We would like to thank personally each of the students and volunteers who participated in the workshop and made this project possible:

**2010**
- Connie Gerrow – UK
- Vanessa Idoni – USA
- Brooke Herczeg – Canada
- Renee Sandoz Whitehead – USA
- Spencer Whitehead - USA

**2011**
- Garrett Robertson – USA
- Laura Watson – UK
- Tia Polidori – USA
- Nanette Philibert – USA
- Matthew Schueller – USA

**2012**
- Anita Dey – USA
- Julian Marshall – Australia
- Julian McArthur - Canada
- Yuet Yee Dorcas Tam – Hong Kong, Republic of China
- Danielle Hum – Canada

**2013**
- Amanda Young – USA
- Paige Fehr – USA
- Aliza Taft – USA
- Dr. Annette Morrow – USA
- Lena Allen – USA
- Jiuru Du – China
- Kathleen Byczynski – Canada

**2014**
- Kristina Karpicus – USA
- Patricia Fordney – USA
- Melody Wentz – USA
- Yun Han Hsu - Taiwan, Republic of China
Introduction and Short Description of the Project

Project Partners: National Institution Stobi (NI Stobi) and Balkan Heritage Foundation (BHF)

History of Stobi

Context and Main Characteristics of the Vessels

Techniques of Conservation and Restoration: short description of the conservation and restoration process

Catalogue: photo and graphic documentation

Bibliography
Introduction and Short Description of the Project
Introduction and Short Description of the Project

For more than a century, an extensive investigation has been carried out at the archaeological site of Stobi. As a result, an enormous amount of archaeological material has been revealed, which requires systematic and unceasing work for its conservation and restoration. Among this material is an abundant collection of Roman and Late Roman ceramic vessels.

The idea of taking the step towards the support of ceramic collections emerged in 2009 within the Balkan Heritage Foundation (BHF). The Foundation carried out a workshop for the restoration and conservation of ancient pottery at the Regional Museum of History in Stara Zagora, Bulgaria. Since the results proved to be of great importance for the ceramic collection of the museum, the need to continue was readily apparent. In the next year the project was divided into two parts taking place at different locations:

1. Conservation and documentation of Greek pottery located in Emona on the Black Sea coast; 2. Conservation and documentation of Roman, Late Roman and Early Byzantine pottery kept in National Institution Stobi, Macedonia.

The primary goal of the project is to support the capacity of National Institution Stobi for conservation and restoration of the existing collection of ceramic vessels, through the participation of students and volunteers from all over the world. The project contributes to the preparation of complete well-timed publications, wider promotion of the site, and the future museum exhibition at the site.

The National Institution Stobi offers relevant resources for the implementation of such a project. A laboratory for the conservation of various archaeological materials was established at the archaeological site of Stobi to meet the needs of the permanent conservation and restoration archaeological items. The workshop team consists of professionals - conservators and archaeologists who are affiliated with various scientific institutions and organizations. The program was supervised by Biljana Jankulovska-Peeva (conservator of ceramic and glass objects, NI Stobi) and Nina Turlakova (the BHF affiliated conservator).

The project was implemented for the first time at Stobi in 2010 and has continued without interruption to the present day.

Until 2013 the workshop coordinators and chief instructors were Kalina Stoyanova, a PhD student at the Department of Classical Archaeology, National Institute of Archaeology and Museum, Bulgarian Academy of Sciences, and Jovan Radnjanski, an archaeologist at National Institution Stobi. Since 2014, Kalina Stoyanova has been replaced by Angela Pencheva (BHF Program Director) as workshop coordinator. At the same time, Alexander Manev, PhD student at the Department of Classical Archaeology, National Institute of Archaeology and Museum, Bulgarian Academy of Sciences, joined the team as chief instructor.

Since its inception, more than 25 participants from different countries have taken part in the two-week project. Students and volunteers from the USA, the UK, Australia, Canada, China, Taiwan, France, and other countries greatly contributed to the preservation of the more than 120 ceramic vessels at Stobi.

In 2014 the project was extended by a week with basic courses on the conservation and restoration of ancient glass.

STRUCTURE OF THE WORKSHOP

The project is divided into three parts. The educational module includes specialized lectures on the history of Stobi and Macedonia in the Roman and Late Roman periods, as well as lectures on the technology, typology, chronology, conservation, and restoration of ceramic vessels and glass, complemented with archaeological and conservation documentation. The second part consists of workshops on the conservation and restoration of Roman pottery and archaeological documentation and illustration (drawing, graphic reconstruction, image processing using graphic software, photographing, and description). The third part of the course includes excursions and guided tours of Bitola and Heraclea Lyncestis, Ohrid and Ohrid Lake (UNESCO World Heritage Site), and Pella and Vergina in Greece.

All participants have the opportunity to...
receive a hands-on experience in Roman and Late Roman pottery conservation. These courses will guide the participants through the history and technology of Roman and Late Roman pottery and glass and the consequent stages of their study, conservation, restoration and documentation. Both the theoretical and practical courses utilize original pottery from recent archaeological excavations. The participants begin their practical work on replicas of ancient vessels and once they reach an acceptable level of accuracy and precision they have the opportunity to work on originals. By the end of the course, the students are able to restore one or two original vessels. Unlike the ceramic vessels, the one-week course of conservation and restoration of glass is practiced only on replicas.

Participation in the project is a great opportunity to gain new skills and knowledge and to contribute to the promotion of local and worldwide cultural heritage.

The catalogue comprises a selection of 21 different vessels discovered during the excavations of the Western necropolis of Stobi and the House of Peristeria in the 2009, 2011, and 2012 campaigns. It includes vessels which differ in form and function, primarily mugs, cups, bowls, and unguent pots, with detailed description of the conservation process, catalogue entry and digital graphic drawing and photo documentation of each item.

The catalogue provides online access to this part of Stobi’s collection of ceramics and aims to develop ways to engage the public. It is just one step of many in sharing Stobi’s history and culture with the rest of the world.

Kalina Stoyanova
Project Partners: National Institution Stobi (NI Stobi) and Balkan Heritage Foundation (BHF)
Stobi is the most famous archaeological site in the Republic of Macedonia, and is considered a site of national interest falling under protection category I. The site was under the jurisdiction of the National Museum Veles until 2001, when authority was transferred to the Institute for Protection of the Cultural Monuments of the R. of Macedonia, later renamed the National Conservation Centre.

The National Institution for Management of the Archaeological Site Stobi (National Institution Stobi) was founded with a Decree of the Government of the Republic of Macedonia in 2008 as an independent institution under the Ministry of Culture. The main goal is the management of the site and includes three major aspects: research, protection, and presentation.

### ARCHAEOLOGY

- **SYSTEMATIC EXCAVATIONS** - In 2009, National Institution Stobi began large-scale systematic excavations coordinated by the Cultural Heritage Protection Office with the financial support of the Macedonian government. These excavations revealed new buildings such as the Temple of Isis and the large complex that surrounds it in the southeastern part of the city and the residential and commercial quarter between the Via Sacra and the southwestern segment of the city fortification wall. Excavations were also carried out on the already known buildings such as the Theatre, the Building with Arches, the fortification walls, and the cemeteries. The uncovered buildings and moveable finds revealed new data regarding the history and urban development of the city, as well as new information about local funerary practice until its abandonment at the end of the 6th century CE.

  The excavations in the aforementioned areas continued in subsequent years and are still ongoing. The results of the excavations are going to be published in the reestablished “Studies in the Antiquities of Stobi,” a journal initiated by the American-Yugoslav project during the 1970’s. As a supplement of the Studies, National Institution Stobi initiated a monograph series starting with the volume “Inscriptiones Stoborum” by Slavica Babamova.

- **FIELD SCHOOL** - In August 2010, National Institution Stobi and Balkan Heritage Foundation started the first archaeological field school project at Stobi. By excavating in two different sectors (Western necropolis and the Temple of Isis), the participants were introduced to basic excavation techniques and archaeological documentation. In seasons 2011 - 2013, the research was focused on the residential and commercial quarter above the Semicircular Court, dated to the Late Roman period. Given the closed context situations of the last urban phase of Stobi from the second half of the 6th century CE, these excavations were a great opportunity for training beginners and introducing them to the principles of archaeological stratigraphy in an urban area. Since 2014, the field school excavations have been located in the southern part of the Theodosian Palace, in the area near the so-called “Prison.” The main goal is to reveal the relation between the two buildings and to understand the stratigraphy in this area of the city, as well as the transformation of the urban landscape during the 6th century CE.

### CONSERVATION

- **WALL PAINTINGS** - In 2010, National Institution Stobi was awarded a grant from the U.S. Ambassadors Fund for Cultural Preservation. The grant supported the conservation of the 4th - 5th century CE wall paintings from the Old Episcopal Basilica, the oldest Christian frescoes in the R. of Macedonia. The project finished with a spectacular exhibition of the restored wall paintings in Skopje in the gallery of the National Bank.

- **MOSAICS** - Approximately 1560 m² of mosaic pavement adorned different buildings in the ancient city of Stobi, dated mainly between the 2nd and 6th century CE. Most of them were discovered in the public or residential Roman and Late Roman buildings at the site. Between 2010 and 2014 several projects for the conservation of mosaics were carried out. The biggest challenges in terms of protection and presentation were...
the project for the floor mosaic in the House of Peristeria conducted between 2010 and 2012, and the project for the conservation of 160 m² of floor mosaic from the nave of the Old Episcopal Basilica between 2013 and 2014.

- **ARCHITECTURE** – The first project for the conservation of architectural remains was carried out in 2012 and resulted in the restoration of the newly excavated Temple of Isis. It was followed by a second project in the same year for the conservation and restoration of the so-called House with a Triclinium from the 6th century CE. In 2013, the project for the conservation and restoration of the Theatre was initiated. During the first season, the walls of the eastern half of the ima cavea were conserved, restored and partially reconstructed. The project continued in subsequent years with the reconstruction of the vaults and the mortar beddings for the marble seats.

**CONSERVATION WORKSHOPS**

Since 2010, the collaboration between National Institution Stobi and Balkan Heritage Foundation has included conservation workshops held at Stobi every year. These workshops are an introduction for the participants to the processes of conservation and documentation of Roman and Late Roman pottery, mosaics, wall paintings and glass objects. They directly contribute to the preservation and conservation of the ancient cultural heritage of Stobi. The workshops represent an excellent training opportunity for the participants.
The Balkan Heritage Foundation (BHF) is a Bulgarian public, non-profit, non-governmental organization. It was established in 2008 by a team from a cross-institutional program and has been implementing archaeological field schools and other cultural resource management projects since 2003.

The Balkan Heritage Foundation’s mission is to support the research, study, protection, conservation, management and promotion of cultural and historical (both tangible and intangible) heritage of Southeastern Europe as precondition for sustainable development of the region.

The BHF seeks to:

- Enhance the utilization of cultural heritage and improve the management of cultural heritage as preconditions for sustainable development in SE Europe;
- Facilitate global “access,” both direct and virtual, to Balkan heritage, especially for international scholars, students, donors and tourists;
- Raise the level of global cooperation and exchange of ideas, know-how, expertise and resources concerning Balkan heritage;
- Introduce unification of the heritage nomenclature (terms, periods, names etc.) and online publications of fundamental writings and summaries concerning Balkan archaeology, art, history and culture in English, especially those which concern civilizations, cultures, sites and artifacts that are globally less known;
- Build and develop links among major Balkan heritage stake-holders.

Balkan Heritage Foundation (BHF)

The Balkan Heritage Foundation is the first and oldest program of the BHF for practical education in the fields of archaeology and the history of Southeastern Europe, including documentation, conservation, and restoration of historic artifacts and monuments. The field schools are conducted in English, and are currently held in two Balkan countries: Bulgaria and the Republic of Macedonia. The program has involved a number of academic and research institutions, museums and heritage specialists from Bulgaria, Republic of Macedonia, USA, Canada, France and Japan - among them are the New Bulgarian University, Bulgaria and University of California Los Angeles (UCLA) Extension, USA which gives students the opportunity to obtain, by request, credit hours for their participation in the BHFS projects/courses. Between 2008 and 2015 the BHFS implemented 75 field school projects/courses (with durations ranging from 1 to 8 weeks) attended by more than 1300 students from 50 countries. All the BHFS projects are affiliated with ongoing research and/or conservation projects (such as excavations, expeditions, conservation workshops), contributing to the study and preservation of the cultural heritage of the Balkans. Excavation projects take place at various types of archaeological sites: settlements, religious monuments, ancient and medieval cities and emporia as well as tells. They are related to all major cultures and civilizations that once existed in the Balkans (the cultures of the first European farming communities in the Neolithic, Europe’s oldest civilizations in the Copper and Bronze Ages, as well as the civilizations of the ancient Greeks, Macedonians, Thracians, Romans and East Romans (Byzantines), and the medieval Bulgarians and Serbians, the Ottoman Turks, and Jews). Conservation projects involve work with authentic artifacts: Ancient Greek pottery, Roman and Late Antique pottery and glassware, mosaics and wall-paintings, medieval wall-paintings and architecture.

The BHFS is a platform for solidarity for the benefit of cultural heritage. For this reason, the BHFS students, heritage specialists, partnering institutions and local communities interact and collaborate with each other and benefit in the following ways:

- The BHFS students learn from professionals while taking part in real ongoing cultural heritage projects, travel to many historical and archaeological sites in the Balkans, gain intercultural experience and new friends, establish contacts and receive academic credits.
- The heritage specialists involved in the BHFS, including archaeologists, conservators,
architects, art historians, and partner institutions (museums, research institutes, municipalities, and NGOs) receive additional funding and support for their work.

- Local communities where the BHFS projects take place obtain new incomes, seasonal jobs, and new perspectives on local heritage as well as increased promotion of local tourism.

Throughout the years the BHFS has become a powerful tool of the BHF in fulfilling its mission to support the study, preservation and promotion of Balkan cultural heritage. In this catalog are presented the results of the BHFS Workshop for Conservation of Roman Pottery from Stobi, Republic of Macedonia.
History of Stobi
At the end of the 3rd century BCE Stobi was a town in the Kingdom of Paionia. It is believed that in 217 BCE, Philip V annexed Paionia during his campaign against the Dardanians, who had entered the largest Paionian town, Bylazora. Since this moment, Paonia and Stobi have been considered part of Macedonia.

The first record of Stobi is found in Livy's *Ab Urbe Condita*. The author speaks of Stobi as a place where Philip V gained victory against the Dardanians in 197 BCE. Further in the text he mentions Stobi as an old town (...Stobis, vetere urbe...) located at the confluence of the rivers Erigon and Axios. Livy also informs us that Stobi became an important center in the salt trade after the Roman conquest and was the largest town in the northern part of the newly established province of Macedonia in 147 BCE. We do not know much about Stobi or its boundaries during the 2nd and 1st centuries BCE due to the later urban development of the town. Based on very poor archaeological data we can only assume the boundaries of the town in this period.

As early as the year CE 30, Stobi is known as oppidum civium Romanorum, meaning that a community of Roman citizens lived among the locals. In CE 69, Stobi received the status of municipium (the second highest rank of Roman provincial towns) and minted its own coins with the inscription of MUNICIPIUM STOBENSIUM. The most famous iconography on the coins was established in the period of Trajan (CE 98-117). On the reverse there are three persons represented. The figures on the sides who pour water from their vessels are personifications of the two river gods Axios and Erigon. The figure in the middle represents the city goddess, usually interpreted as Tyche or Fortuna.

The buildings which indicate the Early Roman period are the Theatre, the Synagogue, an urban villa named Casa Romana, and the so-called Building with Arches (Library). In 2009-2010, a temple with subterranean chambers was excavated. The discovery of a large marble statue of the Egyptian goddess Isis in 2012 suggested that this might be the known sacrum Isidi, mentioned in an inscription which was discovered in 1976.

Numerous statues and inscriptions discovered at Stobi testify that Asclepius, Nemesis, Aphrodite, Sarapis, Isis, Dionysus, Artemis, Apollo, Jupiter, Minerva, and other deities were honored at Stobi as well. Contemporary with the pagan population, in the 2nd and 3rd centuries there was a Jewish community at Stobi. By an inscription of Tiberius Claudius Polycharmos, "the father of the synagogue in Stobi", as he calls himself, it is known that here he built the synagogue and a house for himself next to the synagogue. The house was excavated during the 1930’s while much of the synagogue was investigated by the Yugoslav - American team in the 1970’s.

At the end of the 3rd century CE there were several catastrophes which destroyed much of the early Roman Stobi. Probably the first event was the ravaging of the Goths and the Heruli in CE 267/9 all over the Balkans. Later the town was struck by an earthquake, followed by a flood. As a result of an administrative reform in the Roman Empire at the end of the 3rd and the beginning of the 4th century the Roman province of Macedonia was divided in two smaller provinces, Macedonia Prima and Salutaris. Later, in the 5th century, Macedonia Salutaris was renamed as Macedonia Secunda, of which Stobi was the capital.

At the beginning of the 4th century Stobi underwent new urban development with many residential and public buildings. During the course of the same century, in CE 313, the Christians were granted religious freedom and Christian basilicas were built all over the Empire. Budlos, the first bishop of Stobi, is recorded at the ecumenical council in Nicaea in CE 325. The oldest church in Stobi dates from the end of the 4th century and is adorned with wall paintings and mosaic pavement. In CE 388, Stobi was visited by the emperor Theodosius I, who had strong Christian beliefs. While staying at Stobi, he issued two edicts concerning religious affairs.

During the 4th and the 5th centuries Christianity became the dominant religion in the Roman Empire. Magnificent Christian basilicas were built in every large town and other religions became less important or even banned. These circumstances explain the construction of the basilica on top of the synagogue and the Christian mosaic floor in the House of Polycharmos. The fact that six other basilicas were also built in...
Stobi in the 5th and the beginning of the 6th century is a perfect illustration of the wealth and the power of the Christian community in the city. The best representative is the new Episcopal Basilica, constructed in the second quarter of the 5th century with massive walls and elaborate marble decoration. At the beginning of the 5th century the eastern fortification wall of Stobi was rebuilt after being destroyed by the earthquake and the flood, but this time the wall was moved to the west, far away from the river Erigon. This wall has a course of theater seats, which were common building material after the theater went out of use at the end of the 4th century. The mass entertainment buildings such as the theaters and amphitheaters were gradually abandoned with the growth of Christianity in the course of the 5th and the 6th centuries. These buildings became very unpopular as they were venues where many Christians suffered and were also seen as places where paganism was nurtured. Theodoric, the greatest leader of the Ostrogoths, plundered Stobi in CE 472 and years later, in 479, the same tribe destroyed the town in one of their ravaging campaigns. In the second half of the 6th century Stobi had a different urban layout. New, modest houses with irregular narrow alleys between them were built on top of the old palaces. The results of the new excavations suggest that Stobi was abandoned due to a climatic change and the loss of arable land, combined with the growing fear of the Avars and the Slavs who were destroying towns in the north. Some of the uncovered destruction layers indicate that the abandoned houses were possibly destroyed by an earthquake. After that time Stobi remained in oblivion, until the First World War and the first excavations.

Goce Pavlovski
Context and Main Characteristics of the Vessels
The ceramic material in this catalogue originates from excavations in the Western necropolis and the House of Peristeria. It was excavated in the 2009, 2011, and 2012 campaigns, thus representing only a small portion of the total amount of material discovered in the aforementioned campaigns.

Excavations in the House of Peristeria were conducted primarily to establish the stratigraphy under the mosaic floor in the eastern triclinium of the house. The lavish mosaic floor was lifted due to a conservation project, which represented a perfect opportunity to get a “sneak peek” at earlier strata and the use of the space before the house was built. Archaeological excavations showed that the area where the later house was built was in use continuously from the late 3rd century BCE to the late 4th century CE. The oldest stratigraphic units are found on the bedrock and belong to the Chalcolithic period. These finds are fragmentary and can serve only as an indicator of the existence of prehistoric settlement in this space. In the clay deposit above the bedrock, several graves were discovered containing an ample quantity of finds dated to the late 3rd and throughout the 2nd century BCE. The existence of a necropolis in this part of the later city indicates that Hellenistic settlement should be located to the north of the House of Peristeria, on the hilltop.

In the period between the 1st century BCE and the 1st century CE modest houses and workshops were built in the area. They coincide with the vast expansion that the Roman city underwent at the end of the 1st century BCE and 1st century CE. The largest quantity of the material dated to the aforementioned period comes from a pottery kiln fill. Several dozen vessels were uncovered, most of them belonging to the category of tableware. The vessels are predominantly plates, bowls, cups, and mugs. Ceramic analyses showed that almost all of the vessels are local products imitating Eastern Sigillata B shapes and so-called Roman thin-wall ware, forms which were well-known at the time.

Many pits have been discovered which date to the 2nd and 3rd centuries CE and which give information that the area was continuously used until the later House of Peristeria and its mosaic-paved triclinium were built.

The Western cemetery of Stobi is the largest graveyard of the city discovered so far. It has been excavated throughout the last several decades. The necropolis stretches southwest from Porta Heraclea, the main entrance to the city, to the modern village of Palikura. The cemetery was in use from the 1st century BCE to the 4th century CE. Afterwards the space was urbanized and used as a suburban quarter along the road that leads to Heraclea Lyncestis, near the modern town of Bitola. This suburban area was in use during the 5th and 6th centuries CE.

Excavations of the cemetery showed at least five burial strata. Cremation and inhumation were practiced as burial rites at the cemetery, depending on the period. They vary widely in their construction, and include simple rectangular pits with scorching sidewalls and bottom, pits covered with tiles, rectangular constructions built of mud bricks, and grave constructions with so-called peribolos walls. The ceramic material consists of standard forms of tablewares, typical for the period. Most common are plates and dishes, along with cups and bowls. In the earliest graves, among the common finds are unguentaria and terracotta figurines. Terracotta oil-lamps and glass vessels represent a significant percentage of the finds in later dated graves. With regard to origin, local imitations of Eastern Sigillata B products are predominant, as are cups and mugs typical of Italic workshops.

Jovan Radnjanski
Techniques of Conservation and Restoration: short description of the conservation and restoration process
All materials found during archaeological excavations have survived under stable conditions, having reached balance with their immediate environment. The excavations change that balance by introducing oxygen and by changing temperature and humidity levels, which influence the condition of the find and might lead to its total destruction. There are materials, like metals, which are more susceptible to these changes, while others, such as ceramics, suffer less damage. Whatever material the find is made of, it is essential that proper care is taken of it right away at the archaeological site.

Recording and documentation

Although the conservation treatment for some ceramic objects begins at the site, for the majority of them the first step is thorough examination and documentation. The latter includes written, graphic and photographic documentation that needs to meet a certain professional standard. For example, the photographs should use uniform background, preferably of a neutral color, and a scale. They should record the condition in which the object is handed in for conservation, including any relevant close-up images of important details, and should record the whole conservation treatment. The initial examination of the object should establish the condition of the find: the size and the number of the fragments, their color and state of preservation (superficial or deep cracks, wearing of the surface, any traces of repair done in the past), as well as all data on the manufacturing of the object. If the objects are not from recent excavations, any traces of previous conservation treatment should also be documented. The most important details a conservator should pay attention to before starting the conservation treatment are the following: Is the object’s structure weak or strong? Are there cracks, flaws, repairs, or painted decoration that need special treatment? Does it belong to the same object, followed by their assembly into a complete vessel. The restoration of or reconstruction stage of the treatment comprises filling in missing fragments, and subsequent retouching with suitable material.

Cleaning

After the dust and the dirt are removed from the pottery shards’ surfaces, they often reveal white salts’ crusts. Sometimes such layers can be very thick and the cleaning procedure can last longer. Soluble salts are part of the soil and easily penetrate the porous body of ceramic shards deposited in the ground centuries earlier. As long as the conditions within the layer are constant, the salts do not change their phase. However, during excavations, the temperature of the surface soil layer changes, thus causing the drying out of this layer and the finds within it. Upon drying out, the salts in the ceramic body crystalize and form a thicker or thinner crust on the surface. In some cases they might also crystalize under the surface layer. When salts expand, they may crack the body, force glaze off the ceramic, or even detach flakes off the body. The salts are usually calcareous formations: frequently calcium carbonate (CaCO₃), but they can also be calcium sulfate (CaSO₄) and calcium phosphate (Ca₃(PO₄)₂) salts.

The method for cleaning the salts depends on a variety of factors, as for example the firing of the ceramic body. If the object is well-fired, with stable structure, and without polychrome decoration, the salt crust can be treated with significantly diluted hydrochloric acid (HCl). Depending on the thickness of the layer, the fragments might need to be soaked in this solution for half an hour or an hour. After soaking, the shards are mechanically cleaned, followed by thorough extraction of the acid from the ceramic body. This is a very important process, because there should not be any acid remaining in the body of the shards. The neutralization process can be done using a water solution of NaHCO₃ (sodium bicarbonate), or by soaking the material for a few days in tap water changed every 8 hours.

The cleaning procedure for low-fired ceramic is far more complex than that for well-fired ceramic vessels. Low-fired ceramic vessels (fired under 600°C) are weaker and the salts form a better bond with their surface. A general acid soak of this kind of object is not permissible. A dry brush, or wetting

Techniques of Conservation and Restoration: short description of the conservation and restoration process
the surface with alcohol or 3A solution, helps in cleaning the kind of delicate objects. The procedure should be done very carefully under a magnifying glass.

Once the process of cleaning is completed, the ceramic material is left to dry. Then the fragments, especially if they are low-fired, are coated with a 2% acetone solution of Paraloid B72 in order to protect them during the remaining conservation and restoration procedures.

Assembling of the vessels

The next step is assembling the fragments into a ceramic vessel. The initial assembling of the fragments to form a vessel, in which only adhesive masking tape is used, is followed by the final assembly. To hold the ceramic fragments together, celluloid glue is used. This adhesive has many advantages: it is reversible (in accordance to the rules of conservation), it is not soluble in water after drying out, and it does not change the color of the ceramic. The adhesive is applied to the surfaces of the two break lines to be assembled. In order to keep the fragments in the correct position, the assembled vessel is placed in sand until the adhesive dries. Sometimes a medical bandage is used to support while the adhesive is setting. In order to provide support while the adhesive is setting, in the interior of the vessel, the white plaster is tinted using a color which closely resembles it and which is slightly lighter than the color of the original object. At the same time, the amount of pigment added should be carefully controlled, because an excess of pigment might decrease the strength of the plaster. Medical wax sheets are used as a support for the plaster casting. The strips are immersed in hot water for a short time to make them soft and easy to mold. The soft wax strips are then pressed on a portion of the vessel, which is at the same height as the missing piece, in order to create an imprint with the same profile. When the wax has cooled, it is removed from that portion of the vessel and placed in the gap to be filled, in the interior of the vessel. It is fixed in place with masking tape and clips. Because the cleaning of plaster from the ceramic surface is very difficult, it is necessary to protect the area around the part to be filled. The walls around the missing fragment are wet prior the application of the plaster to allow the color matching. When applying the plaster, its level should be slightly lower than the level of the ceramic areas. Medical wax sheets are used as a support for a better connection between the two materials. The plaque is applied with medical spatulas, first on the original, and then to fill the middle of the gap. When applying the plaster, its level should be higher than the level of the ceramic areas. Medical scalpels and tools with different shapes are used to shape the plaster. Finally, the plaster parts are polished with fine water sandpaper. If a large part of a vessel is missing, a clay model of this missing part is made. This is obtained by either filling the body of the vessel with clay, or by free modeling the lost area. In both cases the clay acts as an internal support for the subsequent casting process and shapes the interior of the reconstruction. If part of a closed vessel needs to be filled (e.g., unguentarium), a balloon is used as a support. Once the missing parts are filled and the plaster parts polished, the restored pottery must be left to dry thoroughly. Finally, to protect the plaster parts as well as the ceramic, the vessel is consolidated using a 2% acetone solution of Paraloid B72.

A conservation journal makes note of all the processes to which a ceramic vessel is subjected. Each vessel receives a unique conservation number in the journal. After the conservation treatment is completed, it is necessary to keep the treated material in appropriate conditions.

When restoration is in question, it should be emphasized that missing parts of the vessels are restored only if there is enough evidence for the reconstruction and upon agreement with the curator responsible for the collection.

Biljana Jankulovska-Peeva
Recording and documentation.
Soaking in diluted HCl.
Assembling of the fragments.
All steps of filling the gaps.
Catalogue: photo and graphic documentation
**Inventory No:** K-11-29

**Context:** House of Peristeria, pit fill

**Chronology:** 2nd century CE

**Reference:** Anderson-Stojanović 1992, 121, Pl. 115

**Dimensions:**
- Height: 7 cm
- Rim diameter: 8.2 cm
- Max. diameter: 9.4 cm

**Description:**
Cup with two strap handles, plump body and tall rim. Base is narrow and circular with grooves on the bottom. Shallow grooves are visible on the exterior. Cup has an inconsistent red slip that covers only upper part of the vessel. Fabric is red (2.5 YR 6/6), with mica and white lime inclusions.

**Conservation treatment:**
The cup was broken into 7 fragments. After cleaning the pieces, they were put together, although larger parts of the body and rim were missing. The cup was restored using colored plaster and clay, molded in the shape of the inner wall, as a foundation.
Inventory No: K-11-34

Context: House of Peristeria, pit fill

Chronology: 2nd century CE

Reference: Anderson-Stojanović 1992, 121, Pl. 115

Dimensions: Height: 6 cm
Rim diameter: 8.3 cm
Max. diameter: 8.5 cm

Description:
Cup with two strap handles, plump body and outturned rim. Base is narrow and circular on small ring foot. One groove on the exterior separates rim and body. Cup has an inconsistent red slip that covers only upper part of the vessel. Fabric is reddish (5 YR 7/6 - 6/6) with mica and white lime inclusions.

Conservation treatment:
The cup was broken into 11 fragments. After the conventional cleaning procedure, the fragments were put together using celluloid OHO glue. Part of the body and the rim, as well as one of the handles, were missing. These were restored using white medical plaster which was colored after its application. Finally the entire vessel was coated with a 2% acetone solution of Paraloid B72.
Cup with two vertical handles

Inventory No: K-11-72

Context: House of Peristeria, pottery kiln fill

Chronology: Early 1st century CE

Description:
Double-handled cup on ring foot with concave base. Rim is vertical with edged lip, made with a simple cut from internal side. Body is cylindrical. Weak, inconsistent red slip is applied on the upper part of the exterior and covers complete interior surface. Fabric is pink (7.5 YR 7/4), rather fine with visible mica inclusions. Vessel is probably locally produced.

Conservation treatment:
The cup was broken into 16 fragments. After the cleaning procedure, the shards were glued together using OHO glue. There were parts missing from the body and the rim of the vessel. The cup was restored with white plaster which was colored after its application to the vessel.

Dimensions:
Height: 6.4 cm
Rim diameter: 9.4 cm
Max. diameter: 9.3 cm
Description:
Double-handled cup on ring foot with concave base. Rim is vertical and slightly outturned, body is cylindrical. Weak, inconsistent reddish brown slip is applied on the exterior and interior surface. Fabric is pink (7.5 YR 7/4), rather fine with visible mica inclusions. Vessel is probably locally produced.

Conservation treatment:
After gluing the parts together, the cup was restored with white plaster which was colored after its application to the vessel. Because a large part of the body was missing, the plaster was applied onto a clay foundation.
## Thin-walled double handled mug

<table>
<thead>
<tr>
<th>Inventory No:</th>
<th>K-11-68</th>
</tr>
</thead>
<tbody>
<tr>
<td>Context:</td>
<td>House of Peristeria, pottery kiln fill</td>
</tr>
<tr>
<td>Chronology:</td>
<td>Early 1st century CE</td>
</tr>
<tr>
<td>Reference:</td>
<td>Marabini Moevs 1973, 77, Pl. 10</td>
</tr>
<tr>
<td>Dimensions:</td>
<td>Height: 8.5 cm</td>
</tr>
<tr>
<td></td>
<td>Rim diameter: 7.3 cm</td>
</tr>
<tr>
<td></td>
<td>Max. diameter: 7.4 cm</td>
</tr>
</tbody>
</table>

### Description:
Double-handled mug with tall vertical rim and ovoid body. Handles are rounded. Base is flat with a single groove separating it from walls. Apart from several shallow grooves on the exterior there is no other visible decoration. Fabric is reddish-yellow (5 YR 7/6 - 6/6). fairly fine with mica presence. Vessel is locally produced but it resembles the forms of Italian thin-walled wares.

### Conservation treatment:
The mug was broken into 15 fragments. The cleaning and gluing of the pieces into a complete vessel were followed by the filling of the missing parts. Parts of the body, rim and part of one handle were missing. The cup was restored using plaster which was colored prior to application.
Hemispherical bowl

Description:
Hemispherical bowl on high ring foot with concave base. Walls are rather thin, rim is vertical, rounded and slightly incurved. Dark grey slip (5 YR 4/1) is applied on both sides and appears to be applied with a brush. Fabric is pinkish (7.5 YR 8/4), rather fine and rich with mica inclusions. Vessel is locally produced.

Conservation treatment:
The bowl was broken into 7 fragments. After cleaning the fragments, they were glued into a complete vessel. Part of the rim was missing. The cup was restored using white plaster colored with pigments prior to application. Finally the entire cup was coated with 2% acetone solution of Paraloid B72.

Inventory No: K-11-91
Context: House of Peristeria, pottery kiln fill
Chronology: Early 1st century CE
Reference: Hayes 2008, 133, Fig. 5
Dimensions: Height: 4.8 cm
Rim diameter: 9.1 cm
Max. diameter: 9.1 cm

Reference:
Dimensions:
Conservation treatment:
Hemispherical bowl

Inventory No: K-11-65

Context: House of Peristeria, pottery kiln fill

Chronology: Early 1st century CE

Description:
Hemispherical bowl on high ring foot with concave base that is convexly projecting into the interior of the vessel. Walls are rather thin, rim is vertical and rounded. Dark gray slip (5 YR 4/1) is applied on both sides (except external bottom part) and appears to be applied with a brush. Fabric is pinkish (7.5 YR 8/4), rather fine and rich with mica inclusions. Vessel is locally produced.

Conservation treatment:
16 fragments of the bowl were present. These were cleaned and assembled into a small rounded vessel. A couple of small gaps as well as the missing parts of the rim and the body were restored with white plaster subsequently retouched with water based paints.

Dimensions:
Height: 4.8 cm
Rim diameter: 9.1 cm
Max. diameter: 9.1 cm

Reference:
Hayes 2008, 133, Fig. 5
Hemispherical bowl

Description:

Hemispherical bowl on high ring foot with concave base that is convexly projecting into the interior of the vessel. Walls are rather thin, rim is vertical and rounded. Shallow grooves are visible on the exterior. Dark gray slip (7.5 YR 8/4) is applied on both sides and appears to be applied with a brush. Fabric is pinkish (7.5 YR 8/4), rather fine and rich with mica inclusions. Vessel is locally produced.

Conservation treatment:

The bowl fragmented in 14 pieces. The fragments were cleaned with diluted HCl, the remains of which were extracted with tap water. Finally the fragments were glued into a complete vessel using OHO glue. Part of the rim of the cup was restored using white plaster, colored after its application to the vessel.

Inventory No: K-11-66
Context: House of Peristeria, pottery kiln fill
Chronology: Early 1st century CE
Reference: Hayes 2008, 133, Fig. 5
Dimensions: Height: 4.6 cm
Rim diameter: 9.4 cm
Max. diameter: 9.4 cm

Conservation:
The bowl fragmented in 14 pieces. The fragments were cleaned with diluted HCl, the remains of which were extracted with tap water. Finally the fragments were glued into a complete vessel using OHO glue. Part of the rim of the cup was restored using white plaster, colored after its application to the vessel.

Reference:
Hayes 2008, 133, Fig. 5
Inventory No:  K-09-484
Context: Western necropolis, grave offering in burial 2238-7
Chronology: 1st century CE
Reference: Anderson-Stojanović 1992, 110, Pl. 96
Dimensions: Height: 6.5 cm
Rim diameter: 14.8 cm
Max. diameter: 14.8 cm

Description:
Bowl with rolled, slightly incurved rim and hemispherical body. Base is slightly concave and almost offset from the ring foot. Interior and exterior surface is covered with thin inconsistent dark gray slip (7.5 YR 8/4). Fabric rather fine with decent amount of mica inclusions. Vessel is locally produced.

Conservation treatment:
The bowl was previously restored with colored plaster. The color of the old reconstruction was too different from the color of the actual bowl and the quality of the plaster was poor, so the bowl was dismantled in 16 pieces using acetone. After cleaning the remainder of the old adhesive from the shards, they were glued together again and the missing part was restored using white medical plaster.
Thin-Walled bowl

**Inventory No:** K-12-667

**Context:** Western necropolis, grave offering in burial 2688-9

**Chronology:** 1st century BCE

**Reference:** Anderson-Stojanović 1992, 38, Pl. 21

**Dimensions:**
- Height: 3.8 cm
- Rim diameter: 5.2 cm
- Max. diameter: 8.4 cm

**Description:** Thin-walled bowl with flat base and rounded body, rim is missing. On the exterior of the vessel thin brownish (7.5 YR 7/6-6/6) coating is applied and appears to be applied with brush. Fabric is fine and walls are rather thin.

**Conservation treatment:**

The bowl was fragmented in 27 pieces. 4 pieces did not fit together and so were left out of restoration. After cleaning the pieces with diluted HCl, they were glued together. The walls were thin and fragile and large sections of them were missing. The vessel was restored using white medical plaster applied onto a temporary support of wax strips. The restoration procedure in this case was very delicate because of the vessel’s fragility as well as the fineness of the walls.
**Inventory No:** K-12-007

**Context:** Western necropolis, grave offering in burial 2650-5

**Chronology:** Late 1st century BCE

**Reference:** Hayes 2008, 144, Fig. 8

**Dimensions:**
- Height: 4.2 cm
- Rim diameter: 11.2 cm
- Max. diameter: 11.2 cm

**Description:**
Cup with angular profile, flaring walls with horizontal rim. Ring foot is rather high with slightly concave base. Body is carinated towards bottom. On the upper surface rim has a single groove. On the interior and exterior (except bottom) thin inconsistent reddish slip (7.5 YR 7/4) is applied. Fabric is rather fine. Vessel is locally produced.

**Conservation treatment:**
The bowl which was cleaned and assembled in previous conservation treatment. The current conservation treatment focused on its reconstruction. The gaps in the rim were filled with white medical plaster.
**Inventory No:** K-11-81

**Context:** House of Peristeria, pottery kiln fill

**Chronology:** Early 1st century CE

**Reference:** Hayes 2008, 130, Fig. 3

**Dimensions:**
- Height: 2.1 cm
- Rim diameter: 15.3 cm
- Max. diameter: 15.3 cm

**Description:**
Saucer with flaring rim. Base is grooved and raised in the central part. Thick, red, inconsistent slip (7.5 YR 8/4) covers the surface of the vessel. Fabric is fine with fair amount of mica particles inclusion. Vessel is probably locally produced, though form resembles eastern sigillata B ware.

**Conservation treatment:**
The plate was fragmented in 14 pieces which were cleaned using diluted HCl. After the cleaning procedure, the pieces were rinsed in tap water. The shards were glued using OHO glue. Parts of the rim of the plate were restored using plaster colored before its application. Finally the whole plate was coated with 2% acetone solution of Paraloid B72.
Baby feeder - Gutus

Inventory No: K-11-42

Context: Western necropolis, grave offering in burial 2628-12

Chronology: Late 1st century BCE


Dimensions: Height: 5.8 cm
Rim diameter: 5.7 cm
Max. diameter: 5.8 cm

Description:
Baby feeder with conical ring foot, plump body and projecting rim. Vertical strap handle is positioned high on the body and ends right beneath the rim. Spout is short and thin. The complete surface of the vessel is covered with reddish brown slip (7.5 YR 7/4) of low quality. Fabric is tan and micaceous, and probably of local origin.

Conservation treatment:
The gutus was fragmented in 9 pieces. After cleaning the pieces they were put together using celluloid OHO glue. Parts of the body, the rim and the handle were missing. These was restored with colored plaster.
**Inventory No:**  K-12-666  

**Context:**  Western necropolis, grave offering in burial 2688-3  

**Chronology:**  1st century BCE  

**Reference:**  Rotroff 1997, 173 (A), Fig. 71 (B)  

**Dimensions:**  
- Height: 7.9 cm  
- Rim diameter: 2.5 cm  
- Max. diameter: 5.2 cm  

**Description:**  
Gutus with biconical body, grooved ring handle positioned high on the shoulder. Tall and narrow neck and projecting rim with shallow groove on the upper surface. Vessel has a ring foot and slightly concave base. Slip is brownish (10 YR 7/3-7/4), inconsistent and appears to be applied with brush. Fabric is rather fine with very small amount of mica particles included.

**Conservation treatment:**  
The gutus was fragmented in 20 pieces with surfaces covered with salts. After cleaning procedure with diluted HCl and neutralization with running tap water, the pieces were glued together and three gaps, two parts of the body, and a large part of the rim were filled in using white medical plaster.
### Fusiform Unguentarium

<table>
<thead>
<tr>
<th><strong>Inventory No:</strong></th>
<th>K-11-53</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Context:</strong></td>
<td>Western necropolis, grave offering in burial 2628-13</td>
</tr>
<tr>
<td><strong>Chronology:</strong></td>
<td>Late 1st century BCE</td>
</tr>
<tr>
<td><strong>Reference:</strong></td>
<td>Anderson-Stojanović 1992, 84, Pl. 69</td>
</tr>
</tbody>
</table>
| **Dimensions:**   | Height: 18.5 cm  
Rim diameter: 3.1 cm  
Max. diameter: 5.4 cm |

**Description:**
Undecorated spindle form of unguentarium with tall, solid foot and correspondingly long neck. Body is short and rounded. Rim is rolled and outturned. Fabric is very pale brown-yellowish (10 YR 7/4-7/6), micaceous with visible limestone inclusions.

**Conservation treatment:**
The fusiform unguentarium was fragmented in many pieces. The pieces were cleaned with diluted HCl, after which they were neutralized with tap water. Finally they were glued into a complete vessel using OHO glue.
### Inventory No:
K-11-45

### Context:
Western necropolis, grave offering in burial 2628-10

### Chronology:
Late 1st century BCE

### Reference:
Anderson-Stojanović 1992, 84, Pl. 69

### Dimensions:
- Height: 18.0 cm
- Rim diameter: 3.0 cm
- Max. diameter: 5.1 cm

### Description:
Undecorated spindle form of unguentarium on tall, solid foot and correspondingly long neck. Body is short and almost biconical. Rim is rolled and outturned. Upper part of the vessel is slightly deformed and bowed from the axis. Fabric is fairly coarse with noticeable irregularities made during the production process. Mica and limestone inclusions are visible in the very pale brown-yellowish fabric (10 YR 7/4-7/6).

### Conservation treatment:
The fusiform unguentarium was fragmented in 2 pieces. After cleaning the pieces with diluted HCl, they were put together into a complete vessel. There was a small part of the neck missing which was filled with colored plaster.
Bulbous Unguentarium

<table>
<thead>
<tr>
<th>Inventory No:</th>
<th>K-12-74</th>
</tr>
</thead>
<tbody>
<tr>
<td>Context:</td>
<td>Western necropolis, grave offering in burial 2673-4</td>
</tr>
<tr>
<td>Chronology:</td>
<td>1st century CE</td>
</tr>
<tr>
<td>Reference:</td>
<td>Anderson-Stojanović 1992, 84, Pl. 70</td>
</tr>
</tbody>
</table>
| Dimensions:  | Height: 6.3 cm  
|              | Rim diameter: 3.6 cm  
|              | Max. diameter: 14.5 cm |

**Description:**

Bulbous type of unguentarium. Rim is outturned, neck is narrow and tall, body is rounded and pear-shaped, and base is flat. Rim and neck are dipped in brownish gray slip (7.5 YR 6/2). Fabric is rather coarse with small mica particles inclusion. Vessel is locally produced.

**Conservation treatment:**

The bulbous unguentarium was broken in 9 fragments. The surface of the shards was covered with salts. After the salts were removed with diluted HCl, the fragments were put together using celluloid OHO glue. The missing parts of the body were restored using white medical plaster.
Bulbous Unguentarium

Inventory No: K-12-103

Context: Building east of Porta Heraclea, room 2

Chronology: Residual material in late Roman context, late 6th century CE

Reference: Anderson-Stojanović 1992, 85, Pl. 71

Dimensions: Height: 12.3 cm
Rim diameter: 2.8 cm
Max. diameter: 4.6 cm

Description:
Bulbous type of unguentarium. Rim is rolled and outturned, neck is narrow but rather short, body is pear-shaped and base is flat. Rim and part of the neck are dipped in brownish (7.5 YR 7/4) slip. Fabric is rather coarse with mica particles. Vessel is locally produced.

Conservation treatment:
The bulbous unguentarium was fragmented in 2 pieces. After cleaning them of salts in a conventional way, they were assembled into a complete vessel without missing parts.
Bulbous Unguentarium

Inventory No: K-12-102

Context: Western necropolis, grave offering in burial 2633-4

Chronology: 1st century CE

Description:
Bulbous type of unguentarium. Rim is outturned, neck is narrow but rather short. Body is pear-shaped. Base is flat and slightly raised. Rim and part of the neck are dipped in brownish slip (7.5 YR 7/4). Fabric is rather coarse and has a fair amount of mica particles.

Conservation treatment:
The bulbous unguentarium was fragmented in 3 pieces. After cleaning them of salts in a conventional way, they were assembled into a complete vessel without missing parts.

Reference:
Anderson-Stojanović 1992, 85, Pl. 72

Dimensions:
Height: 10.2 cm
Rim diameter: 3.2 cm
Max. diameter: 5.9 cm
Bulbous Unguentarium

**Inventory No:** K-12-64

**Context:** Western necropolis, grave offering in burial 2659-4

**Chronology:** 1st century CE

**Description:**

Bulbous type of unguentarium. Rim is outturned, neck is short, body is rounded and pear-shaped. Base is flat and slightly raised. There are traces of red slip on the upper part of the body which has probably fallen off from other parts of the vessel. Fabric is coarse (7.5 YR 6/4) with mica particles inclusion. Vessel is locally produced.

**Dimensions:**

- Height: 7.9 cm
- Rim diameter: 2.5 cm
- Max. diameter: 5.2 cm

**Conservation treatment:**

The bulbous unguentarium was fragmented in 6 pieces. After cleaning the shards with diluted HCl, the fragments were consolidated prior to assembling with acetone solution of Paraloid B72. The missing parts of the body of the vessel were not restored.

**Reference:**

Anderson-Stojanović 1992, 84, Pl. 71
Casserole 21

Inventory No: K-11-27

Context: House of Peristeria, destruction layer of burned mud brick

Chronology: In context with material of late 1st - early 2nd century CE

Description: Casserole with two small strap grooved handles (only one handle preserved), broad, horizontal rim and carination on body at point of maximum diameter, which is rather large. Slight concave button base. Fabric is fairly coarse, greyish brown (5YR 6/2) with mica and quartz inclusions.

Dimensions: Height: 11 cm
Rim diameter: 23.0 cm
Max. diameter: 24.0 cm

Conservation treatment: The casserole was fragmented in 25 pieces. After cleaning the fragments with diluted HCl, they were rinsed with tap water. The shards were put together using celluloid OHO glue. Large parts of the body as well as the rim of the vessel were missing and they were restored using colored plaster.

Reference: Anderson-Stojanovič 1992, 139, Pl. 141
Bibliography
Bibliography

- Petrova 2003, E. Petrova, Stobi (guide), Skopje 2003
- Rotroff 1997, S. I. Rotroff, Hellenistic Pottery, Athenian and Imported Wheelmade Table Ware and Related Material, The Athenian Agora, Results of Excavations Conducted by The American School of Classical Studies at Athens, Volume XXIX, Part I: Text, Part II: Illustrations, Princeton, New Jersey 1997