating to the 1st and first half of the 2nd millennium AD (Manzo 2016, 194-195). Moreover, a different, and presumably much earlier, use of this sector of the foot of Jebel Tarema is suggested by the concentration of shells of land snails brought to light by erosion more to the East (Fig. 2o; Fig. 14), reminding of similar concentrations dating from the late 6th to the first half of the 4th millennia BC investigated at other sites of the region (see e.g. Manzo 2017, 21, Figs. 12, 18, 27).

The eastern, northern and western sides of Jebel Erebat are characterized by clusters of tumuli made of big rocks. They are similar to the ones recorded at the foot of Jebel Tarema, and their diameter ranges from 3 to 6m (Fig. 15). It should be stressed that some fragments of red bricks were

⁴ For the cultural sequence of Eastern Sudan and the chronology of its components see Manzo 2017.

apparently reused in some of these tumuli, suggesting that at least some of them may be later than the red bricks structures.

On the northern side of the hill, a rock shelter is characterized by ceramic materials perhaps related to the *Hagiz Group* of Eastern Sudan and therefore possibly dating from the 1st millennium BC to the 1st millennium AD (see paragraph 3) (Fig. 2p; Fig. 16). Remains of organic materials and of possible remains of fabrics were also recorded there. The opportunistic use of rock shelters in such late phases can be compared with what was recorded at JAG 1, where a rock shelter associated with *Hagiz Group* and later materials was investigated (Manzo 2016, 194-195).

On the North-western side of the jebel, the occurrence of a bigger and a smaller stone circles, respectively ca. 6 and 4m in diameter, possible bases of huts, associated with ceramic materials of the *Gergaf Group* of Eastern Sudan and presumably dating to the mid-2nd millennium AD (see again paragraph 3) was remarked (Fig. 2q).

On the western corner of the hill, a cluster of organic tempered sherds can perhaps be ascribed to the *Hagiz Group* of Eastern Sudan (Fig. 2r). There, two wheel-made fragments, possibly Meroitic, were also collected (see paragraph 3).

Finally, on the southern side of the Jebel Erebat, a cemetery consisting of small tumuli of rocks, ca. 2m in diameter, also including white quartz pebbles, occurs: they may be quite recent Islamic tombs (Fig. 2s; Fig. 17). Nearby, a concentration of sherds characterized by rocker comb impressed decorations was recorded (Fig. 2t). These sherds remind of the Meso-Neolithic ceramic traditions of the Nile valley cultures or of the *Pre-Saroba* and *Saroba* ones of Eastern Sudan (see paragraph 3). Therefore, they may date to the 6th-5th millennium BC.

THE CERAMIC COLLECTIONS (*E. Giancristofaro*)

The ceramic collections provide important insights into the phases of use of the areas at the foot of the Jebel Erebat and Jebel Tarema. Some preliminary remarks on the pottery occurring on the surface were made during the survey (see above paragraph 3), while a more detailed analysis was subsequently conducted on the samples which were collected. These samples are presently kept in the storeroom of the IAEES in Kassala.

The sampled fragments are 77 in all: 42 from Jebel Erebat and 35 from Jebel Tarema. Preliminary, they allow to establish an extensive chronology, starting from Mesolithic until later periods: the last cultural group, named *Gergaf Group*, marks more recent occupational phases of

Eastern Sudan and it is the best documented one both in the collections from Jebel Erebat and the ones from Jebel Tarema (Manzo 2019, 269; Perna 2017, 186-197).

The collected pottery samples can be divided into the following broad groups.

Meso-Neolithic materials

Fig. 18 (from Jebel Tarema). The surface of fragments (a) and (b) appears eroded. Despite this, it is possible to identify their decorative features: impressed decoration made with comb and with a rocker technique, called *rocker stamp*. The type of decoration reminds of the pottery of the Mesolithic and Neolithic periods in the Nile valley, and of the *Pre-Saroba* and *Saroba* phases of Eastern Sudan, dating to the 6th-5th millennia BC (Cesaro 2017, 102, Fig. 7-8; Manzo *et alii* 2012, 47-52; Manzo 2017, 17-22; Manzo 2018, 298, Fig. 9). Further comparisons can be found in the ceramic collections from Rabak in the Jezira, (Haaland 1987, 55, Fig. 14), from Zakiab (Haaland 1987, 165, Fig. 32), and from Shaqadud in the Butana (Marks, Mohammad-Ali 1991, 72-73, Fig. 5-4, 5-5).

Fig. 19 (from Jebel Erebat). This assemblage appears rather homogeneous. The decoration is mostly comb rocker impressed, a well attested technique during the Mesolithic and Neolithic periods. Indeed, fragments (a), (b), (d), (e), (g), (h), (i), (j) and (k) find comparison with ceramics from *Pre-Saroba* and *Saroba* phases of Eastern Sudan (Cesaro 2017, 102, Fig. 7-8; Manzo *et alii* 2012, 47-52; Manzo 2017, 17-22; Manzo 2018, 298, Fig. 9) and with ceramic assemblages from Rabak in the Jezira region (Haaland 1987, 55, Fig. 14a), Zakiab (Haaland 1987, 165, Fig. 32e), and Shaqadud in the Butana (Marks, Mohammad-Ali 1991, 72-73, Fig. 5-4). In particular, fragment (f) is characterised by a very evident *rocker* impressed pattern, which finds comparison with sherds from Rabak (Haaland 1987, 55, Fig. 14b), Umm Direiwa (Haaland 1987, 166, Fig. 32g-h), Shaqadud (Marks, Mohammad-Ali 1991, 73-75, Fig. 5-5, 5-6) and other sites in the Khartoum region (Salvatori 2012, 422, Fig. 16c; Salvatori *et alii* 2011, 199, Fig. 19-2). A further type of decoration labelled *vees* and recorded at Shaqadud could be compared to fragment (e) (Marks, Mohammad-Ali 1991, 79, Fig. 5-10). The *scraped* surface of sherd (c) may even be later, as such a kind of surface treatment is mainly (but not exclusively) occurring in the later phases of the *Atbai Ceramic Tradition* of Eastern Sudan.

Late Neolithic and Protohistoric materials

Fig. 20 (from Jebel Tarema). Both fragments can be identified with *Rippled ware*. This class of

pottery is very common in many cultures of Nile valley and Deserts. Indeed, it is well attested in local culture of *Butana Group*, dating to the 4th and early 3rd millennia BC, but also in Neolithic and late Neolithic cultures of Lower and Upper Nubia from the 5th to the early 3rd millennia BC, like, e.g., *Pre-Kerma*, *Abkan* and *A-Group* (D'Ercole 2017, 58-59; Honegger 2004, 40; Salvatori, Usai 2004, 36-38).

Fig. 21 (from Jebel Tarema). Fragments (a) and (b) present a decoration consisting of horizontal roughly parallel incised lines. The irregularity of grooves together with the reddish⁵ colour of paste reminds of the *au peigne* decorated pottery of *C-Group* attested e.g. in western area of Wadi es-Sebua (Gratien 1985 a, 52-53, Fig.12, 157, 177). A similar sherd comes from a *Gash Group* late 3rd-early 2nd millennia BC assemblage at Mahal Teglinos, and is now kept in the Museo Orientale "Umberto Scerrato" (Manzo 2018, 82-83, Fig. MO219). Fragment (c) is characterised by a yellow-reddish colour and an incised decoration consisting of shallow grooves which probably covered the entire surface of the vessel. This decoration reminds of some sherds from *Butana Group* assemblages (Manzo et alii 2012, Fig. 73, a).

Fig. 22 (from Jebel Tarema). These handmade fragments are characterised by geometrical incised decorations. Item (a) has a reddish surface with grey/black core (see Group IIIB/4 in Gratien 1985 a, 45, Fig. 6, 348); fragment (b) has a polished black surface and black core (see Group IIIB/5 in Gratien 1985 a, 46, Fig. 7, 318). Therefore, both fragments can be compared with *C-Group*, and in general with *Middle Nubian* pottery of the second half of the 3rd-first half of the 2nd millennium BC.

Fig. 23 (from Jebel Tarema). Fragments (a) and (b) are characterised by a kind of surface treatment defined *scraped*, which is widely attested in the region mainly within assemblages of *Butana Group*, *Gash Group* and *Jebel Mokram Group* (see e.g. Fattovich 1989, 99, 104; Manzo 2017, 22, 33, 43). The coarse and granulose fabric of fragment (a) may suggest a dating to *Butana Group*; instead, fabric of fragment (b) may remind of *Gash Group/Jebel Mokram Group* pottery. The polished surface together with pointed shape outlined by an impressed pattern made with a comb characterizing fragment (c) reminds of the *Garatit Complex-Impressed* of the *Jebel Mokram Group* (Sadr 1987, Fig. 5), but similar impressed patterns are also occurring in the Nile valley assemblages dating to

the end of the 3rd-early 2nd millennium BC (see, e.g., Gratien 1985 b, Fig. 317).

Fig. 24 (from Jebel Tarema). An attempt of attribution has been possible just for fragment (b), (c) and (d) while piece (a) is too badly eroded. The sherds (b) and (c) are characterized by a reddish surface with an incised decoration which reminds of *Butana Group* pottery, but their depurated paste reminds of *Early Gash Group* fabrics, dating ca. mid-3rd millennium BC⁶. Fragment (d) is characterised by a yellowish surface with remains of a pattern of shallow grooves. It reminds of materials coming from UA53 and dating to the *Butana Group* of Eastern Sudan (Manzo pers. com.).

Late materials

Fig. 25 (from Jebel Tarema). The fragments (a), (b), (c) and (e) are characterised by shapes and decorations which reminds of earlier periods. Indeed, the decoration of fragments (b) and (c) is typical of *Gash Group* pottery (Manzo 2017, 34, Fig. 22h)⁷. Nevertheless this feature is here associated with a vegetal tempered fabric, widely occurring from the 1st millennium BC, in the *Hagiz Group* of Eastern Sudan. *Hagiz Group* pottery is precisely characterized by decorations related to the *Gash* and *Jebel Mokram Group*, but associated with vegetal tempered fabrics (Manzo et alii 2012, 65). Nevertheless, the occurrence of vegetal tempered fabrics also before the 1st millennium BC cannot be completely excluded in the Goz Regeb area, and it is not unknown also in more southern sectors of the region earlier than the *Hagiz Group*. Therefore, for the moment, the attribution of fragments (b) and (c) remains debatable. The bulge of fragment (d) instead is typical of *Gergaf Group*, dating around the mid-2nd millennium AD, although it is attested also in the earlier *Hagiz Group* (Fattovich 1989, 112).

Fig. 26 (from Jebel Erebat). In the *Gergaf Group*, the bumps already occurring in the *Hagiz Group* pottery underwent an evolution becoming real grips very often characterised by a cross-shaped incised decoration, the same as in fragments (a), (c), (d) and (f) (Perna 2017, 194, Fig. 9, H.1.b). However, sometimes the potter just applied a grip less refined with a mere utilitarian function, like in fragments (b) and (g). Both *Hagiz* and *Gergaf Group* ceramic repertoires are characterized by the occurrence of handles, which were sometimes

⁵ The blackish colour, the copious pores and vitrified paste of fragment (a) may result from excessive fire exposure.

⁶ Personal remark by Enrico Giancrifaro based on the study of the *Gash Group* materials from the sites of the region between the Atbara and the Gash rivers conducted for the preparation of the MA dissertation.

⁷ See note 6.

horizontal (Manzo 2017, 56, Fig. 47e; Perna 2017, 195, Fig. 11).

Fig. 27 (from Jebel Tarerma). The four fragments are characterized by an incised decoration: (a) and (b) are characterised by a grid of lines on a reddish surface; meanwhile (c) and (d) present a different decorative pattern consisting of two pairs of parallel lines apparently converging to a single point. Both decorations are well attested in *Gergaf Group* ceramic repertoire (Manzo *et alii* 2012, 70, Fig. 100-101; Perna 2017, 194, Fig. 9; Sadr 1984, 33, Fig. 1).

Fig. 28 (from Jebel Tarerma). The three fragments in the picture date to two different periods: (a) and (c) remind of *Gergaf Group* types on the basis of their decoration; in particular, the incised decoration below the rim of the fragment (a) finds parallels in Sadr (1984, Fig. 1) and in a fragment from UA 129 (Perna 2017, 188, Pl. 1). A clear attribution is harder to define for fragment (b). However, as it is characterized by an incised cross, it seems plausible ascribe it to a Christian community settled in the area, whose presence is supported by the engraved bricks with Christian symbols collected at Goz Regeb (see above paragraph 2 and Ferrandino 2019). The cross inscribed in a circumference incised on the upper part of the shoulder of this fragment is not unknown in Christian Nubia (see, e.g. Vantini 1985, 215, Fig. 25), but is different from the crosses decorating some vessels recorded near Jebel Ofreik, North-East of Goz Regeb, (Manzo 2017, Fig. 54) and at site M6, between Goz Regeb and the Gash delta (Fattovich 1984, 402, Fig. 1b, 5). The fragment from Jebel Tarerma is also characterised by a vegetal tempered fabric which is well attested in Eastern Sudan in *Hagiz* and *Gergaf Group* times.

Fig. 29 (from Jebel Tarerma). The fragment is part of a *bowl with grips*, a well-known ceramic class of *Gergaf Group* (Perna 2017, 194). The surface is eroded, but traces of burnishing can be remarked as well as a horizontal *zig-zag* decorative pattern between the rim and the grip.

Fig. 30 (from Jebel Erebat). Like in the previous case, the attribution of these fragments to *Gergaf Group* is immediate. Sherds (b) and (e) are part of *unrestricted bowls*, a type without decoration and with vegetal tempered fabric characterized by the abundance of pores visible even on the surface and whose colour ranges from reddish to blackish brown (Perna 2017, 192, Fig. 5). Instead, fragments (a), (c) and (d) probably belong to *straight-walled bowls* with brownish polished surface (Perna 2017, 191). Just sherds (f), (g), (h), (i) and (k) are decorated; in the first three cases the pattern consists of incisions already seen when discussing the

fragments in Fig. 27; nevertheless, the everted rim of (b) and perhaps (g) and (h) find comparison with *bag-shaped vessels* described by Perna (2017, 194, Fig. 9, H.1.b.). The decoration of the sherd (i), it is very similar to the one on fragment (c) in Fig. 28, although the brownish surface seems different. The apparently isolated line of notches on piece (k) is usually associated with incised decoration; however, even here it finds correspondence in Perna (2017, 188, Plate 1; 193, Fig. 7, F.3.a; 194, Fig. 10, I.1.c - I.1.d).

Fig. 31 (from Jebel Erebat). The incised decorations of these fragments are very close to *Funj* pottery (Fernández *et alii* 2003, Fig.21) and in general to patterns characterizing the pottery of the *Gergaf Group* of Eastern Sudan (see e.g. Sadr 1984, Fig. 1). Together with impressed notches associated with an incised pattern of (f) and to the different surface colours, ranging from brownish red to brick-red/reddish brown) they allow us to ascribe the assemblage to the *Gergaf Group* (Perna 2017, 191, Fig. 4).

Fig. 32 (from Jebel Erebat). Within *Gergaf Group* pottery there are special forms. Among them, appear irregular-shaped perforated disks just like (a) and (b) (Perna 2017, 196, Fig. 14, O.2). Fragment (c) is characterized by a reddish vegetal tempered fabric and a very distinctive shape, maybe it is part of a biconical incense burner.

Fig. 33 (from Jebel Tarerma). The fragments in the picture are characterised by polished and slipped surfaces and by a very distinctive impressed decoration. The used tool is a comb but no clear traces of rocker technique can be remarked. The pattern is geometrical. All these features being quite unusual in Eastern Sudan, these sherds, and particularly (a) and (c), can be compared to handmade pottery from Meroitic sites, like e.g. settlement area of Hamadab (Dittrich 2010, colour-Pl. 1), the building B2200 at Jebel Barkal (Bąkowska 2015, 464, Plate III, n° VI) and the structure on the Kom I at Abu Erteila (Malykh 2017, 154-155, Fig. 1).

Figs. 34-35 (from Jebel Erebat). Unlike the items described so far, these fragments are wheel made. Nevertheless, in the first case the artisan possibly combined coiling and wheel made production. This mixed technique was recorded in the case of some Meroitic jars, like, e.g., some of the jars found in the Meroitic cemetery at Berber (Bashir, David 2011, 123). Apparently, this mixed technique usually occurs from the 2nd cent. BC (David 2019, 878; David, Evina 2016, 104). Fragment (b) is characterised by a light pink colour homogeneous paste, perhaps a marl or mixed marl clay, with traces of a red engobe on the whole

surface. Also these features finds comparison within Meroitic pottery (David, Evina 2016, 95-97).

MIDDLE AND LATE HOLOCENE ENVIRONMENTS AT GOZ REGEB (*S. Costanzo*)

The geomorphology of Goz Regeb is a detailed archive of subsequent phases of accretion, weathering and erosion of rocks and deposits (Fig. 36). The local landscape is marked by two Neoproterozoic (~600 million years) granite plutons that were shaped as small whaleback inselbergs - isolated, neat rocky outcrops - by chemical solution and erosional weathering. Xerophytes-dominated badlands lead to the shallow canyon of the Atbara River, flowing 1km East of the inselbergs themselves, and a thin yet ubiquitous layer of wind-blown sand, mobilized from the shallow dunes of a nearby Middle Pleistocene fossil lakebed (~0.8 million years) (Abbate *et alii* 2010), seals the ground. The extant landscape, therefore, is the result of Quaternary fluvial/colluvial phenomena and aeolian dynamics, triggered by humid/arid climatic shifts (Costanzo *et alii* 2021).

Among such climatic shifts, the Middle/Late Holocene transition from the former wetter conditions of the so-called African Humid Period (AHP) to the current semi - and hyper - arid savannas and deserts, is the most significant and relevant for a holistic comprehension of the influence of supra-regional environmental changes on the transformation and evolution of societies in response to decreasing land and resource availability (Gatto, Zerboni, 2015). Within this continental-scale environmental history, some hypotheses on the Middle and Late Holocene natural environments of Goz Regeb can be outlined. The Middle Holocene is accepted to coincide with the peak of the AHP (deMenocal, Tierney 2012), a period of more abundant and probably year-long consistent rainfall that could sustain vegetation and water-related ecosystems throughout the North Africa. The area of Goz Regeb, during the 6th mill. BC, may thus have been covered in tight shrubland and tall xerophytes; water ponds probably occupied fossil river channels' topographic lows, and organic topsoils were developing ubiquitously. Flora and fauna may have been comparable to those found today in the East African savannas, and the proximity of the Gash River's fossil plain and endorheic terminal fan may have caused the regional landscape to look somewhat similar to the present-day Okavango River's delta - a large, fluvial pastureland teeming with wildlife. After the AHP optimum, as it is well documented in the pan-African environmental record and, conveniently, in the nearby site of Mahal Teglinos (Costanzo *et alii* 2020), a gradual rainfall

decrease induced a climatic shift towards the region's current semi-arid conditions. Around the beginning of the 3rd mill. BC and for the following 5-8 centuries, the onset of aridity led to several environmental changes that ultimately shaped the landscape and ultra-seasonal climate that characterizes the region nowadays. The desiccation and removal of the shrub cover, triggered soil loss processes and the incision of the badlands that surround the Atbara River, which in turn started to engrave and deepen its canyon revealing several stabilized gravel bars and terraces along its course. Vegetation loss, in addition, triggered foothill colluvial processes and the possible displacement and burial of protohistoric archaeological remains. The inselbergs' hillsides were stripped to the bedrock, and the boulders were exposed to the formation of a thick desert patina. Later archaeological evidence sits on eroded soils and relict landforms, and is in turn being buried, displaced and altered by ongoing processes related to acute rainfall seasonality (rill erosion, flash floods), severe aridity (sand-bearing strong winds from the open plains) and trampling by pasturing flocks and cattle.

In short, the environment of the Goz Regeb's area shifted from humid savanna (6th mill. BC) to semi-arid hot desert (after 3rd mill. BC and ongoing) following continental climate changes, which led to profound alterations in the landscape and in the availability of resources. This ultimately reflected on the evolving societal processes of the people settled in the region, who, as attested in the archaeological record, endured and adapted despite the apparently increasing inhospitability.

FINAL REMARKS (*A. Manzo*)

The archaeological relevance of the sites surrounding Jebel Tarema and Jebel Erembat already suggested by the earlier visitors of the site (see paragraph 1), clearly emerges also from the survey conducted in 2019 by the IAEES.

The fact that the area was occupied in different phases, roughly from the 6th-5th millennium BC to the mid-2nd millennium AD is also evident, although the larger part of the ceramic materials collected in 2019 can be ascribed to the late phases of the cultural sequence of Eastern Sudan, namely the *Gergaf Group* (see paragraph 3). Nevertheless, it should be remarked that several fragments from Goz Regeb in the Sudan National Museum (see note 2) can be ascribed to the 4th and early 3rd millennium BC *Butana Group* and some also to the *Gash Group* and *Jebel Mokram Group*, dating to the 3rd and 2nd millennia BC. Moreover, it is not excluded that the ongoing soil loss and environmental degradation

processes (see paragraph 4) affected the preservation of remains and structures going back to the earliest phases.

It should be stressed that also the apparent lack of materials going back to the 4th-2nd millennia BC around the Jebel Erebat in the 2019 surface collections should be considered casual or related to the, above mentioned, environmental factors, as several materials going back to those phases labelled as from “the southern end of Jebel Erebat” occur in the assemblages kept in the storage of the Sudan National Museum.

In the earliest phases of occupation, dating to the 6th and 5th millennia BC, environment was certainly very different from the present one, as more humid conditions prevailed (see paragraph 4). The exploitation of resources such as the land snails, is perhaps suggested by a concentration of shells, perhaps the remains of a shell midden, brought to light by erosion on the north-eastern side of Jebel Tarema. The ceramic materials of these phases from Goz Regeb are similar to the ones from *Pre-Saroba* and *Saroba* sites of Eastern Sudan, in turn related to the Mesolithic and Neolithic sites in the Nile valley (see paragraph 3).

As previously stressed, the 4th and early 3rd millennium BC remains from Goz Regeb are related to the *Butana Group* of Eastern Sudan, whose they represent the northernmost evidence so far recorded. The fact that *rippled ware* is apparently quite common at Goz Regeb⁸, while it is very rare in the *Butana Group* assemblages from other sites, may suggest that Goz Regeb was also related to the late Neolithic cultures of the Nile valley. Indeed, this may have been a crucial area precisely in the relations between Eastern Sudan and the Nile valley in that phase. Such relations were already suggested on the basis of similarities between some ceramic types (see Manzo 2017, 22-23).

The links with the cultures of Eastern Sudan are less evident for the 3rd and 2nd millennium BC, as the few sherds so far available for those phases can be ascribed to a generic *Middle Nubian* tradition, which in those phases is sometimes also evident in Eastern Sudan (see Manzo 2017, 33-34, 43). The association between late 3rd-2nd millennia BC materials and a concentration of large grinding stones at a specific spot on the northern side of Jebel Tarema may suggest that a functional area may have been there at that time.

For the later phases, there is again a good evidence of a close relation with the cultures of Eastern Sudan, such as the *Hagiz Group* and the

Gergaf Group (see paragraph 3). Being these cultures likely related to mobile groups (see Manzo 2017, 55-58, 61-64), it is possible that Goz Regeb represented a very important node in their patterns of seasonal mobility, being close to the river and also marked by two hills, a land marker clearly recognizable from far away. As previously stressed (see paragraph 2), some of the remains of settlements at the foot of both Jebel Tarema and Jebel Erebat are similar to the structures recorded at other *Hagiz Group* and *Gergaf Group* sites. Therefore, they can be likely ascribed to this phase.

The occurrence of possible Meroitic ceramic materials (see paragraph 3), already remarked on the basis of the surface collections of the survey conducted by Rodolfo Fattovich in the Eighties (see paragraph 1), confirms that Goz Regeb, most likely because of the nearby ford on the Atbara, was an important link between Eastern Sudan and Meroitic Butana.

Connections with the regions West of the Atbara may have nevertheless increased later on, as suggested by the Christian evidence, clearly related to the Nubian Nile valley, recorded at Goz Regeb (see paragraphs 1, 2 and 3). The site may have been characterized by a settlement with a church near the Jebel Erebat (see paragraph 1), whose remains were not identified in the 2019 survey, and at least one cemetery, perhaps the one also mentioned by Monneret de Villard, on a foothill North of Jebel Tarema (see paragraphs 1 and 2). Also, in this phase the ford may have been a crucial factor for the flourishing of the site. The contacts with the Nile valley taking place via Goz Regeb may have resulted in the arise of other Christian sites more to the East, like the one nearby Jebel Ofreik, M6 and UA126 (see again paragraph 2).

Finally, it should be stressed that for the moment it is not possible even to guess the chronology of several structures recorded at the foot of Jebel Tarema and Jebel Erebat (see paragraph 2). The fact that sometimes fragments of red bricks were reused as building material in the tumuli on the eastern side of Jebel Erebat may suggest that at least some of the stone tumuli are later than or at least contemporary with the Christian remains. Nevertheless, only further systematic investigations would address the many questions that remain unanswered about this fascinating site.

⁸ It also occurs in the collections from Goz Regeb in the Sudan National Museum.

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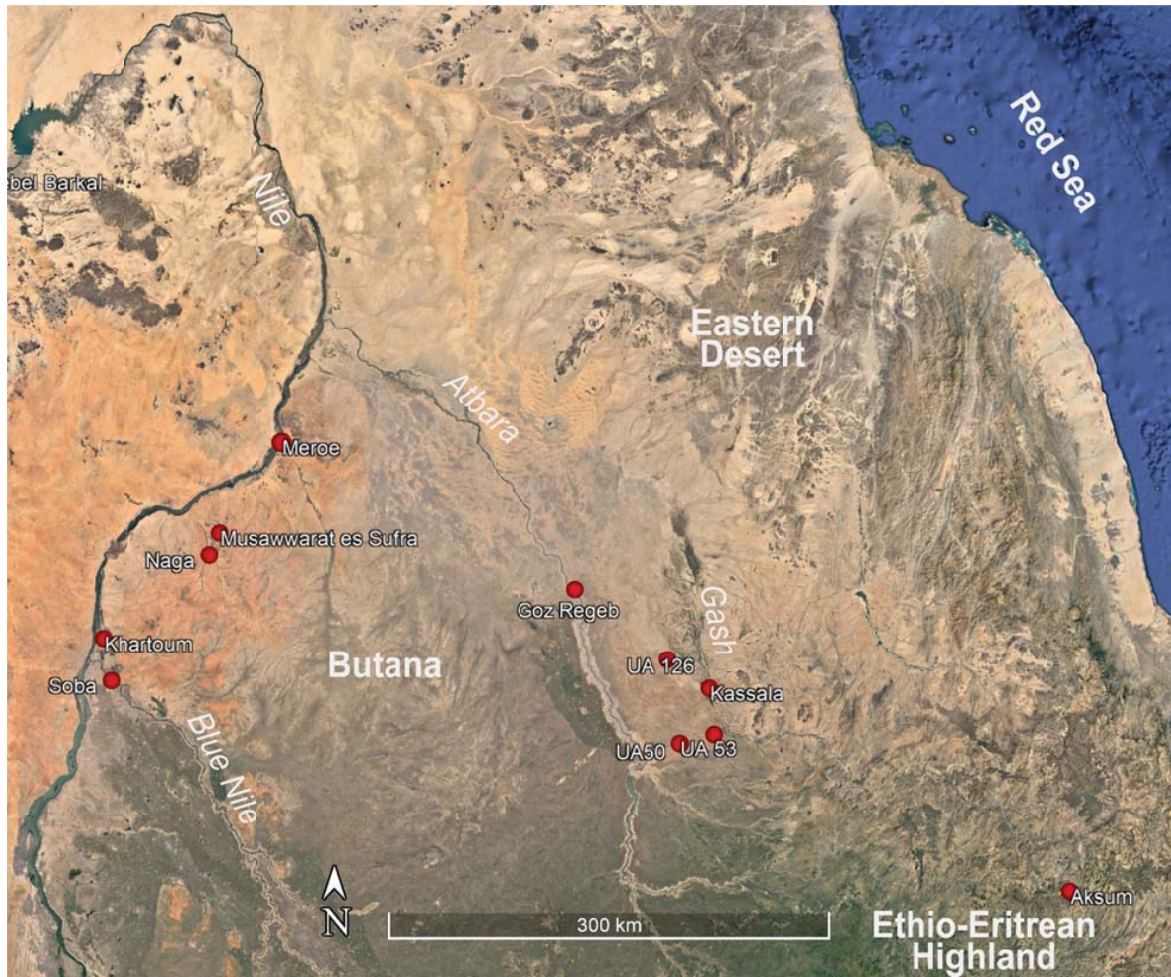


Fig. 1 - Satellite image showing the location of Goz Regeb and of other major ancient and modern centres in Sudan

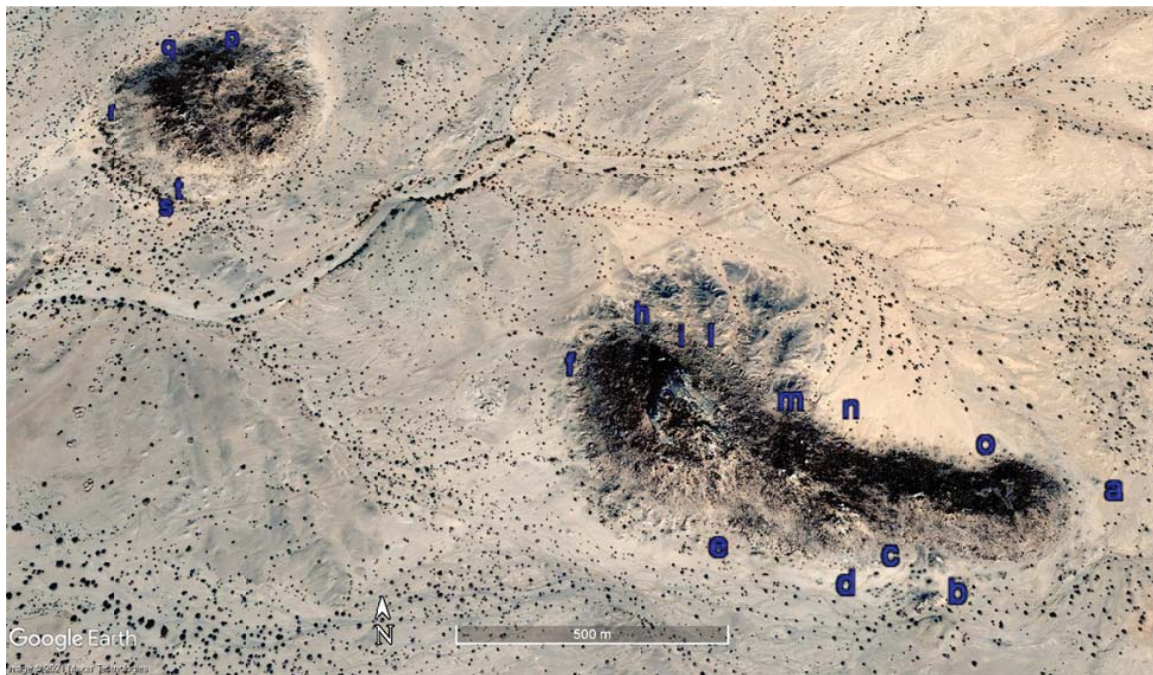


Fig. 2 - Satellite image showing the site and the location of the different areas/features described in the text



Fig. 3 - The bigger tumulus at the eastern corner of the Jebel Tarema



Fig. 4 - Tumuli along the southern foot of Jebel Tarema



Fig. 5 - A circular alignment of stones perhaps marking the perimeter of a hut on the southern side of the Jebel Tarema



Fig. 6 - A tumulus surrounded by a stone ring on the southern side of the Jebel Tarema



Fig. 7 - Elongated mound consisting of a perimeter of bigger rocks filled by pebbles in the western sector of the southern side of Jebel Tarema



Fig. 8 - Elongated tumuli consisting of big rough stones without the filling of pebbles at the western corner of Jebel Tarema



Fig. 9 - A large grinding stone on the northern side of the Jebel Tarema



Fig. 10 - Alignments of small tumuli on the northern side of the Jebel Tarema



Fig. 11 - Possible remains of red brick structures on a foothill on the northern side of Jebel Tarema



Fig. 12 - A complete red brick on the surface, on the northern side of Jebel Tarema, to be remarked the shallow finger grooves



Fig. 13 - Remains of the possible foundations of huts on the northern side of the Jebel Tarema



Fig. 14 - A concentration of shells of land snails brought to light by erosion on the northeastern corner of the Jebel Tarema



Fig. 15 - Tumuli of rocks and reused red brick on the eastern and northern side of the Jebel Erebat



Fig. 16 - Rock shelter on the northern side of the Jebel Erebat



Fig. 17 - A small tumulus with white quartz pebbles on the southern side of the Jebel Erebat



Fig. 18 - Meso-Neolithic or Pre-Saroba-Saroba sherds from the foot of Jebel Tarema



Fig. 19 - Meso-Neolithic or Pre-Saroba-Saroba sherds from the foot of Jebel Erebat



Fig. 20 - Ripple ware sherds from the foot of Jebel Tarema



Fig. 21 - Protohistoric sherds from the foot of Jebel Tarema



Fig. 22 - Protohistoric sherds from the foot of Jebel Tarema



Fig. 23 - Protohistoric sherds from the foot of Jebel Tarema



Fig. 24 - Protohistoric sherds from the foot of Jebel Tarema



Fig. 25 - Late period sherds from the foot of Jebel Tarema



Fig. 26 - Hagiz and Gergaf Group grips from the foot of Jebel Erebat



Fig. 27 - Gergaf Group sherds from the foot of Jebel Tarema



Fig. 28 - Late period sherds from the foot of Jebel Tarema



Fig. 29 - Fragment of a Gergaf Group bowl with grip from the foot of Jebel Tarema



Fig. 30 - Gergaf Group sherds from the foot of Jebel Erebat



Fig. 31 - Gergaf Group sherds from the foot of Jebel Erebat



Fig. 32 - Gergaf Group sherds from the foot of Jebel Erebat



Fig. 33 - Possible Meroitic sherds of handmade vessels from the foot of Jebel Tarema



Fig. 34 - External surface of possible Meroitic wheel made sherds from the foot of Jebel Erebat



Fig. 35 - Internal surface of possible Meroitic wheel made sherds from the foot of Jebel Erebat

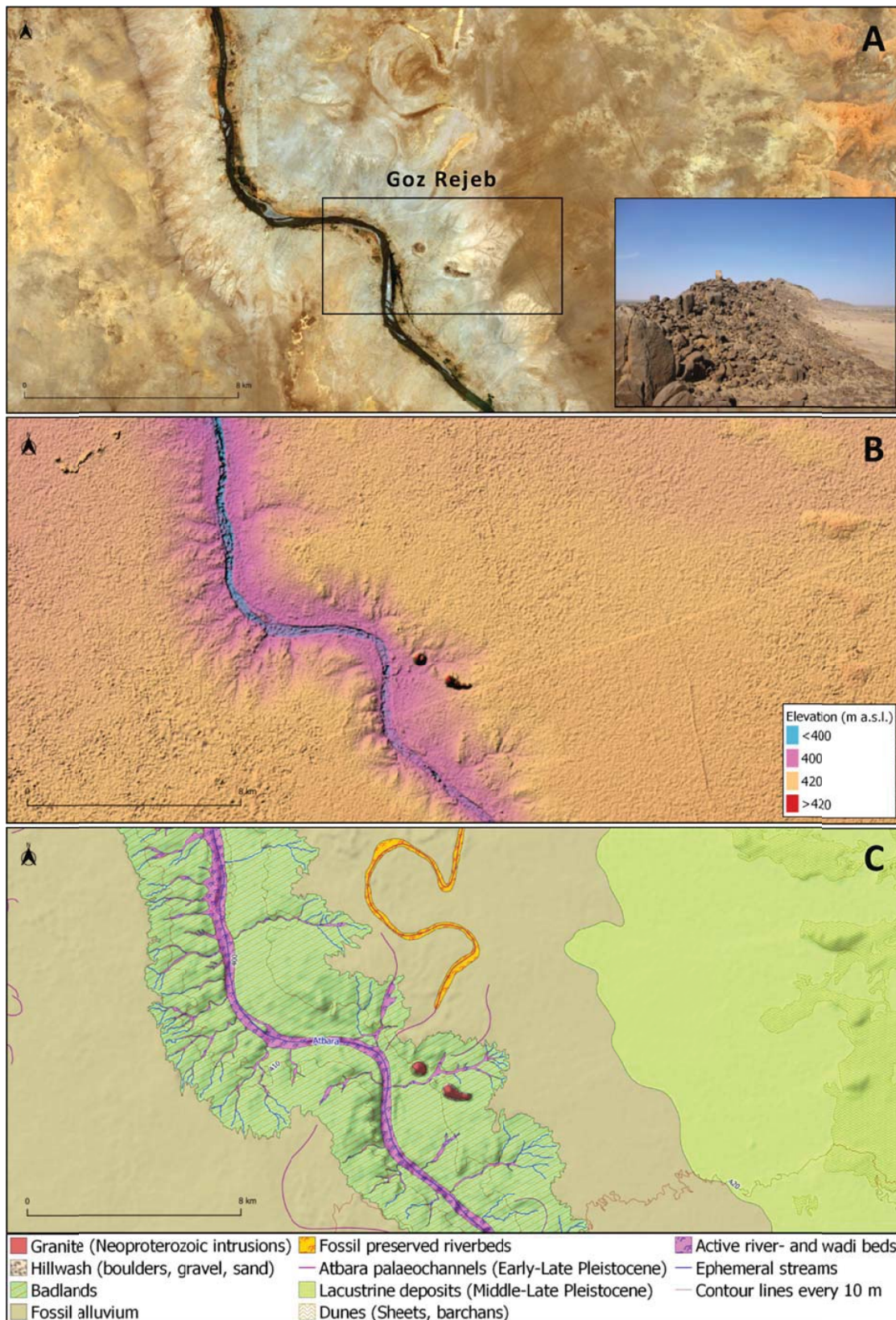


Fig. 36 - (A) Satellite image of Goz Regeb and its surroundings. The bottom right box is a picture of the two granite inselbergs taken from the lower summit of the south-eastern outcrop. (B) Digital Elevation Model (ALOS World 3D - 30m) of the area. The Atbara River's canyon and badlands are easily readable in blue and purple respectively; the inselbergs emerge in red. (C) Geomorphological characterization of the area (modified after Costanzo *et alii* 2021)