

ITALIAN ARCHAEOLOGICAL EXPEDITION TO THE EASTERN SUDAN OF THE UNIVERSITY OF NAPLES
“L’ORIENTALE” AND ISMEO. PRELIMINARY REPORT OF THE 2017 FIELD SEASON

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Introduction

The goal of the 2017 field season of the Italian Archaeological Expedition to the Eastern Sudan of the University of Naples “L’Orientale” and of the ISMEO - Associazione Internazionale di Studi sul Mediterraneo e l’Oriente¹ was the continuation of the investigations at site UA50 and in the western sector of site K1 (Mahal Teglinos), one of the major archaeological sites of Eastern Sudan (Fig. 1).

These two tasks were regarded as urgent because UA50 is affected by the implementation of the agricultural scheme in the region between the Gash and the Atbara (Upper Atbara Agricultural Irrigated Scheme), while the western sector of K1 was affected by intense erosion due to the heavy rains of the last years (Manzo *et alii* 2011, 2, 28).

Moreover, these sites were selected for investigations in 2017 not only because the Expedition considered a priority to contribute to the cultural heritage management of the Kassala region, but also because K1 and UA50 could be significant for the research project conducted by the Expedition, which is aimed at getting a better knowledge of the relations between Eastern Sudan and Upper Nubia as well as to investigate the possible relations between the cultures of Eastern Sudan and the Red Sea coast

via the Eastern Desert in ancient times (Manzo 2012, 314; 2014a, 1149-1152; 2017a, 7; Manzo *et alii* 2011, 1-2). Indeed, the finds from K1 already contributed to the study of these topics in the past years (Manzo 2012, 318-320; 2014b, 378-379; 2015, 232-233; 2017a, 48-54; Manzo *et alii* 2011, 5-6, 28-30 and 2012, 52-56, 60-65, 95-96). Moreover, according to the surface finds and test excavations conducted at UA50 in 2015 and 2016, this site could provide more data on the earliest phases of the regional cultural sequence, whose investigation is also a priority of the ongoing research project (Manzo 2015, 231; 2017a, 7; 2017b, 147-149; Manzo *et alii* 2012, 1, 127-128).

Also in 2017, in the framework of the collaboration between “L’Orientale” and ISMEO, the National Corporation for Antiquities and Museums (NCAM) and the Regional Government of the Kassala State, a field school in archaeology consisting both of theoretical lectures and practical training took place. Five junior staff members of the cultural office of the Regional Government, and five Italian MA and PhD students were participating to it.

INVESTIGATIONS AT K1 (MAHAL TEGLINOS)

K1 (Mahal Teglinos) is a 10ha. site located East of Kassala in a small valley in the northern part of the Jebel Taka complex. The site was investigated from 1980 to 1995 by the Italian Archaeological Mission to the Sudan (Kassala) (IAMSK) of the University of Naples “L’Orientale” (at that time Istituto Universitario Orientale) directed by Rodolfo Fattovich (Fattovich 1991; 1993; Fattovich *et alii* 1994). Previous investigations demonstrated that the site was used at least starting from the 4th millennium BC and up to the 1st millennium AD, although the main occupation phases of the site date to the 3rd and 2nd millennia BC. In Gash Group times (ca. early 3rd-early 2nd millennium BC) a settlement and two cemeteries extending in the eastern and western sectors of the site and characterized by monolithic stelae, a so far unique funerary monument typical of this site, characterized K1 (Fattovich *et alii* 1994, 14-17; Manzo 2016, 192-194; 2017a, 37-38). In Jebel Mokram Group times (early 2nd millennium BC-early 1st millennium AD) a

¹ The fieldwork took place from November 8 to December 8. The team in the field consisted of Andrea Manzo, archaeologist, director of the project and ceramic analyst (University of Naples “L’Orientale”), Gilda Ferrandino, field director (University of Naples “L’Orientale”), Elena D’Itria, archaeologist (University of Naples “L’Orientale”), Francesco Michele Rega, lithic analyst (University of Naples “L’Orientale”), Eleonora Minucci, physical anthropologist (University of Naples “L’Orientale”), Giusy Capasso, Angela Annarelli, Federico Gargiulo and Davide Memola, MA students (University of Naples “L’Orientale”), Alhibir Hassan Taha, Roua Mohammed Ali Idriss, Suzan Ibrim Nafe, Rumisa Mohammed Ali, and Rufeda Salih Mohammed Salih, staff member (Regional Ministry of Culture and Tourism of the Kassala State). The colleague representing the National Corporation for Antiquities and Museums was Habab Idriss Ahmed Idriss. The field season was made possible by the following institutions: Ministry of Foreign Affairs (grant 2017), University of Naples “L’Orientale” (research grants 2016 and 2017 and grant assigned to the agreement between the National Corporation for Antiquities and Museums (NCAM) and the University of Naples “L’Orientale” for the year 2017), ISMEO - Associazione Internazionale di Studi sul Mediterraneo e l’Oriente (research grant 2017).

smaller village was located in the westernmost sector of the site, which may have been previously occupied by a small lake (Manzo 2015, 235; 2017a, 11) or, as suggested by the more recent geoarchaeological investigations conducted in 2017 (see below), may have been affected by a water table.

Already in 2010, during a visit to the site, it was remarked that erosion was bringing to light large parts of a settlement in the north-western corner of the site, while in the western sector of the site some graves were cut and almost destroyed by streams. For this reason, in 2010, 2013, 2014, 2015 and 2016 five excavation units were investigated in the western part of the site: K1 VI, VII, VIII, IX, and XII (Manzo 2012, 317-318; 2014b, 377-378; 2015, 231-233; 2016, 192-194; Manzo *et alii* 2011, 27-30). In 2017 investigations continued in K1 XII and in K1 VI, while a row of squares of a new excavation unit, K1 XIII, were also investigated immediately South of K1 XII. The investigation of this row of squares also allowed to reach the northern limit of the old trench BPLF-Z BPQA-E, excavated in 1994 (Fattovich *et alii* 1994, 16-17) (Fig. 2).

K1 VI was a 6x10m excavation unit including the 2x2m area whose topsoil was excavated in 2010 (Manzo *et alii* 2011, 27-30)². Investigations in the enlarged excavation unit already started in 2014. Several living floors characterized by concentrations of ceramic materials, some grinding stones, large pieces of vessels still in situ, and by pits were brought to light. The upper living floors were partially disturbed by erosion. Among the noticeable finds, some charred grains and the fragments of a large tray, ca. 50cm in diameter, and of large storage vessels perhaps similar to the ethnographic *gusseba*, made by coiling technique and with a fabric characterized by vegetal temper, similar to the ones found in 2013, in excavation unit K1 IX (Manzo 2014b, 378), were collected. As already remarked in 2014, all the living floors investigated at K1 VI can be ascribed to the Jebel Mokram Group (early 2nd millennium BC-early 1st millennium BC), except for the earliest one, which yielded pottery typical of the latest phases of the Gash Group. This fact already provided insights into the transition between Gash Group and Jebel Mokram Group and its chronology, showing that it may have taken place ca. 1800 BC, i.e. 300 years earlier than previously thought (Manzo 2017b; 2018). In 2016 a further and earlier Gash

Group living floor was brought to light, with some post holes on top and a concentration of clay material in the north-western sector of the excavation unit, perhaps to be interpreted as the collapse of a mud brick or mud structure (Manzo 2017b, 146). Interestingly, a sequence similar to the one recorded in K1 VI was noticed in K1 V, a test pit investigated in 1991 ca. 20m South-West of K1 VI (Fattovich *et alii* 1994, 17). In 2017 the upper living floor with Jebel Mokram Group materials underwent extensive excavation: further concentrations of pottery and a grinding stone were brought to light there (Fig. 3). Investigations in this excavation unit will be continued in the next years.

K1 XII was a 10x8m excavation unit immediately North of a sector of the western cemetery partially investigated in 1994 and 1995, while the only row of squares of excavation unit K1 XIII precisely filled the gap between the excavation units of 1994 and 1995 and K1 XII³. Investigations in this area already started in 2015, when sixteen tombs were brought to light and twenty-two tombs were added in 2016 (Manzo 2016, 192-193; 2017c, 146-147). In 2017 thirty-four tombs were brought to light there.

Few badly damaged tombs of children characterized the uppermost levels of the excavation unit and may be ascribed to the latest phases of use of the cemetery, as also suggested by their contracted or semi-contracted position. Other tombs are characterized by skeletons in extended position. The fact that several of those graves cut or overlap each other testify the intense and prolonged use of this cemetery.

The pits of some of the tombs with skeletons in extended position were cut from a living floor on top of which structures consisting of stone slabs, stelae, a small, only partially preserved structure made of granite rocks, and some well defined concentrations of bones and pottery and burned material, to be interpreted as offering places, were laying. This living floor is preserved only in the upslope squares of the excavation unit, while downslope it may have been partially damaged by erosion. A date around the mid-3rd millennium BC was obtained in 2015 from a charcoal sample from an offering place, suggesting that this living floor and the associated structures and tombs may go back

² The excavation was supervised by Gilda Ferrandino and Stefano Costanzo.

³ The excavation was supervised by Andrea Manzo, Habab Idriss Ahmed Idriss, and Elena D'Itria.

to the earliest phases of the Gash Group⁴. Further dates obtained more recently from samples collected in 2016 and 2017 both from the offering places and some tombs also seem to point to the first half of the 3rd millennium BC⁵. Nevertheless, other tombs with skeletons in extended position cut or overlap the ones associated with this living floor and are later, as also confirmed by the associated radiocarbon dates to the second half of the 3rd millennium BC,⁶ although unfortunately the living floors from where they were excavated were destroyed by erosion. Therefore, in consideration of the results of the previous excavations conducted in this area and of the results of the radiocarbon dating of some remains associated with the later tombs, these can be ascribed to the mature and late phases of the Gash Group (very end of the 3rd mill. BC).

Most of the tombs whose position can be recognized were characterized by bodies in extended position on the back, with orientation varying from North-South with head to South, to East-West with head to the East or to the West. A double grave brought to light in 2017 contained the body of a young female individual embracing a boy (Fig. 4, see also Capasso below). The deposition of the two bodies in the tomb seems contextual and the position of the arms of the female body embracing the boy confirms the link between the two, whose meaning is not yet clear.

The grave goods were usually limited to personal ornaments and mainly to lip plugs, but some tombs also contained complete vessels, often collapsed but mendable, going back to different phases of the Gash Group (Fig. 5). An early Gash Group tomb with East-West orientation and head to the East contained five scraped vessels and represents the richest tomb ever discovered at Mahal Teglinos (Fig. 6). An exceptional find from an early Gash Group tomb originally containing a skeleton in

extended position with East-West orientation and head to the East, whose remains were heavily disturbed, is represented by a mendable atypical closed bowl on a stemmed ring base decorated by small notches and characterized by highly polished surfaces (Fig. 7). Usually, personal ornaments were made of cowry shells and ostrich eggshell beads, but sometimes also imported *faïence* beads were noticed. Interestingly, in a couple of tombs also grinding stones were occurring among the grave goods.

INVESTIGATIONS AT UA50

UA50 is a site located in the south-western sector of the area endangered by the implementation of the Upper Atbara Agricultural Irrigation Scheme. As shown by the survey conducted in 2010 by NCAM and in 2014 by the Expedition, the site was characterized by the possible presence of eroded tumulus or mounds and by concentrations of shells originating from Mesolithic (6th millennium BC) assemblages.

In 2015 a shell mound was brought to light in excavation unit UA50 I and it gave late Mesolithic materials dating to the late 6th millennium BC, i.e., in terms of regional cultural sequence, Pre-Saroba, while a further test pit (UA50 II) was investigated closer to the wadi bordering the site to the North (Manzo 2016, 194). In 2016, two excavation units were investigated: UA50 III, and IV, respectively aimed at bringing to light a further shell midden and some of the eroded burials visible on the surface of the site (Manzo 2017c, 147-148).

In 2017 three more excavation units were investigated: UA50 V, VI, and VII⁷. UA50 V, an 8x10 m excavation unit was aimed at investigating a concentration of human bones remarked in 2016 in the western sector of the site. UA50 VI is a 10x10m excavation unit which was excavated immediately West of UA50 V with the similar goal of investigating some clusters of bones occurring on the surface, while UA50 VII is located South-East of the other trenches, where two shell middens were partially brought to light by erosion.

In UA50 V some scattered human bones were brought to light, as well as a recent fireplace in its eastern sector. A better preserved tomb, with North-South orientation, head to the South and characterized by contracted position associated with

⁴ Beta - 428646: 4140 +/- 30 BP, calibrated 2 σ 2875 to 2615 BC, and 2605 to 2580 BC. All calibrations were obtained with INTCAL13 curve.

⁵ Beta-480488: 4490 +/-30 BP, calibrated 2 σ 2611 to 2497 BC; Beta-480490: 4160 +/-30 BP, calibrated 2 σ 2813 to 2679 BC, and 2872 to 2849 BC; Beta - 499123: 4160 +/-30 BP, calibrated 2 σ 2813 to 2679 BC, and 2872 to 2849 BC; Beta 499124: 4050 +/- 30 BP, calibrated 2 σ 2620 to 2564 BC, and 2532 to 2495 BC Beta - 501667: 4170 +/- 30 BP, calibrated 2 σ 2812 to 2744 BC, 2726 to 2696 BC, and 2876 to 2853 BC.

⁶ Beta - 468278: 3710 +/- 30 BP, calibrated 2 σ 2101 to 2037 BC, 2141 to 2114 BC, and 2188 to 2184 BC, and Beta - 468279: 3860 +/-30 BP, calibrated 2 σ 2351 to 2286 BC, 2454 to 2419 BC, and 2407 to 2376 BC.

⁷ Investigations at UA50 were supervised by Andrea Manzo, Habab Idriss Ahmed Idriss, Stefano Costanzo, Gilda Ferrandino and Elena D'Itria.

other human remains was brought to light along the northern limit of the excavation unit. Other scattered human remains were also recorded in excavation unit UA50 VI, while eight new tombs to be added to the seven brought to light in 2016 (Manzo 2017c, 148) were recorded outside the excavation units. In four cases the position of the body could be recognized and resulted to be contracted with different orientations (Fig. 8). The study of the human remains from these tombs is in progress (see Capasso below). Sometimes ostrich eggshell beads and lip plugs were found associated to these graves. It was also possible to get some insights into the chronology of these tombs by means of radiocarbon analysis of samples of organic materials found in association with them. According to the results of these analysis the tombs are earlier than previously thought (Manzo 2017a, 11), and may date to the last centuries of the 5th-early 4th millennium BC⁸. Therefore, they represent the earliest tombs so far recorded in the region, the first ones to be ascribed to the late Malawiya Group. Consequently, the 2nd millennium BC Jebel Mokram Group remains scattered in the northern sector of the site (Manzo 2016, 194) may be ascribed to a now badly eroded settlement, perhaps a camp, and are not related to the tombs, as it was previously suggested.

In UA50 VII two shell middens, the first located roughly in the centre of the excavation unit and a second one along its northern edge were brought to light. The two shell middens, consisting of concentrations of shells of land snails whose identification is in progress, resulted to be very rich in terms of archaeological materials, potsherds, lithics and ecofacts such as animal bones and macrobotanical remains. Interestingly, samples from the shell middens excavated in 2016 and 2017 submitted for radiocarbon dating gave dates to the first half of the 5th millennium BC⁹, later than the one obtained for the shell midden excavated in 2015, which resulted to date to the end of the 6th millennium BC¹⁰. Some differences also emerge in terms of ceramic materials, with the occurrence in

these later assemblages of less densely packed impressed decorative patterns and perhaps of a larger variety in terms of fabrics, than in the sherds from the shell midden investigated in 2015 in excavation unit UA50 I (Cesaro 2017, 97, figs. 7-8) (Fig. 9).

Three roughly curvilinear stone structures which were evident on the surface of the site outside the excavation units were tested as well (Fig. 10). They are not covering any pit, and seem to be related to the use of the site as a seasonal camp in more recent times, perhaps precisely in Jebel Mokram Group times as some of them remind a round feature made of stones, ca. 0.5-0.6m in diameter, brought to light in association with Jebel Mokram Group materials at site UA53 (Manzo 2013, 258, fig. 7). Such a kind of structures, perhaps associated to Jebel Mokram Group seasonal camps, may be interpreted as bases, perhaps aimed at isolating storage facilities from the humidity, as both sites UA50 and UA53 are located nearby seasonally active streams.

PALEOENVIRONMENTAL STUDIES

The geoarchaeological work started in the past seasons by Mauro Cremaschi (Manzo 2015, 235) continued in 2017¹¹. In particular, activities were focusing on the organic dark soil brought to light by water erosion in the western part of the site K1 (Mahal Teglinos), and also found in excavation units K1 VI and K1 XII.

The laboratory analysis showed that this soil stratum may have originated from a water table which was reaching the surface in this sector of the site in a certain phase. Indeed, this may have happened in the humid phases of the Holocene, as suggested by a radiocarbon date of the dark soil¹². Interestingly, also considering the fact that some parts of the area where the organic dark soil occurs were at a certain point overlapped by the western Gash Group cemetery, it is possible to start outlining the process of drying up of the water table, which was progressively retreating to the West, following the natural slope of the terrain in the area. The eastern fringes of the water table had already dried

⁸ Beta - 480489: 5390 +/- 30 BP, calibrated 2 σ 3706 - 3636 BC; Beta - 499121: 5510 +/- 30 BP, calibrated 2 σ 4370 to 4332 BC, and 4437 to 4428 cal BC; Beta - 499122: 5440 +/- 30 BP, calibrated 2 σ 4296 to 4263 BC, and 4339 to 4318 BC.

⁹ Beta - 484157 5850 +/- 30 BP, calibrated 2 σ 4747 to 4690 BC, and 4770 to 4752 BC; Beta - 499120: 5920 +/- 30 BP, calibrated 2 σ 4835 to 4766 BC, 4756 to 4741 BC, and 4736 to 4729 BC.

¹⁰ Beta - 437225: 6090 +/- 30 BP, calibrated 2 σ 5195 to 5180 BC and 5060 to 4935 BC.

¹¹ The geoarchaeological work was conducted by Stefano Costanzo. The reconstruction presented here results from the study of the data Stefano collected that was conducted by himself under the coordination of Mauro Cremaschi for the preparation of a MA dissertation defended in the University of Milan.

¹² UGAMS - 29354: 6410 +/- 25 BP, calibrated 2 σ 5470 to 5320 BC.

up at the beginning of the 3rd millennium BC, as the dark soil stratum is cut by some early Gash Group tombs investigated in excavation units K1 XII, K1 XIII, and in the old trench BPLF-Z BPQA-E (see above). Nevertheless, it was demonstrated that the process of drying up was very slow and its final effects only took place ca. 1000 years later, as the water table disappeared only around 2000 BC. At that time, a late Gash Group settlement, whose investigation is in progress in excavation unit K1 VI, and which was partially brought to light in the old test pit K1 V (see above), arose in the westernmost corner of the site and overlapped the dark soil originated by the water table.

FINAL REMARKS

Also in 2017 excavations at Mahal Teglinos demonstrated to be very fruitful. Indeed, the new investigations in the western Gash Group cemetery added fresh evidence on the Gash Group (mid-3rd-early 2nd millennium BC) funerary rituals, style of life and society, as well as on its development through time, to be integrated with the data already available for the eastern cemetery extensively investigated in the Eighties. The continuation of the excavations in the western sector of the same site also provided insights into the organization of Jebel Mokram Group (early 2nd-early 1st millennium BC) and late Gash Group (early 2nd millennium BC) settlement areas, and on the social organization and economy of those phases.

For the first time since the excavations conducted by Shiner near the Atbara (Shiner *et alii* 1971), investigations at UA50 provided data on the Mesolithic phase in Eastern Sudan. The fact that the shell middens investigated at UA50 are going back to different moments, dating from the late 6th to the mid-5th millennium BC gives for the first time the possibility of following the development of the material culture at the transition from the Pre-Saroba phase to the Saroba one (Malawiya Group). The fact that organic materials occur in the middens promises to provide insights into the economy and environmental setting of the region in the 6th and 5th millennia BC. Moreover, although badly affected by erosion, the tombs in the central sector of UA50 represent the earliest tombs so far recorded in the region and their remains will certainly enlarge our knowledge on the inhabitants of the region in those phases.

Finally, the geoarchaeological investigations are greatly enriching our paleoenvironmental

reconstruction and show that dry conditions emerged very slowly and gradually in the region: according to the data collected at K1 (Mahal Teglinos) this was a long process already started in the early 3rd millennium BC, but ending at least 1000 years later. It is now planned to extend geoarchaeological investigations to the region between the Gash and the Atbara rivers, where many archaeological sites are located, and the nature and phases of activity of the streams crossing the area need to be properly investigated.

PRELIMINARY REPORT ON THE HUMAN REMAINS FROM SITES MAHAL TEGINOS (K1) AND UA50 IN EASTERN SUDAN (G. Capasso)

In the 2017 field season, the Italian Archaeological Expedition to the Eastern Sudan of the University of Naples “L’Orientale” and ISMEO conducted investigations in cemeteries dating to the 5th and to the 3rd millennium BC, respectively at the sites UA50, in the region between the Gash and the Atbara rivers, and Mahal Teglinos (K1), near the city of Kassala (see Manzo above). This evidence, combined with the one of the previous field seasons, offers the unique possibility of following through the anthropological data the main economic and social turning points of a very long cultural sequence, starting in the 6th millennium BC and ending in the mid-2nd millennium AD (Manzo 2017a). This report offers some preliminary insights into the potentialities of these studies and their first results¹³.

Mahal Teglinos (K1)

At Mahal Teglinos (K1), investigations were conducted in the eastern Gash Group cemetery, in excavation unit K1 XII and in a new excavation unit nearby, K1 XIII (see Manzo above). Thirty-four tombs dating to the 3rd millennium BC were brought to light there. The remains of eleven individuals were studied, while the rest were left in Kassala in the storeroom of the Expedition and is expected to be studied in the next field season¹⁴.

¹³ The data presented here were analyzed and discussed in my MA dissertation, defended at the University of Naples “L’Orientale” and prepared under the tutorship of Andrea Manzo and Alessandra Sperduti. The raw data and the samples were collected in the field by myself in the framework of the Italian-Sudanese joint archaeological fieldschool, in November 2017.

¹⁴ The study of the human bones from sites K1 and UA50 has been conducted by the author and Eleonora Minucci under the coordination of Alessandra Sperduti of the *Museo delle Civiltà*

A preliminary taphonomic analysis has been carried out considering all the studied remains: at K1 single burials are predominating with the occurrence of double graves only in 10% of the cases. When the position can be detected, the extended one is mostly occurring, with the occurrence of the supine decubitus in 55% of the cases and of the lateral decubitus in 23% of the cases. The East-West orientation prevails, although it is not exclusive.

Among the tombs brought to light some yielded very intriguing assemblages. Tomb 43=44 (see Manzo above, Fig. 4) is characterized by an East-West orientation and yielded the remains of a female 14-16 years old individual, and of a 9-10 years old child, whose sex could not be determined. Both the skeletons were lying on the right side in extended position and facing North. The female individual embraces with her left arm the child. Only the DNA analysis, which will be conducted on the petrous portion of temporal bones of the skeletons, will confirm if they were siblings. It is remarkable that the above mentioned is not the only double burial from K1 (Manzo 2017b, 147), but so far it is unique for its characteristics and the attitude of the two skeletons.

A preliminary demographic model has been obtained for the eastern cemetery at Mahal Teglinos on the basis of all the available data on sex and age of the studied individuals: despite the model is not representative of the reference community because of the limited number of the individuals in the considered sample (unbalanced ratio adults / sub-adults and unbalanced ratio men /women), it is clear that there is no exclusion from the formalized burial of specific classes of age (Fig. 11).

An accurate dental analysis has been carried out¹⁵: after a preliminary analysis to determine sex and age of the inhumates, all the teeth were exported and studied in Italy in the facilities of the Section of Physical Anthropology of the Laboratory of Bioarchaeology, Museo delle Civiltà, Rome. Considering the results of the previous years and the new data obtained for the 11 individuals investigated in the 2017 field season, it seems that oral pathologies recorded at K1 testify a type of diet

based mainly on the consumption of carbohydrates (37,5% of the sample is affected by caries and AMTL, 90% by calculus and 71% by alveolar resorption), typical of a Neolithic economy (Fig. 12). This seems to agree with what was shown by the paleobotanical and archaeozoological analysis conducted on remains from Gash Group assemblages (Manzo 2017a, 19-20). Unfortunately, it is not yet possible to make meaningful systematic comparisons between the oral pathologies affecting the different sexes and the age groups, because of the limited number of individuals forming the sample. Nevertheless, on the basis of the available data, it can be preliminarily suggested that women were more affected by oral diseases than men, and that adults were more affected than sub-adults.

Only 25% of the sample shows chippings and traces of an extra masticatory use of the dentition. The evidence of a specific and very distinctive wear pattern that involves the distal margin of the incisal surface of lower incisors, giving them a triangular shape, was remarked. This wear pattern has been observed in a man of 40-50 years, and finds comparisons in a man and a woman, both of 30-40 years, from the earlier site UA50 (Fig. 13).

UA50

At UA50, the investigation of a trench, UA50 V, and excavations of concentrations of human bones brought to light by erosion conducted out of the trenches led to the discovery of thirteen graves apparently going back to the second half of the 5th millennium BC, and thus representing the earliest tombs so far investigated in the region (see Manzo above). These include eleven single and two multiple tombs with three skeletons each (UA50 V, Tomb 1, and Tomb 17 out of excavation units). The skeletons of these graves were not yet studied, because the anthropological analysis of the human remains from site UA50 started with the study of the ones brought to light in 2016, in excavation unit UA50 IV and in other tombs outside the excavation units, and kept in the storeroom of the Expedition in Kassala (Manzo 2017b, 148). On the whole, the bones of twenty-four skeletons from fifteen graves have been studied (thirteen single graves, Tomb 4 out of excavation units with four skeletons and Tomb 6 out of excavation units with seven skeletons).

The skeletons were very badly preserved because of the erosion of the upper part of the funerary pits, which brought to light the bottom of

(formerly *Museo Nazionale Preistorico e Etnografico* "Luigi Pigorini"), Rome.

¹⁵ The study of dental anthropology has been conducted by the author under the coordination of A. Sperduti of the *Museo delle Civiltà*, Rome.

the tombs, and sometimes of the burials themselves, which are often evident on the present surface. The bad state of preservation did not allow an accurate anthropological investigation of all the samples, but in some cases it was possible to determine sex and age. As only for two female individuals and a male individual it was possible to determine sex, on the basis of the available data it was not possible to establish a reliable ratio male/female. Nevertheless, also in this case, as for K1, despite the limited number of individuals in the available sample, it seems that there is no exclusion from the formalized burial of specific age groups (Fig. 14).

For a preliminary taphonomic analysis, both the data of 2016 and 2017 have been considered: multiple burials occur in 17% of the excavated tombs. In multiple burials the number of individuals ranges from 3 to 7. When detectable, the position of the bodies is contracted or highly contracted, on the left or on the right side (see Manzo above fig. 5). The West-East orientation of the bodies facing South prevails, although it is not exclusive, and even inside the same multiple tomb the orientation of the bodies can be highly variable.

Also in this case an accurate dental analysis has been carried out in the facilities of the *Museo delle Civiltà*, as after a preliminary analysis to determine sex and age of the inhumates of 2016, all the teeth were exported and studied in Italy. The results seem to testify a type of diet not based on the consumption of carbohydrates (only 22% of the sample is affected by caries and AMTL) (Fig. 15). This seems to fit well in what we know about the adaptive system characterizing the inhabitants of the region in the 5th millennium BC, who may have

consisted of groups of hunters-gatherers (Manzo 2017a, 19-20). Moreover, 50% of the sample shows traces of chipping and of an extra masticatory use of the dentition, such as the triangular shape of lower incisors, already recorded in some later remains from Gash Group tombs at K1.

Among the outstanding aspects pointed out by the dental analysis, the observation of dental anomalies conducted with the help of x-rays provided very intriguing results. A case of bilateral hyperdontia has been observed in a 30-35 years old individual of undetermined sex characterized by bilateral supernumerary lower premolars (Fig. 16, a-b). A more complex anomaly characterized a 20-24 years old individual, whose sex cannot be determined, affected by agenesia of the four central incisors and by the transmigration of his right lower canine. In this case, because of the lack of thrust of the permanent right canine, the deciduous right canine did not fall, and the individual is characterized by the occurrence of three lower canines: the deciduous and the two permanent, of which one impacted and one transmigrated to the place of the missing central incisors (Fig. 17). Despite these dental anomalies do not follow a Mendelian transmission pattern, the hereditary component plays an important role in their etiology. It is hoped that a possible familiar relationship between the inhumates will be clarified by future DNA analyses conducted on the petrous portion of temporal bones or on the teeth of the human remains from UA50, whose exportation for this specific purpose was planned for the next field season.

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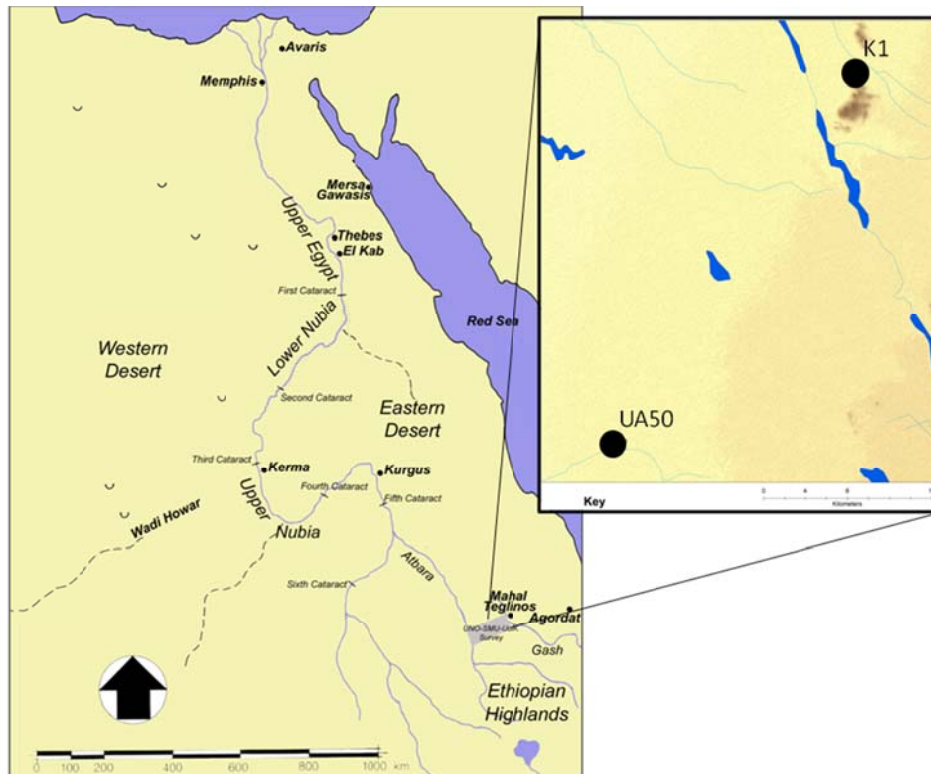


Fig. 1- Map showing the location of the area under investigation, and the sites investigated in the 2017 field season

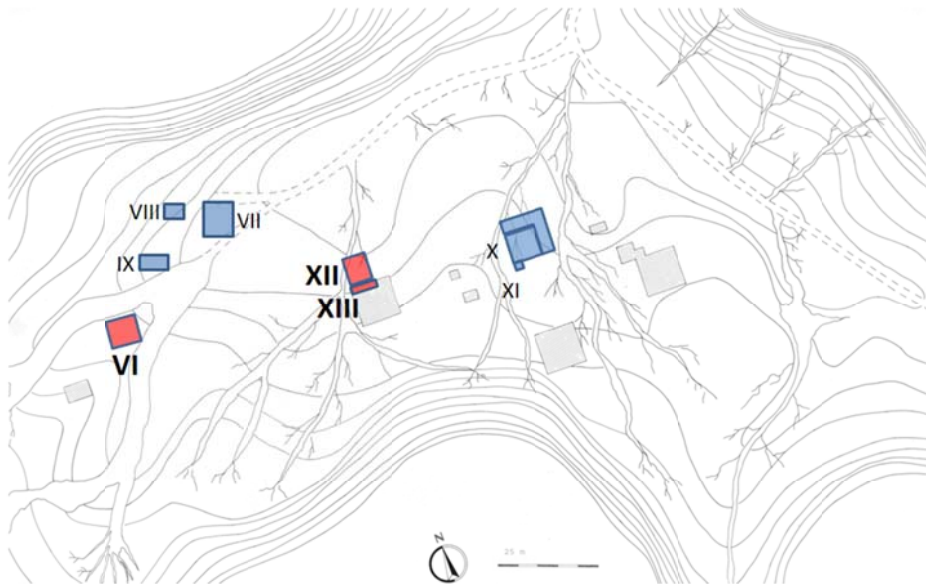


Fig. 2 - Map of the excavation units investigated at K1-Mahal Teglinos in Eighties and Nineties (gray color), 2010-2016 (blue color), and 2017 (red color)



Fig. 3 - Excavation unit K1 VI, square B2, SU 63, a grinding stone on a Jebel Mokram Group living floor dating to the first half of the 2nd millennium BC



Fig. 4 - Excavation unit K1 XII, square C5, SU 93, Tomb 43-44, containing a skeleton of a young female embracing a boy, both in extended position and with an East-West orientation, head to the East and facing North; the tomb also contained a dish and a grinding stone



Fig. 5 - Excavation unit K1 XII squares D3 and D4, SU 127, Tomb 67, containing a skeleton of an adult in extended position with an East-West orientation, head to the East; the tomb also contained personal ornaments in carnelian, ostrich eggshell and cawri shell, as well as three vessels

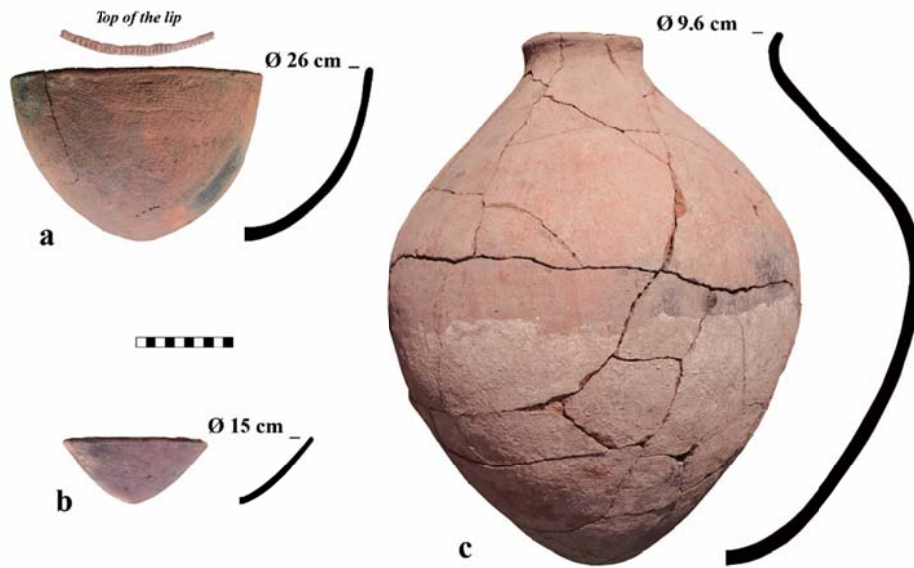


Fig. 6 - Three scraped vessels from K1 XII squares B4, SU 109, Tomb 60



Fig. 7 - Atypical closed bowl on a stemmed ring base decorated by small notches and characterized by highly polished surfaces from excavation unit K1 XII, square C4, SU 131, Tomb 72



Fig. 8 - UA50, Tomb out of excavation unit 9, containing a badly eroded skeleton in contracted position with East-West orientation, head to the West facing South

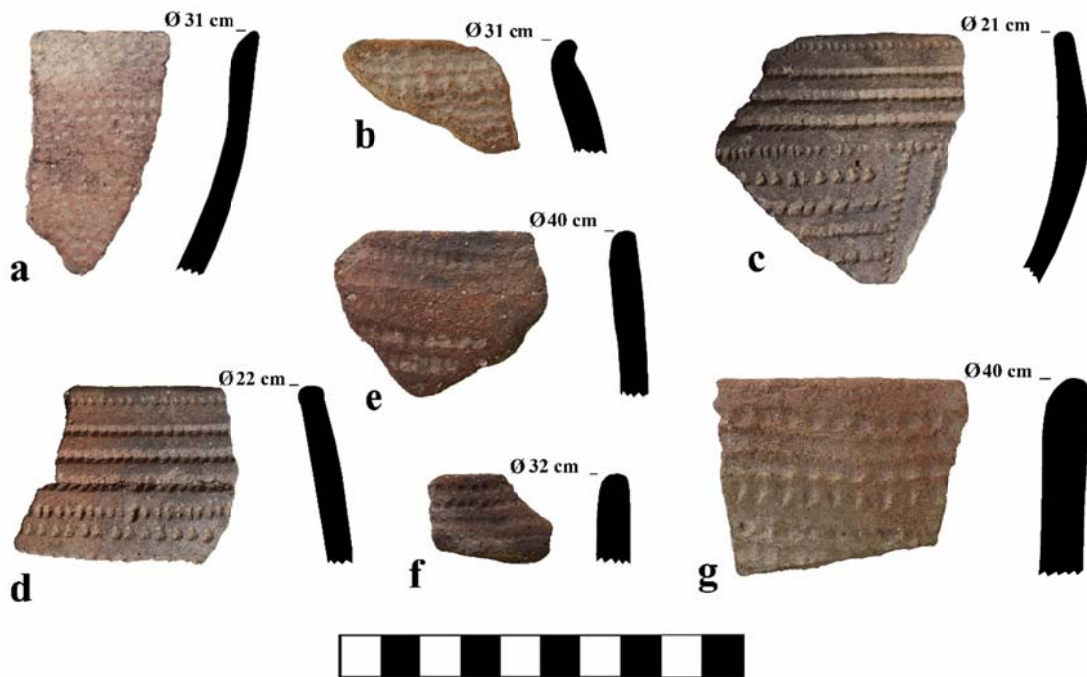


Fig. 9 - Rim sherds from shell middens in excavation units UA50 III, SU 2 (a-d), investigated in 2016, and UA50 VII, SU 2 (e-g), excavated in 2017



Fig. 10 - UA50, curvilinear feature made of unworked stones and reused grinding stones, perhaps to be interpreted as the base of a storage structure

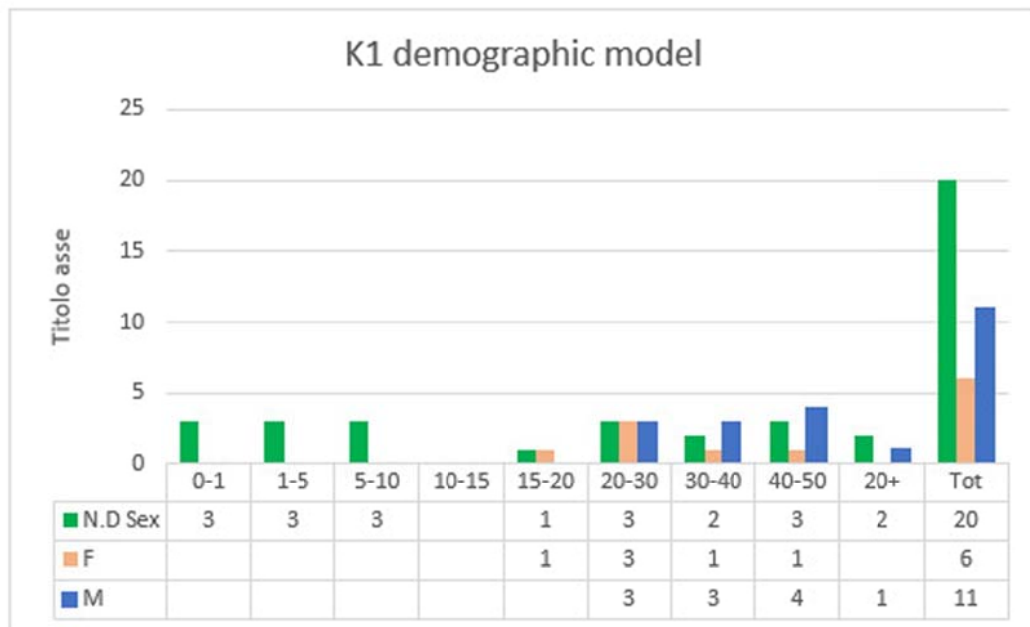


Fig. 11 - Distribution model of sex and age classes for K1 XII-XIII, Gash Group western cemetery

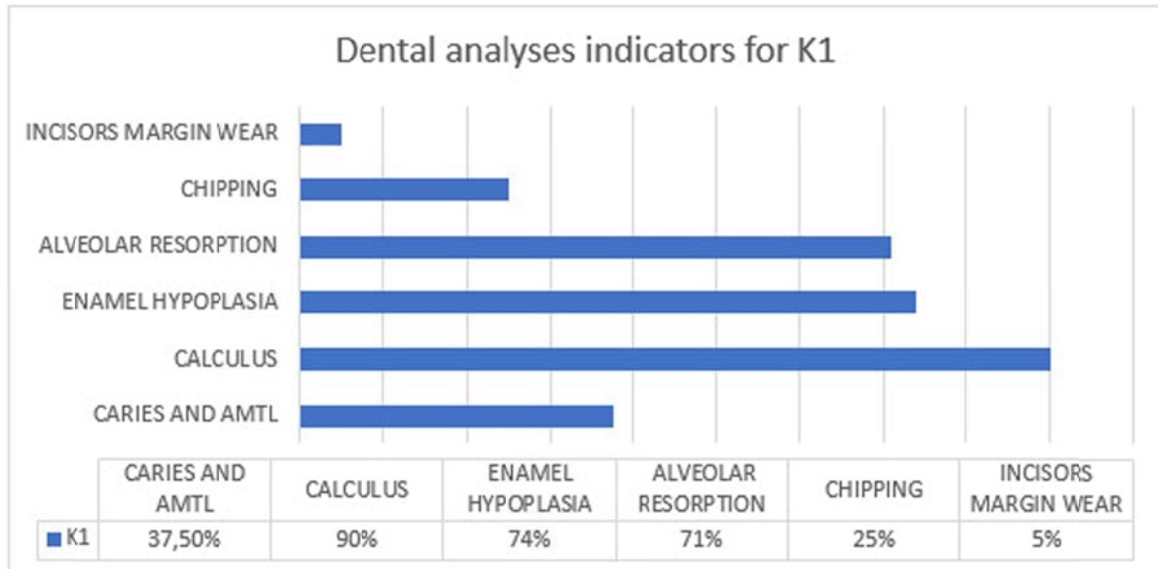


Fig. 12 - Distribution pattern of the dental analyses indicators for K1 XII-XIII, Gash Group, western cemetery



Fig. 13 - Triangular-shaped lower central incisors from K1 XIII, Tomb 106. Buccal vision on the left; lingual vision on the right

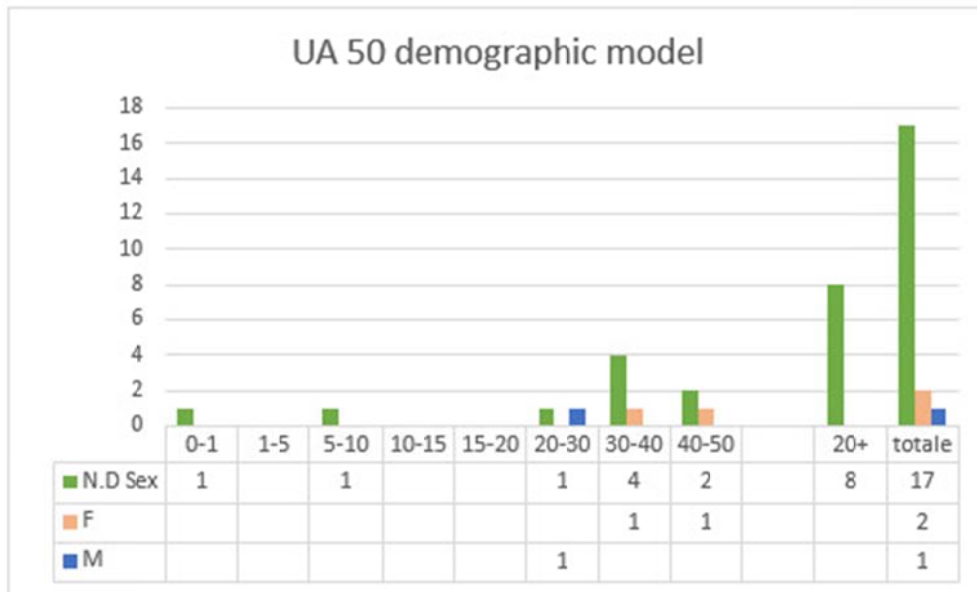


Fig. 14 - Distribution model of sex and age classes for UA50

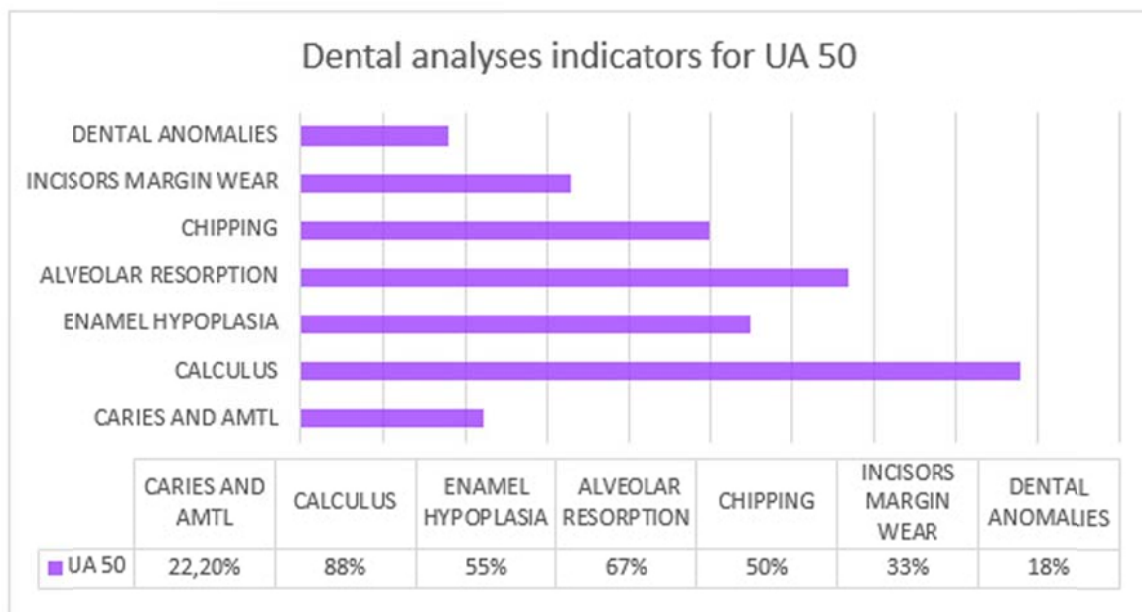


Fig. 15 - Distribution pattern of the dental analyses indicators for UA50

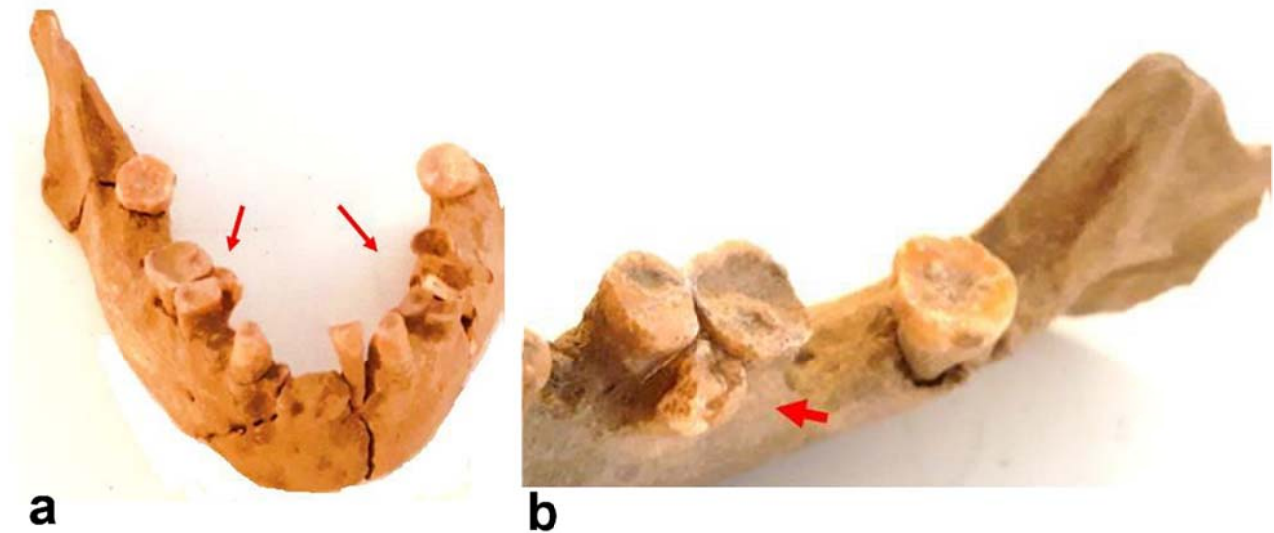


Fig. 16 - a) UA50 o.e.u Tomb 3, mandibula of 30-35 years old individual with bilateral hyperdontia (supernumerary teeth between P4 and M1 on the lingual face), buccal vision; b) detail, lingual vision

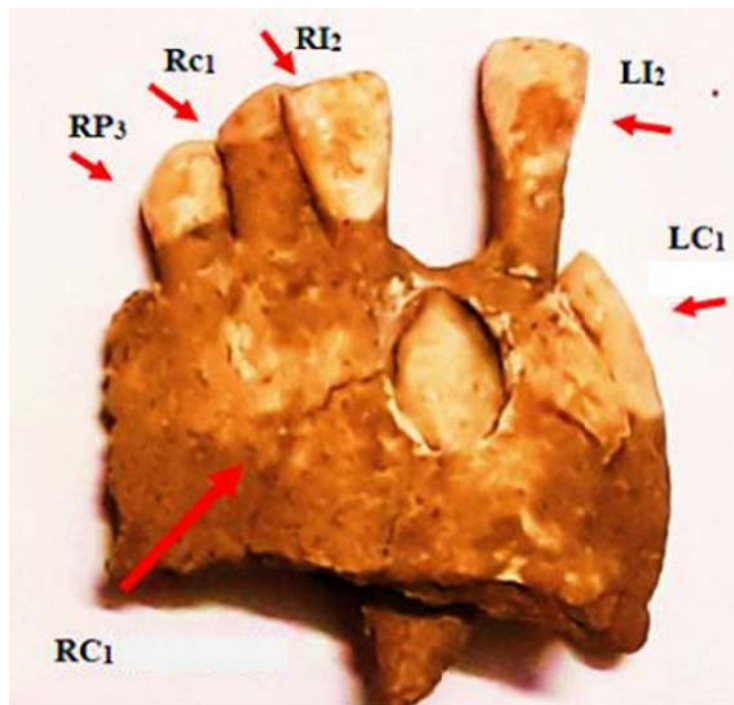


Fig. 17 - UA50 IV Tomb 1, detail of portion of a 20-24 years old individual mandibula, with agenesia of the four central incisors and transmigration of the right lower canine. Because of the lack of thrust of the permanent right canine, the deciduous right canine did not fall; both right and left permanent canines are impacted; buccal vision