# Comprehensive Technical Report on Archaeological Investigations at Site IV-261, Chorati Village, Akhaltsikhe District, KP 241

*Prepared by*

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**Abstract**

This report presents the results of archaeological and laboratory investigations carried out in connection with the construction of the pipeline. The investigations took place at Site IV-261 KP 241+600. Field and laboratory work was carried out by the Otar Lordkipanidze Centre of Archaeology of the National Museum under the supervision of Malkhaz Baramidze in 2004, 2005 and 2006. The works were sponsored by the BTC and SCP Pipeline Companies.

Contracts HL-114, HL-126, HL-113, HL-137 (field) and HL-214, HL-230, HL-243 (laboratory). Site IV-261 is located in the town of Vale, Akhaltsikhe District, southern Georgia. The site has two layers and consists of a Classical period cemetery and the rooms of Early Medieval houses, and pits. Excavations took place in 2004 along the oil pipeline and in 2005 along the gas pipeline.

Overall, an area 220 metres long, 14 metres wide and 1.2 metres deep was excavated. It proved to contain three rooms, 21 pits, and 48 burials. The finds consisted of remains of building material, including 202 ceramic, 17 metal, 10 stone, 3 glass, and 11 pottery and wooden objects. In future, it will be necessary to conduct archaeological research on the undamaged part of the site before carrying out any building work.

## 1.0 Introduction

### *Purpose of the Excavation*

The purpose of the excavation was the salvage and investigation of the Classical period cemetery and the Early Medieval settlement of the two-layer site that was revealed in the process of building the BTC and SCP pipelines. The excavations were carried out by the Akhlatsikhe Archaeological Expedition under the supervision of Dr. Malkhaz Baramidze. At Chorati there were revealed 3 rooms, 21 pits, 48 burials and 243 artefacts.

### *Project Sponsor*

Field investigations and laboratory processing and analysis were funded by the BTC and SCP Pipeline Companies.

### *Permits and Contract Numbers*

Permit N11, form N1 issued by the Archaeological Board of Georgian Academy of Science licensed Malkhaz Baramidze to conduct archaeological investigations in village Orchosani, Akhaltsikhe District.

Contract referencies related to the field works are: HL-114, HL-126, HL-113, HL-137; for laboratory works – HL-206, HL-214, HL-230, HL-243.

### *Legal requirements*

According to Georgian legislation the Archaeological Board of the Georgian Academy of Sciences was authorized to license any kind of archaeological work on Georgian territory. The archaeological work had to be carried out according to the requirements of the Archaeological Board.

### *Dates of the Investigation*

Archaeological excavations at Chorati were carried out in 2004-2005. Fieldwork took place in the area of the BTC and SCP pipelines.

### *Final Disposition of the Material*

Archaeological material from Site IV-238 and the related field and laboratory reports have been deposited at the Otar Lordkipanidze Centre of Archaeology of the Georgian National Museum.
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## 2.0 Environmental Background

Akhaltsikhe District is a part of the historical province of Samtskhe. It is situated in the Akhaltsikhe depression and covers the Mtkvari valley between Muskha and Atsquri and the Potskhovi Valley below the Kvabliani tributary. To the north the district is bordered by the Meskheti range while to the south it is surrounded by the Erusheti range.

Most of the district area is formed of Oligocene sandstone and clay, but a small part (the slopes of the Erusheti range) consists of Eocene tuff-breccias, tuff and andesite. The relief is diverse and contains flat terraces, valleys running north to south, small basins, volcanic mountains and terraces. Multiple stepped terraces are located at 1020 meters above sea level.
Due to the gorges and the mountain landscape the climate in Akhaltsikhe District is rather severe. In most parts of Akhaltsikhe District there is a mountain steppe climate. Winters are cold with minor snowfalls, while summers are long and warm. Average temperature in January is -3.8º C, and in August +20.5º C; thus the temperature spread is *ca.* 22-24 degrees. The average annual precipitation does not exceed 520 mm, while in the mountainous zone it reaches 1200 mm. Akhaltsikhe District lies mainly within the sub-alpine zone although part of it lies on a plain.

This zonal division of the district explains the different kinds of vegetation. Rock xerophytic bushes and shrubs (juniper, blackthorn) prevail in the floral community of the district as well as xerophytic perennial herbaceous plants. The vegetation of the lower zone of the mountain forest includes oak and hornbeam, while fir and pine grow in its upper zone.

The wildlife includes deer, fawn, chamois, wild boar, otter, marbled polecat, lynx, wild cat, bear, wolf, fox, badger, marten, weasel, rabbit, squirrel, water vole, forest mouse. There are numerous wild pigeons, turtle-doves, crows, magpies, starlings, quails. Rivers contain trout, barbell, khramuli.

In the lowlands there is both brown and greyish-brown lightly cultivated soil, while in the woods there is forest brown soil (Petriashvili 1975). Among minerals the Vale coal deposits should be mentioned. In recent times much damage was done to the environment as a result of deforestation and the appearance of wastewater, which had negative effect on the climate and relief of the region, e.g. the rate of landslides has gone up.

### *2.1 Site Location and Description*

Site IV-261, Chorati settlement and cemetery are situated 1.5 km NW of the town of Vale, in Akhaltsikhe District. The Chorati settlement and cemetery are stretched over an agricultural terrace, which is touched by the river Potskhovi to the NE.

### *2.2 Past Environment*

Research on the palaeontological and palaeobotanical material from Olduvai and the Early Acheulian periods has great importance for the study of the environmental development of Georgia in the Quaternary period (between the Pleistocene and Early Holocene).

Before the Mindel period (0.6-0.7million years ago) in present day Georgia there was a moderately warm climate and a savannah-type landscape. A dramatic change of climate took place at the beginning of the Mindel period. This phenomenon occurred in Georgia too, although, due to its southern location, there was no large-scale fall of temperature here. After this the Mindel-Riss warm period began which was followed by the Riss period, the greatest glaciation in the history of the Earth. The Riss glaciation was followed by the warm interglacial epoch, which can be dated to 120-70,000 years ago.

About 70,000 ago there began dramatic fall in temperature, which brought about the Wurm glaciation. This glaciation strongly affected human settlement patterns in the Stone Age. Because of the severe conditions humans left the upland and highland areas and used them only during

the warm summer season, mainly for hunting. In this period in Georgia humans lived only in the plains.

The transition from old to new Stone Age coincided with the transitional stage from the upper Pleistocene to the Holocene (approximately 10-12,000 years ago). At this time there occurred dramatic changes in environmental conditions and it began to get much warmer.

In the Mesolithic period humans went back to the highlands which had been abandoned during the previous Würm glaciation. Since then humans have lived in every landscape zone in Georgia. During the period after the Holocene glaciation the environment did not change much. (Georgian Archaeology 1991, 52-69).

Thanks to faunal and floral data we can to a certain extent reconstruct the palaeo-ecological picture of Georgian territory in the Pleistocene. No substantial environmental changes occurred between the Early Pleistocene and Early Holocene. The climate was moderately arid and warm (Gabunia, Vekua 1997, 13-15). The landscape of eastern Georgia consisted of medium height mountain ranges traversed by deep gorges. Studies of floral fossils suggest that in the forests of the eastern Georgian plains there grew thermophilic tree species and those suited to a climate of average humidity, such as oak, willow, poplar, aspen, birch, or walnut, (Gabunia, Vekua 1978, 3-56). Studies of fossilized mammal bone material suggest the existence of the following mammals: raccoon-like dog, hyena, lynx, sabre-toothed tiger, porcupine, mastodon, giant *damana*, rhinoceros, elephant, reindeer, fawn, oryx, hornless cow, and birds such as the ostrich (Gabunia, Vekua 1997, 10-11).

### *2.3 Land Use History*

This area was mainly used for arable farming, but was also used for pasture and haymaking. Such activities cause soil erosion which damages the upper layers of archaeological sites.

## 3.0 Cultural Background

### *3.1 Prehistoric and Historic Contexts*

**Lower Palaeolithic (2,000,000-100,000 years ago)**
Geologically, the lower Palaeolithic corresponds to the early stage of Pleistocene. It was then that a human of modern appearance emerged. The first representatives of the genus Homo (*Homo erectus*) lived in small groups and fed themselves with natural resources from around their dwellings. On the territory of Georgia there is evidence for this period at Dmanisi. Here, alongside stone inventories and Pliocene fauna fossils, remains of *Homo erectus* were also found, the oldest of those discovered outside Africa. Together with evidence from Ubeidiya in the Jordan Valley, they suggest the route of hominid migration beyond Africa.

There exist 16 sites in Georgia where Acheulean type stone tools have been found belonging to the Palaeolithic period or later. Two of these sites are located in the southern part of the country in an area adjacent to the ROW.

**Middle Palaeolithic (100,000-35,000 years ago)**
This period coincides with the appearance of the oldest *Homo sapiens* or Neanderthal man. In Europe and south-east Asia the later stage of this period of human history is marked by the so called Mousterian stone tool culture which, compared to the Acheulean is more sophisticated and is represented by tools of more diverse shapes. Like northern Europe, Georgia spent most of this period in a glacial or periglacial environment. More than 75 sites producing Mousterian stone

tools have been found in Georgia. Seven were found in southern Georgia, in the main region of the project area.

At the end of the Mousterian epoch there were dramatic changes. During the Wurm glaciation people apparently abandoned the Samtskhe area and moved to a milder climate zone in western Georgia.

**Upper Palaeolithic (35,000-14,000 years ago)**
Upper Palaeolithic corresponds to Late Pleistocene. During this period the technology of making stone tools greatly improved. Some archaeologists consider that the diversity of stone tools excavated at different sites might point to the existence of culturally different human groups.
The emergence of verbal communication is also attributed to this period. The principal occupation of the inhabitants of Georgia in the Upper Palaeolithic must have been hunting in groups. Their prey will have included deer, bison, wild horse, wild goat, bear, and the cave lion, remains of all of which are found in abundance on upper Palaeolithic sites. People lived in natural caves or grottoes, near the paths of hunted animals.
Three of the 33 or more significant upper Palaeolithic sites discovered in Georgia are in southern Georgia, but none is near the ROW.

**Mesolithic (12,000-8,000 BC)**
The beginning of the Mesolithic period is defined by the end of the Pleistocene and the beginning of the Holocene. Once the Würm glaciation was over, the climate became milder which made it possible to occupy considerably larger areas. Hunting remained the main means of sustenance but humans started looking for more diverse quarry. They hunted animals of different sizes such as deer, horses and sheep that lived in herds as well as separately.

The systematic gathering of seasonal plant products became an important part of the domestic economy. The people of the period, whether in Georgia, Europe or south-western Asia, switched from caves to occupying open areas. The diversification of materials and tools is a characteristic feature of this period. Microliths (flint and obsidian burins) and burnished stones used for processing plants are quite common at this time. Stone sinkers and harpoons point to the popularity of fishing. The transition from upper Palaeolithic to Mesolithic is simply identified as the process of adapting to diverse and more available resources conditioned by the mild environment of the Holocene. In Georgia there are 12 significant Mesolithic sites, but none is near the ROW.

**Neolithic and Eneolithic periods (8,000-3,500 BC)**

The beginning of the Neolithic witnessed what is known as the "Neolithic Revolution" since it was then that dramatic changes occurred in economic life. Hunting and gathering were replaced by farming and livestock breeding and the cultivation of crops and domestication of animals began, as did the practice of using pottery for the storage and preparation of vegetable food. Stone tools like the hand-axe, sickle, grindstone and hoe, which were used for clearing and loosening earth, became common.

Unlike Palaeolithic and Mesolithic, Neolithic archaeological complexes in Georgia are mainly represented by fragments of pottery (vessels for preparing and storing food), which points to the great importance attached to food preparation and preservation.

The first isolated Neolithic structures in Georgia consisted of round or ellipsoid rooms open towards one another. They were built of adobe and were probably strengthened with wooden

beams. Dwellings were roofed with tree branches and clay. The organization of a settlement is clear from the site of Imiri hill in Kvemo Kartli (southern Georgia).

In the $6^{th}$ -$5^{th}$ millennia BC an advanced farming culture was formed in eastern Georgia. Remains of a wide variety of wheat, barley, millet, oats, pea, lentil, melon, sorrel, etc. have been found. Grape pips discovered there are supposed to be transitional to the domesticated grapevine. A simple irrigation system was also practiced.

About 60 Neolithic sites are known in Georgia. Most of them are in western Georgia, although their concentration can also be observed in southern parts of the country.

Eneolithic settlements are known in Adigeni District, Abastumani and on the right bank of the river Otskhe. Near the village of Chorati, Akhaltsikhe region, two Early Farming Culture sites were recorded by the Akhaltsikhe expedition. An assemblage of this period was also found at Orchosani settlement together with material of the Early Bronze age. There were in addition, chance finds of Eneolithic flint lamellae and sickle blades. Flint is not encountered in this region, and is supposed to have been imported from western Georgia in the form of raw material or ready-made objects, a fact which points to there having been contact between the populations of southern and western Georgia. The discovery of fragments of a flint sickle indicates that one of the activities pursued by the local population had been the raising of crops, in particular grain production.

**Bronze Age (4,000-800 BC)**

The Bronze Age is divided into Early, Middle and Late Bronze periods. On the territory of Georgia the earliest culture of this epoch is represented by the Kura-Araxis Culture, which developed in the Neolithic period and Early Bronze Age (3,500 – 2,500 BC). It is characterized by adobe, stone or earth and timber wall constructions, advanced pottery and metallurgical activities and, at the same time, by developed agriculture and cattle breeding. Remains of this culture are concentrated in the central part of SW Georgia. It was also diffused over the territory of modern Armenia, Azerbaijan and eastern Turkey and to more southerly lands as far as Syria and Palestine.

Judging by Early Bronze Age sites so far found in Akhaltsikhe District the population of the period seems to be rather numerous.

A comparatively moderate microclimate, the raw material for tools, a rich flora and fauna, and water resources created favourable conditions for settlement.

Among the region's Early Bronze Age sites, Amiranis-Gora stands out. It consists of terraced rectangular stone structures each with a floor plastered with clay, a hearth and a dais along the wall. A cemetery of the same period was discovered nearby where two types of burial—one consisting of a stone cist and the other with horseshoe shaped crypt—were observed. The settlement belongs to the Kura-Araxes Culture and several chronological stages of the Early Bronze Age were noted (Chubinishvili 1963).

The finds from the Orchosani settlement show that the population was mainly occupied with arable farming, cattle-breeding and fishing. This is clear from the number and variety of bronze and bone fishing hooks as well as from palaeozoological and palaeobotanical research.

As in the case of Early Farming Culture sites in southern Georgia, the Early Bronze Age displays a close affinity to both contemporary sites in western Georgia and to the Kura-Araxes Culture of eastern Georgia.

Southern Georgia (Samtskhe-Javakheti) is likely to have been the zone of interaction and intersection of the eastern and western cultures. The Kura-Araxis Culture was then supplanted by the Early Kurgan Culture, of which two phases can be distinguished, the Martkopi and Bedeni. Some scholars believe the Early Kurgan Culture to belong to the Early Bronze Age while others associate it with the Middle Bronze Age.

In the Middle Bronze Age the so-called Trialeti Culture became widespread (2,500-1,500 BC). Its impact extended even beyond the borders of present-day Georgia, to the south and to the east. The name of the culture derives from the Trialeti plateau (the south-central part of Georgia which is traversed by the pipeline corridor), where the first archaeological investigation of its remains was conducted in the 1930s. The Trialeti Culture is characterized by large kurgans, fine pottery, bronze metallurgy and the jeweller's art. The Trialeti Culture has only been studied through the medium of burial complexes, for settlements belonging to this culture have not yet been discovered.

In Samtskhe too the Middle Bronze Age is represented by kurgans. A group of them has been recorded close to Orchosani settlement (site IV- 323).

In the Late Bronze Age a rapid process of consolidation of south Georgian tribes occurred, reflected in the formation of a homogeneous culture among related tribes over a vast area. In western Georgia Colchian Culture developed in the Late Bronze Age. In the $13^{th}$ -$12^{th}$ centuries BC great pre-state unions were formed on the bases of these two cultures, the Diaokh (in the south-western part of historical Georgia, now in Turkey) and Colchis (in western Georgia).
A site dating to the Late Bronze and Early Iron Ages ($14^{th}$-$7^{th}$ centuries BC) is located near the village of Orchosani. It produced a hoard containing bronze and iron daggers, and spear heads. A Colchian axe and jewellery dating to the $11^{th}$-$10^{th}$ centuries BC was discovered in the village of Ude.

**Iron Age/Classical Period (800-500BC)**

At the beginning of the first millennium BC the transition from bronze processing to iron metallurgy brought about significant changes in economic development and social life.

In eastern Georgia the oldest centre of iron production was Kvemo Kartli, which was rich in iron ores. Iron Age sites have also been found in Tsalka and Borjomi Districts.

In western Georgia there is evidence for iron production centres both in the coastal areas of the Black Sea as well as inland, whence iron was exported to Greek cities.

The material found on sites of this period in the Samtskhe Region is predominantly Colchian in character, and this part of the country is clearly under the influence of Colchian (western Georgian) culture.

**Classical/Hellenistic Period (500-65 BC)**

During this period east Georgia was under the strong political and cultural influence of Achaemenid Persia. This influence is demonstrated in the Akhalgori treasure and in the archaeological material excavated at Tsikhiagora. A process of consolidation of the various tribes took place in which Meskhian tribes played a leading role.
The first Samtkhe dwellings in the valley of the river Mtkvari, at Odzrkhe, Tsunda, and Tmogvi, are to be associated with this period

Finds of the Classical period were also made at Chorati settlement.

In Hellenistic times, one of the most important trade and transit routes went through Georgia, which helped to spread Greek production (e.g. pottery, metalwork and stone-carving) throughout the country. The Hellenistic monetary system was introduced: in Colchis: coins of Lysimachus were minted, while in Iberia they made gold imitations of Alexander staters.

The Hellenistic period is marked by an intensification of the process of urbanization and city development. It was then that Mtskheta, the capital of Iberia, and Vani, the main religious centre of Colchis, prospered. Hellenistic building methods and certain types of buildings became widespread. Some crafts also show evidence of Hellenistic influence, for example, the vertical loom was introduced in textile production. Greek religious cults (especially that of Dionysus) and beliefs became popular, also reflected in burial practice, e.g. placing coins in graves as payment to Charon.
The growth of Atskuri and its transformation into a regional urban center coincides with this period. Stone houses were found in the area of Atskuri, of two kinds: circular and rectangular in plan. Residential and religious sites can be determined by the use to which they were put. The archaeological finds illustrate the development of civic life. Assemblages of Greek imports, unique for inland parts of the southern Caucasus, are concentrated here. They include archaic, classical and Hellenistic pottery ($6^{th}$-$2^{nd}$ centuries BC).
Noteworthy among Hellenistic period sites in Samtskhe is the Tsnisi cemetery. Political, economic and cultural contacts with the Hellenistic world significantly affected the development of the country.

**Roman Period**

The second half of the $1^{st}$ century AD is marked by a great flowering of the kingdom of Kartli, which now extended its sphere of influence, especially towards the south. Consequently, the impact of Colchian culture became weaker and Samtskhe fell under the influence of the kingdom of Iberia. The archaeological record gives an accurate reflection of this process. Burials and finds from Orchosani and Chorati find parallels in eastern Georgia (Mtskheta, Aghaiani).
Statistical analysis shows that at this time the Samtskhe region was densely populated and that there was a considerable degree of social differentiation.

**Early Medieval Period ($4^{th}$-$10^{th}$ centuries)**

In Georgia, the year of the conversion of Kartli to Christianity, either 326 or 337, is conventionally the beginning of the Medieval period. The establishment of Christianity in eastern Georgia is associated with St Nino of Cappadocia. In the $5^{th}$ and $6^{th}$ centuries the Byzantine Empire and Sassanid Iran fought to establish their rule in Georgia.

In 627 the Byzantine Emperor Heraclius invaded Kartli. According to *Kartlis Tskhovreba* (Life of Kartli) he built several churches there, among them Atskuri cathedral. The great monastic movement that developed in this area under the leadership of St. Grigol Khandzteli was followed by significant cultural advances. The second half of the $10^{th}$ and the beginning of the $11^{th}$ century are marked by an extraordinary flowering of art and architecture in Georgia.

A fine example of the splendid architecture of this period is the Atskuri cathedral church, one of the greatest ecclesiastical complexes in Georgia. The cathedral today is however in a ruined condition. Two buildings of the earlier period were excavated in the environs of the Cathedral: a small church and monumental gate. In the centre of the church was a pithos decorated with rope-like bands inserted into the floor. Similar pithoi were found in a wine cellar attached to the church on the east. On this evidence, the church presumably dates to the Early Medieval period.

Atskuri Fortress stands on the bank of the Mtkvari river, near the cathedral. It is mentioned in written sources in the 11th century, although it was probably built much earlier.
The Akhaltsikhe expedition investigated two Medieval sites: Chorati and Orchosani. Chorati is likely to have been a small village-type settlement. It is remarkable that this settlement had its own church dated to the 10th century, which was located 1.5 km from the settlement and was rebuilt and restored several times down to the 15th century.

**High Medieval Period (11th-15th centuries)**

The traces of destruction observable in Chorati and Orchosani settlements and dating to the 11th century are presumably connected with one of the invasions of Seljuk Turks. After the crushing defeat of the Seljuk Turks by King David the Builder, the Samtskhe region experienced considerable cultural and economic development.
In this connection, particular importance is attached to the area next to Orchosani where four churches, a fortress, a watchtower and houses have been revealed within a radius of 0.5 km. This is a complete system of a powerful settlement of the developed Medieval period whose likely area was 5 hectares. It is difficult to date the complex, since the finds of pottery, iron nails, horseshoes and knives are not susceptible of accurate dating. The only object useful for dating purposes was a coin of Queen Rusudan minted in 1227 and which was legal tender until 1246.

**Late Medieval Period (16th-18th centuries)**

The Late Medieval period was a time of serious political, economic and cultural crisis in Georgia. A country that had disintegrated into kingdoms and provinces could not withstand its enemies and often became the victim of invasion. South-west Georgia (Samtskhe-Saatabago) was annexed to Persia in the 1570s. In 1628 the Akhaltsikhe Pashalik was established here. The Christian Meskhian population was oppressed and the process of their Islamization started. This period is likely to coincide with the period of destruction of Orchosani settlement.
During Ottoman rule Samtskhe seems to have been heavily populated again. This is apparent from the remains of a settlement at 201 km of the ROW near Tadzrisi dating to the 17th-18th centuries (Ramishvili, Mindorashvili 2005).

**Modern Period (19th -20th centuries)**

Until the mid-19th century most of the population of Samtskhe consisted of Moslem Georgians. As a result of the Russian-Turkish war in the second half of the 19th century and the genocide in the beginning of the 20th century, the Samtskhe population increased through the arrival of Armenian refugees. The demographic situation in the region changed dramatically.
In 1944, on account of the political situation in the country, and because of the pro-Turkish orientation of the local Moslem population, they were deported to Central Asia. In the 1990s a campaign for the repatriation of the deported population from Meskheti began. This is when the term "Moslem Meskhs" came into use.
The Orchosani excavations revealed the cemetery of the "Moslem Meskhs" which almost coincided with the boundaries of the Early Medieval cemetery.

### *3.2 Summary of Previous Research*

Within a radius of 1km of Chorati settlement and cemetery five archaeological sites of different periods were identified by the Akhaltsikhe expedition. The list of the sites is given in Pl. No. 1.
Table 1

| Site No. | Site type | Date | Excavation Date |
|---|---|---|---|
| 1 | Open dwelling | Acheulian, Mousterian | Not Excavated |
| 2 | Settlement | Early Farming, 5th-4th millennium BC | Not Excavated |
| 3 | Cemetery | Late Bronze-Early Iron Age | Not Excavated |
| 4 | Settlement | Early Middle Ages | Not Excavated |
| 5 | Church | Middle Ages | |

## 4.0 Methodology

### *4.1 Field Methods*

Before starting the excavations the settlement area was planned, a topographic map created using a theodolite, and a datum point chosen within the area to be investigated. The site was divided into squares of 10 x 10 m. Several squares were divided into even smaller sections of 2 x 2m, 4 x 4m or 6 x 6m according to necessity. Letters were given to vertical and Arabic numerals to horizontal.
Trial trenches were made within the area to be investigated in order to determine the area of the site.
Excavation was mostly done by hand, with spades, pickaxes, shovels, knives, scalpels and brushes. The humus and heaps of earth were removed by means of mechanical equipment.
Most of the finds came from cultural layers. There were relatively few chance finds.
Finds were labelled recording the square, depth and layer. Every object was wrapped separately, packed in plastic bags and then in cardboard boxes.
All the artefacts were taken from the field for laboratory treatment.
At different stages of excavation the site and all of its components were drawn and a photographic record created.
Anthropological, palaeozoological, palaeobotanical and palinological material was collected at the site and was submitted to relevant specialists for further investigation. See the detailed information on methods of research in the attached interdisciplinary reports.

### *4.2 Laboratory Methods*

The artefacts were grouped by material. Pottery artefacts were cleaned with brushes and washed in a solution of hydrochloric acid. Afterwards a stylistic and typological analysis was carried out.
All the artefacts were numbered, described, catalogued, labelled and placed in plastic bags.
Field reports were completed.
Palaeoanthropological, palaeozoological, palaeobotanical, palinological and chemical analyses were carried out. Some of the metal and ceramic objects were conserved and restored. Methods of analysis are described in detail in the attached interdisciplinary reports.
Hard copy and electronic versions of documentation related to field and laboratory work are deposited at the Otar Lordkipanidze Centre of Archaeology of the Georgian National Museum.

## 5.0 Results

### *5.1 Basic Data Summary*

The investigated area covers 220 x 14m (3080sq. m). Nine burials, three rooms and twenty-one pits were revealed on the archaeological site. A total of 255 artefacts were recovered; these included 224 ceramic objects, 20 metal, 39 stone, and some bone. Soil samples were taken, and Roman and Early Medieval layers were identified in the stratigraphical section of the site.

### *5.2 Features* (Pl. III)

The cemetery covered the whole excavated area, but the nine burials we examined were concentrated in Squares 21-22, 26, 31-32. They were rectangular pits that varied in plan between 1.6 x 0.9m and 0.9 x 0.8m, and in depth between 0.4m and 0.9m. They were individual burials, with the deceased lying crouched on either the left or the right side. Pottery and jewellery were found in the burials (for details see: report of Stage II).
In terms of social structure, the Roman period burial inventory show little in the way of social or wealth differentiation. The pottery and jewellery (bronze and silver finger rings, glass, garnet and sardonic beads) suggest that Burials Nos. 41-48 belonged to members of the middle class (pls. IV-VI). Even the slight difference to be observed in Burial No. 48 (which was covered with

beams and included an earring with gold spheres) did not justify placing it in a noticeably richer category.

The settlement also extended over the whole excavated area. Three rectangular structures were found whose foundations were dug to a depth of 0.4 – 0.5 m.

The structures consisted of two compartments. One hall-like room had stone bedding running along the interior of the wall to support roof poles.

Storage buildings were concentrated within Squares 22,22,23,23.
Store rooms were arranged along a north-south axis. Room No. 1 was 5.3 x 3.4m in plan. The south wall of Room No. 2 was 4.3 m long, while the east wall measured 3.2m. Most of Room No. 3 was situated outside the limited excavation area and it was impossible to explore it.

A total of 21 pits were excavated scattered throughout the research area, although most were concentrated in the central part. They were round or oval and varied in diameter between 0.3m and 1.3m. The bottoms were lined with flat stones.

The pits had an everyday household function. In the last stage of their active use they were employed as dumps.

Pit No. 19 was lined with stone and judging by some features was probably a bakery.

Pit No. 20, which produced many burnt and misshapen pottery sherds, seems to have been a kiln. In addition, in a cultural layer in Squares 18 and 19 there was evidence of pottery manufacture (Pls. VII, VIII).

### *5.3 Artefacts*

As a result of the excavations at Chorati settlement and cemetery, 255 artefacts were found.

### *6.0 Interpretation*

Orchosani cemetery contained individual burials. The dead were buried in a crouched position lying either on their right or left side. The orientation of the burials varied considerably, with the head to the east, south, or north-west. The burial inventory, for the most part pottery and jewellery (finger rings, bracelets, earrings, rings, beads), are closest to Roman period burials from Orchosani (IV-323) (Baramidze, Pkhakadze 2004). They find parallels with artefacts excavated in cemeteries at Mtskheta, Karsniskhevi (Nikolaishvili 1993), Dighomi Gorge (Nikolaishvili 1978), Zhinvali (Chikhladze 1999) and Aghaiani (Bokhochadze 1984).

The similarities extend to both the types of burials as well as funerary rites.

Pit burials roofed with wood are known from Samtavro (Manjgaladze 1988), Mogvtakari (Sikharulidze 1985) and other cemeteries .

The Orchosani cemetery belongs within the eastern Georgian cultural sphere and dates to between the end of the 1$^{st}$ and the end of the 3$^{rd}$ century AD.

Buildings of the settlement probably had two rooms with roof was supported on poles resting on stone bedding along the walls. The bakery, kiln and pottery manufacture area were connected with the buildings.

The Orchosani settlement has similarity with contemporary settlements excavated in eastern Georgia, for example, those at Urbnisi (Chilashvili 1964), Karsniskhevi (Nikolaishvili 1993) and Zhinvali (Chikhladze 1999). The similarity is displayed in the form as well as the ornamentation of the pottery, which includes vessels of different sizes, including pithoi).

Like the Orchosani cemetery, the settlement also belongs within the eastern Georgian cultural sphere and dates to the Early Middle Ages.

There were 24 women and 10 men buried at the Chorati cemetery. They varied in age vary between 30 and 35, and they were of medium height. The skeletons display evidence of spinal and joint damage as well as dental paradontosis. In almost all cases there were traces of haemorrhage, thought to be the result of cerebral pressure. There was one case of a venereal disease. Anthropologically there were both dolichocranic and mesocranial specimens. (Appendix 1 and 2).

**7.0 Conclusions and Recommendations**

The investigation of Chorati settlement between pipeline KP 241+600 and KP 241+820 can be considered complete. However, the area between pipelines and also that beyond the ROW include unexcavated parts of the settlement and the cemetery, and so any kind of building activity in their vicinity should not be allowed.

It would be useful to carry out archaeological excavations in the east part of the Chorati terrace and at KP 240, where undisturbed layers of Early Farming Cultures were identified.

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Appendix

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## Ceramics Restoration and Analysis Report

**By Shota Iremashvili**
**T. Datunashvili**

The expedition was granted ten days to restore ceramic material, and two restorers were signed up, each on a five-day contract.

The expedition took place at two sites, Chorati and Orchosani. A total of 26 ceramic vessels were restored from both sites. Seven were completely restored, and the other 19 only partly. Material from burials has been the most thoroughly restored. As for the settlement material, most of it was restored well enough to enable an understanding of the functions of the various vessels.

The restoration methods: the material was first washed, then the fragments were grouped according to certain underlying principles; base, body, and rim fragments were grouped separately. The process of restoration began from the bottom and gradually the vessel was "built up". For joining pieces GDF glue was used, and plaster for filling gaps.

1. Small pot with a single handle (burial No. 43, inv. No. 65); pinkish exterior and interior; grey fabric; offset rim; low and cylindrical neck; spherical body; a handle oval in section attached to shoulder and body; surface smoothed; one side bears traces fumigation; completely restored; fragments of rim and body missing; late Classical period.
2. Small jug with trefoil mouth (burial No. 43, inv. No. 64); fired pinkish; offset rim; low neck; spherical body; flat bottom; a handle oval in section attached to rim and shoulder; smoothed surface; slightly grooved lines at the bottom of neck; lower part of the body decorated with burnished radial lines; late Classical period; completely restored.
3. Medium sized pot without handle (burial No. 3, inv. No. 66); fired pinkish; grey fabric; offset rim; high cylindrical neck; spherical body, considerably narrower towards bottom; dome-like base perforated; decorated with burnished radial and oblique lines; shoulder ornamented with carved lines; completely restored; late Classical period.
4. Ceramic vessel (inv. No. 240); occupation layer of settlement; early medieval; fired pinkish; small with ribbed side; partly restored.

**Appendix**

## Lithics Analysis Report

Guram Grigolia
(Pls. XII-XIV)

During an investigation of the Chorati settlement (IV-261) in 2004, Dr Manana Gabunia made surface finds of stone material of Lower Palaeolithic, some 72 items, which she generally dated to the Acheulian-Mousterian epoch.

It would appear from M. Gabunia's report, that 25 objects are finished tools and 47 production waste.

In 2005, the Chorati archaeological expedition paid special attention to the Stone Age situation. A very simple but interesting stratigraphical picture emerged. The top (upper) layer consists of black humus between 0.80 and 1.00 m thick. It can conventionally be divided into two equal parts: the upper 10-40 cm-thick section which includes a remarkable mixture of Stone Age, Classical, Medieval and modern material coming from disturbed layers. Below it is a 50cm-thick humus section in which Hellenistic and Roman period pit-burials as well as contemporary residential, production and household buildings have been found *in situ.* There are also substantial numbers of Stone Age artefacts in this part of Layer I.

Immediately beneath it comes cultural Layer II, which consists of pale yellow sandy pebbles, and judging by the sections visible in the trenches dug for the gas pipeline it is at least 4 metres deep. The upper 10-20 cm-thick part of layer II is yellowish-white and has formed a kind of cement on account of the sulphate soil having mixed with sandy pebbles in the upper horizon of layer II. Archaic looking tools of the Stone Age were occasionally found within this horizon.

It should be noted that the material of Layer I differs typologically and chronologically from that in Layer II. The disturbed material made of andesite and basalt from volcanic strata that was excavated in Layer I consists of 37 items.

The surface of each object is covered with pale grey patina that completely covers the original black colour of the stratum. The faces of the objects do not show traces of 'rolling'. In numerical terms, the nuclei (10 items) predominate among the excavated materials. They are made of andesite or basalt pebbles that became triangular or oval after utilization.

With the aim of preparing the surface for striking, flakes are removed from the upper, wide, part of the nucleus. As a result of intensive use of the nuclei their front part is flat and has negative facets of lamellar, fan-like or parallel flakes, characteristic of Levalloisian technical traditions. The back of most of the nuclei is patinated.

The average size of the nuclei is: 9.1 x 6.0 x 2.0 cm.

A greyish, square, solid stone piece is flaked on two sides and thus has much in common with a nucleus. One side of this sample (thickness 8.0cm) is solid, while the opposite straight side is formed like the blade of a chopping tool; both longitudinal sides are formed in the same way.

An oblong, rectangular, bifacial tool was probably used for chopping. It was formed on an andesite piece. The surface of one longitudinal side of this tool is horizontal and looks like the butt of a chopping or cutting tool. The opposite side to the butt was thinned by flaking on both faces and is sharp; dimensions: 15.0 x 5.5 x 3.5 cm.

The bifacial technique was used to make two tools that are triangular in shape. Their one broad side retains the cobble-stone cortex, while the rest of the surface has irregular double-side flaking. On both sides they have grooves formed as the result of flaking or from use as a knife; dimensions: 10.4 x 8.5 x 2.2 cm; 7.2 x 8.2 x 3.7 cm.

There are four examples of side-scrapers. One is formed on a solid piece of quartz whose butt is irregular and thick. The opposite straight side is formed with jagged, crushed flaking; dimensions: 7.3 x 6.1 x 3.6 cm.

The second side-scraper is formed on a wide angled flake of andesite, whose straight, slightly round side is treated with wide faceted flakes; dimensions: 5.4 x 5.3 x 2.2 cm.

Another tool formed on an oblong, oval andesite flake must also have been used as a side-scraper. The negatives of two wide transverse flakes are preserved on the lower face of the side-scraper. Its lower half together with its curved end, is formed by percussion flaking. The curved end of the side-scraper is formed from the lower face with sloping flaking; dimensions: 7.5 x 4.7 x 1.7 cm.

Within the category of side-scrapers and knife-scrapers can be included a Levalloisian double-slope flake whose lower curved end is flaked from the back, common for scrapers and knife-scrapers. The other edges of the tool, corrected at the percussion point, is formed scraper-like from the lower face with blunting flaking; dimensions: 7.8 x 4.2 x 1.2 cm.

There is only one burin in the complex and it is not typical. The tool is formed on a triangular flake which is completely covered with a cobble cortex, apart from the longitudinal sides of the flake, which are formed from the upper face with flute flaking and their meeting point forms a sharp tip; dimensions: 7.5 x 5.3 x 2.2 cm.

A knife-scraper is made from an oblong, wide, biped andesite flake; one curved side of the tool is jagged and blunted with sloping flaking. Its opposite straight side is formed by retouching; dimensions: 7.4 x 6.2 x 1.8 cm.

The Chorati complex produced four examples of knives with butts, which were formed on oblong Levalloisian flakes. Each of them has a solid butt to support a finger and a blade on the opposite side for cutting, with notches formed by flaking and use; dimensions: 7.6 x 5.6 cm; width: 4.1-3.9cm.

There were two Levalloisian flakes. Both examples are three-sided oblong, rectangular flakes whose straight edges have flake scars. The operative face of both flakes is particularly well finished; dimensions: 8.5 x 4.3 x 1.3 cm.

There were five examples of "Clactonian" flakes in this material. All are low, wide and solid and have a striking platform sloped to the back, a dome of relief flaking and cuttings along the edges; dimensions: 6.8 x 7.8 x 2.1 cm.

The set of basalt-andesite tools and flakes from Chorati displays close affinities with the Mousterian material from Kumurdo (Javakheti) in terms of quality of surface patina and Levalloisian technical features (G. Grigolia, "Lower Palaeolithic Sites of Javakheti," *Material for Georgian and Caucasian Archaeology*, IV, Tbilisi, 1966). Typologically, however, the Chorati material seems more archaic, incorporating Acheulian features, such as the survival of bifacial technique, or fan-like nuclei, and should be dated to the early Mousterian period. Some remarkable material was recovered from Layer II at Chorati, which consisted of pebbles of different sizes, yellow sand, and sulphate admixtures.

At first sight Layer II is fixed and sterile soil, apart from the burials, and household or industrial pits, or latrines of various depth occasionally dug by the people who occupied Layer I.

After the humus layer in Squares N16-N31 at Chorati was removed, Layer II became completely visible, and a stratum of irregularly scattered stone pieces of andesite-diorite appe4ared. The finds were very interesting from the typological, technological, chronological and palaeogeographical points of view.

It should be said that every piece that came from this complex is badly worn, so that all the flake scars had been rubbed away as though by the action of water. The negative facets of the flakes were so badly worn that it was sometimes impossible to determine the direction in which they had been struck.

Among the finds of Layer II, particular interest should be attached to a heart-shaped hand-axe that had been flaked on both sides: by the bifacial technique. For making the hand-axe a basalt and diorite (?) cobble, or one side of a spall was used.

The lower side is divided into two parts by a high ridge; the left half is unfinished, smooth, sloped, while the upper right part was formed by means of transverse flaking, typical of bifaces. The central line of the hand-axe is broken at this point, a common characteristic of archaic technical traditions of stone working. This cannot be said of its upper side since it has long been exposed. The flake scars on this side are intensively worn and covered with a thick patina, which completely disguises the colour and structure of the stratum. It came to light within the surface of the sulphate conglomerate in Square N21 of Layer II.

Similar features characteristic of the surface material also occur on three conical nuclei, which are actually andesite cobbles and have a striking platform sloped to the back. On the front face of the nuclei there are subtle flake scars, which are almost worn out through having been in the river, or through long-term presence on the surface. The backs of the nuclei are, as a rule, covered with thick sulphatic sediments.

The chopper is one of the most outstanding tools among the stone material. It is made from an oval andesite cobble broken in two, whose lower side is flat while the upper one is convex. The principal working side of the chopper is its lower wide straight side, which was treated by flaking at the back, but which is worn through use. Facets of the upper side are extremely worn and are completely covered with a thick, opaque grey patina. On the convex side there is sediment of sulphate.

This must also be the function of a tool made from a solid oval andesite cobble. Its upper part is double sided; its central convex broken rib is intensively worn; three longitudinal flakes have been removed at head and end. The other side of the tool is actually horizontal and has traces of two broad transverse flakes.

Rough side-scrapers, of which there were four, were made from andesite flakes that are flaked on one side. The exception is a three-sided tool formed on an oval flake, whose longitudinal and lower transversal side is flaked on the underside as well, an element akin to bifacial treatment.

A scraper with a grooved side formed on a low, wide solid flake is a typical example of the same forming practice. Its edges almost all the way round, and especially on its grooved side, were formed by means of steep flaking.

One of the grooved sided scrapers appeared in the pit at 0.80 cm at the junction of Squares N28a and 29a. But judging by the sulphate sediment that survived on its flat underside, it is clear that got there from the upper horizon of Layer II.

The material from Layer II at Chorati displays a certain similarity to some Acheulian sites in Samtskhe-Javakheti and Adjara: Akhalkalaki I and II, Murji, Akhalkalaki III and Akhalkalaki IV, Upris in NW Anatolia, the Armenian plateau, and Bululi (Khulo district) in the Adjaran highlands.

Despite superficial resemblance, the material from Layer II at Chiorati has an archaic appearance judging by the surface preservation as well as typological and technological features, and should for the moment be dated to the early Acheulian period.

**Appendix**

**Anthropological Analysis Report**

**By Ketevan Lomouri**

The Chorati cemetery produced Roman period pit burials where the deceased were buried in a crouched position lying on their right or left sides. Most of the cranial and postcranial parts of the anthropological material were in good condition. The characteristic cranial type was *dolichocephalus*, and rarely *brachycephalus*.

The face type is long, with an average breadth, with a prognathic profile, a forehead receding to an average degree, medium sized eye sockets, no deviation from the axis.

Morphological features of the Mediterranean cranial type were typical for the whole cemetery. There were several exceptions, namely skulls with short, relatively broad faces, of brachycephalic type, prominent cheek-bones, the bridge of the nose of average height, a truncated low forehead; the length of eye sockets exceeding their width, the base of the skull short with Asian cranial morphological features.

Condition of teeth: well-preserved white enamel which points to high mineralization and excess fluorine; average or above average degree of tooth deterioration. Most of the individuals buried at the cemetery are young people, therefore the degree of tooth deterioration is not connected to age but indicates the nature of the food (which must have been hard).

Bones are massive with marked relief which points to a well-developed muscle system; relief occipital bone at the back delta muscles.
Physical type: most of the individuals are of medium height or taller and are physically strong. This applies to both genders.

Diseases: almost every individual's joint surfaces are damaged; joints are hypertrophied, which, on the one hand, points to damaged joints and, on the other hand to heavy working loads. Particularly damaged are the neck, spine area and vertebrae, the joint surfaces of the wrist and foot phalange. Spinal pathology is particularly obvious in Burial No. 35, where hump was identified it the neck area. Body proportions: the mezomorphic build is characteristic but there are cases of dolichomorphy (long extremities, short torso). On the inner side of the crania of most individuals signs of intercranial pressure were identified.

Jaw pathology: the inner surface of the mandibles of several individuals is thickened in the area of back molars (Burials Nos. 28, 34). Similar thickening appears on the inner surface of the jaw when the food is hard and an adaptation mechanism intensifies in the body and there develops parallel thickening of the mandible. In our case this thickening is apparent in several individuals, and it cannot therefore be presumed that it is connected with food quality. In this case the artefact points to the presence of only mandible pathology. A young woman buried in Burial No. 25 has a badly damaged skeleton. The bone colour is grey, the interior of the skull shows haemorrhage, the femur is covered with holes. These are signs of bone tuberculosis, bone cancer or syphilis. Pathoanatomic analysis confirmed that these artefacts are characterized by venereal disease.

The age of the deceased in burial No. 40 differs from the rest and is close to middle age. Almost every individual bears marks of paradontosis. The female individuals show signs of hormonal changes on the epiphytic parts of the femur.

As we mentioned above, most of the individuals in Chorati cemetery were characterized by dolichocrania. Mixed cranial types are observed in burials Nos. 40-43.

Analysis of the inner structure of bone: the inner structure of bone is not damaged, and there was no evidence of deep pathology. The arrangement of the plates of the inner structure of the bone in both the epiphytic parts of the femur in as well in its overall length indicate that the deceased individuals were plain dwellers.

Chemical analysis of soil:

Samples of soil were taken from the burials as well as test samples. The soil is rich in mineral chemical elements. On the basis of this analysis it can be stated that in the relevant historical period the climate here was mild and humid. The same results emerge from palynological analysis. The vegetation noted here is characteristic of humid and mild climatic conditions. Chemical analysis of soil samples did not indicate any intensive demineralisation of the deceased.

As mentioned above, most individuals have well-preserved tooth enamel and a fairly well-developed bone system. There was no bone curvature to be observed in any of the cases. Joint diseases can be precisely explained in terms of intensively calcimined food, a humid climate, and use of certain vegetables that contain substances that are difficult to extract from the body. They form a sediment over the surfaces of joints that causes damage to the bone system.

Bacteriological analysis did not show bacteriological pollution.

Demography: most of the dead are juveniles. Judging by the number of investigated burials and the age at death of the deceased, the population of this region in the Classical period must have been rather small.

Several burials stand out among the burials at Chorati cemetery; in particular Nos. 20, 26, 39. Burial No. 20 contained a young woman with a damaged head, but the damage was not caused by trauma. There were two symmetrical holes between the occiput and the top of the cranium. A 0.45cm baby was buried behind the woman's pelvis, and they were buried at the same time, both having presumably died at delivery. This mode of baby burial is unknown in other cemeteries of the period; as a rule, a newborn baby is buried on the mother's chest. Burial No. 26 stands out because the deceased is buried lying on his back with the head turned to the left, the right arm bent at the elbow and resting on the stomach. The left arm is slightly bent at the elbow, the hand beneath the thigh. This burial is unlike any of the others and is unique in the cemetery. All the others are buried in a crouched position. In burial No. 39 a man aged 30-35, 1.80m tall was buried on his left side, facing north-east. A layer of ash was to be seen beneath his head on the stone floor of the tomb. Beneath this floor there were two badly damaged skulls, completely lacking the postcranial part. Here were also fragments of animal jaws and potsherds, presumably part of a burial ritual.

Analysis of the anthropological material from Chorati is important for the study of the following problems: the racial and anthropological type of the population of this area at a certain historical period, the problem of migration, the relation between the plain and mountain population, problems of the autochthony of the population.

**Appendix**

## Metal Artefacts Analysis Report

The results of restoration and technological research of metal material recovered at Site IV-261 Chorati: 13 metal artefacts were restored, and the chemical content of one artefact was established by means of spectral analysis (Table 1).

1. Bracelets, Burials No. 44, Nos. 17-68 (Pl. IX); made from tin-rich bronze (Cu 87,5; Sn 12.0); good mechanical qualities.

The restoration scheme of the bronze material was as follows: bronze artefacts were cleaned using scalpels and other sharp tools. Cleaning was carried out under a microscope using bright illumination. The cleaned artefact was treated with acetone and covered with Paraloid B 72 (Paralloid B72 + acetone [40g + 1.5 lit]).

The restoration scheme of the iron material was as follows: iron objects were cleaned mechanically with diamond and steel brushes fixed to a drill. The mechanically cleaned objects were restored with the following solution: tannin + spirit + orthophosphate. At the next stage a tannin and spirit solution alone was used (the process was repeated several times). For conservation the object was covered with thermoplastic acryl polymer Paralloid B72 (Paralloid B72 + acetone [40g + 1.5 lit]).

Some of the iron artefacts underwent reconstruction. For the reconstruction Araldite 2020A + solidifying Araldite 2020B + talcum + brown pigment was used.

The restoration scheme of the silver material was as follows: Both chemical and mechanical methods were used. Some of the silver objects were cleaned with Titriplex hydrate (500 ml distilled water + 18.5g Titriplex). The restored objects were treated with acetone and when dry the objects were covered with thermoplastic acryl polymer Paraloid B 72 (Paralloid B72 + acetone [40g + 1.5 lit]).

**Spectral Analysis Results**

Before restoration photo documentation of the metal objects was carried out (Pl. IX) and repeated after restoration and conservation (Pl. IX).

| Lab code | Artefact | Feature | Cu | Sn | Pb | Zn | Bi | Ag | Sb | As | Fe | Ni | Co |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| U-680 | Bracelets 17-68 | Burial 44 | 87.5 | 12.0 | | | | 0.03 | | | 0.03 | 0.18 | 0.005 |

**Appendix**

## Palaeoethnobotanical Investigation of Chorati

N. Rusishvili
N. Meladze

BPG M-115-IV KP 249

We investigated soil samples taken from different layers at Chorati in order to find fossil botanical material. Four samples were analysed palaeoethnobotanically, and botanical material appeared in three samples.

With the aim of discovering botanical material the soil samples were dealt with using the flotation method, which involves "washing" the soil with water and CCL4. Afterwards the resulting material is divided by means of sieves of different diameters. Then the material is dried, solidified, conserved and prepared for identification.

The botanical material consisted of fossilized fruit and seeds. The identification of botanical material was carried out using a stereoscopic microscope, at the level of genus and species on the basis of a set of morphological features.

As a result of the analysis 13 species of plants and weeds were identified, including emmer wheat (*Triticum dicoccum Schubl.*), hulled barley (*Hordeum vulgare L.*) and lentil (*Lens culinaris Medic.*) (Table No. 1).

Emmer wheat was recorded in three samples (Table No. 1). The morphological features of the seeds include an elongated shape, a deep ventral groove, and a slightly asymmetrical dorsal side with a high rib (pl. I, 1). In terms of parameters and indexes the seeds meet the accepted norms of *Triticum dicoccum* (Tables Nos. 2-4). With regard to distinct crops, it cannot be doubted that there was an independent agropopulation of emmer wheat, since it was recorded in many of the samples.

Hulled barley (*Hordeum vulgare*) was recorded in three samples (Table No. 1). In only two cases was it possible to take measurements and calculate parameters (Table Nos. 5-6). The morphological features of the seeds include an elliptical shape, i.e. they are flattened on both ventral and dorsal sides; on the ventral side they have a triangular groove, which widens at the apex. On the dorsal side the distinct signs of the nerves of the lemma typical of *Hordeum vulgare* are clear (pl. I, 2). Taking these factors, as well as the measurements into account, the seeds belong to hulled barley, *Hordeum vulgare L.*

Lentil (*Lens culinaris Medic.*) has been grown as a crop since antiquity. Lentils were recorded in two samples of the Orchosani settlement (Table No. 1). The size of the carbonized seeds is 3.0-3.5 mm. According to palaeobotanical data it was widespread in the Near East. M. Hoff believes that lentil was simultaneously domesticated with emmer wheat, single-grain wheat and barley.

Carbonized seeds of fine-grain lentil have been identified at Murebit, Syria and in contexts of between 9,200 and 7,500 BC. The excavated seeds belong to *Lens orientalis* and were recorded alongside wild single-grain wheat and wild barley.

The lentils excavated at Tepe-Sabz in Iran definitely belong to a domesticated species. The settlement is dated to 5,500-5,000 BC (Helbaek 1969; pp. 389-426).

The lentil is known from fossils of XII Dynasty Egypt. From Neolithic period of Europe it is known in Switzerland, Hungary, Germany, and also in Asia Minor (fossils at Troy); it was generally considered to be an edible plant in ancient Greece and Rome. It appeared in Russia in the 15$^{th}$ century (Zhuravsky, 1971; 316-317).

Asia Minor and Transcaucasia are thought to be the original home of the lentil, where its wild predecessor *L. orientalis* is widespread.

Judging by the palaeobotanical data, the lentil was widespread in Georgia, in particular in Kvemo Kartli in the Eneolithic period.

In former times in Georgia, lentils were the principal food during fasts, but they are now relatively rare. When the common bean was introduced, lentils somehow migrated from the plains to the highlands.

Lentil soup is considered a delicacy. Their smooth consistency and high protein content make lentils useful as cattle food. It is also remarkable that the lentil grows well on barren soils in the mountains, as opposed to other leguminous plants.

**Weeds and Wild Plants**

1**.** ***Avena sp.*****:** Oats. Family *Graminae*. Most species of this family are weeds of leguminous plants. So far it is not known how the domesticated oats originated. They probably derive from *A. byzantina. A. sativa* is considered to be a secondary culture. It was thought to have at first been the weed that accompanied emmer wheat (*Triticum diccocum*) and as a result of the northward migration of this species of wheat it was gradually transformed from a weed to the dominant position. The oats found at the settlement is remarkable for its small size: 4.0-5.0 x 1.5-2.0 mm and belong to one of the weed varieties.

2. ***Chenopodium album L.*****:** Goosefoot. Family *Chenopodiaceae*. The seed is round, and either hatched with thin radial lines or smooth. Seed parameters: 1.5-1.25 x 1.0-0.75 mm. Polymorphism can be observed in this species. There are three visual categories of seeds. The first includes plump and thick seeds that are easy to germinate; smaller seeds with a thick coat and a deep black or greenish-black colour, whose seeds can only grow only in the second year belong to the second group, and the third category consists of even smaller seeds which are round or oval, are black, and can only grow in the third year. The plant can only de cultivated by seed; the seeds disperse in the ground before harvest. One plant can produce about 200,000 seeds.

The young sprouts are used for eating, just like spinach. In lean years *Chenopodium album L* used to be a very important plant for the population. Leaves of the plants were used to make red dye for leather. The seeds have high nutritional value for cattle and are used as food additives.

*Chenopodium album L.* is a persistent weed. It starts growing in the early spring and does much harm to cultivated plants. It also grows in ruderal places.

**3. Conringia orientalis (L.) Andrz.:** Hare's-ear Mustard. Family *Cruciferae*. Seed parameters: 2.3 x 1.2 x 1.2 mm. Grows as a weed of leguminous plants and at the sides of the roads.

**4. Galium spurium L.:** False cleavers. Family *Rubiaceae*. Seed parameters: 1.2 x 1-1.5 x 1.3-1.5 mm. Spread throughout Caucasia. Grows as a weed of leguminous plants and at the sides of the roads.

**5. Lithospermum arvense L.:** Field gromwell. Seed parameters: 2-3.5 x 1.75-2.25 mm. It is known as a weed of autumn and spring leguminous plants. Grows in fields, gardens and orchards. Its seed was used for feeding domestic birds.

**6. Lolium sp.:** Salsify. Family *Graminae*. Mostly a weed of leguminous plants.

**7. Melilotus officinalis L. Desr.** Melilot (sweet clover). Family *Leguminosae*. Seed parameters: 1.5 x 1.2 x 1 mm. Grows as a weed of leguminous plants and at the sides of the roads and in fields.

**8. Polygonum dumetorum L.: C**limbing false buckwheat. Family *Poligonaceae*. Grows in deciduous forests. Rarely grows as a weed of leguminous plants.

**9. Thlaspi arvense L.:** Stinkweed. Family *Cruciferae*. It has dark, egg-shaped, seeds flattened on two sides, with concentrated wrinkles. The embryo is clearly expressed. Seed parameters: 1.75-2.0 x 1.25-1.5 x 0.75 mm. It contains up to 20% oil, which was used for lighting in former times since it did not possess a specific smell.

**10. Vicia sp.:** Vetch. Members of this family are mostly weeds of leguminous plants. They also grow on fields.

Thus, cultivated emmer wheat, hulled barley and lentil agropopulations have been identified at the settlement. It is likely that the first two used to grow in the same population as both have lamellar seeds. The wide range of weeds and wild plants identified indicate that crops were grown in the area immediately adjacent to the settlement. Some weeds were used for human consumption and others to feed animals and birds.

Table No.1. Explanation.

4. Production plot 33. 220 0.6-0.8 m.

*Triticum dicoccum*
*Hordeum vulgare*
*Lens culinaris*
*Chenopodium album*
*Conringia orientalis*
*Galium spurium*
*Lithospermum arvense*
*Lolium sp.*
*Polygonum dumetorum*
*Thlaspi arvense*

2. Production plot 33. 220 0.6-0.8 m

*Triticum dicoccum*
*Hordeum vulgare*
*Lens culinaris*
*Lithospermum arvense*
3. Settlement 40-246. Room N2, Square 19-19a; 20-20a
*Triticum dicoccum*
*Hordeum vulgare*
*Avena sp.*
*Lolium sp.*
*Lithospermum arvense*
*Galium spurium*
*Melilotus officinalis*
*Polygonum dumetorum*

4. Cemetery 40-247. Burial No. 47, Square 21 0.9m
No botanical material was identified.

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Table 1
Species of Palaeoethnobotanical Material of Chorati Settlement

| N | Species | Place | | | | Familia |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | |
| 1 | Avena sp. | | | + | | Graminae |
| 2 | Chenopodium album L. | + | | | | Chenopodiaceae |
| 3 | Conringia orientalis L. | + | | | | Cruciferae |
| 4 | Galium spurium L. | + | | + | | Rubiaceae |
| 5 | Hordeum vulgare L. | + | + | + | | Graminae |
| 6 | Lens culinaris Medic | + | + | | | Leguminosae |
| 7 | Lithospermum arvense | + | + | + | | Borraginaceae |
| 8 | Lolium sp. | + | | + | | Graminae |

| | | | | | | |
|---|---|---|---|---|---|---|
| 9 | Melilotus officinalis L. Desr. | | | + | | Leguminosae |
| 10 | Polygonum dumetorum L. | + | | + | | Polygonaceae |
| 11 | Thlaspi arvense L. | + | + | | | Cruciferae |
| 12 | Triticum dicoccum Schubl | | | + | | Graminae |
| 13 | Vicia sp. | | + | | | Leguminosae |

Table 2
Triticum dicoccum – Parameters and Indices

| N | L | B | T | L/B | B/L% | T/L% | T/B% |
|---|---|---|---|---|---|---|---|
| 1 | 4.5 | 2 | 1.7 | 2.25 | 44.44 | 37.78 | 85 |
| 2 | 4.3 | 2.1 | 1.5 | 2.048 | 48.84 | 34.88 | 71.42857143 |
| 3 | 5 | 2 | 1.3 | 2.5 | 40 | 26 | 65 |

Table 3
Triticum dicoccum – Parameters and Indices

| N | L | B | T | L/B | B/L% | T/L% | T/B% |
|---|---|---|---|---|---|---|---|
| 1 | 5.5 | 2.7 | 2.5 | 2.037 | 49.09 | 45.45 | 92.59259259 |
| 2 | 4.5 | 2.4 | 2 | 1.875 | 53.33 | 44.44 | 83.33333333 |
| 3 | 4.3 | 2 | 1.5 | 2.15 | 46.51 | 34.88 | 75 |
| 4 | 5 | 2.1 | 1.8 | 2.381 | 42 | 36 | 85.71428571 |

Table 4

| N | L | B | T | L/B | B/L% | T/L% | T/B% |
|---|---|---|---|---|---|---|---|
| 1 | 4 | 1.8 | 1.5 | 2.222 | 45 | 37.5 | 83.33333333 |
| 2 | 4.5 | 2 | 1.5 | 2.25 | 44.44 | 33.33 | 75 |

Table 5
Hordeum vulgare – Parameters and Indices

| N | L | B | T | L/B | B/L% | T/L% | T/B% |
|---|---|---|---|---|---|---|---|
| 1 | 6 | 2.5 | 2 | 2.4 | 41.67 | 33.33 | 80 |
| 2 | 5.5 | 2 | 1.8 | 2.75 | 36.36 | 32.73 | 90 |

Table 6
Hordeum vulgare – Parameters and Indices

| N | L | B | T | L/B | B/L% | T/L% | T/B% |
|---|---|---|---|---|---|---|---|
| 1 | 5 | 3 | 1.8 | 1.667 | 60 | 36 | 60 |
| 2 | 5.5 | 3.2 | 2 | 1.719 | 58.18 | 36.36 | 62.5 |
| 3 | 5 | 3.2 | 2 | 1.563 | 64 | 40 | 62.5 |

**Appendix**

**O. Bendukidze**

**Osteological Material from Chorati**

The osteological material from Chorati that we analysed contained the bones of domestic animals for the most part, including domestic pig, cattle, sheep, goat, horse and poultry.

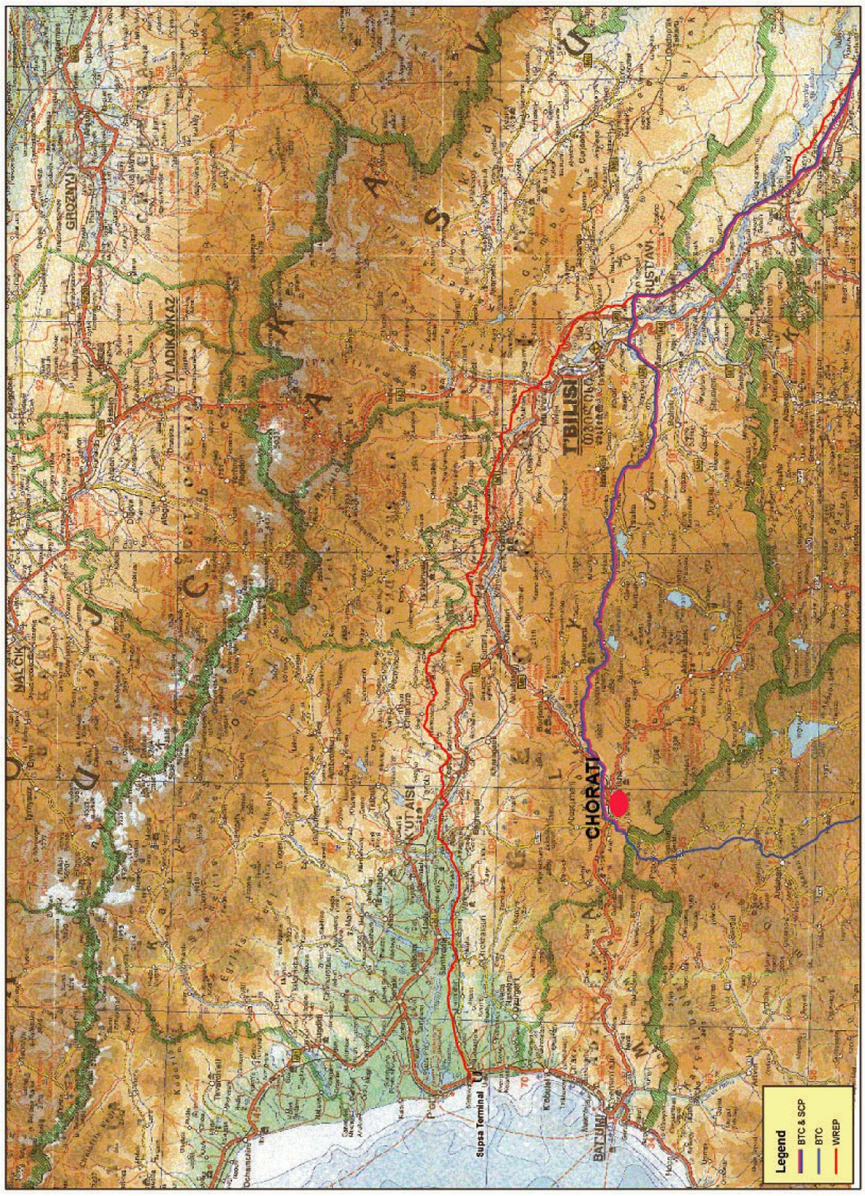
In terms of size and morphology, the Chorati pig did not differ from those found archaeologically at other sites in Georgia, and is very similar to what is generally termed the Kakhetian black pig which is presumably of South Asian origin.

The Chorati cattle bones were divided into two groups according to size, one of large specimens, the others relatively small (Pl. X, fig. 1). The latter display a close affinity to the Khevsurian breed of cattle. It should be noted that two cattle breeds were recorded in Georgia in Trialeti Culture kurgans. According to the noted palaeontologist N. Burchak-Abramovich, morphological features of the cranium and other bones of the Trialeti large oxen do not differ from the grey Ukrainian and Hungarian breeds and consequently can be grouped together with *Bos taurus primigenius.*

Domestic horse (Pl. X. fig. 2). More bones of domestic horses were found at Chorati in 2006 compared to the preceding year. Most of the finds consisted of distal extremity segments (metapodials, phalanges and hooves), and the majority were found in the area of Building No. 1 at Chorati. This gives us reason to assume that horse breeding played an important part in the agriculture of Meskhet-Javakheti of the time. Apart from domestic animals, the remains of various wild animals were also excavated at Chorati: red deer, fox, fish and onager (Pl. X, fig. 3).

In modern times the onager has only a limited distribution in some Asian countries: Iraq, Iran, Afghanistan, Mongolia, China, India, Nepal, Pakistan and Tukmenistan. There are written sources stating that before the Classical period, the onager also inhabited Asia Minor, Syria and the Caucasus. For example, the historians Xenophon, the Armenian Moses of Chorene and Movses Kaghankatvatsi, and the Iranian Rashid Ad-din all mention the onager as living in the Near East. In addition, we hear that half-domesticated onagers were kept in Ispahan, in the Shah's menagerie. We believe that the few onager bones (two teeth and extremities from Building 1) belong to a wild animal, since after the appearance of the horse (in the 2$^{nd}$ millennium BC) the domesticated onager, common enough throughout the Near East in the 3$^{rd}$ millennium BC was not exploited for agricultural purposes in the Middle Bronze Age.

PLATES


TBILISI
CHORATI
Supsa Terminal
BATUMI
Legend
BTC & SCP
BTC
WREP

**CHORATI**
IV- 261
KP 241+600

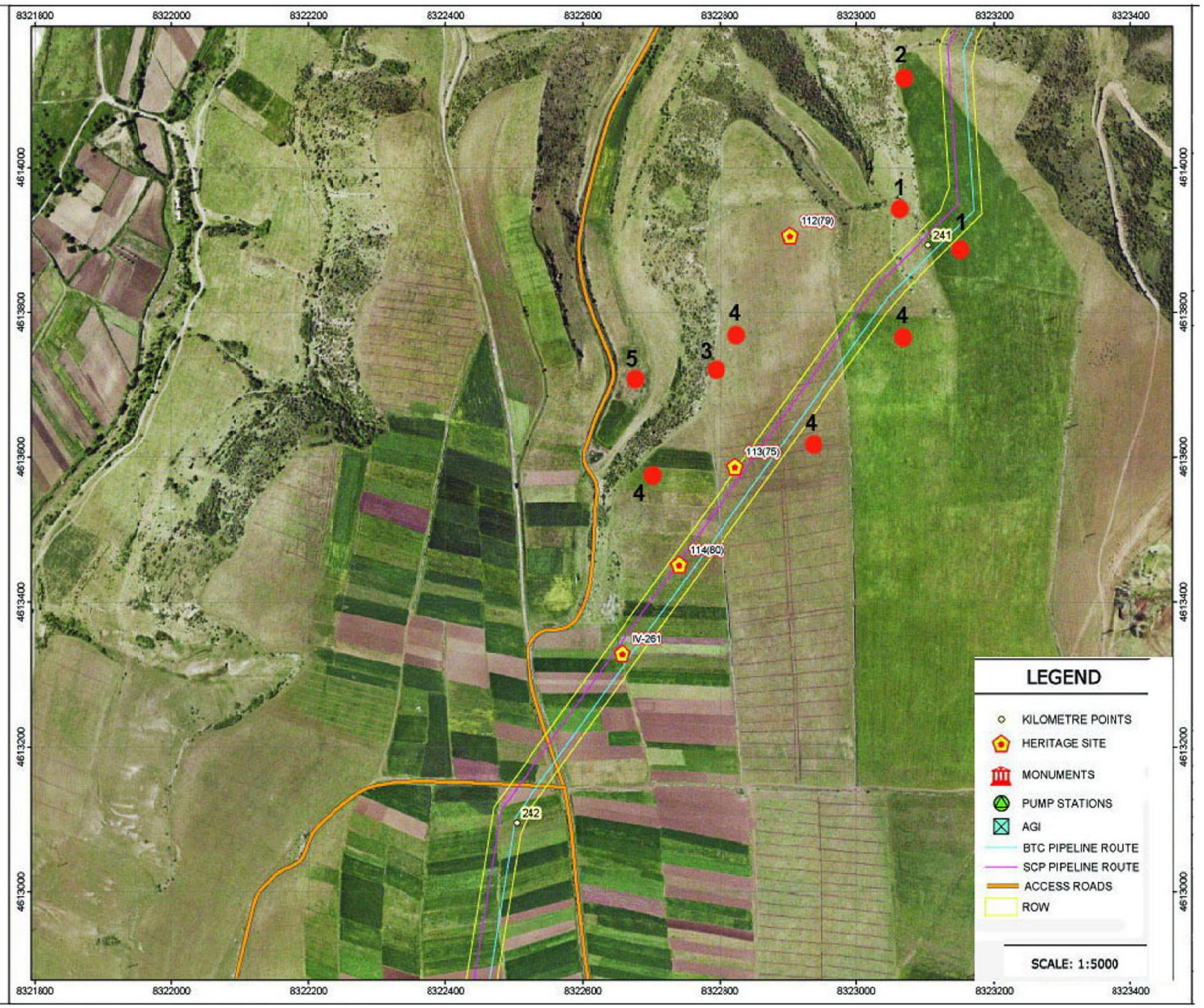
1- Lower Paleolithic Dwelling

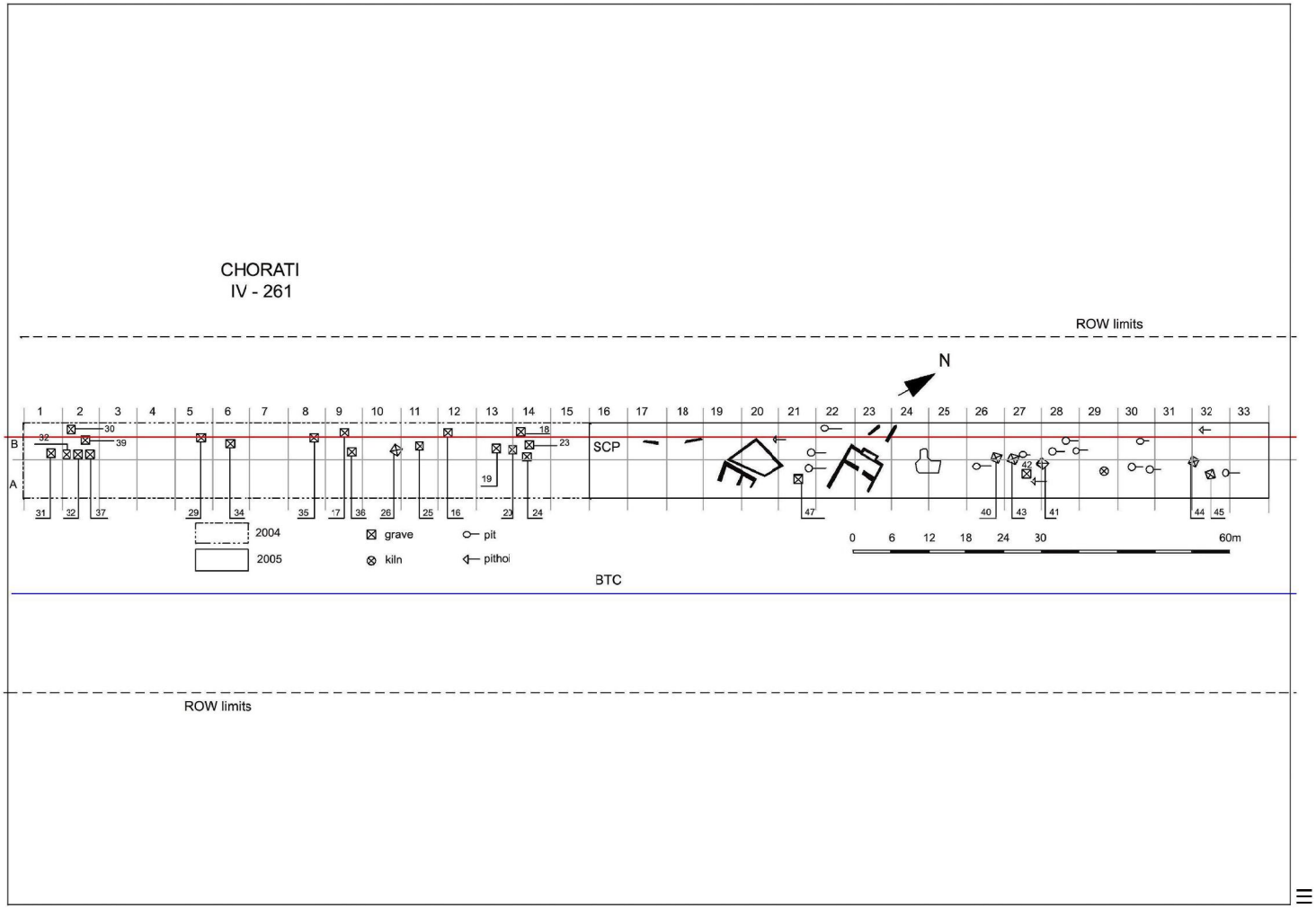
2- Early Agricultural Period Settlement, V-IV mill. BC

3-Late Bronze Age Cemetery, XV-XII cc

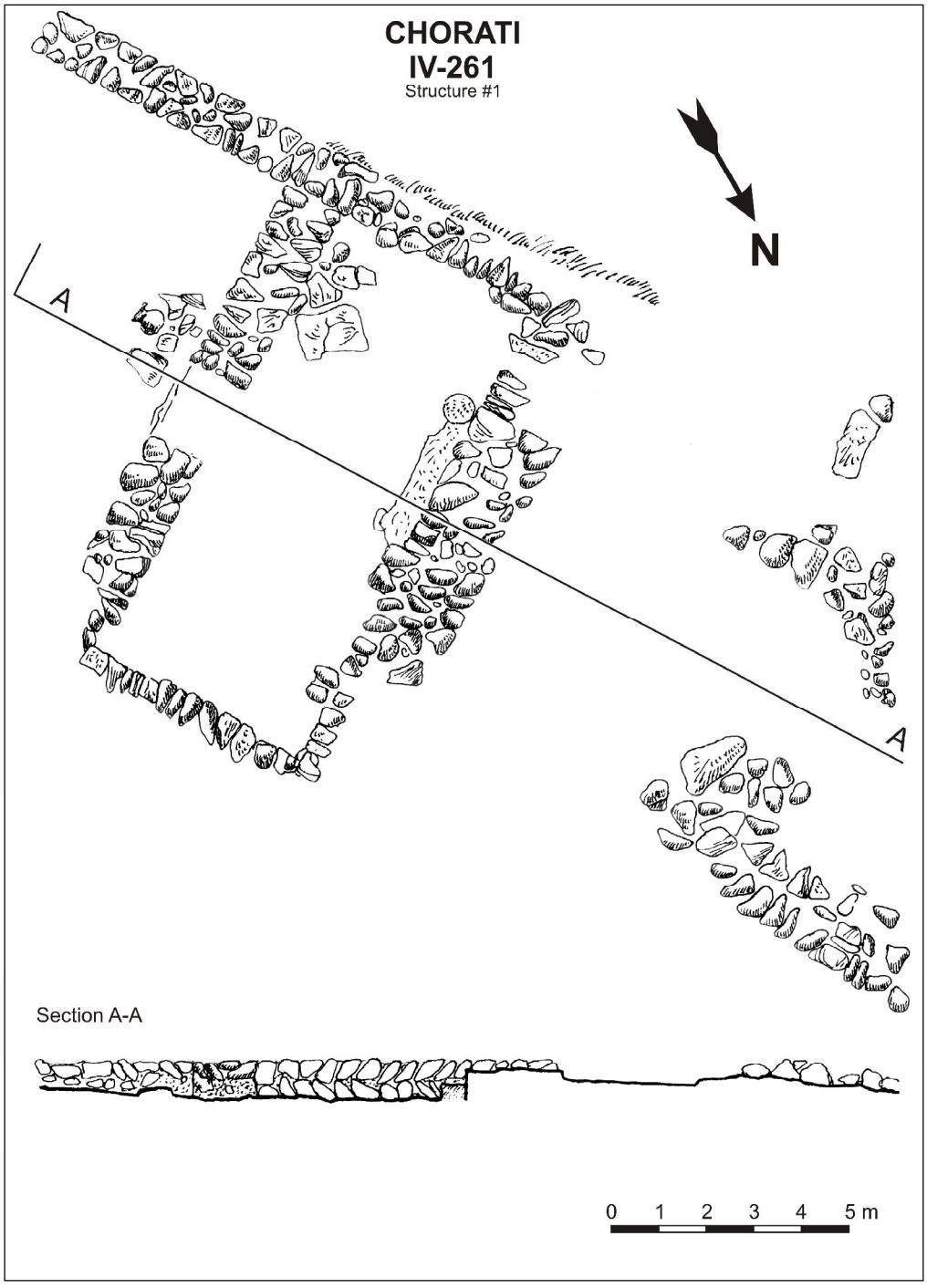
4-Early Medieval Settlement, III-X cc

5-The Christian Church, XIc

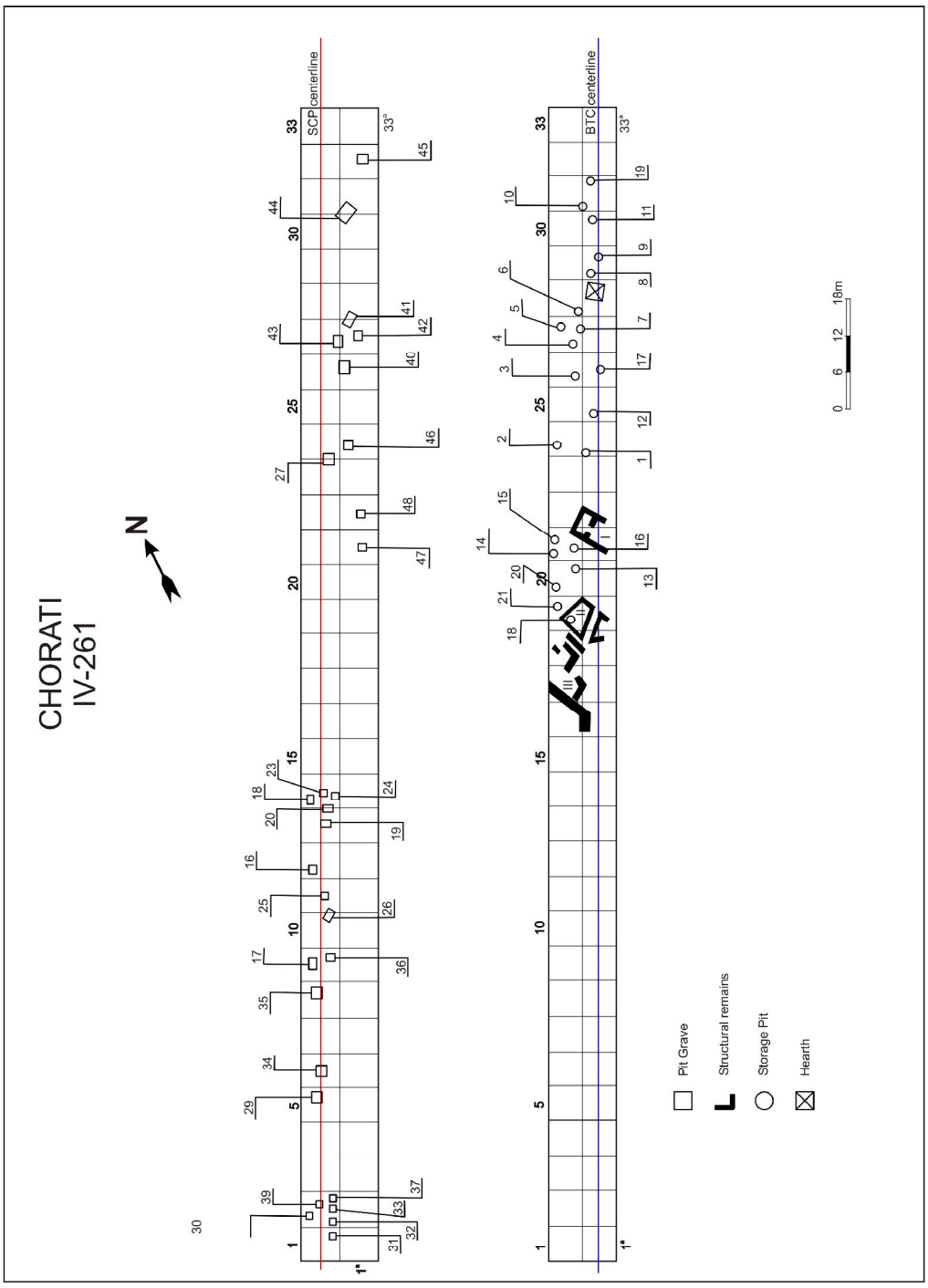


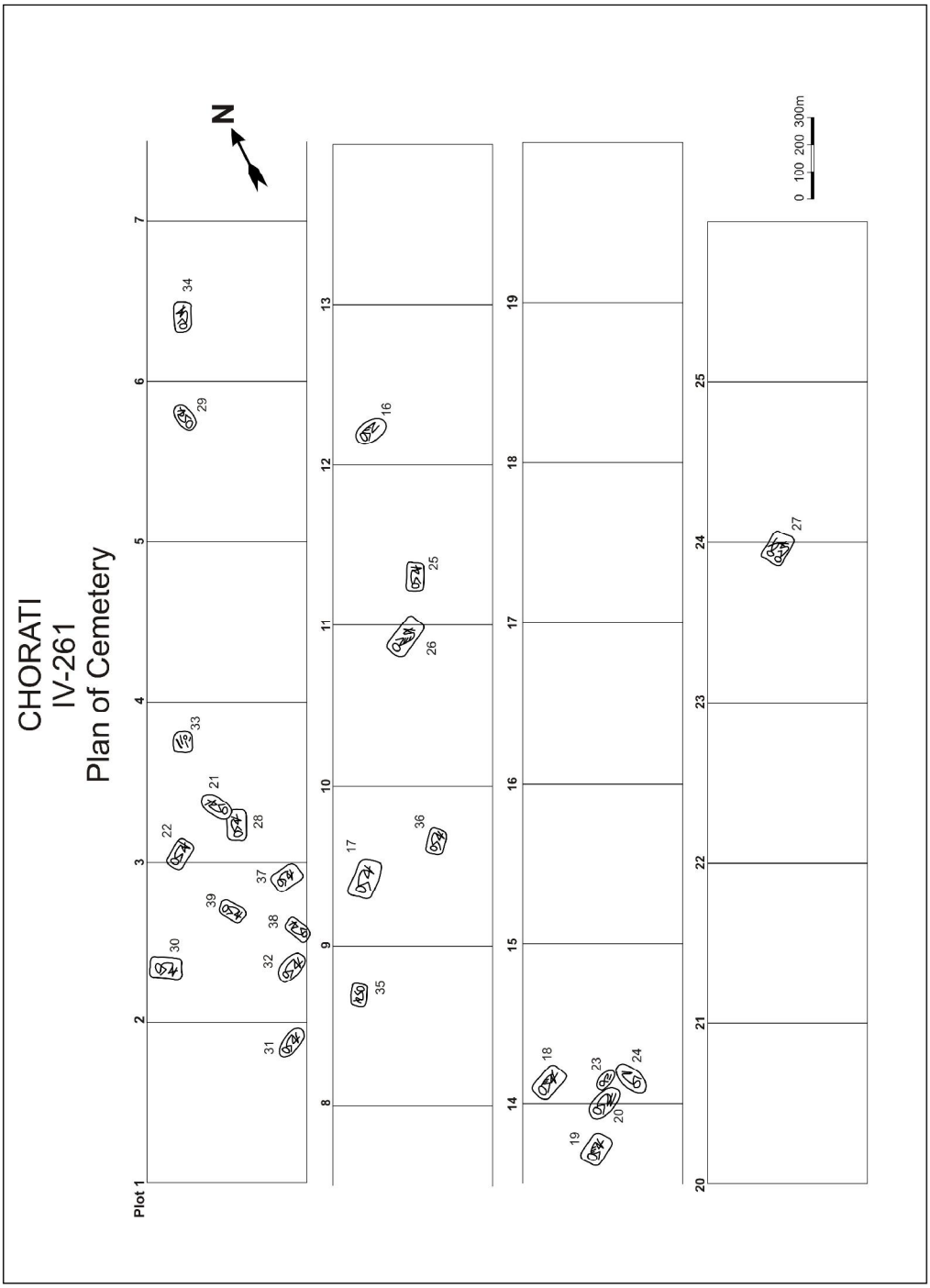

CHORATI
IV - 261
ROW limits
N
SCP
BTC
ROW limits
2004
2005
grave
kiln
pit
pithoi
0 6 12 18 24 30 60m

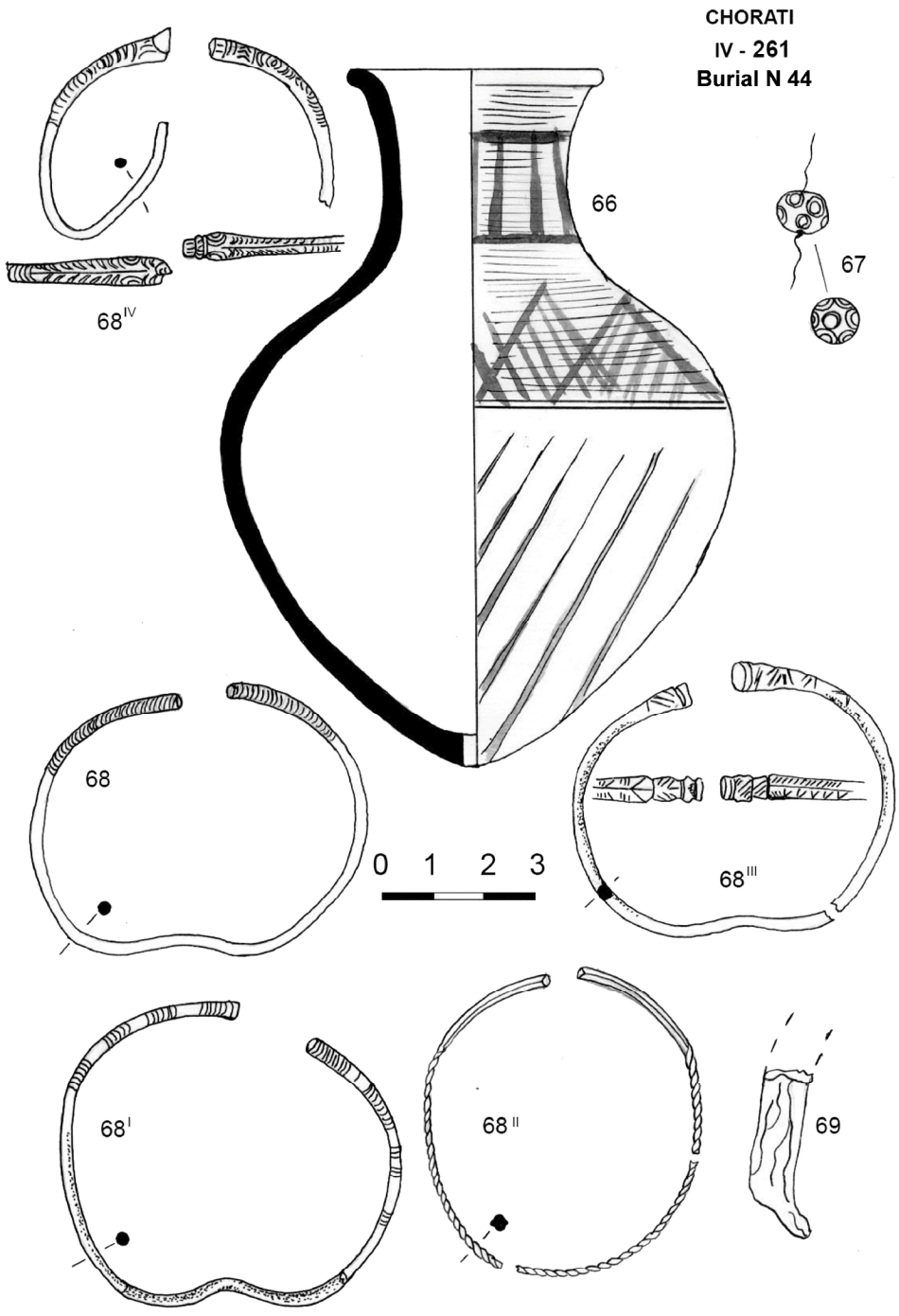
III


CHORATI
IV-261
Structure #1
N
A
A
Section A-A
0 1 2 3 4 5 m

V


CHORATI
IV-261
N
SCP centerline
BTC centerline
Pit Grave
Structural remains
Storage Pit
Hearth
0 6 12 18m

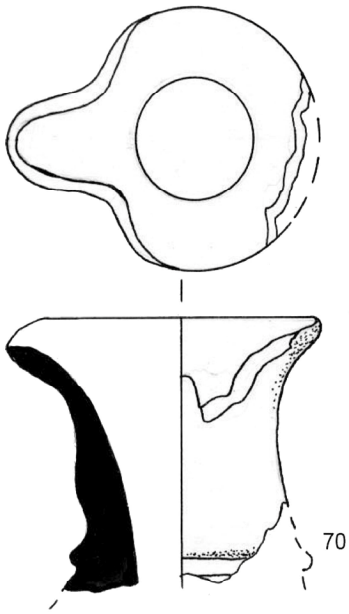

CHORATI
IV-261
Plan of Cemetery
N
0 100 200 300m
Plot 1
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

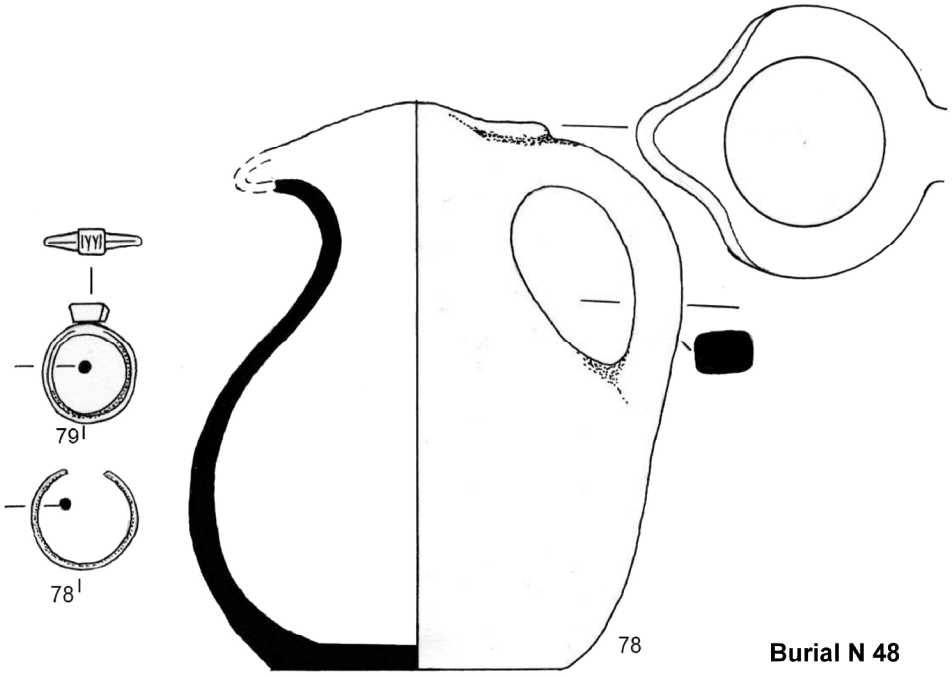

CHORATI
IV - 261
Burial N 44
66
67
68IV
68
0 1 2 3
68III
68I
68II
69

**CHORATI**

**IV - 261**

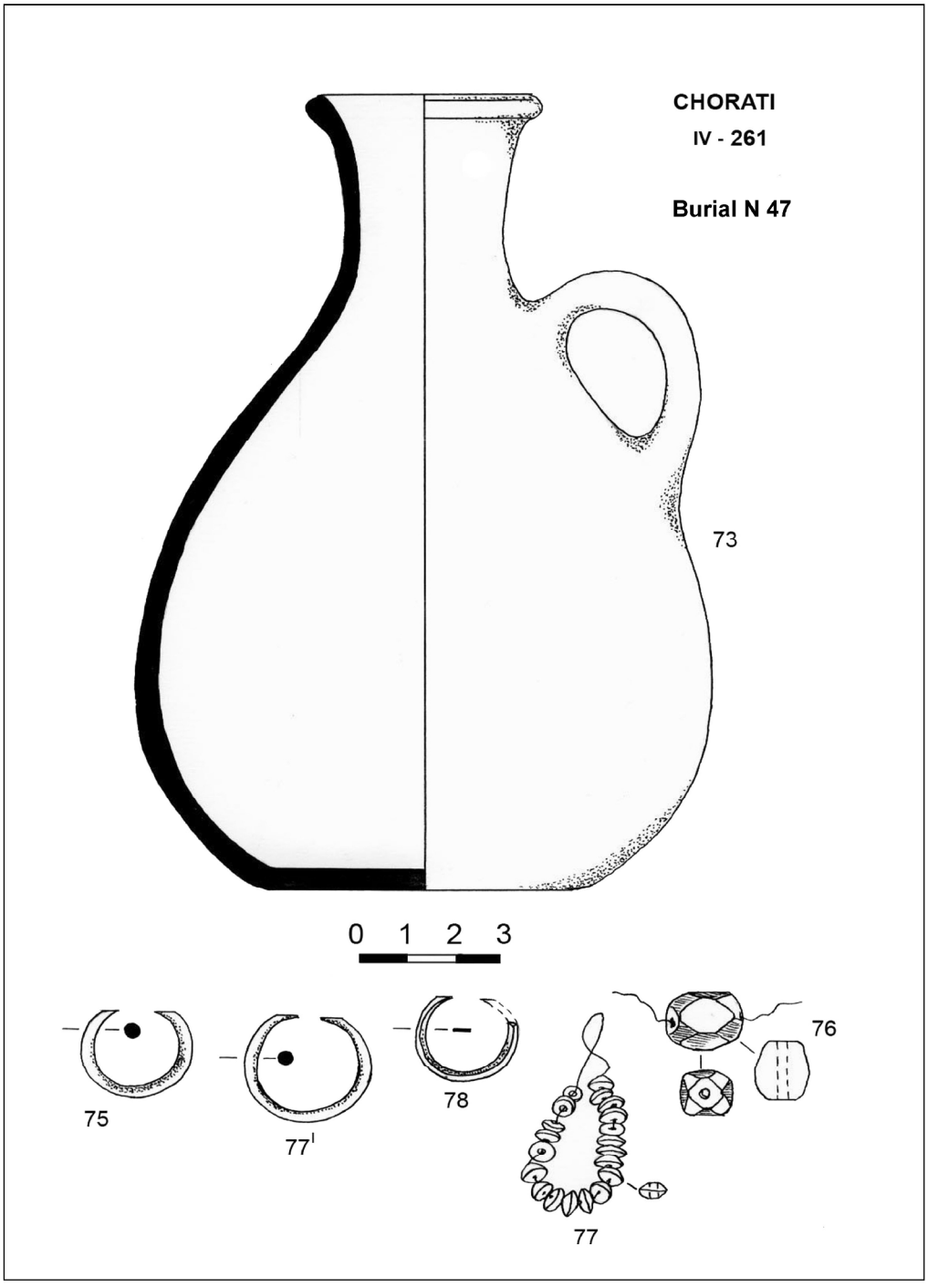
**Burial N 45**



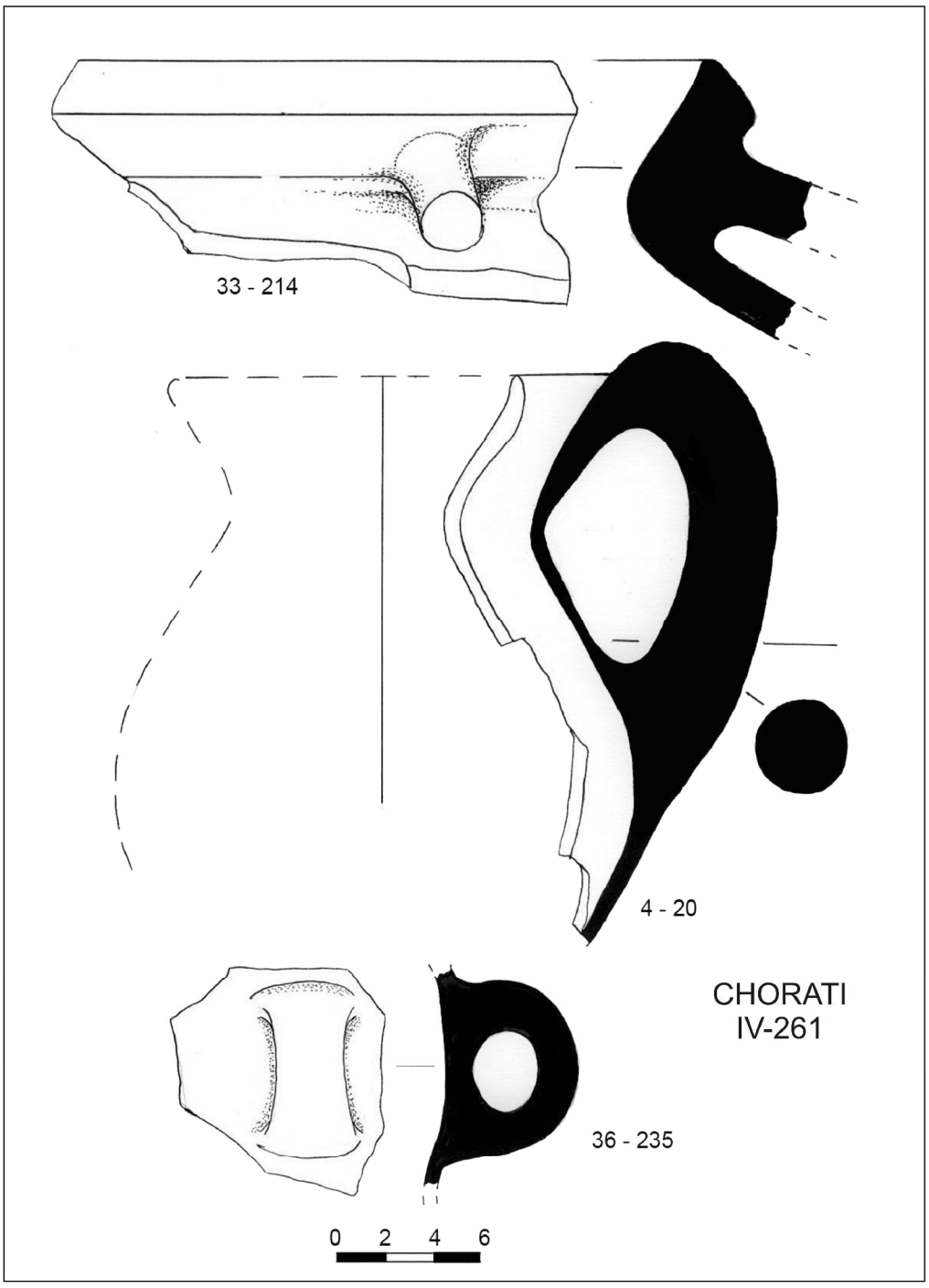



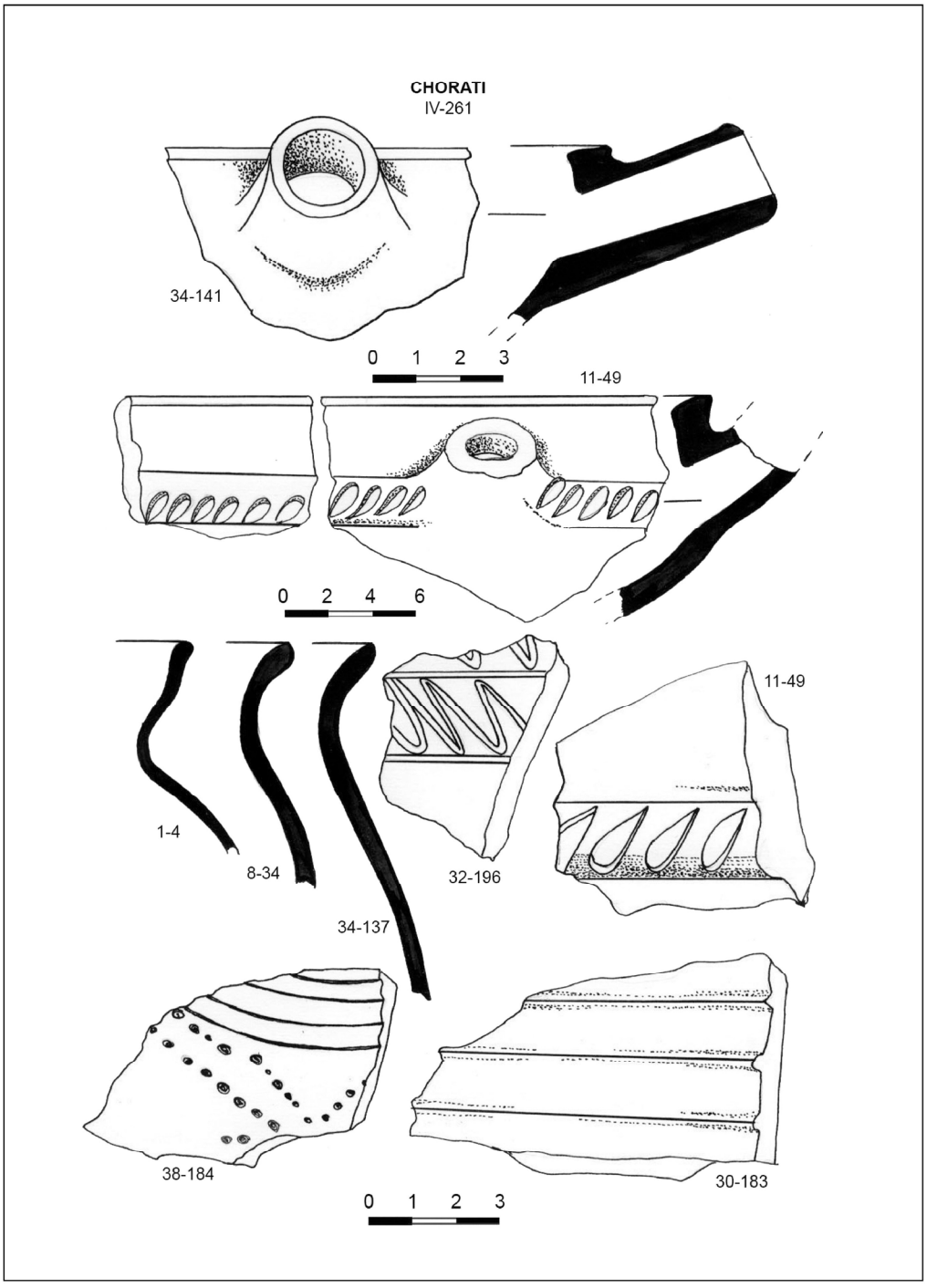

**Burial N 48**

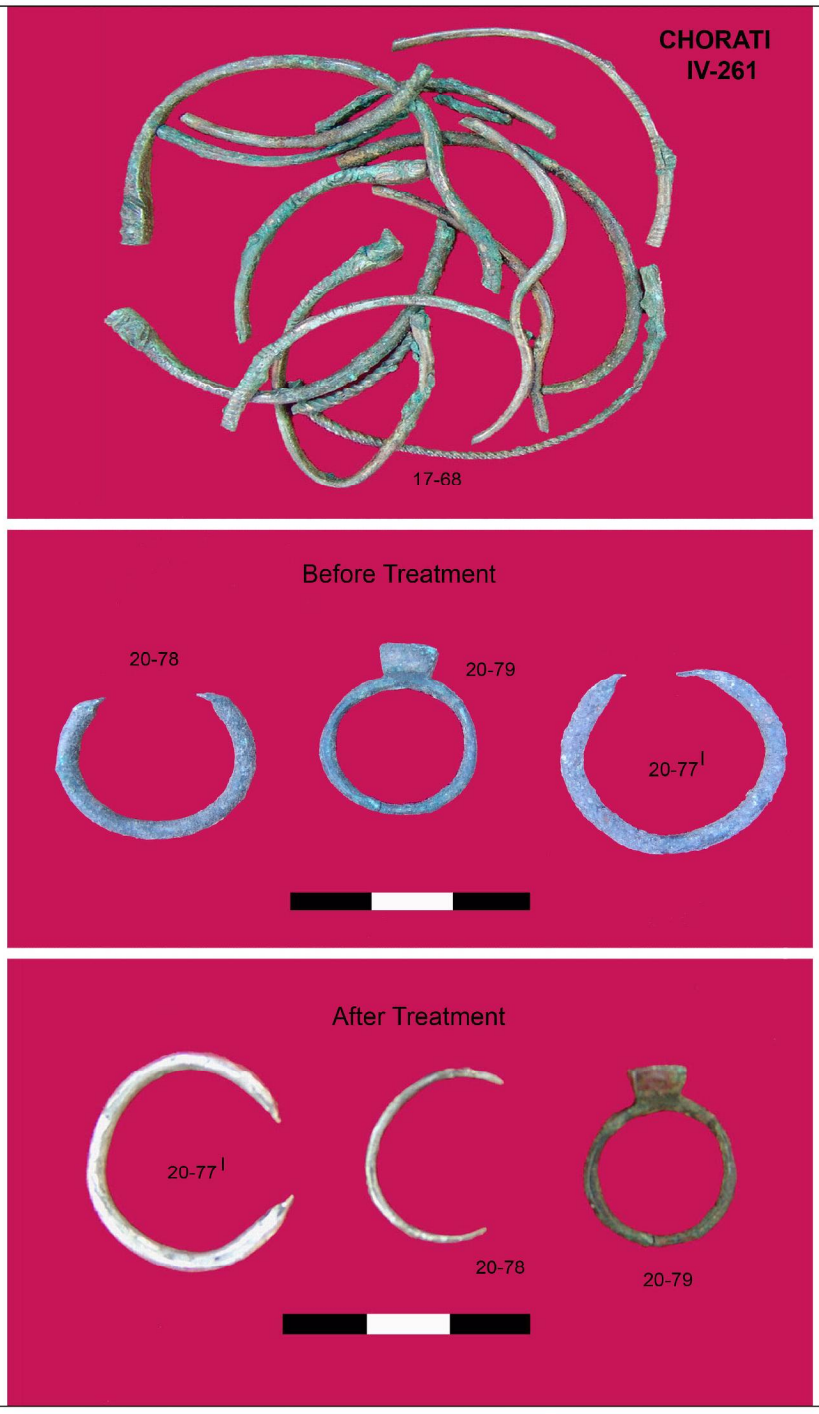
0 1 2 3


CHORATI
IV - 261
Burial N 47
73
0 1 2 3
75
77'
78
76
77

X

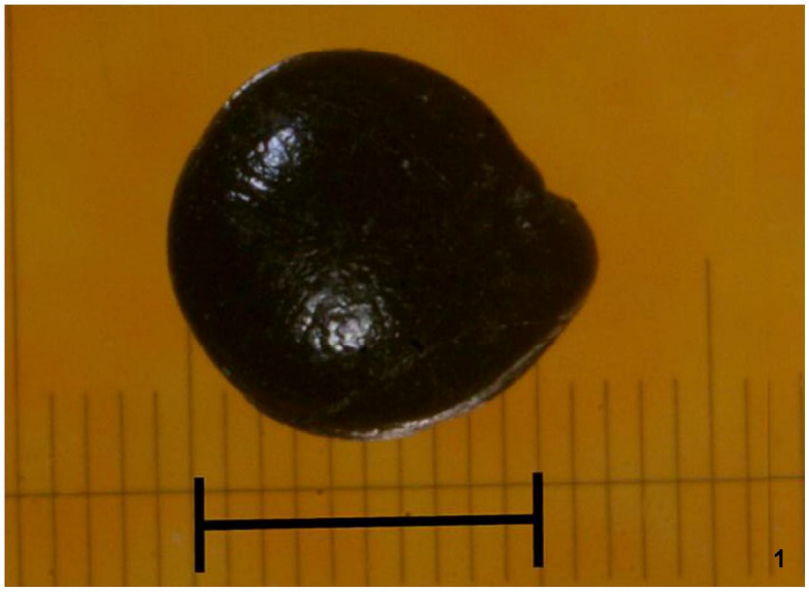


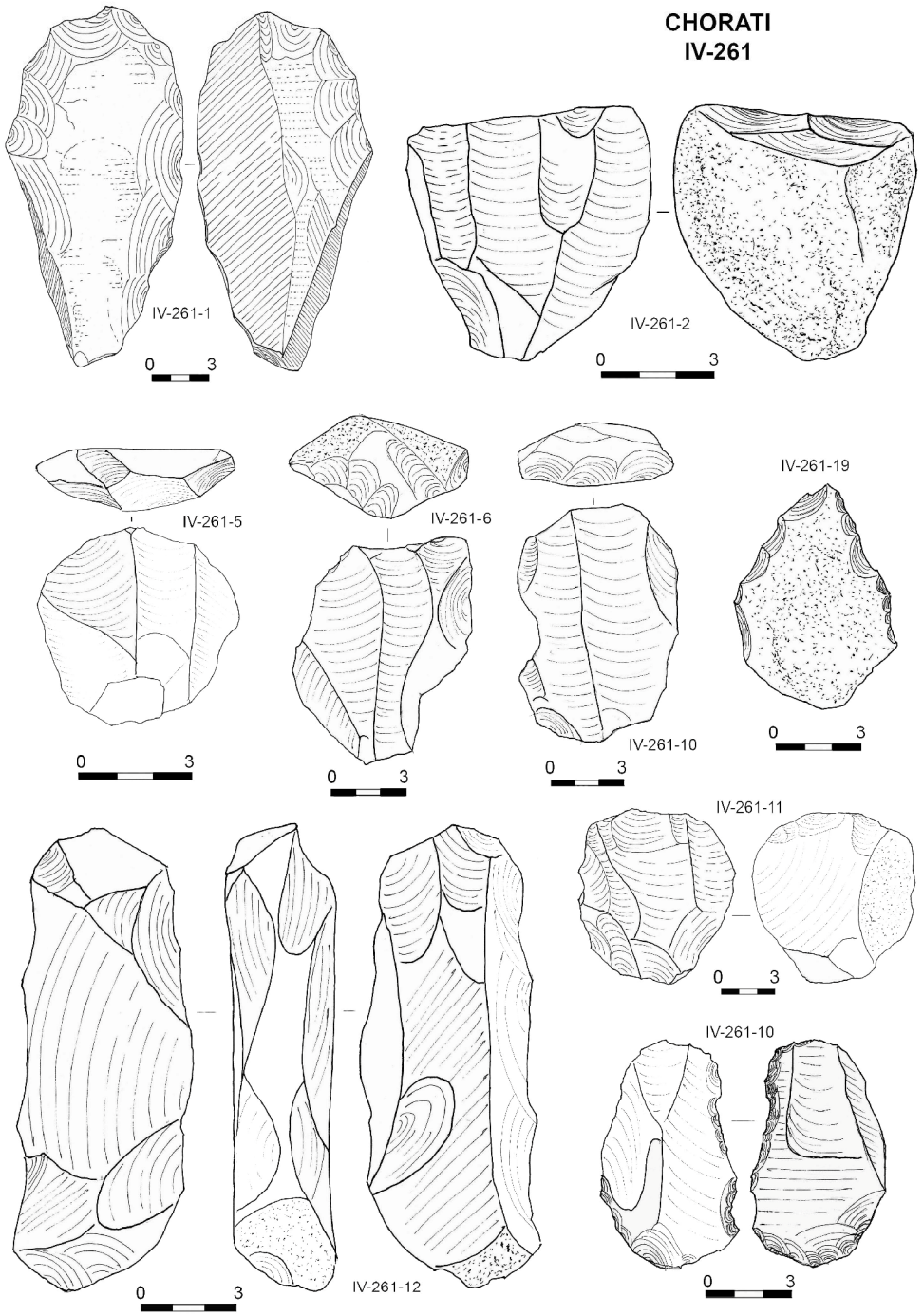

CHORATI
IV-261
34-141
0 1 2 3
11-49
0 2 4 6
1-4
8-34
34-137
32-196
11-49
38-184
30-183
0 1 2 3


CHORATI
IV-261
17-68
Before Treatment
20-78
20-79
20-77 I
After Treatment
20-77 I
20-78
20-79

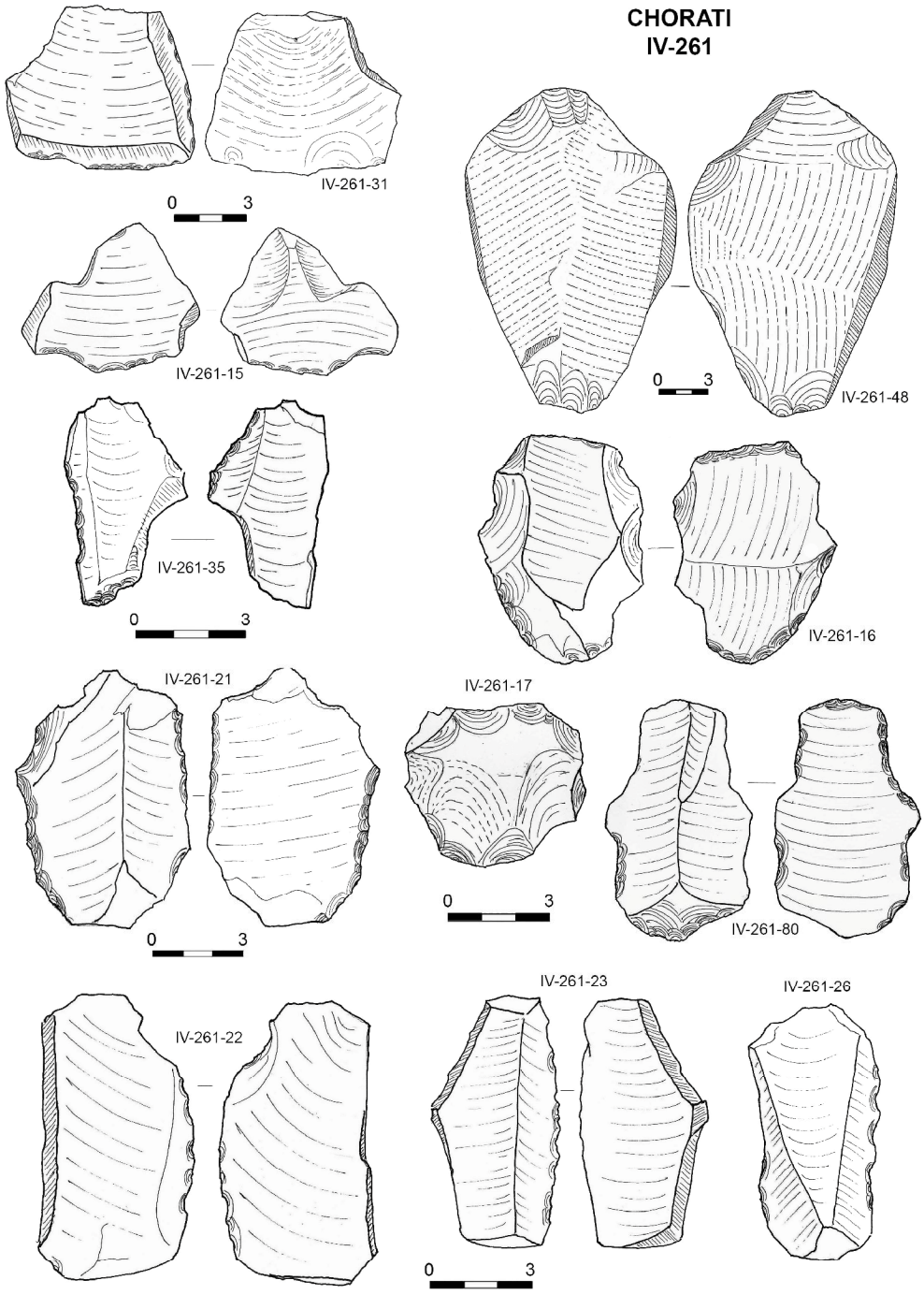
XIII

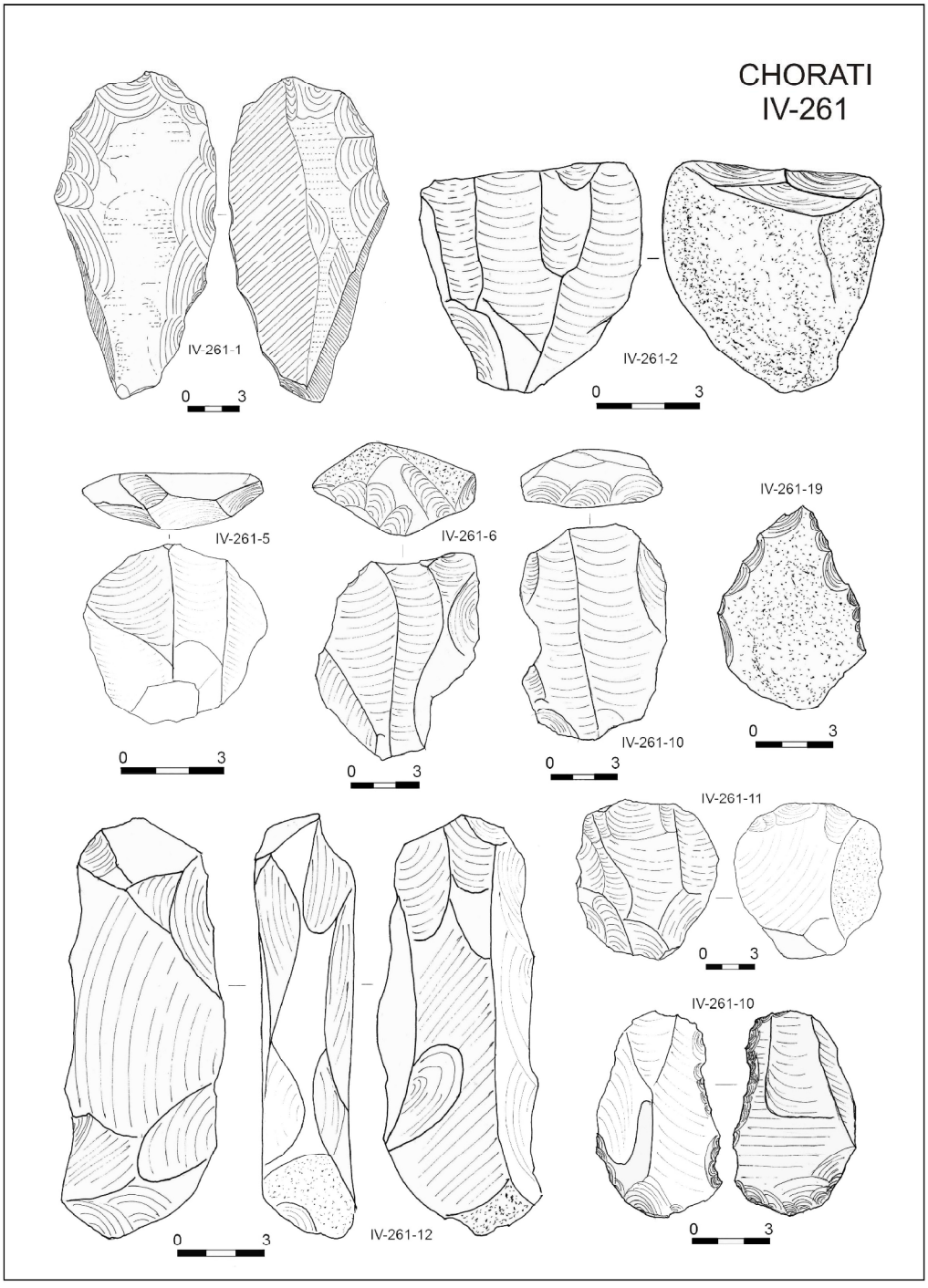
**CHORATI**
**IV-261**

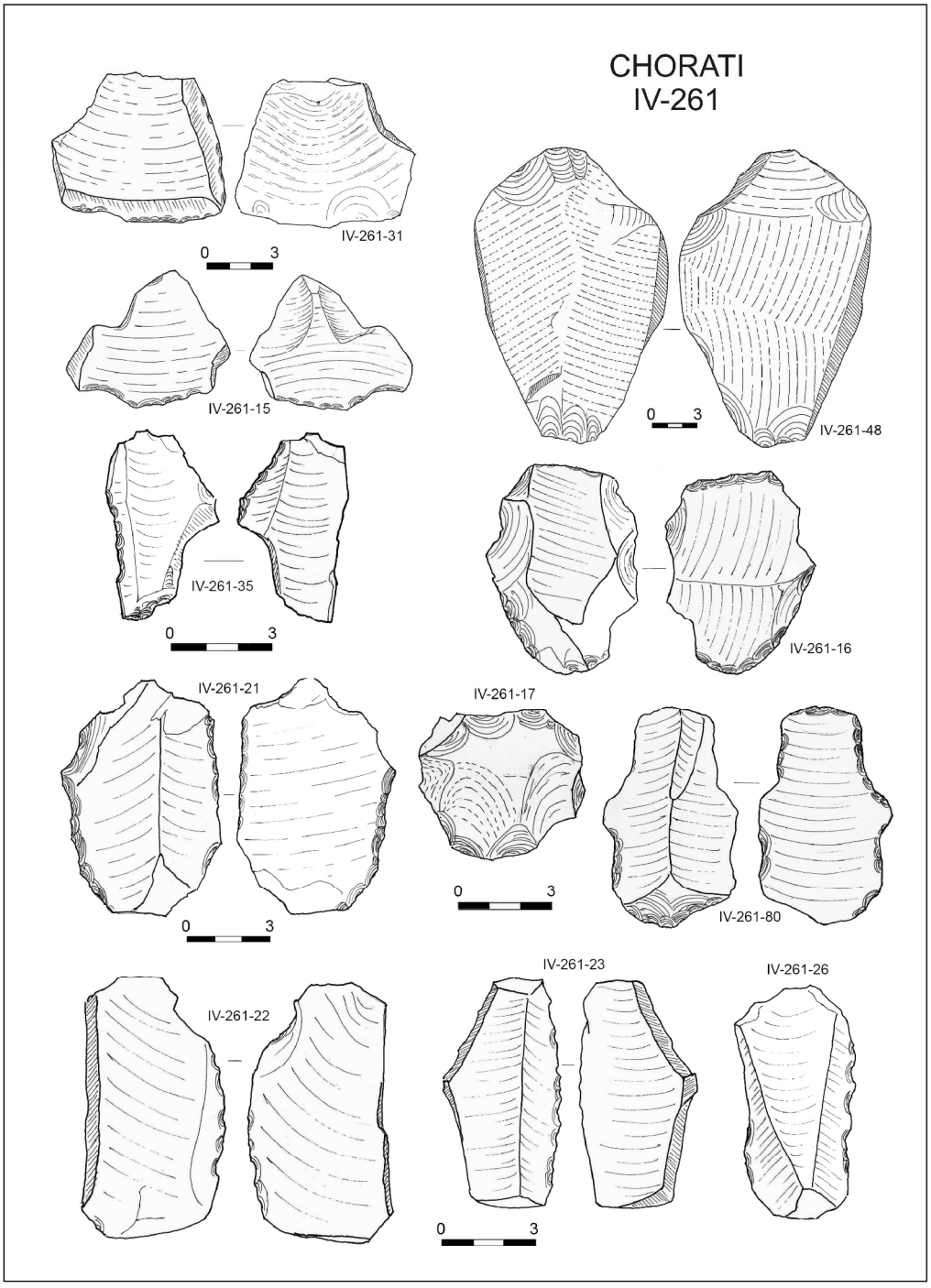


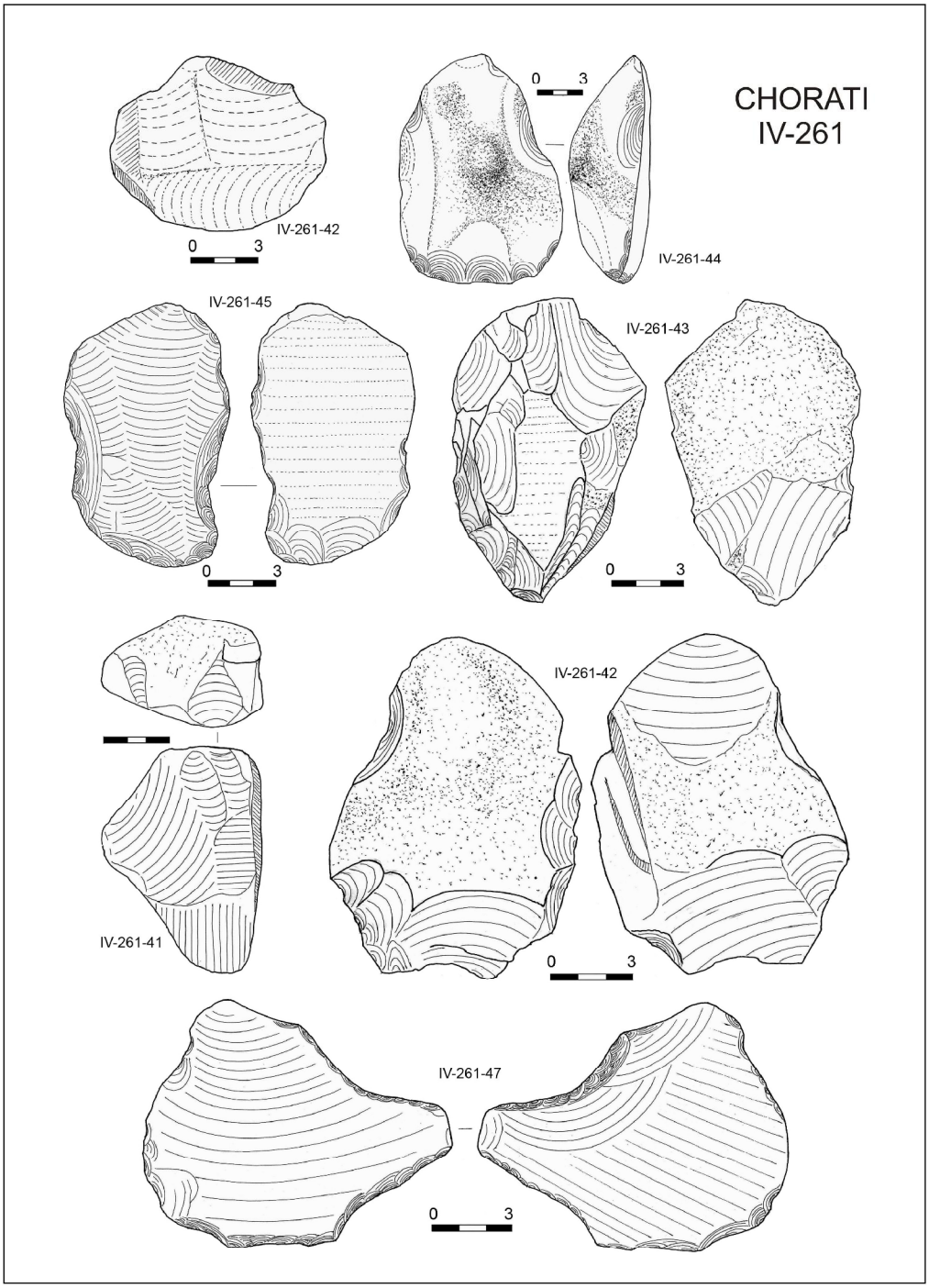


CHORATI
IV-261
IV-261-1
0 3
IV-261-2
0 3
IV-261-5
0 3
IV-261-6
0 3
IV-261-10
0 3
IV-261-19
0 3
IV-261-11
0 3
IV-261-12
0 3
IV-261-10
0 3

**CHORATI**
**IV-261**




CHORATI
IV-261
IV-261-1
0 3
IV-261-2
0 3
IV-261-5
0 3
IV-261-6
0 3
IV-261-10
0 3
IV-261-19
0 3
IV-261-11
0 3
IV-261-12
0 3
IV-261-10
0 3


CHORATI
IV-261
IV-261-31
0 3
IV-261-15
IV-261-48
0 3
IV-261-35
0 3
IV-261-16
IV-261-21
0 3
IV-261-17
0 3
IV-261-80
IV-261-22
IV-261-23
IV-261-26
0 3


CHORATI
IV-261
IV-261-42
0 3
0 3
IV-261-44
IV-261-45
0 3
IV-261-43
0 3
IV-261-41
IV-261-42
0 3
IV-261-47
0 3