

## **Report on the Activities of the Eight Field Season of the Joint Shida Kartli Project (2016)**

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### **Introduction**

The eight field season of the Shida Kartli project of Ca' Foscari University of Venice (Italy) in cooperation with the Georgian National Museum (Georgia) took place from June 18<sup>th</sup> to August 1st, 2016. The Italian team arrived in Tbilisi on June 18<sup>th</sup>, and reached the town of Kareli on June 20<sup>th</sup>. Excavation activities started on June 21<sup>st</sup> and were completed on July 28<sup>th</sup>. On July 29<sup>th</sup>, the team returned to Tbilisi.

The Italian team was composed by the following archaeologists: prof. Elena Rova (co-director of the project, chief of the Italian group), dr. Katia Gavagnin, dr. Elisa Giroto, Davit Darejanashvili and Marta Aquilano, MA (PhD candidates at Ca' Foscari University), Laura Tonetto and Flavia Amato, MA (students at the SISBA archaeology specialisation school), Beatrice Barbiero, Chiara Mariotto, Cristina Martin, BA, and Andrea Milanese (students at Ca' Foscari University), Giampaolo Ceccarini, MA, and dr. Alberto Savioli (University of Udine, topographer). The Georgian component of the team included the following archaeologists: prof. Iulon Gagoshidze (co-director, chief of the Georgian group), Tinatin Chanishvili, Nana Gogiberidze, Tinatin Kutelia (GNM), Davit Gagoshidze, MA (Ivane Javakhishvili Tbilisi State University), Tamar Bijashvili and Magda Patiashvili (students at Sokhumi State University). Two restorers from the GNM of Tbilisi (Davit and Giorgi Gagoshidze) assisted the expedition in removing a complete Kura-Araxes fireplace from the excavation and delivering it to Kareli Museum).

Like in the previous seasons, the expedition was joined by experts in different fields: dr. Elisabetta Boaretto (<sup>14</sup>C expert, Weizmann Institute of Science, Rehovot), dr. Modwene Poulmar'ch (Lyon University, palaeoanthropologist) and Eleonora Venier (architect, MA student at the IUAV University of Venice).

11 workmen from the village of Doghlauri and from the town of Kareli were engaged in the excavation; Mr. Emzari Tzulukidze drove the mission's minibus and took care of logistics.

On 27/07/2016 the expedition received the visit of His Excellency dr. Antonio Bartoli, Italian Ambassador in Tbilisi, and of a class of students of the Italian School "Tsiskari" in Tbilisi. It was also visited by the following colleagues: dr. Zurab Makharadze, Georgian National Museum (12/07/2016), dr. Eleonora Carminati (Melbourne University) and dr. Giorgi Bedianashvili (GNM) (15/07/2016), dr. Sarit Paz, Hebrew University of Jerusalem and dr. Mindia Jalabadze, Georgian National Museum (16/07/2016), dr. Édouard de Laubrie, Musée des civilisations de l'Europe & de la Méditerranée, Marseille (20/07/2016).

The main activity of the season was the continuation of the excavations on the Aradetis Orgora Main Mound (Dedoplis Gora), whose aim was to complete the stratigraphic sequence of pre-classical occupation and to continue the exposure of the Hellenistic Building (**Fig. 1**).

Excavation in Field C by the Georgian team under the responsibility of prof. Gagoshidze aimed at continuing the investigation of the Late Hellenistic/Early imperial palatial building located

on top of the mound. Fields A and B represent the continuation of the two stratigraphic soundings initiated in 2013 on the opposite (Western and Eastern) sides of the mound with the aims of verifying the settlement's pre-classical occupational sequence and of obtaining a corpus of stratigraphically secure artefacts and ecofacts from the different occupational phases: they were excavated by a mixed Georgian-Italian team under the responsibility of prof. Elena Rova (sites supervisors Elena Rova, Katia Gavagnin and Marta Aquilano). Finally, the joint team carried out the salvage excavation of a grave of the neighbouring Aradetis Orgora (Doghlauri) cemetery which had been damaged by the building of the ballast of the new Tbilisi-Batumi highway. In spite of the very rainy season, which caused the loss of a few working days, the excavation could be carried out regularly and produced important results.

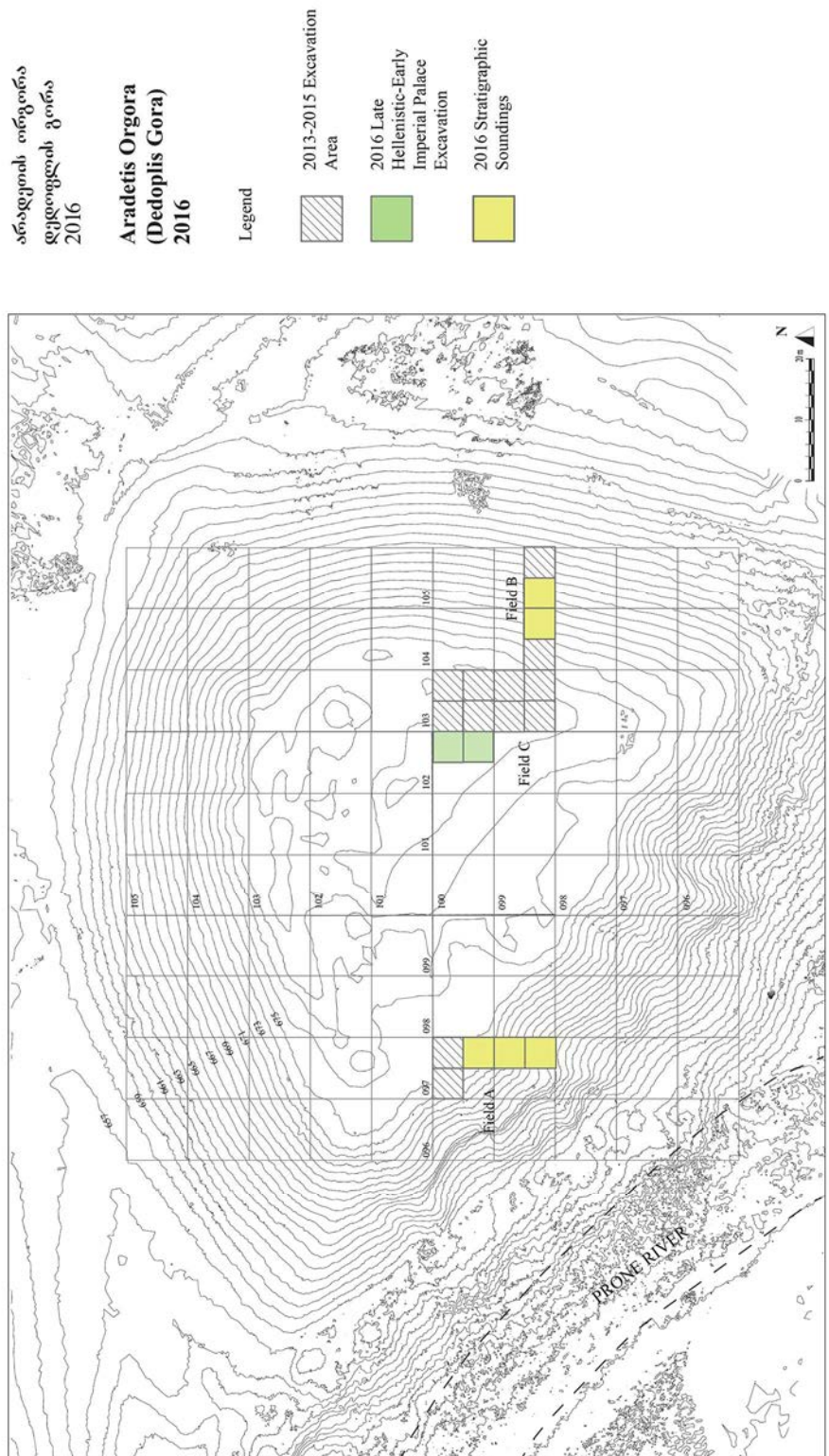
In Field A (Western Stratigraphic Sounding) work continued both on the levels of the earlier Late Bronze Age, and, on a smaller scale, on those of the Middle Bronze Age (Trialeti culture). Quite unexpectedly, these had a thickness of over 1.20 m. Excavation reached the interface between the Middle and the Early Bronze Age, at a level where some Bedeni and Kura-Araxes pottery sherds started to emerge. In Field B (Eastern Stratigraphic Sounding), we continued the small sounding opened last year on the inner side of the large Late Bronze Age terracing wall, where we not only confirmed the presence of Middle Bronze Age occupation (Trialeti culture) in this part of the site, but discovered, under it, a layer belonging to the Later Early Bronze Age (Bedeni culture). On the outer side of the Late Bronze Age wall we completed the investigation of the Kura-Araxes levels and exposed on a wider surface the earliest occupation above virgin soil, which had already been reached in 2014. The earliest Kura-Araxes level yielded part of a wattle-and daub hut, whose floor was equipped with a well-preserved Kura-Araxes hearth. Excavation in Field C, after dismantling the Early Medieval layer overlying it, brought to light the portion of the internal courtyard of the Hellenistic building adjacent to the portico explored in 2013-2014 and reached the level of its burnt floor.

Compared to the previous seasons of the project, work in the expedition house at Kareli occupied a larger number of team members. In particular, we started a final re-analysis and check of some categories of materials collected during the 2013-2016 seasons, on which MA, PhD and specialisation theses are presently in course by students affiliated to the team. Microlithics were analysed by Flavia Amato, animal bones by Beatrice Barbiero, Late Bronze/Early Iron Age by Laura Tonetto and Davit Darejanashvili.

Sampling for different types of scientific analyses was also further implemented. Like in the previous years, samples for radiometric dating were collected on the field by E. Boaretto, while samples for soil micromorphology (to be analysed by G. Boschian) and palinological analyses (to be processed by E. Kvavadze) were collected by the excavators, and samples of pottery sherds of different periods (Kura-Araxes, Bedeni, Middle and Late Bronze ages) were collected for archaeometric analyses. In addition, we collected samples of paste beads of different periods (to be analysed in Italy by dr. Ivana Angelini of Padua University) and samples of animal bones and carbonised plants, to be subjected to stable isotopes analysis (by prof. Paola Iacumin, University of Parma) in order to trace movements of people and animals, as well as herding systems in the various periods, and to reconstruct palaeoclimate and ancient agricultural practices.

The project of experimental archaeology initiated in 2015 was also continued under the responsibility of Marta Aquilano and Davit Darejanashvili: further replicas of Early Bronze (Kura-Araxes period) and of Late Bronze Age firing installations were constructed and used in controlled conditions. Finally, Alberto Savioli, Chiara Mariotto and Eleonora Venier produced a new georeferenced contour map of the Aradetis Orgora Main Mound and of the cemetery area.

Fig. 1. Contour map of the Aradeti Orgora Main Mound with excavated areas.



## Field A (Western stratigraphic sounding)

Field A, located on the south-western slope of the mound, has been the object of excavation since 2013. The northern step of the sounding (northern part of quadrant 097.100d), where excavation in 2015 had reached the levels of the late Late Bronze period, was abandoned in 2016. Excavation continued, in the southern part of quadrant 097.100d and in quadrants 097.099b and d, on two different steps (**Fig. 2**).

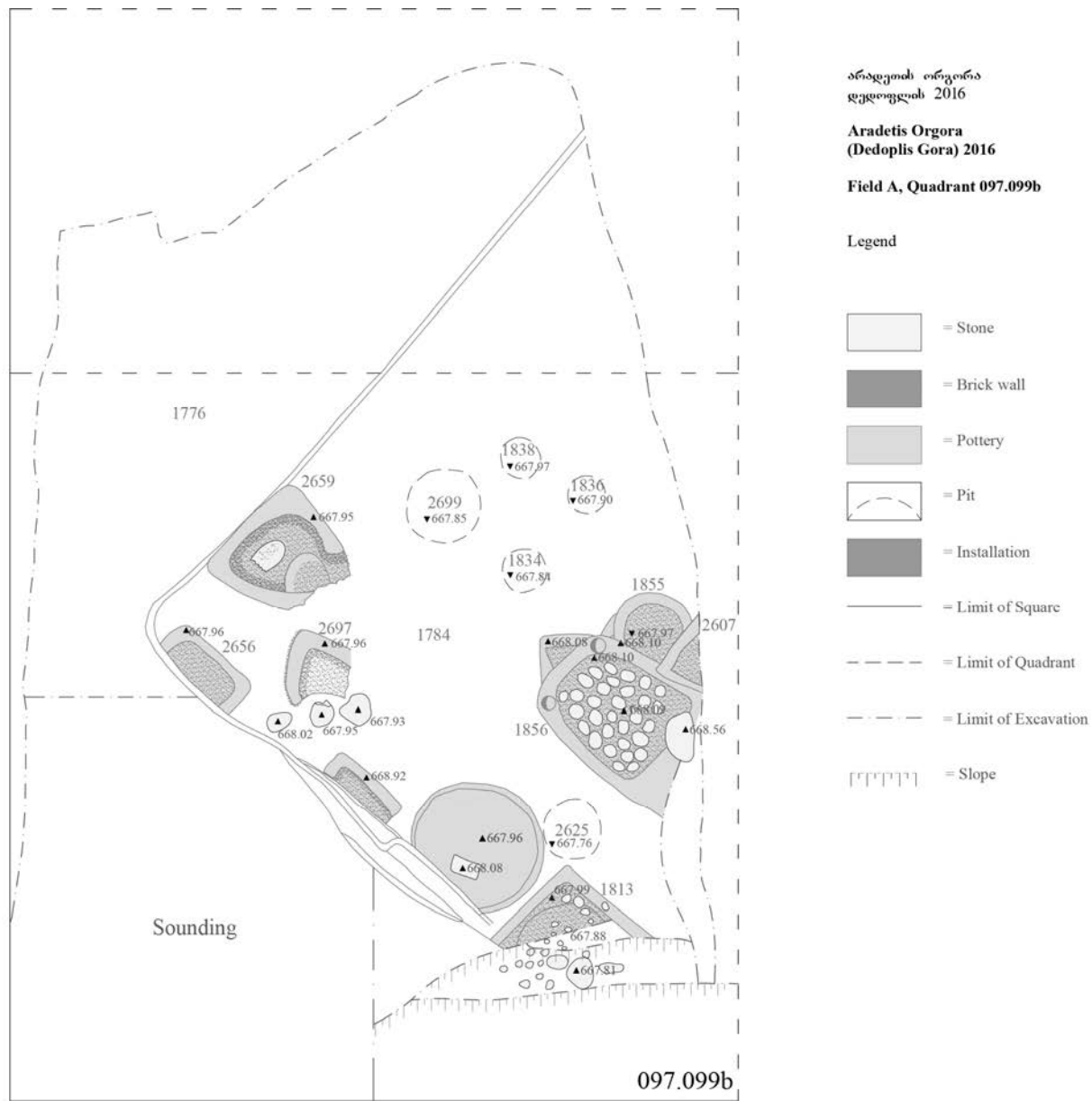
Fig. 2. Field A, view of the excavation area at the end of the season, from N.



The upper step extended over the S part of quadrant 097.100d and over most of 097.099d. In this area, first of all we completed the investigation of the earlier stage of the Level 10 occupation (dated to the earlier phase of the Late Bronze Age), which had partially been exposed at the end of the 2015 season. At this time, the excavated area was divided into three different spaces dedicated to different functions: platform 1784 (a large platform of compacted clay of triangular shape oriented in SW-NE direction, which occupied most of the excavated area and hosted a large number of firing installations and some small pits), space 1776 (an open area with no formal floor filled with successive layers of dark-grey brown muddy soil, where most probably the remains of butchering activities were disposed of), and 1783 (an open area located in close proximity to the ancient mound's slope occupied by shallow pits frequently cutting each other).

In the area of platform 1784, we completed the excavation of the platform's filling until reaching its bottom, at alt. 667.90 a.s.l. ca, where the remains of a previous occupation layer (Level 11) started to emerge. In the course of this operation, we discovered some additional installations which allowed to complete the plan of the platform and to better understand its function (**Fig. 3**).

Fig. 3. Field A, revised plan of Level 10 occupation.





Installation 2607 (top alt. 668.15) along the eastern limit of excavation, for instance, was a small fireplace which belonged to a cluster of different firing installations (1855, 1483, 1856), similar to those excavated in 2015 in quadrant 104.099d in Field B. Most interesting was, however, the discovery, in the western corner of the platform, adjacent to its white-plastered limit, of a group of three installations (2656, 2659 and 2697) (**Fig. 4**) which appear to have had a different function from those excavated so far. In fact, they did not show any trace of fire and rather seem to have been low cavities and/or benches devoted to cereal grinding activities, as proved by the discovery, on one of them, of an in situ grinding stone. Platform 1784 is thus confirmed as an open-air place devoted to food preparation on a scale exceeding that of an individual household.

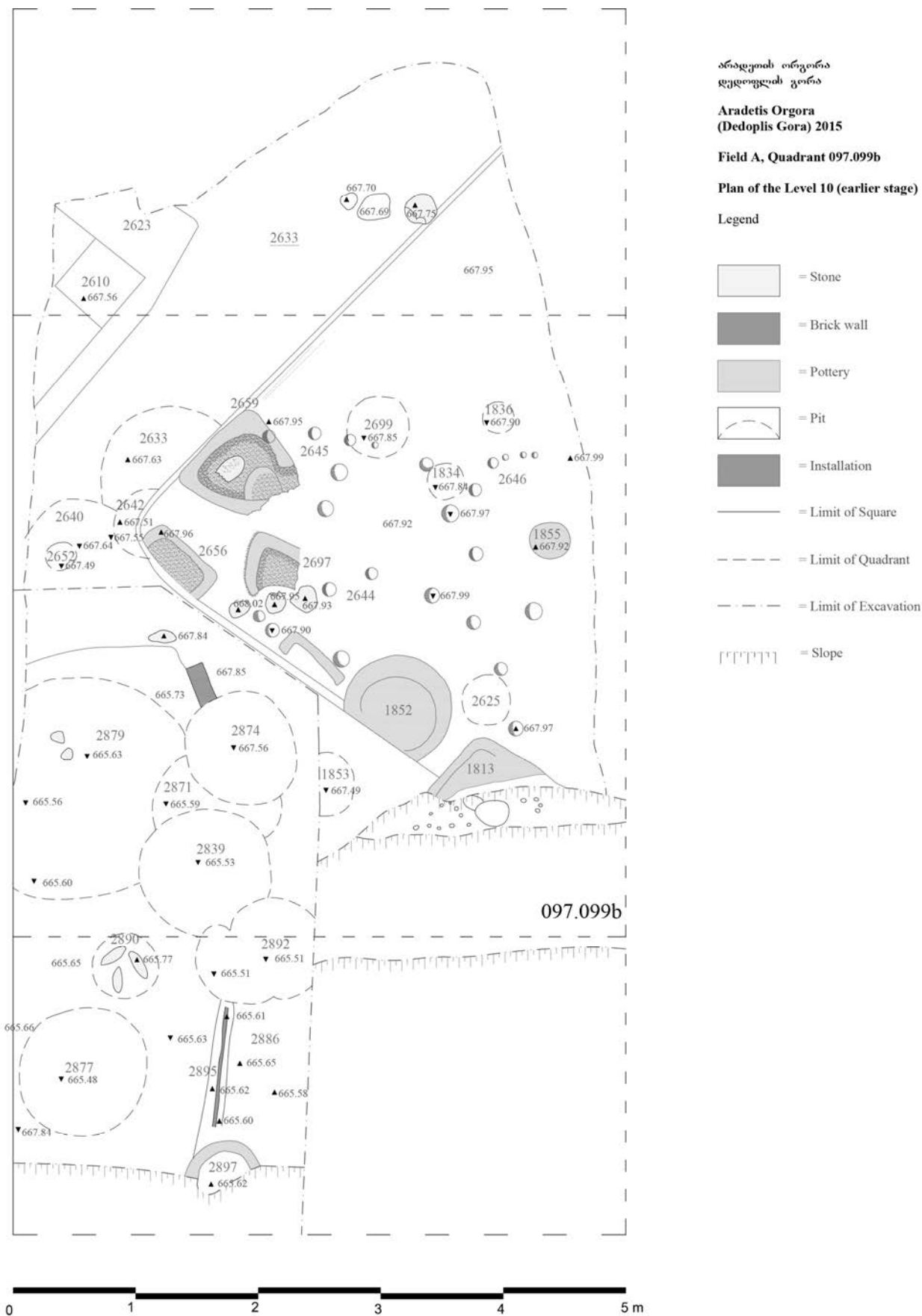
Fig. 4. Field A, grinding installations 2656, 2659 and 2697, from NE.



Excavation of the base of the platform revealed the presence of a number of post-holes (25 in total). These belong to an occupational phase (Level 11), which is earlier than the platform, during which the excavated area clearly had a rather different layout (**Fig. 5**). We tentatively distinguished three different alignments (2644, 2645, and 2646) probably belonging to round-shaped structures (huts) which seem to have extended beyond the limits of the platform, and to have been levelled and cut at the time when the platform was built.

In space 1776, we completed the excavation of the earliest fillings of this open area (loci 1863, 2611, 2631, 2632), until reaching, at alt. 667.73 ca, a surface of hard clay (locus 2636) which represents the bottom of the space. These fillings were similar to the fillings excavated last year in the same area, which overlay them: they consisted of dark-grey brown muddy soil with small sparse charcoals, and contained a huge number of large animal bones and pottery sherds.

Fig. 5. Field A, final plan of the excavation.



At the north-western limit of the excavation, we discovered what may have been the limit of a second platform (2623) oriented parallel to 1784 at a distance of ca 1 m from it, on whose top a small square-shaped installation surrounded by ashes and charcoals (locus 2610) was detected.

The lower step of the excavation represents an extension of the deep sounding opened during the last week of 2015 at the southwestern corner of the excavated area. It extends over a 500 x 250 cm large area between the SW part of 097.099b and the NW part of 097.099d. The aims of the excavations were to better understand the nature of the Middle Bronze Age occupation discovered in the 2015 sounding, and to proceed to investigate the Early Bronze levels underlying it. Excavation started at alt. 667.90 a.s.l., at the level of the outer surface corresponding to the Level 10 platform, and reached alt. 665.60 ca.

The recovered stratigraphical sequence was preliminarily divided into six main levels: Level 11 (ca 50 cm thick, with different sub-phases), which dates to the early Late Bronze Age, Level 12 (ca 20 cm thick), which yielded transitional LB/MB ceramic material, Levels 13-15 (up to 120 cm thick in total), which date to the Middle Bronze Age, and Level 16, at the top of which excavation stopped, whose exact date is still uncertain, which may represent the transition between the Middle and the Early Bronze Age (**Fig. 6**).

Level 11 occupation yielded a series of superimposed clay floors/surfaces on which different alignments of post-holes, joined, in one case at least, by flimsy remains of wattle-and-daub walls, were observed at different levels. As mentioned above, the latest of these surfaces is the one on which platform 1784 was built at a later stage (see **Fig. 5**).

Both Levels 12 and 13 were characterised by very thick accumulations of dark grey-brown mud (layers 2662, 2670) devoid of any built feature, which contained huge amounts of animal bones,

joined by pottery sherds, obsidian and flint fragments. Layer 2662, which yielded Transitional LB/MB pottery, was separated by 2670, which can be ceramically dated to the Middle Bronze Age, by a thick layer of compacted clay, the surface of which was covered by a thin burnt layer. Level 14 under them was also characterised by a muddy filling (2676), which was however less rich in animal bones than the overlying ones, and was cut by several large pits cutting each other. The most significant structure of this level was a large cut-in feature of rectangular shape with rounded corners (locus 2803), the corner of which was underlined by the presence of two post-holes.

The following level (Level 15), also dated to the Middle Bronze Age, was characterised by a succession of fillings of fine light greyish soil (2829, 2835, 2862) on which, at different levels, alignment of post-holes, remains of thin wattle-and-daub walls and very damaged installations, and a number of cut-in features of different kind were observed. The latter belonged to two main types: shallow cavities (2857, 2865, 2830) filled with layers of burnt debris alternating with burnt

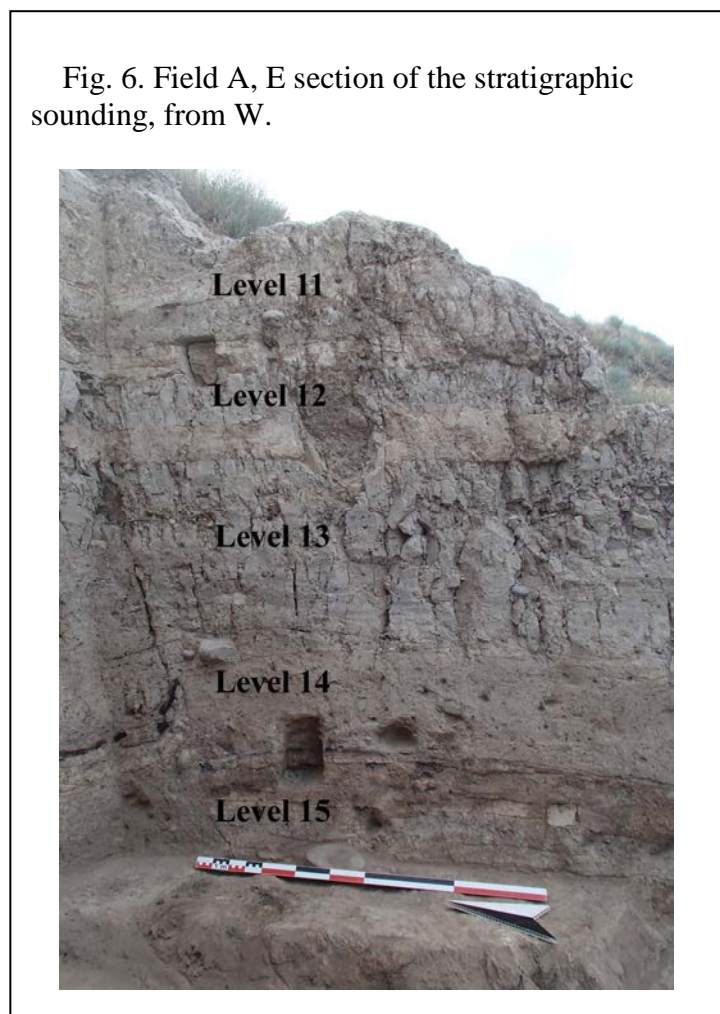


Fig. 6. Field A, E section of the stratigraphic sounding, from W.



surfaces, probably to be interpreted as temporary firing installations, and large very shallow rounded features with a diameter up to 200 cm (loci 2879, 2883) filled with a thin layer of fine compacted soil. The meaning of the latter is unclear; one possibility is that they represent the base of small temporary constructions.

In spite of the small size of the excavated area, it is clear that the nature of the occupation of the Transitional MB/LB and especially of the MB periods is quite different from that of the overlying layers of the LB period which had been exposed during the previous excavation seasons: while the latter phase is characterised by the presence of some recognisable architectural features and by a considerable functional continuity in the use of the space, the former appears to represent different episodes of rather ephemeral occupation, possibly by groups practicing a mobile style of life. Construction techniques also appear to have considerably differed between the two periods, with wattle-and-daub technique being apparently almost exclusive during both the Transitional MB/LB and the MB periods, and absent in the LBA. Although this well agrees with the traditional interpretation of MBA groups as mobile pastoralists, it should be noticed that the very thickness of the Middle Bronze layers (ca 1.20 m) suggest a more than sporadic frequentation by them of the Aradeti Orgora settlement, which due to its strategic importance was probably one of the few centres of the region to remain occupied throughout this period of reduced settlement intensity.

Pottery sherds of Early Bronze date (Kura-Araxes and, to a lesser extent, Bedeni period) started to appear with increasing frequency in Level 15, in association with MBA pottery. This may either be explained by the large quantity of MB pits cutting into the earlier levels or, alternatively, it may indicate a short period of abandonment of the area.

Excavation was interrupted at the bottom of Level 15 (at alt. 665.60 ca), when we met an extended burnt layer (2886) from which the remains of a wattle-and-daub wall (2895) oriented in north-south direction and of some possible installations emerged (**Fig 7**). This represents the top of the next level (Layer 16) which appears to be characterised by more substantial architecture, which may represent the latest EBA occupation in this part of the site.

Fig. 7. Field A, stratigraphical sounding, view of the top of Level 16 disturbed by Level 15 pits and cut-in features, from N.



## Field B (Eastern stratigraphic sounding)

In Field B, the Eastern stratigraphical sounding opened in 2013 on the southeastern side of the mound, work continued in both quadrants 104.099d and 105.099c.

In the former quadrant, we decided to enlarge the small sounding opened at the end of the 2015 season on the inner side of the massive stone terracing wall of the early Late Bronze period (Locus 2202-2128), which had revealed the presence of Transitional Late Bronze/Middle Bronze Age layers, and most notably, of Middle Bronze Age layers yielding some example of Trialeti pottery, in order to confirm its stratigraphical sequence and better characterise the occupation of these poorly known periods in this part of the settlement. We thus opened a 270 x 125 cm wide area along the northern limit of the quadrant, starting from the level of the earliest floor of space 2179 (alt. 669.93), just above the base of the above mentioned massive stone wall. This was underlain by a ca 40 cm thick sequence of fillings which yielded early Late Bronze ceramics.

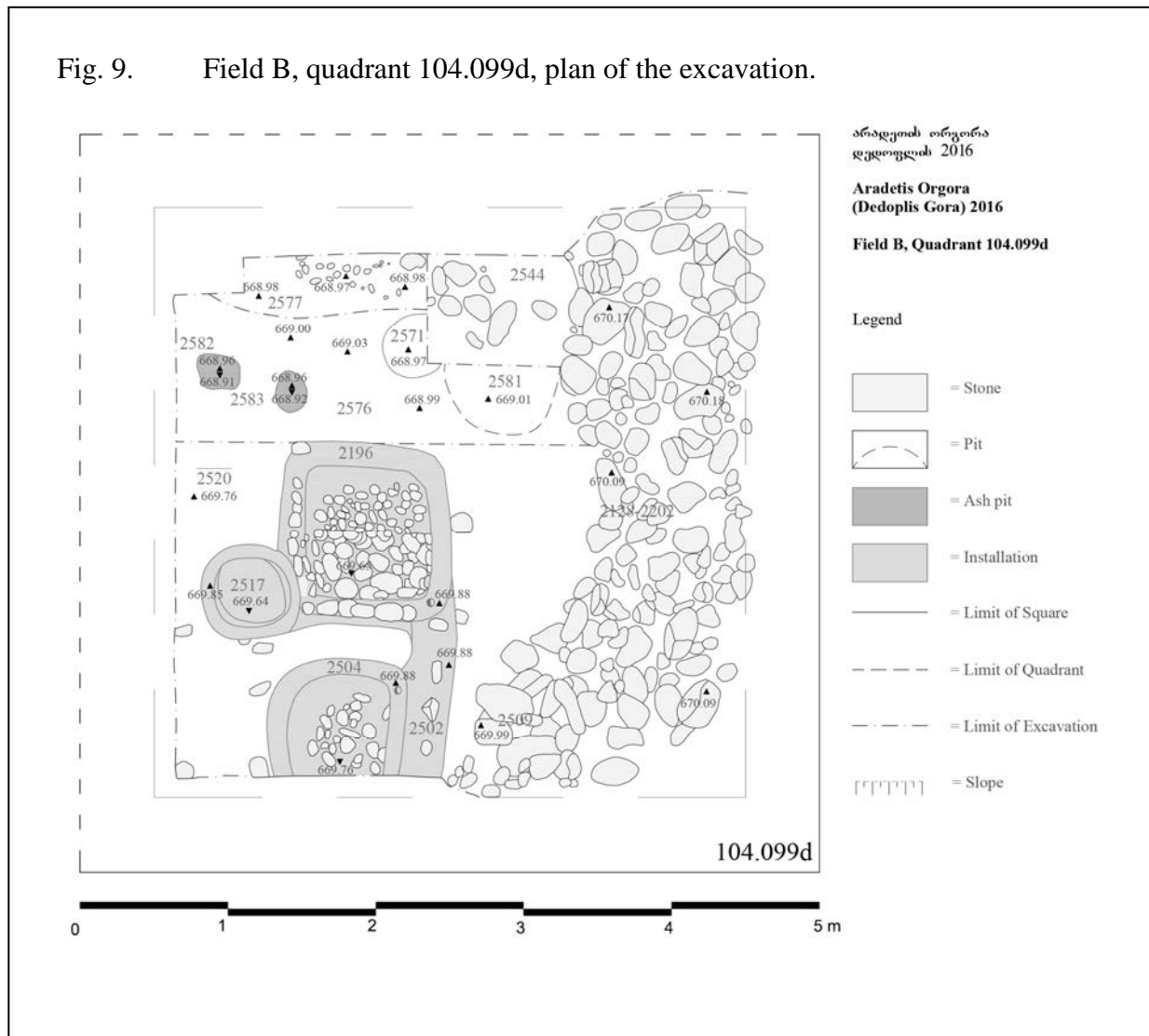
The following phase represents the LB-MB transitional period, which corresponds to an 85 cm thick accumulation characterised by a sequence of fillings alternating with walking surfaces, some of which were equipped with firing installations.

Fig. 8. Quadrant 104.099d, fireplace 2565 from S.



The latest of these (fireplace 2565) (**Fig. 8**) was recovered on floor 2564 (top. alt. 669.33). Its structure is similar to that of the fireplaces found in 2014 and 2015 in the overlying Late Bronze levels: in fact, it was surrounded by a low wall of compact yellowish clay, and was filled with superimposed layers of pebbles, pottery sherds, and clay burnt surfaces. Another, earlier fireplace (Locus 2570, top. alt. 669.29) was located in the south-eastern portion of the sounding; it consists of a simple cavity cut into the floor. At alt. 669.01, another reddish surface (2576), was cut by a fireplace (2571) and by two ash pits (2582 and 2583) (**Fig. 9**) that were probably used together with the latter.

Fig. 9. Field B, quadrant 104.099d, plan of the excavation.



The filling of the firing structure was composed of four different layers (from top to bottom): a reddish clay layer; an ashy layer, another layer of reddish clay, and a thin ashy layer, which covered its bottom. It appears that they represent at least two phases of use, as indicated by the presence of two superimposed red combustion surfaces.

Fig. 10. Quadrant 104.099d, fireplace 2537 from S.





The main firing structure found this year (locus 2537) (**Fig. 10**) was recovered at alt. 668.85, at the very beginning of the transitional MB/LB sequence. It was delimited by a low clay wall, and showed a sequence of fillings of ash, clay plaster and pebbles. This fireplace was joined by another firing installation, which is visible only in the W section (locus 2594). Together with this, it composes a complex structure similar to those found in 2014-2015 in the LB levels (i.e. loci 2196, 2517, 2504) of the same quadrant, which consist of a main hearth surrounded by some smaller ones.

Fig. 11. Quadrant 104.099d, view of the excavated area at the end of the excavation, from E.



Below this level, a ca 130 cm thick MB occupational sequence (starting at alt. 668.68) was investigated. This consists of a series of filling layers which yielded Trialeti pottery. It did not contain any significant structures, exception made for a sort of a quadrangular clay installation, and a possible stone wall. At alt 667.91 (locus 2599) some sporadic fragments of Bedeni pottery started to appear. The last part of the sequence, which was exposed only on a small 100 x 80 cm wide area, contained exclusively Bedeni pottery. It is also interesting to observe that, while the sporadic Bedeni fragments recovered at the bottom of the MB sequence included both fine and coarse Bedeni wares, the last excavated layer, a thick dark-coloured filling (2908, top alt. 667.39) yielded a considerable amount of exclusively coarse ware. This suggests the presence of a stable Bedeni occupation of domestic character in this part of the site. Excavation stopped at alt. 666.93, at the bottom of this level.

In spite of the small excavated area (which is due to the impossibility to remove the large Late Bronze stone wall) the sounding (**Fig. 11**) gave quite important results, both because of the unexpected thickness of the investigated Transitional and Middle Bronze levels, which are generally absent, or quite rarely present in the settlements of the Shida Kartli region, and because it definitely proved the existence of a Bedeni occupational level at the Aradeti Orgora Main Mound, which was one main aims of our excavations at the site.

It is also important to underline that this part of the site's occupational sequence was completely absent on the external, eastern side of stone wall 2202-2128, which had been excavated by us in 2013 in adjacent quadrant 105.099c. There, the massive stone wall appeared to have been founded directly on an ancient eroded slope of the mound (locus 2215), which sealed the latest layers of the Kura-Araxes period.



Fig. 12. Quadrant 105.099c, plan of the third Kura-Araxes phase.

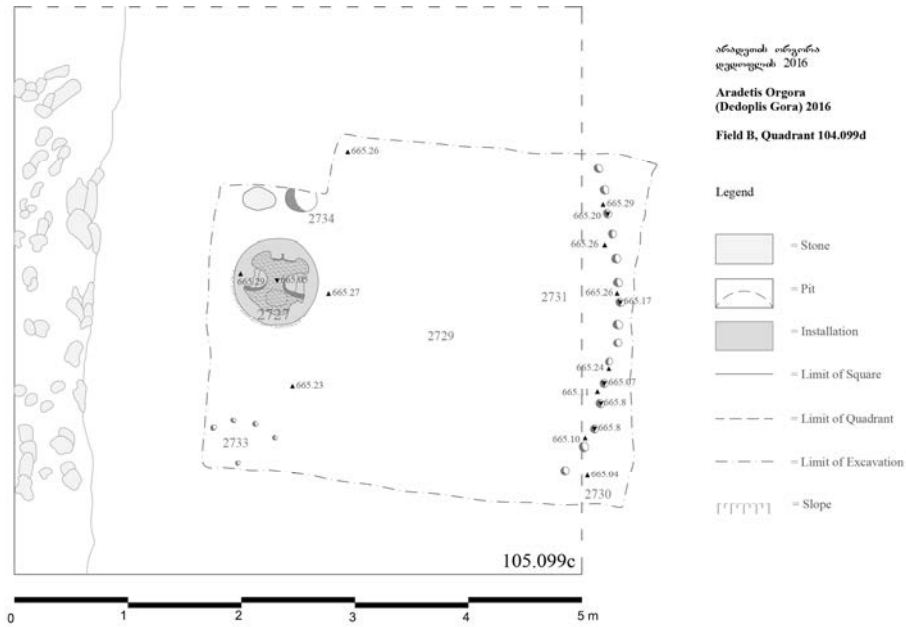


Fig. 13. Quadrant 105.099c, 3D reconstruction of the building of the third Kura-Araxes occupational phase.



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In quadrant 105.099c, we continued the investigation of the Kura-Araxes levels with the aim of reaching the level of virgin soil, which had been exposed in 2014 in adjacent quadrant 105.099d at alt. 664.40, and of thus obtaining a complete occupational sequence for this period. Excavation started at alt 665.60 ca, and was concluded after exposing the earliest human occupation surface (platform 2738 = 2314, alt. 664.67) over the whole surface of the quadrant, and excavating part of the underlying natural soil (alt. 664.42) on a limited area in the SW corner of the quadrant. Four main phases of occupation have been recovered.

The latest phase yielded no built structures, and is therefore to be interpreted as the filling of an open area. This is characterised by the presence of numerous small pits filled by different layers of ashes (which we interpreted as small fireplaces), burnt spots, and some flimsy installations. These features seem to be related to a sort of irregular platform (2760/2) located on the S side of square.

The second phase is characterised by a yellow compact surface (2735) cut by several post-holes (2736), which occupies the whole excavated area. The recovered post-holes are 23, but they probably belonged to different, not strictly contemporary structures, and we were not able to reconstruct any coherent building plan from them. Strangely enough, 10 of them appear to form couples of two small holes of 4 cm of diameter, dug at a distance of about 10 cm from each other. There seem to be no clear connection between these couple of poles, three of which are located on the northwestern side of the quadrant, while the remaining two are located on its northeastern side. The remaining post-holes have more or less the same dimensions (their diameter is about 6-7 cm) and just one (with a diameter of 14 cm) is definitely larger.

Surface 2735 was underlain by a thick layer of collapsed compacted material, which covered the remains of a space (hut 2732) of circular shape, only  $\frac{1}{4}$  of which was included within the limits of the excavated quadrant (**Figs 12, 13**). The hut had a diameter of about 5 m; its E limit was marked by an alignment of 15 post-holes (locus 2731). It had a thick compact yellow floor (2729), which slightly raised in front of, and appears to stop just to the west of the post-holes, that had been probably dug into an underlying platform (2730 = 2312). No traces of the hut's wall were detected, except in the S section, where one of the post-holes appeared to be surrounded by a yellowish mass of clay; most probably the building had been levelled down to the level of its floor. Floor 2729, as visible in section, has been repeatedly re-plastered: it was composed of several thin superimposed layers of clay, for a total depth of about 5 cm. A complete in situ pentalobate fireplace (2727) was recovered in the centre of hut 2732 (**Fig. 14**).

Fig. 14. Quadrant 105.099c, view of Kura-Araxes hearth 2727 from N.



North of the fireplace there was a large post-hole, whose function was probably to support the room's roof. The entrance was possibly (for comparison with other KA huts) placed to the S, in front of the fireplace. Fireplace 2727 was removed with the assistance of two professional restorers of the GNM (**Fig. 15**), and transferred to the local museum in Kareli.

Floor 2729 had been built directly on an about 20 cm thick platform (locus 2730), which had already been partially excavated in 2014 in quadrant 105.099d to the E (locus 2312). Together with

Fig. 15. Removal of the Kura-Araxes hearth.



hut 2732, platform 2730 = 2312 represents the third KA occupation phase excavated this year, which yielded the most important finds of the season.

The fourth (and earliest) phase of occupation is represented by another platform (2738 = 2314) cut by several post-holes (2746, 2747 and 2748) and by two shallow pits (2742 and 2744). Five of these post holes (locus 2748), located on the western side of square, appear to follow a curved line, and might therefore have belonged to a rounded structure, while the remaining ones had no intelligible orientation. Faint traces of a remaking of platform 2738 = 2314 are represented by an

irregular line of whitish plaster half-way between this and platform 2730 = 2312, which was detected over part of the quadrant. No remains of any structure, post-holes or other installations were however preserved at this level.

As already observed in 2014, platform 2738 = 2314 was underlain by the natural soil (**Fig. 16**); it is therefore confirmed that the first occupation at least of this part of the site dates back to not earlier than the KA II phase, at the end of the fourth millennium BC.

Fig. 16. Quadrant 105.099c, View of the N section from S at the end of the excavation.





### Field C (Excavation of the Late Hellenistic/Early Imperial palace)

During the ongoing field season, we continued excavating in quadrants 102.100b and 102.100d in the E part of the mound, which we had begun to investigate during the 2015 season. At that time, in quadrant 102.100d excavation had stopped after removing the latest layer of the Early Medieval period, whereas in quadrant 102.100b we had only been able to remove the thick surface soil accumulation. The aim of the excavation was to explore the inner court of the palace in the portion which is located to the west of rooms nos. 19 and 20, which had been investigated during the previous seasons.

The excavated area extends to the E of the pillared portico in front of rooms nos. 19 and 20 (**Fig. 17**). In this area, the Hellenistic level lies at a depth of more than 2 m from the present surface. After the violent destruction of the palace, the area had remained inhabited until, in the Early Medieval period (at the beginning of the 4<sup>th</sup> century BC) it became the seat of a village. The new inhabitants built their dwellings directly on the remains of the palace, thereby incorporating parts of the still standing walls of the latter. The main building of the Early Medieval level, which was apparently covered by a tiled roof, was probably located on the highest part of the mound, i.e. exactly in the area of our present excavation. In the course of the excavation, we found numerous fragments of tiles lying directly on the remains of the Hellenistic palace. For this reason, we suppose that the building, as we already mentioned in the previous reports, had been completely obliterated by surface erosion. In the course of the previous seasons, we excavated a wine-cellar located to the E of this supposed building. This was equipped with large wine pithoi (qvevri) which had been deepened into the debris of the Hellenistic palace.

In facts, the altitude at which the Hellenistic level is preserved is highest in the area, to the E of quadrants 102.100b and 102.100d, which corresponds to the location of the rooms and peristyle of the palatial building, and abruptly decreases toward the west in the area previously occupied by

Fig. 17. Quadrants 102.100 b-d. General view of the excavated area at the end of the season, from NW.





the inner court. As a consequence, the remains of the medieval building slope in the same direction until the NW limit of quadrant 102.100d, where we discovered the rim of one of the large wine pithoi, which had been set into the floor and surrounded by clay plaster.

Several pits of different size and depth, some of which were filled with cobble-stones (**Fig. 18**), had been dug from the Medieval levels. The majority of these pits just reached the level of the floor of the Hellenistic court, but two of them, located at the W limit of quadrant 102.100b, cut into it, and reached the Early Iron Age level. Most of the finds (pot-sherds, animal bones and tile fragments) from the other pits date to the 4<sup>th</sup>-6<sup>th</sup> centuries BC, but the deepest ones contained also some Iron Age pot-sherds. In addition, the pits contained sporadic out-of place sherds from much older occupation layers of the mound: e.g., one Kura-Araxes and one Sarmatian arrow-head (**Fig. 19**) were brought to light in the same pit.

After completing the investigation of the Medieval level, at the end of the 2016 season we exposed over the whole excavated area the floor of the court of the Hellenistic building, which directly underlay it. The floor was lying at a slightly lower level than the floor of the adjacent peristyle; it was covered by a 3-4 cm thick burnt layer which contained abundant wood charcoals. Except for some post-holes (**Fig. 20**), no other structures or installations were discovered on the floor surface in the excavated area. This suggests that this portion of the court was open for circulation, and at most equipped with some simple wooden structures.

Fig.18. Quadrant 102.100b.Early Medieval stone-filled pit from N.



Fig.19. Flint Kura-Araxes arrow-head (to the left) and bronze Sarmatian arrowhead (to the right) from a pit in Field C.



Fig. 20. Quadrant 102.040d, view of the burnt layer on the floor of the court of the Hellenistic building, from S.





## Salvage excavations at Doghlauri cemetery

In the course of the excavations at Aradetis Orgora, the joint Georgian-Italian team carried out the excavation of a grave (Grave 2016-1) at the neighbouring Aradetis Orgora (Doghlauri) cemetery which had been damaged by the building of the ballast of the new Tbilisi-Batumi highway (**Fig. 21**). When the team arrived on the spot, the grave had been severely damaged by a mechanical excavator, which had cut it into half. Smashed pottery vessels were visible in the artificial section (**Fig. 22**), and fragments thereof could be collected all around the cut. Only a corner of the grave, which was of Late Bronze date and was oriented in NW-SE direction, was still preserved (**Figs 23, 24**).

The team proceeded to excavate what remained of the burial; unfortunately, no human bones were preserved, but fragments of six different, partially reconstructible pottery vessels could be recovered. These were apparently all of the same type (**Fig. 25**): small high-necked biconical jars of dark grey grit-tempered burnished ware decorated on the shoulder by wavy combed lines and groups of triangular impressions forming couples of elongated isosceles triangles.

Fig. 21. Doghlauri cemetery, view of the damaged area, from W.



Fig. 22. Doghlauri cemetery, view of the S section of the excavator's cut, with damaged pottery vessels highlighted



Fig. 23. Doghlauri cemetery, Grave 2016-1 from S





Fig. 24. Doghlauri cemetery, Grave 2016-1: plan (left) and orthogonal photo (right).

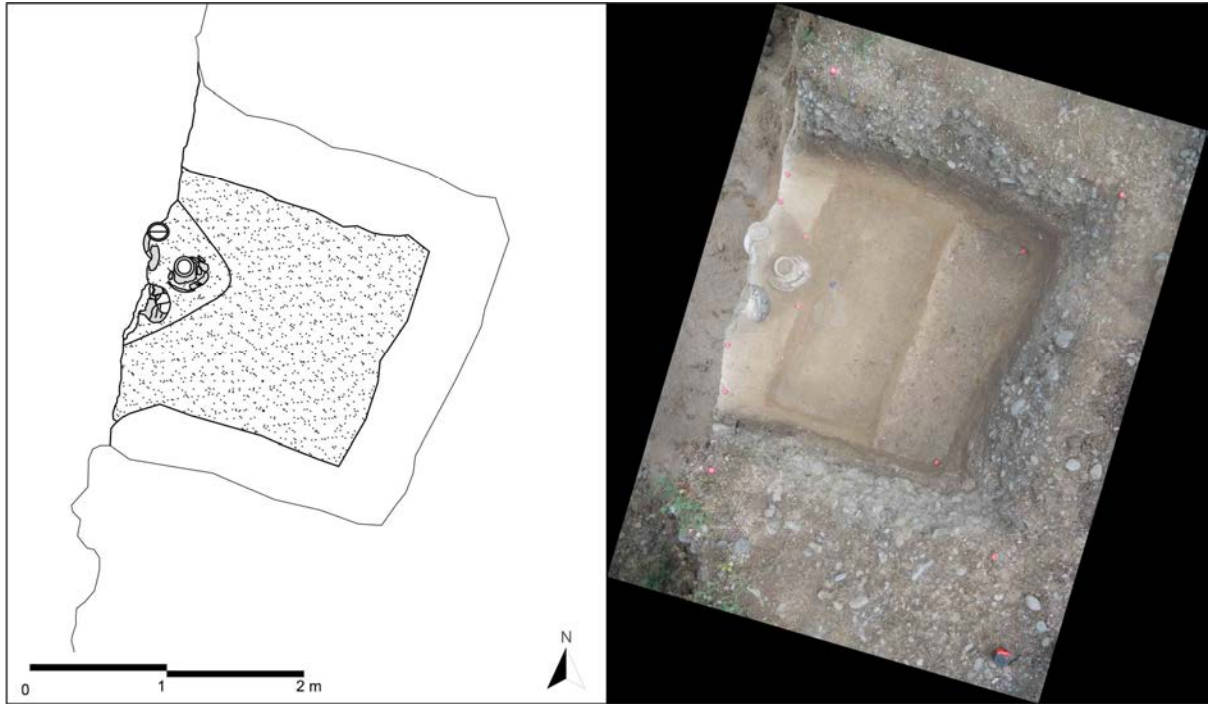


Fig. 25. Pottery vessels from Grave 2016-1 (C-4, C-6).



## Analysis of the 2016 pottery from Aradetis Orgora

The analysis of the 2016 excavation season pottery from Aradetis Orgora was carried out under the responsibility of Laura Tonetto, who processed the whole unearthed material, and finalised the classification of pottery wares used for counting undiagnostic sherds coming from the field. Ceramic material discovered this year belongs to the following periods: Early Late Bronze, Middle Bronze/Late Bronze Transition, Middle Bronze (Trialeti culture), Late Early Bronze period (Bedeni culture), and Early Bronze (Kura-Araxes) period.

Early Late Bronze pottery was divided into four different wares: Burnished, Plain, Kitchen and Light Ware. Burnished Ware (**Fig. 26a**) is characterised by a finely burnished dark bluish surface (GLEY 2 2.5/5PB, bluish black). Vessels are wheel-made; their fabric is completely reduced and contains mineral gritty inclusions, generally of fine or medium size. They are frequently decorated with geometric designs: wavy comb-impressions, nail impressions, corrugated bands, straight relief lines, impressed isosceles triangles, rope decoration, wavy burnished lines. Bases with impressed decoration are also typical. Rims are usually outturned, thickened or grooved.

Plain Ware (**Fig. 26b**) is pretty similar to Burnished Ware in its decoration repertoire, but differs from it in the scraped outer surface. Kitchen Ware (**Fig. 26c**) is recognisable by its surface, which often shows traces of fire. The surface is usually scraped, dark grey in colour, and decorations are limited to nail impressions. Light Ware (**Fig. 26d**) is immediately recognisable due to the light yellow/pink (10YR 5/3, brown, 5YR 6/3, light reddish brown) outer surface. Its surface is well burnished and decorated with patterns similar to those of the Burnished Ware.

Middle Bronze pottery was divided into three different wares: Black, Painted, and Kitchen Ware. Black Middle Bronze ware (**Fig. 26e**) is characterised by a burnished dark bluish surface (GLEY 2 3/5PB, very dark bluish grey) and by mineral gritty inclusions. It is made with the slow wheel; the fracture is reduced, but the inner surface is oxydised, and has a pale red color. Rims are outturned and rounded; decorations are limited to hatched incised triangles, impressed dots shaping triangles, and burnished net patterns. Three body sherds of this type were selected as samples for archeometric (thin section) analyses.

Painted Ware is represented by few sherds, which show the usual red-orange slip on the outer surface. No black-painted animals or other designs were discovered this year. Middle Bronze Kitchen Ware (**Fig. 26f**) has a dark brown colour on the outer surface, which is corrugated either horizontally or obliquely. The main decorations are nail impressions, rope decoration and bases with impressed decoration. Five body sherds were selected as samples for archaeometric analyses.

Fine Bedeni Ware (**Fig. 26g**) is black-polished, totally reduced and made with a slow wheel. Diagnostic sherds are represented by outturned, rounded rims, straight incisions and hatched triangles. Coarse Bedeni (**Fig. 26h**) ware is quite gritty, with black or white (possibly basalt and limestone) medium-sized inclusions. The surface is mostly greyish or brownish (5Y 4/1, dark grey, 5YR 5/4, reddish brown) and grey-slipped or corrugated with a comb. In one case, it was decorated with nail impressions. The most characteristic shape is the open pot with vertical rim and ribbon-shaped handles. Two body sherds were selected as samples for archaeometric analyses.

Kura-Araxes pottery (**Fig. 26i**) belongs to the second phase (KA 2) of the period, and shows the characteristic red-black burnished surface. The fabric contains medium-sized mineral inclusions and red-pink chamotte. Vessel shapes include jars with outturned, thickened rim, deep bowls, shallow bowls, trays, and a large number of lids. Eight body sherds were selected as samples for archaeometric analyses.

Fig. 26. Examples of different pottery wares from Aradetis Orgora, 2016 season.



a) LB Burnished ware (2563 C-53)



b) LB Plain ware (2637 C-1)



c) LB Kitchen ware (2567 C-30)



d) LB Light ware (2563 C-78)



e) Black MB ware (2670 C-12)



f) MB Kitchen ware (2587 C-6)



g) Fine Bedeni ware (2829 C-1)



h) Coarse Bedeni ware (2908 C-8)



i) Kura-Araxes ware (2726 C-4).



## Analysis of the lithic material from Aradetis Orgora 2016

Lithic items from the 2016 field season were analysed by Flavia Amato, who also undertook a revision of the finds from the previous seasons. The data achieved by separation, items-counting, drawings and photography of the lithic material were recorded in the project's FileMaker Pro Database for objects finds. In addition, each lithic find was measured, photographed, drawn and described following a series of categories included in a specifically designed Lithic Tools Database for the Aradetis Orgora materials.

Analysed items were distinguished on the basis of the rock type (obsidian, flint, basalt, igneous rocks, quartz). Flint and obsidian tools were distinguished into the following categories: cores, scrapers, denticulates, perforators, projectile points, blades, sickle blades, microblade cores and microblades. Projectile points were described following the paradigmatic method used by Fowler (1999: 105; see also Binford 1963). Having partially integrated his terminology, in order to describe the objects we considered a set of morphological traits: serration (present or absent to any degree), hafting element (un-notched, side-notched, basal, tri-notched, stemmed), blade shape (triangular, excurvate, incurvate, ovate, incurvate-excurvate), base shape in un-stemmed points (straight, concave, convex, basal notched), stem shape (straight, expanding, contracting, pointed), and stem base (straight, concave, convex, indented, rounded).

Retouch was described following – with minor modifications – Laplace's terminology (Laplace 1968: 24-32), and considering the following categories:

- Morphology: scaled retouch, stepped retouch, sub-parallel retouch, parallel retouch
- Extent: short retouch, long retouch, invasive retouch, covering retouch
- Position: direct retouch, inverse retouch, alternate retouch, bifacial retouch
- Delineation: linear retouch, denticulate
- Localisation: lateral or side retouch (left, right, bilateral), transverse retouch (distal, mesial, or proximal).

1470 obsidian debitage flakes, 128 flint debitage flakes, 49 igneous rock fragments (probably basalt), 10 quartz pieces, 2 carnelian flakes, 6 water-worn pebbles and 14 unidentified rocks were recovered in the 2016 season.

Furthermore we discovered 38 lithic tools, out of which 25 were obsidian tools and 13 flint tools. The obsidian items consist of 8 blades, 7 scrapers, 3 cores, 4 projectile points, 1 perforator, 1 cutting tool and 1 truncation. The flint items are 6 sickle blades, 4 blades and 3 projectile points.

In the following, a short summary of the finds subdivided by periods (Kura Araxes, Late Bronze, transition Late-Middle Bronze, Middle Bronze, and mixed contexts) is provided.

Five tools come from Kura Araxes layers in Field B. Three are flint arrowheads (2456/2-M-2) (**Fig. 27a**) (2708-M-2) (2719-M-1), one is a flint blade fragment (2726-M-4), and one is an obsidian truncation (2456/2-M-5);

The tools from the Middle Bronze layers are eleven, ten from Field A and one from Field B. They consist of: one flint blade (2670-M-10), two obsidian points (2670-M-12) (**Fig. 27b**) (2670-M-14), one obsidian perforator (2670-M-13), three obsidian scrapers (2590-M-5) (2801-M-12), (2801-M-15), two flint sickle blades (2699-M-2) (**Fig. 27c**) (2801-M-6), two obsidian blades (2670-M-18) (2848-M-3).

Ten are the tools of the transitional MB/LB period: six coming from field B and four from field A. They include: three obsidian scrapers (2567-M-5) (2569-M-2) (2584-M-9), two obsidian blades (2584-M-8) (2584-M-11), a flint blade (2647-M-1), two flint sickle blades (2648-M-1) (2655-M-2) (**Fig. 27d**), and two obsidian cores (2647-M-6) (2584-M-10).

Fig. 27. Examples of lithic tools from Aradetis Orgora 2016 season.



a) KA period arrowhead (2456/2-M-2)



b) MB period arrowhead (2670-M-12)



c) MB period sickle blade (2699-M-2)



d) MB/LB period sickle blade (2655-M-2)



e) LB period sickle blade (2563-M-3)

The tools of the Late Bronze age are eleven, of which four are from Field B and seven from Field A. They consist of: two flint sickle blades (2563-M-3) (**Fig. 27e**) (2611-M-7), four obsidian blades (2609-M-2) (2611-M-12) (2558-M-4) (2565-M-1), two obsidian points (2624-M-3) (2632-M-6), two obsidian scrapers (2632-M-5) (2639-M-2) and an obsidian core (2720-M-4). Finally, a flint blade fragment (2554-M-3) came from a mixed context in Field B.

## Preliminary analysis of the faunal remains

In the course of the 2016 season Beatrice Barbiero completed the analysis of all the animal bones discovered in 2016 and started a systematic check of the finds of the previous seasons (2013-2015) with the aim to proceed to their final publication.

The bones were washed, restored, recognised by direct observation, and photographed. When possible, measurements were taken; when present, cut marks, animal bites and other special features, such as the presence of burnt bones, were signalled. The age at death of 20% of the animals was identified by analysing dental wear and epiphysis fusion.

For the identification, use was made of the following common guides:

Barone, R., *Anatomia Comparata dei Mammiferi Domestici*, vol. 1 and 3, Bologna, 1995.

Schmid, E., *Atlas of Animal Bones. For Prehistorians, Archaeologists and Quaternary Geologists*, Basel 1972.

Von Den Driesch, A., *A Guide to the Measurement of Animal Bones from Archaeological Sites*, Harvard, 1976.

At the end of the season, more than 1/3 of the total assemblage has been completely processed. Although some inconsistencies in recognition and measurements were found and corrected in the documentation of the previous campaigns, these were not altering the general results of the analysis, that remain unvaried. It can be estimated that another study season will be necessary in order to conclude the overall reconsideration of the material of the past campaigns.

The analysis revealed the presence of common domestic species in a very high percentage (*Sus*, *Bos*, *Ovis*, *Capra*, *Equus*, in order of decreasing frequency) and, in addition, of some hunted wild animals (birds, fish, *Cervus*, *Lepus*, *Capriolus*, *Rupicapra*, in order of decreasing frequency); it could not be established if the bones of *Canis* belong to *Canis familiaris* or to *Canis lupus*. Some bones of rodents, probably *Arvicola*, were retrieved from three loci in Field A, whose soil was submitted to dry sieving.

Further analysis, whose results should be considered as preliminary, was aimed at pointing out patterns and differences, both in diet and in death age of animals, between the Kura-Araxes, the Middle, the Late Bronze and the Iron Age. The most represented animal in Late Bronze contexts were *Sus* (40%), *Bos* (35%), *Ovis/Capra* (19%), *Cervus* (3%), birds and fish (2%), *Capreolus* (0,5%), *Rupicapra* (0,5%).

A huge amount of bones came from the transitional LB/MB levels (particularly from Locus 2584 in Field B): they showed a majority of *Ovis* and *Capra* (35%), *Bos* (30%), *Sus* (20%), *Equus* (5%), *Cervus* (3%), birds (3%), fish (2%), *Lepus* (1%), *Canis* (1%). During the Middle Bronze Age the frequency of the different animals seems to be similar to that of the Transitional levels, except for the ratio between *Capra* and *Ovis* (*Capra* is more represented than *Ovis*). A particularly interesting context is locus 2670 from Field A (**Fig. 28**), with ca. 1600 bones recovered, which contained 149 bones of *Ovis/Capra*, 41 of *Bos*, 29 of *Sus*, 9 of birds, 4 of fish, 3 of *Equus*, and 2 of *Cervus*.

Preliminary results thus indicate an evident transition, from the Middle to the Late Bronze, from livestock of *Ovis/Capra*, to a majority of *Sus* and *Bos*. On the other hand, the number of fish, birds and wild animals decreased.

The huge amount of animal bones recovered from a number of contexts of both Late and Middle Bronze Age in Field A (see **Fig. 28**), which included a majority of *Ovis/Capra*, *Sus* and *Bos*, suggests a continuity of use of part of the excavated area, during these periods, as a deposit for the disposal of refuse from butchering activities. The majority of bones is represented by *cranium*, arms and legs anatomical elements, from the parts of the body that contains less meat (forearms and the bones of Carpus and Metacarpus, and Tarsus and Metatarsus and phalanxes). However, cut marks are present only on a very limited number of bones. Dental wear shows different pattern of butchering age from species to species: *Sus* are never much older than 35 months, with the majority



which died between 7 and 11 months, while *Ovis*, *Capra* and *Bos* are present in different classes of age: juvenile, young, and more than 4/5 years old.

Animal bones from the Kura-Araxes levels were in a very bad state of preservation: from 290 collected bones only 33 were diagnostic (74 recognisable) and 8 were teeth. The most represented animals are birds, *Ovis/Capra*, *Sus*, *Bos*, *Canis*, *Cervus* and fish, in order of decreasing frequency.

Fig. 28. Animal bones assemblage from locus 2670, Field A.



## Experimental archaeology

This year we decided to continue the program of experimental archaeology initiated in 2015, by producing modern replicas of EB (Kura-Araxes) and LB hearths/fireplaces discovered at Aradetis Orgora and other archaeological sites of the region (e.g. Natsargora, Kvatskhela, etc.). This activity was carried out under the joint responsibility of Marta Aquilano and Davit Darejanashvili and, after the departure of the latter, with the assistance of Modwene Poulmar'ch. This time, instead of using the firing installations in controlled conditions and with different types of fuel, we decided to focus on comparing the performances of the two different installations.

Like last year, for producing the replicas we used clay from the village of Doghlauri, next to the site, since this area is rather rich in clay. This year we decided not to sieve the clay, since last year the paste had turned out to be too fine; so we simply added water to it, leaving it to rest for three days, so that it could absorb the water; during this period, we covered the paste with a tent and uncovered it every day for one hour. After three days we added quartz (mineral tempers) and barley straw (vegetal temper) to the paste and mixed it for a long time using feet and hands, and constantly adding water.

For the experiment we created two different types of fabric: for the Kura-Araxes hearth we added more straw (about 300g on a total of 10 Kg of clay), and less quartz (about 200g) to the clay (temper 1), while for the Late Bronze hearth we added less straw (about 100g on a total of 10 kg of clay) and more quartz (about 400g) (temper 2).

The next step consisted of making the installations (hearths/fireplaces).

At first we tried to produce a hearth by simulating the fixed hearths with inner projections typical of the Kura-Araxes period in the Shida Kartli region, one example of which was also recovered this year at Aradetis Orgora. Considering the bad results of last year's experiment, when the hearth exploded in the firing phase, we decided to use another building technique: we prepared a sort of earth platform of compacted soil in the courtyard of the expedition house, on which we dug a cavity, into which we directly built the fireplace on site. We built it by adding a series of clay smoothed layers, and it took us one day to complete it (**Fig. 29 left**).

Fig. 29. Replica of the Kura-Araxes hearth after its completion (right) and during first use (left)



On the same soil platform, next to the Kura Araxes replica, we also tried to replicate a Late Bronze fireplace. First we constructed the base of the fireplace, made of large pebbles, by using pebbles from the Aradetis Orgora mound. Over the large pebbles we laid a thin plastered smoothed

clay layer. On this thin clay layer we fixed a first layer of pottery sherds and over them we laid another smoothed layer of clay, to be used as a firing surface. We left a little hole on the firing surface, in order to be able to measure the temperature of the underlying pebbles. Finally we built

Fig. 30. Kura-Araxes hearth with pot of boiling water (left); and Kura-Araxes and Late Bronze Age installations in use (right).



the slightly raised fireplace's walls all around it.

The building phase of the two artefacts was long and difficult because the clay from this area is already mineralised by natural minerals (this is the reason why its colour is whitish); for this reason the clay gets dry sooner compared to other varieties of clay. Thus, when the fireplaces were ready, we had to maintain them humid in order to avoid the cracking of the surface, that happened very often and very fast, as they were exposed to wind and sun, even if they were protected by a tent.

After a few days, we lit a fire inside the Kura-Araxes replica, in order to make its surface hard, since it was already a little cracked (**Fig. 29, right**). For this first fire we used straw, small and medium wood sticks and pinecones. The temperature quickly reached 480 degrees, but we made an effort to reduce it (down to 300 degrees) since we wanted to fire the installation's surface in a gradual way. We had to fuel the fire very often with sticks because the temperature went down very quickly. The highest temperature of the day was reached at 550 degrees. We left the fire extinguish gradually and after 45 minutes there were only embers left, at a temperature of 250 degrees. After an hour the temperature was about 120 degrees. The day after (at 6 o'clock, after 10 hours), the surface was still warm, and had a temperature of about 80 degrees.

We observed that although the surface was already slightly cracked, the fire did not cause further damage to it. The following day we tried to make an experiment, in order to see how long it took for a pot full of water set on the hearth to reach the boiling temperature (**Fig. 30, left**). So we burned a fire at a constant temperature of 450 degrees, and we set a handcrafted clay pot bought in a bazaar on the lobes of the fireplace. We observed that the water started to boil only after 20 minutes.

After a few days of interruption of the experiment because of rainy weather, we started to use the LB fireplace replica by lighting on it a fire, that reached very quick the temperature of 700 degrees. It was difficult to maintain the temperature stable and we needed to fuel the fire very often. Even in this case, although the surface of the installation was already cracked, the fire did not cause any further damage to it.



After the surface had been hardened, we started to make the last experiment, i.e. to compare the performances of the two firing installations (**Fig. 30, right**). We therefore burnt up a fire, and reached a temperature of about 700 degrees in both hearths. After embers were created, we started to measure their temperature every 30 minutes (only on the combustion surfaces in the Kura-Araxes hearth; on both the combustion surface and the pebbles in the LB installation).

The observed temperatures are the followings:

18.00h: KA 483	LB 483 (pebbles 150)
18.30h: KA 320	LB 270 (pebbles 120)
19.00h: KA 200	LB 136 (pebbles 65)
19.30h: KA 170	LB 110 (pebbles 45)
20.00h: KA 134	LB 83 (pebbles 35)

After 20.00 we fueled the fire again and we left it create other embers to in order to measure their temperatures again and to see how the two fireplaces cooled down during the night and how they would behave during the next morning.

The observed temperatures are the followings:

22.00h: KA 685	LB 595 (pebbles 245)
23.30: KA 410	LB 333 (pebbles 144)
5.30h: KA 82	LB 71 (pebbles 57)
7.00h: KA 69	LB 63 (pebbles 48)
8.00h: KA 58	LB 54 (pebbles 46)
9.25h: KA 56	LB 188 (pebbles 67) – but there was sun on this fireplace, so the measurement in not reliable.

What we can observe after this measurement is that over a short period of time the KA fireplace seems to maintain the heat better compared to the LB fireplace. This could happen because in the KA fireplace the fire is protected by the three projections, and because the installation is dug into the soil. Over a longer period of time, however, the difference in temperature becomes negligible. We can thus conclude that, over a longer period, the LB fireplace maintains the heat better. The presence of the pebbles and pottery layers probably plays a role in this situation, which we intend to better elucidate in the future.

At the end of the experiment, we covered the installations with soil, sine we hope to be able to examine their preservation after one year on the occasion of the next field season.

## Conclusions

The 2106 excavation season of the "Georgian-Italian Shida Kartli Archaeological Project" at Aradetis Orgora achieved most of the foreseen objectives, and represented a considerable step forward toward the publication of the results of the first stage of joint investigations at the site.

Among the most important results of the 2016 excavation can be considered:

- 1) the completed investigation of the Kura-Araxes period sequence in Field B (quadrant 105.099c). In particular, this brought about the discovery of another interesting example of Kura-Araxes architecture: a round-shaped hut built in wattle-and-daub technique with a well preserved in situ pentalobate fireplace.
- 2) the recovery, in Field B (quadrant 104.099d), of a 2.50 m thick well stratified occupational sequence spanning the Transitional MB/LB, the MB and the later EB (Bedeni) periods, phases that are rarely met with in settlement contexts in the Shida Kartli region.
- 3) the recovery, in Field A, of a parallel, 130 cm thick sequence spanning the same periods.

In spite of the limited exposed surfaces, since the two excavation areas are located on the opposite sides of the hill, they represent reliable evidence that the recovered sequence has a general validity for the Aradetis Orgora Main Mound occupation and, more in general, can represent a good basis for a general comparative stratigraphy of the Shida Kartli region. It is our aim, in the future, to

continue excavations in the lowest part of the Field A area, where the deepest levels can be accessed relatively easily compared to the deep sounding in Field B, and where we hope to better clarify the transition from the MB into the Bedeni and from this into the Kura-Araxes period.

Excavations in Field C accomplished the exposure of the floor level of a section of the Eastern side of the internal courtyard of the Late Hellenistic/Early Imperial palatial building, thus progressing toward the complete exposure of the latter.

Besides the standard processing of the 2016 finds, work in the expedition house this year concentrated on the study of selected categories of finds from the previous seasons (animal bones, microlithics and ceramics) aiming at the production of specialised studies by individual experts. It is to be foreseen that another study season will be necessary in order to complete this task.

Interdisciplinary work by different specialists allowed to collect and process a huge amount of data concerning the ancient occupation of the Aradeti Orgora territory and its evolution in the course of time, by adding new fields of investigation (analysis of paste beads, stable isotopes analysis, etc.) to those already practiced in the course of the previous seasons.

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