

The Armenian-Italian Joint Expedition at Dvin Report of 2021 Activities

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Abstract This paper aims to show the preliminary results of the first excavation campaign at Dvin/Dabil (Armenia), conducted by the Italian-Armenian research group in Autumn 2021. The excavations involved two areas in distinct sectors of the city. While the Armenian team re-opened the investigation in the so-called Market, the Italian group opened a new digging area in the south portion of the citadel, the South Tower area. Preliminary documentation of the material contexts and laboratory analysis of ceramic samples were included in this mission. Chemical analysis of pottery aims to define the origin of the raw materials used and, hopefully, provide some information about the places of production.

Keywords Medieval archaeology. Eurasia. Dvin/Dabil. Excavation. Urban topography.

Summary 1 Introduction. – 2 Excavations at the Dvin Market. – 2.1 Background to the Research. – 2.2 Activities of the 2021 Season. – 2.3 Materials. – 3 Excavations of the Lower Fortress. Area 1000. – 3.1 Background to the Research. – 3.2 Activities of the 2021 Season. – 3.3 Materials. – 3.4 Final Remarks on the 2021 Excavation of Area 1000.



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1 Introduction

From 10 October to 20 November 2021, the joint Armenian-Italian expedition represented by the Institute of Archeology and Ethnography of the National Academy of Sciences of the Republic of Armenia and the University of Florence carried out archeological research on the site of Dvin, one of the largest medieval urban centres in Armenia. The site has a history of almost a century of archaeological research.

After a long break, this excavation season marked a new stage of Dvin archeological research.

The excavations concentrated on three sites [fig. 1]: 1) the area called 'Dvin Market' (4th site), where archeological excavations begun in the 1950s were left incomplete; 2) the south-eastern part of the Lower Fortress, where the Italian team initiated stratigraphic excavations in an area of 5 × 5 square metres (area 1000); 3) exploratory excavations were carried out about 200 metres south of the market in a residential-economic complex opened during a tree planting in the garden of one of the villagers.

The architectural structures and materials uncovered are datable to the 5th-13th centuries, but most material dates to the 12th-13th centuries.

Before starting the excavations proper, the joint Armenian-Italian team delineated the borders of the selected area to be excavated. Namely, work was planned in the so-called "Lower Fortress" (6th site) (Łafadaryan 1952, 24) and in the Dvin "Big Market" (4th site) (Łafadaryan 1982, 106). The names of these archeological sites refer to the work of previous expeditions, as well as the numbering of sites in the scholarly literature.

The Italian team, whose members represent the Chair of Medieval Archeology at the University of Florence, SAGAS Department, mainly concentrated their work in the "Lower Fortress" area.

Expedition staff. From Armenia: archaeologists Hamlet Petrosyan, Tatyana Vardanesova, Ruben Hovsepyan, architect Lyuba Kirakosyan, drone operator Vanik Yepiskoposyan, intern Victoria Hakobyan. From Italy: archaeologists Michele Nucciotti, Elisa Pruno, Leonardo Squilloni, Kristina Alecsic, armenologist Zaroui Pogossian, architect Laura Aiello.¹

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Figure 1 The area of the monument with the indication of the excavation sites of 2021

2 Excavations at the Dvin Market

2.1 Background to the Research

The “Big Market” or the “Market” of Dvin, which was numbered as the 4th site by the expedition in the 1950s (Łafadaryan 1982, 106-9), is located about 400 metres south-west of the Central district of Dvin, at the edge of Hnaberd village. This site was cleared in the early 1940s and explored in the 1950s and 1960s. Partial excavations outlined a large structure with four rows (9 columns in each row, and a total of 36 columns) of anchors and the remains of round columns, which occupied an area of about 3,000-3,500 square metres (Łafadaryan 1982, 106-8). Today the area marked by external signs is 1,500 square metres (50 × 30 m). As can be seen from the combination of old and new ground plans [fig. 2], the northern part of the building today shows no

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external signs and is part of the adjacent private land. Considering the monumental architectural features of the structure, its extraordinary size, and the almost identical volume and sculpture of some anchors in comparison with the anchors in the central district of Dvin, Karo Łafadaryan considered it as a market and dated it to the 5th-7th centuries (Łafadaryan 1982, 34-5, 106). Subsequently, the next head of the Dvin expedition, Aram K'alant'aryan, assumed that the structure with 36 columns was a caravanserai, the architectural composition of which was not fully clarified (K'alant'aryan 1990, 171).

The plan prepared as a result of previous excavations [fig. 3] indicates traces of a wall made of burnt bricks preserved in some of the edges of the structure. Moreover, some parts of the floor of the building are also made of burnt bricks. According to the head of the expedition Karo Łafadaryan, this wall does not belong to the original building, as, according to him, the use of burnt bricks in Dvin started later (Łafadaryan 1982, 107). This opinion was also based on the presence of a trench 2-3 metres wide and 1 metre deep between the wall and the floor, which is visible today in the western and southern parts of the structure. The impression is that the paving and the wall are not immediately attached to each other. Moreover, almost all the anchors and fragments of the pillars were collected and deposited in the western trench. It was probably accumulated here for the purpose of future relocation, but that project was not implemented or remained incomplete [fig. 4]. Łafadaryan also hypothesised that the structure may have collapsed due to the earthquake of 893, only to be later rebuilt in the 10th century with the widespread use of brick and finally destroyed in the middle of the 13th century. Due to the economic activities of the local population, the building suffered greatly, as it was turned into a quarry for the villagers to procure bricks and stones for their buildings. The area was fenced off in the 1980s, but later the housekeeper of the adjacent property moved the northern part of the fence, thus including the northern part of the structure in his plot, where now there are no visible surface traces.

When it comes to the chronology of the use of burnt bricks in Dvin, although there is no specific study on this topic, according to scattered remarks in various works, it appears that burnt square bricks were widely used in Dvin since the 5th century (K'alant'aryan 1970, 20; Hakobyan 2005, 205; Hakobyan et al. 2015). Moreover, the walls, various architectural details, stairs etc. were lined with burnt brick. The measurements of the early bricks are remarkable: 22-5 × 20-5 × 4-5 cm. These are identical to the size of the market bricks: 23-5 × 22-3 × 5 cm [fig. 5]. Small lumps of pottery are mixed with clay, they are yellowish on the outside, pink on the inside. It should be noted that at least from the 10th century onwards, coloured bricks of different sizes were widely used in Dvin: 35 × 34 × 5 cm yellow bricks, 19-22 × 19-22 × 5 cm yellow and pink bricks, pink

split bricks ($17.5 \times 17 \times 5$ cm in size, [fig. 6]). Let us add that the widespread use of burnt bricks in Armenia is attested at least since the 2nd century AD (Kanec'yan 2015). The initial impression is that the market bricks are closer to the early medieval findings. Hopefully, further excavations and subsequent physico-chemical analyses will provide data for a more accurate dating.

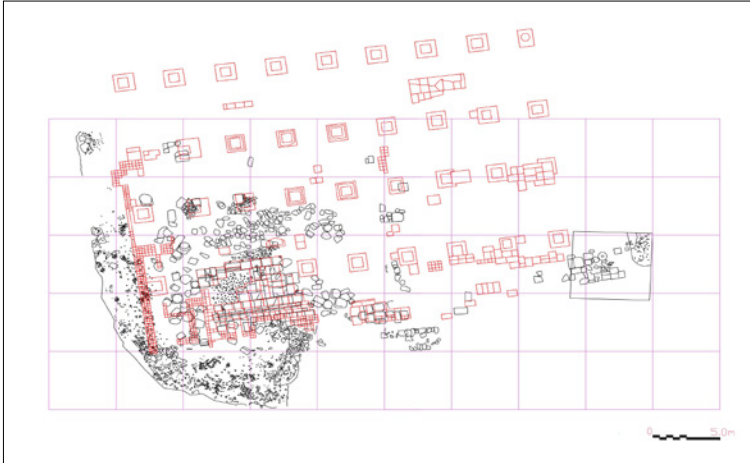


Figure 2 Comparison of the previous plan of the market with the situation as of 2021

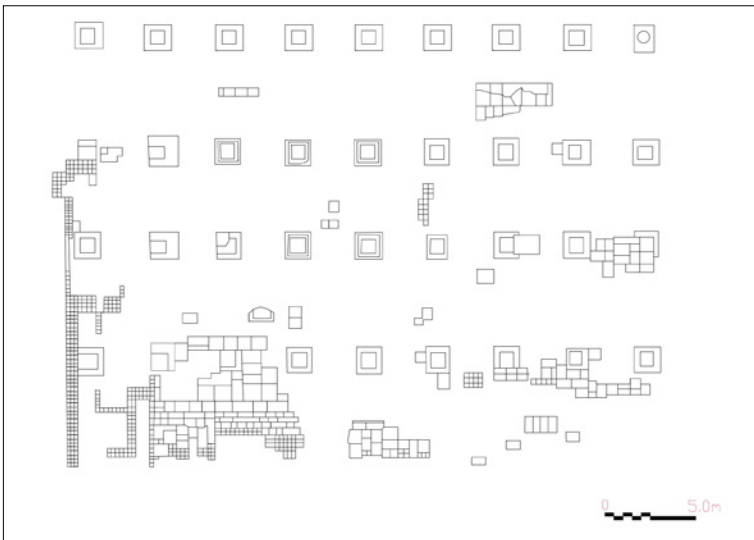


Figure 3 Market plan according to previous research



Figure 4 Accumulation of architectural details of the market in the western trench



Figure 5 Complete bricks discovered during the excavations of 2021



Figure 6 12th-century bricks from the excavations of the structure at the western foot of the Citadel

2.2 Activities of the 2021 Season

The main goal of the expedition begun in 2021 was to fully open and study the structures of the Market, with an understanding that a complete study will require at least four to five years. The excavations in 2021 focused on the structural and chronological interrelationships between the paving of the structure and the outer brick wall. The north-western part of the structure was selected for excavation, where the remains of a brick wall were clearly visible next to the largest preserved part of the smooth paving. The surface of the building, which covers an area of 1,250 square metres (25 × 50 metres) was divided into squares of 5 × 5 m. Of the overall surface, a portion of 20 × 25 m in the north-western part [fig. 12] was singled out and the main excavations were concentrated there. For a more complete picture, the excavations were carried out in 2-4 squares at the same time. Considering the average thickness of the bricks - 5 cm, the step (depth) of the excavation layer was 5-10 cm. The excavated soil was sifted and accumulated off site. Most of the sifted soil was reused at the end of the excavations to cover a special waterproof layer stretched over the excavated sections. Note that this is our first attempt to preserve the excavations in such a way. We will be able to judge its effectiveness at the beginning of the 2022 season, when the soil layer will be removed.



Figure 7 The appearance of the western part of the market before cleaning



Figure 8 The appearance of the western part of the market after cleaning



Figure 9 Metal household waste removed from the excavation area

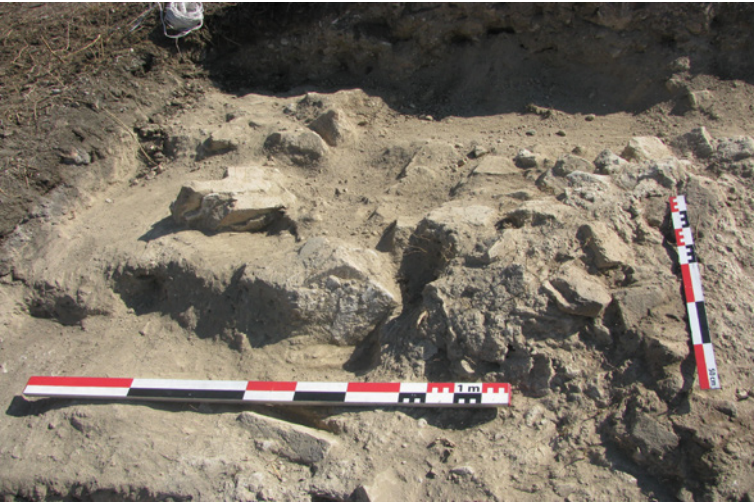


Figure 11 A layer of bricks and lime mortar in the eastern part

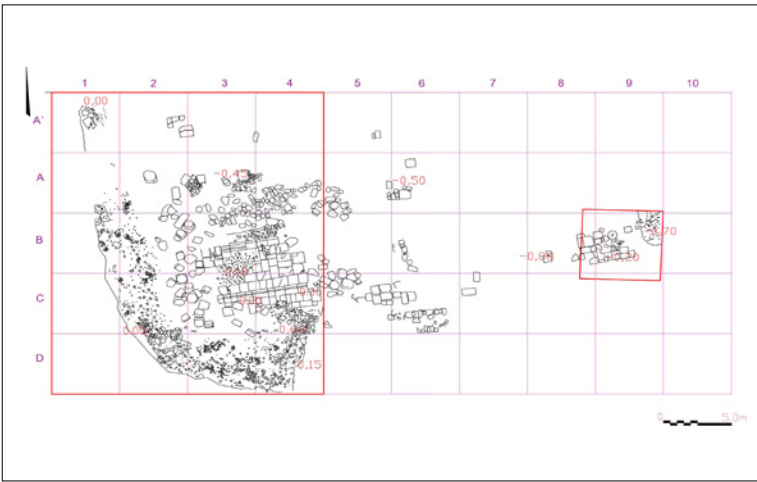


Figure 12 Plan of the western part of the market after the excavations of 2021



Figure 13 The paving of the western part after cleaning



Figure 14 The stream-hole passing through the centre of the western paving



Figure 15 The lime concrete platform of the western wall and the arrangement of bricks



Figure 16 The south-western corner of the brick wall



Figure 17 The section of the southern wall



Figure 18 The oval part of the base of the southern wall



Figure 19 The outer plaster of the oval part of the southern edge



Figure 20 Remains of a wall leading from the oval section to the paving



Figure 21 Overview of the market at the end of the 2021 excavations



Figure 22 General view of the southern edge of the market at the end of the excavations



Figure 23 The general appearance of the western edge of the market at the end of the excavations

The site had been abandoned for years: the area was covered with rich vegetation and household waste [fig. 7]. First of all, it was necessary to clean the area from garbage. The area was cleaned twice, in May 2021 and just before the excavations, in October [fig. 8]. The excavations started on 11 October with the cleaning of the area, which took a week. A large amount of metal and household waste was taken out of the area [fig. 9]. After cleaning the area, modern garbage holes became visible there. Some of the potholes reached up to the pavement, as confirmed in the eastern part of the structure, where in a 6 × 6 m trench, a part of the pavement was lined with flat slabs and a part of the anchorage [fig. 10]. In the upper part of the trench, a part of the collapsed wall was opened with fragments of lime concrete and burnt bricks [fig. 11]. Some of the holes were deep in the floor: their cleaning was left for the future, when the initial paving will be fully uncovered. As the floor of the structure and the supposed wall adjacent to it were better visible in the south-eastern part of the structure, excavations began from there, including squares A1-4, B1-4, C1-4, D2-4 [fig. 12].

First of all, in the central part of the excavation, the floor in the highest position was exposed (B3-4, C3-4 squares, about 80 square metres [fig. 13]). The opening of stream-holes in both parts of the pavement is especially noteworthy. This feature is not reflected in the previous plan. The northern stream-hole (length 2.20 m, width 14-15 cm, depth 6-8 cm) has an interruption, which is probably a result of the reconstruction of the pavement. The southern stream-hole (length: 6.45 m, width: 14 cm, depth: 6-8 cm) definitely belongs to the original structure. Here, the paving was built with the water-channel in the longitudinal axis [fig. 14]. Such reclamation channels have been identified in medieval caravanserais (Selim, Haržis, Alnĵajor), in the stables built near monasteries (Havuc' T'ar, St Sargis of Ošakan, Amaras) and in the barns of medieval villages (Ernĵatap'). In our case it was probably located within the area of the building and likely had a sanitary-hygienic function.

After unearthing the paving, the excavations concentrated in squares A1-2, B1-2, C2, D2-4, at the level created by the collapse of the western and southern walls. Here, excavations of certain sections of the collapsed and excavated wall in the western part revealed horizontal layers of lime concrete and rows of burnt bricks placed in a horizontal position [figs 15-16]. The incision made in the southern part of the wall resulted in the laying of bricks, which were somewhat dilapidated as a result of further excavations, but placed in horizontal rows [fig. 17]. Some whole bricks were also found here. These findings also confirm that we are dealing with a stationary wall. It should be noted that that part of the southern side of the excavation is not marked on Karo Łafadaryan's map, while on his plan he marked a wall in the western part, which does not exist at present. It is possi-

ble that the wall was demolished by the residents after the excavations in order to remove bricks. In the southern part (square D4) at a depth of 0.75 m, the base of a wall with an oval layout was uncovered. It was lined with rough boulder blocks and lime concrete mortar [fig. 18]. From the outside it is covered with lime concrete plaster [fig. 19]. This is a very important piece of evidence in favour of the opinion that we are really dealing with a solid plaster wall that prevents the penetration of moisture. A slightly ruined wall branches from this wall to the paving [fig. 20]. We can assume that we are dealing with the entrance to the structure, but this assumption must be explored and clarified during the next excavation season.

To sum up, the architectural-structural situation revealed through the excavations of 2021 [figs 21-23] allows us to propose the following preliminary hypothesis: that the original structure had rich interior architectural solutions (tuff polished paving, tuff polished anchors, columns, caps). It also had burnt brick walls rising on a stone and lime foundation. It should be noted that the 5th-century Catholicos's Palace excavated in the central district of Dvin had a similar internal structure and layout (three rows of tuff anchors arranged in two rows). These are more massive type anchors decorated with triangular protrusions. The market with its volumetric and sculptural solutions was surrounded by a wall made of raw brick, and the floor was covered with clay (Łafadaryan, K'alant'aryan 2002, 62-5). We further suggest that the paving of the market floor and the stream-holes were built taking into consideration sanitary-hygienic concerns, likely in view of its use for pack animals. Hopefully, further excavations of the market will allow us to test this initial hypothesis.

2.3 Materials

The largest number of findings are broken brick specimens, and in rare cases complete ones.

The total number of findings from the 2021 excavations is 1,760. All of them are approximately square, almost the same size (23-5 × 22-3 × 5 cm [fig. 5]), yellowish and pink in colour. There are only two fragments that bear fingerprints. Small pieces of gypsum decoration were found [fig. 24]. In other cases, the bricks are flat and do not have patterns or signs. Two fragments of refractory stamped bricks were found in one of the garbage wells. The brick is modern, but the stamp has not been deciphered yet [fig. 25]. The main mass of simple and glazed pottery originates from the upper excavated layers and belongs to the 12th-13th centuries. The fragments of ordinary pottery are made of white clay [fig. 26], and the fragments of glazed vessels are covered with green and three-coloured glasses: green, yellow and brown [fig. 27]. It is still difficult to date the structure or any part of it via glazed pot-

tery. It should be noted that the last flourishing of the city dates back to the 12th and the first half of the 13th century, and glazed pottery from that time is abundantly scattered throughout the city.



Figure 24 Fragments of patterned brick and gypsum decoration from the 2021 excavations



Figure 25 Stamp-bearing brick, 20th century



Figure 26 Fragments of ordinary pottery, 12th-13th centuries



Figure 27 Fragments of glazed pottery, 12th-13th centuries

3 Excavations of the Lower Fortress. Area 1000

3.1 Background to the Research

Armenia has been investigated through archaeology for almost two centuries, in different cultural and political conditions and under varying ideological and methodological frameworks (Maranci 2001). A widely discussed question is whether medieval-Islamic pottery productions in Armenia originated from local, Islamic and/or Eurasian know-how. Different authors alternately placed Armenia and the surrounding Caucasian regions as belonging to the “Anatolian-Transcaucasian province”, the “Mediterranean cultural world”, the “Iranian-Mesopotamian-Caucasian world”, the “Caspian-Aegean world”, the “Circumpontic cultural province” or the “Eurasian world” (K’alant’aryan et al. 2009).

The site of Dvin (Dabil in Arabic sources) is the main archaeological observatory located in the present day Republic of Armenia that can lead to a deeper understanding of ceramic production-consumption cycles, and that would make it possible to study in detail the relationship between the local community, the Christian and Islamic State(s) of the region, and Eurasian trade networks. To this end, the investigated stratigraphy of the site covers the period from the 4th to the 13th centuries CE, between the late Arsacid and Mongolian eras, thus providing solid ground for understanding if, how and when

local “little traditions” (LaBianca 2007; Nucciotti, Pruno 2021, 84-8) developed into internationally traded/exported types.

In particular, Aram A. K’alant’aryan, in his comprehensive summary on Dvin (K’alant’aryan 1996), has highlighted a number of main issues that need to be clarified in order to assess the international role of the site in the frame of Eurasian ceramic technologies (and as a production hub). They have been reformulated as research objectives by the Florence University team of Medieval Archaeology, in order to use them for framing the following research tasks:

1. a global chrono-typology of Dvin pottery and particularly of Faience production;
2. special focus on the early medieval pottery of Dvin (4th-8th centuries);
3. a detailed study of stratigraphy in order to build a reliable stratigraphic sequence.

The Florence University SAGAS Department, in collaboration with the Institute of Archaeology and Ethnography of the National Academy of Sciences of the Republic of Armenia, started research in Dvin in 2021 with the specific aim of answering the aforementioned research questions. The methodology adopted by the team aimed at a micro-stratigraphic analysis and recording of deposits and architectures, to be compared with published and unpublished stratigraphies made available to the project by the Institute of Archaeology and Ethnography of Armenia. The purpose was to enhance the time resolution of the Dvin site-formation process.

This year’s excavations were combined with a survey, archaeometric analysis (thin-section petrography, XRD, and XRF of ceramics) and 3D modelling of strata and architectural units. In the future, comparisons will be carried out between the excavated materials and unpublished materials from the Dvin dig-house. We plan to report on these results in the 2022 Excavation Report. Through such an extensive approach we aim at better contextualising Dvin-Dabil within the cultural history of Eurasia and highlighting the new potential for scientific uses of the materials excavated at the site throughout the 20th century.

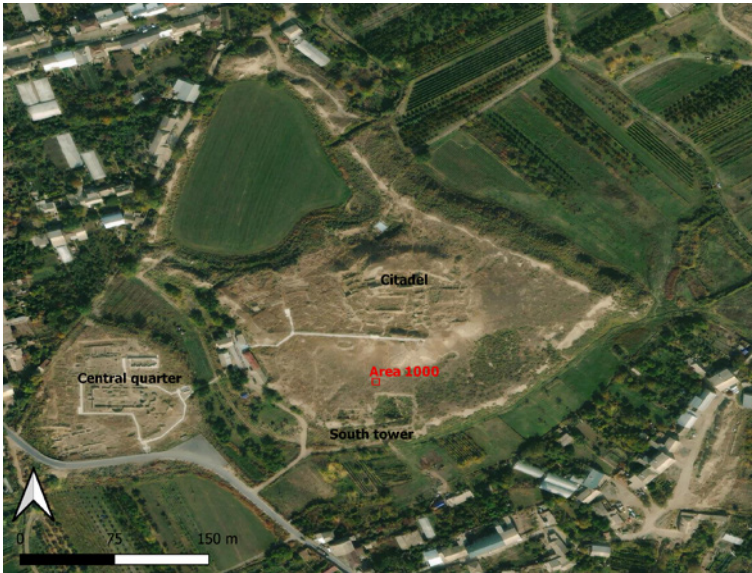


Figure 28 Location of Area 1000 in the aerial photo of the Dvin archaeological site

3.2 Activities of the 2021 Season

Investigations by the Florence University team involved the opening of a stratigraphic excavation of a 5×5 m area (Area 1000), located in a flat zone south of the citadel, more precisely between the latter and the excavations conducted around 2010 at the south tower of the curtain wall [fig. 28]. The 2021 excavation campaign focused on the area of the so-called ‘south tower’, which had already been investigated previously. The earlier excavations, located immediately south of the digging area opened in 2021 (a 5×5 m square), exposed an articulated stratigraphic column that covers the chronological period between the 6th and the end of the 13th centuries. Moreover, the location of the new square was defined taking into consideration that this portion of the site, between the south tower area and the south slope of the citadel, had never been excavated before. Hence, it is hoped that this will allow us to establish a complete stratigraphic column, including the de-urbanisation phases of Dvin. On the other hand, as expected, the upper portion of the archaeological deposit was covered by considerable natural sediment (thickness of 0.90-1.20 m) made of washed-away soil from the upper portion of the citadel. The sediment (SUs 1000-1003, 1006) was composed of micro-layers (a few millimetres thick with abundant crushed stone fragments of very small dimensions superimposed on one another) with a great number of

pottery fragments. It is noteworthy that all the sherds are laid horizontally, which can be attributed to the sliding down of the slope. The materials are mainly dated within a large temporal range (12th-14th centuries).² However, a few samples of Bronze Age pottery (polished on the external surface and with a fine and well-cooked black ware) were also found.

The first anthropic layers were identified in the eastern portion of the square. These (SUs 1004, 1005, 1007, 1011 - [fig. 29]) were characterised by orange and dark brown/black soil with masses of ash, which clearly displays that fire was lit in the given location. Those layers had a semi-circular shape, underlined by an irregular boundary of black ash and burnt soil on the western and northern sides, while they continue under the southern and eastern sections of the digging area. Currently, we cannot identify a chronological framework for the fire, since the excavation has yet to be completed; however, we can hypothesise that it follows the phases of decline and progressive de-urbanisation of the site (second half of the 13th century according to traditional interpretations). In these layers, a conspicuous number of pottery fragments and abundant animal bones were found. These finds show burning traces only in a few cases. After a preliminary analysis, the ceramic context seems to refer to a time-frame between the 12th and 14th centuries.

2 From an interpretive perspective it is necessary to take into consideration the time spans of most chronologies of Armenian pottery classification, due to the lack of stratigraphic excavations conducted with up-to-date methods. The main aim of the post-excavation analysis will be to study all these materials against the stratigraphic column established by us in order to determine a more detailed chronology.



Figure 29 SU 1007, with ash and charcoal traces

In the eastern portion of the square, the layers with fire traces covered a round floor made by a preparation of clayish-sandy soil of different textures - soft and plastic in the southern portion, more compact to the north. This preparation (SUs 1012, 1016, 1010) appeared as a series of pourings with a South-North orientation (according to their physical relations). The upper surface of the layers created a horizontal plan (deepness between 0.76 and 0.78 m). Actually, these layers are *in situ* and their removal is one of the goals of the next season. However, the scarcity of material and the widespread presence of coal have already been noted. Finally, on the surface of MSU 1010, it was possible to recognise the negative imprints of three squared bricks aligned with West-East orientation [fig. 30]. Even more than the others, this element seems to support the interpretation of those layers as an open-area walking surface, on which the architectural elements stood in a non-determinable period.

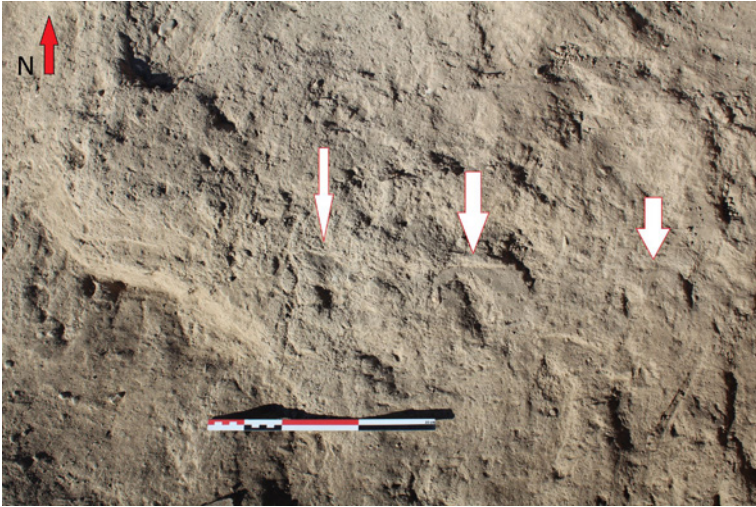


Figure 30 Brick imprints in SU 1010



Figure 31 Sample in NE corner of Area 1000

In order to clarify the function and composition of SU 1010 - the northern portion of the ground level - and to obtain the widest stratigraphic column for this season, a small trench of 1.50×1 m was made at the NE corner of the digging area [fig. 31]. Immediately under SU 1010, a small portion of an ash layer (SU 1018) with frequent little fragments of charcoal, lumps of mortar and pottery fragments

was intercepted. Because of the scarce visibility of this layer, located in the south-eastern corner of the trench, it is not possible to suggest an interpretation about its formation. However, the presence of an ash deposit under SU 1010 corroborates the hypothesis that the latter was a floor plan and not a vertical structure. Under this, three layers (SUs 1021, 1023, 1025, from the earlier to the later one) of compact clayish soil with lumps of mortar, fragments of charcoal and fragments of mud bricks were uncovered. The mud brick fragments were made of a mixture of compact clay, rod-shaped organic inclusions and chamotte. Even if it is not possible to suggest reliable hypotheses about those actions because of the restricted size of the trench, they appear like a series of shallow layers of preparation for the ground level embodied by SUs 1010, 1012 and 1016.

3.3 Materials

As for the finds, abundant quantities of ceramics and animal bones were found, but the presence of metals (including a coin datable to the end of the 12th century) was also widespread. Ceramics, which undoubtedly constitute the most represented class of artefacts, have been the subject of a preliminary analysis, aimed at their categorisation according to technologies of production and chronology (based on existing studies). Most of them are unglazed ceramics (sometimes externally decorated), but a conspicuous quantity of glazed pottery was also found (green glazed on white engobe, engobes and engraved with transparent/light yellow glaze overlaid, engobes and painted with transparent/yellow glaze clear, engobes and engobes with engravures under blue/blue glaze, faience or fritware with blue or blue) [fig. 32].



Figure 32 Glazed pottery sherds from Area 1000

During this field season we selected all the materials to be sent for archaeometric analyses. All the sherds were documented photographically. Moreover, a photogrammetric survey was applied to each fragment that helps identify the shape of the original pottery article. This last step is crucial for carrying out a metric survey and a 3D model of each piece [fig. 33]. The next step is to complete the documentation of the fragments by calculating the IMN (Individual Minimum Number) of each typology found thus far.



Figure 33 Photogrammetric survey process and 3D modelling of pottery from Area 1000

In order to better understand the production chain of the glazed and unglazed pottery, archaeometric analyses were carried out.³

3.4 Final Remarks on the 2021 Excavation of Area 1000

In conclusion, the 2021 archaeological season in area 1000, by the south tower portion of Dvin's citadel, allowed the team to investigate the most recent portion of the stratigraphic deposit⁴ which can be framed in a chronological horizon contemporary and/or subsequent to the phase of decline of the city (second half of the 13th century). Under a thick natural sediment, anthropic actions referable to two actions and phases were intercepted: preparation of a floor and evidence of burning activities. Future research will aim at identifying and documenting the abandonment phases of urban occupation in area 1000 and to expose 13th century occupation layers (tasks for the 2022 season).

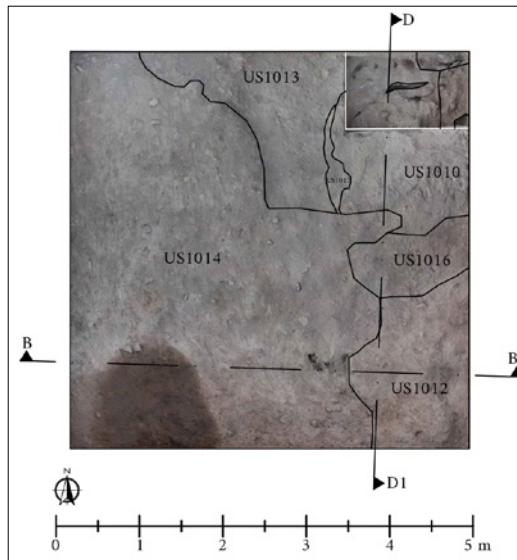


Figure 34 Plan at the end of this year's excavation and running/cumulative section lines

3 Laboratory analyses were carried out in collaboration with the Laboratory of Archaeometrical Analysis, Department of Geological Sciences, University of Brno (Czech Republic). The following analyses were performed: 1. Non-destructive analysis of glaze chemical composition by tablet-top ED-XRF; 2. A polychrome glaze map by SEM-EDX; 3. Petrographic analysis and glazes by SEM-EDX; 4. LA-ICP-MS.

4 [figs 34-7] respectively represent the plan at the end of this year's excavation, B-B1 section, D-D1 section and the Harris Matrix for area 1000.

The elaboration of the stratigraphic context allows us to prepare the Allen Matrix and to define the first phasing of this Area, as we can see in [fig. 37]:

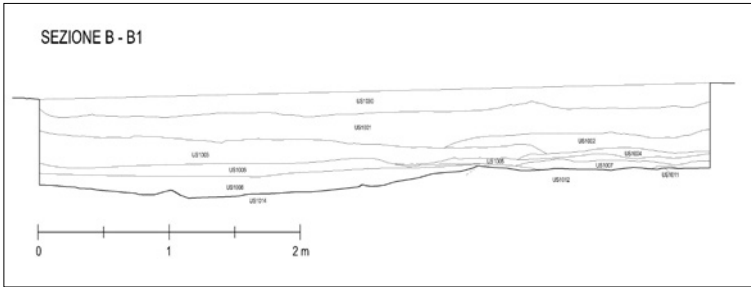


Figure 35 B-B1 section

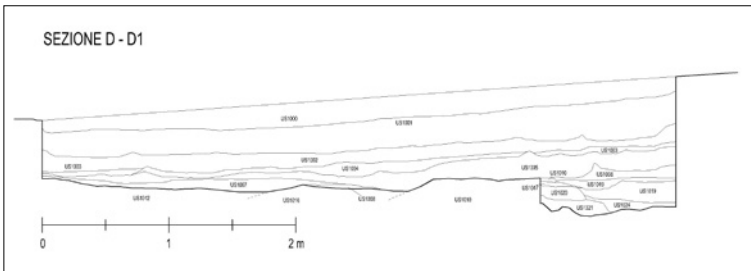


Figure 36 D-D1 section

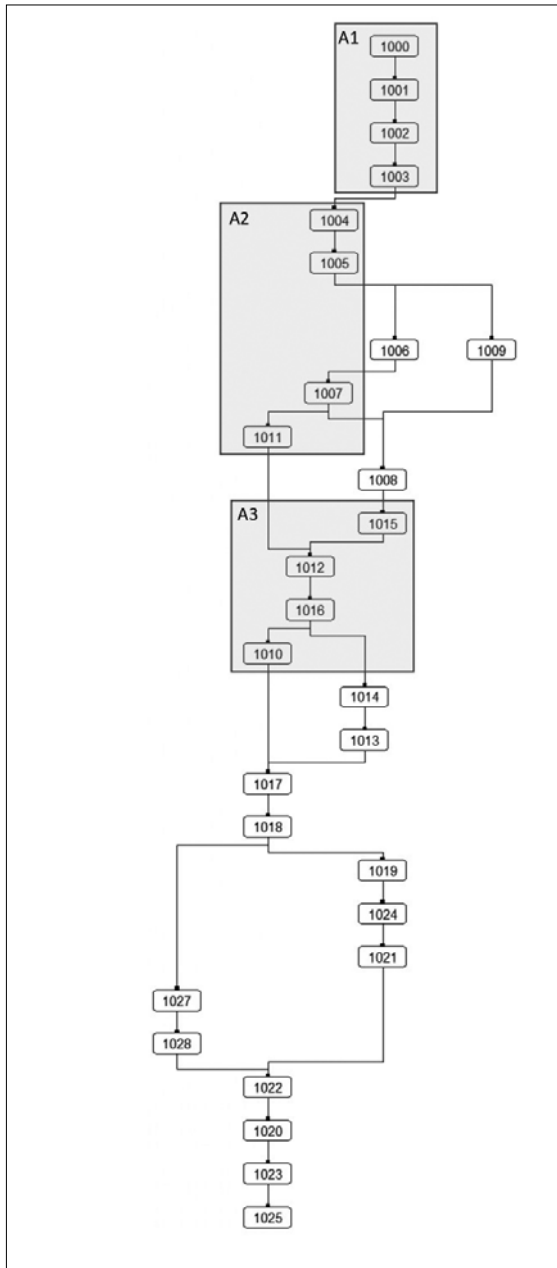


Figure 37 Area 1000 Harris Matrix for season 2021
 A1: thick natural sediment made of washed-away soil from the upper portion of the citadel, the more recent phase; A2: first anthropic phase recognised in area 1000, with burnt traces; A3: open area surface, with negative traces of bricks

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