



## **Report on the Activities of the Fifth Field Season of the Georgian-Italian Lagodekhi Archaeological Project (GILAP), August-October 2021**

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### **INTRODUCTION**

The fifth field season of the project of Ca' Foscari University of Venice (Italy) in cooperation with the Lagodekhi Regional Department of the Ministry of Culture, Sport and Youth (Georgia) took place from August 26<sup>th</sup> to October 26<sup>th</sup> 2021. The Italian team arrived in Georgia on August 27<sup>th</sup> and reached the town of Lagodekhi on August 28<sup>th</sup>. Excavations activities at Tsiteli Gorebi 5 started on August 31<sup>th</sup> and were completed on October 5<sup>th</sup>. The period from October 9<sup>th</sup> to October 20<sup>th</sup> was mainly dedicated to the continuation of the Lagodekhi Regional Survey (third field season). On October 23<sup>rd</sup> the team returned to Tbilisi, and on October 26<sup>th</sup> it left the country.

The Italian group was headed by prof. Elena Rova of Ca' Foscari University (co-director of the project) and included the following archaeologists: Flavia Amato (post-doc fellow at Ca' Foscari), Francesco Bianchi (pHD candidate at the Ludwig-Maximilian University of Munich, Germany), Davide Memola (post-graduate student at the SISBA archaeology specialisation school, Universities of Trieste, Udine and Venice Ca' Foscari), Stefania Fiori, MA, Gaia Babolin, Sebastiano Claut, Vanessa Perissinotto, and Mirea Peruzzi, BA (MA students at Ca' Foscari). The following Italian and international experts joined the expedition for shorter periods: prof. Giovanni Boschian (University of Pisa), geo-archaeologist, prof. Ivana Angelini (University of Padua, specialist in archeometry), dr. Giovanni Siracusano (Rome, archaeozoologist), Davide d'Errico (PhD candidate at Leiden, Netherlands, specialist in trace analysis), Cornelius Meyer, MA and Margherita Carletti, pHD candidate (Berlin, specialists in geomagnetic prospections), and prof. Francesca Bertoldi (physical anthropologist).

The Georgian team was composed of: Davit Kvavadze (Director of the Lagodekhi Museum, co-director of the expedition), Mrs Eliso Kurtanidzde (Lagodekhi Museum official), Giga Bakradze and Dimitri Natchkebia (MA students at Ivane Javakhishvili Tbilisi State University) and Aleko Zavrashvili (BA student at Ivane Javakhishvili Tbilisi State University). The following Georgian

experts took also part in the expedition's activities: Giorgi Kirkitadze, MA (Ilia State University), topographer, Mr. Guga Sharashenidze, georadar specialist, prof. E. Kvavadze (GNM, palynologist) and Liane Bitadze (Tbilisi State University, physical anthropologist). 13 workmen from the village of Tsitelgori were engaged in the excavation; Mr. Davit Barbakadze drove the expedition minibus, and Mr. Paata Kukchishvili was in charge of logistics.

On Tuesday, September 21<sup>th</sup> the expedition received the official visit of His Excellency Enrico Valvo, Italian Ambassador in Tbilisi. On the same day, it was visited by prof. Svend Hansen (DAI Berlin), and dr. Irine Gambashidze (Georgian National Museum, Tbilisi). It was also visited, on September 18<sup>th</sup>, by dr. Nicola Iorio and Ten. Col. Domenico Barone of the Italian Embassy in Tbilisi.

## AIMS AND ACTIVITIES OF THE SEASON

The main aim of the season was to resume the field activities (excavation, survey, prospections, etc.) of the expedition, which had been interrupted since October 2019 because of the COVID emergency, exception made for a short study season, which took place from January 16<sup>th</sup> to February 1<sup>st</sup> 2021. It was dedicated to completing the study and the documentation of the finds from the 2019 season (both from the excavation and the survey) and to collecting casts of microlithic finds (obsidian and flint) from Tsiteli Gorebi 5) to be submitted to trace analysis (by D. D'Errico) in Italy. Participants were Elena Rova, Flavia Amato and Vanessa Perissinotto).

Autumn 2021 field activities were considerably hindered by the unfavourable weather conditions (three weeks of almost continuous rain, which flooded the low-lying sectors of the Alazani plain and made access to the sites impossible for several days), but the members of the expedition exploited the occasion to devote themselves to other research activities (sampling for archaeometric analysis, study of museum collections, experimental archaeology and didactic activities for local high school students).



**Fig. 1.** Satellite image of the Lagodekhi municipality with location of the Tsiteli Gorebi 5 site.

Excavation activities concentrated on Tsiteli Gorebi 5, one of a cluster of Early Chalcolithic sites (5<sup>th</sup> millennium BC) located in the territory of the present village of Ulianovka/Tsitelgori in the southern part of the Lagodekhi Municipality (**Fig. 1**), close to the border with Azerbaijan. The 2018/2019 excavations had revealed the existence, there, of a single-period settlement dating back to a phase which is very poorly attested all over the Southern Caucasus: the very beginning of the Chalcolithic period (5000-4800 BC), sandwiched between two much better known periods: the Ceramic Neolithic (6<sup>th</sup> millennium BC) and the Late Chalcolithic (second half of the 5<sup>th</sup>-first half of the 4<sup>th</sup> millennium BC). They had brought to light, on a low mounded area in the northern part of the site which apparently represented the centre of the ancient settlement, some remains of rectilinear architecture and a portion of a contemporary ditch. Unfortunately, these had been deeply affected by modern mechanical agriculture in the course of the Soviet period and later, to the point that no in situ material could be recovered from them, although a coherent assemblage of contemporary artefacts (mainly pottery sherds, obsidian tools and a few bone objects) could in fact be collected all over the excavation area.

The 2021 season aimed at defining the outer limits of the Chalcolithic village and better understanding its topographical layout. At the very beginning of the season, a short geomagnetic survey was carried out. This proved very successful, in that it showed the existence of a number of circular ditches surrounding small areas within the ancient settlement, and oriented the development of the following weeks, which were partially dedicated to opening small geological soundings (for a total of five) in different areas of the site, in order to verify the existence and the date of the latter.

Excavations were continued at the site from August 31<sup>st</sup> to October 5<sup>st</sup>. They aimed at verifying the presence of hopefully better preserved occupation, contemporary to the one unearthed in 2019, in the southern part of the site, where surface investigations carried out in autumn 2019 had put into evidence two concentrations of Chalcolithic pottery, obsidian and reddish clayish material (daub). Two different excavation areas (Fields B and C) of 10 x 5 m each were thus opened, with the intention of widening them in the case of very promising results. This was unfortunately not the case, as in both areas the archaeological levels turned out to have been almost completely obliterated by modern disturbances and, furthermore, to be almost completely devoid of artefacts. Field C was thus abandoned, whereas the excavation area in Field B was expanded of two additional 5 x 5 m squares in order to intercept some other features highlighted by the geomagnetic prospection.

In spite of this, the excavation was successful in that it confirmed that the site, as hypothesised at the end of the 2019 season, occupied a much larger area than hitherto supposed, and consisted of small island-like raised areas surrounded by circular ditches, on which the now disappeared buildings and installations were located in order to protect them from water stagnation. Another important achievement of the joint study of the results of geomagnetic prospection and excavation was to prove that the Chalcolithic settlement had not been the earliest human occupation in the area. It had in fact been preceded by a layer of pits extending all over the site's territory, whose date is still uncertain but to judge from the scanty material recovered, was not much earlier, although it was separated from it by a series of sterile layers of possible alluvial origin.

Work on the season's finds (both artefacts and ecofacts) proceeded in the expedition house at Lagodekhi at the same time as the excavation. Samples for radiometric dating, soil micromorphology analysis and archaeometric analyses were also collected in the course of the season.

Besides investigating Tsiteli Gorebi 5, the expedition carried out the following activities; 1) in spite of the difficult working conditions (the area was partially flooded until the very last days) the archaeological survey of the Lagodekhi Municipality was successfully continued, from October 10<sup>th</sup> to October 21<sup>st</sup>. The coverage of some parts of the region which had not been, or had only cursorily been visited during the previous seasons was implemented, and locations suggested by the locals as possible sites were also visited. This allowed to add 10 new, mostly previously unknown archaeological sites to the survey list and to get a more reliable idea about how archaeological sites are distributed on the territory;

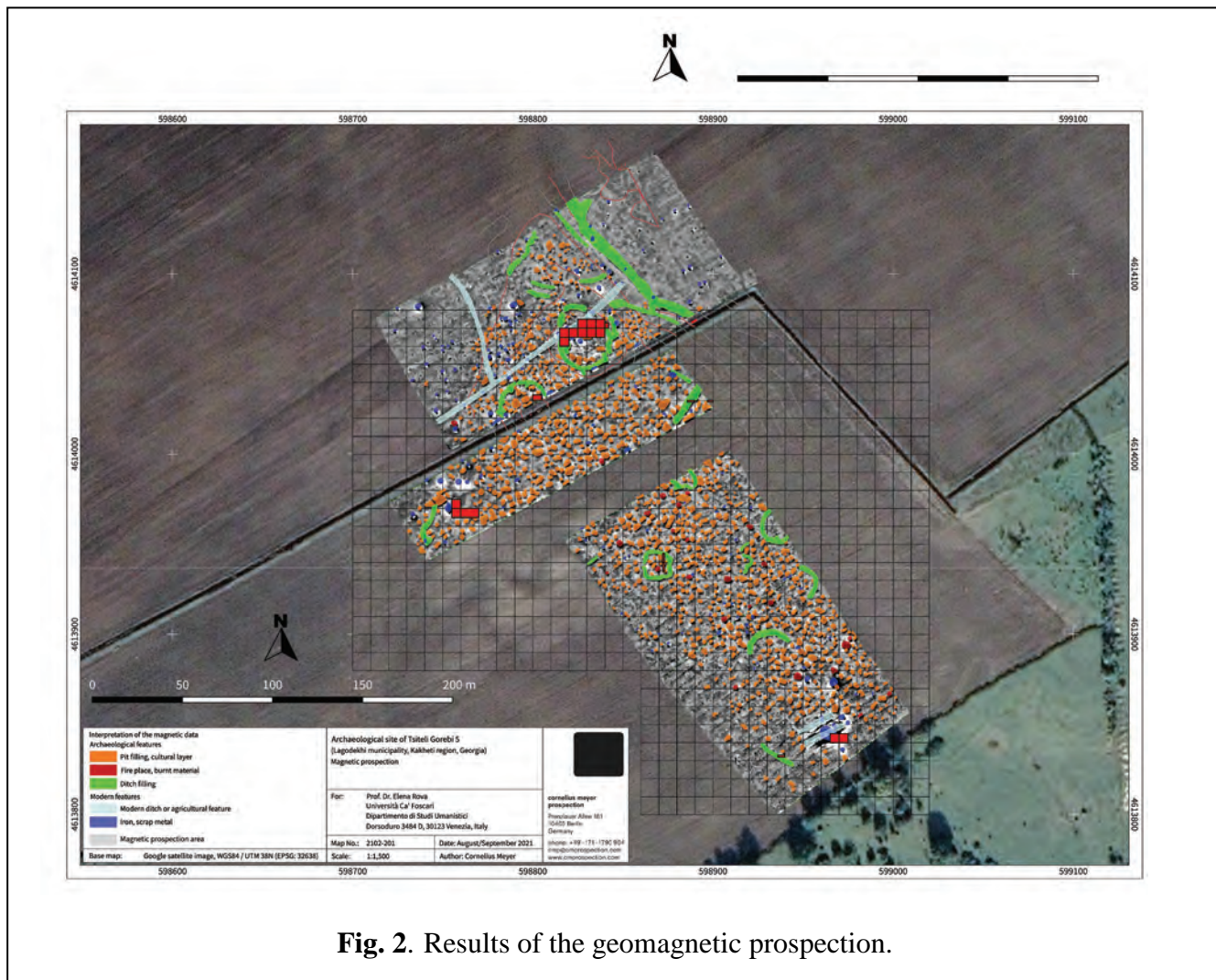
- 2) prof. Giovanni Boschian continued the geo-archaeological research in the southern part of the Municipality. He supervised the excavation of geological soundings in the Tsiteli Gorebi area, as well as at two sites (Nos LS034 and LS075 of the Lagodekhi survey) located deep in the forest flanking the course of the Alazani River to the north;
  - 3) ground-penetrating radar profiles were made at one of the large 3<sup>rd</sup> millennium kurgan of the Ananauri group (Ananauri kurgan 9, site LS034);
  - 4) Flavia Amato completed the analysis of the lithic finds from Aradetis Orgora and Doghlauri, now stored in the Georgian National Museum at Tbilisi and in Kareli local Museum;
  - 5) Giovanni Siracusano took samples for isotopic analyses from the animal bones excavated by the expedition at Aradetis Orgora (Kareli municipality) in 2013-2016, now stored at the Kareli local Museum;
  - 6) prof. Ivana Angelini took samples of beads of artificial materials (so-called “paste”) of Kura-Araxes period from Aradetis Orgora and other sites at both the GNM in Tbilisi and the Kareli local Museum;
  - 7) prof. Francesca Bertoldi and prof. Liane Bitadze took samples for stable isotope analysis of human bones and teeth from the Doghlauri excavations at Tbilisi University;
  - 7) Davide d’Errico carried out preliminary trace analyses on flint and obsidian artefacts from the 2021 season at Tsiteli Gorebi 5, as well as from flint and obsidian artefacts from the 2013-2016 excavations at Aradetis Orgora, and took casts of them, to be analysed in Italy;
  - 8) in connection with the latter activity, the members of the mission carried out experimental archaeology; some modern replicas of ancient chipped obsidian tools were created, and different materials were worked with them. Davide D’Errico produced casts of the used replicas to be submitted to trace analyses in Italy;
  - 9) the members of the expedition exploited some of the days of forced absence from the field because of the bad weather conditions to carry out some research in the local museum of the Kakheti region, with the aim: a) to identify the present location of the materials from Varazashvili’s excavations at Tsiteli Gorebi in order to examine and re-study them and, b) to identify other interesting lots of materials for future studies. The museums in Signaghi, Gurjaani and Dedoplistskaro were visited. Materials from Tsiteli Gorebi 5 exhibited at Signaghi were fully re-studied; the rest was ascertained to be deposited in the reserve collections of Gurjaani Museum, but to be presently inaccessible;
  - 10) experimental 3D scansions of artefacts (pottery, obsidian, bone and metal objects) were carried out under the supervision of Flavia Amato on items stored in different museums of the Kakheti region (Lagodekhi, Signaghi and Gurjaani);
  - 11) a series of two lessons of “Introduction to Archaeology” for local high school students were carried out by the members of the expedition on October 5<sup>th</sup> and 12<sup>th</sup> at the Lagodekhi local Museum.
  - 12) some materials from Tsiteli Gorebi 5 were selected to be exhibited at the Lagodekhi Musuem and the relevant explanatory texts were prepared.
  - 13) On October 9<sup>th</sup>, some members of the expedition paid a visit to a “field of Kurgans” in the region of Gardabani (Kvemo Kartli) discovered by Levan Losaberidze and Mariam Eloshvili and took GPS points of them and drone photos of them.
- The following paragraphs contain a detailed description of these activities.

## **INVESTIGATIONS AT TSITELI GOREBI 5**

### **Geomagnetic prospection**

The excavations at the site were preceded by a short magnetic prospection (August 29<sup>th</sup>-September 3<sup>rd</sup>) carried out by Cornelius Meyer (Cmprospection Berlin, Germany) with the assistance of Margherita Carletti. During the one-week survey campaign a total surface of approximately 4.2 ha was investigated by use of the MXPDA 5Kanal ARCH magnetic gradiometer array from the German manufacturer SENSYS (**Fig. 2**). This system was configured with five fluxgate gradiometer probes, mounted on a small cart, and a RTK-GPS with base and rover.





**Fig. 2.** Results of the geomagnetic prospection.

The surface conditions of the cultivated but harvested fields were sufficiently good with some deep plough marks and a moderate amount of sources of disturbance. Some slight elevations and the remains of an old river terrace can be observed in the terrain. The magnetic data show some striking linear structures of positive magnetisation, indicating the fillings of prehistoric ditches. Surprisingly, the fillings of modern canals, dug out in Soviet times and discovered in previous archaeological excavations, although some of them were put into evidence by the prospection, are not showing high magnetic intensities. This can be explained with the short period of existence of these canals and a filling lacking of organic content and other potentially ferromagnetic material. The wide linear structure observed in the northeast is most likely related to the old river terrace on which the prehistoric settlement had emerged, whose limit was somehow repeatedly modified by human intervention. Most interesting are circular and semicircular features inside the assumed settlement area, one of which continues the line of the Chalcolithic ditch discovered in 2019. It can thus be hypothesised that they mark similar internal delimitations within the settled areas.

The most striking result of the prospection is the discovery, all over the slightly elevated areas, of numerous and densely arranged circular and oval positive anomalies with diameters of 1 to 4 m. On the other hand, the flat zones, covered in the northern and southwestern prospection area, lack any significant magnetic anomalies, indicating a more or less homogeneous ground. When interpolating between the three investigated areas under consideration of the topography, this strong dichotomy suggests an area of about 5 to 6 hectares, i.e. much larger than previously assumed, for the extension of the settlement area. The nature of the small circular and oval positive anomalies cannot be established only on the basis of the magnetic prospection: they could in fact represent settlement remains such as pit houses, storage pits and post-holes, or be related to firing installations such as domestic hearths or furnaces. Previous archaeological excavations (in 2018 and 2019) confirmed the

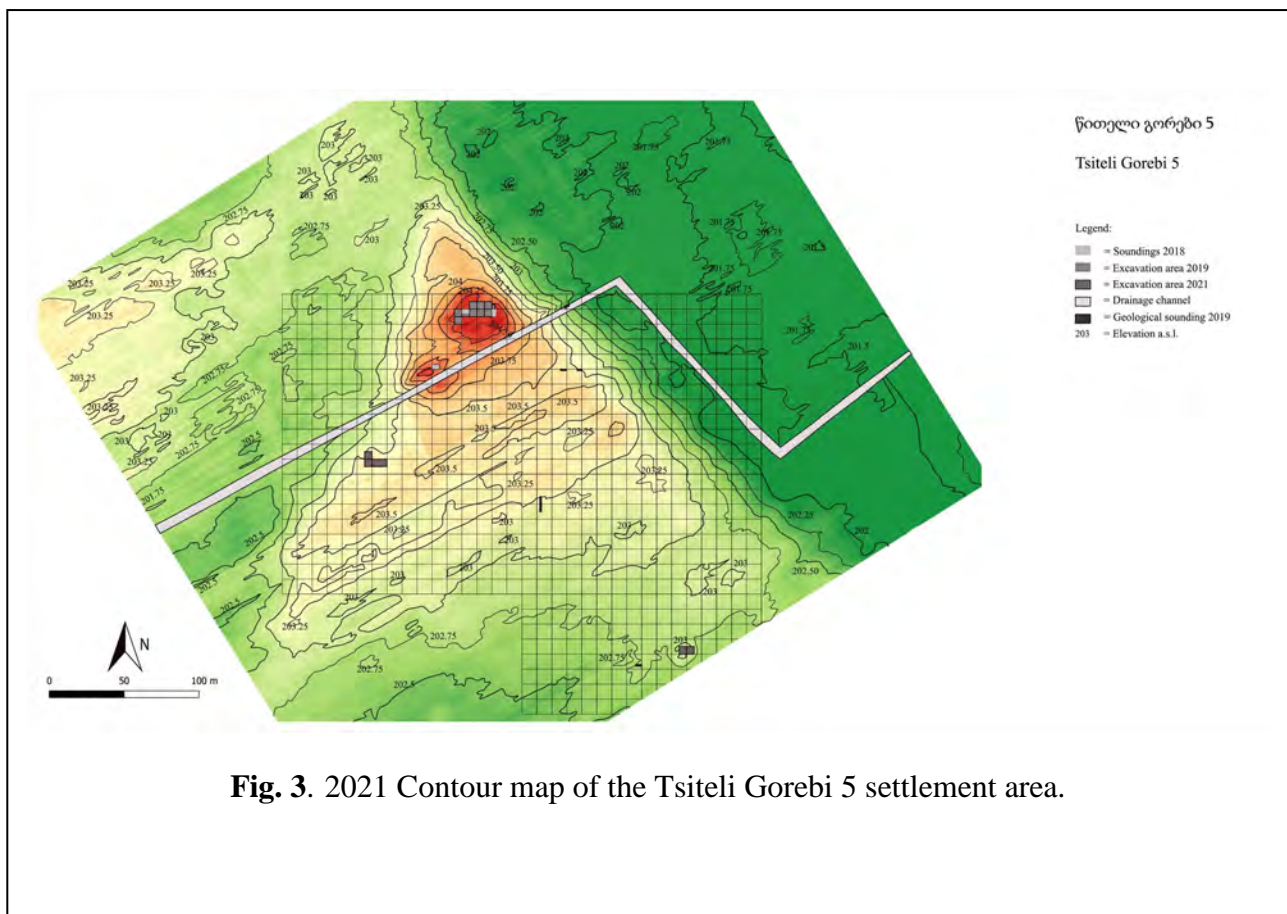
existence of several large pits, dug out in Soviet times, interfering with the prehistoric structures. However, it can be assumed that these modern features have only a minor impact on the magnetic data, as seen at the modern canal found in the Northern part of the investigated area.

### New contour map of the site

Considering the results of the geomagnetic prospection, which confirmed that the site extended well beyond the previously supposed limits, and the intention to excavate areas which lay outside of the latter (see introduction), it was decided to produce a new, wider contour map of the site. This was created by Giorgi Kirkitadze (Ilia State University) based on drone images taken on 19/09/2021 (**Fig. 3**). The new map clearly shows the triangular shape of the site, highlights the ancient river terrace, which represents its NE limit, and its NW limit, which is also marked by a clear change in elevation. It also confirms its large extension (5-6 hectares) and shows that site LS023 (one of the two areas selected for excavation) was indeed part of it. On the other hand, it confirms the southern part of the site as an area with low intensity occupation, only slightly raising above the level of the plain and smoothly degrading toward this.

### Geological soundings

In order to clarify the depth, character and origin of the structures recognised by the geomagnetic prospection, five small test trenches were opened, during the last two weeks of the excavation, in areas where intensive survey carried out in 2021 had not highlighted the presence of archaeological materials.



**Fig. 3.** 2021 Contour map of the Tseteli Gorebi 5 settlement area.





**Fig. 4.** Sounding 1, view of ditch 2003 with black filling 2004 from W.

Sounding No. 1, in the centre of the prospected area, approximately at midway between excavation areas B and C, extended for 10 x 1 m along a NS axis. It confirmed the presence of the ditch of sub-circular shape with a diameter of about 15 meters identified by the geomagnetic prospection, which was intercepted close to its northern limit (**Fig. 4**). Only the bottom of the ditch (locus 3003) was preserved: it was filled with a very compact black layer (locus 3004), whose colour is probably the result of organic decomposition. Some ceramic sherds, two obsidian fragments and 10-15 fragments of animal bones were found inside it.

Sounding 2, located to the south of the modern canalisation which cuts the archaeological site, confirmed the existence and the Chalcolithic date of the large rectilinear ditch visible in Fig. 2 just to the north of the ploughed field. Similar to the previous one, only the bottom of this ditch (locus 4003) was preserved (it had a maximal depth of 22 cm). It was also filled with dark soil, which yielded two Chalcolithic sherds and small fragments of daub. The layer in which the ditch was cut was underlain by a layer of yellowish sediments with calcium carbonate inclusions (locus 4005) which was cut by two pits (loci 4006, 4007) filled with dark brown soil containing some animal bones. Several fragments of Chalcolithic (?) ceramics, animal bones, daub and fragments of obsidian were collected from this layer and from the lower part of the sounding, which undoubtedly predates the Chalcolithic ditch. Excavation continued on a small part of the trench until reaching a depth of 2.56 m, encountering only levels of alluvial natural origin.

Sounding 3, measuring 1 x 5 m, was opened close to the southern limit of the site, near excavation area C. Again, it confirmed the presence of the bottom of the curved ditch highlighted in this area by the geomagnetic prospection. Unfortunately, neither pottery nor lithics were recovered from its filling. A similar situation characterised the underlying layers, which did not contain any artefacts and were probably of natural. They were excavated on a limited area until a depth of 2.40 m from the surface. Just above this point, however, a small portion of a pit could be seen in the section of the sounding.

Two similar pits, one of which was cutting the other one, were also discovered in Sounding 4, a small trench of 3 x 1 m located a few meters to the east of Sounding 2, at a point where the prospection had not suggested the presence of any Chalcolithic ditch.

To sum up, Sounding 1-4 confirmed that the ditches put into evidence by the prospection belong to the same phase as the Chalcolithic remains excavated in 2018-2019, and that the extensive network of pits highlighted by the same prospection are undoubtedly earlier than this phase.



**Fig. 5.** View of the upper part of the N profile of the modern canalisation, with the ancient feature evidenced by white lines (dashed where limits are uncertain). Sounding No. 5 (not yet excavated), starts from the bottom of the image.

A last sounding, No. 5 (**Fig. 5**), was opened at the NE limit of the ancient settlement, at the point where the modern canalisation meets the large rectilinear feature running in NE-SW direction made visible by the geomagnetic prospection, in order to ascertain the nature of the latter (large ditch, or edge of the natural river terrace marking the settlement's limit?). The sounding (which measured 3.50 m x 1.5 m) took advantage of the N section of the modern canalisation, and reached a depth of 2.90 cm from the present surface. It suggested that the limit of the ancient terrace had indeed been repeatedly cut by a human-made ditch, into which material of anthropic origin was deposited at different times within the Chalcolithic period. The different layers of the filling yielded pottery sherds, obsidian fragments and animal bones.

## Excavations

This year's excavations aimed at verifying the presence of occupation (contemporary to the one unearthed in 2019) in the southern part of the site, where surface investigations carried out in fall 2019 had put into evidence two concentrations of Chalcolithic pottery, obsidian and reddish clayish material (daub).

Field B is located close to the modern canalisation, ca 100 m to the SW of the area investigated in 2019. It consists of a very low mounded area of ca 20 m in diameter, marked by a surface concentration of reddish daub, obsidian and Chalcolithic pottery sherds. Two 5 x 5 m quadrants oriented in NS direction (092.093d-092.092b) were opened there at the beginning of the season. The archaeological sequence highlighted in these quadrants is comprised within the first 50 cm from the present surface. From a general standpoint, the stratigraphy of the area seems quite uniform: the first 20 centimetres comprise a layer heavily disturbed by agricultural activities (repeated ploughing) (**Fig. 6**). After its removal, all the surface, excluding the southeast corner, is covered by a compact grey/greenish layer. This may represent the equivalent of the raised "platform" on which the structures excavated in 2019 to the north of the modern canalisation were built but, if this were indeed the case, nothing would be preserved of the overlying Chalcolithic structures except for the scattered surface material. In the same area, however, we should highlight the presence of a cub-circular area occupied by a set of reddish/brownish burnt layers. This succession, that probably needs to be dated to the Chalcolithic period, has been heavily interfered with by modern agricultural activities, and its interpretation is unclear, although it was obviously related to the use of fire.

All these traces of activity lie on top of a sequence of fine alluvial deposits, which was excavated down to a depth of nearly two meters in two different deep soundings without finding any significant sign of human activity, but occasionally encountering small isolated artefacts, which can be interpreted as overbank fillings of a naturally depressed basin. The sequence highlighted by the exposed sections shows that these deep deposits were altered by pedogenesis, as shown by the formation of specific soil horizons such as the calcic one. In other words, the anthropic occupation





**Fig. 6.** Orthophoto of quadrant 092.092b, showing modern plough furrows.

on top of the sequence took place during a phase of alluvial stability. Radiocarbon dates coming from the collected samples of rare charcoals may allow us to chronologically fix the starting phase of the anthropic occupation, thus giving us the possibility to better interpret the described archaeological remains.

During the last weeks of work, the excavation was expanded, in eastern direction, by opening two additional quadrants (093.092b-d) in the hope to be able to reach the level of the pits highlighted by the geomagnetic prospection, which appeared especially frequent in this area, over a larger surface. In these eastern quadrants, no traces of the yellowish compact layer were present but, in their western part at least, the layer of reddish burnt debris continued. East of this, only a sequence of natural layers and no rounded pits were unearthed, although the bottom of two successive ditches filled with dark soil cutting them was also encountered. This may support the conclusion, drawn from the geological soundings, that the round-shaped anomalies highlighted by the geomagnetic prospection belong to a phase earlier than the Earlier Chalcolithic settlement. Unfortunately, excavation had to be suspended for several days due to the heavy rain which affected the Lagodekhi region at the beginning of October. This fact hindered us to reach the depth at which some pits had turned out in the geological trenches elsewhere and thus made it impossible to verify the hypothesis for the Field B area.

In conclusion, the excavated area had indeed been a small raised mound, seat of human activities during the Early Chalcolithic period, contemporary to the area excavated in 2019, but modern mechanical agriculture had completely obliterated all remains of these activities, leaving only a scatter of surface material on the spot. On the other hand, the presence of out of context artefacts in natural layers under the base of the Chalcolithic settlement and the round features put into evidence

by the geomagnetic prospection, none of which was found in the course of the excavation, suggest the presence in the area of earlier human occupation.

Field C is located ca 250 m to the SE of the main Tsiteli Gorebi 5 mounded area, on a low isolated mound (appr. 20 meters in diameter, ca 1 m high). This had been already observed during the 2018 survey, and tentatively identified, at that time, as a possible kurgan (site LS023). A new visit in the course of the 2019 survey season, when visibility conditions were much better, had highlighted the presence, on it, of abundant Chalcolithic pottery, obsidian and of a large amount of burnt reddish “daub”. Two 5 x 5 m quadrants oriented in EW direction (113.083d-114.083c) were thus opened on top of it, in the hope to encounter a less damaged area of the Chalcolithic settlement. Here, under the plough soil, however, excavation put into light only a 30-50 cm thick very irregular layer of reddish debris (locus 2003) filling some depressed areas of vey irregular shape dug into the natural soil. This extended all over the excavation area, and was underlain by a black burnt layer of varying depth (locus 2019) (**Fig. 7**). The reddish layer yielded very scarce finds (a few obsidian flakes, almost no pottery sherds or animal bones) and is therefore of uncertain interpretation. One possibility is that it originated from the repeated destruction of temporary firing installations, which lay directly over the ancient natural soil. Different hypotheses, e.g. that it represent the results of “slash and burn” forest clearing or similar practices, cannot be excluded, either.

Under the black burnt layer, a sequence of layers of probably natural origin was unearthed, some of which however contained sparse artefacts (mainly obsidian fragments, but also a few Chalcolithic pottery sherds). This suggests that earlier anthropic layers are indeed present in the nearby area. Excavation continued, on a limited surface (two-1m wide soundings), until reaching a depth of 1.40m, without encountering any other sign of human activity besides these sparse artefacts.



**Fig. 7.** Field C. View of the N section of quadrant 113.083d, with reddish debris layer 2003 underlain by black layer 2019 over sequence of natural layers.

### Artefacts and ecofacts

As anticipated, artefacts from this season were extremely scanty, and most of them came from the plough-disturbed surface soil. They were for the most part extremely fragmentary and in poor state of preservation, and did not differ much from those uncovered during the past seasons.

Ceramics (processed by Vanessa Perissinotto) amounted only to 116 sherds, only 15 of which (12.93% of the total) were diagnostics. They were very similar to those discovered during the previous campaigns, and were divided into the same fabric groups (LBOW, 50 sherds, 43.10%, GW, 17 sherds, 14.65% and RW, 13 sherds, 11.20%). As far as it can be judged, the repertoire of shapes and decoration is the same as that of the previous years. Maybe due to the extremely low number and bad state of preservation, it was impossible to detect any difference between the pottery from the main Chalcolithic occupation and that from the underlying layer of pits.

Chipped lithic were analysed by Flavia Amato. The assemblage included 41 tools (40 of obsidian and 1 in chert) and 167 debitage elements (all made of obsidian). Among the debitage elements it was possible to distinguish 50 debris, 108 chips, 251 flakelets, 136 flakes, 11 bladelets, 13 blades and 3 primary elements, while tools are represented by 1 flint flake tool and 40 obsidian tools, subdivided into 21 blades tools, 8 flake tools, 3 scrapers, 1 arrowhead, 1 bladelet, 5 cores, and 1 drill. It is interesting to observe that some of them came from the pits related to the earlier Chalcolithic occupation.

Contrary to the previous years, no bone tools were unearthed this year. On the other hand, some interesting finds were made in the field of macrolithics. These were mostly discovered during surface collection in the recently ploughed fields next to the excavation areas. They allowed to widen the morphological repertoire of macrolithic tools from the site to hitherto unattested types: especially noteworthy are three fragments of very large grinding stones and two small axes of grey polished stone (**Fig. 8**). Similar objects were previously found by V. Varazashvili at other sites of the Tsiteli Gorebi cluster; some of them are presently exhibited at the Signaghi Museum.



**Fig. 8.** Stone axes of grey polished stone 10001-M-17 (left) and 10001-M-18 (right).

Animal bones, studied by Giovanni Siracusano, were equally rare and poorly preserved. Nearly all of them (ca 98%) belonged to domestic species (mainly ovicaprines and bovines). Of these, about 50% belonged to caprines, 30% to cattle, 5% to pigs, 5% to dogs, 1% to equidae. Among the wild animals there is a fragment of deer, a fragment of a turtle, three fragments of a rodent (perhaps a vole) and two remains of snails. One of the fragments of a metapodial could, given its large size, belong to a Uro. It was difficult to determine whether some of the breakages were due to slaughter or to extensive fragmentation. However, no fragments bore any cuts. Two bovine bone fragments had traces of burning, while only one had traces of gnawing.

## **SAMPLING FOR RADIOMETRIC DATING, ARCHAEOMETRIC ANALYSES, AND PALAEOENVIRONMENTAL RESEARCH**

Samples for  $^{14}\text{C}$  analysis (to be analysed by dr. Elisabetta Boaretto, Weizmann Institute of Science, Rehovot, Israel), mainly from animal bones since vegetal remains and other organic materials were virtually absent at the site, were collected from the excavation at Tsiteli Gorebi 5. They will allow on the one side to confirm the contemporaneity of the areas excavated so far (which yielded dates between 5000-4800 BC) with those excavated in 2021 and their belonging to the poorly known beginning of the Early Chalcolithic period) and, on the other hand, to attribute a precise date to the still elusive “pits horizon”.

10 Samples for soil micromorphology analysis (to be analysed by Giovanni Boschian) were collected at the site by Flavia Amato at the end of the excavation. Particular attention was paid to the sections of the two quadrants in Field C, in the hope to solve the question of the origin of the thick layer of burnt materials discovered there. Samples from floated sediments were also collected for analysis of microfaunal and vegetal remains to be carried out in Italy. Pollinic samples, to be analysed by Eliso Kvavadze (Georgian National Museum), were collected from two profiles of the deep soundings at Tsiteli Gorebi 5. They will provide indications about the changes in vegetation which affected the Alazani plain in ancient times.

From 28/09 to 12/10 Davide D’Errico, in collaboration with Flavia Amato, who studied the lithic technology, selected a sample of 41 lithic tools (flint and obsidian) from the 2021 excavation. During the first phase of analysis (which involved the use of a stereo microscope), these showed the possible presence of use wear on the functional edges. In the following phase, copies of the selected tools were made using Provil Novo fast light and Vestige fast light in order to continue their analysis at the La Sapienza University Laboratory in Rome, where the possibility of using a metallographic microscope allows the study of the micro traces present on the tools. This is necessary in order to understand on which material and for which activity these tools were used.

Further sampling was also carried out on materials previously excavated by the expedition in Shida Kartli, in particular at the site of Aradetis Orgora/Doghauri.

During one week, from 14<sup>th</sup> to 20<sup>th</sup> September 2021, prof. Ivana Angelini (University of Padova) collected samples of beads of vitreous materials of the Kura-Araxes period both at the Georgian National Museum and at the Kareli Museum, to establish the nature and variety of the artificial materials in use in Georgia during the Early Bronze Age, which preliminary analyses carried out on the samples collected in 2016-2017 showed to be more diversified than previously supposed.

A total of 46 beads were studied by the stereomicroscope, in order to investigate the conservation state (lacks of material, fractures, cracks on the surface, etc.), the presence of patinas or weathered areas, the possible presence of wear and/or working traces, the texture of the surface and of the inner material (when it was visible): 30 of them at the Georgian National Museum in Tbilisi, and 16 at the Kareli Museum. Each bead was weighted and measured in detail. High-resolution 3D images were recorded for all but 5 of the beads. The micro-photographs were obtained by a digital camera and a stereomicroscope, applying the focus stacking technique.

All these data were used for the identification of the type of material: stone, glazed stone, faience, glassy faience, glass (metals, bones, shells and other materials were not considered in this study). Surface weathering, which is often present, produces changes in the colour and texture of the original material, and of course in its composition. For these reasons, the identification of type and composition of material used for the production of beads is often difficult. Moreover, there is a lack of knowledges about the processes and the raw materials used by these cultures for the productions of vitreous materials. In order to improve our understanding of these materials, after the investigation with the microscope, 10 micro-samples were taken from a few broken beads. The samples will undergo further archaeometric investigation in the laboratories of the Padova University.

Animal bones from the 2013-2016 Aradetis Orgora settlement excavations were collected by Giovanni Siracusano at Kareli Museum for isotope analysis to be carried out by prof. Paola Iacumin



(University of Parma) and Estelle Herrscher (CNRS Paris) in the framework of ongoing studies about paleonutrition and mobility patterns of the ancient Georgian populations, in collaboration with the ANR-DFG Kur(a)gan project.

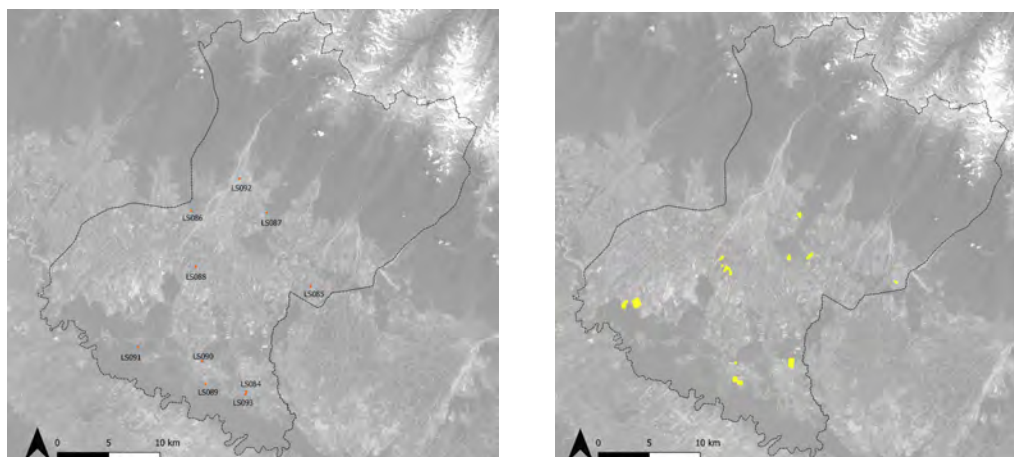
Davide d'Errico studied the whole lithic material from the Aradetis Orgora settlement site (2013-2016 excavation seasons) kept at the Kareli Museum in order to identify items to be submitted to use wear analyses. The lithic material was analysed using a stereo microscope on the basis of the indications of the previous technological study of the material by Flavia Amato. The selected sample consist of 179 objects, 111 of which are made of flint and 68 of obsidian. Casts of the selected material (using Provil Novo fast light and Vestige fast light) will allow to perform use wear analysis at the La Sapienza University Laboratory in Rome.

Finally, in continuity with the expedition's activities, but with funds provided by the ANR-DFG Kur(a)gan project, prof. Francesca Bertoldi spent some days (from October 26<sup>th</sup> to November 3<sup>rd</sup>) in Tbilisi, where she sampled, together with prof. Liane Bitadze (Tbilisi State University) some human bones from the Doghlauri cemetery for stable isotope analysis to be carried out by Hestelle Herrscher (CNRS Paris) and Paola Iacumin (University of Parma).

### ARCHAEOLOGICAL SURVEY OF THE LAGODEKHI MUNICIPALITY (Stefania Fiori)

The third season of field survey of the Lagodekhi Municipality by the Georgian-Italian Lagodekhi Archaeological Project in collaboration with Kristen Hopper of Durham University was undertaken between October 8<sup>th</sup> and October 21<sup>st</sup>, 2021. Due to the impossibility of Kristen Hopper to take part to the field season, Stefania Fiori took over the responsibility for this activity.

In order to supplement the data collected during the 2018 and 2019 expeditions, the main tasks for this year were to undertake further intensive survey transects in different environmental zones of the Municipality, to continue checking the topographic features recorded by Remote Sensing and those tracked from the old Soviet Map and the National Heritage Database of Georgia (Memkvidreoba). Generally, ground visibility was expected to be optimal during this period of the year, as proved during the 2019 survey expedition. Nevertheless, because of the very unstable weather conditions of the previous month, some southern parts of the Municipality were not practicable and the day-by-day selection of areas depended on their accessibility. For this reason, the first days of expedition were dedicated to the upper valley, where rainwater drained faster, and the last ones to the lowland forest, which was still partially flooded. Survey transects were conducted on recently



**Fig. 9.** Results of the 2021 Lagodekhi Survey. Left: sites recorded during the 2021 season; right: areas of intensive survey.



**Fig. 10.** Site LS092: detail of one cist grave.

ploughed uncultivated fields. Individuals were spaced approximately 10 m apart, and all artefacts were collected for each 50 m area. Where visibility was scarce because of the presence of cultivation or grassland, a topographically informed survey methodology was used in which individuals spaced approximately 10 m apart covered the accessible landforms and recorded any sites or finds as waypoints (WP) with a GPS. Scattered artefacts were collected in order to understand the period of frequentation of each site. The survey allowed to add 10 new sites (LS084-LS093) and several other possible locations of ancient activities. **Fig. 9** shows the totality of sites recorded in 2021 (left) and the areas subjected to intensive survey (right).

Among the sites recorded in the uplands, especially worth mentioning is an early medieval cemetery situated between the Kabali Tati River and Uzuntala (LS092), at a location where the discovery of four cist graves after a recent earthmoving caused by heavy and abundant rains was reported by local villagers (**Fig. 10**). To judge from the building technique, the tombs are probably to be dated to the 6<sup>th</sup> or 7<sup>th</sup> century AD. Considering the high risk of destruction of the site and the importance of the discovery, the Cultural Heritage Ministry is initiating emergence excavation of the area.

In the intermediate section of the valley, intensive survey was conducted on fields in the area of Karsubani, where the visibility was generally good, except for some brushwood covering the plough furrows. Besides that, close to Davitiani village, 2 km west of the border with Azerbaijan, we checked the location of a ruined church dated to the Medieval Age (12<sup>th</sup> Century AD) (site LS085) whose presence had been recorded in the National Heritage Database.

The lower part of the valley, both north and south of the villages of Ulianovka and Heretiskari, was another focus of investigation. The areas NE of Ulianovka and NE of Heretiskari were selected to be object of intensive survey for the optimal visibility caused by recent ploughing. Among the most interesting results in this area is also the discovery, following the indications of local informants, of a multiperiod mound situated to the south of Ulianovka (LS084) with material scattered all over the



top and the perimeter. The fragments of recovered pottery were of different periods (Chalcolithic, Middle/Late Bronze, Iron and Medieval Age); obsidian was also abundant. The diameter of the mound measures approximately 150 m. Approximately 200 m south of this site, another cluster of artefacts was recorded (site LS093) on the embankment of a recently excavated canal. The assemblage collected here is composed of few Chalcolithic sherds, Middle and Late Bronze Age pottery fragments, numerous fragments of obsidian and daub. The original extent of the site cannot be precisely estimated because of the modern damages.

South-east of Heretiskari, in an area presently occupied by two water reservoirs, Soviet maps recorded the presence of three mounds, possible kurgans, set in the swamp joining the low valley woodland. Here, on the south-eastern and north-eastern embankments of the reservoirs, we collected several obsidian and pottery fragments (mostly dated to the Middle Bronze and Iron Age) (site LS089) (**Fig. 11**). This material may prove the presence of the mounds indicated on the Soviet map, which were probably destroyed by recent human activities.

As for the lowland forest, its investigation this year was hindered by the heavy rains, which caused the flooding of a large part of it. In spite of this, we managed to verify the presence, close to the Areshi River, of a kurgan (site LS091) indicated on the old Soviet Map as a raised mound. As visible on CORONA imagery, this feature was located in a once cultivated area, which now appears mostly abandoned and used for grazing and to collect wood. The barrow, which is ca 3 m high and whose diameter ranges approximately around 25 m, was damaged both on the perimeter, by modern ploughing, and on the top, by probable looting.

Overall, the 2021 results confirmed the ancient occupational pattern of the territory that was recognised during the firsts survey seasons: the earliest frequentations, from the Chalcolithic to the Bronze Age, concentrate in the lowlands in the southern part of the municipality, while the medium valley shows more sites dated from the Late Bronze Age to the Hellenistic period, and the uplands more Medieval sites. This general pattern and the conditions of the recorded sites show how deeply recent human activity has impacted on the visibility and preservation of the archaeological features.



**Fig. 11.** Site LS089: View of the water reservoir facing east.

## WORK ON SITE LS034 (ANANAURI KURGAN 9) AND ON SITE LS075

In connection with the Lagodekhi survey project – in particular with the attempt to establish a complete list of the kurgans (barrow graves) of the municipality, which has been the main aim of Stefania Fiori's MA degree at Ca' Foscari University (2020) – and with the expedition's interest for the 3<sup>rd</sup> millennium Bedeni culture as a possible future topic of research, some geo-archaeological work and non invasive prospections were carried out on site LS034 (= Ananauri kurgan 9, UTM 38 T 580785 E 4623749 N, alt. 236 a.s.l.). This is a ca 70 m large kurgan belonging to the large cluster of monumental Bedeni barrows located in the forest to the south of the present Ananauri/Onanauri village. Three of these have been excavated in recent years, yielding quite sensational results: Ananauri kurgans 1 and 2 (W. Orthmann, *Burial Mounds of the Martqopi and Bedeni Cultures in Eastern Georgia*, in E. Rova, M. Tonussi (eds.), *At the Northern Frontier of Near Eastern Archaeology: Recent Research on Caucasia and Anatolia in the Bronze Age*, Turnhout 2017, 189-199) and Ananauri Kurgan 3 (Z. Makharadze et al., *Ananauri Big Kurgan n. 3*, Tbilisi 2016).

There remained, however, some open questions concerning these monumental structures, on which we decided to concentrate our research. The first one concerns the original environmental conditions of the Alazani valley when the kurgans were built and, in particular, the level of the plain at that time (second half of the 3<sup>rd</sup> millennium BC) and the successive rate of deposits accumulation until the present day, to be compared with the results of soundings carried out in 2018 and 2019 the Tsiteli Gorebi region for a better understanding of the evolution of the Lagodekhi municipality territory in the course of the last millennia. To clarify this issue, Giovanni Boschian dug a 4 x 1 m sounding just outside of the kurgan perimeter (**Fig. 12**). The following is a summary of his results.



**Fig. 12.** Ananauri Kurgan 9. General view towards E of the geological sounding.



The exposed sequence of lithologic units, from top downwards, includes:

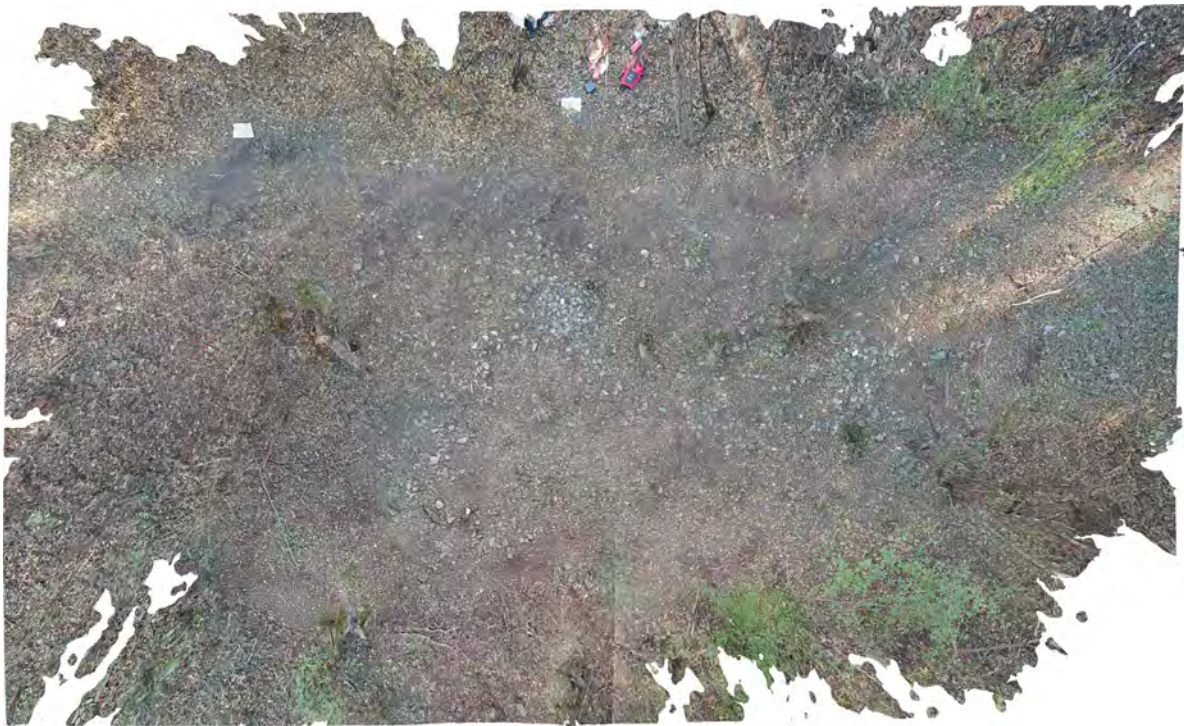
0. Forest soil. Several rounded cobbles lie on the surface at the southernmost edge of the trench. Thickness 10-12 cm, abrupt limit.
1. Light brownish silty loam. Common rounded cobbles occur sparsely throughout the layer. Thickness about 20 cm, clear limit. No cultural remains.
2. Yellowish brown silty loam, homogeneous and rather compact. Sparse coarse cobbles. Thickness 70-80 cm, sharp limit. No cultural remains.
- 3.1. Unit composed of large cobbles, often > 25 cm, lying at the bottom of unit 2. To the southern side of the trench these cobbles can be superimposed in 2-3 layers, whereas their density and thickness decreases northwards. Thickness 0 to 30-40 cm, sharp limit. No cultural remains.
4. Greyish-brownish silty clay loam, very compact. Thickness not observed. No cultural remains.

Unit 4 represents a medium developed soil, developed on alluvial sediments that can be dated to some still undetermined period before the building of the kurgan. It also indicates that river sediment deposition stopped or was negligible, so that a soil could develop on the surface of the sediments. The topsoil was partially removed when the kurgan was built. Due to the small area of the trench, it is difficult to determine whether the cobbles of unit 3.1 represent the decay of a wall encircling the kurgan, or simply the colluvium of a layer of cobbles set onto its surface. In any case, this process started rather early after the construction of the kurgan, as no river sediments similar to those of the overlying unit 2 occur under unit 3.1. More correctly, it may be simply hypothesised that the decay of the structure had already started before the following alluvial phase testified by unit 2. Age and duration of this phase are still undetermined, as no cultural remains were found within the sequence. It can be concluded that the average deposition rate from the mid-third millennium (foundation of the kurgan) to now is about 80 cm of river sediments. However, it must be pointed out that alluvial deposition rates can be highly variable in time, and that erosion processes may alter the real thickness of the deposits, indicating rates that are apparently lower than the real ones.

The second research question concerns the possible presence of anthropic features around the kurgans. The whole setting of the kurgans, including possible accessory features around the main building, is poorly documented in Georgia. However, some information about encircling walls, paved roads and other features is documented in literature (G. Narimanishvili, *Ritual Roads at Trialeti Barrows*, *Journal of Georgian Archaeology* 1, 2004, 120-124). To tackle this question, we first of all observed with special care the area surrounding the kurgan, where we noticed that the amount of pebblestones lying at its foot was not more or less homogeneous, as it should be if it were simply the result of slope wash, but there were some areas of more dense accumulation. We thus decided to concentrate on one of these, located on the northern side of the kurgan. By cleaning the soil from fallen leaves and wood, we observed the presence of some possible alignments of stones running roughly perpendicular to each other (as visible in the drone orthophoto (**Fig. 13**), the presence and meaning of which must await future investigations.

We also decided to undertake some preliminary Ground-Penetrating Radar investigations on the kurgan and its surroundings, in order to clarify its internal structure and the possible existence of buried structures around it. These were carried out by Guram Sharashenidze (Tbilisi). First of all, two roughly perpendicular profiles were performed along the EW and respectively NS sections of the kurgan. The first was 130 m long and included the whole kurgan and the area surrounding it; the second was ca 80 m long (i.e. it missed the E slope of the mound and the neighbouring plain area). Secondly, two areas of 12 x 10 and 7 x 10 m on the plain area joining the bottom of the kurgan on its northern and western sides, close to the spot where the cluster of cobblestones had been identified, were covered by perpendicular profiles at a distance of ca 2 m from each other.

The investigations were performed on the very last days of the season, and the elaboration of their results is still under way. One preliminary result is the possible presence, around the circumference of mound at a distance of ca 5 m from this, of an annular buried structure of stones, of which no trace is visible on the surface.



**Fig. 13.** Ananauri kurgan 9. Orthophoto of possible stone structures near the N limit of the kurgan.

Some work was also carried out at site LS075 (UTM 38T 4616702 E 586924 N, alt. 210 a.s.l.), which during the 2019 survey season had been identified as a possible settlement site in the Alazani lowland forest area. Here, two 1 x 2 m wide geological soundings were excavated on the top of the hill at a distance of 50 m from each other. The first one (Test Trench 1) reached a depth of 170 cm, while the second one (Test Trench 2) was stopped at a depth of ca 65 cm from the top, after meeting an apparently similar sequence. In Test Trench 1, under a ca 35cm-thick layer of dark humus (locus 001), where we found some sparse archaeological material (a number of pottery sherds, mainly of Hellenistic date, some obsidian fragments, some animal bones) we met a 50cm-thick layer of yellowish lime with abundant calcium carbonate particles (loci 002-003), underlain by a series of sub-horizontal layers of fine sediments of different colours (loci 0004a, b, c, total depth 65 cm) and, finally, by a very hard layer of whitish yellowish sediments which was not completely excavated. All of these layers were completely devoid of any artefacts or other traces of human activities. We thus concluded that the site was the seat of a short-lived occupation during the Hellenistic period, and, possibly, of sporadic human frequentation during the Chalcolithic and the Bronze Age, but that the rest of its stratigraphical sequence was of natural origin. It remains to be explained, however, how a similar mounded site could develop in the middle of the flat Alazani plain.

## EXPERIMENTAL ARCHAEOLOGY

This activity took place from 25/09/2021 to 12/10/2021 under the supervision of Davide D’Errico (**Fig. 14**). It aimed at reproducing different uses of ancient obsidian tools on different materials, in order to create usewear traces and polish to be compared with those highlighted on ancient artefacts from Tsiteli Gorebi 5.

The first step, before the arrival of Mr. D’Errico, consisted of collecting the raw material for the tools. This was done by members of the expedition during an excursion at the Chikhiani volcano, close to lake Paravani, one of the obsidian sources that archaeometric analyses had confirmed for the Tsiteli Gorebi 5 obsidian. Different vegetal and animal materials were also collected: for the first category wheat stems, wood (trunks and branches), reeds and rush; for the second one fresh and dry bone, as well as a fresh veal skin.

During the second step of the experiment, Davide D’Errico, assisted by members of the expedition, produced obsidian lithic supports by chipping obsidian cores for the production of laminar and flake supports.

During the third step, these tools were used for experiments involving cutting and scraping wood, cutting reeds, reaping cereals, butchery activities, working bone and leather. The objects used during the experiments were exported to Italy, together with the casts made of them on the spot after use. Both will be analysed there and used as a comparison for the archaeological artefacts.



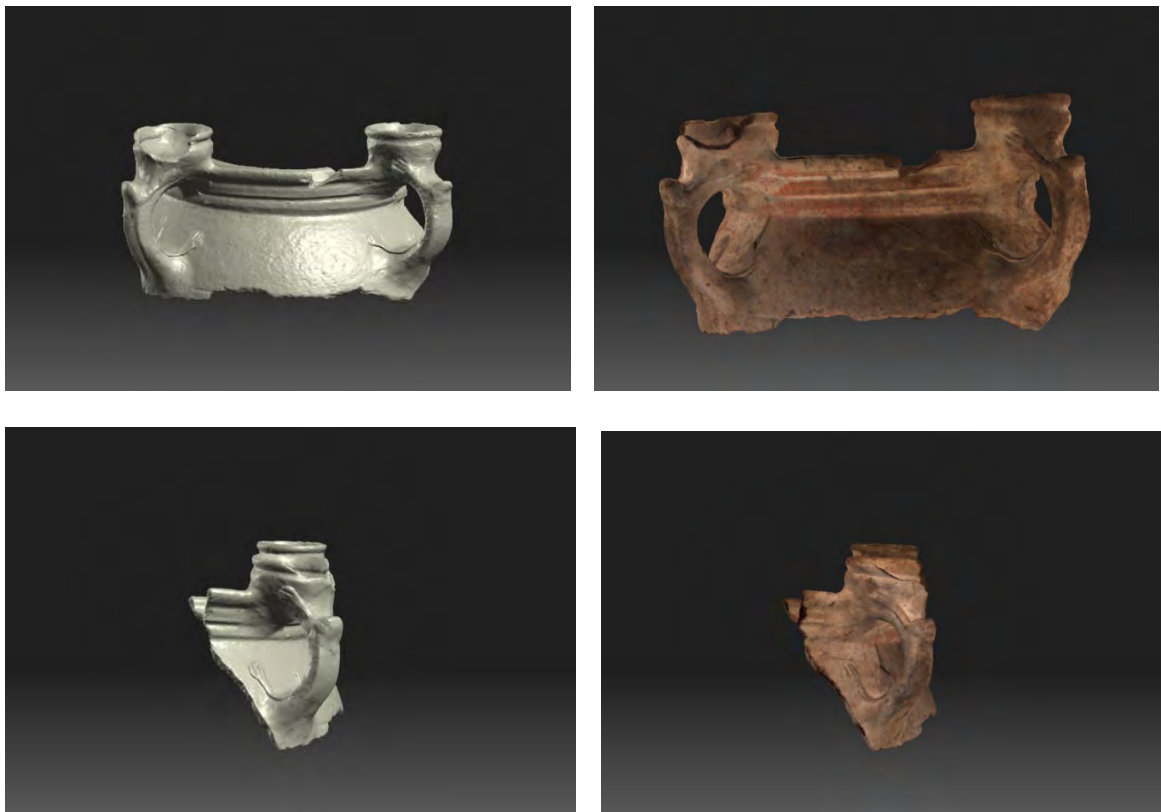
**Fig. 14.** Members of the expedition cutting different materials with replicas of ancient tools.



## DOCUMENTARY WORK IN MUSEUMS OF THE KAKHETI PROVINCE

During the days of forced absence from the field because of the bad weather conditions, the members of the expedition paid several visits to different museums of the Kakheti region. The main aim was to identify the present location of the materials from Varazashvili's 1970-80s excavations on the Tsiteli Gorebi microregion (Kviriatskhali, Damtsvari Gora) in order to re-study them and compare them with the new finds from Tsiteli Gorebi 5, and verify the presence of other interesting lots of materials of the Chalcolithic and Bronze Age. We first visited the Museum in Signaghi, where we located some exhibited finds from Varazashvili's excavations, which we then photographed, drew, and thoroughly analysed. We had also the opportunity to consult the Museum catalogues, where we identified the inventory numbers of the remaining finds by Varazashvili and made a preliminary list of interesting artefacts from other excavations. For Varazashvili's finds, we were directed to Gurjaani museum. Here, we first found some other artefacts from the Tsiteli Gorebi microregion, all of which we examined, without finding Varazashvili's material. By looking at the local inventories, however, we identified some other interesting Chalcolithic and Early Bronze Age material from the region, of which we made a preliminary list, which may be useful for future studies. At last, we managed to identify the location of the artefacts we were looking for in the reserve collections of Gurjaani museum. These were unfortunately temporarily unavailable as they had been packed with other material in order to be moved to a new location. A new inventory, however, is presently being made of all the wooden boxes, so that we are confident that the old Tsiteli Gorebi material will be available for study during our next season. We also paid a one-day visit to the Local Museum in Dedoplistskaro, where we consulted the inventory books and made a preliminary list of interesting materials.

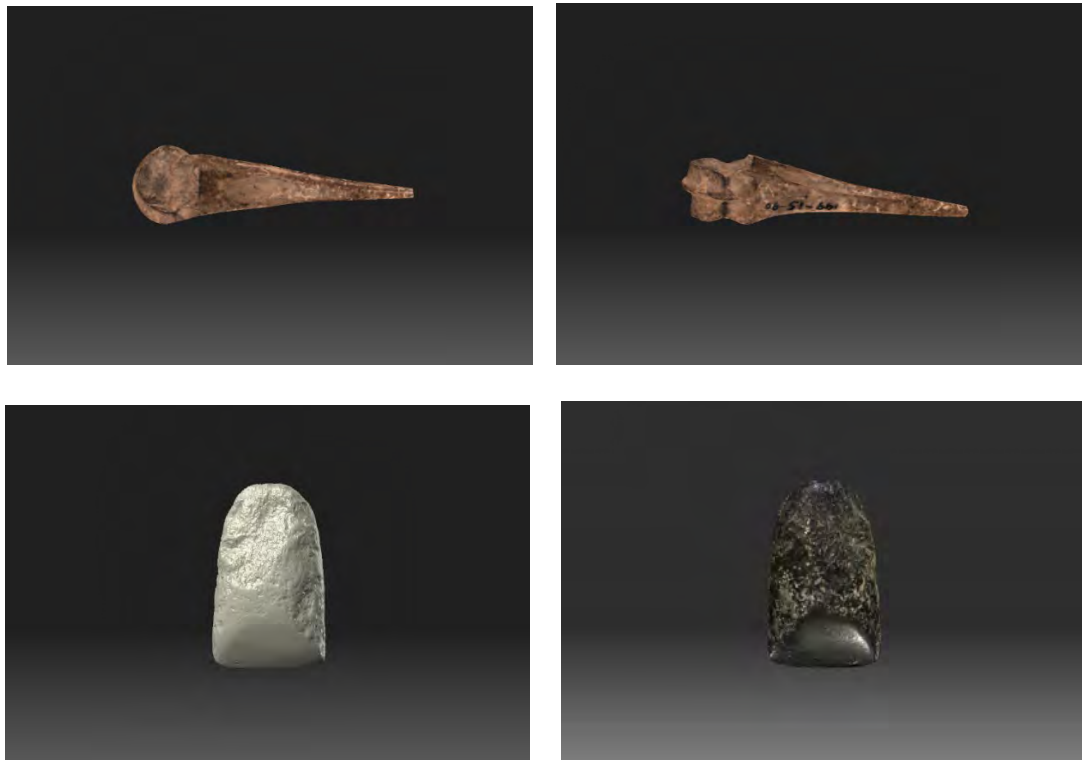
### 3D SCANNER EXPERIMENTS



**Fig. 15.** 3D images of pottery fragments from Lagodekhi Museum.



Experimental 3D scans of artefacts of different materials (pottery, obsidian, bone and metal) were carried out under the supervision of Flavia Amato on archaeological items stored in different museums of the Kakheti region (Lagodekhi, Signaghi and Gurjaani). The aim of this activity, which had been started in 2019, is threefold: 1) to train students and new members of the expedition (both Georgian and Italian) in the use of this innovative instrument, and 2) to test the instrument's potentialities on different materials and to overcome some technical difficulties in its use, and 3) to create 3D models of artefacts to be studied and published by the expedition. The used instrument was the Structured Light HP David 3D scanner, that projects a pattern of light on the object and generates 3D models and mesh that can be imported and processed in most 3D applications, like the open-source systems MeshLab and Gigamesh. After the purely experimental stage of 2019, in 2021 we scanned for didactical purposes, with excellent results, some prehistoric objects stored at the Lagodekhi museum (**Fig. 15**). We also scanned, for comparison with the objects from Tsiteli Gorebi 5 discovered by the expedition, the objects from Varazashvili's excavations at the other Tsiteli Gorebi sites presently exhibited at Signaghi Museum, and one objects from Gurjaani Museum (**Fig. 16**).



**Fig. 16.** 3D images of a bone awl and a polished stone axe from the old excavations at Tsiteli Gorebi (Signaghi Museum).

## DIDACTICAL ACTIVITIES

In continuity with an activity already carried out in 2019 by members of the expedition in collaboration with the Lagodekhi Local Museum and its Director, Mr. Davit Kvavadze, a series of two lessons of “Introduction to Archaeology” for local high school students and teachers were carried out at the Lagodekhi Museum under the responsibility of Davide Memola, Gaia Babolin and Dimitri Natchkebia on October 5<sup>th</sup> and 12<sup>th</sup>. A third lesson, to be held both at the Lagodekhi Museum and at the Expedition’s house, had been programmed for October 18<sup>th</sup>, but it had to be cancelled because schools in Lagodekhi were closed because of the renewed COVID-19 emergency. The youth program acquainted students with the current activities of the GILAP project and highlighted the collaboration between countries inherent in many archaeological expeditions. Students had the opportunity to participate in hands-on experiments and perform tasks normally completed by experienced archaeologists. The workshops each day comprised a lecture and hands-on experiments. During the first session, students were introduced to the discipline of archaeology and excavation techniques. They had a topographic map and had to choose a limited number of squares to survey, simulating what archaeologists do in real life. Next, the students were tasked with excavating their own “site”: a box prepared in advance with different soil types, structures, and artefacts hidden in the sediment. They had to apply what they had recently learned in the lecture and excavate their box, paying attention to stratigraphy and record keeping (**Fig. 17**).

On the second day, the students were exposed to two special topics: relative and absolute chronology and scientific dating methods (after which they had to answer some questions about the age of selected objects and the best methods to date them), and drawing and recording of artefacts. After that, they made an attempt at drawing some pottery sherds themselves. The expedition hopes to



**Fig. 17.** Georgian high school students simulating an archaeological excavation at Lagodekhi Museum.

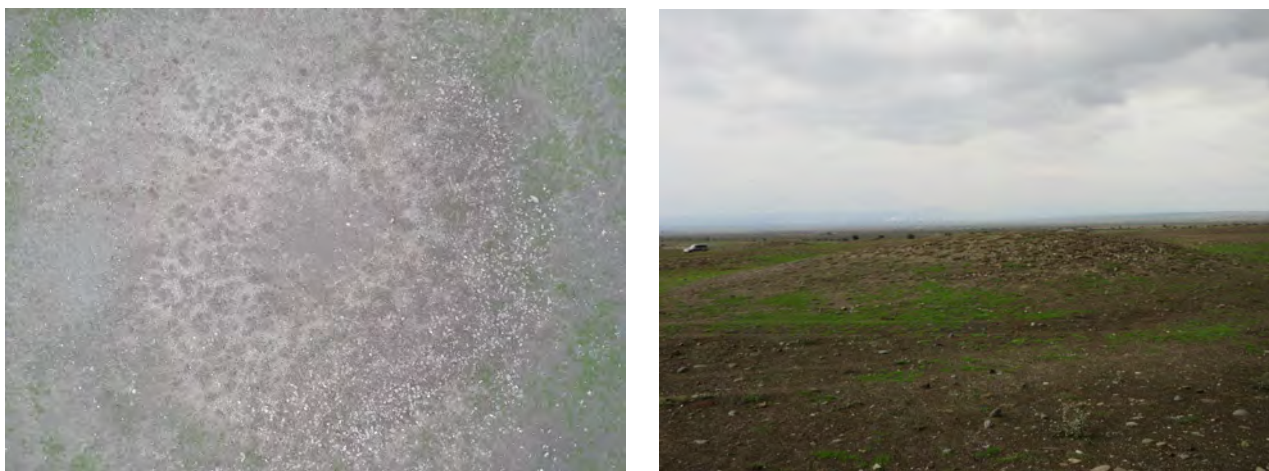
continue the successful youth programs in the coming years in partnership with the Lagodekhi Museum.

#### **PRELIMINARY WORK FOR A SMALL EXHIBITION ABOUT THE EXCAVATIONS AT TSITELI GOREBI 5**

In connection with the ongoing renovation work of the Lagodekhi local Museum, its Director Davit Kvavadze kindly invited the members of the expedition to select some finds from Tsiteli Gorebi 5 to be exhibited in a new room of the Museum. 18 artefacts, including pottery sherds, bone objects, micro- and macrolithic tools and ornaments, were thus selected. A bilingual (Georgian and English) general text of introduction to the site, some illustrations of the excavation, and explanatory captions for the objects to be exhibited were prepared by the members of the expedition. Georgian translations were prepared by Giga Bakradze.

#### **VISIT AND PRELIMINARY DOCUMENTATION OF A FIELD OF KURGANS IN THE GARDABANI MUNICIPALITY**

On October 9<sup>th</sup>, upon invitation of Levan Losaberidze and Mariam Eloshvili, who discovered them in 2019 during a survey, some members of the expedition paid a visit to a field of kurgans (barrow graves) in the territory of the Gardabani Village (Kvemo Kartli), took GPS points of them and prepared a first documentary dossier of them as a preliminary step for a possible joint investigation. The site lies at a distance of ca 12 km to the NE of Gardabani as the crow flies, very close to the present Georgian-Azerbaijani border in a semi-desert and presently uncultivated area previously occupied by a military camp. A total of 32 kurgans of small and medium dimensions (diameter from 10 to 20 m, height between 0.50 and 1.50-2.0 m) scattered over an area of max 20 hectares, were identified and mapped. They were arranged in two main groups, consisting of 12 and 17 kurgans respectively. To judge from the satellite pictures, some of them might have been surrounded by a



**Fig. 18.** Drone image and view of one of the Gardabani kurgans (no. 23).

larger earth mound or by a on outer circle of stones of up to 40 m of diameter. Their state of preservation is apparently good: they show few evident traces of plundering, but some of them are apparently completely or partially flattened (**Fig. 18**).

The kurgans were covered with medium-and small-size river pebbles, apparently not very dense; under these, they mostly seem to consists of a more compact layer of grit. No ancient material



was found around and on the kurgans, except for a few small obsidian fragments and, notably, an obsidian arrowhead. As for their date, the vicinity to Boyuk Kesik on the other side of the Georgian/Azerbaijani border, as well as the small dimensions, might suggest a Late Chalcolithic date; alternatively, and more probably, they might belong to the Late Middle/(Early?) Late Bronze Age. In any case, they are very interesting because of their very number and apparent good state of preservation.

## **RESULTS AND FUTURE PERSPECTIVES**

In spite of the unfavourable weather conditions, the expedition managed to achieve its main aim: to complete the investigation of the Tseli Gorebi 5 settlement and thus collect important data concerning the poorly known Early Chalcolithic occupation of this part of the Southern Caucasus. The integrated strategy coupling geomagnetic prospections, excavations of limited areas at the settlement's periphery and small soundings in less intensively occupied sectors proved very effective for better defining the extension of the settlement – which is considerably larger than previously thought – and for clarifying its layout. This consisted of small separate raised areas of occupation surrounded by ditches protecting them from flooding and water stagnation, which hosted dwelling units and different activity areas, separated by areas with a lower intensity of occupation. The poor preservation of the structures once standing on top of these small “islands” suggests that continuing their investigation would contribute only limited new information about the site and its material culture assemblage. The latter has been in fact integrated, in the present season, by the discovery of some categories of objects (especially in the field of macrolithics) which were previously under-represented. Further significant data about the lifestyle of the ancient inhabitants of the Tseli Gorebi 5 settlement and of the surrounding area are expected, in the next future, from the wide range of geoarchaeological, environmental, archaeometric and experimental studies which are currently under way. The most important and quite unexpected result of the 2021 season is the presence, under the Early Chalcolithic settlement, of an earlier occupational layer mainly represented by large poorly preserved but extremely densely arranged pits. <sup>14</sup>C dates will hopefully help in establishing their date: to judge from the scanty recovered material, this is probably rather close to that of the Early Chalcolithic settlement overlying them.

The short survey season was also very successful, in that it allowed to discover several new sites, some of which would undoubtedly be worth future archeological investigations and, from a more specifically methodological point of view, to fill some gaps in the systematic coverage of the Lagodekhi Municipality territory. Geoarchaeological research and prospection work carried out at different sites of the municipality contributed to a better knowledge of the ancient landscape and its evolution, which will allow, in the future, to plan more effective strategies for the reconstruction of its history.

Finally, the forced inactivity from the excavation during part of the campaign was transformed into an occasion to concentrate on other activities (study of museum collections, experimental archaeology and didactic activities for local high school students) that the members of the expedition wish to continue and implement during the next campaigns, as well.

## **Acknowledgements**

Thanks are due to the National Agency for Cultural Heritage Preservation of Georgia for granting us the permission to undertake archaeological investigations at Tseli Gorebi 5; to the Lagodekhi Regional Department of the Ministry of Culture, Sport and Youth for inviting us to work in the region, to the Lagodekhi Municipality for facilitating our work in many ways; and to the Italian Embassy in Tbilisi for their constant support to other activities.

We are very grateful to Mrs. Mariam Inanashvili (Director of the Signaghi Museum), to Mr. Goghita Bejashvili (Director of the Gurjaani Museum) and to Mrs. Lali Guraspauli (Director of the Dedoplistskaro Museum), who allowed us to visit the reserve collections of these museum in the

Kakheti region and to consult their inventory books. A special thank is due to Mrs. Mariam Inanashvili for the effort she put in trying to locate the artefacts from the old Tsiteli Gorebi excavations.

We thank Iulon and Davit Gagoshidze (Georgian National Museum, Tbilisi), as well as Dimitri Ramishvili (Director of the Kareli Museum) for allowing access to the find from the Aradetis Orgora and Doghlauri excavations stored in Tbilisi and, respectively, in Kareli. We are grateful to prof. Davit Lordkipanidze (Director, Georgian National Museum, Tbilisi) and dr. Mindia Jalabadzde (Georgian National Museum) for allowing us to analyse and take samples from beads of vitreous materials of the Kura-Araxes period from sites in the Shida Kartli region.

Finally, we thank Mariam Eloshvili and Levan Losaberidze for inviting us to undertake some preliminary work at a kurgan field in the Gardabani area they discovered in the course of a survey in 2019.

The 2021 field season of the Georgian-Italian Lagodekhi Archaeological expedition was funded by Ca' Foscari University of Venice (Fondo Ateneo Scavi Archeologici 2020-2021 and DSU department funds) and Ministero degli Affari Esteri e della Cooperazione Internazionale (Contributi missioni archeologiche, antropologiche e etnologiche italiane all'estero 2021).



**Fig. 19.** Group photo of the Georgian-Italian Lagodekhi Archaeological project 2021 Field season team.