# Comprehensive Technical Report on Archaeological Investigations at the Orchosani Site IV-323 KP 249

*Prepared by*

**Malkhaz Baramidze, Leri Jibladze, Temur Todua, Alexander Orjonikidze**

**Otar Lortkipanidze Archaeological Centre**
**of the National Museum of Georgia**
**14 Uznadze Street**
**0102 Tbilisi, Georgia**

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## Summary

The Otar Lordkipanidze Centre of Archaeology of Georgian National Museum undertook evaluative and salvage archaeological investigations at the Village of Orchosani, Site IV-323 KP 249, located in South Georgia, Samtskhe Region, Akhaltsikhe District in

connection with the construction of the BTC and SCP Pipelines. This report sets out the results of field and laboratory studies carried out in 2004-2007.

The excavations covered an area within the restricted pipeline corridor, and involved the partial excavation of the Orchosani multiple component site and cemetery. The early layers of the site date back to the Early Bronze Age the subsequent layers to the Roman and Medieval periods. The excavations also revealed some contemporary burials.

The artefacts recovered from the site are made of clay, stone and metal, the majority pottery sherds. The finds include fragments of building materials, industrial tools and adornments of different fabrics, as well as some context-free Palaeolithic tools.
The finds included anthropological, palaeozoological and palaeobotanical material, the analysis of which produced important data for the reconstruction of the palaeo-environment of Samtskhe Region.
Small scale excavations revealed traces of continuous human occupation on the site since the Palaeolithic period. As a result, a number of key overall research themes arose during the excavations and post-excavation laboratory processing that are highly pertinent to the study of the life of the prehistoric and historic population of the Samtskhe Region:

- The relationship between the Early Farming and Kura-Araxes Cultures.
- Burials of the Classical Period and ethno-cultural problems of Meskheti.
- Early Medieval Architecture.
- The material culture and ethnic origin of the Late Medieval population (Muslim Meskhs)

## 1.0 Introduction

### *Purpose of the investigation*

Excavations in the village of Orchosani, Akhaltsikhe District were designed to salvage and investigate the multi-layered site and the burials revealed during construction of the BTC and SCP pipelines. The Akhaltsikhe archaeological expedition conducted the survey under the supervision of Dr. Malkhaz Baramidze.

Project sponsor
The BTC and SCP Pipeline Companies funded fieldwork and post-excavation laboratory processing and analysis.

***Permits and contract numbers***

Permit No. 11, form No. 1 issued by the Archaeological Board of the Georgian Academy of Sciences licensed Dr. Malkhaz Baramidze to conduct archaeological excavations in the village of Orchosani, Akhaltsikhe District.
The investigations implemented under the following contracts:

Field investigations: HL-095, HL-102, HL-104, HL-105, HL-106, HL-108, HL-115, HL-127, HL-130, HL-134, HL-143, HL-149, HL-152, HL-153, HL-181, HL-183, HL-184, HL-186, HL-188, HL-189, HL-192, HL-193, HL-199;
Laboratory works HL-207, HL-218, HL-230, HL-244

***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 Orchosani were carried out in 2004-2005.
Fieldwork took place mainly in the area of the BTC pipeline route. Parts to the north ans south remained unexcavated and consequently the full extent of the site was not determined.

***Final disposition and repository Address***

Archaeological material from Orchosani and related field and laboratory reports have been deposited at the Otar Lordkipanidze Centre of Archaeology of the Georgian National Museum.
14 Uznadze Street, 0102 Tbilisi, Georgia, T 995 32 952920

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 spruce budworm in the coniferous forest reservations, 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***

The Orchosani site occupies a terrace running north-east to south-west some 80-100 m above the right bank of the river Potskhovi. Its absolute altitude is 1000 m AMSL.

### **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*

In the Late Middle Ages the luxuriant vegetation of the sub-alpine zone of the territory of Orchosani was mainly used for agriculture and cattle raising.
In the 20$^{th}$ century, Soviet frontier troops were stationed there. At present, it is exploited as a source of mown grass and for annual crops. These circumstances caused serious damage to the upper layers of the Orchosani site. Earth erosion, landslips and soil exhaustion cause additional damage.

## 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.

The Orchosani Terrace has been exploited since the lower Palaeolithic.
Surface finds made near the site consist of hand axes and scrapers made of andesite and basalt.

Orchosani and the Potskhovi gorge were apparently occupied since the days of the Acheulean Culture.

**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 what is generally termed the 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. At the end of the Mousterian epoch there were dramatic changes. During the Würm glaciation, people apparently abandoned the Samtskhe area and moved to a milder climate zone in western Georgia. More than 75 sites producing Mousterian stone tools found in Georgia. Seven sites found in southern Georgia, in the main region of the project area.

**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 southwestern 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 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 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 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 indicate 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 rods 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 (Charon carried the dead across the River Styx if they had an obol to pay for the ride. In some regions in ancient Greece the dead were buried with a coin in their mouth to pay the fare)
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).

The burial recovery pattern proves that from the end of the $4^{th}$ century, the socially and economically privileged influential circles of the region resided in Atskhuri. The Atskhuri finds have parallels in those from Hellenistic sites of Kartli (Tsikhia-gora, Samadlo, Uplistsikhe, etc.). Among Hellenistic sites, the Tsnisi burial is worthy of notice.

Although Alexander III of Macedon never invaded Georgia, political, economic and cultural contacts with Hellenistic world significantly influenced 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 (4th -10th 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 5th and 6th 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 10th and the beginning of the 11th 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 wine storage jars decorated with rope-like bands inserted into the floor. Similar wine storage jar 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 moslemized 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. Some of the burials appeared within the pipeline ROW and were threatened with complete demolition. The Expedition was legally obliged to excavate more than 40 burials and to remove the bones to be buried nearby on safer ground.

## 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 m x 10 m. Several squares were divided into even smaller sections of 2m x 2m, 4m x 4m or 6m x 6m according to necessity. Letters were given to north-south alignments and Arabic numerals to east-west.

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 Orchosani site and the cemetery were divided into four plots, A, B, C, D (Pl.III). The area excavated on Plot A was 320 sq. m; on Plot B, 325 sq. m; on Plot C, 144 sq.m; and on Plot D, 190 sq. m. The total area investigated was 979 sq. m. The finds were sorted according to functions: household, domestic, weaponry (arms), cult items and jewellery

The stratigraphy appeared to be homogeneous. The first cultural layer of the Early and High Medieval Periods was observed at a depth of 1-1.2 metres beneath the 0.2 m thick topsoil. The second cultural layer of the Early Bronze Age occurred in the next 1.2-1.5 metres below the first layer. In some sections, the Early Bronze layers were cut into by burials of the Early and High Middle Ages.

Excavation revealed a total of 58 burials and 29 household pits, mainly of the Bronze Age, two Kura-Araxes Culture buildings, and fortification walls, religious and residential buildings of the Early and High Medieval periods.

Osteological and palaeobotanical materials were selected for anthropological, palaeobotanical, and palaeozoological analysis.

### 5.2 Features

Two trenches measuring 6m by 4m and 77.5 m by 4m were dug in Plot A. Their maximum depth was 4-4.5 metres below ground level.

The expedition investigated a total area of 344 sq. m (Pl. IV). The stratification exposed two Medieval stone walls, three stone arches, four pit graves containing five burials without grave goods, the remains of an Early Bronze Age storage pit and five household pits.

In the centre of the second trench at a depth of 0.3-0.4 m below ground level, two walls oriented east-west were observed. They were 8.5 m apart and 10.3-11 m long, 1.3-1.7 m wide and 0.6-0.7 m high. They were built using dry-stone construction, with large and medium stones on the face, and earth and small stones in the core.

The stone arches oriented east-west were between 2.1m and 4.3 m long, 0.6-2.1 m wide, and 0.6 m high. For the construction of the arches, dry-stone construction was again employed, with the facing consisting of large stones, boulders in fact, and the core of small stones and sand. It was difficult to define their precise extent, since both the west and east arches stretched beyond the ROW. A reconstruction on paper suggested that these arches might have had a common centre.

The four pit graves lacked grave goods and measured 0.4 x 1.4 x 0.4. They were found discovered at 2.8 m depth below ground level. The deceased were buried lying on their backs with their hands crossed on the abdomen. The core of the wall contained remains of wood. The cists were oriented NW-SE.

In the trench to the NE of Plot 2, were remains of an Early Bronze Age storage pit. Only the NW wall of the construction was preserved. It was built with medium-sized boulders and abutted upon a rocky layer towards the west. It was 2.5 m long x 0.5 wide x 0.4 high.

At 0.8-1.5 metres below ground level, was a clayey floor of the Middle and Early Bronze Age. Five pits that once performed a domestic function were also found. Some were covered with sandstone and some not. The pits had oval rims, flat bases and sometimes became narrower towards the bottom. Their diameter varied between 0.5 and 1.7 m, and their depth between 0.3 and 0.65 metres. Four pits were discovered in the structure and one in Trench 1.

**Plot B1** (Pls. XII-XV; XXVIII; XXXII)

An area measuring 85 m x 1 m was investigated in Plot B1 (Pl. V).

The stratigraphy revealed:

$19^{th}$ -$20^{th}$ century burials of Muslim Meskhs,
Early Medieval settlement,
Early Medieval burials
Roman period burials
and Early Bronze Age pits.

The cemetery encompassed the whole of the excavated area and extended to both east and west, for approximately 25 m. Its length was impossible to establish. It was in this area, about 0.05 m below ground level, that the Expedition found burials of Muslim Meskhs, some of whom were subsequently re-interred elsewhere by agreement with the local government. Six inhumations left in the excavation area remained untouched.

At a depth of 0.95-1.2 m, were found 33 Early Medieval pit graves. They were oval in shape, and some had been roofed with wooden boards (Nos. 3, 4, 6, 7, 16, 23, and 26). Their dimensions ranged between 0.65m x 1.7 m and 1.5 m x 1.6 m.

In most cases the deceased had been laid on their backs, but were occasionally lying crouched on their right sides. The cists had different orientations: some pointed south (Cists Nos. 1, 2), some of them to the west (No. No. 14, 15, 19, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31), one to the SW (No. 17), and yet others to the NW (Nos. 27, 32, 33). The orientation was not determined in some cases (Nos. 3, 4, 5, 6, 7, 8, 9, 90, 11, 12, 13, 16, 18, 20, 21). Among the rest, only six contained artefacts.

The Early Medieval Cultural Layer contained pottery.
Two household pits were identified. Pit No. 1 was located at a depth of 1.2 metres and measured 1.5 m x 1 m. Pit No. 2 was located at the same depth and measured 1.8 m x 1. 5 m. Both of them became narrower towards the bottom.

**Plot B**
Horizontal Drilling Trust Pit No. 1 measuring 10 m x 24 m, was dug from NE to SW (Pl. VI) and covered 240 sq. metres. It was clear from the stratigraphic section that the remains of a Medieval wall overlaid an Early Bronze Age layer containing pottery, at the south wall of the trench.

The Medieval wall was oriented NE-SW. The surviving part was two metres long and one wide. It was built from very small stones using a clay mortar. The discovery here of a coin of Rusudan struck in 1227 enabled a precise dating of the monument.

At bedrock an Early Bronze Age stone pile 0.4 m high was identified.

Five Early Bronze Age pits were excavated. They were between 0.6 and 1.7 m in diameter, and between 0.5 and 1.6 m deep. The pits had more or less straight walls and flat bases.

**Plot C**
Trench No. 2 (Pls. VII, VIII) was 24 m long and 6 m deep, and aligned NE-SW. An area of 144 sq. metres was investigated. In section, it was possible to recognise a fragment of the wall of an Early Medieval building, 20 Roman, Early and Late Medieval pit graves, three household pits, one ash-laden hearth and the remains of a settlement dated to the third millennium BC Pit graves occupied an area measuring 48 sq. m. Part of the cemetery lay within the space allotted to the excavations and was overlaid by the $19^{th}$-$20^{th}$ century cemetery of Muslim Meskhs.

Oval, round and square burials were oriented E-W (Nos. 7, 8, 9, 10, 12, 14, 16, 17, 18, 20), NE (Nos. 2, 4, 5) and SE-NW (Nos. 1, 3, 6, 11, 13, 15).
The graves had been were covered with wooden logs and there were remains of wood on the interior walls of some. The dimensions of the graves varied between 0.7 and 2 m in length, 0.3 and 0.4m in depth, and 0.4 and 0.9 in width. The deceased were buried laid on their backs (Nos. 4, 9, 10, 11, 12, 13, 14, 16, 17, 19) or crouched, lying on their right sides (Nos. 2, 5, 6, 7, 8, 20).

An Early Medieval dry-stone wall, 3m long, 1 m wide, built from rectangular rocky outcrops, was oriented E-W.

Of the three pits that were excavated, one was filled with stone and gravel (Pit No. 2). It was located in the rocky soil, oriented SW-NE. The pits, which probably had a domestic function, were round, with straight walls, and rounded or flat bases. Their dimensions varied between 1.5 m and 1.72m in length, 1.2m and 1.6.m in width, and 0.7m and 1 m in length. The Early Medieval Pit No. 2 cut into the Roman period Grave No. 6. The round ashy hearth was oriented E-W, and was filled with stone and gravel. It was 1.25 m in diameter and 0.5 m deep. It had vertical wall and became narrower towards a buff limestone slab that formed the base.

**Plot D**

Sixteen trial trenches aligned SW-NE and 4 m long, 1 m wide and between 0.5 m and 1.8 m deep enabled a survey of a space 160 m long. It was possible to establish the nature of the site and to understand its stratigraphy and extent (Pl. IX). The stratigraphic section revealed Medieval stone walls overlying the remains of an Early Bronze Age settlement. (Pls. IX-X).

Trench D contained the remains of a pit grave measuring 1m x 1m, cut into the buff bedrock. Judging by the position of the skull of the deceased, the burial was oriented SW-NE. There were fragments of wood were preserved in the core of the wall. There were no grave goods. The burial presumably dates to the late Medieval Period.

In Plot DA, at 0.4 m below ground level, were three parallel dry-stone walls, built using large and medium-sized pebbles with a core of small stones and earth. They stood between 1.2 m and 1.7 m apart and were oriented E-W. They were 4 m long, and between 1 m and 2 m wide, but extended beyond the excavated area to the west, as could be seen from an aerial photograph.

**Trench DB** contained revealed two parallel dry-stone walls built at different levels and oriented E-W, and built with both large and small stones with a core of small stones. Wall No. 1 was 8.5 m long, and between 1 m and 1.2 m wide. Wall No. 2 was 20m long and 1 m wide. The lower wall abutted upon the Early Bronze Age layer.

At 2 metres below ground level in Trench DB, the remains of two Early Bronze Age storage structures aligned E-W and with dry-stone walls 7.8 m apart were discovered. They were built using medium-sized cobble-stones, and were 2.6 m long, and between 0.3 m and 0.6 m wide. The storage structures were presumably rectangular. (Pl. X 2). They extended beyond the excavated area to the west.

At a depth of between 1.4 m and 1.8 m below ground level, 18 household pits containing artefacts were excavated in the Early Bronze Age layer. 17 pits were identified in Trench B, and one in Trench A). They were all the same shape, with circular rims, vertical or steeply slanting sides, and flat or round bases. They ranged in diameter between 0.80 and

3.4 m, and in depth between 0.32 m and 1 m. Some of the pits were filled with gravel (Nos. 5, 16, 17).

**5.3 Artefacts**

Artefacts retrieved from the Orchosani site, Plot A (Pl. XI) were classified according to material in four groups: Pottery, Stone, Metal and Bone. Each group contained material from both the Early Bronze Age and the Early Medieval periods.

Pottery predominated in Plot A and came to 418 items, 123 of which could be dated to the Early Bronze Age , and 295 to the Early Medieval period.

**Wine storage jar**. Among the pottery wares, the most prevalent form was the wine storage jar, which held approximately 500-600 litres. They were decorated with relief bands and mostly belong to the Early Medieval period (4th-8$^{th}$ centuries). Seven wine storage jars were found in the relevant area.

**Large pots** (11 samples) contemporary with the wine storage jars, are typologically similar in form, fabric and colour, although they lack the ornamented bands. It is estimated that they held between 50 and 100 l.

A typical form among the Early Medieval pottery is the **small jug** (holding between one and one-and-a-half litres), fired pinkish-buff, and sometimes burnished. Such vessels generally occur in the 4th-6$^{th}$ centuries AD, although the shape is also encountered in the 7$^{th}$ century contexts.

Two jugs that are identical in form, fabric and surface treatment to the above-mentioned small jugs belong to the same period. They only differ in that they have a greater capacity (more than 3 litres) and a decorative band. Both of these vessels were used for decanting liquids.

Five **pots** belonging to the category of kitchenware are probably to be dated to the same period as the above, as are two small dishes. The context in which they were discovered suggests that such vessels were in use throughout the Early Medieval Period

The Early Bronze Age layer contained 103 pottery items, among which were: wine storage jars, pots, jugs, jars, drinking vessels and bowls. The fabric typically has a black burnished surface, is pink inside, and is made of fine-grained clay.

The large storage jar is the most typical form among the ceramic wares of the Kura-Araxes Culture. Such vessels are approximately 0.60-0.65 cm high, and were not restricted to storing wine.

The bowl is another typical form of the Kura-Araxes Culture; it was possible to reconstruct two examples.

Jugs occur very rarely in this period, and only three were found in Plot A. They served as storage vessels for holding liquids.

There were three examples of cooking pot, similar in form to Early Medieval cooking pots, which is natural enough given their similar functions.

This period is characterised by small narrow-lipped drinking vessels, of which three examples were found.

Vessels that might be termed jars are also met with at this period. One example was found in Plot A.

The precise identification of other forms was not possible. After reconstruction, the typological classification remained the same, but the forms and decoration could be more precisely determined.

**Stone Artefacts**
The majority of the stone items from Orchosani are obsidian flakes. There were 37 of these, some bearing retouch marks. In addition, there were 27 Early Medieval household implements including 15 oblong hand-mills, 2 mortars, 10 pestles and grindstones, and 10 weapons (in the form of sling stones).

**Metal artefacts** included six oval-headed iron nails, three bronze rods, and three finger-ring or earring fragments, 12 items in all.

**Plot B1**

Pottery forms by far the most numerous category of artefact percentage-wise; then follow stone, metal and bone (Pls. XII-XV)
There are a total of 124 ceramic items, and they include fragments of vessels of different kinds and functions, namely household, kitchenware, and tableware: large pots, wine storage jars, pots, bowls, small jugs, drinking vessels, spindle-whorls and tiles.

Large pots (Square A5) for household use. Plain, reddish-black, greyish-black ware, dating to the Early Bronze Age.
Pots (Square A5), kitchen ware, fired grey and reddish, knobbed, Early Bronze Age.
Bowl (Square A5), wall fragment, kitchen ware, fired blackish-grey, Early Bronze Age.
Undetermined vessel (Square A5), kitchen ware, fired brownish and blackish, Early Bronze Age.
Vessel (Square A5), household, fired brownish, rim fragment, hand modelled, Early Bronze Age.
Bowl (Square A5), tableware, wall fragments, black burnished pink interior, ornamented, from Pit 2, Early Bronze Age.
Frying pan like vessel (Square A5), kitchenware, fired greyish, impression of textile on base, from Pit 2, Early Bronze Age.
Pot (Square A5), kitchen ware, black burnished, pinkish interior, found in Pit 2, Early Bronze Age.

Undetermined vessel (Square A11), wall fragment, kitchen ware, fired reddish, ornamented, 1st-3rd centuries AD.
Undetermined vessel (Square A 12), rim to wall fragment, fired greyish, 1st-3rd centuries AD- Early Medieval.
Spindle-whorl (Square A12-13), whole, fired blackish grey, circular, 1st-3rd centuries AD.
Jug fragment, tableware, fired greyish, found in Burial 2, inventory No. 2, 1st-3rd centuries AD.
Jug, tableware, fired pinkish, fluted, found in Burial 1, inventory No. 2, 1st-3rd centuries AD (Pl. XIII 12-63).
Small jug (Square A7), fired buff, trefoil-lipped, from Burial 33, 1st-3rd centuries AD (Pl. XV 8-54).
Drinking vessel (Square a9), fired reddish, discovered in Burial 27, 1st-3rd centuries AD (Pl. XII 9-55).
Drinking vessel, fired brownish, discovered in Burial 2, 1st-3rd centuries AD.
Pot (Square A6), kitchen ware, fired blackish, found in Burial 32, 1st-3rd centuries AD.
Wine storage jar (Square A4-5, 12-13), household ware, abundant fragments, fired greyish, Early Medieval.
Undetermined vessel (Square A 4-5, 11-12) tableware, fired reddish-black and blackish-grey, both plain and ornamented, Early Medieval.
Wine storage jar (Square A5, pit 1) household ware, fired greyish-black and orange, Early Medieval.
Pots (Square A 5, 11-12) household ware, fired blackish-grey and reddish, Early Medieval.
Vessel (Square A4), tableware, fragment, fired greyish, painted, Early Medieval.
Festoon, household ware, complete, fired orange, rounded, flat, found in Pit 1, Early Medieval.
Tile, (Square A 4, 13), construction, 2 fragments, fired brownish, Early Medieval.
Vessel (Square A3), tableware, fragment, glazed, buff, Medieval.

There were but a few stone items, five in all:
Flint (Square A 5), flake, milky, Early Bronze Age.
Obsidian (Square A 5, pit 2)) flake, Early Bronze Age.
Flint lamella ( Square A 5, pit 2), milky, Early Bronze Age.

There were 14 metal items:
Finger ring (Square C) iron, with bezel, discovered in Burial 1, inventory No. 1, 1st-3rd centuries AD.

Finger ring (Square A 9), iron, flat bezel, mounted with a carnelian gem with an image of Tyche/Fortuna, discovered in Burial 27, 1st-3rd centuries AD (Pl. XII 24-132).

Knife (Square A5, 11), kitchenware, two fragments, flat with straight spine, Early Medieval.

Needle (Square 11) iron, fragment of tip, needlework, Early Medieval.

Finger ring (Burial 1, deceased No. 1), jewellery, bronze, patinated, with bezel, 1st-3rd centuries AD. (Pl. XIII 23-121).

Needle (Square C burial 1, dead No. 1), bronze, fragment.

Coins silver, two denarii of Augustus from Burial 1, inventory No. 1, the other unidentified from Burial 2; apparently used as "Charon's obols, Early Roman.

Cross (Square A11-12), silver, equilateral, with silver case, discovered in Burial 1, Early Medieval (Pl. XII, 25-140, XXVIII 25-140). (Appendix F).

Plate (Square A7, Burial 33), Ritual, apparently used as a "Charon's obol", thin fabric, circular, 1st-3rd centuries AD.

**Glass** was represented by a limited number of artefacts:

Vessel for cosmetics (Burial 1, deceased No. 1), bluish, 1st-3rd centuries AD (Pl. XII).

Bead (Burial 1, deceased No. 1), carnelian, three samples, 1st-3rd centuries AD.

Seed bead (Burial 1, deceased No. 1) glass paste, 14 examples, 1st-3rd centuries AD (Pl. XII).

Bead (Burial 2), glass paste, oblong, 1st-3rd centuries AD

Bead (Burial 2), pendant, glass paste, mosaic, incrusted, greyish, 1st-3rd centuries AD.

Bead (Square A7, Burial 33), jet, 2 examples, 1st-3rd centuries AD.

Bead pendant (Square A7, Burial 33), agate, oblong, perforated, 1st-3rd centuries AD.

Bead (Square A9, Burial 27), glass paste, bluish with white strips, 22 examples, 1st-3rd centuries AD.

Bone jewellery is represented by only one item:
Pin (Burial 1, deceased No. 1), long, facetted, 1st-3rd centuries AD (Pl. XII).

Bones survived in small numbers:
Scapula, femur bone (Square A5, Pit 2), sheep (goat?), 2 examples Early Bronze Age
Femur bone, goat (sheep?).
Fragments of mandible with teeth (Square A5).
Bone fragments, five examples (Square 16), Early Medieval (Appendix E1, 2)

**Plot B**

The Early Bronze Age pottery was all made by hand; none was wheel-thrown. There were fragments of 120 vessels, including 8 bowls, 46 pots, 66 jars, 20 pans, 4 small pots. Some was fired in irregular fashion, smooth coarse ware of single or double thickness, and fine ware with burnished exterior. This period is characterised mainly by an abundance of brownish-grey and black ware. Ornaments are rare, and occur only in the form of oval nodes beneath the rims of coarse ware vessels (Pl. XVI 10-52). In addition, circular bases marked with plaits occur, mainly on frying-pan type pottery (Pl. XVI 10-53). There was also pottery with a red-painted exterior. Most of the pottery came from the southern part of the trench and represents household and kitchen ware.

The Early Bronze Age stone items included 18 obsidian flakes. Most of the household implements are made from basalt and include: a mortar, a pestle, a grind-stone, etc.
A milky, cylindrical and perforated agate pendant was found in Squares A, B, 6,4,5,6 to the south of the site, Pit 3.

The Early Bronze Age metal objects consist in the main of household bronze and copper tools: a rod, an arrow head and thin awls, found in the southern part of the trench.

The bone material consists mostly of the skeletal remains of cattle (22 pieces). One was used as a spindle whorl. Cranium fragments of two of the deceased were also identified.

Most of the Medieval pottery was wheel made. The fabrics are black, grey and pinkish, and they are sometimes ornamented with incised relief bands and herringbone patterns. Fragments of red-painted ware occur rarely. There were 50 vessels represented among the Medieval pottery, including 17 examples that are probably fragments of a drinking vessel, six small jugs, 10 wine storage jars, and 16 large pots.

**Plot C**
**(**Pls. XVII-XXVII; XXIX-XXXI)
The pottery finds from Trench 2 consist mainly of 221 separate earthenware sherds; in particular large and medium-sized hand made vessels (27 samples) with a fabric fired a range of colours from grey, through black, and buff to orange. The contain both coarse and fine inclusions. Most of the pottery has a coarse surface, but some black-burnished vessels occur.

Large pots were found in Trench 2, Plot 3, Squares B5, B6, A5, and A6. They are likely to have been used for domestic purposes, for the storage of crops and liquids, and date to the second half of the third millennium BC

Forty-four black burnished pots, with one-ply fabric with fine grain inclusions fired grey, or blackish-grey were found. They have a coarse exterior, a pink, blackish-grey interior, and a rounded body profile.
Early Bronze Age kitchen and table pots were recovered in Squares B3, B5 and B6.

Three fragments of a black-burnished tub (or bucket) of one–ply fabric with inclusions of sand and mica and with a pink interior, were found in Square B6. The vessel has a round

form, with carination. It was a vessel used in the kitchen for storing food and liquids. It dates to the second half of the third millennium BC.

The four examples of kitchen fine ware fired blackish-grey and buff is made of fine-coarse clay. It has burnished and incised striped ornament, was found in Plot 1, Squares A1 and A6 and is dated to the Early Iron Age ($8^{th}$-$7^{th}$ centuries BC).

Squares A6, B5 and B6 produced six fragments of wheel made small jugs that count as tableware. They are fired greyish/brownish/orange and date to the Roman period (1st-$3^{rd}$ centuries AD).

Seven fragments of small fine tableware were found in Plot 3, Squares B5 and B6. The fabric is fired greyish/pinkish/reddish/buff/orange and has a blackish-grey exterior and interior and is made of one-ply fabric with fine grain inclusions. The vessel dates to the 1st-3rd centuries AD.

Only a limited amount of kitchenware: three bowls with a blackish-grey or reddish exterior and interior (Pl. XIX) were found in Square B5 and are to be dated to the 1st-3rd centuries AD.

Three small hand-worked pots, fired brownish (Pl. XX) were found in Square B5 and are to be dated to the $1^{st}$-$3^{rd}$ centuries.

Thirty six pieces of household storage jar were discovered in Squares A1, A3, B5, and B6. They have a grey black exterior decorated with rows of relief bands sometimes covering the whole body. This kind of vessel was used for the storage of wheat and oats, but mostly for liquids, and dates to the Early Medieval period.(Pl. XXII).

Large pots were found in the settlement of the Early Medieval Period in abundance. There were eleven pieces, fired black, greyish, or pinkish inside and out. Some have a coarse, burnished or black painted exterior. They were found in Plots 2;3, Squares A3, A5,B6 and were used in household contexts. They date to the Early Medieval period ($4^{th}$-$6^{th}$ centuries).

In Trench 2, Squares A2, A3, A6 and B, in Pit 1, were found sixteen examples of pots fired grey to black with reddish patches. This fine-grained kitchen ware was wheel made, and dates to the 1st-3rd centuries AD.

One hand-worked circular, pierced, ceramic, spindle-whorl was found in Trench 1, Square A3, Pit 1. The device was used in the household for spinning thread, and dates to the Early Bronze Age.

In Plot 3, Square B6 was found a small moulded terracotta anthropomorphic figurine intended for cult purposes. It dates to the second half of the third millennium BC (Pl. XXIX, figs. 113-219).

The artefacts from Trench 2, Squares B5, B6 included grind-stones of an apparently common type. Of the four recovered examples (Pl. XXII), some are incomplete, but all show signs of having had a burnished exterior. They were used for household purposes and date to the second half of the third millennium BC.

There were two oval whetstones in Trench 2, Plot 3, Squares B5, B6. They were light grey with a blackish surface. They were used for household purposes, and judging by the context, they date to the second half of the third millennium BC

Two fragments of sickle blades were found in Plot 3, Squares A6, B6. They were coarsely worked in flint and basalt and are now whitish and grey respectively. They were used for household purposes and date to the second half of the third millennium BC

Five flint lamellae, now whitish, with both fine and coarse work on their surfaces, were found in Trench 2, Squares A6, B6. They were probably used within the household and date to the second half of the third millennium BC.

Ten obsidian flakes, now whitish, were found in Squares A6, B6. They are the remains either of weapon or household tool manufacture, and date to the second half of the third millennium BC.

Three grey sandstone mortar fragments, used in the household, were discovered in Trench 2, Square B5. They date to the Early Medieval period.

A millstone, pierced with a rectangular spindle hole in the centre, a coarse exterior and a cut and smoothed interior, was found in Squares A6, B6. It was used within the household and dates to the $4^{th}$-$6^{th}$ centuries.

Part of a well cut stone Medieval arch with a greyish coarse surface was found in Plot 3, Square A6. It an architectural detail decorated with representations of a cross, the sun and a comb-like image on the edges.

The artefacts included a series of beads: two spherical perforated carnelian beads, four squat, conical, globular greenish beads, one round conical bead with engraved sides, 31 green, grey and silver-looking square, biconical, circular and oblong glass paste beads: all found in Squares A6, B6 and dating to the 1st-3rd centuries AD.

A trapezoidal mould-made bronze mattock, now with a patinated greenish surface, was found in Plot 3, Square B6 (Pl. XXXIV). It served as an agricultural tool and dates to the second half of the third millennium BC.

One fragmentary iron bracelet, round in cross-section, was found in Plot 3, Square B6. This piece of jewellery dates to the 1st-$2^{nd}$ centuries AD.

Bovine, ovid and caprid, and rarely cervid, osseous material was found in Trench 2, Squares AA3,B6, dating to the Early Bronze Age (Appendix D1,2). The skeletons of 20

deceased humans were recovered from Squares B5, B6, A5. A6B4, A3, dating to the 1st-3rd centuries AD, and the Early and Late Medieval periods.

**Plot D**

**Ceramics**

The greatest number of artefacts from Plot D are ceramic. A total of 849 pieces were found there, and they amount to 85 % of the finds from the whole site. Predominant among the are finds from the Early Medieval Period (the first layer) and the Early Bronze Age (the second layer) (Pls. XXIII-XXVII).

Among the 469 Early Medieval sherds, 374 are plain and 95 ornamented.

The most typical shapes are large and medium-sized storage jars. There were 35 examples ornamented with between 4 and 9 rows of notched relief bands. They were used for the storage of liquid, usually wine, and held between 100 and 500 litres. Their frequency indicates that viticulture was highly developed in the region.

Two fragments of burnished fine ware (jugs or small jugs) were found in Plot D. They were fired a buff, pinkish colour and belong to a type of vessel dates to between the 5$^{th}$ and 9$^{th}$ centuries, though it is probably possible to narrow this down to the 8$^{th}$ or 9$^{th}$ century. A fragment of related greenish glazed pottery indicates a similar date. The remaining 48 fragments of painted wares are probably sherds mostly of pots characterized by a fine fabric, a slightly burnished greyish exterior, and which are sometimes marked by fire.

Most of the remaining 374 fragmenst are plain, blackish-grey, greyish and black. They are made from a fine-grained earthenware fabric and come mostly from pots or bowls.

There were 311 sherds of Early Bronze Age pottery, 242 of which were plain and 69 decorated. The paramount vessel form among the Early Bronze Age pottery is the bowl, and most of the recovered pottery consists of sherds of pale black burnished bowls with a spotted pink interior (of which there were 14 examples). Three fragments came from bowls with a different coloured interior. They belong in the tableware category (Pls. XIX-XX).

Another typical form for the Early Bronze Age is the wine storage jar. Six examples came from Plot D. (Pl. XXVI). They are made of fine-grained clay, sometimes with quartz inclusions. Both these forms (bowls and wine storage jars) are typical of the Kura-Araxes Culture.

The third form to be distinguished among the ceramic finds is the jar, of which nine examples were found. Usually they are grey or blackish, with oblong vertical ledges beneath the rim. Parallels are known from sites of the Early Farming Culture (Shulaveri, Arukhlo, Sioni, Shomutepe), which occurs earlier than the Kura-Araxes Culture and dates to the 6$^{th}$-4$^{th}$ millennium BC

Typical of this period are bowl-like vessels with comb-like castellations (4 examples found) and perforated bodies (three examples). Their existence in household pits indicates that the Orchosani site was inhabited at an apparently early period.

Another group consisting of seven sherds are of black-burnished coarse ware with a high, cylindrical neck and orange inclusions. Such a form is characteristic of the Bedeni Culture of the Early Bronze Age, and dates to the end of the third millennium BC

It is becoming clear that Layer II was occupied for quite an extended period (between the end of the 4$^{th}$ millennium BC and the beginning of the third). It is important to note the presence of this pottery in Meskheti, since it is significant not simply for understanding finds from the southern Caucasus, but those of contemporary Anatolia as well.

**Stone artefacts**

There were 144 stone items recovered from Plot D of the Orchosani site; 89 of them, or practically 60 %, were obsidian flakes. Ten of them came from the Early Medieval layer. Most of them bear marks of retouch on one side.

Among the flakes dating to the Early Bronze Age, seven are likely to be scrapers and show traces of use. Three flint flakes that had been worked, and four raw basalt flakes came from the same layer (Pl. XXVII); Twelve grind stones were also recovered. Earlier specimens are boat-shaped, while later examples are round and flat. In both cases the surface is rubbed and worked, and the underside is oval. Oblong soft stones (of steatite) and ten whetstones, in some cases with perforated heads were identified. Only one was found in the upper cultural layer (Layer I). Two fragments of pestles were found.

Another group of 23 stone objects can be classified as weapons. Most (18 examples) are catapult stones and come from Layer I. Two andesite/basalt hand axes similar to the hand axes of the Lower Palaeolithic might have appeared accidentally in the layer.

The Early Bronze Age stone weaponry included three small obsidian arrowheads (triangular, with fine invasive retouch). A similar arrowhead was found at Orchosani in 2003, but no other parallels are known. Scholarly opinion (Orjonikidze 2005) would place such arrow heads in the Early Bronze Age culture of Meskheti (Pl. XXVII).

Among stone cult objects, one Early Bronze Age zoomorphic pendant (perhaps of a sheep) was identified.

**Metal artefacts**

Finds from Plot D included a long bi-conical bronze arrowhead from the Early Bronze Age Layer II.

Such metal objects are not characteristic of the southern Caucasus, and it thus merits detailed investigation, including chemical analysis and comparative study of the relevant Anatolian materials.

There were 24 metal artefacts found in the Early and High Medieval Layer I: they included 3 horseshoes, 2 bronze rods and 19 short oval-headed nails.

Nine fragments of window glass and cups belong to a more developed cultural period and are probably to be associated with the palace-like building.

**Bone artefacts**

The bone jewellery is of special interest (Pl. XXVII). The relevant pieces were found in a low layer mainly from pits. Polished bone pins predominate; some have round heads, or are headless, or have oar-shaped or biconical heads. A biconical bone drill (perforator) would appear to be unique, with no exact parallel among the other finds from the site. The rest of the material is typical of the Early Bronze Age of the southern Caucasus.

## 6.0 Interpretation

Judging by the finds, the Orchosani depression would seem to have been inhabited since the Lower Palaeolithic.

Surface finds include tools made of andesite and basalt (hand axes, scrapers and flakes). (Appendix G). It is evident, however, that the Orchosani site and the Potskhovi basin in general, were exploited from the Auchelian period onwards. By the end of the Mousterian cultural period, the situation changed dramatically, and during the Würm glaciation the inhabitants of Samtskhe presumably left and moved to the more moderate climatic zone in western Georgia. Investigation of Layer II showed that it had been occupied continuously from the beginning of the 4$^{th}$ millennium BC and throughout the 3$^{rd}$ millennium.

This is why the cultural layer in question is deep and solid (it is about 1.2 metres thick). It extends over all the investigated parts within the ROW of both pipelines. Besides the cultural layers, there were two buildings, more than a hundred household pits, and a pottery kiln. Most of the finds are of sherds; after typological and chronological analysis, the materials were classified in three groups: sherds belonging to the Early Farming Culture, the Kura-Araxes Culture, and the Bedeni Culture.

The first group (vessels with a black or blackish grey exterior and with vertical ledges beneath the rim) (Pl. XXIII, XXIV, XXVI, XXVII) is related both to the pottery of the eastern Georgian Early Farming culture (Baramidze, Pkhakadze 2004; Orjonikidze 2004; Orjonikidze 2005, 70; Pkhakadze, Jibladze 2007; Pkhakadze 2004, 120-121) and to that of the Early Bronze Age (Berikldeebi, Amiranis Gora: Pkhakadze 2005, 71; Chubinishvili, 1963). It should be noted that the pottery from Orchosani has good parallels in the pottery from cave settlements in western Georgia (Upper Imereti, Sagvarjile, Darkveti, Samerckhle Klde: Pkhakadze 1993, 35, 40; *Saqartvelos Arqeologia* 1992, 230; Orjonikidze 2005, 70).

The second group related to the Kura-Araxes Culture consists of pottery with a plain black-burnished exterior and a reddish or blackish-grey interior (Pls. XXIV, XXVI)

The third group (Pl. XXIV), belonging to what is known in the specialist literature as the Bedeni Culture, dates to the end of the 3rd millennium and the turn of the 3rd and 2nd millennia BC (Gobejishvili 1981; Orjonikidze 2005, 71; Jalabadze 1998, pls. 9, 10).

It is interesting to note that the contemporaneity of the Bedeni and Kura-Araxes Cultures in Meskheti can be paralleled at Qhanobili near Abastumani (Pkhakadze, Kalandadze, Orjonikidze 1982). Many eastern Georgian sites demonstrate the prove the contemporaneity of the Bedeni and Late Kura-Araxes Cultures (Japaridze 1998, 144; Orjonikidze 2005, 73).

A whole series of artefacts play a decisive role in determining which culture we are dealing with, and the chronology, as well as in resolving various problems. A seated terracotta anthropomorphic figurine is of interest from the standpoint of the history of religion (Pl. XXIX) (A parallel was found at Orchosani in 2003). Apparently, this type has its roots in the tradition of the Kura-Araxes Culture (Orjonikidze 2005, 71-72; Orjonikidze, Jibladze 2007) rather than in the Early Farming Culture of Shulaver-Shomutepe, where anthropomorphic figures in unfired clay have been foundd (Khvistani 2005, 172-173).

A zoomorphic pendant decorated with the figure of what maybe a sheep points to the intensification of sheep breeding in the region; there is additional evidence in the results of the palaeozoological investigations (Appendix D 1, 2).

The bronze mattock recovered from the ash-laden hearth is especially interesting (Jibladze: 2005, 100-101). This type of tool has not been found on 3rd-2nd millennia BC sites in eastern Georgia until now (Dzidziguri 2000, 188-189, 207-218). The Orchosani bronze mattock is almost identical typologically to specimens of the Early Maikop Culture (the end of the second half of the 4th millennium B.C) that existed in the NE Caucasus, namely from: Settlement I, Galyugai, Psekupski cemetery (Burial No. 150), the kurgans of Maikop and Zamankulsk (Korenevskii 1995, 63-65, fig. 85; 2004, 45-46, 207, fig. $81_4$, 10, 12; Jessen 1960, 173; Munchaev 1994, 199, pl. $48_{11}$, 18).

The Orchosani mattock, with its highly uncharacteristic form so far as the southern Caucasus is concerned, is remarkable for its high nickel content (Pls. XXIX, XXXIV), for copper-nickel deposits do not occur in the Caucasus (Chernikh 1966, 44). It is, however, worth mentioning that in some details there are observable parallels between the Orchosani bronze mattock and analogous copper and bronze tools popular in the ancient Near East, at Susa, Mersin, Tepe Gawra, Tepe Sialk, Ur, Eridu, Byblos (Andronov 1978, pl. $XLV_{11,12,13}$; Müller-Karpe 2002, 137, fig. 1).

The typical bronze of the southern Caucasus is arsenical bronze (Chernikh 1978, 63). Nickel-rich bronze artefacts are found on sites of the Early Maikop Culture (Korenevskii 1995, 65; 2004, 98-99, pl. I). The presence of nickel in the bronze artefacts of the Maikop

Culture indicates close cultural contacts with the Iranian plateau (Кореневскии 1995, 66; Авилова, Антонова, Тенеишвили 1999, 57).

The Orchosani bronze mattock was presumably not made locally, but was probably imported from Maikop

The biconical arrowhead is of interest, since such a form is atypical in the southern Caucasus and is probably of Anatolian origin.

Most of the bone artefacts are in the form of pins (Pl. XXVII), and two types may be distinguished: one has a T-shaped head and the other a head that become progressively narrower on each side. Both of these types (that occasionally are made of metal) are characteristic of the Kura-Araxes Culture and constitute of its typical determining artefacts (Japaridze 1976, 139-140).

Stone artefacts include small triangular obsidian arrow heads, of a kind that do not occur on contemporary sites. They could well be of local Meskheti production (Orjonikidze 2005, 73).

Rectangular jasper beads with linear ornament were found (Pl. XXVII). The material, as well as the style of adornment, is typical of Anatolia rather than the southern Caucasus. The jewellery from Orchosani was apparently brought from Anatolia.

Even such a straightforward interpretation of the Early Bronze Age materials retrieved from Orchosani Layer II, however, shows how important is the evidence from the site. Many of the problems require detailed analysis.

Some artefacts can be seen in the light both of local characteristic features and of their relation to the Kura-Araxes Culture. This view finds support in the recovery from Plot D of the remains of two structures with two straight and one encircling wall, as well as a 1.2 m wide rectangular south-western extension at the entrance (Pl. X2). An exact parallel was excavated by the expedition in 2003. Unfortunately, a complete excavation of both structures was impossible, since the NE wall extended beyond the pipeline ROW.

This type of arrangement is unknown in Kura-Araxes architecture. The architectural monuments from Kvatskhela, Khizanaant Gora, Shegavit, Ozni, Akhaltsikhe and Amiranis Gora near Akhalkalaki indicate that characteristic Kura–Araxes Culture buildings were rectangular with an extension on the entrance side. There was no encircling wall at any of the above-mentioned sites, which makes us suppose that the Orchosani buildings possess certain local cultural peculiarities.

One of the important discoveries of the year under review was the structure with concentric circles found in Plot A, and which was partially investigated. The circles are located in three rows, which made us think of a Kurgan-type barrow (Pl. IV). The area between the first and the second circles were cleaned. Four dead bodies were observed in a supine position with their heads towards the conjectural centre of the barrow

Near deceased No. 4 some pottery fragments of the Middle Bronze Age came to light. In general Kurgan-type barrows are typical of the Early and Middle Bronze Age and they have been found in abundance in Inner and Lower Kartli, Trialeti, Kakheti, and in the eastern part of the southern Caucasus (Kuftin 1941, 78-231, Pls. LV-CXXVI, Gogadze 1972, 3-147, Pls. 1-34), Although it is altogether unusual in western Georgia, the Orchosani Kurgan-type barrow has close affinities with the barrows of Azerbaijan, at Shius, Ganja, Kyudurlinsk (Akhundov 2006, 108-162 Pls. XII, XV, XXX, XXXVII, XLIX.).
Important and time-consuming work was carried out by the expedition at the Otchosani cemetery of the 1st-3rd centuries AD, located in Squares B1 ,C in the southern part of the settlement.
The study of the Orchosani burials, their orientation, location and finds of jewellery (finger rings, beads), ceramics and fragments of glass cosmetic vessels, showed that they resemble the burial types and funerary traditions, jewellery and pottery from contemporary burials at Mtskheta (*Mtskheta* X, 1995; *Mtskheta* III, 1980; *Mtskheta* XI, 1995) Karniskhevi (Nikolaishvili 1993), Dighomi, (Nikolaishvili 1978), Zhinvali (Chikhladze), Baitkhevi, (*Mtskheta* XI, 1995), Aghaiani, (Bokhochadze 1981), Samtavro (Lekashvili 1985), Kushanaantgori (Ramishvili 1979) and upper Imereti (Bori, Kldeeti).

The construction of Early Medieval earthen graves roofed with wooden boards finds parallels in the pit graves similarly roofed from Samtavro (Manjgaladze 1988), Mogvtakari (Sikharulidze, Abutidze 1985), Tkhoti Hill (Minashvili 1983), Zhinvali (Chikhladze 1999). Moreover, the Orchosani graves lack any grave goods, while the others listed here contain rich assemblage of artefacts.

The ceramic items in the Early Medieval layer of the site are, judging by their shapes and decoration similar to those from Urbnisi (Chilachvili 1964), Karniskhevis (Nikolaishvili 1993), Zhinvali (Chikhladze 1999) and other Early Medieval sites in eastern Georgia.

It is worth noting that the expedition investigated the contemporary settlement and cemetery, the Chorati site in the village of Vale. Small-scale excavations were also carried out at the Klde site (2004). The three cemeteries, at Orchosani, Chorati and Klde, are identical. It is likely that in the relevant period three stable settlements existed within what was a comparatively small area, some 15 km long. The modest burial complexes indicate that the graves were mainly of peasants. Parallels indicate that Meskheti was under Eastern cultural influence during the first century A.D. This was an by-product of the political situation, when the influence of the Colchian culture that had prevailed throughout the first millennium BC gradually came to an end in Meskheti. By the end of the first century AD, important changes took place in the kingdom of Iberia. Its influence spread from Inner and Lower Kartli to the southern regions (to Armenia, Samtskhe-Javakheti) (*History of Georgia*, 139). At this period, the state borders of the Georgian kingdom encompassed East Georgia, Meskhet-Javakheti and Upper Imereti.

Cultural layers of the 8th-10$^{th}$ and the 12$^{th}$-17$^{th}$ centuries are well represented in the Orchosini settlement. The settlements of both periods were ruined as the result of foreign

invasion. It is difficult to differentiate these layers archaeologically with any exactitude, but thanks to elements of material culture, it becomes easier. Especially important for chronological purposes is the grey Early Medieval pottery, ornamented with relief decoration; the wine storage jar, pots and pans, that have parallels in the pottery from places such as the Zhinvali settlement (*Jinvali* I, 1983), Rustavi, and Urbnisi. One of the best diagnostic tools for determining the late stage of the Early Medieval period are fragments of light (matt) fine ware with thin walls and undulating ornaments on the shoulders (Chkhatarashvili 1978, Pls. I-XIX). The expansion of the Seljuk tribes towards the North began in the second half of the 10th century AD. Samtskhe fell under their rule, and the destruction at Orchosani and Chorati must be ascribed to these nomad tribes.

King David Aghmashenebeli succeeded in defeating the Turk-Seljuk coalition and a new era in the history of Georgia, the High Medieval period began. It is a time that witnessed the cultural and economical development of Samtstkhe, primarily in architectural activity. Archaeological material of this period is poor, however. Noteworthy are the fragments of a large wine storage jar with pinkish relief bands (continuing an earlier tradition), a *tone* (Georgian bakery), pots, pans, plates, dishes, glazed ware and other pottery typical of the ceramics of the feudal centres of Georgia (Tbilisi, Rustavi, Zhinvali, Urbnisi, Ujarma etc.). What is beyond question is their age.

Significant among the remaining artefacts recovered from the site are the iron weaponry (e.g. the arrow head), household tools, and a coin of Queen Rusudan struck in 1227 and in circulation until 1246 (Appendix K).

The discovery of blue-glazed ware, so-called Anatolian pottery, in the first cultural layer dated to the Medieval period, turned out to be rather important. Parallels in Turkey are only known from the 17th century onwards. This period marks the beginning of the dereliction of the Orchosani site, and there may be a correlation with the expansion of Turkey to the north. It was then followed by the annexation of the Samtskhe territory, the formation of the Akhaltsikhe Pashalik and the conversion of the population to Islam.

Bones were present in great quantity. The 364 specimens included the remains of both wild and domesticated animals. The Early Medieval layer produced bones of the Caucasian sheep dog (an archaeological first). Osteological remains of onager occured in both layers (cf. Early Medieval Chorati) (Bendukidze 2007, Appendix E 1, 2).

## 7.0 Conclusions and Recommendations

Archaeological investigations at the Orchosani site (IV-323 KP 248 + 800 - KP 249+800) conducted in connection with the construction of the BTC and SCP Pipelines are now complete and the Pipeline Company is permitted to legitimise the territory.

Work on the land within an area 10 or 20 metres from the pipeline should not be allowed in view of the likelihood of the presence of settlement layers. Nor should work on the land between the corridors of the pipelines be permitted, for even the slightest disturbance of the surface might cause damage to the cultural layer.

## 0.8. References cited

**Akhundov, T. 2001,** *Severo-zapadnyi Azerbaijan v Epokhu Eneolita i Bronzy* (North-west Azerbaijan in the Eneolithic and Bronze Age), Baku.

**Andrianov, B**. 1978, *Zemledzel´e Nashikh Predkov* (Agriculture of Our Ancestors) Moscow.

**Avilova, L., Antonova, E., & Teneishvili, T. 1999, "**Metalurgicheskoe Proizvodstvo v Yuzhnoi Zone Tsirkumpontiiskoi metalurgicheskoi Provintsii v Epokhu Rannei Bronzy" (Metallurgical Industry in the South Zone of Circumpontic Metallurgic Province in the Bronze Age)*, Archaeology of Russia* No. 1, Moscow.

**Baramidze, M., & Pkhakadze, G. 2004, "**Akhaltsikhis Arqeologiuri Ekspediciis 2003 Tslis Oqtromber-Noembris Tveshi Chatarebuli Samushaoebis Angarishi" (Report on Archaeological Studies Conducted in October-November 2003)*,* Centre for Archaeological Studies. Tbilisi.

**Bokhochadze, A. 1981,** *Arqeologiuri Gatkhrebi Aghaianshi da Dzalisashi* (Archaeological Excavations in Aghaian nd Dzalisi)*,*Tbilisi.

**Chernikh, E. 1978,** "Metalurgicheskie Provintsii I Periodizatsia Epokhi Rannego Metala na Territorii SSSR" (Provinces of Metallurgy and periodization of the Early Metal Epoch in the Territory of USSR)*, Soviet Archaeology* No. 4, Moscow.

**Chikhladze, V. 1999,** Aragvis Kheoba Akh. Ts. I Atastsleulis Pirvel Nakhevarshi (Zhinvalis Samarovnis Masalebis Mikhedvit) (Aragvi Basin in the first half of the 1st Millennium AD [on the basis of the materials from the Jhinvali Burial]), Ph.D. Thesis, Tbilisi.

**Chilashvili, L 1964.,** *Naqalaqari Urbnisi* (Urbnisi Settlement)*,* Tbilisi.

**Chubinishvili, T. 1963,** *Amiranis Gora* (Amiranis Gora)*,* Tbilisi.

**Dzidziguri, L. 2000,** *Amierkavkasiis Adresamitsatmoqmedo Kultura (Iaraghi Neolit-Adrerkinis Khana*) (Early Agriculture of South Caucasus (Tools, Neolithic-Early Iron Ages), Tbilisi.

**Gobejishvili, G. 1981,** *Bedenis Gorasamarkhebis Kultura* (Culture of Bedeni Gora Burial)*,* Tbilisi.

**Iessen, A. 1960,** "Khronologiya Bol´shikh Kubanskikh Kurganov" (The Chronology of the Great Kurgan at Kuban. *Soviet Archaeology* XII, Moscow- Leningrad.

**Jalabadze, M.,** *Bedenis Kultura Shida Kartlshi (Berikldeebis Namosakhlari)* (The Bedeni Culture in Shida Kartli [Berikldeebi Settlement]), PhD Thesis, Tbilisi.

**Japaridze, O. 1976,** *Kartvel Tomta Etnikuri Istoriis Sakitkhisatvis* (Towards the Problem of Ethnic History of Georgian Tribes), Tbilisi.

**Japaridze, O.,** *Kartveli Tomebis Etnokulturuli Istoriisatvis Dzv.Ts. III Atastsleulshi* (On the History of the Ethnic Culture of Georgian Tribes in the 3rd Millennium BC), Tbilisi.

**Jibladze, L. 2005,** "Novaya Unikal′naya Arkheologicheskaya Nakhodka iz Orchosani," (A New Unique Find from Orchosani), *International Scientific Conference. Archaeology, ethnology and Folklore of the Caucasus*, Baku.

**Khvistani, R. 2005,** "Obrazets Antropomorphpnoi plastinki iz Orchosani" (A plastic anthropomorphic figure from Orchosani), *International Scientific Conference. Archaeology, Ethnology and Folklore of the Caucasus*, Baku.

**Korenevskii, C. 1995,** *Galyugai I. Poselenie Maikopskoi Kulturi* (Galyugai I. A Settlement of the Maikop Culture). Moscow.

**Korenevskii, C. 2004,** *Drevneishie Zemledel′tsi I Skotovodi Predkavkaz′a* (Ancient Farmers and Stock-breeders of Ciscaucasia), Moscow.

**Manjgaladze, G. 1988,** *Samtavros Antikuri Khanis Arqeologhiuri Dzeglebis Kronologiisatvis* (On the Chronology of Ancient Archaeological Monuments at Samtavro), Tbilisi, 1988.

**Mirianashvili, N. 1983,** *Shida Qartlis Materialuri Kulturis Istoriidan* (From the History of Material Culture in Shida Kartli), Tbilisi.

**Müller-Karpe, M. 2002,** "Zur Metallverwendung im mesopotamien des 4 und 3. Jahrtausends," *Anatolian metal* II (*Der Anschnitt*, Beiheft 15), Bochum

**Munchaev, R. 1994,** "Maikopskaya Kultura Epokhi Bronzi Kavkaza i Srednei Azii. Rannyaya I Crednyaya Bronza Kavkaza" (The Maikop Culture of the Bronze Age in the Caucasus and in Central Asia. Early and Middle Bronze Age of the Caucasus), Russian Archaeology. Moscow.

**Nikolaishvili, V. 1978,** "Antikuri Khanis Dzeglebi" (Monuments of the Antique Period), *Issues in the Archaeology of Georgia*, Tbilisi.

**Nikolaishvili, V. 1993,** *Karsniskhevis Metune-Khelosanta Dasakhleba* (The Potters' Settlement in Karsniskhevi), Tbilisi.

**Orjonikidze, A. 2004,** "Akhaltsikhis Arqeologiuri Eqspediciis mier 2003 Tslis Ivnis-Agvistoshi Nasakhlar Orchosanze Chatarebuli Samushaoebis Angarishi" (Report on Archaeological Studies at the Orchosani Settlement Conducted in June-August 2003). Centre of Archaeological Studies. Submitted to BTC, Copies availlable at the Lortkipanidze Institute for Archaeology, Tbilisi, 2004.

**Orjonikidze, A. 2005,** "Orchosanis Namosaxlaris Adreuli Kompleksebi" (Early Complexes of the Orchosani Settlement)*, Dziebani* 15-16. Tbilisi.

**Orjonikidze, A. 2005,** *Masalebi Saqartvelos Adrebrinjaos Khanis Arqeologiisatvis* (Materials for the Archaeology of the Early Bronze in Georgia), Tbilisi.

**Orjonikidze, A. & Jibladze, L. 2007,** "Kidev Ertkhel Orchosanis Namosakhlaris Shesakheb" (The Orchosani Settlemen once again)*, Dziebani*, Tbilisi.

**Petriashvili, R. 1975,** *Soils in Meskheti*. Tbilisi.

**Pkhakadze, G. 1993,** *Dasavlet Amierkavkasia Dzv.Ts. III Atastsleulshi* (Western South Caucasus in the 3rd Millennium BC), Tbilisi.

**Pkhakadze, G. 2004,** "Novyi Ochag Rannezemledelcheskoi Kultury v Yuzhnoi Gruzii" (A new Centre of Early Agriculture in South Georgia), *International Scientific Conference. Archaeology, Ethnology and Folklore of the Caucasus*, Tbilisi.

**Pkhakadze, G., Kalandadze, G. & Orjonikidze, A. 1982,** "Rezultaty Rabot Abastumanskoi Ekspeditsii" (The Results of the Abastumani Archaeological Expedition), *Field Archaeological Studies*, Tbilisi.

**Ramishvili, R. 1979,** *Ertsos Veli Gvianarmazul Khanashi* (The Ertso Valley in the Late Armazes Period)*,* Tbilisi.

***Saqartvelos Arqeologia*** **(Archaeology of Georgia)**, Tbilisi, 1992.

**Sikharulidze, A. & Abutidze, A. 1985,** "Mogvtakaris Samarovani" (A Burial from Mogvtakari), *Mtskheta* VII, Tbilisi.

Appendix

Sh. Iremashvili
T. Datunashvili

## Ceramics Restoration Report

The expedition was granted ten days to restore ceramic material from Orchosani, and two restorers, Sh. Iremashvili and T. Datunashvili, 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. Almost all the pottery from burials was restored. As for the settlement material, most of it was restored well enough to enable an understanding of the function of a vessel.

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 to the rim and gradually the vessel was "built up". For joining pieces PVA adhesive was used, and plaster for filling gaps.

**Appendix**

## The Results of the Investigation of Metal Artifacts

The results of the restoration and technological studies of the metal finds from Site IV-323, KP 249, Orchosani village, are as follows:

A total of 42 metal artefacts were reconstructed; the chemical composition of four artefacts was established by spectral analysis (Tab. 1)

1. **Rod** No. 14-64B ( Pl. XXXIV): bronze alloy with a low percentage of tin (Cu-76.2; Sn-2.25; Ag-0.08; Fe-0.004).
**2. Arrowhead** No. 4-23B (Pl. XXXIV): arsenical bronze with added nickel (Cu-96. 0; As-1.5; Ni-1.2; Ag-0.16), with optimal mechanical indices.
**3. Hoe** No. 112-218C (Pl. XXXIV): bronze with an arsenic-nickel alloy (Cu-93.1; Ni-4.0; As-2.5).

Only one artefact was investigated metallographically: an **iron horseshoe** 229/717D (Tab. 2), cemented steel. (C – 0.1-0.7) (Pl. XXXIV).

Spectral analysis revealed the tendency in the local metal-working centres in Akhaltsikhe District to use different alloys. The alloy was chosen according to the function of a particular object. The use of nickel in a bronze alloy is noteworthy.

The conservation scheme for the bronze material was as follows:

Bronze artefacts were processed mechanically by means of a scalpel and other sharp tools. Mechanical cleaning was conducted beneath a microscope under conditions of intense light. Cleaned objects were processed with Acetone, then, for their conservation, the surface was covered with Paraloid B 72, polymer of thermoplastic acryl, Paraloid B 72 + acetone (40 g + 1.5 l)].
The conservation scheme for the iron material was as follows:
The iron items were treated mechanically, by means of a dental drill, using diamond and steel brushes. The mechanically cleaned items were treated with a complex compound of tannin + spirit + orthophosphoric acid, and at the second stage only a tannin spirit solution was used (the process was repeated several times). For conservation the item was covered with thermoplastic acrylic polymer Paraloid B 72 (Paraloid B 72 + Acetone 40g + 1,5l).

Some of the iron artefacts were reconstructed using Araldite 2020 (A+Araldit 2020 B hardener + talc + brown pigment).

The conservation scheme for the silver artefacts was as follows:
Both chemical and mechanical methods were used for the silver artefacts. Some of them were cleaned in a solution of Titriplex in water (500 ml. distilled water + 18.5 g Titriplex). The restored material was treated with Acetone and dry artefacts were covered with thermoplastic acrylic polymer Paraloid B 72 (Paraloid B 72 + Acetone 40g + 1,5l).

The conservation scheme for the silver artefacts was as follows:
Both chemical and mechanical methods were used for the numismatic artefacts. A scalpel and other sharp tools were used. Mechanical cleaning was conducted beneath a microscope under conditions of intense light. For chemical treatment solution of Titriplex in water was used.
The artefacts were photographed before and after treatment (Pls. XXXIII–XXXIV).

Results of spectral analysis
Table 1

| No. | Laboratory code | Artefact | location | Cu | Sn | Ag | Sb | As | Fe | Ni |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | U-681 | Copper rod; nail | | 76.2 | 2.25 | 0.08 | | | 0.004 | |
| 2 | U-682 | Arrowhead | | 96.0 | | 0.16 | | 1.5 | 0.004 | 1.2 |
| 3 | U-683 | Bronze hoe | Trench No. 2, C Area 112-218 | 93.1 | | 0.3 | | 2.5 | 0.007 | 4.0 |

Results of metallographic analysis
Table 2

| No. | Laboratory code | Artefact | location | C | Mn | Si | Ni | Comment |
|---|---|---|---|---|---|---|---|---|

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | 229/717 | Horse-shoe | | 0.1-0.7 | 0.15 | 0.29 | 0.15 | Case-hardened steel |

Appendix

## BPGA-15 Site IV-323, KP 249, Anthropological Analysis Report

Geographical Location:
Akhaltsikhe region is located 1212 m AMSL, in the neutral zone of the Turkish-Georgian border, in the direction of Georgia. The Orchosani site represents a depression enclosed on four sides and is with the territory of the historical Samtskhe region. Orchosani is located within the in BTC and SCP pipeline corridor KP248+600-KP 249 ROW. The excavation produced 34 burials within the pipeline trench. Further burials that appeared in section in the side of the trench lie beyond the pipeline ROW and remain unexcavated.

The Cemetery Stratigraphy:
There were four Layers:
(1) Kura-Araxes (Early Bronze Age) Culture. No burials observed.
(2) 1st-3rd centuries AD. Crouch burials, on left or right side.
(3) Early Medieval period. Either crouch burials or supine (lying on the back).
(4) Late Medieval period. Supine

Chronology of the burials: between 1st-3rd centuries AD and Late Medieval period inclusive.
Burial types: cist graves.
Burial style: in keeping with the custom of each period.
Burial orientation: no fixed orientation.
Cranial Analysis: In most of the Early Medieval burials the cranium is widened to the occiput, in some cases symmetrically and in some asymmetrically. The observed asymmetrical widening might be the result of disease. In the burials of this period traumatic injury to the skull with a sharp instrument is often observed. (Pl. XXXV, fig. No. 20).

The Medieval period cranial materials reveal the traces cancer metastasis (Pl. XXXV, fig. No. 5), but there are not any such skulls in burials of the 1st-3rd centuries AD. Cranial indexes are: mesocranial, brachycranial and rarely dolichocranial.
Facial index: average face, retreating forehead, large orbits: with a slight prochelia of the upper jaw, protruding chin.

These materials, which were selected according to cranial and facial morphological features and indices, represent the European and Asian racial type (Pl. XXXV, figs. Nos. 10, 11, 15): low cranium, comparatively wide face, sloping forehead and short cranial base. On most of the skulls round symmetrical holes were noted in the occipital projection. (Pl. XXXV, fig. No. 1). In only one sample was the ossification of the interior cranial surface observed. In other cases the holes remain perforated. These marks,

detected only on the skulls of the 1st-3rd centuries AD are likely to be the result of post mortem ritual practices involving mechanical intervention.
In most cases such interference would cause death, especially in those cases where there are no traces of ossification on the interior surface of the cranium.

As mentioned above, in most burials of the Orchosani cemetery crania are widened at the occiput (Pl. XXXV, fig. No. 15), which in some cases are asymmetrical. The asymmetrical area has compact vascular punctuated marks (Pl. XXXV, fig. No. 14). In this case traces of haemorrhaging can be observed in the cranial interior. Such traces only occur on the crania from the Medieval burials. The skulls of the 1st-3rd centuries AD are neither asymmetrical, nor widened at the occiput. This uneven development is caused not only by haemorrhaging and haematoma between the hemispheres, but also because of the early ossification of the cranial sutures. This might have hindered mental development. Such individuals have a small cranium. In our case, the skulls that share such asymmetry are much smaller than the others.
Post-cranial traits:
Body proportions: short legs, long torso.
Height: medium, rarely taller.
Skeletal bones: gracial.
Tooth enamel: well preserved; no bone defects.
The body symmetry and gracial bones might indicate a poor physical constitution and a badly developed muscle system. It may denote some endocrinological pathology, mainly of the thyroid gland.

Demography: among the burials from the Orchosani site there are many graves of babies, children and young people. There was clearly a high juvenile mortality rate.
The inner structure of bones: sometimes unevenly thickened; bone lamellas are situated along the interior shaft or sometimes parallel to it; this is characteristic of lowland populations, and illustrates an equal distribution of physical pressure.
A slight deviation from the shaft is characteristic of individuals from mountainous and foothill regions, on account of the uneven distribution of physical pressure upon the bone. The skeletal bones are strong and very calcinated. (This is indicated by tooth colour and perfect dental enamel).

Analysis of earth from the burials showed that demineralisation was weak. It is clear that because of the climate and food, bone calcination was quite high in life.
The analysis of soil humidity and palynological investigation proved that since the Bronze Age the climate of the region varied.

The climate was damp and warm. Insolation brought about the reproduction of vitamin D in the organism, which, in sufficient quantity, promotes a good absorption of C ions from food and water. This is the reason for the skeletal features of the Orchosani individuals.

Analysis of the bone microelements:

| Ca | Cu | Zr | pl | Cd | Zr | Ni | Mn, Mr. |
|---|---|---|---|---|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 41.4 | 0.13 | 10.16 | 0.4 | 0.1 | 75.2 | 0.5 | Changes after death |

For reconstruction of the diet, the most informative are Zn, Sr, Cd, and Cu. The analysis shows that in the relevant period,the local population used mainly animal (Zr 10.16) and vegetable food (Zr 75.2).

Injury to joint surfaces was caused in part by the great amount of animal food in the diet, which brought about an accumulation of salts in the organism, and injury to the skeletal apparatus (Pl. XXXV, fig. No. 1) degeneration of the femur and the joint surface of the shoulder bone); and in part by some vegetable food that brought about a concentration of urea in the organism, which also causes degeneration of the skeletal system.

Bacteriological analysis did not indicate bacteriological pollution.

As has already been mentioned, most of the individuals buried in the Orchosani cemetery probably died not only from epidemics, but from mental pathology and traumas after physical aggression.

## Appendix

**O. Bendukidze**

### Osteological Material from Orchosani KP-249

The osteological material recovered from Orchosani in 2005 includes an abundance of remains of domesticated animals. Among them the following animals and birds were identified: cattle, sheep, goat, pig, dog and also poultry. The faunal assemblage included the bones of wild animals: Caspian red deer (*Cervus elaphus maral*), European roe deer (*Capreolus capreolus*), onager (*Equus hemionus*), aurochs (*Bos primigenius ssp.)* and the wild sheep or mouflon (*Ovis orientalis*). Bones of cattle dating to the Medieval period belong to domesticated cattle of medium size, which might have been larger than the modern Georgian Khevsuretian breed. A comparative analysis of the cattle shoulder-bones found in both cultural layers at Orchosani showed that morphologically, and according to dimensional data, all specimens were of the same type; it indicates that all the Orchisani cattle were of the same breed. The bone dimensions of smaller domesticated animals (sheep, goat and pig) do not differ from those common in Georgia today. The pig bones recovered from Orchosani are small and are probably akin to those of today's Kakhetian black pig.

The osteological material demonstrated the existence of two species of dog in Orchosani: a smaller dog, an Early Bronze Age mongrel (Pl. XXXVI, fig. 1) and a large dog (Pl. XXXVI, fig. 2), discovered in the Early Medieval layer. Analysis of the skeletal remains from Orchosani proved that judging by its morphology and dimensions, the bones of the large dog were comparable with those of the Georgian sheep-dog (*Canis pastoralis morpha caucasica*) and wolf (*Canis lupus*). Large dog remains were found in both Plots A and D.

The large mammal bones from Orchosani are more likely to have belonged to a dog, for the wolf's bones would have surely been damaged during the skinning process. The skeletal remains display no signs of such treatment. It is interesting is that in its dimensions and morphology the shoulder-bone of the Orchosani dog does not differ from the shoulder-bone of the large dog discovered in the early 1st millennium AD layer of the Klde site. The similarity of the bone remains of the Orchosani dog and those from Klde indicates that the Caucasian, or rather, the Georgian sheep-dog species probably existed in Samtskhe Javakheti since antiquity and the Early medieval period.

**Onager *(Equus hemionus*).** Among the skeleton remains of wild animals from the Early Bronze Age layers, the teeth (Pl. XXXVI, fig. 4) and extremity bones of the onager (*Equus hemionus*) are of special interest. According to paleonthological data, onager remains are often met with in Holocene layers in southern and south-eastern Georgia. The onager has been found at the Mesolithic sites of Zurtaketi (Tsalka), in Eneolithic layers of Imiris Gora and Arukhlo (Bendukidze: 1979). In the Caucasus other than Georgia, onager remains have been discovered in Armenia and Azerbaijan, where this animal probably existed until the Middle Ages. A great number of onager bones have been noted at archaeological sites in Azerbaijan, in particular in Gobustan.

As in previous years, the 2005 Orchosani osteological assemblage included osseous onager remains: extremities and some teeth, including the lower molar, a diagnostic element for this species. It should be mentioned that onager skeleton remains and teeth (two specimens) were also found at the Early Medieval site of Chorati, which confirms the existence of the onager during the relevant period.

The skeletal remains of the horse, dating mainly to the Early Medieval period, shows that the horse was domesticated in the southern Caucasus and Georgia considerably later (in the 2nd millennium BC) (Pl. XXXVI, fig. 3); all specimens of horses found before this date should therefore be considered as wild species.

***Bos primigenius*** **(wild ox, aurochs)** was originally prevalent in Europe (Germany, the Czech Republic, Hungary, Poland, Lithuania, Romania, Belarus, Ukraine, Russia) and existed there until the Middle Ages. In Georgia *Bos primigenius* remains were only found before now in Pleistocene layers (Burchak-Abramovich, Vekua 1980, 1981). It was first discovered in Kakheti (Damcvari Gora), and then in 1991 N. Burchak-Abramovich, G. Meladze and G. Chikovani published a description of aurochs bones from the famous site of Abanos Khevi (Dusheti region) and they also reported the discovery of a very large heel-bone of *Bos primigenius* at the Arukhlo site.

We discovered some small horns of the aurochs in Samele Klde and Dzudzuana Cave. The aurochs from Orchosani might have been the ancestor of the domesticated large ox, the remains of which were discovered by B. Kuftin in the Trialeti Kurgans. The Orchosani aurochs bone remains resemble those of the small wild ox discovered at Nachivchavebi, an Eneolithic site in Tetritskharo.

***Wild sheep (Ovis orientalis)*** (Pl. XXXVI, fig. 5). It is acknowledged that the wild sheep in the Caucasus occurs today only in southern Armenia and Nakhchevan, although wild sheep remains are often discovered in Holocene fossils across a wider territory. We found mouflon bones were found by us in Eneolithic layers in Kvemo kartli (Tsopi, Imiris Gora) and in the central Caucasus (Bendukidze 1979). Judging by these data, it is clear that the wild sheep was once distributed all over Georgia.

Appendix

## Palaeoethnobotanical Analysis Report

By Nana Rusishvili
N. Meladze

We studied eight soil samples from different levels at Orchosani in order to find fossil botanical material. Botanical material was found in six samples (Pl. XXXVII).

In order to find botanical material, the soil samples were treated by the flotation method, which means "washing" the soil with water and $CCl_4$. The resulting material was divided into fractions by means of separation sieves of different diameters, then it was dried, reinforced and conserved and prepared for identification.

The botanical material that we found represents fruit and seeds of fossil plants. The identification of botanical material was carried out by means of a stereoscopic microscope down to familia and species according to the complex of morphological peculiarities (Dobrokhotov 1961; Kats, Kipiani.1965; Rollov 1908; Latalova 1999).

The study revealed 11 species of domesticated and weed plants. Emmer wheat (*Triticum dicoccum Schubl.*), einkorn wheat (*Triticum monococcum L.*), and husk-grained barley (*Hordeum vulgare L.*) (Table No. 1) were identified.

Domesticated emmer was found in the first sample (Table No. 1). The morphological characteristics (fig. 1), parameters and indexes of the grains coincide with the norms of *Triticum dicoccum* (Table No. 2).

Einkorn wheat (*Triticum monococcum*) was identified in only one soil sample (Table No. 1), where a single grain was found. The morphological characteristics and measurements of the grains coincide with the parameters of einkorn wheat (Table No. 6).

Husk-grained barley (*Hordeum vulgare L.*) was identified in two samples (Tables No. 1, No. 3). It was possible to measure and report the parameters of only one grain (Table No. 3). Its morphological characteristics (fig, 2), measurements and indexes lead to the conclusion that the grain belongs to the husk-grained barley (*Hordeum vulgare L.*).

### Weeds and wild plants

1. *Conringia orientalis L. Andrz.*: Hare's-ear mustard, Family, Cruciferae. Seed parameters: 2.3 x 1.2 x 1.2 mm. Proliferates in grain-crop areas and on roadsides. Georgian name: Kombostura (illus 3).

2. *Galium spurium L.*: Lady's bedstraw. Family, Rubiaceae. Seed parameters: 1.5-2 x 1-1.5 x 1.3-1.5mm. Distributed throughout the Caucasus. Proliferates in grain-crop areas and on roadsides.

3. *Galium tricorne Stokes.*: Roughfruit corn bedstraw. Seed diameter: 2-3 mm. Proliferates in grain-crop areas (fig. 4).

4. *Lithospermum arvense L.*: Field gromwell. Seed parameters: 2-3.5 x 1.75 x 2.25 mm. Grows in autumn and spring crops, in fields, orchards and vegetable gardens. The fruit used as birdseed (fig. 6.).

5. *Lolium sp.*: Darnel. Family, Graminae. Chiefly a weed of grain-crops (fig. 5).

6. *Polygonum dumetorum L.*: Buckwheat. Family, Polygonaceae. Seed parameters: 2.5 mm. Grows in broad-leaved forests, rarely in grain-crop areas.

7. *Rumex acetosa L.* Sorrel. Family, Polygonaceae. Seed parameters: 2.0 x 1.5 x 1.0 mm. Known as a weed. Grows in meadows, pastures and orchards. A sour soup is made from its young leaves and stalks.

8. *Vicia sp.*: Vetch. Family, A grain-crop weed that also grows in valleys.

The investigation of the paleobotanical remains from Orchosani revealed both cultivated emmer and husk-grained barley. The domesticated emmer wheat and the husk-grained barley flourished in one and the same area because both of these species are husk-grained.
The large spectrum of identified weeds and wild plants indicates that the crop was harvested in the area next to the settlement. Some weed plants were used for food (e.g. sorrel), birdseed and fodder.

**Table No. 1 Interpreation**.

A6. Burial No. 3. Square D16. Trench No. 2. Three metres from datum
*Lithospermum arvense.*

A7. Construction No. 1. Square K. Trench No. 2 to the South. 0.70 metres from datum.
*Triticum dicoccum.*
*Triticum monococcum.*

*Hordeum vulgare.*
*Galium spurium.*
*Lolium sp.*
*Lithospermum arvense.*
*Polygonum dumetorum.*
*Rumex acetosa.*
*Vicia sp.*

A8. Burial No. 1. Square D16. Trench No. 2. Three metres from datum
---

A9. Above the burials. Square D16. Trench No. 2. Three metres from datum
*Hordeum vulgare.*
*Galium spurium.*
*Galium tricorne.*
*Lithospermum arvense.*
*Rumex acetosa.*
*Vicia sp.*

1C. Settlement. Pit No. 2. Trench Square B6. Three metres from datum
---

3C. Settlement. Ash-laden hearth, pit edge. Trench Square B6. 2.20 meters from datum
*Conringia orientalis*
*Galium spurium.*
*Lithospermum arvense.*
*Polygonum dumetorum*

1D. Settlement. Trial trench No. 4 Pit 1. 1.80 m.
*Lithospermum arvense.*
*Polygonum dumetorum.*

**Bibliography**

**Dobrokhotov, V. N. 1961.** *Semena sornikh rastenii* (Seeds of Weeds), Moscow.

**Kats N.Y., Kats, S.V., Kipiani, M.G. 1965.** *Atlas i opredelitel plodov i semyan vstrechayushchikhsya v chetvertichnykh otlozheniyakh SSSR* (Atlas and Determinant of Fruits and Seeds, met with in the Quaternary Deposits of the USSR). Moscow.

**Latalova M. 1999**. 'A palaeoecological reconstruction of environmental conditions and economy in early medieval Wolin, against the background of the landscape.' *Acta Palaeobotanica*, vol. 39/2 Krakow.

**Rollov, A.Kh. 1908.** *Dikorastushchiye rasteniya Kavkaza, ikh rasprostraneniye, svoistva i primeneniye* (Wild Plants of the Caucasus, their Distribution, Characteristics and Applications).

Table 1. Palaeothnobotanical Data from the Orchosani Species

| No. | Species | Place | | | | | | | Familia |
|---|---|---|---|---|---|---|---|---|---|
| | | A6 | A7 | A8 | A9 | 1C | 2C | 3C | 1D | |
| 1 | Conringia orientalis L. | | | | | | | + | | Cruciferae |
| 2 | Galium spurium L. | | + | | + | | | + | | Rubiaceae |
| 3 | Galium tricorne Strokes. | | | | + | | | | | Rubiaceae |
| 4 | Hordeum vulgare L. | | + | | + | | | | | Graminae |
| 5 | Lithospermum arvense | + | + | | + | | | | + | Borraginaceae |
| 6 | Lolium sp. | | + | | | | | | | Graminae |
| 7 | Polygonum dumetorum L. | | + | | | | | + | + | Polygonaceae |
| 8 | Rumex acetosa L. | | + | | + | | | | | Polygonaceae |
| 9 | Triticum dicoccum Schubl | | + | | | | | | | Graminae |
| 10 | Triticum monococcum L. | | + | | | | | | | Graminae |
| 11 | Vicia sp. | | + | | + | | | | | Leguminosae |

Table 2. T. dicoccum Parameters and Indices

| No. | L | B | T | L/B | B/L% | T/L% | T/B% |
|---|---|---|---|---|---|---|---|
| 1 | 5 | 2.2 | 1.8 | 2.27 | 44 | 36 | 81.82 |

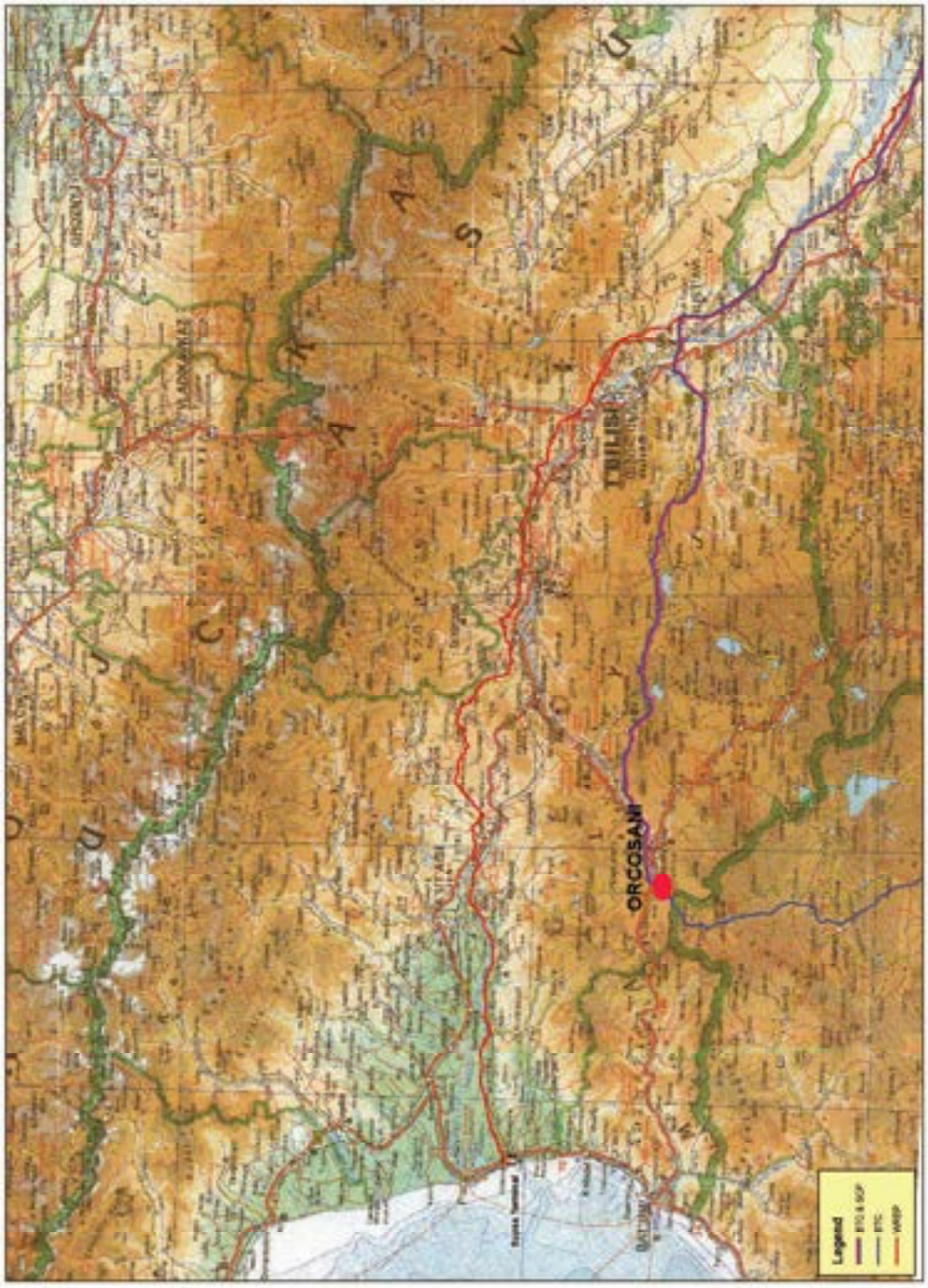
Table 3. T. monococcum Parameters and Indices

| No. | L | B | T | L/B | B/L% | T/L% | T/B% |
|---|---|---|---|---|---|---|---|
| 1 | 4 | 1.1 | 1.5 | 3.64 | 27.5 | 37.5 | 136.4 |

Table 4. Hordeum vulgare Parameters and Indices

| No. | L | B | T | L/B | B/L% | T/L% | T/B% |
|---|---|---|---|---|---|---|---|
| 1 | 5 | 3.6 | 2 | 1.39 | 72 | 40 | 55.56 |
| 2 | 5.5 | 3.2 | 2 | 1.72 | 58.2 | 36.4 | 62.5 |
| 3 | 6 | 3.5 | 2.1 | 1.71 | 58.3 | 35 | 60 |
| 4 | 5.5 | 2.8 | 2 | 1.96 | 50.9 | 36.4 | 71.43 |
| 5 | 6 | 3 | 2 | 2 | 50 | 33.3 | 66.67 |

PLATES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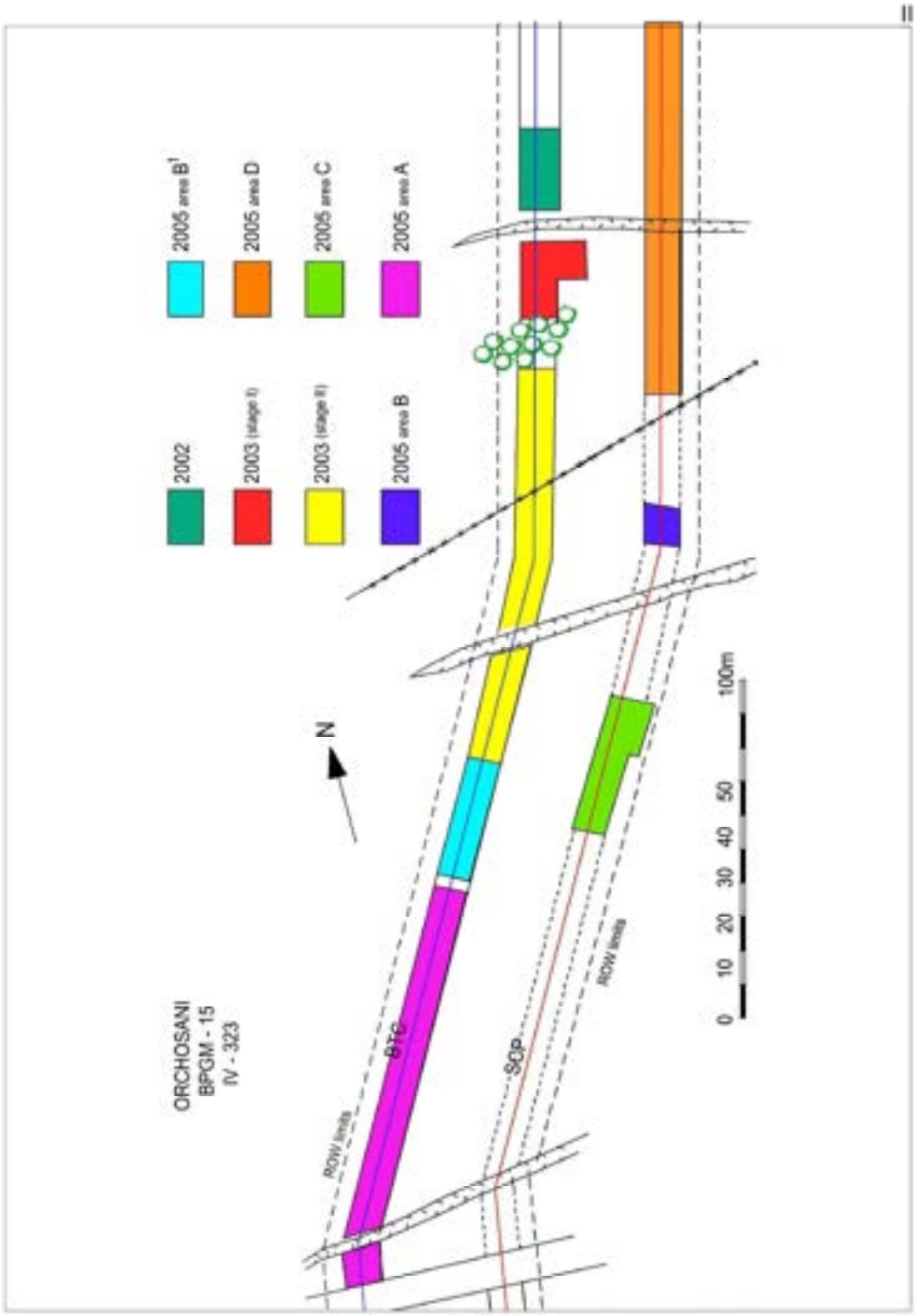
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2005 area D
2005 area C
2005 area A
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IV - 323
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SCP
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ROW limits
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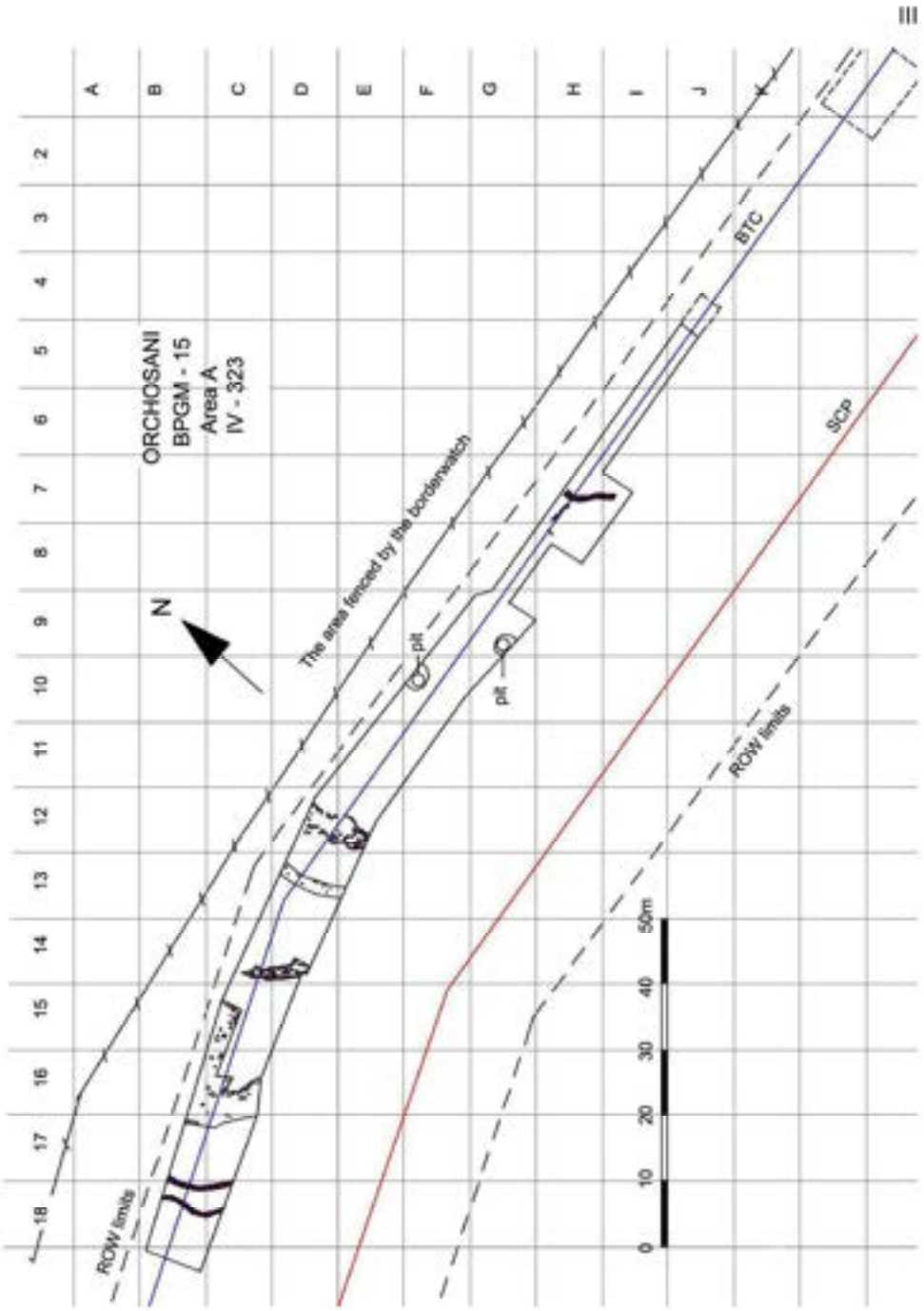
30
40
50
100m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pit
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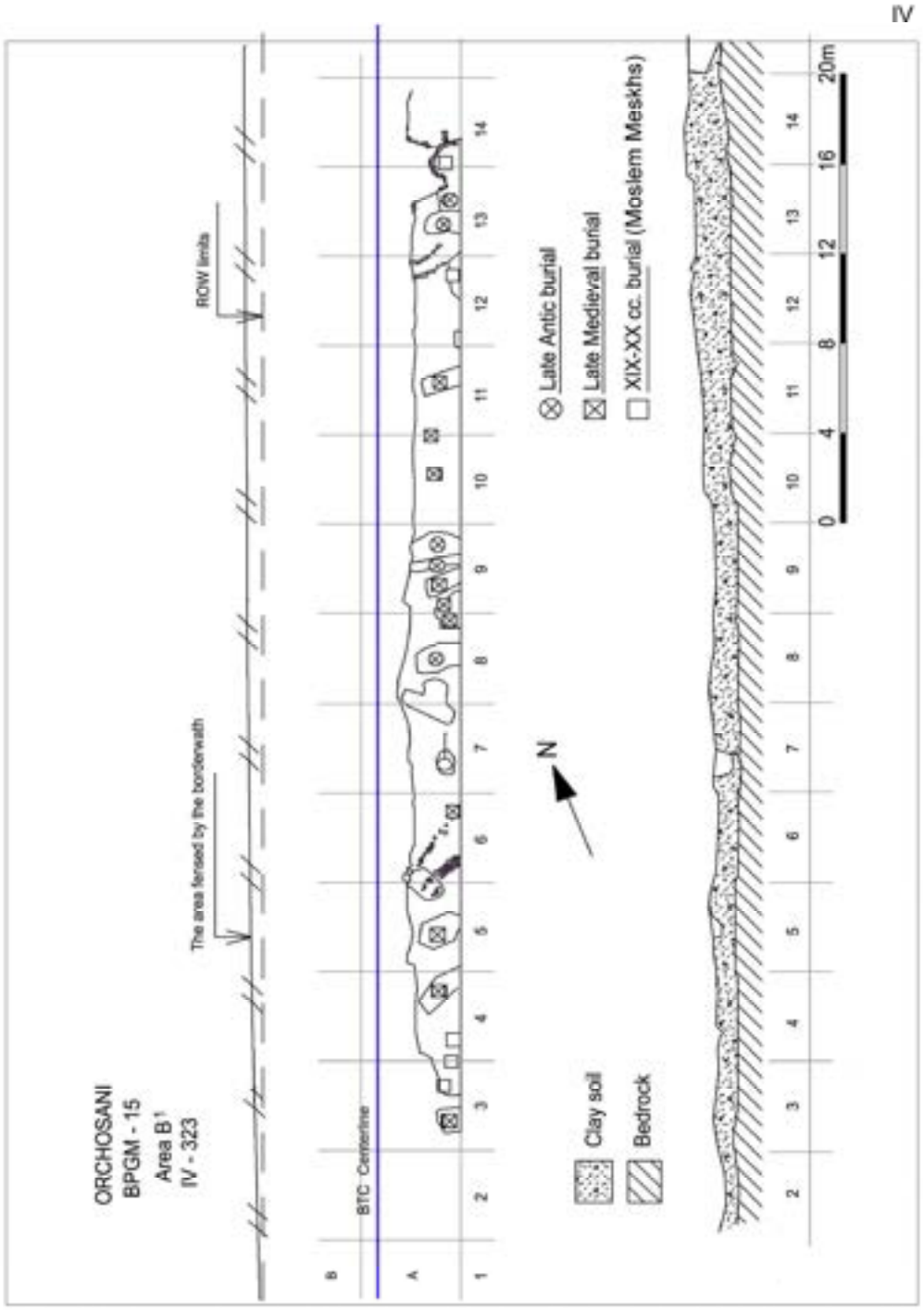
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The area fensed by the borderwath
BTC Centerline
B
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4
5
6
7
8
9
10
11
12
13
14
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16
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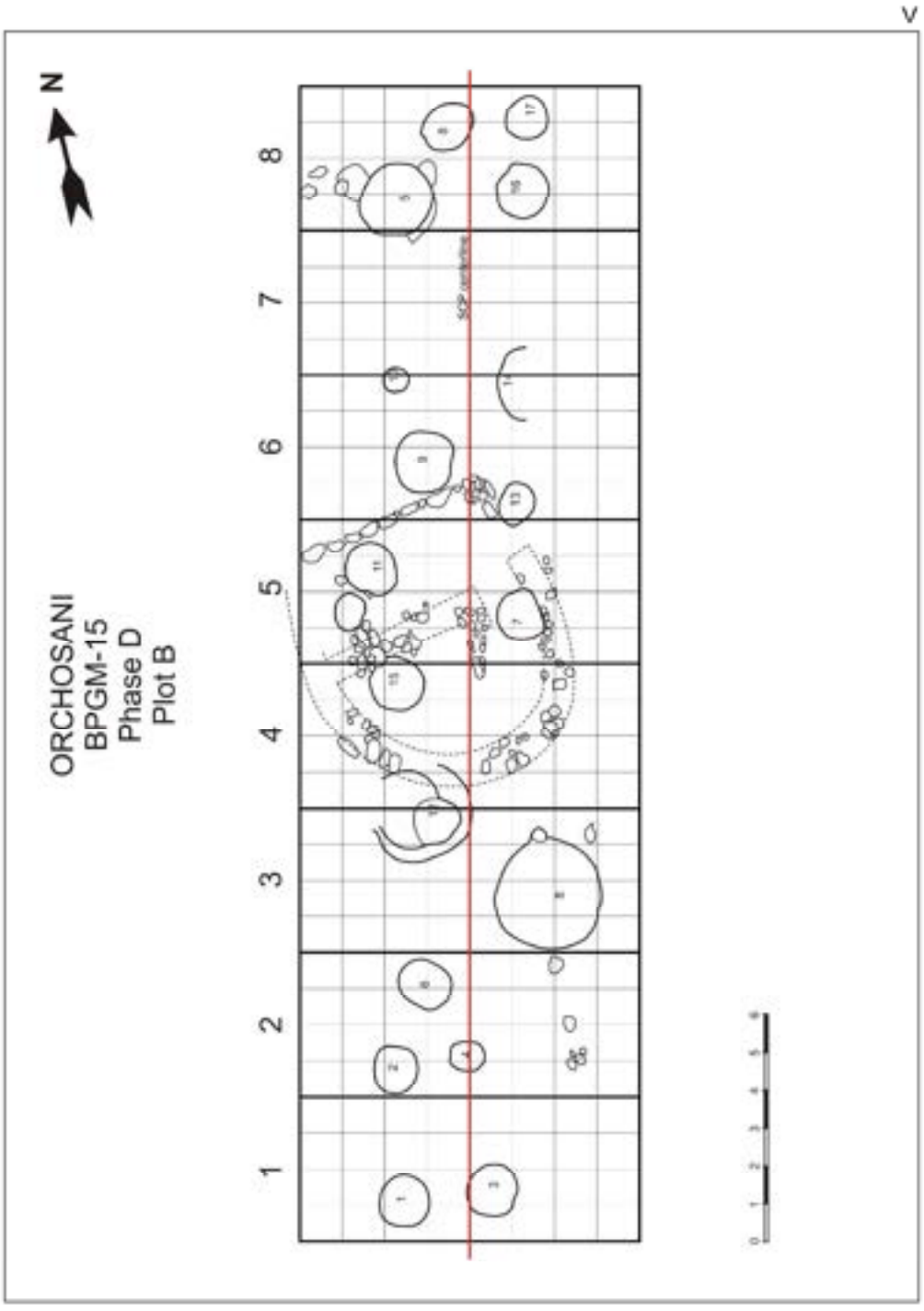
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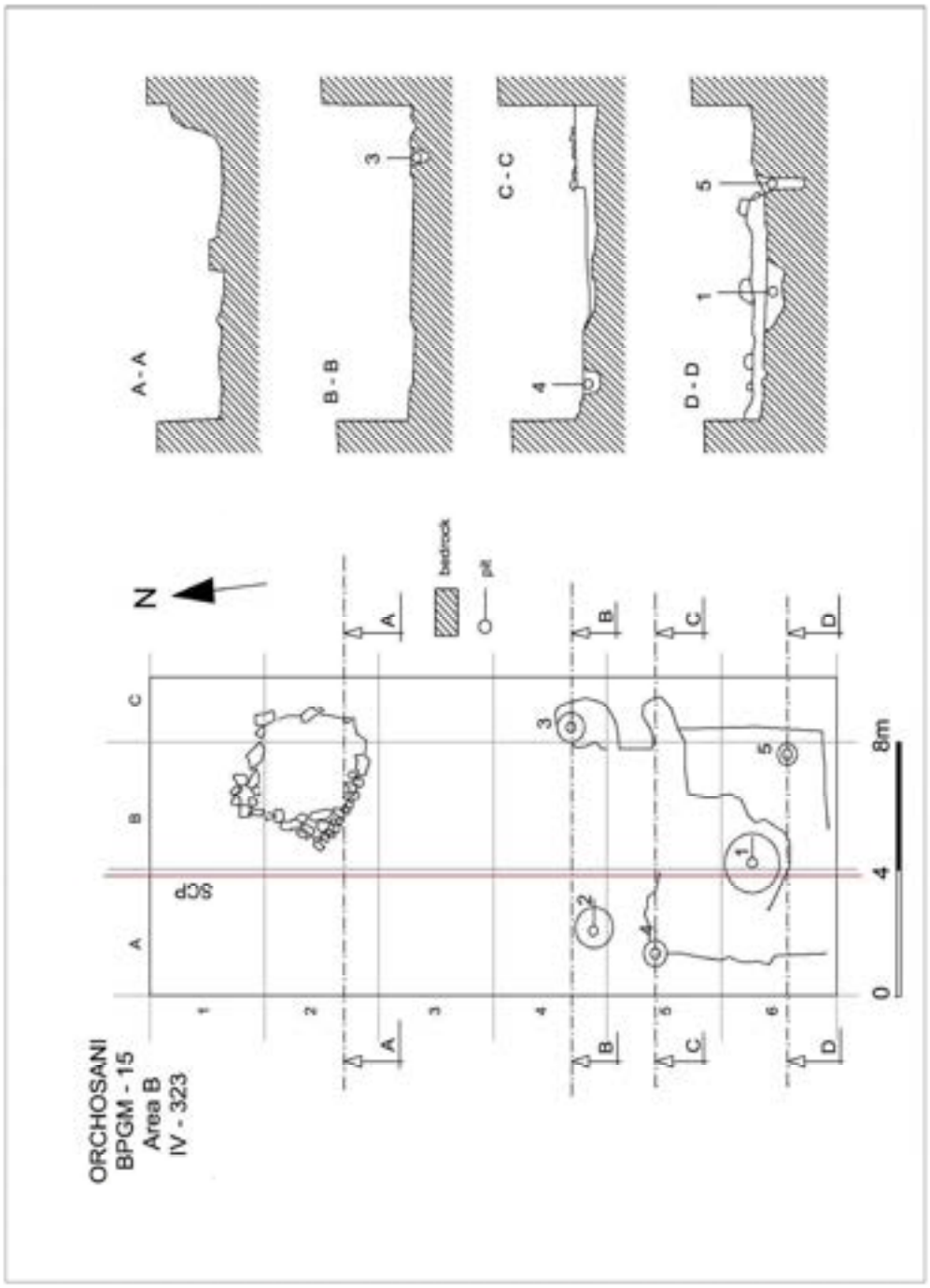
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C - C
D - D
bedrock
pit
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4
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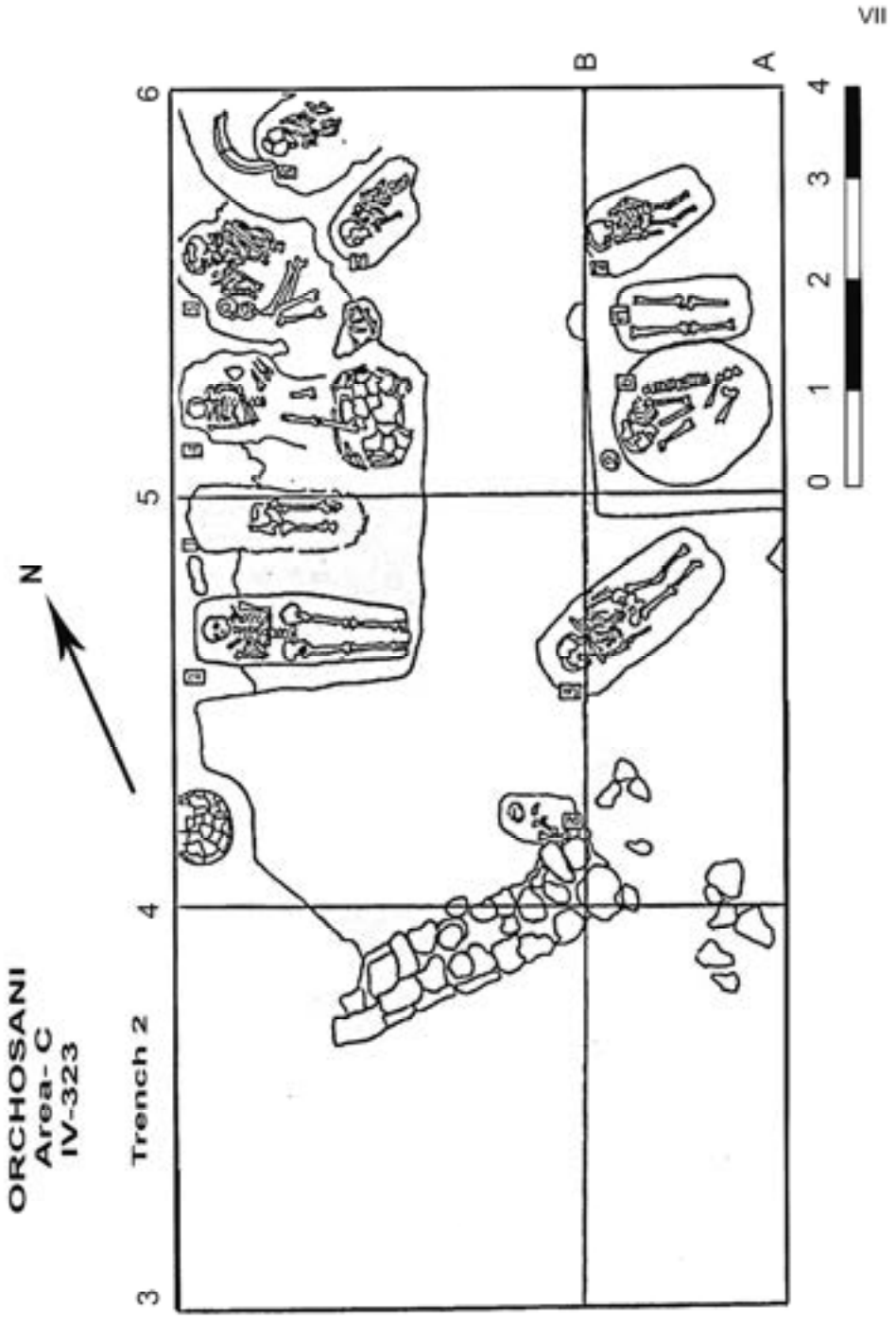
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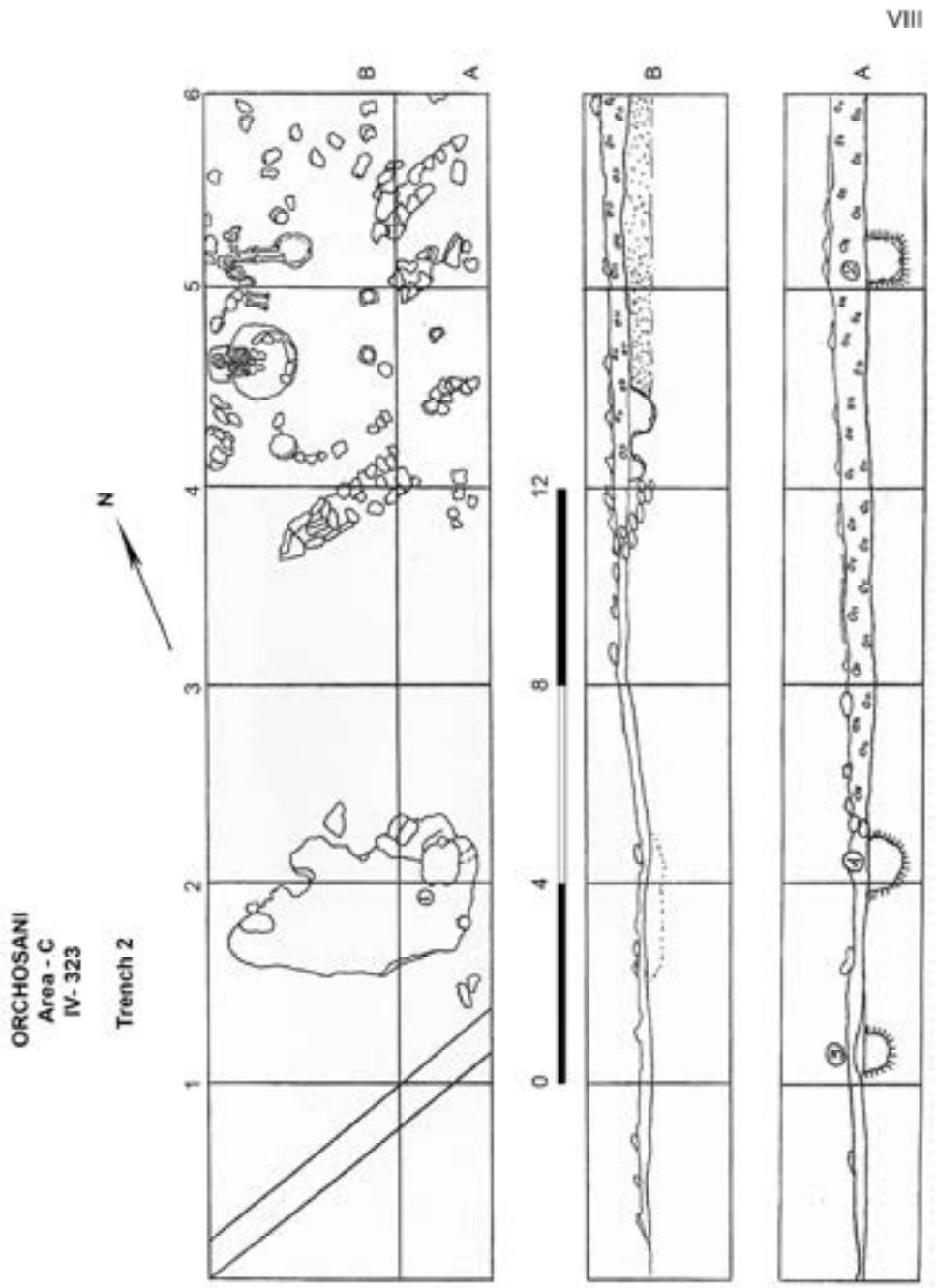
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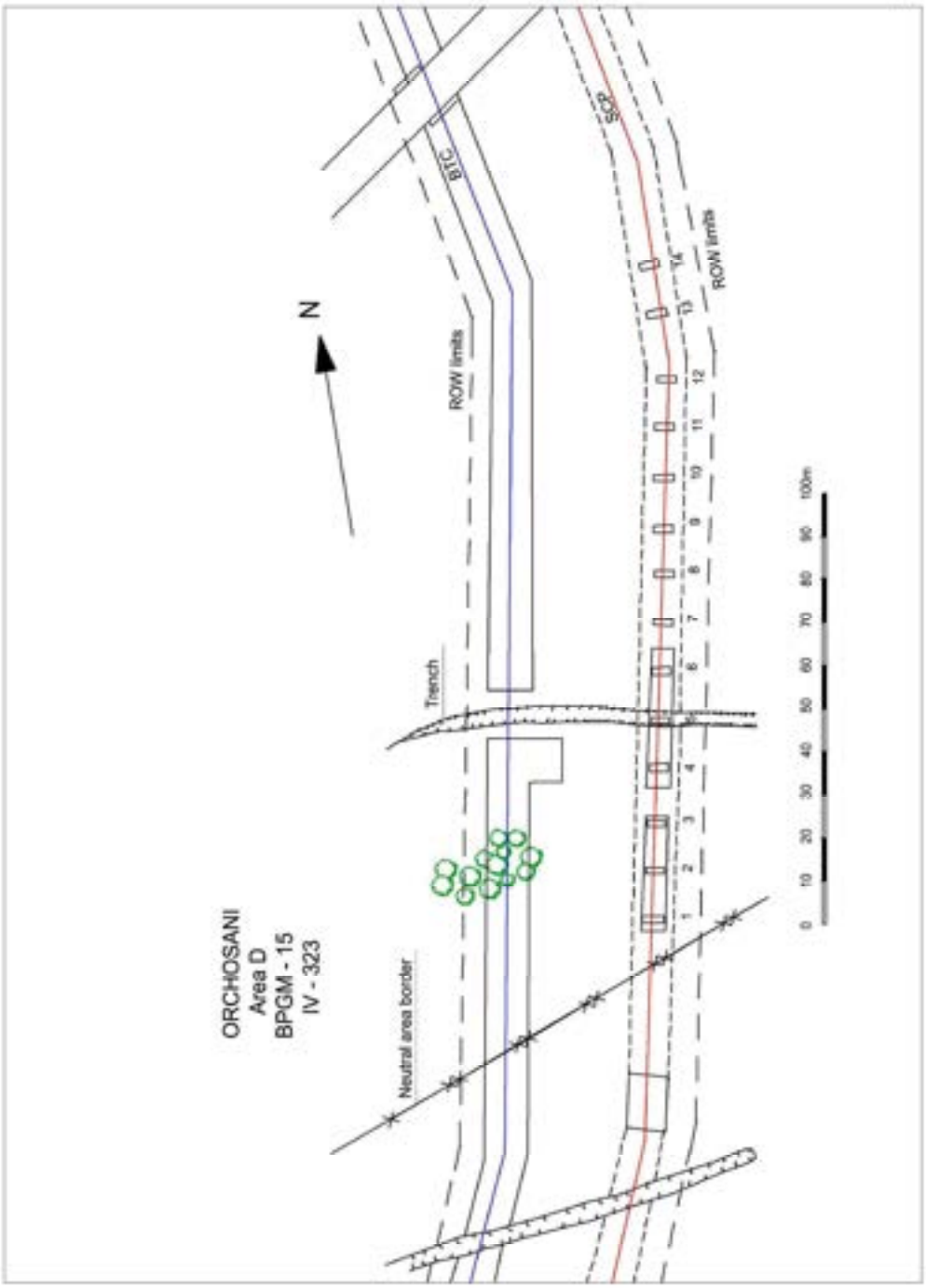
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ROW limits
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IV - 323
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60
70
80
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100m

X



**ORCHOSANI**
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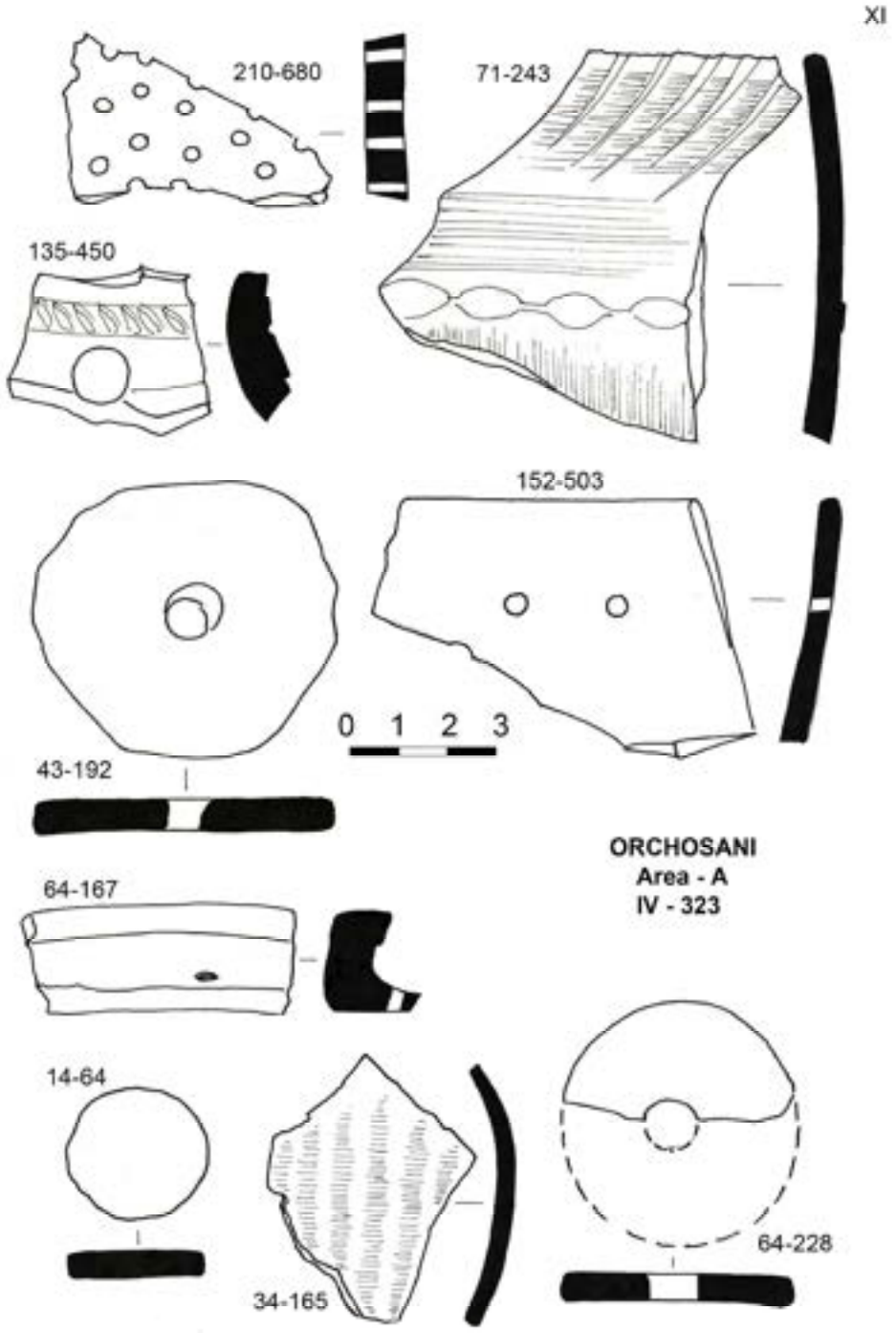
KP 249+800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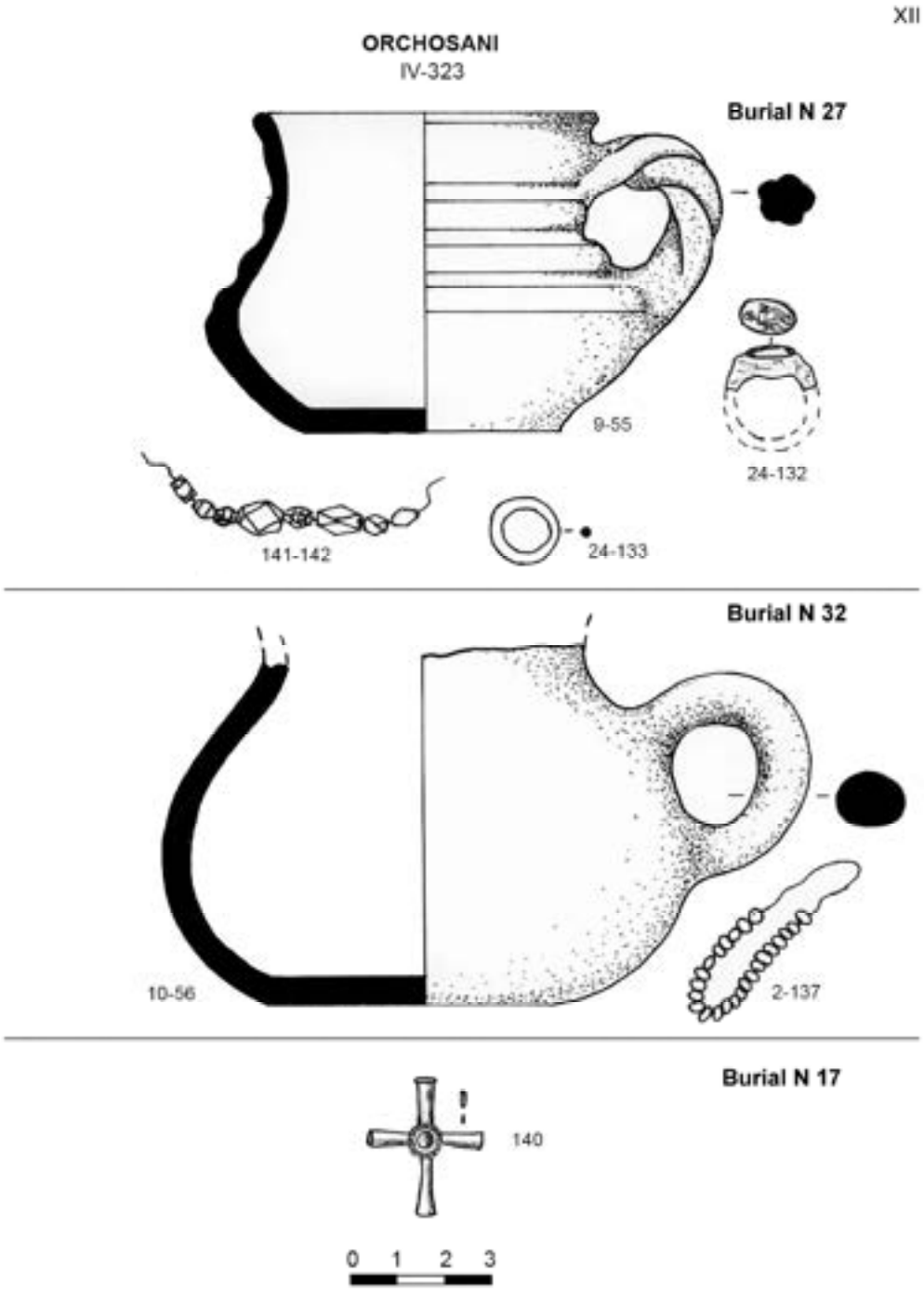
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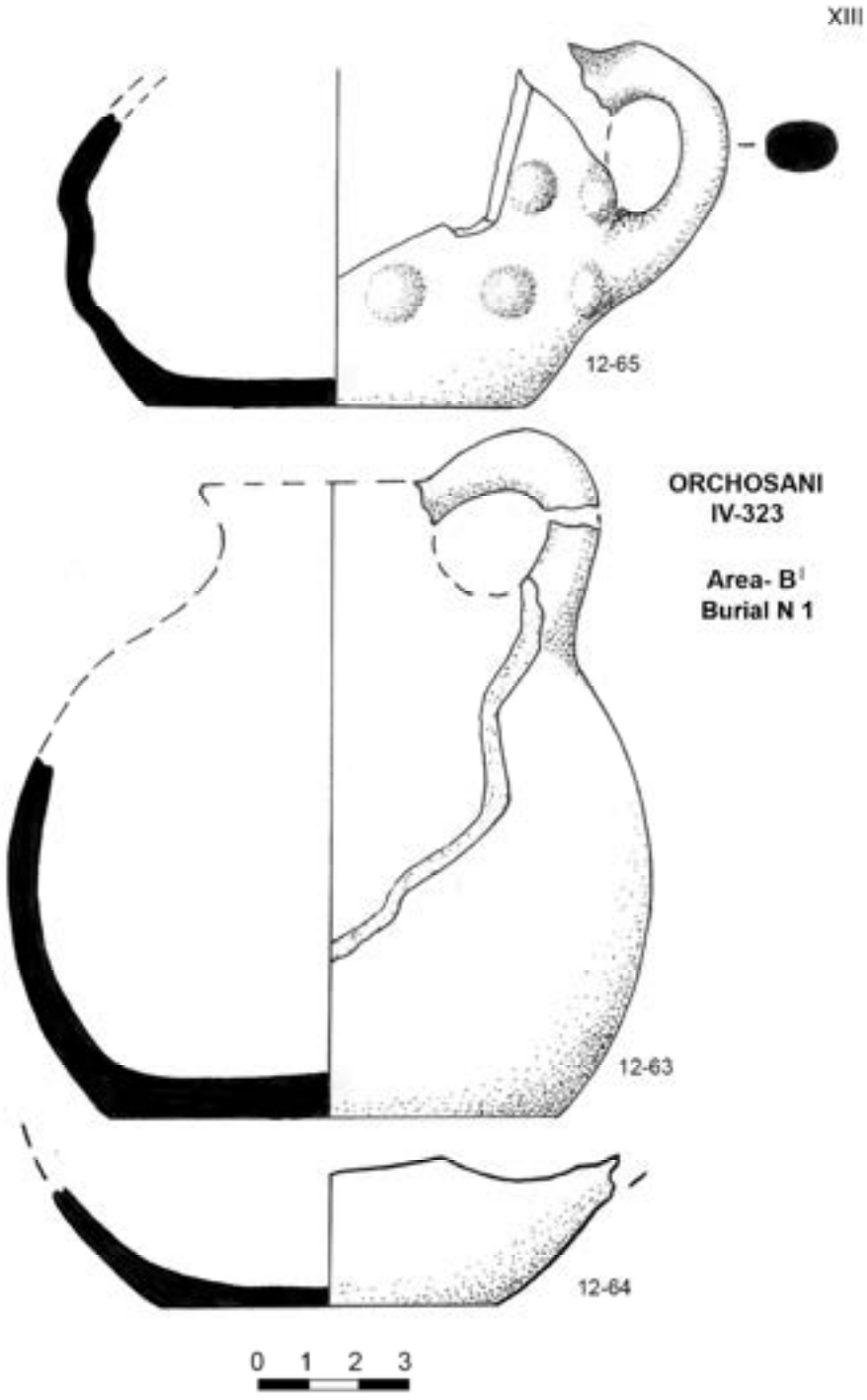
Burial N 17
140
0 1 2 3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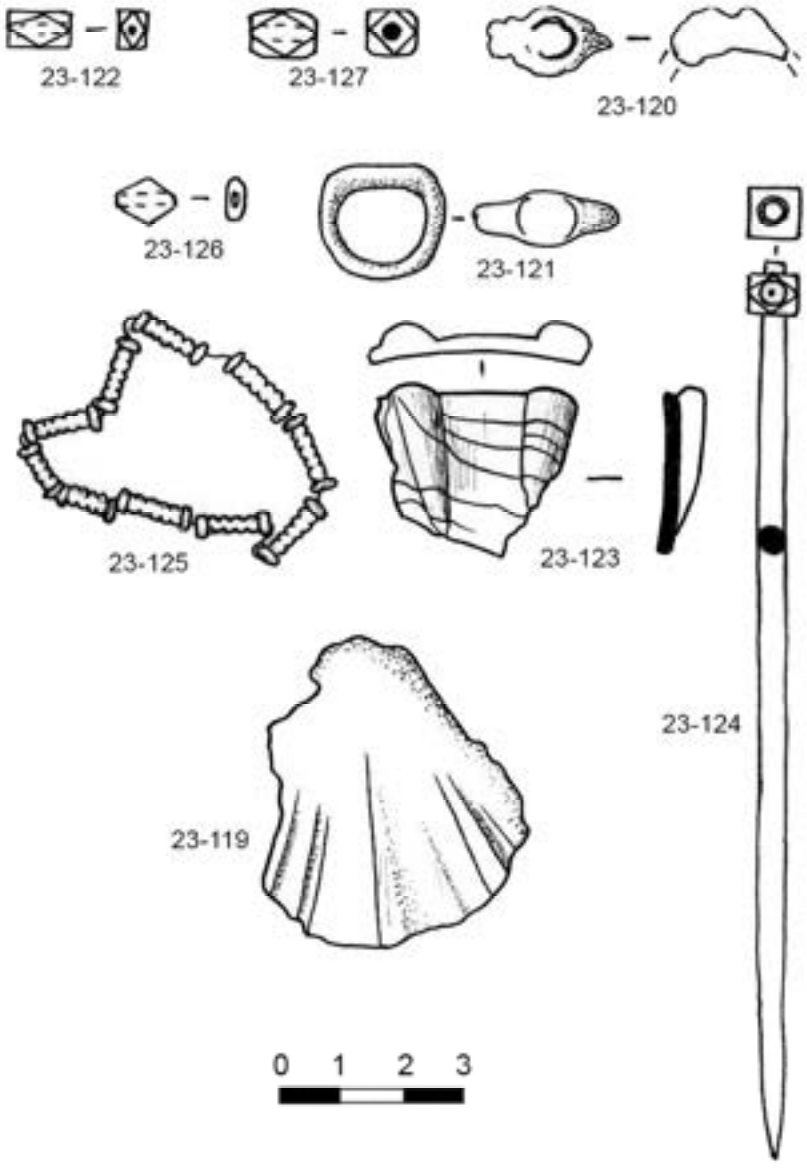
XIV

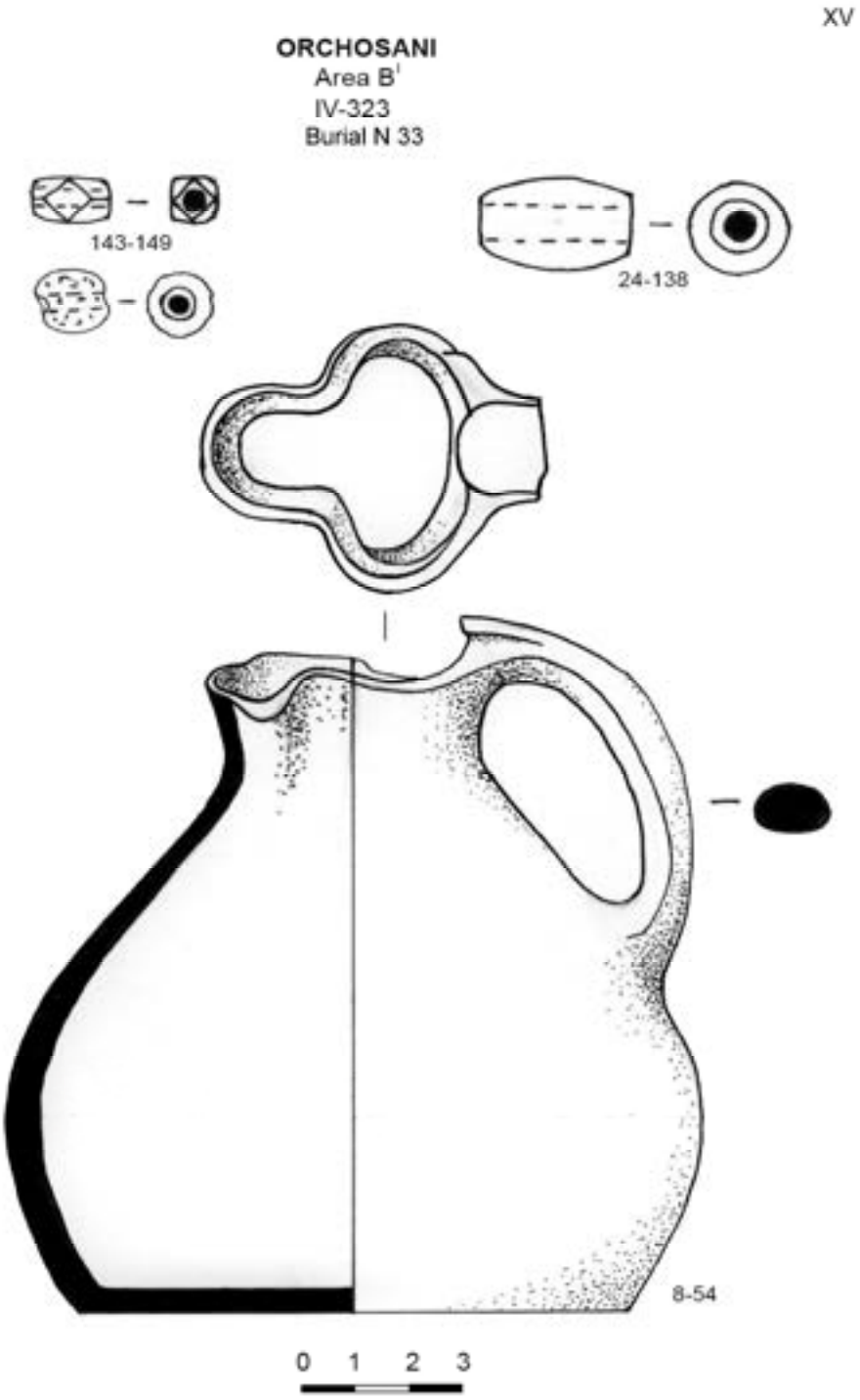
ORCHOSANI

Area B'

IV-323

Burial N 1

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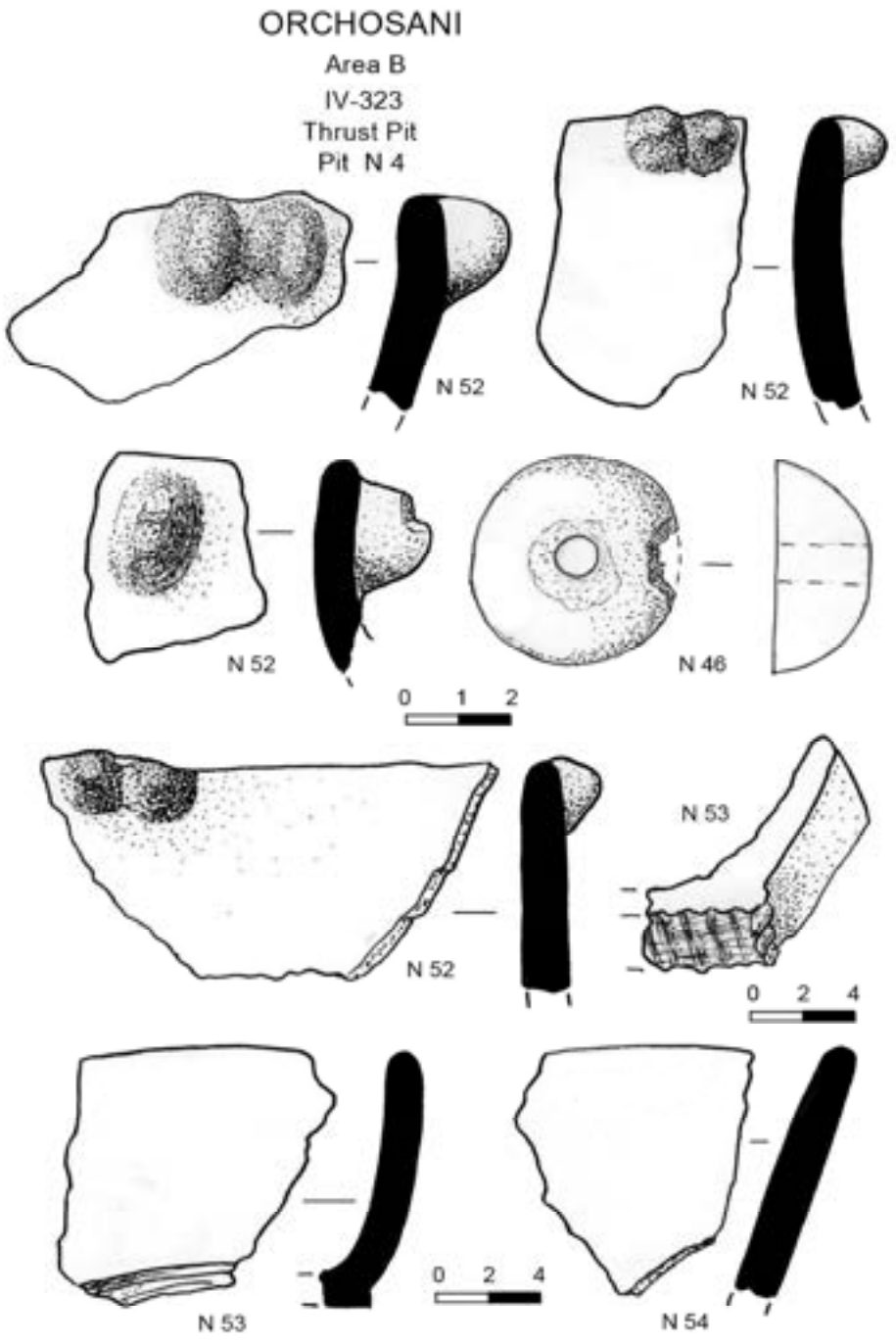
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N 54

XVII

ORCHOSANI
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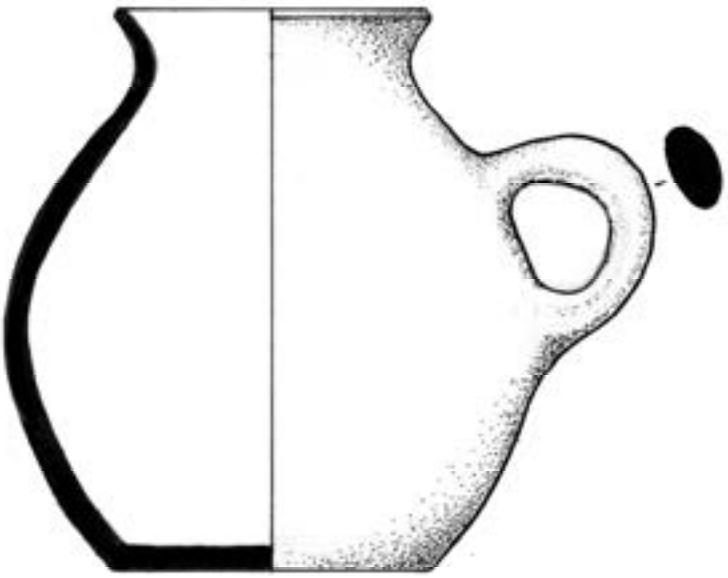
Burial N 15



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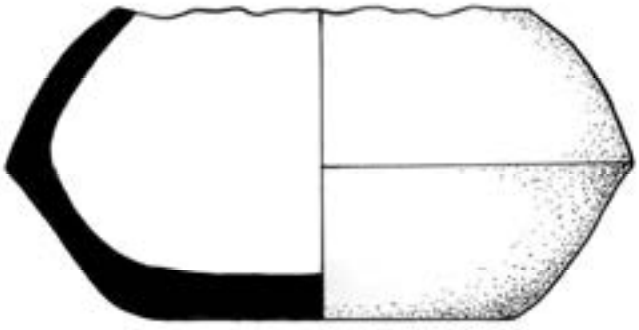
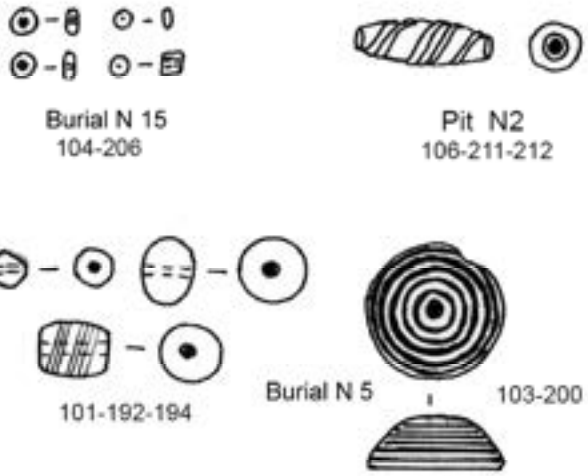


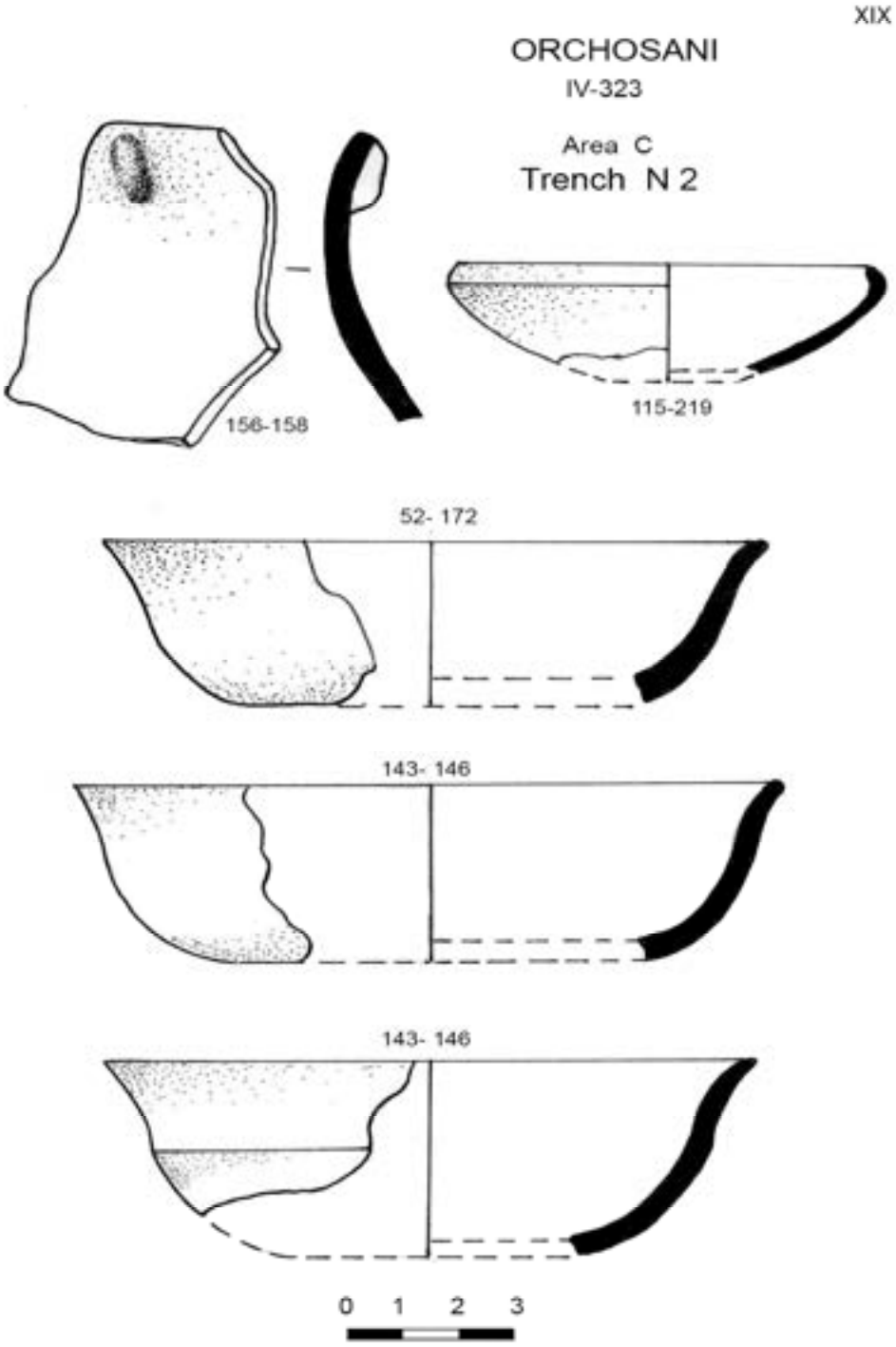
13-39

0 1 2 3

XVIII

ORCHOSANI
Area C
IV-323
Trench N 2

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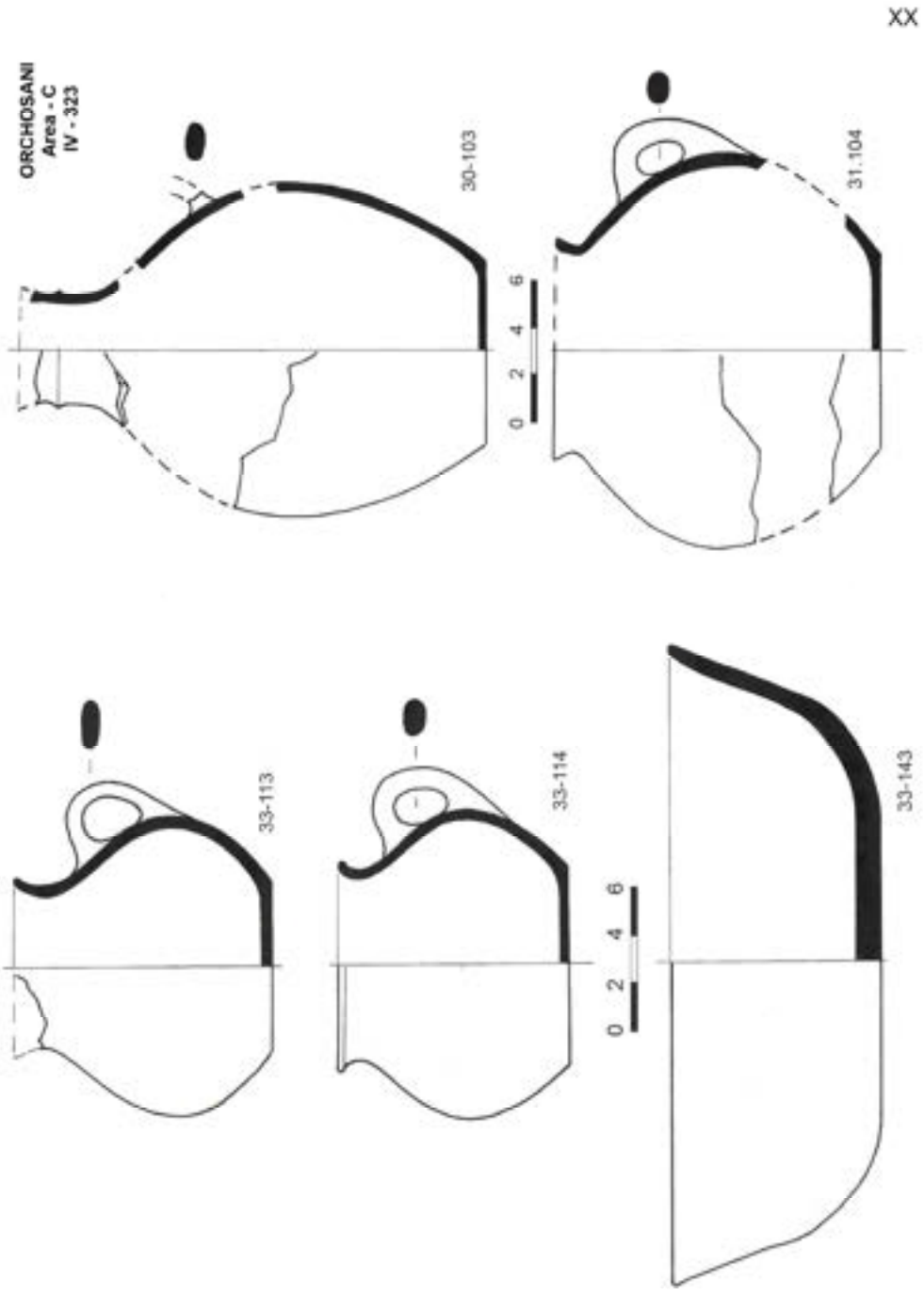
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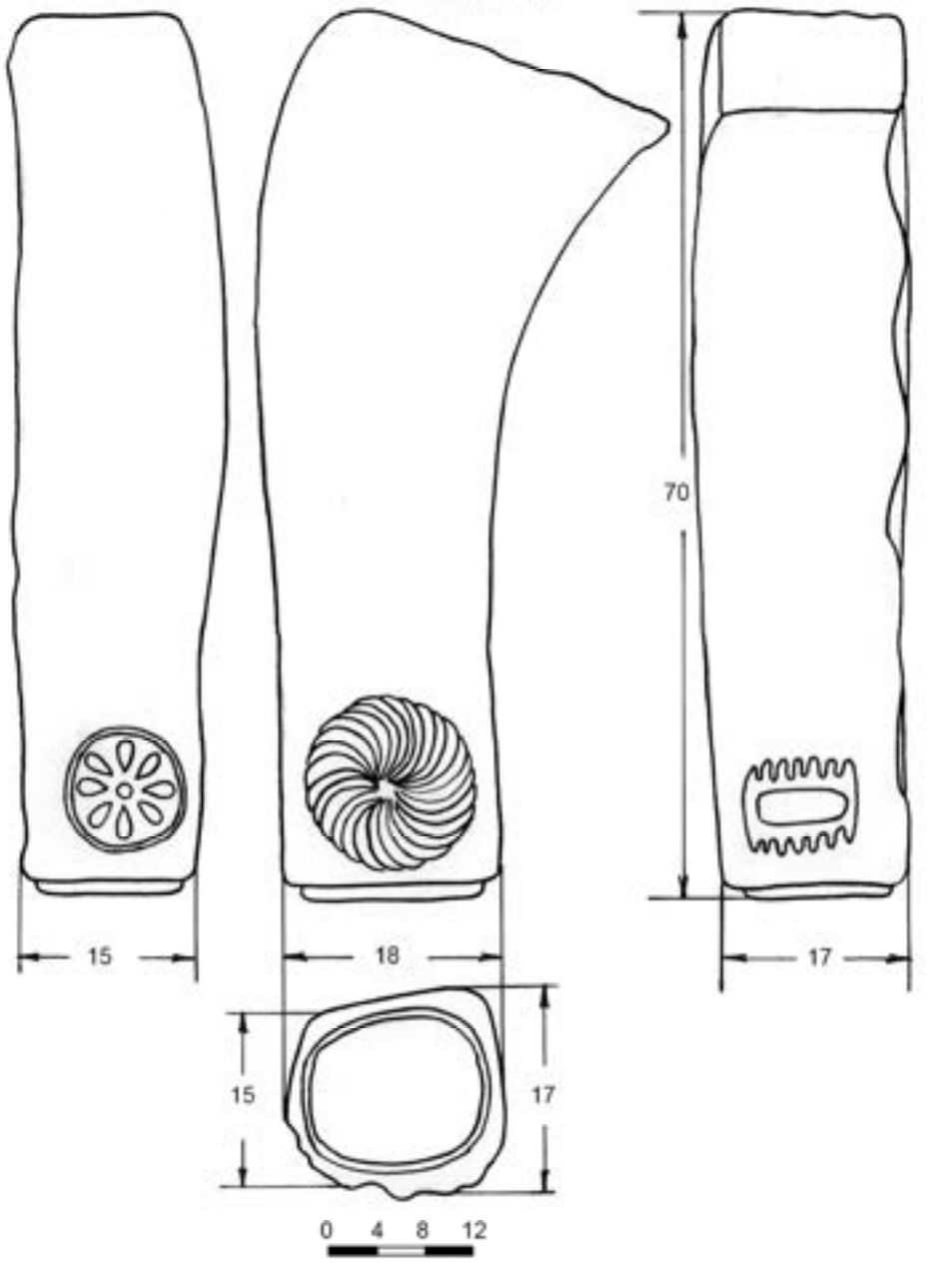
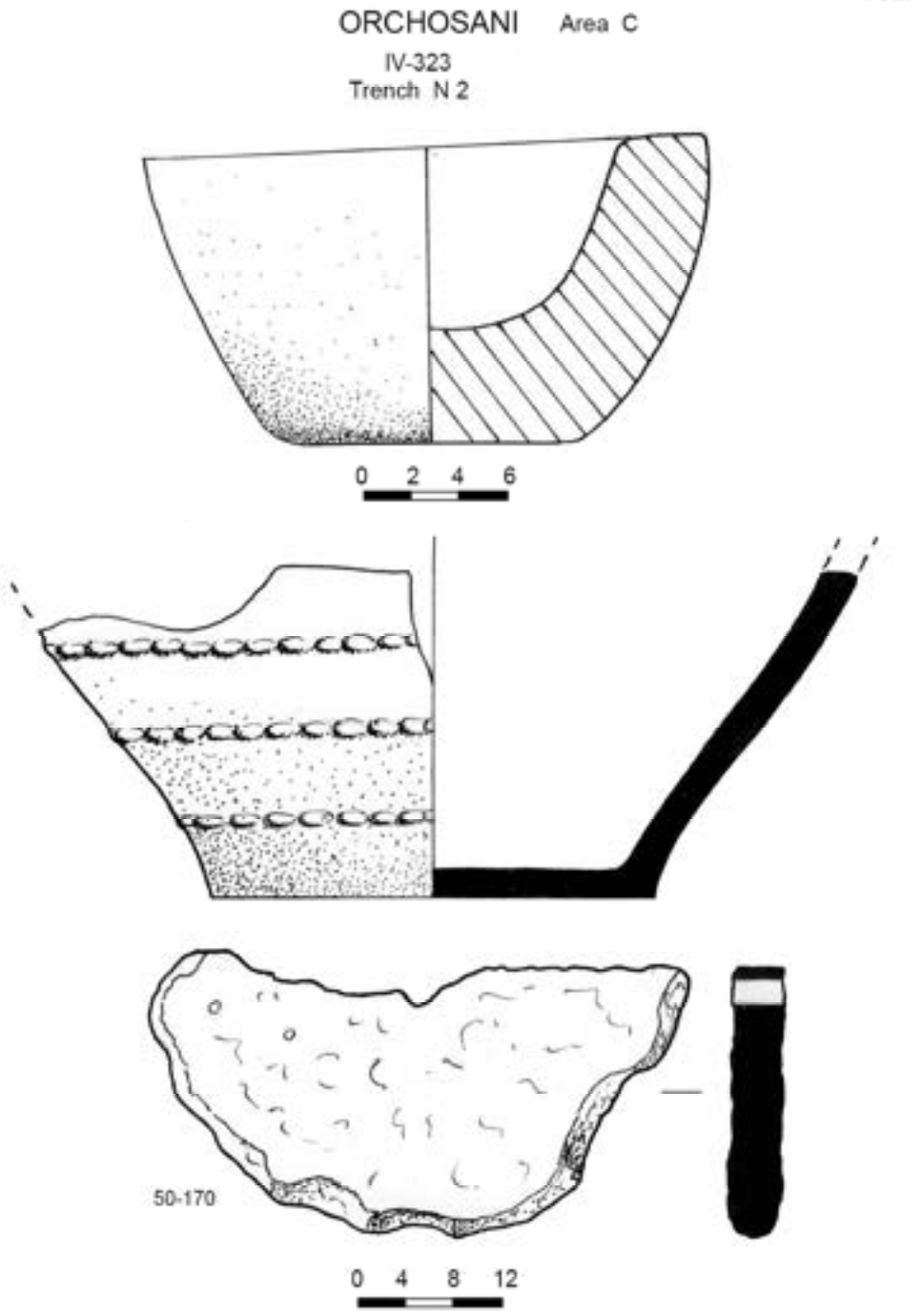
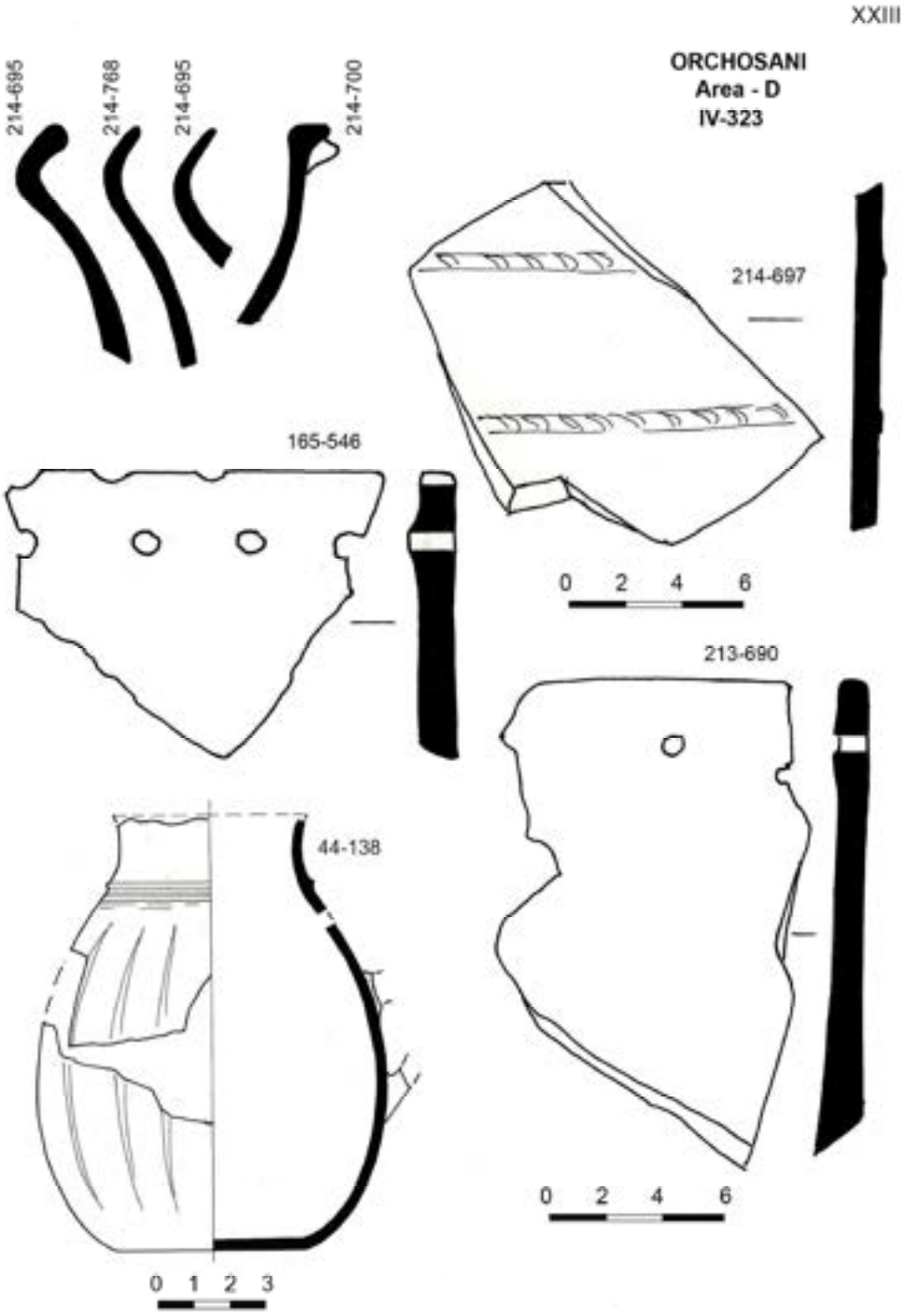
XXI

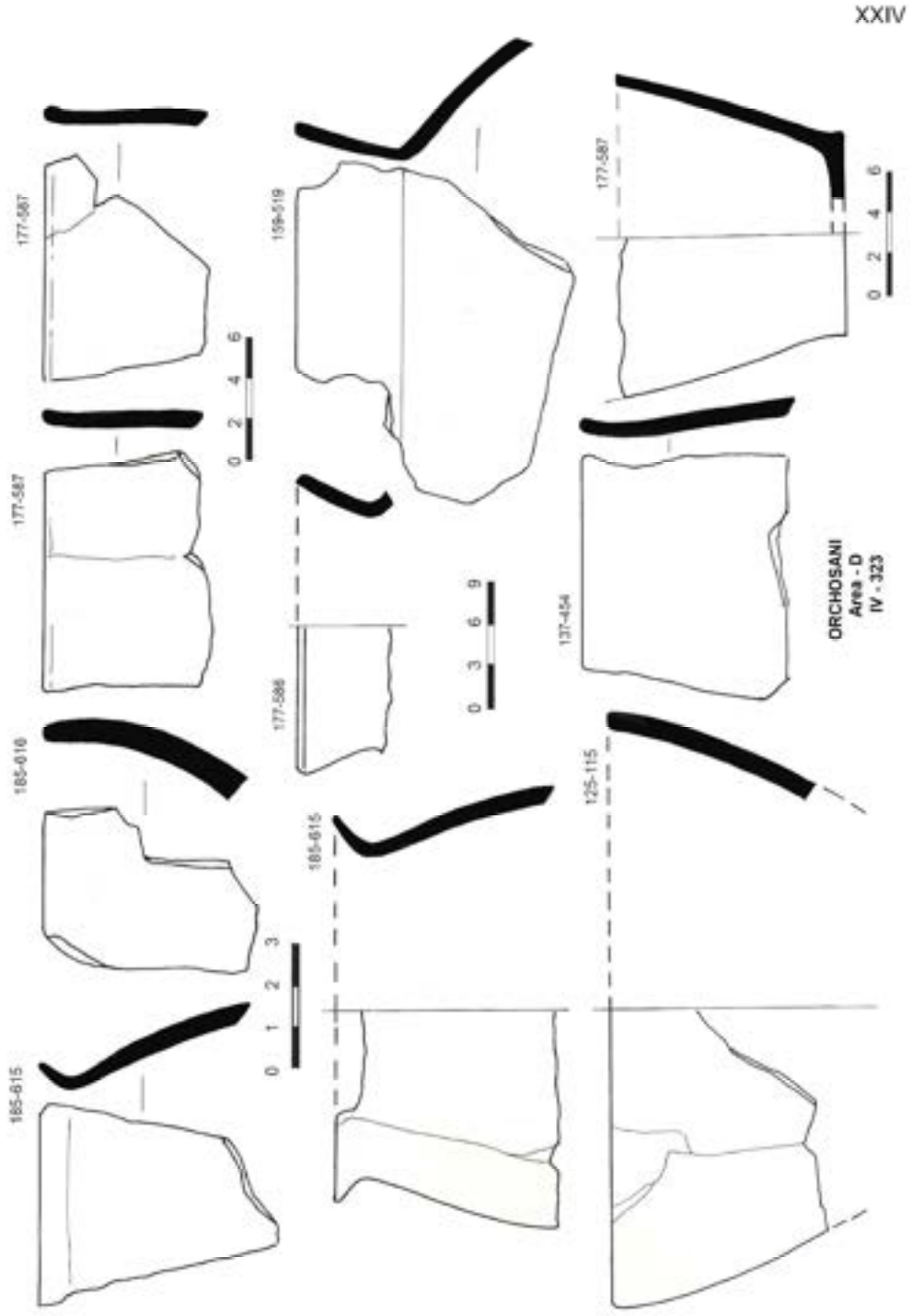
**ORCHOSANI**
Area C
IV-323
Trench N 2



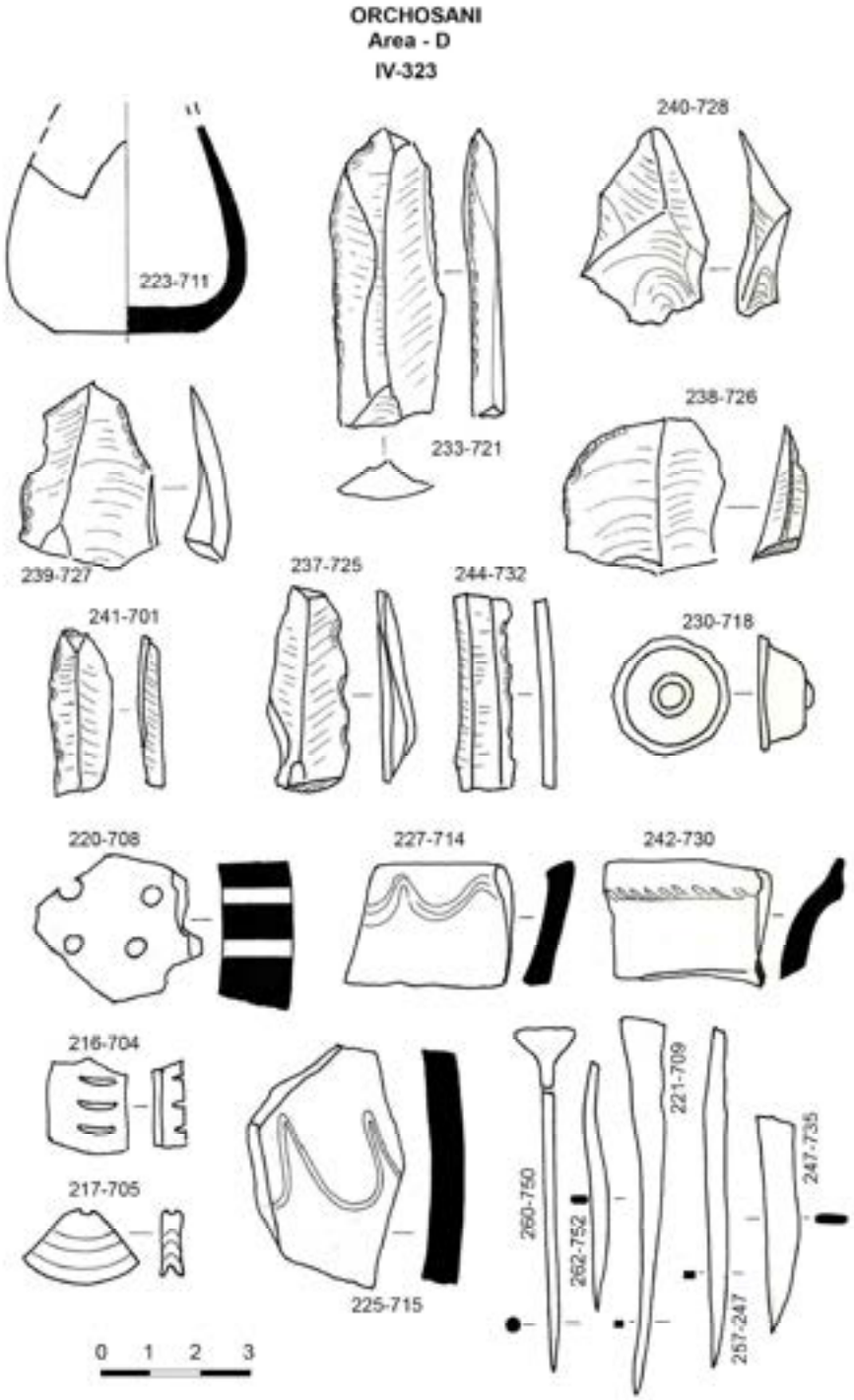
XXII

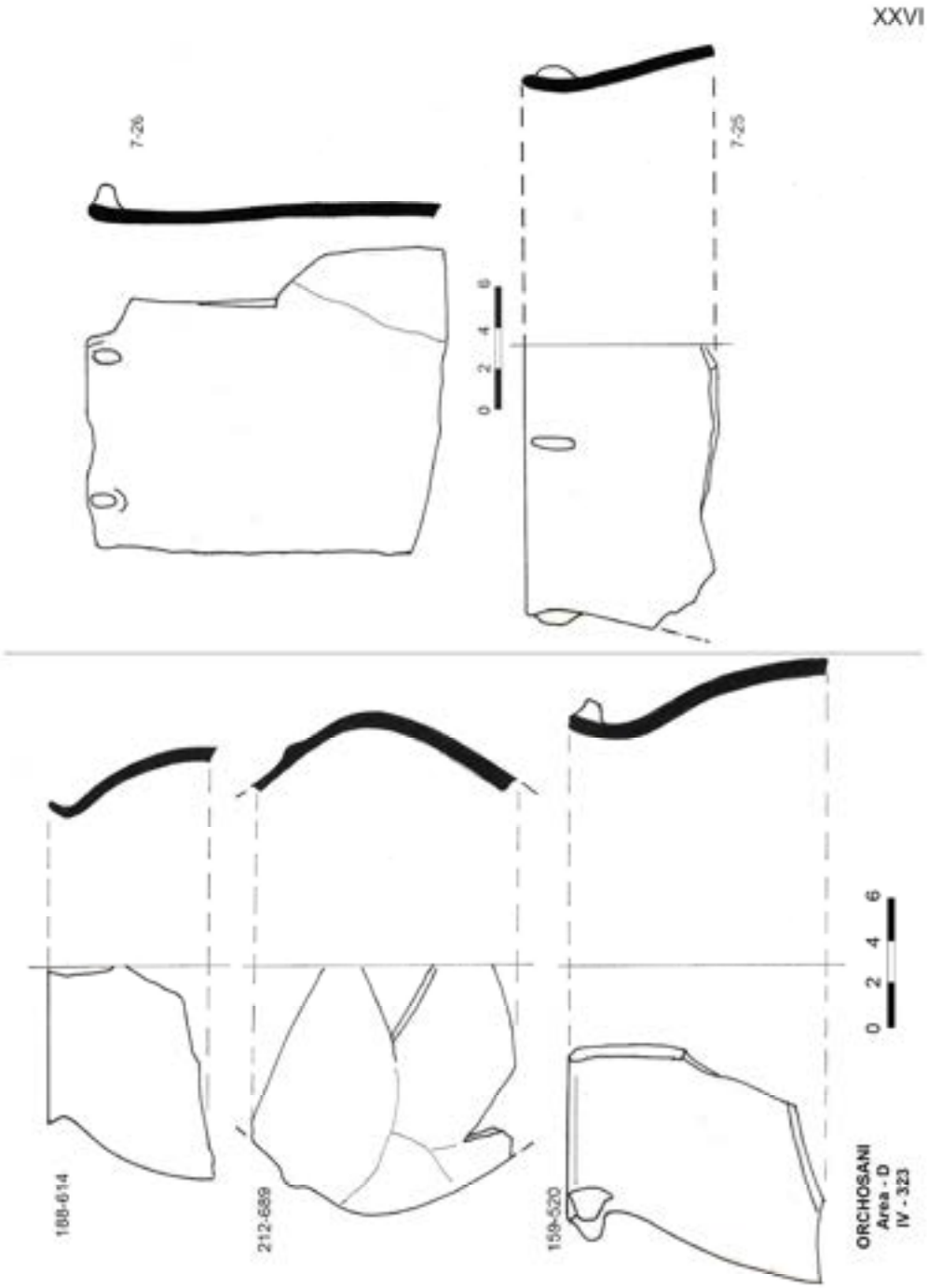



XXIII
ORCHOSANI
Area - D
IV-323
214-695
214-768
214-695
214-700
214-697
165-546
0 2 4 6
213-690
44-138
0 1 2 3
0 2 4 6

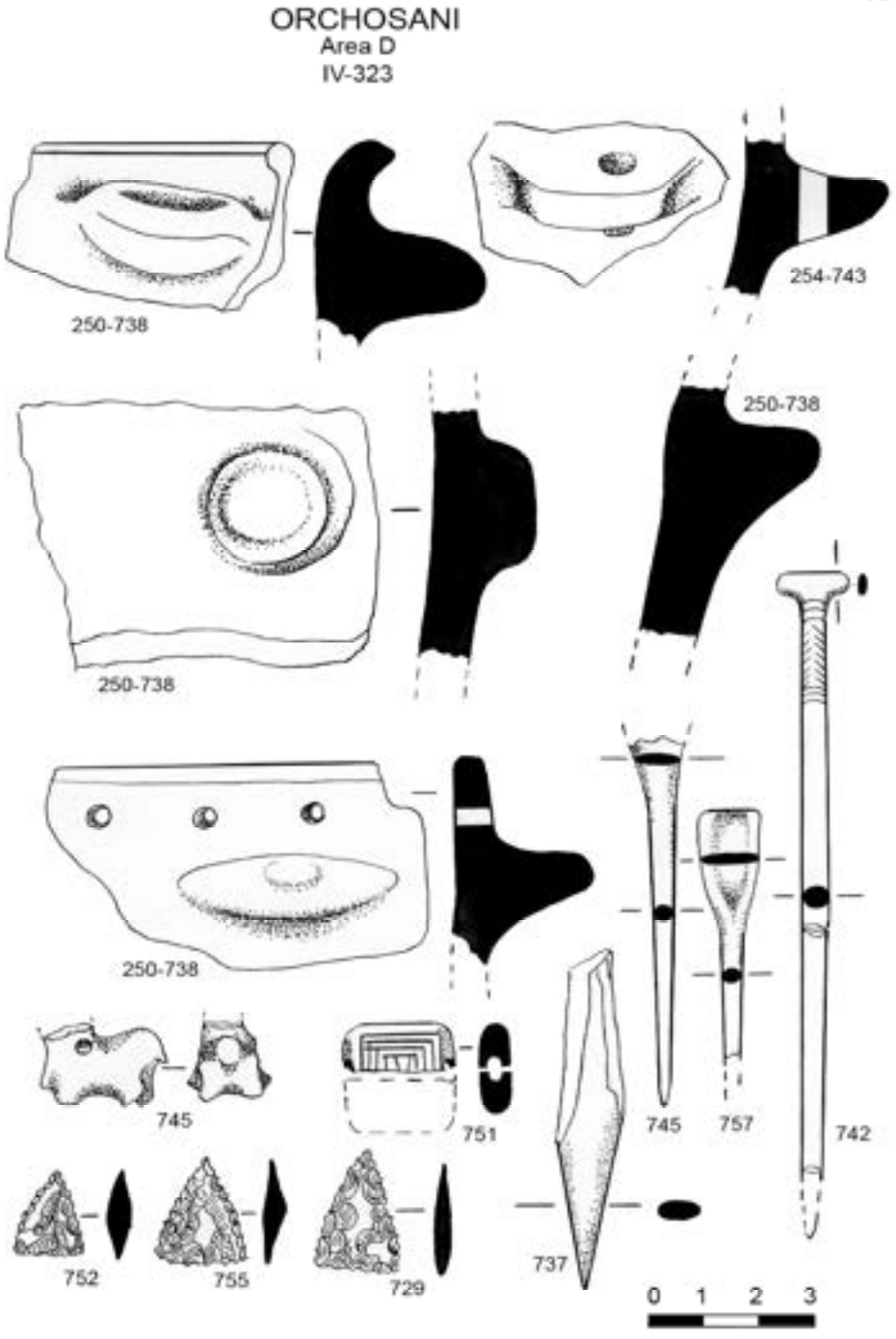

XXIV
177-587
177-587
185-616
185-615
0 1 2 3
0 2 4 6
159-519
177-588
185-615
0 3 6 9
137-454
125-115
177-587
0 2 4 6
ORCHOSANI
Area - D
IV - 323

XXV

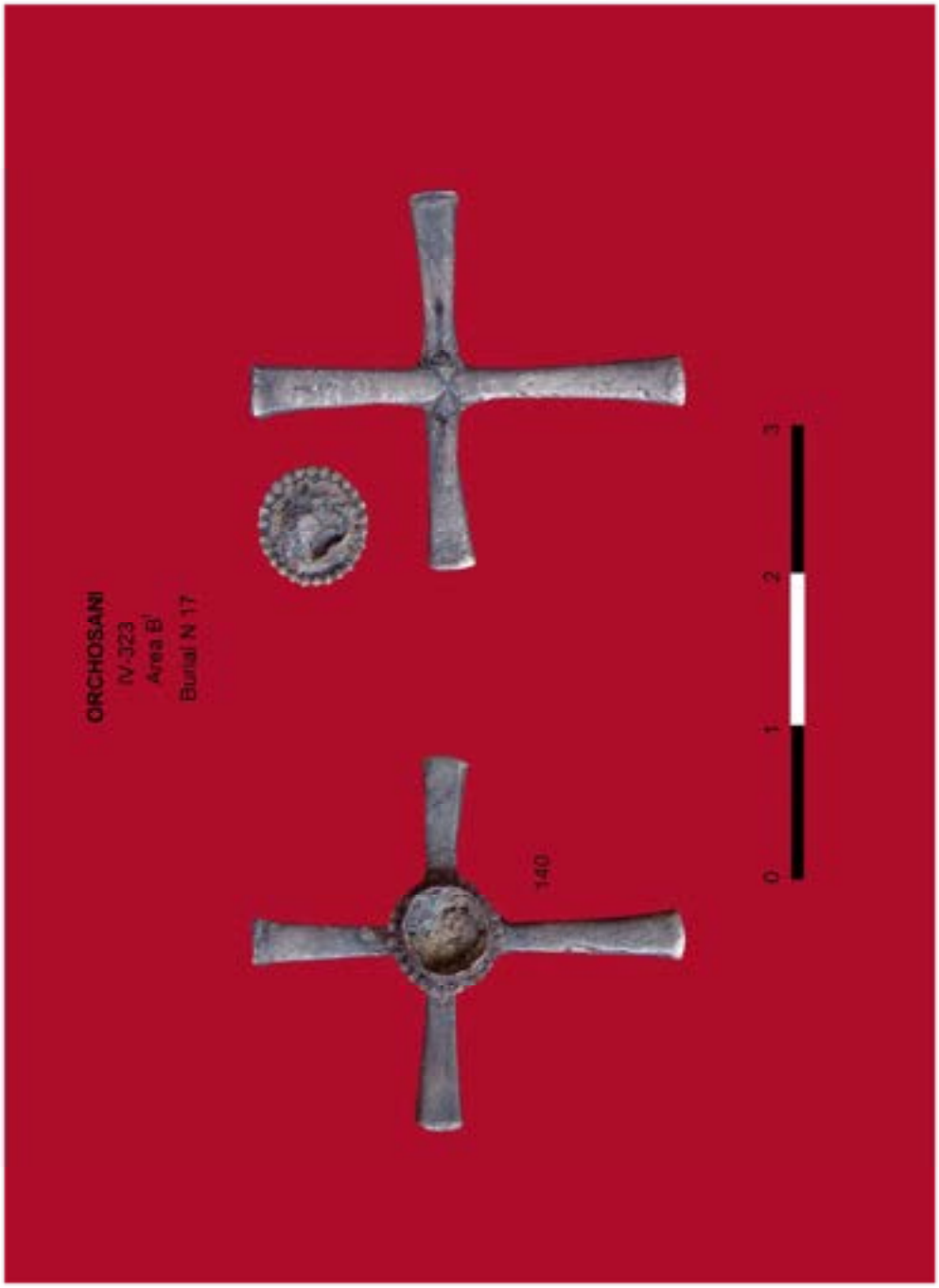

ORCHOSANI
Area - D
IV-323
223-711
240-728
233-721
238-726
239-727
237-725
244-732
241-701
230-718
220-708
227-714
242-730
216-704
217-705
225-715
260-750
262-752
221-709
257-247
247-735
0 1 2 3


XXVI
7-26
7-25
0 2 4 6
188-614
212-689
159-520
0 2 4 6
ORCHOSANI
Area - D
IV - 323

XXVII


ORCHOSANI
Area D
IV-323
250-738
254-743
250-738
250-738
250-738
745
751
745
757
742
737
752
755
729
0 1 2 3

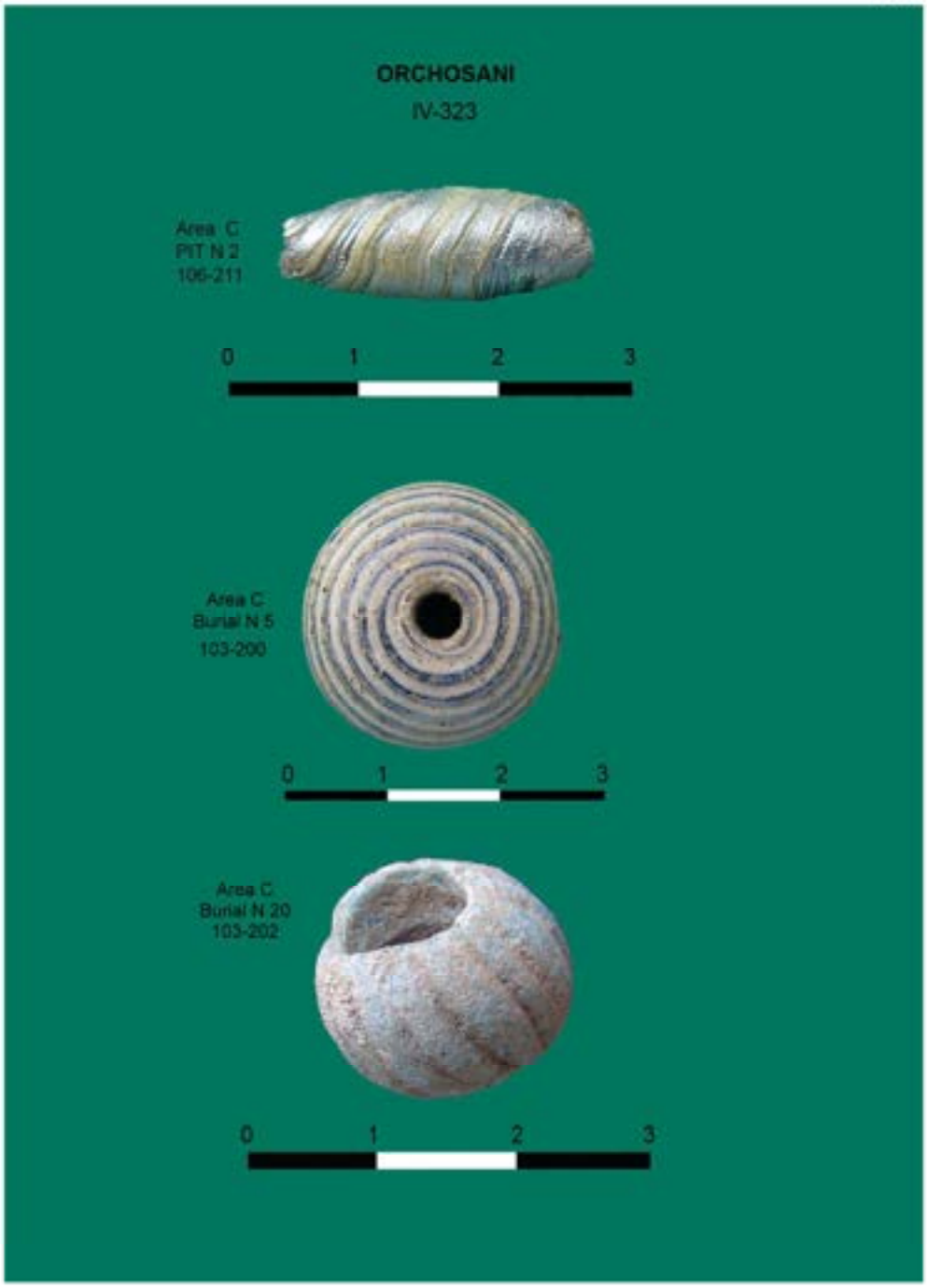
XXVIII



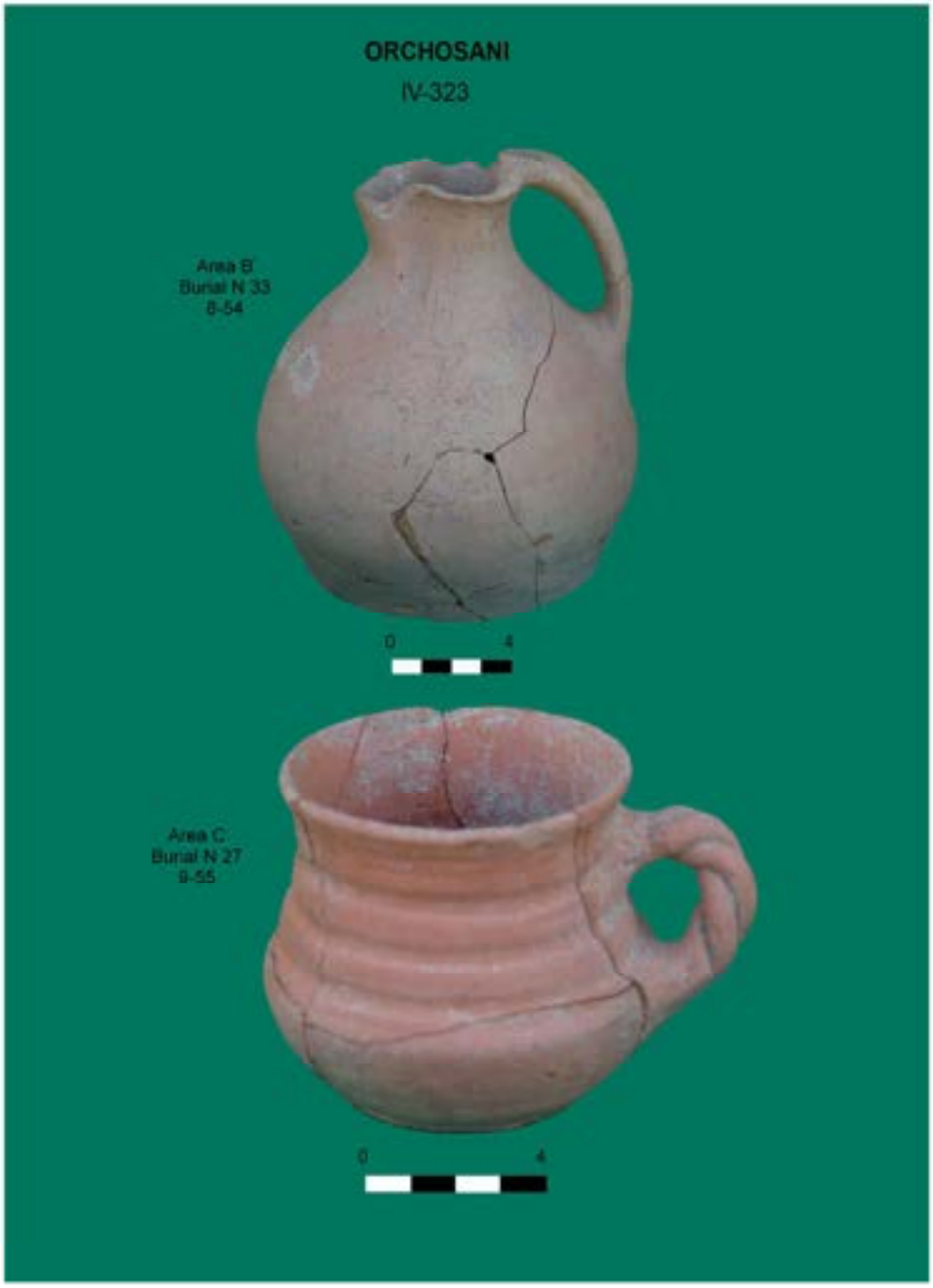
XXIX

XXX

XXXI


ORCHOSANI
IV-323
Area C
PIT N 2
106-211
0
1
2
3
Area C
Burial N 5
103-200
0
1
2
3
Area C
Burial N 20
103-202
0
1
2
3

XXXII


ORCHOSANI
IV-323
Area B
Burial N 33
8-54
0
4
Area C
Burial N 27
8-55
0
4

XXXIII


ORCHOSANI
IV-323
Before Treatment
25-140 B'
23-121 B'
24-133 B'
23-118 B'
23-129 B'
After Treatment
23-121 B'
23-118 B'
24-133 B'
25-140 B'
23-129 B'

XXXIV


ORCHIOSANI
IV- 323
Before Treatment 112-218 C
After Treatment 112-218 C
Before Treatment
2-16 B
After Treatment
2-16 B
229-717 D
4-23 B
14-64 B

XXXV


ORCHOSANI
IV-323
Burial N 15
Burial N 11
Burial N 14
Burial N 10
Burial N 20
Burial N 16
N1
N5

XXXVI

XXXVII