Bibliotheca Antiqua XXV

Krzysztof Domżalski

PONTIC RED SLIP WARE

TYPOLOGY, CHRONOLOGY AND DISTRIBUTION OF A MAJOR GROUP OF LATE ROMAN FINE POTTERY IN THE BLACK SEA REGION

Institute of Archaeology and Ethnology
Polish Academy of Sciences

Bibliotheca Antiqua XXV

PONTIC RED SLIP WARE

TYPOLOGY, CHRONOLOGY AND DISTRIBUTION
OF A MAJOR GROUP OF LATE ROMAN FINE POTTERY
IN THE BLACK SEA REGION

Academia Scientiarum Polona

Bibliotheca Antiqua

vol. XXV

Institute of Archaeology and Ethnology
Polish Academy of Sciences

Krzysztof Domżalski

PONTIC RED SLIP WARE

TYPOLOGY, CHRONOLOGY AND DISTRIBUTION OF A MAJOR GROUP OF LATE ROMAN FINE POTTERY IN THE BLACK SEA REGION

Warsaw 2021

Published by the Institute of Archaeology and Ethnology Polish Academy of Sciences
Al. Solidarności 105, 00-140 Warsaw, Poland
www.iaepan.edu.pl

Book reviewed by the Editorial Committee of the Institute of Archaeology and Ethnology Polish Academy of Sciences

Translation: Sylwia Twardo (English); Anna V. Smokotina (summary in Russian)
Cover design: Karolina Trusz
Cover image: Decorative motif on the Pontic Red Slip ware dish, Cat. no. 124. Photo: Krzysztof Domżalski
Typesetting: Karolina Trusz

The research presented in this book has been conducted with financial support of the Polish National Science Centre (NCN) research grant no. 2013/11/B/HS3/02058

ISBN 978-83-66463-61-5
ISSN 0208-5631

Print: Drukarnia Klimiuk, Warsaw

CONTENTS

ACKNOWLEDGEMENTS

My research on Late Classical to Early Byzantine fine pottery in the Black Sea coastal areas began with the participation in the first Polish archaeological project carried out in this region in the post-Soviet times, in collaboration with Ukrainian and Russian partners. The project *Nymphaion – history and structure of a Greek polis* (1993–1998), directed by Aleksandra Wąsowicz, involved the participation of Polish archaeologists in the State Hermitage Museum excavations in Nymphaion on the Kerch Strait, as well as in the surface survey of its rural territory. This experience gave me the first insights into the pottery materials produced and imported to the settlements of the Northern Pontic region, so different in many cases from the ceramics found in the Eastern Mediterranean, which I had studied before, especially during several excavation campaigns in Nea Paphos on Cyprus.

The Nymphaion Project inspired me to look closer at some fine pottery groups from different epochs, especially those not known from the Mediterranean. One of these pottery groups is discussed in the present book. Identification of its vessel forms was possible thanks to my further involvement in the excavations and pottery processing in Tanais, Olbia, Tyritake, Tropaeum Traiani and Pompeiopolis in Paphlagonia, as well as to surveys in many museums and excavation storerooms, especially in Ukraine and Russia.

Presenting this book to the readers is a good opportunity to express my gratitude to many researchers without whom it could not have been written. Sadly, some of them have passed away in recent years. These are: Wiktor A. Daszewski, who first introduced me in Nea Paphos to the fascinating world of Levantine Hellenistic and Roman pottery; Aleksandra Wąsowicz, thanks to whom I was able to work in Nymphaion, and who showed me in the following years the specifics of archaeological research carried out in the Black Sea region; Nina Z. Kunina, who opened for me many doors and storerooms of the State Hermitage Museum in Saint Petersburg and shared with me her invaluable experience gained in Pantikapaion and in other Bosporan sites; Burkhard Böttger and Valentina V. Krapivina, who invited me to study and publish the finds of Late Roman fine pottery from Tanais and Olbia, and shared with me their great knowledge about the materials excavated at these sites. This list of the recently passed away eminent scholars must be extended by Tadeusz Sarnowski, the supervisor of my Ph.D. thesis (2005) on the Late Roman red slip wares from the Bosporos Kimmerikos, as well as Alexandru Barnea, Nikolai F. Fedoseev, Evgenij A. Molev, Viktor P. Kopylov and Oleg V. Šarov, excavators in Scythia Minor, Crimea and Maiotis, who were always willing to help and advise.

The list of other archaeologists and the staff of museums, institutes and archaeological expeditions I visited, who considerably helped me in documenting the pottery finds and shared their experience and knowledge with me, is so long that it is impossible to mention all of them by name here. Therefore, I would like to mention at least those with whom I have met many times during the aforementioned trips and study visits, and to whom I am especially thankful for their assistance, advise and, in so many cases, hospitality. The list begins chronologically from the late 1990s and includes: Irina P. Zaseckaja, Vera N. Zalesskaja, Olga Ju. Sokolova, Vladimir A. Chršanovskij, Julia I. Il'ina, Sergej L. Solov'ev, Dmitrij E. Čistov and Aleksandr M. Butjagin in Saint Petersburg; Viktor N. and Elena A. Zin'ko, Natalia V. Bykovskaja, Olga A. Ivanina and Aleksandr L. Ermolin in Kerch; Tatjana M. Arsen'eva, Vladimir P. Tolstikov,

Aleksandr A. Maslennikov, Igor' O. Gavrituchin, Aleksej A. Zavojkin, Denis and Natalia Žuravlev in Moscow; Svetlana A. Naumenko, Irina V. Toločko and Sergej M. Il'jašenko in Tanais; Elmira R. Ustaeva in Taman; Aleksandr V. Dmitriev, Aleksandr V. Šišlov and Alisa V. Kolpakova in Novorossijsk; Aleksej V. P'jankov in Krasnodar; Sergej B. Ochotnikov, Ludmila Ju. Poliščuk and Aleksandr A. Rosochackij in Odessa; Igor' N. Chrapunov, Valentina I. Mordvinceva, Jurij P. Zajcev and Anna V. Smokotina in Simferopol; Ludmila Kovalevskaja and Sergej V. Ušakov in Sevastopol; Alla V. Bujskich and Sergej V. Didenko in Kiev; Alik N. Gabelia in Suchumi; Adriana Panaite in Bucharest; George Nuțu in Dobrudja; Evgenia Genčeva and Gergana Kabakčieva in Sofia; Aleksander Minčev in Varna; Swend Hansen, Udo Schlotzhauer, Anjelina Družinina and Michael Ullrich in Berlin; Siegmar von Schnurbein, Susanne Sievers and Gabriele Rasbach in Frankfurt a.M.; Barbara Pferdehirt and Florian Schimmer in Mainz; Michael Mackensen in Munich; Michel Kazanski and Jean-Pierre Sodini in Paris; Latife Summerer, Tayyar Gürdal and Luisa Musso in Pompeiopolis; Owen Doonan in Sinope; Burcu Erciyas in Komana Pontika; Şahin Yıldırım in Satala. To all the others, not included in this list, I am also very grateful for their help.

Many discussions and consultations with specialists not listed above, at several conferences and other meetings in the last two decades, were also very inspiring for me. I would like to thank all of them, particularly Constantin Băjenaru, Michel Bonifay, Tatjana Cvjetićanin, Dénes Gabler, John W. Hayes, John Lund, Jeroen Poblome, Wolfgang Radt, Paul Reynolds, Viorica Rusu-Bolindeț, Kathleen W. Slane and Susanne Zabehlicky-Scheffenegger.

At the latest stages of the book's preparation I was greatly assisted by Sylwia Twardo, who translated a substantial part of the English text and improved the rest of the manuscript, as well as by Anna Smokotina, who translated the Russian summary. Mariusz Gwiazda, Anna Graczyk, Monika Więch and Emil Malewicz contributed significantly to the preparation of the illustrations. During the editing process this work was reviewed by Ewdoksia Papuci-Władyka and Marcin Matera. Their comments and suggestions were very helpful in preparing its final version. I owe the latest advice and comments to Krzysztof Nowicki and Alfred Twardecki, who kindly read the manuscript shortly before it was printed.

I would also like to mention and to express my thanks to a number of institutions whose financial and logistical support has been extremely important in helping me to acquire the experience and knowledge necessary for my work. These are: the Polish Academy of Sciences and its partner institutions in Russia, Ukraine, Bulgaria and Romania, thanks to whom, within the programme of research visits exchange, I was able to make many study trips and take part in a number of conferences in Saint Petersburg, Moscow, Kiev, Sofia and Bucharest; the German Academic Exchange Service (DAAD) together with several host institutions in Germany, such as the Free University in Berlin, Ludwig-Maximilans University in Munich, Eurasian Department of the German Archaeological Institute in Berlin, Roman-Germanic Central Museum (RGZM) in Mainz, Roman-Germanic Commission (RGK) in Frankfurt a.M. for offering me short scholarships and accommodation for research visits; the Mayor's Office of Paris, as well as the Collège de France and CNRS Centre de recherche d'histoire et civilisation de Byzance and the Dumbarton Oaks Research Library and Collection in Washington, D.C., for granting me the possibility to spend a longer time in their libraries and meet many eminent scholars there.

The final support, allowing me to complete this publication was a research grant offered by the Polish National Research Center (NCN, no. 2013/11/B/HS3/02058) for conducting the project *Late Roman and Early Byzantine fine pottery in the Black Sea region: production, trade and consumption*.

NOTES AND ABBREVIATIONS

NOTES

All the drawings of the vessels catalogued and presented in this book and the majority of the photographs were made by the author in museums and storerooms of archaeological expeditions. The author of the photo in Pl. 48:157 is Zbigniew Doliński from the National Museum in Warsaw. Almost all of the drawings and photographs were digitised and the plates and figures were compiled by Mariusz Gwiazda. Some later additions and rearrangements were made by Monika Więch, Anna Graczyk and Emil Malewicz. Drawings of the Pontic Red Slip ware vessels used in the figures are taken from the ones shown in the plates, while other red slip vessels of Mediterranean origin are illustrated using the profiles from Hayes 1972, and Pontic Sigillata ones, from Žuravlev 2010.

Two catalogues of the Pontic Red Slip ware vessels and fragments are presented in this book. The main Catalogue includes short descriptions of 166 vessels shown in Plates illustrating Chapter 4.5 (Classification of vessel forms) and it is arranged according to the presentation of respective forms. The additional catalogue in Appendix 1 embraces 55 vessels and fragments analysed physico-chemically. In both catalogues similar scheme of presenting information about the described vessels was introduced: find spot and context (when known); year of discovery; museum or other storage facility together with inv. no.; state of preservation; measurements; clay and slip colour and appearance; notes about quality of vessel; decoration; additional notes; publications. Absence of any part of this scheme indicates lack of information about it. The abbreviations listed below were used both in the catalogues and in the text.

MUSEUMS AND ARCHAEOLOGICAL INSTITUTIONS

AE AGU, Suchumi	– Archeologičeskaja ekspedicija Abchazskogo gosudarstvennogo universiteta, Suchumi (Georgia).
AE METU, Ankara	– Archaeological Expedition of the Middle East Technical University, Ankara (Turkey).
AM TNU, Simferopol	– Archeologičeskij muzej Tavričeskogo nacional'nogo universiteta im. V. I. Vernadskogo, Simferopol (Ukraine).
AMZT, Nedvigovka	– Archeologičeskij muzej-zapovednik "Tanais", Nedvigovka (Russia).
BDKM, Bilgorod-Dnistrovs'kyj	– Bilgorod-Dnistrovs'kyj kraeznavčyj muzej, Bilgorod-Dnistrovs'kyj (Ukraine).
BGIKZ, Bachčisaraj	– Bachčisarajskij gosudarstvennyj istoriko-kul'turnyj zapovednik, Bachčisaraj (Ukraine).
CAI, Kerch	– Centr archeologičeskich issledovanij, Kerch (Ukraine).
GE, Saint Petersburg	– Gosudarstvennyj Ermitaž, Saint Petersburg (Russia).
GIM, Moscow	– Gosudarstvennyj istoričeskij muzej, Moscow (Russia).
GMII, Moscow	– Gosudarstvennyj muzej izobrazitel'nych iskusstv im. A. S. Puškina, Moscow (Russia).

IA NANU, Kiev	– Institut archeologii Nacional'noj akademii nauk Ukrainy, Kiev (Ukraine).
KGIAMZ, Krasnodar	– Krasnodarskij gosudarstvennyj istoriko-archeologičeskij muzej-zapovednik im. E. D. Felicyna, Krasnodar (Russia).
KIKZ, Kerch	– Kerčenskij istoriko-kul'turnyj zapovednik, Kerch (Ukraine).
KRKM, Simferopol	– Krymskij respublikanskij kraevedčeskij muzej, Simferopol (Ukraine).
MNW, Warsaw	– Muzeum Narodowe w Warszawie, Warsaw (Poland).
NGIMZ, Novorossijsk	– Novorossijskij gosudarstvennyj istoričeskij muzej-zapovednik, Novorossijsk (Russia).
NIAZO, Parutyne	– Nacional'nyj istoriko-archeologičnyj zapovidnyk "Ol'vija", Parutyne (Ukraine).
NMCA JFU, Rostov-na-Donu	– Naučno-Metodičeskij centr archeologii Južnogo federal'nogo universiteta, Rostov-na-Donu (Russia).
NZChT, Sevastopol	– Nacional'nyj zapovednik "Chersones Tavričeskij", Sevastopol (Ukraine).
OAM, Odessa	– Odes'kyj archeologičnyj muzej, Odessa (Ukraine).
PAK, Taşköprü	– Pompeiopolis Antik Kenti, Taşköprü (Turkey).
RGZM, Mainz	– Römisch-Germanisches Zentralmuseum, Mainz (Germany).
ROMK, Rostov-na-Donu	– Rostovskij oblastnoj muzej kraevedenija, Rostov-na-Donu (Russia).
SAM, Sinope	– Sinop Arkeoloji Müzesi, Sinope (Turkey).
SRAP, Sinope	– Sinop Regional Archaeological Project, Sinope (Turkey).
TMK, Taman	– Tamanskij Muzejnyj Kompleks, Taman (Russia).

RED SLIP WARES

ARS	– African Red Slip ware
ERS	– Egyptian Red Slip wares
LRC/PhRS	– Late Roman C / Phocaean Red Slip ware
LRD/CRS	– Late Roman D / "Cypriot" Red Slip ware
LRLC	– Late Roman Light Coloured ware
PRS	– Pontic Red Slip ware

OTHER ABBREVIATIONS

D.	– diameter
diagn.	– diagnostic
est.	– estimated
f.	– form
fr.	– fragment
H.	– height
inv.	– inventory

1. INTRODUCTION

The present study summarises one of the main results of the author's research on the Late Roman and Early Byzantine fine pottery in the Black Sea region conducted since the late 1990s, and focused on the period of transition from the Roman civilisation of the Late Antiquity to the Byzantine Empire in its Early Mediaeval form (4th – 6th century).[1] The monograph presents detailed information about the major Late Roman fine pottery group distributed around the Black Sea basin, produced according to the tradition of covering the vessels with the red slip, originating and developed in the Late Hellenistic and Early Roman times.

In the western and southern continental European languages (German, French, Italian etc.)[2] such Late Hellenistic, Roman, Late Antique and Early Byzantine vessels produced in the Mediterranean, are called terra sigillata, while in the Russian, Ukrainian and Bulgarian publications these vessels, imported to the Black Sea basin and produced regionally there, are all described as red slip (krasnolakovye / červenolakove) ones. According to the convention adopted in the English language literature, the discussed ceramics produced only in the Late Hellenistic and Early Roman times are called terra sigillata. This concerns especially the groups, the production of which stopped in the Early Roman times, such as Italian Terra Sigillata,[3] Eastern Sigillata A, B and C, or the groups for which there is a certain decline in production, broad distribution and typological sequence between the Early and Late Roman vessels, as in the case of Eastern Sigillata D (the so-called Cypriot Sigillata).[4]

The main groups of Late Roman and Early Byzantine vessels, manufactured in various regions according to the above-mentioned tradition, are generally described as red slip wares: Late Roman C / Phocaean Red Slip ware, Late Roman D / "Cypriot" Red Slip ware etc.[5] One exception is made for the African Red Slip vessels, which were produced already from the Early Roman period until the Early Byzantine times but without any distinguishable break or decline in manufacturing reflected in typological sequence.[6] In this case, also the Early Roman vessels are called red slip ware, instead of terra sigillata, in the English language publications. Therefore, following the general convention described above, the Late Roman pottery group discussed in this book has been named Pontic Red Slip ware to emphasise its morphological difference from the Early Roman Pontic Sigillata, which was the basic high quality tableware in the Black Sea region between the mid-1st and the mid-3rd century.[7]

The studied Pontic Red Slip vessels are dated from around the early 4th until around the mid-6th century. Their emergence was one of the outcomes of the economic recovery after the disastrous Gothic invasions in the second

1 All dates in this book are AD.

2 Mackensen 1991; Bonifay 2004; Lamboglia 1958.

3 *Conspectus* 1990.

4 Hayes 1985, 1–91.

5 Hayes 1972, 323–401.

6 Hayes 1972, 13–299.

7 Hayes 1985, 92–96; Žuravlev 2010, 40–69; with further literature.

half of the 3rd century, which had disrupted the trade exchange and brought about the decline of crafts in the affected regions of the Black Sea basin and in the Aegean. The regained stability of the early 4th century resulted in the rebirth of production and trade of high quality ceramics. The south-eastern model of domination of Roman-style red slip pottery efficiently distributed by the sea from very few production centres to the most remote corners of the Empire and beyond, reestablished at that time, lasted in the Mediterranean until the mid-7th century when the Arab incursions disorganised the whole system of the maritime long-distance trade exchange. However, the identified Pontic Red Slip vessels ceased to be produced or broadly distributed already around the middle of the 6th century, exactly in the most successful time for the Mediterranean red slip ware producers, revealing one of so far unexplained aspects of the Early Byzantine economy in the Black Sea region.

The choice of the research subject presented in this volume was inspired by the author's participation in the archaeological excavation projects and visits in storerooms at several archaeological sites in the Black Sea coastal areas and their hinterlands, especially in Nymphaion, Tanais, Olbia, Tyritake, Tropaeum Traiani, Novae, as well as in Sinope, Pompeiopolis and Komana Pontika. The studies of the highest quality Late Roman and Early Byzantine red slip pottery at the above-listed sites and beyond proved that this important element of material culture was for decades neglected in scholarly literature, and that several publications issued in the last decades, disregarding the generally accepted methodology in processing the aforementioned fine pottery finds, yielded some unreliable results. Some of them, aspiring to produce a summary of the investigated issue, in fact completely distorted the picture of the production, trade and use of the red slip vessels in the discussed region and, as a result, provided incorrect data on the basis of which more general conclusions could be erroneously drawn. Therefore, the aim of the author's project was to complete and correct the existing analyses by making a methodologically proper presentation of a large amount of source material, in order to use it as a basis for a discussion on the essence and dynamics of the diachronic changes in the material culture and also, in a wider perspective, to expand our knowledge on the economic history of the Black Sea region in the transitional period between the Late Antiquity and the Early Middle Ages.

For a long time finds of Late Roman and Early Byzantine fine pottery from the whole Black Sea littoral were very poorly documented and analysed. To a large extent this was the result of the political division of Europe after World War II. As the academic contacts with Western Europe were limited, the approach fostered by the Soviet science was predominant in the region. For many decades, the existence of the Late Antique civilisation of the Mediterranean origin was underestimated in many areas around the Black Sea basin, especially in its northern part. It was claimed that already the Goths' incursions in the second half of the 3rd century, as well as the coming of the Huns in the late 4th century resulted in the breakup of the links with the Graeco-Roman world and swift barbarisation. The finds testifying to the earliest expansion of the Christian religion were also marginalised. The main stress in the investigations was laid on the earlier epochs, especially from the Greek colonisation to the Hellenistic and Early Roman times. The materials collected in later contexts were often neglected and sometimes forgotten. The main archaeological activity was concentrated on large-scale excavations, and much less attention was paid to documentation, storage and analysis of the finds. As a result, archaeologists publishing pottery finds had to use Western analyses of parallel vessels from the Mediterranean, and, as there was no systematic exchange of methodological experience in dealing with the discussed ceramics, many mistakes in identifying the finds were made, which led to amassing incorrect information about their origin and dating.

This situation was in sharp contrast to the continued research conducted in the Mediterranean, presented in Chapter 2.1 of this book, which brought a visible progress in the studies of the discussed materials already some decades ago. The comprehensive typo-chronological classifications of the two basic groups of red slip pottery with supra-regional distribution, African Red Slip and Late Roman C /

Phocaean Red Slip wares, as well as two other groups of regional importance, Late Roman D / so-called Cypriot, and Egyptian Red Slip wares, were then elaborated. The distribution of the vessels, physico-chemical analyses and discoveries of some kiln-sites allowed to indicate the actual and probable locations of production centres. The methodological standards, elaborated already in the first half of the 20th century, and used successfully, especially by the British ceramologist J. W. Hayes, brought about a real breakthrough and have been commonly used ever since. His work, *Late Roman Pottery* (1972), discussing and presenting in detail the above-mentioned fine pottery groups, is still one of the most frequently quoted publications in the Mediterranean archaeology. The comprehensiveness of that research and the successive publications by Hayes and other scholars, in particular M. Bonifay, M. Mackensen, P. Reynolds, J. Poblome and E. Ergürer, made the described category of finds an important source for the studies on the economy, material culture and craftsmanship in the Late Antiquity and Early Byzantine period in the Mediterranean.

The research background concerning the Black Sea region is presented in Chapter 2.2. Despite the relatively large scale of the excavation activity in the north-western, northern and eastern Black Sea coastal areas in the post-war decades, the finds of Late Roman and Early Byzantine red slip wares did not attract any serious attention of the archaeologists. The first Russian researcher who, from the late 1980s, dealt with the discussed materials in the Black Sea region systematically using J. W. Hayes' classifications was A. V. Sazanov. However, analysing and publishing large numbers of earlier unknown or forgotten finds, he completely ignored the technological, macroscopic aspects and identified the vessels only on the basis of their shapes, comparing them to the Mediterranean materials and identifying them as imports. This resulted in disregarding the regional Pontic group of fine pottery presented below. Moreover, it is necessary to stress that the evidence available until the end of the last century did not cover the northern shore of Asia Minor, where the first regular archaeological projects began only in the 1990s. Therefore, the knowledge summed up in Sazanov's articles included only the perspective of the consumers in the northern Black Sea coastal areas, possibly explaining why the location of the workshops producing the Pontic Red Slip vessels remains unknown. The criticism of Sazanov's findings made by the present author at scientific conferences and in some articles has become a starting point for the research described below, which was based on verified methodological principles successfully used by the archaeologists working in the Mediterranean.

The methodology adopted in the monograph, described in Chapter 3.1, entailed accessing and studying all the available finds of Late Roman and Early Byzantine red slip vessels from various archaeological sites, settlements and cemeteries, excavated or identified during surface surveys. This archaeological evidence is discussed in Chapter 3.2. Numerous storage-room and museum surveys at the archaeological sites listed above, as well as in the museums in Kerch, Simferopol, Sevastopol, Bachčisaraj, Taman, Krasnodar, Novorossijsk, Bilgorod-Dnistrovs'kij, Odessa, Varna, Sinope, Moscow, Saint Petersburg, Kiev, Warsaw and Mainz, allowed to prepare a detailed documentation consisting of descriptions, drawings and photographs of the substantial part of collected finds from the Black Sea region and the adjoining areas. Especially important were the analyses of the best preserved vessels from the Barbarian cemeteries in the Northern Black Sea region, especially from Kilen-Balka, Inkerman, Sovchoz 10, Družnoe, Suvorovo, Nejzac, Luči-stoe, Almalyk-Dere, Krasnyj Mak, Karši-Bair, Skalistoe, Džurg-Oba, and Djurso.

The collected materials were classified according to physical, technological and typochronological criteria, in order to gather information on their provenience, dating and distribution. The first phase embraced the analysis of the physical, macroscopic features of the fabric and slip. On this basis respective groups of Mediterranean red slip wares, already known from the literature, were distinguished within the materials, as well as the main Black Sea regional group, called Pontic Red Slip ware, was identified with the possibly complete range of its vessel forms. A detailed analysis of the Pontic vessels, which made up the majority of the

materials dated to the 4th – mid-6th century, revealed that their emergence, successful production and distribution consisted in using by the regional potters of the technology already known in the Black Sea basin from the Early Roman times, combined, however, with adopting the shapes of the red slip vessels most popular in the Mediterranean.

In order to prove that the distinguished vessel forms represent a specific fine pottery group of unknown provenience and distribution embracing exclusively the Black Sea coastal and neighbouring regions, samples of 55 Pontic Red Slip vessels and fragments of several forms from various archaeological sites were collected for physico-chemical analyses. The results of these analyses, conducted by G. Schneider and M. Daszkiewicz at the Arbeitsgruppe Archäometrie, Freie Universität Berlin and presented in Appendix 2, revealed the chemical composition and mineral structure of the clay and the temperature of firing. This verified the identification of the Pontic Red Slip ware as a distinctive fine pottery group. The presentation and discussion of these analyses are preceded by Appendix 1, in which all the physico-chemically examined vessels and fragments are listed and briefly described according to the sequence of their forms.

The crucial part of the study is presented in Chapter 4, where 166 of the analysed vessels coming from the identified contexts at various archaeological sites, as well as some other ones of unknown provenience, are illustrated by drawings and photographs and described in the main *Catalogue of illustrated finds*. It is comprised in Chapter 4.5 where all the distinguished Pontic Red Slip vessel forms (shapes) are discussed in detail, in their typo-chronological sequence. This presentation is preceded by Chapters 4.1–4 which summarise the information about the macroscopic and physico-chemical characteristics of the distinguished ware, morphological analysis of the vessel forms, decoration, potters' and users' marks observed on the vessels, and the chronology of their production, established mainly by the examination of the contexts of the respective finds. The presentation of each vessel form in Chapter 4.5 is completed with the lists of all the published and other evidence, known to the author, about the finds of the respective vessels in several regions within the Black Sea basin and its hinterland.

The general distribution of the Pontic Red Slip vessels is shown on the maps, and its diachronic changes are described in Chapter 5.1, where also the hypothesis about the origin of the ware from the northern Anatolian province of Pontus is discussed. Chapter 5.2 explains that the appearance of the Pontic vessels was due to the combination of two aspects: the regional pottery making traditions and interregional influence. The first aspect, dependent on the *chaîne opératoire* typical of the ware, was manifested by the quality of the fired clay and slip, details of the potting, and the absence of the stamped decoration replaced by the so-called combed motifs and compositions. The second, equally important factor was the outcome of an attempt to make the vessels similar to those from the leading Mediterranean fine ware production centres located in Northern Africa.

The recent excavation works carried out by archaeological expeditions in various regions around the Black Sea basin, in Tanais, Olbia, Tyritake, Sebastopolis, Phanagoreia, Tropaeum Traiani and Pompeiopolis allowed also to conduct quantitative analyses of the pottery materials from the settlement contexts, where the best preserved Late Roman and Early Byzantine fine ware vessels and diagnostic fragments were counted by ware and form. The results are presented and discussed in Chapter 5.3, in which the analysed data on the presence of the Pontic Red Slip ware and the Mediterranean red slip vessels at the above-mentioned archaeological sites allowed to trace the diachronic changes of the regional patterns of their trade and consumption.

The analysis has proved that the contacts of many areas along the northern Black Sea coast, inhabited by Barbarian tribes, with the economic centres in the northern part of Asia Minor were continual and systematic, but their scope was gradually diminishing in the course of the 4th – 6th centuries. The first area which ceased to maintain trade relations with the Empire in the early 5th century was the north-western corner of the Black Sea basin, the southern outskirts

of the Černjachov culture, with the dominating position of Olbia. This tendency was followed by the abandonment of the late settlement in Tanais, at the mouth of the Don river, around the late 5th century. Until that time, Pontic Red Slip vessels constituted the main tableware distributed across the Black Sea, but later on they began to be replaced by the more regular and increasing Aegean imports of the Late Roman C / Phocaean Red Slip ware ones. The Byzantine-Persian wars, especially in the 540s, brought destruction to the eastern Black Sea coast and to Bosporos Kimmerikos, which were the main importers of the Pontic Red Slip vessels. It is possible that these events were one of the crucial reasons of the discontinuation of the long-distance export of the Pontic vessels shortly before the mid-6th century. However, the final explanation of the decline of their manufacturing should be rather found in the northern Asia Minor where, according to the author's hypothesis, the production centre or centres were located. A detailed study of the recently identified phenomenon of replacing the red slip vessels by the burnished ones, which began there already at the turn of the 5th and 6th century, should be particularly helpful in understanding these reasons.

In Conclusion (Chapter 6) the most important results of the presented study are summed up and potential directions of further investigations are outlined. They include a search for sealed and other contexts and finds, in order to make the chronology of the investigated vessel forms more precise, and to get more information about their distribution. This should also help to indicate a more specific place of origin of the Pontic Red Slip vessels, and to determine the economic network of their efficient long-distance distribution. This objective may be achieved only by looking for the results of some new archaeological projects, especially in the northern Anatolian regions, and possibly by implementing more physico-chemical analyses, in order to indicate the area with raw materials matching the clay of the investigated pottery. The above may also help to understand in the future why the production and export of the discussed pottery was discontinued in the second quarter of the 6th century, which was the most productive time for the manufacturers and distributors of the red slip wares in the Mediterranean, mainly the Late Roman C / Phocaean Red Slip and African Red Slip wares, allowing them to replace the Pontic vessels in the broad regional Black Sea market.

2. RESEARCH BACKGROUND: STUDIES ON LATE ROMAN AND EARLY BYZANTINE RED SLIP WARES IN THE MEDITERRANEAN AND IN THE BLACK SEA REGION

The tools used to make correct identifications of the red slip wares found in the Black Sea region, as well as to distinguish and classify the vessels presented in this monograph together with indications of their tentative provenience and chronology of production, have been shaped through the long-term investigations of the Late Roman and Early Byzantine fine pottery in the southern and eastern provinces of the Empire. It should be stressed that from the very beginning until our times the research interest was focused on the Mediterranean. This is where the most important discoveries were made and the results of various types of analyses were obtained and published, but also where the methodology, which has been used while preparing this monograph, has been worked out. For that reason, the first part of this chapter will present the outline of the history of research on the discussed category of vessels in the Mediterranean, and the studies conducted in the Black Sea littorals will be presented in its second part.

2.1. MILESTONES IN THE STUDIES ON RED SLIP WARES IN SOUTHERN AND EASTERN ROMAN PROVINCES

The majority of the high quality tableware made in the Early Roman period, Late Antiquity and in the Early Byzantine times in the Mediterranean and Black Sea provinces consisted of mass produced vessels with precisely standardised shapes, decorated only in some cases, mainly with repetitive motifs made by rouletting and stamping, and, which is their main shared feature, covered with slip of various hues of red. They were manufactured in several production centres in different regions, sometimes located hundreds of kilometers away from each other, and were the subject of long-distance trade mainly along the sea routes. All those vessels were initially called by German, French and Italian scholars terra sigillata but later on, in the English language literature a convention has been adopted to call the latest of them, dated to the Late Antiquity and the Early Byzantine period, red slip wares, whereas the term terra sigillata was reserved for the Late Hellenistic and Early Roman vessels.[8]

The history of research on eastern and southern terra sigillata and red slip pottery can be divided into four basic stages: 1. The antiquarian and first excavation activity in the 19th and the beginning of the 20th century, during which the interest in terra sigillata produced outside Italy and the western Roman provinces began to grow. 2. The studies of the finds from the systematic and modern excavations in the Mediterranean region, which led to the compilation of the first tentative typo-chronological classifications of the vessels, based on the materials from the respective sites. This took place towards the end of the first half of the 20th century. At that time the most distinctive groups (wares) of the investigated pottery were distinguished as coming from various production centres by means of macroscopic observations of the physical features of the clay and slip, as well as of the shapes and decorations of the vessels. What is more, the most popular vessel forms were determined and the first hypotheses about the origins of the distinguished wares were put forward. 3. The groundbreaking studies conducted in the second half of the 20th century, which consisted in collecting all the available information about the finds of the investigated vessels, such as their physical and technological features, shapes, decorations, contexts of finds, and distribution. This stage was concluded with a compilation of

8 Cf. above, Chapter 1, notes 2–6.

comprehensive typo-chronological classifications of the respective wares based on the analysis of the finds from numerous archaeological sites in various regions. 4. The current supplementary studies which consist in correcting and complementing the already collected knowledge about the forms of vessels and their chronology, as well as in determining the location of the unknown workshops, also with the use of the physico-chemical analyses. They allow for better use of the collected information in understanding the economic and cultural processes at the scale of the whole Empire, the respective regions, and individual archaeological sites.

The earliest of the above-listed stages concerns the period when archaeology was considered as a science auxiliary for the history of art. The fashion for obtaining and collecting well preserved ceramic vessels and inscribed or decorated fragments, which began in the first half of the 19th century, left a permanent trace in the form of rich collections, especially of the terra sigillata and red slip vessels from Northern Africa, stored in many European museums, particularly in Leiden, Copenhagen and Cologne, as well as in the North American ones. The vessels which came mainly from plundered cemeteries were a subject of antiquarian trade, and the contexts in which they were found were outside the scope of interest, as a result of which the information about their origin or use is now lost. This lasted until the first regular excavation works at the most important settlement sites began shortly before the turn of the 19th and 20th century.[9]

The first systematic ceramological works on the discussed ceramics were initiated by H. Dragendorff's short article,[10] which drew attention to the widespread distribution of terra sigillata vessels in the eastern part of the Ancient world. Dragendorff noted several physical, technological, typological, decorative, and epigraphic features distinguishing the vessels found in the East from the terra sigillata produced in Italy and in the western Roman provinces. On that basis he put forward a supposition that these vessels were manufactured in a number of unknown workshops, which were dispersed, according to the distribution pattern of their products, in the northern littoral of the Black Sea, in Asia Minor, and in Egypt.

The main reason why the interest in the eastern terra sigillata arose so late was the difficulty in accessing the areas where these vessels could have been found. The main goal of the earliest archaeological excavations was to obtain the most attractive finds. Broken and mainly undecorated vessels could not have been considered as such. The regular excavation works at the main archaeological sites in the Aegean, in Athens, Pergamon, Ephesos and Priene, gave the first opportunity to collect mass finds, also those poorly preserved and not having any expository value. This allowed to make detailed observations of the visible physical and morphological features of the archaeological materials, and to distinguish the first groups of the Early Roman terra sigillata, which differed from each other mainly in their clay and slip, and, to some extent, in their shapes and decorations. We owe this achievement to the archaeologists working in Priene and Ephesos.[11]

The studies on the Late Roman fine vessels, conducted in the 1930s, yielded similar promising results owing to the use of the abovementioned method, which consisted in grouping pottery mainly on the basis of the macroscopically observed physical and technological criteria, combined with the hypothesis that vessels clearly differing in their clay and slip come from different production centres located at a considerable distance from each other. The shapes and decoration of the vessels were less important, for they could have been imitated, while the physical features of the fabric, however, depended substantially on the quality of the raw materials found in a given region, and on the manufacturing technology, which was usually traditional and characteristic for a given workshop or production centre.

9 Only a small part of those finds was published at this early stage of the described activity, cf. Pagenstecher 1913, 111–115.

10 Dragendorff 1897.

11 Zahn 1904, 430–449; Heberdey 1906, 169–175.

To give the above-presented method its due, it should be stressed that in contrast to Italy and the western Roman provinces, where the topography of the terra sigillata production was well known, owing to the discoveries of numerous pottery workshops, in the eastern part of the Ancient world the location of only one production centre was known at that time. These were the remains of terra sigillata workshops in Pitane (modern Çandarlı), located, owing to the wealth of production waste visible on the ground, by the German archaeologists working in the nearby Pergamon.[12]

The advanced studies on the red slip vessels dated to the Late Roman and Early Byzantine period were spurred by the systematic American excavations at the Athenian Agora and in Antioch on the Orontes, where the stratigraphic analysis of the excavated structures, features and materials was a standard procedure, and the mass finds were treated as carriers of important archaeological information. To achieve this, the excavation techniques became much more precise and all the finds began to be recorded and documented. Owing to the changes in the standardised, repeatable shapes of the analysed vessels, as well as their decorative motifs, especially stamped ones, red slip wares began to be treated as a particularly significant category of finds. They were studied systematically by F. O. Waagé who analysed first the materials discovered at the Athenian Agora. He tentatively distinguished and described three groups of Late Roman and Early Byzantine vessels, which differed in the appearance of the clay, slip, shapes and decoration, calling them red slip Late Roman A, B, and C wares.[13] Initially, he accepted the hypothesis made by the German archaeologists about their Egyptian origin,[14] which later on proved to be incorrect.

The initial failure to identify properly the potters' workshops producing the distinguished wares was due to the lack of exchange of information about the pottery found at distant archaeological sites. Since no visible remains of the workshops were discovered at that time, the only way tentatively to determine the origin of the distinguished vessels was to analyse their distribution. In this case, the main obstacle was the small number of the specialists investigating the issue before World War II, and the resulting from it dramatic scarcity of publications of the studied finds.

A broader look at the discussed materials was possible when F. O. Waagé began to analyse the finds of the fine wares from Antioch on the Orontes. A large part of the vessel forms found there was known to him from the Athenian Agora. The numerous and well-dated finds from the Levant allowed Waagé to complete the data concerning the repertoire of the vessel forms and their chronology, and to make the first observations about the distribution of the respective wares in these two key economic centres in both regions distant from each other. His studies were summed up in a monograph on terra sigillata and red slip wares from Antioch,[15] in which he retained the division of the red slip Late Roman vessels into A, B, and C wares, and added two new groups, calling them D and E.

The distribution map of the investigated vessels was enriched by the new data from other excavations, which made it necessary to review the ideas about their possible provenience. The finds from Carthage indicated that Late Roman red slip wares A and B came from North Africa. The origin of the vessels from group C, found mainly in the Aegean and Eastern Mediterranean, remained an open question, and the newly distinguished groups D and E were described only very tentatively on the basis of the relatively few finds from the Levant.

Starting with a detailed description of the physical and technological features of the respective wares, Waagé compiled the first classification of the frequently encountered vessel forms in their chronological sequence. Similarly, he analysed the motifs of the stamped decorations. This classification was based on

12 Loeschcke 1912.

13 Waagé 1933, 293–304.

14 Kübler 1931, 80, 85.

15 Waagé 1948, 43–59.

the materials from Antioch, but also the information about parallel, mostly unpublished finds from the Athenian Agora and other archaeological sites was used. In the following decades, Waagé's publication became a kind of a manual for identifying the Hellenistic to Early Byzantine fine ware finds at the excavations in the Eastern Mediterranean. However, little new information about the pottery presented in his work was published in the following years. There were only few such publications containing some materials, especially from Tarsus,[16] Samaria,[17] and the Athenian Agora.[18] Each of them, however, broadened to some extent the knowledge about the distribution of the respective wares and vessel forms.

In the western part of the Mediterranean, the finds of Late Roman and Early Byzantine red slip vessels were more frequent, more numerous, and published sooner after their discoveries, which was the result of the greater archaeological activeness there. However, it took a long time to collect the scattered information, and Waagé's classification of the same vessels found in the East remained unknown for a considerable duration of time. The first tentative classification of the discussed pottery found in Italy and in the neighbouring western Mediterranean regions was made by N. Lamboglia. Basing on his finds from Albintimilium (present Ventimiglia), he distinguished and described in detail four physically, technologically and typologically distinctive groups of vessels, which he called terra sigillata chiara A, B, C, and D.[19]

In terms of methodology, the quality of Lamboglia's work was inferior than that published by Waagé. The former's chronological sequence contained gaps and was sometimes incoherent. Also, for a long time he was not able to determine the origins of the distinguished groups considering them as being produced in Italy. Later on, it was proved that two of Lamboglia's groups, C and D, are equivalent to North African Late Roman wares A and B in Waagé's classification. The first group, terra sigillata chiara A, also represented North African vessels from the Early Roman period, but as they occurred very rarely in the eastern part of the Mediterranean, they were not included in Waagé's classification. The remaining group, terra sigillata chiara B, proved to be of south Gaulish origins with a distribution not exceeding the western Mediterranean regions. Despite these shortcomings it is, however, necessary to mention the work of N. Lamboglia, as the terminology he introduced has become very popular and is still used in the archaeological literature, especially in the western part of the Mediterranean.

The turning point in the discussed investigations was the publication by J. W. Hayes (1972) who presented the exhaustive typo-chronological classifications of the leading red slip vessels produced and distributed in the whole Mediterranean and beyond, already known from the earlier studies, namely, the Late Roman A, B, C and D wares. For the first time, it was a comprehensive classification worked out with the use of the finds from many archaeological sites located in the western and eastern part of the Mediterranean. Besides the basic shapes of the vessels, he also described the relations between them and their variants, time-spans of their production, and broad distribution. He separately presented the techniques used to embellish the vessels, focusing on the stamped motifs, and as a result, distinguished the changing in time decorative styles of respective wares. Hayes based the chronology of the forms and stamped motifs on the critical analysis of a number of well-dated contexts, mainly from the excavations at the Athenian Agora, Antioch, Chian Emporio, Corinth, Constantinople (Saraçhane), Carthage, and several other ones. The wealth of the analysed materials allowed him to combine and complement the earlier classifications, particularly those worked out by Waagé and Lamboglia.

The main part of the discussed work was devoted to the pottery called by Hayes African Red Slip ware. These were the vessels produced in the area of modern Tunisia, which was confirmed

16 Jones 1950, 203–206, 276–277.

17 Crowfoot, Kenyon 1957, 357–361.

18 Robinson 1959.

19 Lamboglia 1958; Lamboglia 1963.

by the discoveries of several workshops made in the places located far away one from another. Earlier this pottery was called by Waagé red slip Late Roman A and B wares, or by Lamboglia terra sigillata chiara A, C, and D, which was due to the long duration of its production from the late 1st until the late 7th century, and to the fact that from the 3rd until the late 5th century these vessels were produced in two versions: more elegant, rather thin walled one, Late Roman A ware or terra sigillata chiara C, and the so-called standard, thicker walled one, Late Roman B ware or terra sigillata chiara A and D. Hayes classified all these vessels together, making a uniform typo-chronological sequence of about 200 vessel forms. The information he collected has shown the supra-regional distribution of the African Red Slip ware, embracing the most distant regions of the Ancient world.[20]

The other group described by Hayes was the pottery earlier called red slip Late Roman C ware, the name of which has been preserved. Hayes described ten basic forms and several variants of these vessels, made from the late 4th until the mid-7th century, distinguishing also the styles of stamped decoration and presenting a catalogue of the individual motifs. He drew attention to the physical, technological and morphological similarities between the discussed vessels and the Early Roman Eastern Sigillata C / Çandarlı ware, which was produced in the vicinity of Pergamon.[21] On this basis he put forward a hypothesis that the Late Roman C ware came from the north-eastern Aegean, which matched the distribution pattern of these vessels. As the period of the intensive production of the Late Roman C ware was not so long, comprising less than three centuries, those vessels were found less frequently than the African ones, yet their presence had also a supra-regional character, comparable only with that of the African Red Slip ware.

The last group described by Hayes in detail was the pottery tentatively distinguished by Waagé as red slip Late Roman D ware. Hayes called it Cypriot Red Slip ware to emphasise that the most numerous finds of these vessels were made on Cyprus. Hayes was the first to collect the basic information about them. Noting their physical and technological similarity to earlier distinguished by him the Early Roman Cypriot Sigillata and the similar distribution of the two wares, embracing mainly Cyprus and the neighbouring Levantine littorals, he pointed to the island as a possible site of its production, which lasted between the end of the 4th and the end of the 7th century. The repertoire of shapes comprised twelve forms rarely decorated with stamped, rouletted and incised motifs.

Hayes mentioned also several other Late Roman groups of red slip vessels with a greater regional importance than it had been thought before. As the state of knowledge about them was rather poor due to the scarcity of the published finds, he devoted much less attention to them. The groups included the pottery produced in the Nile valley, Egyptian Red Slip A, B and C wares, as well as the Aegean group called tentatively by him Asia Minor Light-Coloured ware, and some other regional wares.[22]

The exactness of the criteria applied to analyse the pottery, the use of the largest possible amount of the available materials, and the critical approach to the contexts where the vessels were found, make Hayes' monograph the main compendium of knowledge about the investigated pottery, its production and trade. At the background of these advantages, the imperfections of the discussed work, consisting mainly in the lack of connections between the drawings of the vessel forms and their stamped decorations, as well as the absence of illustrations of several forms, mostly closed vessels, decorated with the use of other techniques,[23] and of a few important variants of the open vessel forms, are marginal.

Hayes' monograph began a new stage in the studies of the Late Roman and Early Byzantine

20 Hayes 1972, 13–299.

21 Hayes 1972, 316–370.

22 Hayes 1972, 304–309, 371–413.

23 In such cases Hayes referred his notes to the important works devoted particularly to those vessels published by J. W. Salomonson; cf. especially, Salomonson 1968 and 1969.

red slip wares found in the southern and eastern part of the Ancient world. The archaeologists were given an instrument allowing for precise identification and dating of the discovered vessels and their fragments, and facilitating considerably the quantitative analyses of large pottery assemblages. However, the apparent user friendliness of Hayes' classification has some dangers for it should be used strictly following the methodological procedure, beginning with the macroscopic observations of the physical features of the clay and slip of the investigated artefacts.[24] Only the next stage allows to identify the vessel forms. The errors which may result from trying to bypass this procedure are shown below, when the studies published in the last decades by some scholars working in the Black Sea region are described.

The subsequent comprehensive studies on the discussed pottery in the Mediterranean consisted mainly in completing the information about the production, distribution, repertoire of the forms and decorations, and dating the vessels of the principal wares described by Hayes. They were based on the analyses of the growing number of publications of the finds from many archaeological sites in various regions.[25] These data were collected by J. W. Hayes in the supplement to his monograph, issued in 1980,[26] and included also in the compilation work by the Italian archaeologists, based mainly on the Hayes' classifications, issued a year later.[27] The discovery of the production waste of the red slip Late Roman C ware in Phocaea, which confirmed the existence of the production workshops there, was also noted and resulted in naming that pottery Phocaean Red Slip ware.[28]

It is the 1980s which saw the first publications of the 'new generation' of large monographs on pottery materials from many archaeological sites, fully using Hayes' classifications and conclusions. It is not necessary to mention all of them, but one good example of a work representing that academic standard is the publication of the pottery from Berenike in Cyrenaica.[29] Hayes himself continued his research and analyses of valuable pottery assemblages, which resulted in the publications of the materials from Saraçhane in Constantinople,[30] the Athenian Agora, and from other sites.[31] Typo-chronological analyses conducted by other specialists were focused on the main groups of the red slip wares produced in the Mediterranean.[32] Some works conducted recently are also concentrated on collecting the evidence about the remains of the production centres in North Africa,[33] in the south and west of Asia Minor,[34] or in Egypt.[35]

Another important aspect in the recent studies is extending the information about the technological features of the respective wares, especially with the use of the laboratory physico-chemical analyses.[36] The application of the exact sciences is a considerable help in establishing the provenience of the vessels by determining the chemical composition of the raw materials.

24 Hayes 1972, 13–14, 323–324, 371–372, etc.

25 Especially, Rodziewicz 1976.

26 Hayes 1980.

27 *Atlante* 1981, 9–256.

28 Hayes 1980, 525–527.

29 Kenrick 1985, 341–405.

30 Hayes 1992, 3–11, 91–211.

31 Hayes 2008, 67–93, 218–254; cf. also Hayes 1998 and Hayes 2000.

32 African Red Slip ware: Bonifay 2004, 45–66, 155–210; Late Roman D / "Cypriot" Red Slip ware: Meyza 2007; Late Roman Light Coloured ware: Ergürer 2014.

33 Peacock *et alii* 1990; Mackensen 1993; Taylor, Robinson 1996; Mackensen 1998; Mackensen, Schneider 2002; Mackensen, Schneider 2006; *Studies on Roman Pottery...* 2009.

34 Poblome 1999; Poblome, Firat 2011; Jackson *et alii* 2012; Zelle 2014; Ateş 2015.

35 Gempeler 1992.

36 Cf. above, note 33, as well as: Mayet, Picon 1986; Empereur, Picon 1986; Schneider 2000; Schneider, Japp 2009; Schneider, Daszkiewicz 2020; with further literature.

It also allows to determine the scopes of the physical features characteristic of the wares made in respective workshops, and in this way to verify the macroscopic observations.

In 2008, *ICREA / ESF Exploratory Workshop on Late Roman Fine Wares: solving problems of typology and chronology* was organised by M. A. Cau, M. Bonifay and P. Reynolds in order to review and update Hayes' typo-chronological classifications of the main red slip wares produced in the Mediterranean, with the use of the newest available evidence about their finds. The proceedings proved that these classifications had predominantly stood the test of time, and resulted in a series of important follow up publications broadening general knowledge about the production, long-distance trade and consumption of these ceramics.[37]

2.2. STUDIES ON LATE ROMAN AND EARLY BYZANTINE FINE POTTERY IN THE BLACK SEA REGION

A review of the above-mentioned studies reveals that the publications of the Late Roman and Early Byzantine fine wares from the Black Sea region did not belong to the academic mainstream. They did not contribute to the development of the research methodology and did not present, until the recent times, any larger amounts of precisely dated materials. In the 20th century, the archaeology in the Black Sea region was dominated by the Soviet, Romanian, and Bulgarian scientists. Until the 1990s, there were almost no foreign expeditions in these countries, and on the more than a thousand kilometre long northern coast of Asia Minor there were no regular excavations at all.

Starting from the time immediately preceding World War II, the most intensive excavations were carried out in and around Chersonesos in south-western Crimea, in the area of Bosporos Kimmerikos (the Kerch Strait), in Olbia and in the neighbouring territories along the north-western Black Sea coast, as well as in the lower Danube area. In the post-war years these works were continued, and also new regular excavations at many archaeological sites on the Caucasian coast began to be carried out.

For many decades the main point of reference in the studies of the Late Roman red slip wares in the Black Sea region were the publications of the finds from Tyritake and Iluraton on the Kerch Penninsula, by T. N. Knipovič (1952) and L. F. Silant'eva (1958). Among the finds of the Early Roman and Late Antique fine ware vessels from both sites, they described six most popular forms of red slip wares, and dated them generally to the late 3rd – 4th century.[38] This dating correlated with V. F. Gajdukevič's theory, that the fall of the Ancient civilisation in the Bosporan region was caused by the Hun's invasion in the late 4th century. Knipovič and Silant'eva illustrated their analyses with extremely few finds and claimed that the described red slip vessels may have come from the Aegean or from other centres in the northern part of Asia Minor.[39] The presented approach was very general, and the distinguished vessels were analysed only from the point of view of their shapes, without referring to the physical and technological aspects, such as the macroscopic features of their clay and slip. As a result, the reflections concerned the respective forms of vessels rather than the wares they belonged to, produced in different workshops.

The next tentative classifications of the discussed finds were made by the Georgian archaeologists working in Pitiunt, Sebastopolis and Rhodopolis.[40] They extended the dating of the discovered vessels of the red slip wares towards the 5th and 6th centuries, and noted the extraordinary abundance of these ceramics at the excavated sites, describing them as Mediterranean and southern Pontic imports, and their local (as they claimed) imitations.[41] These remarks, however, were not followed by a publication of any evidence confirming the hypothesis about the

37 *LRFW...* 2011; Bes 2015.

38 Knipovič 1952, 315–321; Silant'eva 1958, 298–303.

39 Knipovič 1952, 322–323; Silant'eva 1958, 303.

40 Lordkipanidze 1962; Berdzenišvili 1963; Džaparidze 1974.

41 Lordkipanidze 1962, 254; Berdzenišvili 1963, 123.

production of red slip wares or their imitations on the Caucasian or Colchian coast, and were forgotten later on.

The other works of the Soviet authors, published from the late 1950s until the early 1980s, comprise rather scant articles about the finds from Chersonesos,[42] Il'ič,[43] and Tanais.[44] The last two archaeological sites were very valuable for ceramological studies, as the latest contexts identified there contained materials of the final abandonment in Tanais and destruction in Il'ič, which served later on as points of reference for establishing the chronology of the respective red slip ware forms. Only in one paper, published in the early 1980s, devoted to the finds from Cebelda (central part of modern Abkhazia), a more comprehensive classification of the discussed vessels was proposed by Ju. N. Voronov, based on the rich materials from several settlements and cemeteries excavated in that region.[45]

The above-mentioned authors tried, following Knipovič and Silant'eva, to identify the Mediterranean imports, using for that purpose mainly the publications by F. O. Waagé and, later on, by J. W. Hayes. On the other hand, the remarks made by the Georgian archaeologists about the southern Pontic red slip ware imports were forgotten in the next years. The progress of the research was considerably hindered by the scarcity of presented illustrations and by the tendency to focus on the formal, morphological analysis of the finds. As a result, these studies did not present any broader reflections on the production and distribution of red slip wares in the Late Roman and Early Byzantine period.

The rarely published investigations from the western Pontic coast, namely Romania and Bulgaria, as well as from the *limes* sites on the lower Danube, were similar in quality. As the proportions of the Mediterranean imports at these archaeological sites were larger, the analyses focused on identifying them with the use of the above-mentioned publications by Waagé and Hayes could have been more successful, but it was not the case. The studies on the red slip wares from Tomis and Histria were devoted mainly to the stamped vessels and their fragments,[46] and in the article presenting the finds from the Bulgarian coast, only a small group of selected, best preserved vessels, also stamped in their majority, was analysed.[47] Separate attention should be paid to the investigations conducted in Iatrus by the archaeologists from Eastern Germany. Focusing on the numismatic evidence from the 5th century destruction layers, they worked out the chronological framework of the pottery finds, including also the imported red slip wares, and other materials.[48] However, in the light of the parallel finds made in the Mediterranean, the datings from Iatrus were considered later on as incorrect.[49]

At the background of the publications presented above, the article by A. Opaiț, in which all the imported red slip vessels discovered at several small settlements from Scythia Minor, located near the Danube delta, were analysed, is far more valuable.[50] Besides having identified the majority of the Mediterranean imports from the late 4th and the first half of the 5th century, predominant at these sites, Opaiț also distinguished four vessel forms found earlier only in the northern and eastern Black Sea littorals, describing them as Pontic. This designation was used also in his successive works,[51] but due to the relative scarcity of these finds in the lower Danube area, his introductory notes on the Pontic vessels were not followed in the next years

42 Beljaev 1968, 32–34, 37.

43 Nikolaeva 1978.

44 Arsen'eva 1981.

45 Voronov 1983.

46 Popescu 1965; Papuc 1973; Munteanu, Papuc 1976.

47 Minčev 1982; Minchev 1983.

48 Böttger 1982.

49 Mackensen 1991; cf. also below, Chapter 3.2, note 80.

50 Opaiț 1985, 154–159.

51 Opaiț 1991a, 162–167; Opaiț 1991b, 225–231; Opaiț 1996, 135–142; Opaiț 2004, 75–80.

by any more comprehensive study by that author, or by any other researchers.

In the late 1980s, A. V. Sazanov started to analyse the red slip ware finds from Bosporos Kimmerikos.[52] He used J. W. Hayes' monograph (1972) as the main research tool for identifying and dating these pottery materials. The results of the chronological investigations were in part very valuable, because they allowed to correct the dating of many contexts from the Late Antiquity, identified at several archaeological sites on the Kerch Strait in the post-war years. His analysis showed that the dating to the late 4th century of the final destruction and abandonment layers from the majority of the Bosporan settlements, made by Knipovič and others, should be shifted to almost two centuries later. However, a large part of Sazanov's work of identifying the red slip wares, concerning the ones not coming from the Mediterranean and not described by Hayes, proved to be a complete failure. Disregarding the macroscopic analysis of their physical features, Sazanov identified the finds only on the basis of their shapes. As a result, the vessels of Pontic origin, already noticed by A. Opaiț, were identified as the North African (African Red Slip), Aegean (Late Roman C / Phocaean Red Slip), or the so-called Cypriot (Late Roman D / "Cypriot" Red Slip) wares. The most common in the Bosporan region Pontic Red Slip vessels were described by Sazanov as African Red Slip ware form 62B, Late Roman C / Phocaean Red Slip ware form 2, and Late Roman D / "Cypriot" Red Slip ware form 2.[53]

In the subsequent years, Sazanov published large numbers of finds of the discussed pottery from several archaeological sites in the northern Black Sea region, i.e., from Chersonesos,[54] Pantikapaion,[55] Hermonassa,[56] Zolotoe Vostočnoe v Buchte,[57] Zelenyj Mys,[58] and Il'ič.[59] However, the errors in identifying the respective vessels, resultant from disregarding the existence of the Pontic group of the Late Roman red slip wares, were repeated in all these studies. Working on the chronology of the red slip vessels, he analysed many pottery assemblages which he called deposits. Judging from the obtained results, their homogeneity and the appropriateness of the applied method should be questioned. Evidently, the author treated equally the actual dating material and the residual finds. As a result, the production time-spans of the majority of the analysed red slip vessel forms, established by Sazanov, were too long.[60] A similar approach, although most probably independent from Sazanov, was taken up by F. Topoleanu. His publications of finds from Halmyris contain almost the same errors in identifying the forms of the vessels, and in dating them.[61]

Several of Sazanov's articles were meant to compile and sum up the knowledge about the distribution and chronology of the Late Roman and Early Byzantine red slip wares in the northern Black Sea littoral.[62] They present considerable amounts of the material but the illustrations are schematic and of poor quality, usually being careless redrafts from the field documentation or unpublished excavation reports. Due to the errors mentioned above, the resulting synthesis was faulty in its major part, disregarding a whole group of red slip vessels produced in the Pontic region, and overestimating the role played by the Mediterranean, especially North African, imports. The aforementioned works

52 Sazanov 1989; Sazanov, Ivaščenko 1989.

53 Sazanov 1989, 51–55; Sazanov, Ivaščenko 1989, 95–97.

54 Romančuk, Sazanov 1991; Sazanov 1992; Sazanov 1999, 229–230, 235–237, 245–250; Sazanov 2000b.

55 Sazanov, Mogaričev 2002, 479–482.

56 Sazanov 2000a, 234–235.

57 Sazanov, Mokrousov 1996, 90–101.

58 Sazanov, Mokrousov 1999, 172–202.

59 Sazanov 2000a, 227–230.

60 Romančuk, Sazanov 1991, tables 1–2; Sazanov 1994–1995, 428–433; Sazanov 2000a, 227–230; cf. also below, note 86.

61 Topoleanu 2000a, 42, 46, 56–57, 63, 71–72; with further literature.

62 Sazanov 1994–1995; Sazanov 1999; Sazanov 2000a.

contain also other inaccuracies, mainly in identifying the forms of the remaining red slip and related wares, such as the Late Roman Light Coloured ware, or the recently identified Late Roman Pontic Burnished ware.

Sazanov's works were often used by many Russian and Ukrainian archaeologists in identifying and dating the newly found materials. At this background, it is worth mentioning the publication by A. G. Atavin, who presented in the early 1990s Late Roman and Early Byzantine red slip ware finds from Phanagoreia in a traditional way, similarly to Knipovič, Sil'anteva, Voronov and Opaiț, identifying the most distinctive forms of various wares, Mediterranean and Pontic.[63] He distinguished three most popular Pontic forms, mentioning their similarity to the Mediterranean shapes, but avoided to call them African, Phocaean, etc.

Critical opinions about Sazanov's conclusions were expressed by the present author at several conference presentations and in some previously published pottery reports. The first notes, describing finds from Nymphaion,[64] were followed by a more substantial report on Late Roman red slip wares from Tanais, where the typo-chronological classification of the Pontic Red Slip vessels was proposed, embracing seven shapes of open vessels, and presenting evidence that also some closed vessels belonged to the distinguished group.[65] The preliminary results of these studies, presented in some other articles published later on,[66] provided an alternative to Sazanov's publications, and began to be used more frequently by the researchers, especially from the younger generation.[67]

Even though the errors discussed above blur the picture of production and trade of Late Roman and Early Byzantine red slip wares in the Black Sea basin, many new excavations conducted in various parts of the investigated region yielded a considerable number of published reports, presenting also the discussed pottery materials. This concerns especially settlements in the south-western Crimea, the area of the Kerch Strait, the eastern Black Sea littoral and the lower Danube region. These publications represent various quality, but the illustrations usually allow to identify the forms of the studied vessels. Especially important are the studies containing materials from sealed contexts and large assemblages of other finds. One should mention here reports from Chersonesos,[68] Pantikapaion / Bosporos,[69] Tyritake,[70] Phanagoreia,[71] Ulmetum,[72] Aegyssus,[73] Tropaeum Traiani,[74] and Sebastopolis.[75] Other investigations are focused on revealing the scope of production of terra sigillata and red slip vessels in Chersonesos, which were very popular in the south-western Crimea, especially in the late 2nd – early 5th century.[76]

A separate group of very valuable pottery materials comes from the Barbarian cemeteries in the northern regions of the Black Sea basin with very rich burials containing also numerous red slip and related vessels. These cemeteries are concentrated particularly in the south-western part of the Crimean Peninsula and, to a

63 Atavin 1993.

64 Domżalski 1996, 106–107.

65 Arsen'eva, Domżalski 2002, 422–428.

66 Krapivina, Domžal'skij 2008, 76–79; Domżalski 2016-2017, 76–78.

67 Cf., e.g., publications by S. V. Ušakov, L. A. Golofast, A. V. Smokotina, O. S. Ivanova, S. V. Didenko, in the bibliography.

68 For respective publications by L. A. Golofast and S. V. Ušakov, see the bibliography.

69 For respective publications by A. V. Smokotina, see the bibliography.

70 Domżalski, Smokotina 2020; Domžal'skij, Smokotina 2020.

71 Golofast, Ol'chovskij 2016.

72 Băjenaru 2018.

73 Mocanu, Nuțu 2017.

74 Domżalski, Panaite 2019.

75 Gabelia 2014, 439–446.

76 Ušakov 2004; Ušakov *et alii* 2017.

lesser degree, in the Bosporan (Kerch Strait) region, as well as on the Caucasian coast. In the last two decades, the number of publications presenting these finds increased substantially. They provided valuable information about the associations of the respective vessel forms discovered in various contexts, making it possible to determine the tentative chronology of their production.[77]

A significant collection of intact or almost completely preserved Pontic Red Slip vessels of undetermined or uncertain origin, identified by the author in several museums, mainly in Russia and Ukraine, most probably also come from the above-mentioned Barbarian cemeteries. 46 such vessels are presented in the *Catalogue of illustrated finds*, in Chapter 4.5. They are the result of the earliest collecting and archaeological activity on the northern shores of the Black Sea, especially in the south-western Crimea and at the Kerch Strait, in the second half of the 19th and in the early 20th century. A substantial share of them was also obtained during accidental finds and rescue excavations conducted there before World War II, but the documentation of these discoveries was lost during the warfare. This concerns particularly the museum in Kerch.

These finds were initially sent to the museums in Saint Petersburg and Moscow. The earliest of them are three vessels from the State Hermitage museum, found in 1859 and 1873 (**Cat. nos. 75–77, 162**). Some of the other vessels were discovered or collected by V. V. Škorpil, Ju. A. Kulakovskij, A. A. Bobrinskij, I. E. Zabelin, P. I. Ščukin, and D. G. Burylin, in the late 19th – early 20th century. They are in Saint Petersburg (GE, **Cat. nos. 138** and **156**), Moscow (GIM, **Cat. nos. 3** and **164–165**), and Kerch (KIKZ, **Cat. nos. 91, 111, 140, 154**). Three other vessels found at that time are stored in more distant museums, in Warsaw (MNW, **Cat. no. 157**) and in Mainz am Rhein (RGZM, **Cat. nos. 67** and **120**). They were obtained in southern Russia, in the early 20th century, by J. Choynowski and dr. Byhan, respectively.

Many more vessels of the discussed category can be found in the above-mentioned and some other museums, but there are no data about the time and place when and where they were found. They could have been gathered during the earliest collecting and archaeological activities in Russian Empire, or in Soviet Union before World War II. These are: **Cat. nos. 18, 89** from GE in Saint Petersburg, **Cat. nos. 152–153** from GIM in Moscow, **Cat. nos. 4, 12, 16, 44, 45, 54, 55, 57, 63, 66, 80, 83, 108, 142, 149, 151, 160** from KIKZ in Kerch, **Cat. nos. 34, 53, 74, 102, 141, 144, 159, 161** from OAM in Odessa, and **Cat. nos. 25, 61** from KGIAMZ in Krasnodar.

None of the above-listed finds inspired interest of the researchers, and they are presented in this monograph for the first time. Due to their excellent state of preservation, their analysis was very helpful at the earliest stage of the reported study, allowing to determine the range of physical and morphological criteria necessary to identify the ware, and to compile the typo-chronological classification of the Pontic Red Slip vessels.

In comparison with the above, the state of research on the Late Roman and Early Byzantine fine pottery in the northern part of Asia Minor, where the first regular archaeological projects started at the end of the 20th century, is much more unsatisfactory. Only recently issued introductory publications, presenting larger numbers of finds from Hadrianoupolis[78] and Pompeiopolis,[79] gave the first insights in the history of trade and consumption of fine pottery there.

Concluding, it is necessary to state that our knowledge about the finds of the Late Roman and Early Byzantine red slip wares in the Black Sea region, reflected in the published studies discussed above, is based mainly on the materials from the consumer sites in the northern Black Sea areas, possibly explaining why the workshops producing the Pontic Red Slip ware vessels, located probably in the northern part of Anatolia, still remains unknown.

77 These finds are discussed below, in Chapter 3.2, where also all the respective publications are listed.

78 Laflı, Kan Şahin 2016, 143–204; with further references.

79 Domżalski 2016–2017; with further references.

3. METHODOLOGY AND EVIDENCE

According to the main hypothesis of the reported research on the highest quality Late Roman and Early Byzantine fine pottery finds in the Black Sea region, a substantial part of the analysed red slip wares, dated from the early 4th until around the mid-6th century, belongs to one group of vessels of regional production, earlier often identified mistakenly as the Mediterranean imports, and more recently called by the author Pontic Red Slip ware. The newly identified Late Roman Pontic vessels were distributed in the investigated area together with the Mediterranean red slip ware imports, the share of which, however, was considerably smaller than that suggested in some of the published results of the hitherto conducted studies. In order to prove this hypothesis, all available to the author red slip ware finds from various archaeological sites in the Black Sea region were recorded in many museums and storage-rooms of several expeditions, and analysed according to macroscopic, technological, morphological and typo-chronological criteria, in order to gather information on the provenience, dating, distribution and consumption of these vessels.

3.1. METHODOLOGICAL PRINCIPLES

At the first stage, physical and technological aspects of the analysed highest quality Late Roman and Early Byzantine red slip vessels, found in various contexts, were investigated in detail. The main criteria were the macroscopically observed features of the fabric: clay and slip. On this basis the main groups of already known imported Mediterranean pottery: Late Roman C / Phocaean Red Slip ware, African Red Slip ware, as well as another, lesser studied group of Aegean origin, called Late Roman Light Coloured ware, were distinguished within the materials. This identification was possible due to the detailed descriptions of their features, published in the last decades. The finds, which did not match the characteristics of the Mediterranean red slip wares but shared similar macroscopic features among the newly identified vessel forms, were hypothetically assumed as belonging to one group of regional production, often omitted in the previous research. The distinguished pottery group was called Pontic Red Slip ware. These vessels, dated, according to the available evidence about the contexts in which they were discovered, to around the early 4th – mid-6th century, were analysed more profoundly, revealing that the emergence, successful production and distribution of the Pontic Red Slip ware consisted in adopting by the regional potters, still using the traditional technology of covering the vessels with red slip, of the shapes of the vessels most popular in the Mediterranean, especially those of the African Red Slip ware. Only the decoration of the Mediterranean vessels with repetitive stamping was replaced on the Pontic products by the individually designed combed motifs. However, the main decorative scheme in the form of large medallions, arranged in the centre of the vessel floors, was the same in the two groups.

In order to verify the preliminary grouping of the Pontic Red Slip vessels, the physico-chemical analyses of selected 55 samples were made by the Arbeitsgruppe Archäometrie in Berlin, determining the chemical composition and mineral structure of their clay, and the temperature of firing. The results confirmed that the analysed finds did not represent any of the main red slip wares made in the Mediterranean, and that according to their physico-chemical features they constitute a distinctive fine ware, though divided into two subgroups (cf. Appendix 2), produced in a so far unidentified centre, and distributed via maritime routes within the Black Sea basin.

Next, the forms (shapes) of the vessels were systematised according to the differences of their

diagnostic elements, especially the rims, and the ornaments were described. To determine the chronology of the respective Pontic Red Slip vessel forms, the stratigraphic and other contexts of the finds were examined in detail, as well as some similarities between the analysed vessels and those representing the leading forms of the Mediterranean red slip wares, were taken into account. As the time-spans of their production were established some decades ago, they were used as supplementary chronological indicators in recognising diachronic changes in production of the Pontic Red Slip ones. As a result, the new typo-chronological classification was proposed for the analysed Pontic Red Slip ware vessels.

The descriptions and documentation of the respective forms and types of decorations typical of the identified vessels, made in museums and at excavation sites, were completed with the data found in published reports. This allowed to present a currently available picture of the long-distance trade and consumption of this highest class fine pottery in the whole Black Sea region. Additionally, in order to reveal how the intensity of the influx of the discussed pottery, as well as the other Mediterranean red slip wares, changed in time in several areas of the Pontic basin, quantitative analyses of mass finds from several settlement contexts in Tanais, Olbia, Sebastopolis, Phanagoreia, Tyritake, Tropaeum Traiani and Pompeiopolis were made as well, according to the identified wares and their vessel forms.

3.2. ARCHAEOLOGICAL EVIDENCE

As the number of the published data on the studied vessels was initially rather low, and their quality, as demonstrated in the preceding chapter, was questionable in many cases, it was essential for reconstructing the history of production, long-distance trade and consumption of the Pontic Red Slip ware, to collect and examine all the available finds of this pottery. The most important evidence for preparing the typo-chronological classification of the vessel forms was provided by the ones coming from the defined contexts.

Pottery collected at settlement sites with continuous occupation was not always helpful, as the materials were usually fragmentarily preserved and found mostly in secondary depositions or accumulations. Moreover, in most cases it is only recently that the excavators and ceramologists working in the investigated region began to tell apart the actual dating materials, found in such contexts, from the residual ones. Also some of the methodologically correct, as it would seem, approaches, as the one applied in the 1960s – 1990s by the German archaeologists excavating the fort of Iatrus on the lower Danube, based on coin finds as the main chronological indicator for dating the archaeological contexts, finally brought incorrect results, because the specialists did not consider the specific character of the coin circulation in some distant parts of the Empire,[80] not to mention much more remote areas located outside its borders, such as the north-western coast of the Black Sea (outskirts of the Černjachov culture), Bosporos Kimmerikos and Maiotis, where the influx of the Late Roman and Early Byzantine bronze coins was extremely limited.[81]

More reliable results were brought by the research conducted in the last decades by the Romanian specialists working in Dobrudja, between the lower Danube and the Black Sea coast, where the circulation of coins was much more intensive and regular. Especially valuable are the chronological observations made by A. Opaiț in Topraichioi,[82] and more recently by C. Băjenaru in Ulmetum,[83] particularly for the materials found in the contexts dated to the 4th – 5th centuries.

A detailed examination of the finds from various types of contexts was considered important

80 The 440s as the proposed date for the 5th century main destruction layers in Iatrus (Conrad 2007, 209–264; Bülow 2007, 468–470; with further references) was criticised by the ceramologists working in the Mediterranean, as the parallel materials found there were dated to the second half of that century; cf. Mackensen 1991. The dating of a similar destruction horizon in the nearby located fortified settlement at Dičin to the 480s, proposed by the British specialists after the analysis of the imported trade amphorae (Swan 2007, 252, 265–267), seems to be more appropriate.

81 In the Bosporan region bronze coins struck locally until around the mid-4th century were in common circulation even more than two centuries later; cf. Frolova 1998, 247–248, fig. 1; Frolova 1999, 179–180, fig. 1.

82 Opaiț 1985, 154–159; Opaiț 1996, 135–142; Opaiț 2004, 75–80.

83 Băjenaru 2018, 503–506.

for determining the chronology and especially the changes of dynamics of production and trade of the respective forms and variants of the investigated vessels, in several regions within the Black Sea basin. Taking into account the aforementioned limitations, the most reliable results can be obtained by processing the materials discovered in the settlements which were abandoned or destroyed, and never rebuilt. This concerns especially Olbia and Tanais, the two northernmost merchant outposts, located in the north-western and north-eastern corners of the Pontic region, which flourished in the Hellenistic and Roman times, thanks to the exchange of goods between the Graeco-Roman economic centres and the nomadic tribes from the steppe zones.

As it was noted above, the Late Roman and Early Byzantine coin finds are extremely rare at those sites, and therefore the dates of their abandonment are indicated mainly by the imported pottery: trade amphorae and fine wares. According to that evidence, Olbia was finally abandoned around the turn of the 4th and the 5th century.[84] The most recently studied fine pottery finds from Tanais show that the Late Roman settlement was established there at approximately the same time when Olbia was abandoned, and it was occupied later on by a community maintaining regular trade contacts with the overseas partners, until at least the turn of the third and fourth quarter of the 5th century.[85]

The latest Pontic Red Slip vessels used in the first half of the 6th century were found in many settlements located on both sides of the Kerch Strait, which were destroyed and abandoned shortly before the middle of that century.[86] Moreover, the same region has yielded important negative evidence concerning the investigated vessels, namely their absence in the contexts dated to the second half of the 6th and the early 7th century. The first evidence comes from the fortlet of Il'ič, which was burnt some years after the middle of the 6th century, and the only red slip vessels used there at that time were the Late Roman C / Phocaean Red Slip ware ones.[87] However, a substantial number of large Pontic Red Slip ware fragments found there, representing the late dishes and bowls, forms 1B, 4A and 7A-7B (**Cat. nos. 41, 81, 121, 125**), indicates that they were rejected rather shortly before the destruction.[88] Another sealed pottery deposit was discovered in the central part of Pantikapaion / Bosporos, containing fine ware vessels, Late Roman C / Phocaean Red Slip ware and Late Roman Pontic Burnished ware ones, as well as numerous trade amphorae dated to the end of the 6th and early 7th century.[89] The town, which was once the capital of the Bosporan Kingdom, remained, after the mid- and late 6th century destructions, which affected the discussed region, the only harbour settlement maintaining trade contacts with the Byzantine Empire.

Among other archaeologically investigated settlements in the Black Sea region, inhabited in the Late Roman and Early Byzantine periods, which yielded precisely dated materials, one should mention Chersonesos in the south-western Crimea and Pompeiopolis in Paphlagonia. Most of these materials come from the deposits identified in Chersonesos, where the regular excavations have been conducted for more than one hundred years but only in the recent decades the mass pottery finds began to be analysed in

84 Krapivina, Domžal'skij 2008, with further literature.

85 Domżalski 2021, with further literature.

86 Atavin 1993; Sazanov, Mokrousov 1996, 90–101; Ajbabin 1999, 135–140; Sazanov, Mokrousov 1999, 172–202; Golofast, Ol'chovskij 2016, 64–73; Domżalski, Smokotina 2020; Domžal'skij, Smokotina 2020. This dating is indicated by the dominating latest fine pottery finds, which were the Late Roman C / Phocaean Red Slip ware forms 3F and 3G. This contradicts the often repeated hypothesis, according to which the majority of the Bosporan settlements were destroyed by the Turkish tribes in 575 (e.g. Ajbabin 2003a, 29). Interestingly, in his earliest works A. V. Sazanov also dated the latest pottery materials found in the so-called small Bosporan settlements to the second quarter of the 6th century (Sazanov, Ivaščenko 1989, 100). Later on, he shifted this dating to 575 without any convincing explanation (Sazanov, Mokrousov 1996, 91–102; Sazanov, Mokrousov 1999, 172–202).

87 Nikolaeva 1978.

88 Unpublished materials stored at TMK, Taman were studied by the author in 2001–2002 thanks to the kind permission by Elmira R. Ustaeva.

89 Fedoseev *et alii* 2010, 66–71.

detail.[90] Similar studies are conducted in Pompeiopolis, but they were started recently and only introductory results have been published so far.[91] In both these towns Pontic Red Slip ware was the standard tableware, commonly used in the Late Antiquity until the early and mid-6th century. Discontinuation of the broad distribution of these vessels was confirmed in Pompeiopolis by their absence in the contexts dated later than the early 6th century, in which they were replaced by the locally manufactured vessels, called Micaceous Burnished ware. Similar evidence came from Chersonesos, where the Pontic Red Slip vessels were replaced shortly before the mid-6th century by the intensive imports of the Late Roman C / Phocaean Red Slip ware, together with the newly emerged group of fine pottery of unknown exact provenience, called Late Roman Pontic Burnished ware.[92]

Extremely important evidence, which helped to establish the relative sequence and then to indicate the absolute dating of the Pontic Red Slip ware forms, comes from several Barbarian inhumation cemeteries located in the northern regions of the Black Sea basin. They comprised large family or clan tombs with multiple burials, as well as many other graves containing sometimes very abundant offerings, including also numerous red slip vessels. These cemeteries, used in the 4th – 6th centuries, are concentrated especially in the south-western part of Crimea and, to a lesser degree, at the southern outskirts of the Černjachov culture on the north-western Black Sea coast, in the Bosporan (Kerch Strait) region, as well as along the Caucasian coast.

The analysis of all the collected grave goods, including also numerous datable finds as coins, jewellery, small metal objects, glass vessels etc., allowed to establish the time spans when not only the collective family tombs but also the whole cemeteries with other burials were used. Subsequently, this allowed to trace the chronological sequence of these necropoleis, which was especially useful for the typo-chronological studies of the Pontic Red Slip ware.

The major part of the vessels found among the grave offerings was analysed personally by the author in museum storerooms, while the rest was identified in the published excavation reports of various quality. This valuable information about the co-occurrence of the respective vessel forms of the Pontic Red Slip ware, the Mediterranean red slip imports, and fine ware pottery produced locally in Chersonesos, together with the analysis of the other dated materials, made it possible to determine the tentative chronology of the production and broad distribution of the respective Pontic forms. The most significant assemblages of the highest quality Late Roman red slip wares coming from the large tombs with multiple burials and other graves are presented below, in **Tables 1–4**.

The particularly important aim of the conducted analysis was to establish the time when the cemeteries were abandoned. Thanks to that, the repertoire of the red slip vessel forms found at the respective cemeteries used at the same time, dated according to the chronology of the latest burials in the respective graves, could have been be compared with the vessels discovered in the cemeteries which had been used earlier or later.

The most numerous and representative materials for the earliest phase of production of the Pontic Red Slip ware come from the cemeteries discovered at Družnoe[93] and Kilen-Balka.[94]

90 Cf. recent publications by L. A. Golofast and S. V. Ušakov, in the bibliography.

91 Domżalski 2016–2017, with further literature.

92 Sazanov 1992, 40–45, figs. 2–3; Sazanov 2000b, 132–136, 140–145, figs. 4–5, 8:9–15, 9, 10:4–14; Sazanov 2014, 413–415, figs. 5–6. In the listed publications, A. V. Sazanov again identified several vessels incorrectly, in this case the Late Roman Pontic Burnished ware ones, as the African and Phocaean imports.

93 Inhumation cemetery in southern Crimea; in 15 graves 25 PRS vessels were unearthed together with numerous fine ware vessels produced in Chersonesos; Chrapunov, Mul'd 1997, 256–262; Chrapunov 1998, 119–120, 123; Chrapunov 2000, 53–54; Chrapunov 2002, 15–37; Khrapunov, Mould 2003, 112–115; Chrapunov 2008, 377.

94 Inhumation cemetery near Chersonesos; in 4 graves 20 PRS and 1 ARS vessels were unearthed together with numerous fine ware vessels produced locally; Nessel 2001, 179–181; Nessel' 2003, 109–116.

Similar finds were reported from Krasnaja Zarja,[95] Ozernoe III,[96] Suvorovo,[97] Tas-Tepe (Tenistoe),[98] and Rosental'.[99] All of them (**Table 1**), located in the south-western and southern part of Crimea, contained materials dated to the 4th century and ceased to be used around the end of that century.[100] The finds from these cemeteries are similar to the vessels discovered at the cemetery of Belen'koe,[101] at the southern outskirts of the Černjachov culture, which was used at the same time.

Pontic Red Slip vessel forms introduced later, found together with the materials dated to the first half of the 5th century, were reported from the following cemeteries in the south-western and central Crimea (**Table 2**): Sovchoz 10,[102] Inkerman[103] and Nejzac.[104] These cemeteries were also used in the 4th century but the latest burials can be dated to as late as around the middle of the 5th century. They contained the vessels representing the main phase of the Pontic Red Slip ware production.

Other, somewhat later finds including also the vessels made in the second – fourth quarters of the 5th century (**Table 3**) come from several south-western and southern Crimean cemeteries explored at Almalyk Dere near Mangup,[105] at Krasnyj Mak[106] and Lučistoe,[107] as well as

95 Inhumation cemetery in the Kača river valley; 5 PRS vessels were unearthed together with several fine ware vessels produced in Chersonesos; unpublished finds are stored in BGIKZ, Bachčisaraj.

96 Inhumation cemetery in the Al'ma river valley; in two graves 2 PRS vessels were unearthed together with several fine ware vessels produced in Chersonesos; Loboda 1977, 243–247.

97 Inhumation cemetery in the Kača river valley; in 9 graves 12 PRS and 1 ARS vessels were unearthed together with several fine ware vessels produced in Chersonesos; Zajcev 1997, 108, 110–114; Juročkin 1997, 305–309; Puzdrovskij *et alii* 2001, 32–36; Zajcev, Mordvinceva 2003, 58–61; Juročkin, Trufanov 2003, 202, 213–218; Puzdrovskij *et alii* 2007, 117–125.

98 Inhumation cemetery in the Kača river valley; 8 PRS vessels were unearthed together with several fine ware vessels produced in Chersonesos; Puzdrovskij *et alii* 2001, 32–36; other unpublished vessels are stored in BGIKZ, Bachčisaraj.

99 Inhumation cemetery in southern Crimea; in two graves 4 PRS vessels were unearthed together with several fine ware vessels produced in Chersonesos; Čurkin, Škribljak 2017, 285–287.

100 Another PRS f. 1 vessel was found, together with some fine ware vessels produced in Chersonesos, in the cemetery Višnevoe in the Kača river valley; Puzdrovskij *et alii* 2001, 32–36.

101 Inhumation cemetery in north-western coast of the Black Sea; 3 PRS vessels were unearthed together with numerous fine ware vessels produced in Chersonesos; unpublished materials are stored in BDKM, Bilgorod Dnistrovs'kyj.

102 Predominantly inhumation cemetery in the Černaja river valley; in 33 graves 54 PRS and 1 LRC/PhRS vessels were unearthed together with numerous fine ware vessels produced locally; Strželeckij *et alii* 2003–2004, 81–94, 103–105, 198–204, with further literature.

103 Inhumation cemetery near the mouth of the Černaja river; 29 PRS, 1 LRC/PhRS and 1 ARS vessels were unearthed together with numerous fine ware vessels produced locally; Strželeckij 1947, 289–291; Vejmarn 1963, 14–62; Kazanski 1993, 214–215; Ajbabin 2003a, 16–17. Other, numerous unpublished vessels are stored in BGIKZ, Bachčisaraj.

104 Inhumation cemetery in central Crimea; 19 PRS, 1 LRC/PhRS and 1 ARS vessels were unearthed together with numerous fine ware vessels produced in Chersonesos; Vysotskaja, Machneva 1983, 75–78; Chrapunov 2006, 43; Khrapunov 2013, 27–28; Vlasov *et alii* 2013, 209–210; Šabanov 2016, 167–168; Turova 2018, 232.

105 Inhumation cemetery between the rivers Černaja and Bel'bek; in 32 graves 49 PRS and 7 LRC/PhRS vessels were unearthed together with numerous fine ware vessels produced in Chersonesos; Gercen, Mączyńska 2000, 523–526; Ivanova 2009, 27–60; Mączyńska *et alii* 2011, 169–170; Mączyńska *et alii* 2013, 139.

106 Inhumation cemetery in the Bel'bek river valley; in 10 graves 20 PRS and 1 LRC/PhRS vessels were unearthed together with several fine ware vessels produced in Chersonesos; Loboda 1992, 214; Loboda 2005, 194–211.

107 Inhumation cemetery in southern Crimea; in 8 graves 14 PRS and 1 LRC/PhRS vessels were unearthed together with some fine ware vessels produced in Chersonesos; Ajbabin, Chajredinova 1998, 277, 281, 285–295; Aibabin, Khairedinova 1999, 278, 282, 288–296; Ajbabin, Chajredinova 2001, 75–77, Aibabin, Khairedinova 2001, 253–259; Ajbabin 2001, 24–25; Ajbabin, Chajredinova 2008, 21, 39, 41, 45–53; Ajbabin, Chajredinova 2010, 513–514; Ajbabin, Chajredinova 2014, 19–20, 31–33.

from some graves at Phanagoreia in the Bosporan (Kerch Strait) region,[108] and at Šapky near Sebastopolis on the Caucasian coast.[109]

The latest phase of the Pontic Red Slip ware production in the late 5th and in the early 6th century is characterised by the decreasing presence of these finds in the cemeteries of Karši-Bair[110] and Skalistoe[111] in the south-western Crimea, Džurg-Oba near Kytaion[112] in the Kerch Strait region, as well as in Djurso[113] on the northern Caucasian coast (**Table 4**).

Vessels from other cemeteries were also examined during the reported analysis. They were not included in the list presented above as they come from Crimean necropoleis used for a long time, such as Černaja Rečka[114] and Pantikapaion / Bosporos,[115] from the ones identified only recently, such as Opuški,[116] or from some other isolated discoveries.[117]

Moreover, many intact or nearly completely preserved PRS vessels of undetermined or uncertain find places, stored in several museums, mainly in Russia and Ukraine, may have also originated from the above-mentioned and possibly other Barbarian cemeteries in the northern Black Sea littoral. They were gathered in the earliest phase of the archaeological activity, in the late 19th – early 20th century, and as a result of some accidental finds and rescue excavations conducted there before World War II, when the documentation of these discoveries was lost. 46 such vessels, mentioned in Chapter 2.2 and presented in detail in Chapter 4.5, constitute the supplementary evidence enriching our knowledge about the quality, range of shapes and decorations of the studied ware.

Finally, it is important to note that in the south-western Crimean and neighbouring cemeteries, used in the 4th and early 5th centuries, Pontic Red Slip ware was accompanied by numerous fine ceramics produced locally in Chersonesos or its vicinity.[118] In contrast, the Mediterranean red slip ware imports, African and Aegean, were extremely rare at that time. The situation changed in the late 5th and early 6th century, when PRS vessels were often deposited together with numerous LRC/PhRS ones, and in the latest graves dated to the first half of the 6th century, they became a minority among the dominating Aegean products. The tradition of depositing numerous and rich offerings in the family and other graves discontinued in the northern Black Sea region gradually after the middle of the 6th century.

108 Inhumation cemetery on the Taman Peninsula; in 6 graves 10 PRS, 1 LRC/PhRS and 1 ARS vessels were unearthed; Blavatskij 1941b, 44–48; Sorokina 1971, 97–98; Paromov 2003, 158; Gavrituchin, Kazanskij 2006, 301–303; Medvedev 2009, 182; Medvedev 2010, 360–361; Vorošilova 2011, 138; Medvedev 2013, 384–385; Vorošilova 2013, 125, 128–129; Šavyrina, Vorošilova 2013, 432–436.

109 Inhumation cemetery; 28 PRS and 1 LRC/PhRS vessels were found; Voronov 1969, 59–60, 92; Voronov, Jušin 1973, 171–187; Voronov 1975, 80–82; Voronov 1983, 89–94; Voronov *et alii* 1990, 26, 28; Voronov 2002, 340–341.

110 Inhumation cemetery in the Bel'bek river valley; 7 PRS and 12 LRC/PhRS vessels were unearthed; Ušakov, Filippenko 2003, 27–29; Ušakov, Filippenko 2008, 287–288; Ušakov 2010a, 97, Ušakov 2012, 96–98.

111 Inhumation cemetery in the Al'ma river valley; 3 PRS and 3 LRC/PhRS vessels were unearthed; Vejmarn, Ajbabin 1993, 15–16, 101, 190, 197; Ajbabin 2003a, 60–61.

112 Inhumation cemetery on the Kerch Peninsula; in 12 graves 12 PRS, 12 LRC/PhRS and 1 ARS vessels were unearthed; Gajdukevič 1959, 234–236; Molev, Šestakov 1991, 91; Ermolin, Juročkin 2002, 93; Ermolin 2003, 9–10, 13–14; Ermolin 2004, 14–23; Ermolin 2005, 129–130; Ermolin 2006, 11–14; Ermolin, Juročkin 2008, 57; Chanutina, Chršanovskij 2009, 60–64.

113 Inhumation cemetery at the northern foothills on the Caucasian coast: 9 PRS, 11 LRC/PhRS, 1 ARS and 1 LRLC vessels were unearthed; Dmitriev 1979a, 52–53; Dmitriev 1979b, 225–227; Dmitriev 1982, 81–83, 88–95; Kazanski 1993, 230–231; Kazanski, Mastykova 1999, 527–560; Kazanskij 2001, 44–47, 56; Mastykova 2002, 225–235; Kazanski 2002, 146, 154; Dmitriev 2003, 201; Gavrituchin, Kazanskij 2006, 301–308; Mastykova 2009, 187, 191–195.

114 Inhumation cemetery in the Černaja river valley; Babenčykov 1963, 93; Ajbabin 1984, 114–116; Ajbabin 1990, 15–17; Kazanski 1993, 214–215; Ajbabin 1996, 291; Ajbabin 1999, 254; Ajbabin 2003a, 16–17.

115 Inhumation cemetery on the Kerch Peninsula; Lysenko, Juročkin 2004, 94–95, 111–112, 128; Zin'ko 2017, 59–60, 103.

116 Inhumation cemetery in central Crimea; Maksimenkov 2021, 133–134.

117 These finds are listed in Chapter 4.5, according to the vessel forms they represent.

118 These vessels were the successors of the Chersonesos Sigillata; cf. above, Chapter 2.2, note 76.

Cemeteries / graves	PRS	LRC/PhRS	ARS
Družnoe			
grave 3	f. 1 + f. 2		
grave 4	f. 1 (2) + f. 2		
grave 18	f. 1 + f. 2		
grave 58	f. 1 + f. 2		
grave 64	f. 1 (2) + f. 2		
grave 66	f. 1 + f. 4 + f. 5		
grave 78	f. 1 + f. 2		
other (8) graves	f. 1 (3) + f. 2 (2) + f. 4 (3)		
Kilen-Balka			
grave 1968	f. 1 (4) + f. 2 + f. 11B + f. 15		
grave 3/1991	f. 1 (5) + f. 2 (3)		f. 67
other (2) graves	f. 1 (4) + f. 2		
Krasnaja Zarja	f. 1 (2) + f. 2 + f. 4 (2)		
Ozernoe III	f. 1 + f. 2		
Suvorovo			
grave 30	f. 1 (2) + f. 2 + f. 4		
grave 38	f. 1 + f. 2 (2)		
grave 53	f. 1 + f. 4		
other (6) graves	f. 1 + f. 4 (2)		f. 50B
Tas-Tepe	f. 0 + f. 1 (4) + f. 2 (3)		
Rozental'	f. 1 + f. 2 + f. 5 (2)		
Belen'koe	f. 0 + f. 1 (2)		

Table 1. Pontic and Mediterranean red slip vessels found in cemeteries and graves dated to the 4th century (when more than one vessel of a given form was found, the number of finds is in brackets).

Cemeteries / graves	PRS	LRC/PhRS	ARS
Sovchoz 10			
grave 77	f. 2 + f. 4		
grave 177	f. 1 (2)		
grave 219	f. 2 + f. 5		
grave 284	f. 1 + f. 4 + f. 14A		
grave SK6	f. 3 (2)		
grave SK7	f. 0 + f. 1		
grave SK8	f. 1 + f. 4		
grave SK9	f. 1 (3)		
grave SK10	f. 1 + f. 3		
grave SK12	f. 1 + f. 4		
grave SK14	f. 0 + f. 1		
grave SK20	f. 1 + f. 3 + f. 4		
other (21) graves	f. 0 + f. 1 (12) + f. 2 (4) + f. 3 (3) + f. 4 (3) + f. 5 (2) + f. 6 + f. 14A	f. 1D	
Inkerman	f. 1 (15) + f. 2 (5) + f. 3 (2) + f. 4 (3) + f. 5 (2) + f. 6 (2)	f. 1A	f. 59A
Nejzac			
grave 6	f. 1 + f. 2		
grave 321	f. 1 + f. 2 + f. 3 + f. 5		
other graves	f. 0 (2) + f. 1+ f. 2 + f. 3 + f. 4 (7) + f. 11B	f. 2B	f. 50B

Table 2. Pontic and Mediterranean red slip vessels found in cemeteries and graves dated to the 4th – early/mid-5th century (when more than one vessel of a given form was found, the number of finds is in brackets).

Cemeteries / graves	PRS	LRC/PhRS	ARS
Almalyk-Dere			
grave 2/2002	f. 1 + f. 3	f. 1A	
grave 6/2001	f. 1 (3) + f. 4 (2)		
grave 65/1998	f. 3 + f. 12B		
grave 155/2003	f. 1 (2) + f. 3 + f. 4		
grave 158/2003	f. 1 + f. 4		
grave 161/2003	f. 1 + f. 12A		
grave 163/2004	f. 3 + f. 4		
grave 191/2007	f. 3	f. 5A/B	
other (24) graves	f. 0 + f. 1 (10) + f. 3 (7) + f. 4 (7) + f. 6 (2) + f. 7 + f. 8	f. 2A + f. 3D (3) + f. 3E	
Krasnyj Mak			
grave 2	f. 0 + f. 1 + f. 3 (2) + f. 4 (2) + f. 6 + f. 11B	f. 1D	
grave 10	f. 1 + f. 4		
other (8) graves	f. 0 (2) + f. 1 + f. 3 (2) + f. 4 (2) + f. 6 (2) + f. 7		
Lučistoe			
grave 88	f. 3 + f. 4 (3) + f. 6 (2)		
grave 100	f. 1 + f. 3		
grave 126	f. 0 + f. 3		
other (5) graves	f. 1 (2) + f. 4 + f. 6	f. 3D	
Phanagoreia			
grave 50	f. 1 + f. 3 (2) + f. 7		
grave 169	f. 3 (3)	f. 2B	
other (4) graves	f. 1 + f. 3 + f. 4		f. 67
Šapky	f. 0 + f. 1 (20) + f. 3 (6) + f. 7	f. 3D	

Table 3. Pontic and Mediterranean red slip vessels found in cemeteries and graves dated to the late 4th/early 5th – mid-/late 5th century (when more than one vessel of a given form was found, the number of finds is in brackets).

Cemeteries / graves	PRS	LRC/PhRS	ARS	LRLC
Karši-Bair				
grave K-BI/5	f. 1 + f. 7	f. 3D (2)		
grave K-BII/3	f. 1	f. 3C/E		
grave K-BII/4	f. 3 + f. 5			
other graves	f. 3 + f. 7	f. 3C (4) + f. 3D (3) + 3F (2)		
Skalistoe				
grave 3v		f. 3F		
grave 127e	f. 7			
grave 406		f. 3F + f. 5B		
grave 421	f. 0			
grave 434	f. 4			
Kytaion, Džurg-Oba				
grave 1	f. 7	f. 3C + f. 3F		
grave 2	f. 1		f. 67	
grave 5	f. 0 + f. 3 + f. 6			
grave 16		f. 3C + f. 3F		
grave 17		f. 3D + f. 3E		
other (7) graves	f. 1 (2) + f. 3 + f. 6 + f. 7 (3)	f. 3E (4) + f. 3F (2)		
Djurso				
grave 419		f. 3F + f. 3G		
grave 420	f. 7	f. 3C		
grave 422		f. 3G	f. 99B	
grave 479	f. 1	f. 3C		
other graves	f. 1 (2) + f. 4 + f. 7 (4)	f. 3C + f. 3E (2) + f. 3F/G (2) + f. 3G		jug

Table 4. Pontic and Mediterranean red slip vessels found in cemeteries and graves dated to the mid-5th – mid-6th century (when more than one vessel of a given form was found, the number of finds is in brackets).

4. DEFINITION OF THE WARE, CHRONOLOGY AND CLASSIFICATION OF VESSEL FORMS

The pottery described below was the most popular kind of fine tableware used in the region of the Black Sea from the early 4th until the late 5th century and later on, at a reduced scale, until around the mid-6th century. So far these vessels have not been exhaustively described in the literature. An initial analysis of the macroscopic features of their clay and slip has revealed that they do not represent any of the Mediterranean red slip wares, described by J. W. Hayes (1972).[119] On the other hand, the clay and slip of the investigated vessels are very similar to those of the Early Roman Pontic Sigillata.[120] However, the repertoire of the shapes is so different that it is impossible, at the first glance, to indicate almost any common elements for the majority of the Early and Late Roman Pontic vessels.

The analysis of the distinguished fine pottery vessels, sharing specific physical and technological features, involved identifying and describing their standardised shapes, determining their datings, and tracing their distribution. The studies of the published materials revealed that the long-distance exports of the Pontic Red Slip vessels were conducted mainly via maritime trade routes within the Black Sea basin, especially along the eastern and northern littorals, and into the Azov Sea up to the Don river delta. This distribution is very similar to that of the Pontic Sigillata, the only difference being that a slight proportion of the Early Roman vessels was recorded also in the Mediterranean whereas, as far as it is known today, the Late Roman Pontic Red Slip ware ones did not reach not only the Aegean, but they have not been recorded in Constantinople yet. Usually, their distribution pattern embraces the Black Sea coastal areas with their close hinterlands. Only recently it was possible to confirm their presence well inside the northern regions of Asia Minor, in Paphlagonia and Pontus, and at a considerable distance from the Black Sea to the west, along the Danube.

The most popular of the investigated vessels have been mentioned in several publications and identified in various ways. Initially, they were generally described as being imported from the Aegean or from Asia Minor.[121] In the recent years, they were erroneously identified as red slip ware imports from the Mediterranean.[122] Only in the short article about the finds of Late Roman red slip wares near the Danube delta, published in 1985, A. Opaiț listed four forms of the discussed pottery, assigning them explicitly to the Black Sea (Pontic) region.[123] He noticed the macroscopic and morphological features, distinguishing them from the main imported groups: the Aegean Late Roman C / Phocaean

119 In comparison to the Mediterranean red slip wares of the highest quality, the macroscopic features of the discussed vessels are most similar to those of the Late Roman D / "Cypriot" Red Slip ware (Hayes 1972, 371–386) from Pamphylia in southern Asia Minor. However, their repertoire of shapes is generally different, and the results of the physico-chemical analyses (cf. Appendix 2) showed that the both wares were made in different production centres.

120 Hayes 1985, 92–96, pls. 22:6–10, 23; Žuravlev 2010, 40–69, with further references. Pontic Sigillata vessels were manufactured from around the mid-1st until the mid-3rd century in so far unidentified workshops, possibly located in northern Asia Minor. Their distribution embraced mainly the Black Sea coastal areas, but some vessels were found also in the Aegean, Cyrenaica, Sicily and Ostia.

121 Cf. above, Chapter 2.2, notes 38–45.

122 Especially in publications by A. V. Sazanov the most popular PRS forms were mistakenly identified as the ARS, LRC/PhRS and LRD/CRS ones; see above, Chapter 2.2, notes 52–60, 62.

123 Opaiț 1985, 154–159.

Red Slip ware and from the western Mediterranean African Red Slip ware, and pointed out the parallel finds of such forms in the Crimea and Abkhazia. However, the pottery distinguished in this way was rather uncommon in the lower Danube area. For that reason, the appropriate identification did not lead to any further studies on that group, and the remarks on the Pontic vessels were marginalised, if not completely ignored, in the following years.

The analysis of the Late Roman and Early Byzantine red slip wares from the Black Sea region, carried out by the author in the last decades, has revealed that the vessels described below are very numerous in almost the whole investigated area, with the exception of its south-western part, and allowed to present their tentative typo-chronological classification. On the basis of the shared morphological features, altogether 16 standardised vessel forms, both open and closed, have been distinguished.[124] The physico-chemical laboratory analyses of the samples collected from the vessels representing the most popular forms, found at several archaeological sites, have confirmed that the identified group of pottery is almost homogenous and was produced in a so far unknown pottery-making centre. The results of the laboratory analyses indicate the existence of one production centre or several of them, which used significantly differnt deposits of raw materials. An overview of the shapes of the vessels presented below, their quality and decoration, demonstrate that they represent the highest class of fine pottery produced in the Late Antiquity.

The distinguished group, like the five leading Late Roman red slip wares produced around the Mediterranean basin with supra regional distribution in *pars Orientis*, described earlier in the literature, was also the subject of a considerable long-distance maritime trade. Three of them: the African Red Slip ware, Late Roman C / Phocaean Red Slip, and Late Roman Light Coloured wares, had exceptionally supra regional distributions. The vessels representing the remaining ones, Late Roman D / "Cypriot" Red Slip and Egyptian Red Slip wares, were generally distributed within the eastern part of the Mediterranean. The existing evidence indicates that the distribution of the Pontic Red Slip vessels embraced a comparable area, and did not exceed the Black Sea basin towards the Mediterranean.

4.1. MACROSCOPIC AND PHYSICO-CHEMICAL CHARACTERISTICS

The detailed macroscopic observations of a large number of the Pontic Red Slip vessels and their fragment, found in various parts of the Black Sea coastal regions and in the adjacent areas, as well as the laboratory analyses, have allowed to present a description of the typical features of their clay and slip.

The discussed vessels were made of fine-grained, perfectly purified and very dense clay. The only distinguishing elements are the regularly but not frequently occurring usually small grains of lime, white-cream in colour, and the very occasionally visible extremely fine flakes of silvery mica, found almost exclusively in the rather softly fired vessels.

The slip is usually of good quality and completely covers the vessels on the inside, where it was applied and spread very carefully in a thick layer, which is sometimes indicated by the traces of a brush. On the outside, similarly to the other leading red slip wares manufactured in the Late Antiquity and later, the slip covers completely only the upper parts of the vessels. Below the rim, the cover is rather complete but sometimes has the form of irregular runs. On the bottom's underside, inside the ring-foot, there is usually no slip or only its irregular streaks and patches. This concerns both the open and closed vessels. The slip on the external surfaces of the open vessels is thinner than on the internal ones, but it is thick enough for the irregular line to which it reaches, to be very well visible (**Pls. 3, 7–8, 13, 16–17, 22, 27, 29–30, 35, 40, 43, 45, 48, 50, 52**).

124 Some initial observations and results of the author's research on the Pontic Red Slip vessels were presented in: Domżalski 1996, 106–107; Domżalski 2000, 163–166; Arsen'eva, Domżalski 2002, 422–428, 453–479; Domżalski 2007; Krapivina, Domżal'skij 2008, 76–79; Domżalski 2016–2017, 76–78.

A typical feature of the described imperfections of the slip covering the external surfaces are the traces of the potter's finger marks, often visible on the walls of the open vessels and in the lower parts of the jugs. These traces have the form of discolourations in the places where the pressure was applied and the runs directly underneath them (**Pls. 3, 7, 13, 17, 22**). This feature generally does not occur on vessels of the red slip wares of the Mediterranean provenience, which indicates the use of different methods of covering them with the slip in either case.

The traces of fingerprints and the runs below illustrate how the Pontic vessels could have been covered with slip. As it seems, the open vessels were partly submerged in a tank with the slip, being held by the wall and possibly the bottom, deep enough to cover the external walls almost to the level of the ring-foot. Lack of slip on the bottom undersides of large open vessels indicates that they were submerged with care, and these large surfaces were intentionally left without slip in order to save the material. Some slip was poured inside the vessels and spread on the inner surface by moving the vessels around, and then the excess was poured back into the tank. The remaining slip was carefully spread with a brush, obliterating the traces of fingers there. On the outside all the imperfections mentioned above were usually left undisturbed.

The closed vessels were submerged in a tank with slip being held by the foot and the lower part of the belly, which therefore were only partially covered with slip, showing sometimes again the traces of fingerprints and the runs of slip below them. In the upper parts of the jugs, including most of the belly, the slip was spread very carefully. Inside the vessels the slip reached at most halfway the neck below the mouth, and often only just below the edge of the mouth.

After firing, the slip usually became glossy, but there are also some partly or completely dull vessels. The inside surfaces are generally slightly less glossy and more uniform, as well as more delicate in appearance. On the outside the gloss is sometimes very intensive, metallic, but usually heterogeneous and patchy.

The Pontic Red Slip open vessels were fired in stacks placed directly inside the chamber of the kiln. This is indicated by the frequent discolourations on the outside of the rims and upper parts of the walls. These are the traces of the local influence or streams of too high temperatures resulting in brown-grey, light or dark grey burns. This concerns especially the most popular large dishes and only sometimes also the small bowls. It is interesting to note that the burns affected not the whole perimeters of the rims but only their rather small fragments, as indicated by the several completely preserved vessels (**Pls. 7, 17, 22, 27:91**).

The final appearance and characteristics of the Pontic Red Slip vessels, such as the colour of the clay and slip, the type of break and the hardness of the body, are the outcome of the process of firing. It seems that the two basic sets of macroscopic features distinguished below are typical of the vessels fired in slightly higher or lower temperatures. This is indicated by the sometimes observed differences in the appearance of the clay and slip in the opposite parts of the rims and walls of the large dishes. This suggests that the considerable differences in the colour and hardness of the aforementioned vessels were not caused by a different composition of the raw materials used, a technology of their preparation or a length of the firing process, but by the uneven distribution of the temperatures in the chamber of the kiln. The laboratory analyses (see below) allowed to determine that the Pontic Red Slip vessels were fired in the temperatures ranging from 900°C to 1050°C, and that the rims of the vessels were generally exposed to higher temperatures than their remaining parts. This range is typical of the technology used in the Roman period, in the Late Antiquity and in the Early Byzantine times, for producing the highest class red slip table wares.

The bodies of the hard-fired vessels have smooth and even breaks, sometimes revealing small holes resulting from burning out organic impurities or larger grains of lime. Similar holes are sometimes visible also on the surface of the Pontic Red Slip vessels. The clay of the hard-fired products is extremely dense and hard, pink-brown in colour (2.5YR 6/4–6/6

or 5YR 6/4–6/6),[125] with small white grains of lime sparsely visible in the break. The colour of the slip is similar, usually only slightly darker, brown-pink (2.5YR 5/4–5/6 or 10R 5/6–4/8). The slip has a delicate or intensive, metallic gloss or is completely dull.

The breaks of the vessels fired softer are less regular, rather coarse, and the sherds are moderately hard. The clay in such cases is orange-brown or orange-buff in colour (2.5YR 6/8–5/8 or 5YR 7/8–6/8–6/6). The slip is slightly darker, brown-orange (2.5YR 5/8), rather lustrous or dull. The analysis of a large number of the Pontic Red Slip vessels and fragments has indicated that the proportion of the hard fired products is only slightly lower than that of the ones fired in milder conditions. Moreover, some vessels reveal intermediate features. In these cases the clay is pale pinkish-brown (2.5YR 5/6), moderately hard, and the slip is brown-reddish (2.5YR 4/8).

Some of the Pontic Red Slip ware open and closed vessels bear traces of turning on the underside of the bottom, ring-foot, or base (**Pls. 9:31, 12:45, 21:74, 26:89,91,95, 28:102–103, 29:106, 108, 34-35:127, 36:132, 39:138,140,142, 42:147, 44:149–150,154, 46:155, 47:157, 49:161, 51:164–165**). They indicate that the vessels were lifted off the potter's wheel without stopping it, and their bottom parts were not smoothed out carefully enough. This is one of the typical features of the Pontic vessels, very rarely encountered in the other leading Mediterranean red slip wares.

The key stage in the process of verification of the hypothesis that the distinguished vessels represent products of a Pontic origin was the analysis of the chemical composition and the physical features of their clay. To this end, 55 vessels and fragments of various forms, found at several archaeological sites, were selected (Appendix 1). Next, the analysis of the chemical composition of the samples taken from these fragments was carried out at the Arbeitsgruppe Archäometrie, Freie Universität Berlin, with the use of the Wavelength-Dispersive X-Ray Fluorescence (WD-XRF) method (Appendix 2). The analysis showed that the composition of the respective elements and chemical compounds in the clay of all the investigated Pontic Red Slip vessels is distinctive and differs significantly from the mean values typical of the other, previously analysed, Late Roman red slip wares of the Mediterranean provenience (ARS, LRC/PhRS and LRD/CRS),[126] confirming that the identification of the Pontic vessels was made properly.

Basing on the noticeable differences in the contents of the five elements (Ti, Fe, Mg, Cr, Ni), the main sub-group (A) has been distinguished among the Pontic Red Slip vessels, comprising 48 analysed samples, and the minor sub-group (B), composed of six samples. At present it is not possible to explain unequivocally these small anomalies, since the other elements and chemical compounds are generally homogeneous. Such phenomena are also found in the other red slip wares manufactured at large areas for long periods of time. It may indicate that there existed several workshops, or that one centre used several clay deposits located, however, one relatively close to another. As the exact place of origin of the investigated Pontic Red Slip ware, which was produced for about two centuries, is not known, neither of these possibilities can be excluded.

Moreover, thin sections of four fragments of the most typical vessels from the two distinguished Pontic Red Slip ware sub-groups have been made (Appendix 2). Revealing the mineralogical composition of the raw materials, they also confirmed the differences in the structure of clay of the samples from the two distinguished sub-groups.

In order to complete the physical characteristics, 10 samples taken from various forms of the vessels from the two sub-groups were submitted to the Matrix Grouping by Refiring (MGR) analysis (Appendix 2), which allowed to follow the reactions of the samples to firing in increasing temperatures. This is one more criterion verifying if the investigated pottery represents

125 Colour determinations were made according to Munsell 1990.

126 Empereur, Picon 1986; Mayet, Picon 1986; Schneider 2000, 527–534; Mackensen, Schneider 2002; Mackensen, Schneider 2006; Schneider, Daszkiewicz 2005; Schneider, Japp 2009; Schneider, Daszkiewicz 2020, 429–430.

vessels coming from the same production centre, and allows to determine the temperatures in which they were originally fired. The analysis revealed a noticeably different reaction of the samples to the respective thermal conditions, confirming the existence of the distinguished sub-groups A and B. The original firing temperatures for the Pontic Red Slip ware vessels have been established as falling within the range of 900°C – 1050°C.

4.2. INTRODUCTION TO MORPHOLOGICAL ANALYSIS

The Pontic Red Slip ware comprises ten forms of open vessels, called forms 0 – 9, and six shapes of jugs, forms 10–15 (**Figs. 1–2**). The shapes of the mass produced open forms, mainly the large dishes, were strongly standardised. The finds of smaller bowls and closed vessels are less numerous. All the forms represent plain wheel-turned vessels made without the use of moulds. They are rather thick-walled, comparable in this respect with the standard version of the African Red Slip vessels, called ware D, with the more popular in the Pontic region earliest imports of the Aegean Late Roman C / Phocaean Red Slip ware, or with the Late Roman D / "Cypriot" Red Slip ware.

The most numerous vessels of the discussed group, produced for a long time, were large, deep dishes with a diameter of the rim ca. 22 – 32 cm. They had high, sloping walls and flat floors with a ring-foot of a large diameter, ca. 10 cm smaller than the diameter of their rims. They first appeared in the early 4th century and were produced until the first half of the 6th century. There are three variants of these vessels, differing mainly in the shape of their rims whereas the other diagnostic elements remain unchanged. These dishes were classified into three forms: 1A–1A/B–1B, 2A–2B, and 7A–7B. Forms 1A and 2A–2B are the earliest, dated to the initial phase of the Pontic Red Slip ware production in the 4th century, whereas forms 1B and 7A-7B represent the vessels produced in the latest phase, in the second half of the 5th and in the first half of the 6th century.

The basically undecorated dishes, form 1, with a plain, slightly incurved rim, were produced for the longest time, becoming the most popular and recognisable vessel of the Pontic ware. The similar deep dishes with different rims, forms 2 and 7, were manufactured parallelly, but in significantly shorter periods. As the production of form 1 lasted for such a long time, the early and late vessels differ in their details. These differences served as a basis for distinguishing two variants of the discussed form: the early variant 1A characterised by a rim with a narrow edge and thick walls, as well as the late variant 1B with a rim rolled inside, and distinctly thinner walls. Moreover, an intermediate variant 1A/B may be distinguished, characterised with rather thin walls and slightly rounded rim, dated to the first half or the first to third quarter of the 5th century, as well as a series of vessels with somewhat irregular rims and rather massive walls and floors, representing the early phase of production from the 4th century.

The undecorated dishes, form 2, with a small outturned or horizontal rim, ceased to be produced much earlier than form 1. Due to the shape of the rim, two basic variants can be distinguished: the earlier one with a narrow and slightly outturned rim (2A), and the later one with a somewhat wider, horizontal or slanting inwards rim (2B). The dating of this form does not go beyond the 4th century.

Around the turn of the 4th and 5th centuries, form 2 was replaced by the shallower and usually larger dishes, called form 3. These were vessels with a diameter of ca. 27 – 36 cm. Their specific feature is a wide, horizontal rim, commonly slanting inwards slightly. The shapes of some vessels representing the late variant of form 2 are morphologically very similar to form 3, which may suggest that the introduction of the new shape was the result of a gradual change of form 2. Dishes of form 3 are the only ones from the discussed fine ware, which were often decorated on their floors and rims, mainly with the use of a comb-like tool. The combed motifs were complemented with numerous grooved circles on the floors or lines running along the rims. The compositions on the floors were rarely completed by imprints of specific small motifs made with the use of the edge of a comb. This form is dated to the first three quarters of the 5th century.

Towards the end of this period, at the beginning of the second half of the 5th century, there appeared a new shape of the dish mentioned above, called form 7, with knobbed (7A) or narrow horizontal (7B) rims, usually double grooved on its upper surface. These vessels finally replaced the dishes, form 3, but for a certain period of time these two forms could have been produced together, which is indicated by the finds of both forms in several contexts, and by sporadic occurrence of the combed decoration on the earliest large dishes, form 7. The later, standard vessels of this form were usually not decorated in this way.

The dishes described above have broad, flat floors, slightly raised in their central part. Also the well-defined ring-foot of a large diameter with a characteristic undercut above its outer edge does not vary much in all of these forms. The sequence of the distinguished leading shapes of the large dishes, forms 1, 2, 3 and 7, embrace three "generations" of products replacing each other, which represent three main phases of manufacturing the Pontic Red Slip ware: the early phase (forms 1A and 2), dated to the second to fourth quarter of the 4th century, the medium phase (forms 1A/B and 3) in the first to third quarter of the 5th century, and the late phase (forms 1B and 7) dated to the second half of the 5th and the first half of the 6th century.

All the above-mentioned forms have their prototypes in the vessels produced in the Mediterranean by the leading centre manufacturing the African Red Slip ware. The most popular Mediterranean red slip vessels were imitated from the very beginning of the Pontic Red Slip ware production and later on.[127]

In addition to the dominating dishes, forms 1–3 and 7, another large dish of a completely different shape has been distinguished recently and called form 9. This is a deep dish with a knobbed rim similar to that of form 7, but it has more rounded walls and an unusually high ring-foot, unparalleled to the above-mentioned forms. This vessel was introduced in the late 5th century, as it is indicated by the rim similar to form 7, and by the high ring-foot similar to the African Red Slip ware form 93.[128] Also the reduced combed decoration in the form of a wavy band on the rim, as well as the imprinted and grooved medallion on the floor suggest the production time contemporaneous to the rather early dishes of form 7.

The finds of the bowls of various diameters, usually between 10 – 20 cm, with vertical and slightly incurved rims, are less common. All these vessels have been determined as forms 0A–B and 4A–D. Their shapes are rather ordinary and they can be sometimes confused with similar vessels of the Early Roman Pontic Sigillata. Their characteristic distinguishing feature seems to be, however, the rim which is usually vertical or only slightly incurved, similar to form 1A. These forms probably derive directly from similar bowls of the late phase of the Pontic Sigillata production, dated to the first half of the 3rd century.[129] The feature which links these vessels, besides their similar shape, is the characteristic depression sometimes visible in the floor's underside. However, the Late Roman vessels have slightly thicker walls and were formed less carefully.

The largest vessels of form 4A are characterised by vertical rims with a narrow edge. It seems that the prototype of this variant was one of the earliest but produced for a long time (early 4th – 5th – early 6th century) Pontic Red Slip ware shapes called a 'transitory' form 0, due to its close similarity to the latest vessels of the Pontic Sigillata from the mid-3rd century. They have a distinctive, vertical rim, and the place where it is connected to the wall is always marked on the outside with a more or less carefully made edge, often accompanied by a single groove.

Besides, some other small Pontic Red Slip ware bowls have been distinguished as forms 5 and 6. Form 5 can be described as a specific variant of the standard bowl, form 4, characterised

127 A detailed discussion about the influence of the North African production on the regional red slip ware manufacturers is presented below, in Chapter 5.2, and illustrated in Figs. 7–10.

128 Cf. below, Chapter 5.2, Fig. 10.

129 Cf. below, Chapter 5.2, Fig. 11.

by a small bulge at the edge of the slightly outturned rim. The next bowl, form 6, is a smaller equivalent of the popular dish, form 3, with a large horizontal rim, sometimes slanting inwards. This stylistic similarity is confirmed also by a sporadically occurring combed or imprinted decoration on the rim, typical of the above-mentioned large dishes, form 3.

Due to the smaller number of their finds, the bowls discussed above can be dated less precisely. The analysis of the contexts and the morphological features indicates that bowls, forms 0 and 4, were produced the longest, probably from the early 4th until the early 6th century. Form 5 was found in the contexts dated to the mid-4th – mid-5th century, and the chronology of production of form 6 is similar to that of form 3, embracing the first three quarters of the 5th century.

The last bowl, called form 8, is a small or medium-sized vessel with the shape similar to form 6, but its distinctive feature is the knobbed or small horizontal rim, clearly narrower than in form 6. This rim resembles the double-grooved rims of the large, deep dishes, form 7. Since so far only one find of this rare form has been made in a dated context, this morphological similarity is the main chronological indication suggesting that it was produced in the second half of the 5th – early 6th century.

Besides the open vessels, the repertoire of the Pontic Red Slip ware embraces also six forms of jugs (**Fig. 2**). This considerable proportion of the closed shapes among the Pontic vessels clearly differs this ware from those of the Mediterranean production centres where mostly or exclusively open vessels were made. Only the North African, ARS centres produced several forms of closed vessels but this production embraced mostly the Early Roman period, and was marginal in comparison to that of the open forms.[130] The Aegean, LRC/PhRS potters offered no jugs among their products, and only exceptionally rarely encountered forms of closed vessels are known for the LRD/CRS and LRLC wares.[131]

Six shapes of Pontic Red Slip ware jugs were determined as forms 10–15. Four of them are rather slim or only slightly squat vessels on a standard ring-foot or on a more massive, extended foot of triangular cross-section, and with plain or trefoil mouths (forms 10–12 and 14). The two remaining forms (13 and 15) are squat, flat-based vessels with the similar mouths. Most of the jugs are rather small with a height of ca. 20 cm. Only some vessels of form 11 are almost twice as large. Almost all of them have distinctive, single or double, decorative collars on their necks, and some of them were also embellished with incised or combed wavy lines or bands in the lower or upper parts of their bellies. All the above-listed forms share a number of common morphological features, such as the specific shape of the rim, ring-foot and belly, which are shown in **Fig. 3**, and discussed in detail below, in Chapter 4.5.

The first vessel, form 10, is a jug with a ring-shaped mouth, a short neck, and an oval-shaped belly on a ring-foot, resembling the feet of the small bowls, forms 4–6. It is possible to distinguish two variants of this form: 10A – with an oval-shaped belly, and 10B – with a spindly belly. A very similar jug, form 11, has a distinctive, massive foot with a narrow, rounded or blunt edge, and a specific waist above the foot. The characteristic feature of the next jug, form 12, is a funnel-shaped mouth with a plain rim. Generally, the shapes of these vessels resemble the jugs, form 10. In both cases two variants can be distinguished: 11A–12A – with an oval-shaped belly, and 11B–12B – with a spindly belly.

The next jugs, forms 13–14, have a trefoil mouth, squat or spindly belly with characteristic waist above the solid foot, resembling the foot of form 11, or the flat base with the residual ring-foot. The last vessel, described as form 15, is slightly different from the above-listed jugs. It has a ring-shaped mouth, and a squat, wide, almost cylindrical belly, slightly tapering towards the flat base, resembling the shape of form 13. The only standard element shared with

130 *Atlante* 1981, 41–52, 75–77, 116–117, 147–183, pls. 20–23, 31:13–19, 73:10–12, 74–75, 77:7, 89–93, 132–134, 136:4–6, 141:3–6, 142, 147–154. ARS closed vessels were distributed mostly in their home region and usually were not a subject of the long-distance trade.

131 Hayes 1972, 383–385; Ergürer 2014, 187–188, pl. 6:31–32; respectively.

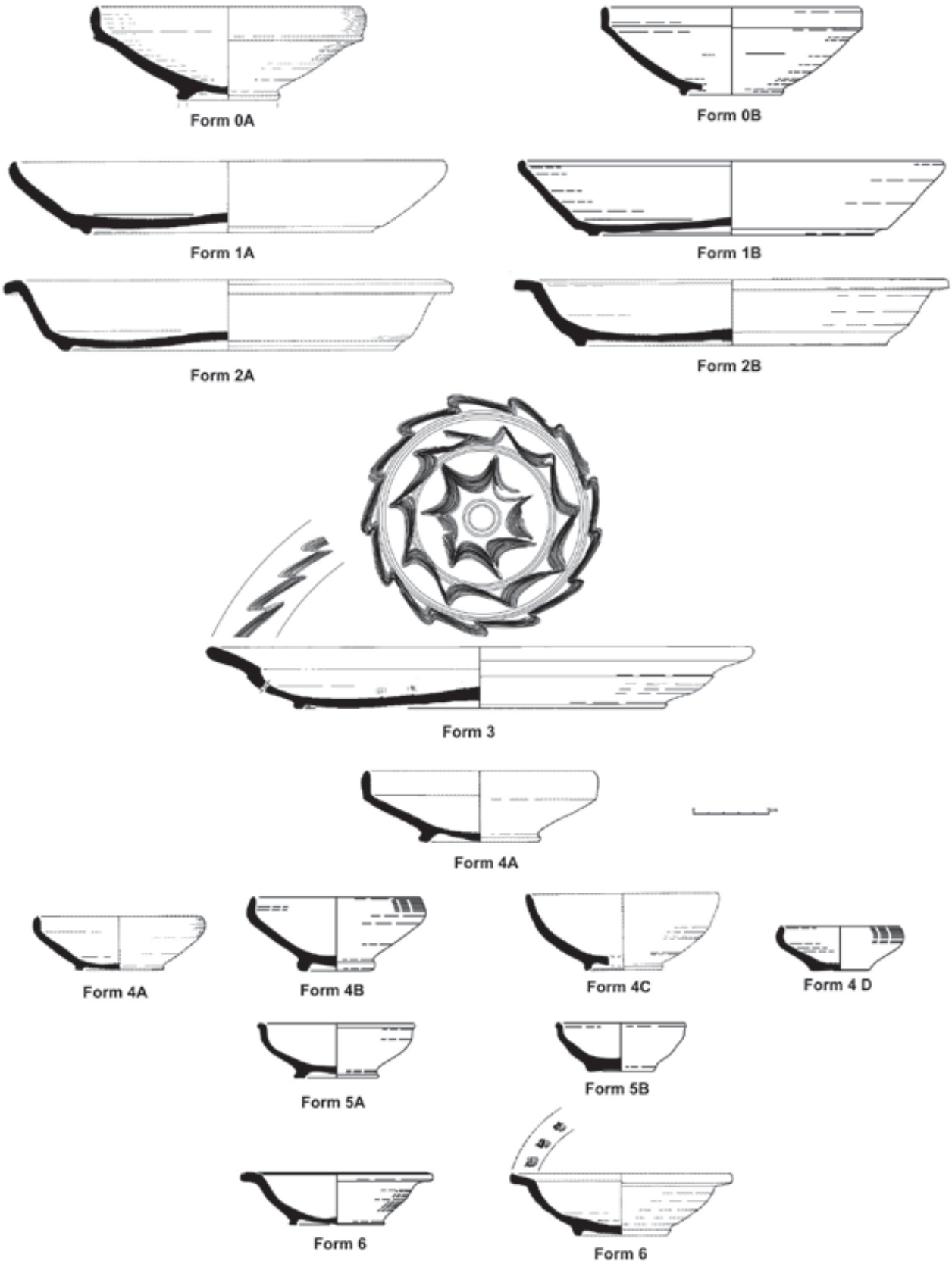


Fig. 1. Pontic Red Slip ware forms 0 – 6.

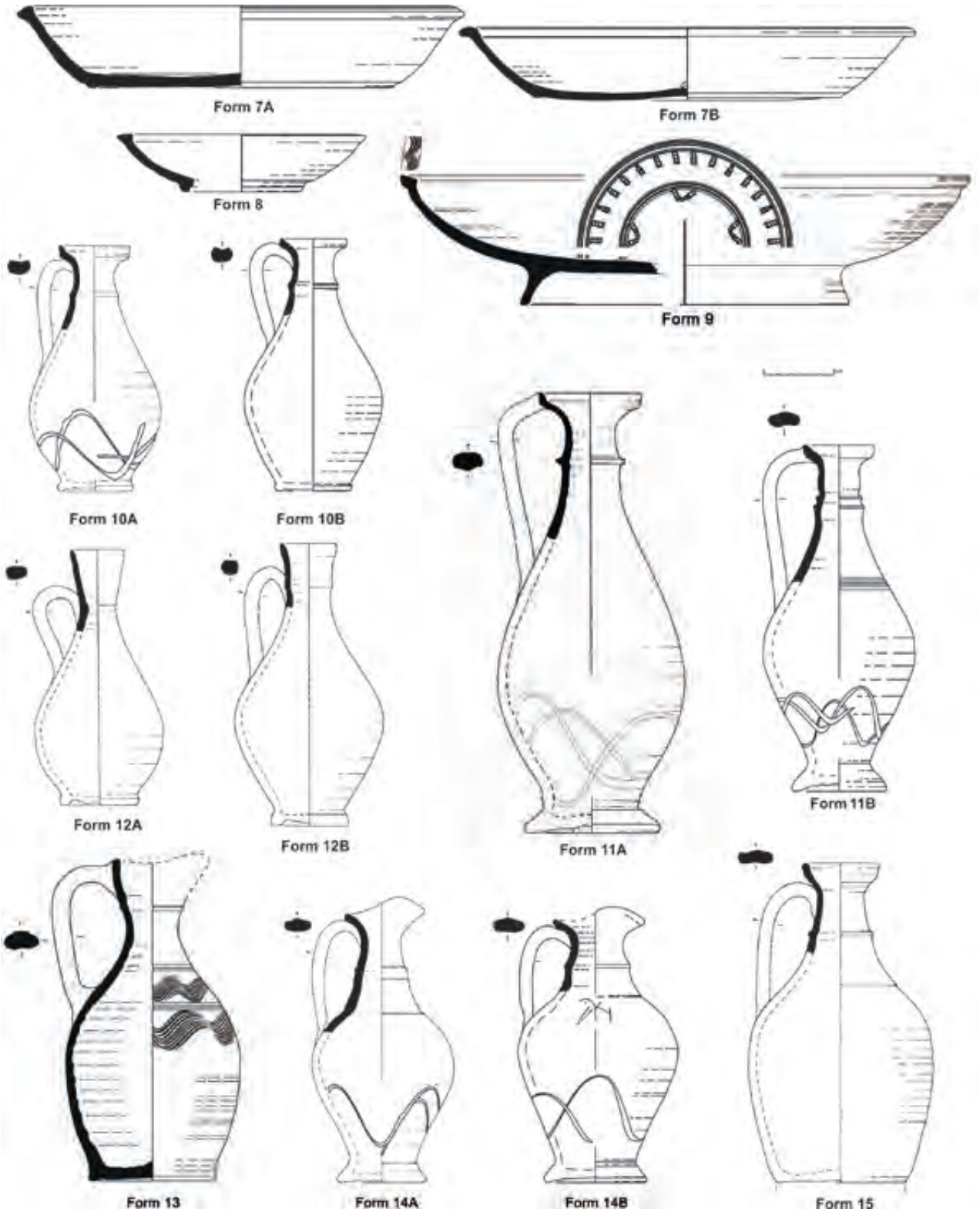


Fig. 2. Pontic Red Slip ware forms 7 – 15.

the other forms is the neck with a characteristic ring-shaped, single or double decorative collar.

The jugs representing all the forms described above are rather uniform in their style. This is evidenced by the way the diagnostic elements were shaped, and by the presence of decorative collars on the necks of all jugs. However, there are some differences in the general shapes of these vessels, which allow to divide them into two sub-groups (**Fig. 3**). In the first sub-group (forms 10 – 12) the widest part of the jug is in the lower or middle part of the belly. The second sub-group (forms 13 – 15) is made up from the jugs, in which the widest part of the vessel was in the upper part of the belly.

The discussed vessels differed considerably in their dimensions and volumes. It seems that the small jugs, forms 10 and 12, with the height of ca. 18 – 20 cm and volumes of ca. 0.3 – 0.5 l, were the most popular. The medium-sized vessels, forms 13–15, with their average height of ca. 20 – 22 cm and volumes of ca. 0.5 – 1.0 l, were also quite frequently encountered. The largest vessels, form 11, which had the greatest height of ca. 33 – 37 cm and volumes of 1.5 – 2.0 l, were less common. The last mentioned form, unlike the other ones, included vessels of all heights and volumes, from the smallest to the largest ones. The most numerous vessels of that form are, however, the largest jugs, imitating the most elegant prototypes made of metal.

As the majority of the jugs had rather similar, slim shapes, the volume of the vessels, forms 10–12 and 14A, was related to their height. Only the jugs, forms 13, 14B and 15 had a larger volume due to their more squat shapes. It seems that the smallest Pontic Red Slip ware jugs are of similar dimensions or only slightly smaller than their metal prototypes, whereas the largest vessels of form 11, which are up to 37 cm high, are significantly smaller than the largest metal vessels of comparable shapes, which sometimes reached the height of 50 – 55 cm.

The chronology of the closed vessels is as a rule determined less precisely than that of the open ones. This is due to the much lesser scale of their production and the fact that a broken jug produces fewer diagnostic fragments than an open vessel. Many of the best preserved Pontic Red Slip ware jugs were found at the end of the 19th or at the beginning of the 20th century in grave assemblages, but the contexts of these earliest discoveries are unknown today. Basing on the analyses of the contexts of the remaining recorded finds, as well as of the respective morphological and technological features and decorations shared by the open and closed vessels, it is possible to date the major period of production of the closed vessels to the second half of the 4th and the first half of the 5th century.

The shapes of the jugs, especially forms 11 and 14, perfectly match the style of the vessels from the Late Antiquity, introduced by the elegant metal products, particularly those made of silver.[132] As it has been mentioned above, in the Mediterranean red slip wares, closed vessels are either sporadic (ARS, LRLC, LRD/CRS) or do not occur at all (LRC/PhRS).[133] Therefore, it may be assumed that the shapes of the Pontic Red Slip jugs were directly inspired by the metal vessels. They differ considerably from the Early Roman lagynoi and other jugs with a spherical belly and a long neck. In the Late Antiquity, slim jugs with an oval-shaped or spindly belly, rather short neck and a wide mouth, were predominant. Similar shapes are also found in the repertoire of the glass vessels,[134] in the provincial Late Roman glazed, burnished and plain pottery, as well as even among the Černjachov culture vessels.[135]

132 Cf. below, Chapter 4.5, notes 200 and 204–205.

133 Cf. above, notes 130–131

134 Cf. below, Chapter 4.5, notes 198, 201, 203 and 206.

135 Cf. below, Chapter 4.5, notes 197, 199 and 201; respectively.

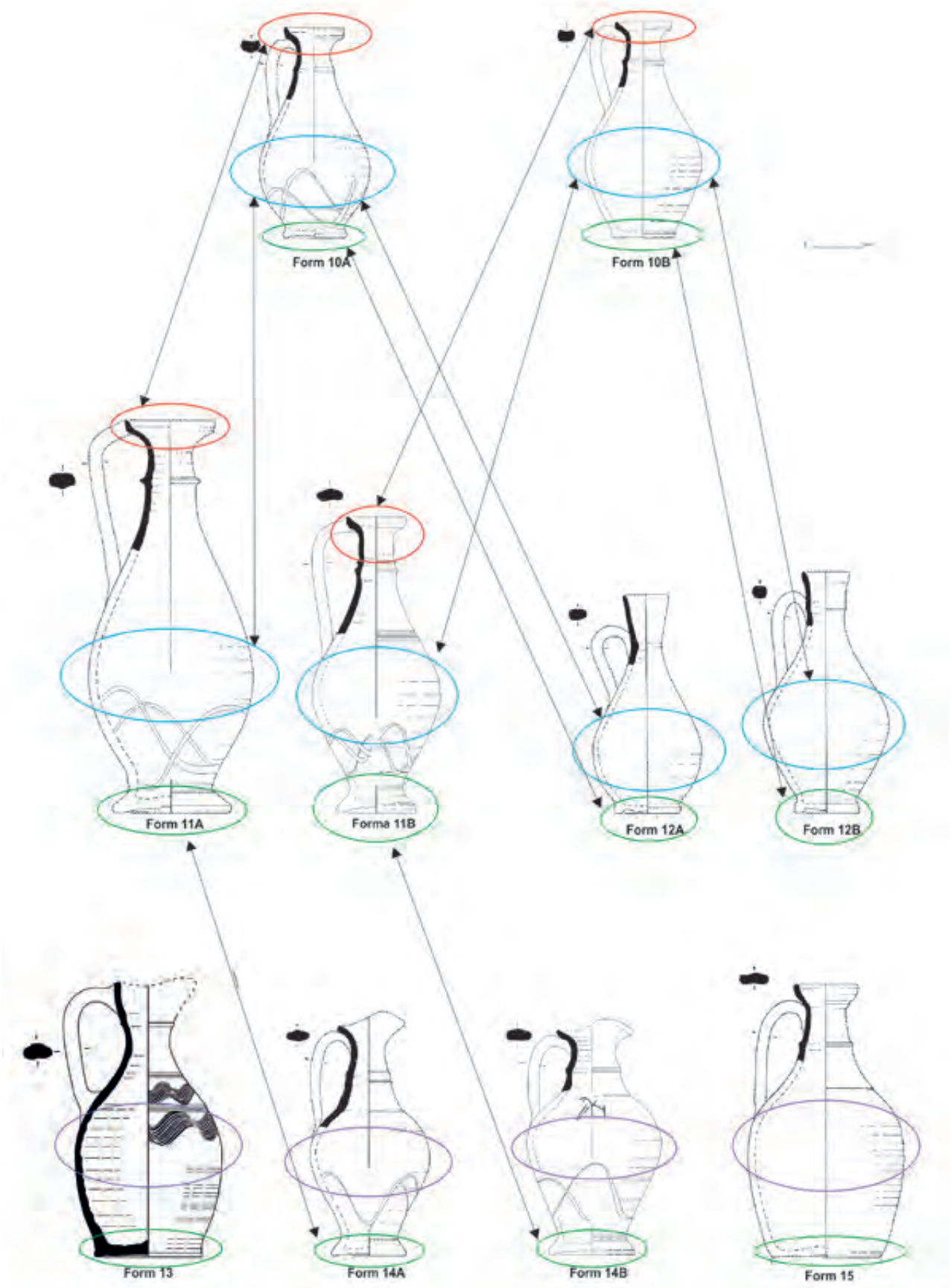


Fig. 3. Pontic Red Slip ware jugs with characteristic morphological features.

4.3. DECORATION, POTTERS' AND USERS' MARKS

Pontic Red Slip ware open vessels, dishes and bowls, were decorated very rarely. The only vessel form which relatively often had ornaments is the large dish, form 3. The other, sporadically embellished open vessels were dishes, forms 1, 7 and 9, and small bowls, form 6. The closed vessels were decorated more often, except for the jugs, forms 12 and 15.

The choice and intensity of the use of the respective decoration techniques are rather untypical, as compared to the leading red slip wares produced in the Mediterranean, where also not all of the most popular vessel forms were decorated, especially in the 4th century, but later on, particularly in the 5th and early 6th century, the stamped and rouletted decoration prevailed on the African Red Slip ware, Late Roman C / Phocaean Red Slip ware, and Late Roman Light Coloured ware.[136] The most specific decorative motifs on the Pontic Red Slip vessels were, however, wavy bands made with the use of a comb-like tool. They are located on the floors and rims of the large dishes, especially form 3 and sometimes also forms 7 and 9, on the rims of small bowls, form 6, and on the bellies of the jugs, form 13.

In the large dishes, the combed motifs on the floors usually make up a composition in the shape of a medallion, consisting of one to three concentric circles of combed wavy or polygonal bands. Such compositions were often complemented with concentric circles of double or multiple grooved lines, and sometimes small motifs imprinted radially with the edge of a comb-like tool are also recorded. Several examples of such compositions are presented in **Pls. 15–23** and **33**. Other vessels with the combed medallions are also known, particularly from the cemeteries in Sovchoz 10, Almalyk-Dere and Krasnyj Mak.[137] Rarely, the combed wavy bands were arranged radially (**Pl. 24:78**), or in the form of a centrally placed large cross, as exemplified by the find from Sovchoz 10.

The grooved and incised decorations were more common. The medallions on the floors of the dishes, forms 3, 7 and 9, were composed of several concentric circles, which had a very specific form of double or multiple grooved lines alternating with pronounced ridges. This resembles the decorations of the African Red Slip vessels, on which they complement the medallion-shaped composition made up of radially stamped motifs. The aforementioned, characteristic central medallions on the Pontic Red Slip dishes were arranged in a similar way, but the stamped motifs were replaced by the combed ones. The technique of embellishing red slip vessels with combed bands was extremely rarely used on the Mediterranean red slip vessels.[138]

Single or double grooved lines were also made along the edges of the wide rims of the dishes, form 3, and bowls, form 6, as well as on the narrow rims of forms 7 and 8. When applied to the jugs, the incised decoration was used differently. The lower parts of the bellies of forms 10–11 and 14 were decorated with incised wavy lines surrounding the vessel (**Pls. 39:138, 41–43:144,146–148, 47–48:156–159, 49–50:160–162**). Sometimes the lines intersect each other or overlap. In single cases similar decorations were also recorded on the rims and floors of the dishes, form 3, and the bowls, form 6. A spectacular example of this decoration, made on the underside of the floor, can be found on the unique variant of the dish, form 3, with a double ring-foot (**Pl. 23:77**).

The imprinted small motifs are very rarely encountered. They were made with the use of the same tool which served to make the so-called combed ornaments. The slight anomalies in the shape of these motifs are mainly due to the differences in the angle, at which the tool was applied to the vessel. They were recorded

136 Hayes 1972, 217–281, 346–368, 375–384; Ergürer 2014, 183–185, 188–191, pls. 2:10, 3:11, 6:33,35, 7:10–11, 8:33,35.

137 Strželeckij *et alii* 2003–2004, 90–94, fig. 16:1–4; Ivanova 2009, 36–37, figs. 7–9; Loboda 2005, 210–211, figs. 3:9–10, 9:5–6, pl. 2:16–17,20–21; respectively.

138 LRC/PhRS: Hayes 1972, 330–331, fig. 67:1; LRLC: Ergürer 2014, 181, pls. 1:4, 7:4. Interestingly, some red slip vessels, probably related to the LRD/CRS ware, decorated with the medallions composed of combed, grooved and imprinted motifs, were reported from Pisidia, cf. Arslan 2004, 219, 221, figs. 3:34–35, 4:42–43.

mainly on the floors of large dishes, forms 3 and 9, where they are part of the central medallions (**Pls. 23:77, 38:137**). Occasionally, imprinted motifs can be found on the rims of bowls, form 6 (**Pls. 30–31:114**). It should be stressed that the term 'imprinted motifs' is used intentionally, to distinguish them from the stamped motifs, made with individually designed stamps. Pontic Red Slip vessels were not decorated with the stamped technique, which was very popular on the red slip wares produced in the Mediterranean. Also rouletting, a technique typical of the other leading Mediterranean red slip wares, is very rarely encountered on the Pontic vessels. It occurs sporadically and exclusively on the outside wall surfaces of the deep dishes, forms 1 and 7 (**Pls. 2:11, 8:28, 32:119, 33:121**).

In some cases, *dipinti* made on the floor undersides of open vessels with the use of red paint or slip were found. They were double or single letters written on the large bowl, form 0, and the dish, form 1 (**Pls. 1:3** and **5:21**). Besides, a fragment of a dish, form 3, was found at the cemetery in Almalyk-Dere with a part of a possibly longer inscription.[139] Moreover, on floor undersides of the dishes, form 1, a large Cross-monogram and a small cross or two intersecting uneven lines, were also encountered (**Pls. 5:23, 6:25, 9:30**). These single or double letters and simple marks may be treated as technical or other markings made by the potters. However, the large Cross-monogram was more probably painted by the owner, not the producer, for religious purposes.

More commonly encountered are *graffiti* made by the owners of the vessels. They have forms of simple signs and letters, as well as Christian symbols. Single letters and a fragment of inscription were found in Kamenka Ančekrak and Pitiunt.[140] They were apparently made by the bearers of the Graeco-Roman culture, while simple tribe, clan or family signs of the *tamga* type were incised by the members of the Barbarian communities. Such signs (cf. **Pl. 49:161**) are known from the Černjachov culture and the Crimean cemeteries.[141] Religious symbols in the form of Cross- and Christ-monograms are known as well, from a jug of unknown provenience (**Pl. 47:156**), and from a dish found in Nejzac.[142] Interestingly, all of them were made on the undersides of the vessels.

Another phenomenon noted during the analysis concerns also the consumers using the red slip vessels. Namely, it has been observed that some of the large dishes, found especially in the Bosporan (Kerch Strait) region, in Tanais and Djurso, had intentionally made small holes, pierced through the walls under the rim (**Pls. 6:26, 15:61, 21:73,75, 22:75, 23:76, 32:118, 33:122, 34:126, 36:134**). Usually, such holes in pottery fragments are regarded as traces of repairs of broken vessels (cf. **Pls. 5:23, 20:69, 34:130**). In the northern Black Sea region, however, several finds of complete vessels with single holes were encountered. This evidences the existence of a regional tradition of hanging the most attractive pottery vessels, probably on the walls, in order to exhibit them and decorate the walls. Such a widespread phenomenon, not recorded for the red slip wares in any regions of the Ancient world, clearly indicates that the analysed vessels had a special status in the aforementioned Barbarian households.

4.4. SUMMARY OF CHRONOLOGICAL ANALYSIS

The chronological outline of the development of production of the Pontic Red Slip ware open vessels, presented in **Fig. 4**, as well as of the jugs, is based on the analysis of several pottery deposits found mostly in the cemeteries and some settlements, which are discussed in Chapter 3.2. The most important issue was to trace the associations between the finds of the identified vessel forms with the datable materials, as well as between the respective forms of vessels. It was facilitated by the highly frequent presence of the imported red slip vessels among the abundant grave offerings in the Barbarian cemeteries in the northern part of the Black Sea region,

139 Ivanova 2009, 37, fig. 9:37.

140 Magomedov 1991, 17, fig. 19:2–2a,9; Lordkipanidze 1991, 174–177, pl. 12:1; respectively

141 Fedorov, Rošal' 1979, 268–270, fig. 2:5–6; Khrapunov 2013, 28, fig. 18:1–2; Namojlik 2020, 118, fig. 2:2.

142 Chrapunov 2011, 20, fig. 34:2; Khrapunov 2013, 28, fig. 17:5; Namojlik 2020, 118, fig. 2:1.

between the 4th and the mid-6th century. This phenomenon was absent in the Empire when the influence of the Christian religion excluded, or at least limited to a bare minimum, the habit of providing the dead with rich grave goods.

The analyses of the materials from various contexts allowed to establish the approximate time ranges, within which the identified vessel forms were produced. They embrace the period between the emergence of a specific form of vessel on the market, through its growing popularity, decline, and its final replacement by the next form. The examples of the most popular forms of the Mediterranean red slip wares (ARS, LRC/PhRS, LRD/CRS) show that they were produced for approximately 75–100 years (cf. below, Chapter 5.2). The reported analysis allowed to demonstrate that similar cycles embraced also the most popular Pontic Red Slip vessels.

The most difficult task was to determine the time when the investigated pottery emerged on the Black Sea markets. Pontic Red Slip vessels first appeared, sometimes in larger numbers, at several Barbarian cemeteries together with coins and other materials dated to the first three quarters of the 4th century. These include the dishes, forms 1A and 2, which were predominant. The less numerous vessels: bowls, forms 0, 4 and 5, as well as jugs, forms 10–12, and 14–15, were also present there. The turn of the first and second quarter of this century may be assumed as the approximate beginning of the initial phase of the broad distribution of the Pontic Red Slip vessels.

Starting from the late 4th century, it is possible to observe a considerable growth of production and broad distribution of the Pontic Red Slip vessels together with the changes in the repertoire of the vessel forms. Dishes, form 2, were replaced by slightly different vessels, form 3, richly decorated with the use of the combed technique, while the deep dishes, form 1 (A/B), were still produced with a slight modification of modelling of their rims, walls and floors. Large bowls, form 0, and small ones, forms 4 and 5, also continued to be manufactured at that time together with the aforementioned forms of jugs. Moreover, there appeared a new shape of a bowl, form 6, which was a small equivalent of the dish, form 3. The period of the most intensive production and broad distribution of the Pontic Red Slip ware, as regards its quantity and quality, embraced the first to third quarters of the 5th century. The vessels made at that time boasted both high utility and aesthetic value.

The late 5th century saw the beginning of the gradual decline of production and broad distribution of the discussed vessels. At that time the newly introduced dish, form 7, finally replaced its predecessor, form 3. Deep dishes, form 1 (B), were continuously made but with a different modelling of the rim and thinner walls. Also the bowls, forms 0 and 4, were produced whereas bowl, form 6, was replaced by a new shape called form 8, which was, however, much less popular than its predecessor. The remaining forms known from the preceding period, bowls, form 5, and jugs, did not appear in the contexts dated to the late 5th century and later. The last form introduced at that time, large dish, form 9, was manufactured apparently for a short period of time, as the finds of those vessels are extremely rare.

The latest popular Pontic Red Slip vessels, forms 1B and 7, are present in various contexts, in cemeteries and destruction or abandonment layers in several settlements, evidencing that they were traded and used in the first half of the 6th century. These forms were accompanied there by the less common bowls, forms 0, 4 and 8. All those vessels disappeared from the market shortly before the mid-6th century, as it is evidenced by their absence in several contexts dated to the second half of that century.

The time ranges of the production of each identified vessel form are given below, in Chapter 4.5, where also the most important contexts of the finds of such vessels, allowing to establish their chronology, are mentioned. More information about these contexts can be found above, in Chapter 3.2, and the references to the individual finds of the vessels are listed also in Chapter 4.5, after the Catalogue, according to the location of respective archaeological sites.

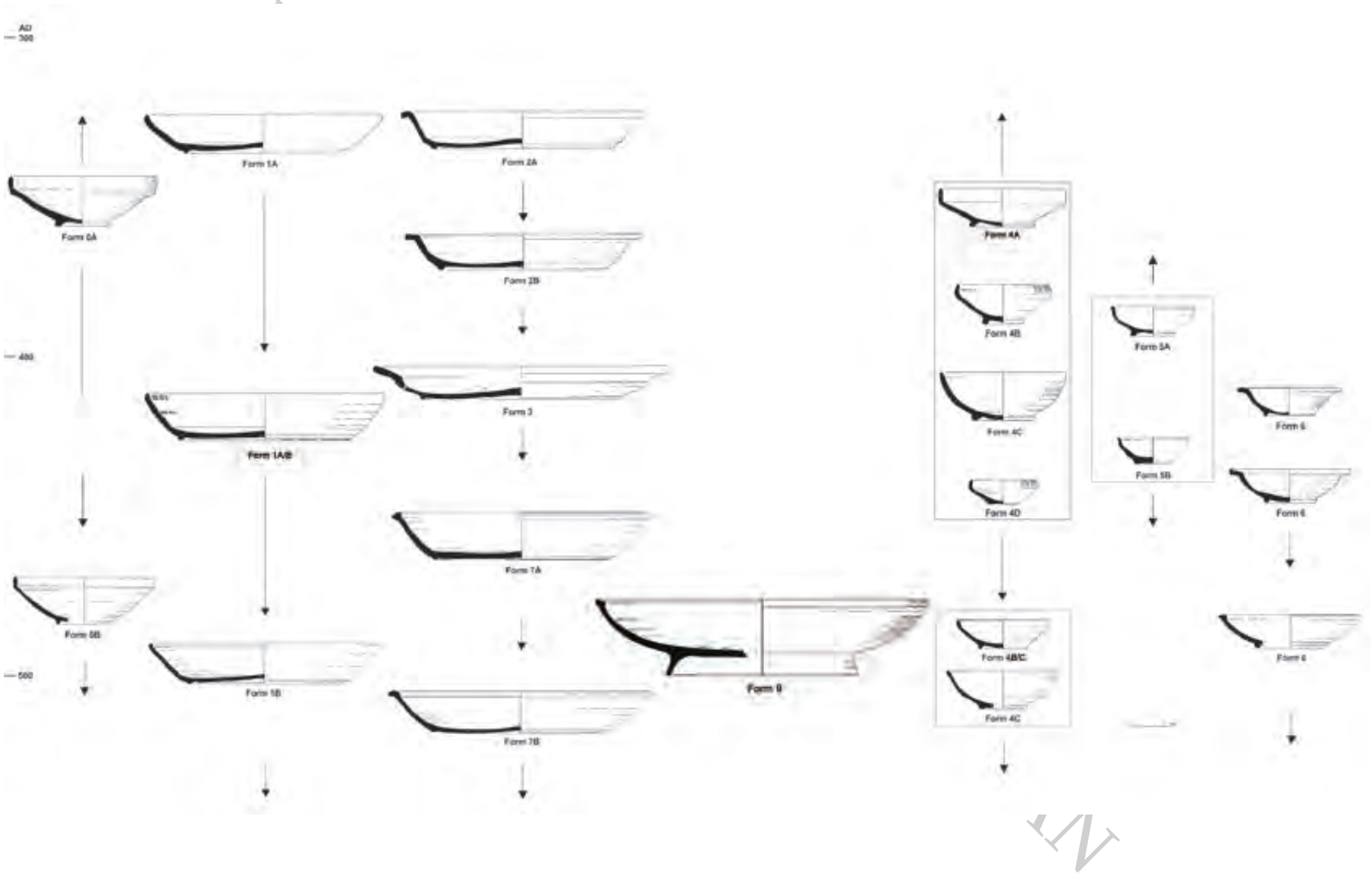


Fig. 4. Chronological distribution of Pontic Red Slip ware open vessels.

4.5. CLASSIFICATION OF VESSEL FORMS

The identified Pontic Red Slip ware forms and variants are discussed in typo-chronological sequence below. The presentations comprise a detailed description of the shapes, notes on the relations between the respective forms and variants, as well as information about the dimensions of the vessels and their decorations. The discussions refer also to the evidence which allows to establish the chronology of production of each form. They are illustrated with 166 selected best preserved vessels described in the Catalogue and shown in plates. The vessels were found at various archaeological sites in different parts of the Black Sea region, in the contexts embracing the whole time of production of the investigated ware, since the early 4th century until the mid-6th century.

According to their archaeological provenience, the catalogued vessels represent three categories. The most numerous one embraces 73 vessels found at the Barbarian cemeteries in northern Black Sea littorals which were explored since the last years before World War II until the most recent times, and the information about the contexts of these discoveries is recorded in the field documentation and usually published. These cemeteries were discussed above, in Chapter 3.2 (**Tables 1–4**).[143] The second category includes 47 vessels discovered at several settlement sites discussed or mentioned in Chapters 2.2 and 3.2.[144] The last category of 46 best preserved vessels of undetermined or uncertain provenience, which were most probably also found at the same or other Barbarian cemeteries in the earliest stages of archaeological activity there, is described above, in Chapter 2.2.

The presentation of each distinguished form is completed with all the available, usually published information about the distribution of the respective vessels. These finds are listed clockwise, according to the archaeological sites' geographical location when looking at the map of the Black Sea region (Chapter 5.1, **Figs. 5A-C**): from the western Black Sea coast, throughout the northern littorals, north-eastern Maiotis, the eastern coast, to the northern part of Asia Minor

Form 0

Deep dish or big bowl with vertical rim with plain edge and straight walls slanting towards concave floor on ring-foot of small diameter. The rim is straight and pronouncedly tapering towards the plain or rounded edge. The joining place of the rim and the wall is marked with a ridge on the outside, above which there is sometimes a single grooved line. The foot is low but solid. The dimensions of the vessels are: rim diameter 16 – 21 cm, height 6 – 7.5 cm, foot diameter 6.5 – 9 cm. These bowls were not decorated. According to its morphological features, the described form can be subdivided in two variants: 0A – with rather massive walls and big vertical rims, manufactured in the early and medium phase of the PRS ware production (**Pl. 1:1–7**), as well as variant 0B – with distinctively thinner walls and a shorter rim, produced later on (**Pl. 1:8**).

This form was distinguished by T. N. Knipovič as type 20 among the Early Roman and Late Antique materials found in Tyritake,[145]

143 Kilen-Balka (**Cat. nos. 13, 30, 56, 145, 166**), Suvorovo (**Cat. no. 82**), Tas-Tepe (**Cat. no. 6**) and Belen'koe (**Cat. nos. 7, 10, 14**) [cf. **Table 1**]; Sovchoz 10 (**Cat. no. 158**), Inkerman (**Cat. nos. 9, 17, 28, 92, 94, 104, 107, 110, 112**) and Nejzac (**Cat. nos. 1, 5, 15, 29, 31, 46, 52, 71, 84, 86, 87, 90, 93, 105, 147**) [cf. **Table 2**]; Mangup / Almalyk-Dere (**Cat. nos. 98, 103, 123**), Krasnyj Mak (**Cat. nos. 109, 114, 146**) and Phanagoreia (**Cat. nos. 24, 27, 65, 76, 117**) [cf. **Table 3**]; Skalistoe (**Cat. no. 127**), Kytaion / Džurg-Oba (**Cat. nos. 35, 39, 42, 60, 64, 73, 106, 124, 128, 131, 133, 135, 139**) and Djurso (**Cat. nos. 36, 38, 40, 95, 122, 126, 129, 134**) [cf. **Table 4**], as well as Pereval'noe (**Cat. no. 163**), Suvlu Kaja (**Cat. no. 148**), Pantikapaion / Bosporos (**Cat. no. 150**), Tyritake (**Cat. no. 143**) and Mys Zjuk (**Cat. no. 79**).

144 Olbia (**Cat. nos. 20, 21, 23, 85**), Tanais (**Cat. nos. 22, 26, 49, 58, 59, 62, 69, 78, 96, 97**), Chersonesos (**Cat. nos. 51, 70, 116, 119**), Pantikapaion / Bosporos (**Cat. no. 50**), Tyritake (**Cat. nos. 19, 100, 118, 130, 132**), Iluraton (**Cat. no. 37**), Phanagoreia (**Cat. nos. 48, 68, 113**), Hermonassa (**Cat. no. 43**), Kepoi (**Cat. nos. 11, 72, 115**), Baterejka (**Cat. no. 47**), Il'ič (**Cat. nos. 41, 81, 121, 125**), Sebastopolis (**Cat. nos. 2, 8, 88, 99, 136**), Pompeiopolis (**Cat. nos. 32, 33, 137**) and Komana Pontika (**Cat. nos. 101, 155**).

145 Knipovič 1952, 315–317, fig. 11:6.

and later on by L. F. Silant'eva as type 33 among the similar finds from Iluraton.[146] In both cases the form was related rather to the late phase of Early Roman terra sigillata, but its use in the 4th century in Tyritake was also considered as possible. The described vessels were subsequently distinguished in Abkhazia by Ju. N. Voronov as type 5, dated to the 5th century.[147]

The discussed form was omitted in the first publications presenting the typo-chronological classification of the Pontic Red Slip vessels, as being considered as the latest variant of Early Roman Pontic Sigillata. Studies conducted later on revealed firm evidence that these vessels were manufactured in the 4th – early 6th centuries, and therefore they were named "transitory" form 0, emphasising morphological similarity to their Pontic Sigillata predecessors.[148]

The described bowls began to be produced together with the earliest Pontic Red Slip ware vessels, forms 1A and 2, and continued to be manufactured later on, together with the next "generation" of such dishes, forms 3 and 7. The bowl, form 0A, was found at the cemetery of Belen'koe, together with two PRS dishes, form 1A, and with other finds dated to the first half of the 4th century. The next bowl, from the cemetery in Tas-Tepe, discovered together with PRS dishes, forms 1A and 2, is dated similarly, and so are the ones from the graves at Charax and Širokaja Balka.

The vessels from the cemeteries Sovchoz 10, Nejzac, Almalyk-Dere, Lučistoe, Krasnyj Mak, Šapky, Džurg-Oba and Skalistoe, found together with PRS dishes, forms 3 and 7, and with LRC/PhRS ware dish, form 1D, indicate that the most intensive production of the described form lasted until the mid- or the third quarter of the 5th century, and that some vessels were manufactured until the early 6th century. It is confirmed also by the finds from the settlements in Ulmetum and Sebastopolis.

Catalogue of illustrated finds

1. (Pl. 1:1) Nejzac, cemetery, pit 9; 2006. KRKM, Simferopol, inv. no. KP 56367, A 31302. Intact, D. rim 16.5–16.6 cm, D. foot 7.2 cm, H. 6.2–6.6 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous, badly preserved.

2. (Pl. 1:2) Sebastopolis, fortress, Sector 1, Room 1; 1999. AE AGU, Suchumi, inv. no. 2777. Fragmented (1 fr.), ca. 40% of vessel preserved, rim to base, D. rim est. 17.0 cm, D. foot est. 8.2 cm, H. est. 6.8 cm. Clay pinkish-grey-brown, hard fired; slip brown-pinkish, dull, with streaks and runs outside; rim discoloured.

3. (Pl. 1:3) Provenience unknown, from I. E. Zabelin collection. GIM, Moscow, inv. no. 291. Intact, D. rim 17.5 cm, D. foot 6.8 cm, H. 6.3–6.5 cm. Clay orange-brown, medium fired; slip brown-red, dull inside, slightly lustrous, with streaks and runs outside; *dipinto* – AB – in red paint or slip on underside of floor.

4. (Pl. 1:4) Bosporos Kimmerikos? (provenience uncertain). KIKZ, Kerch, inv. no. KP 146638 (F-22, XXXIII-A). Intact, D. rim 18.5 cm, D. foot 7.4 cm, H. 6.8–7.2 cm. Clay pink-brown, hard fired; slip brown-pink, dull, with streaks and runs outside; rim partly discoloured.

5. (Pl. 1:5) Nejzac, cemetery, grave 405; 2009. KRKM, Simferopol, inv. no. KP 57724, A 31851. Intact, D. rim 18.2–18.3 cm, D. foot 7.8–8.0 cm, H. 6.9–7.5 cm. Clay pinkish-brown, hard fired; slip brown-pink, metallic lustre, with streaks, runs and finger marks outside.

146 Silant'eva 1958, 298, fig. 12:3.

147 Voronov 1983, 94, figs. 4:2, 6:3,11.

148 Domżalski 2011, 165, pl. 2:10–11; Domżalski 2016–2017, 76–78. The latest Pontic Sigillata vessels which combined morphological features of the two much earlier forms: plate, form 1, and deep bowl, form 6 (Hayes 1985, 93–94, pls. 22:6–10, 23:1,7), were produced in the late 2nd century and in the first half of the 3rd century (Žuravlev 2010, 136–138, pls. 18–19); cf. also below, Chapter 5.2, Fig. 11.

6. (Pl. 1:6) Tas-Tepe, cemetery, grave 6; 1995. BGIKZ, Bachčisaraj. Nearly complete, restored (many frs.), D. rim 20.0–20.5 cm, D. foot 9.2 cm, H. 7.0 cm. Clay orange-brown, medium fired; slip brown-orange, metallic lustre; partly overfired (secondarily?). Puzdrovskij *et alii* 2001, 32–36, fig. 5:23.

7. (Pl. 1:7) Belen'koe, cemetery, grave 163; 1990. BDKM, Bilgorod-Dnistrovs'kyj, inv. no. KP 44301, A-9203. Intact, D. rim 19.5–21.0 cm, D. foot 7.0–7.2 cm, H. 6.6–6.8 cm. Clay pinkish-brown, medium fired; slip brown-pink, dull inside, slightly lustrous outside; partly overfired and discoloured.

8. (Pl. 1:8) Sebastopolis, fortress, Sector 1, layer 1; 2000. AE AGU, Suchumi, inv. no. 1968. Fragmented (1 fr.), ca. 30% of vessel preserved, rim to base, D. rim est. 17.2 cm, D. foot est. 6.7 cm, H. est. 6.9 cm. Clay orange-brown, medium fired; slip brown-reddish, dull, with streaks and runs outside; rim discoloured.

Find places

Western coast of the Black Sea and the lower Danube area

- Topraichioi (settlement): Opaiț 1991b, 252, pl. 43:8.
- Ulmetum (settlement): Băjenaru 2018, 504, 506, fig. 4:71.

North-western coast of the Black Sea (periphery of the Černjachov culture)

- Belen'koe (cemetery, grave 163): **Cat. no. 7**.

South-western Crimea and neighbouring areas

- Chersonesos (settlement): Sazanov 1999, 235–237, 244–249, figs. 5:39; 14:9; Golofast 2001, 105, fig. 5:1; Ušakov 2010b, 293, 306, fig. 7:29.
- Sovchoz 10 (cemetery, graves 240, SK7, SK14): Strželeckij *et alii* 2003–2004, 81–82, 203–204, pl. 13:13–14, appendix 2, pls. 29:240.26, 35:SK7.10, 36:SK14.21.
- Černaja Rečka (cemetery, grave 53): Ajbabin 1984, 114–116, fig. 7:18; Kazanski 1993, 214–215, fig. 1:32.
- Mangup (settlement): Gercen, Manaev 2005, 323–326, figs. 14:5, 19:7, 21:19.
- Mangup, Almalyk-Dere (cemetery, grave 159): Ivanova 2009, 39, fig. 10:40–41.
- Krasnyj Mak (cemetery, graves 2, 8, 12): Loboda 2005, 194–195, 200, 202–203, 209, figs. 3:5, 10:4, 14:3, pl. 2:6–8.
- Tas-Tepe (cemetery, grave 6): **Cat. no. 6**; Puzdrovskij *et alii* 2001, 32–36, fig. 5:23.
- Skalistoe (cemetery, grave 421): Vejmarn, Ajbabin 1993, 101, 190, 197, fig. 74:8.
- Charax (cemetery, grave 21): Blavatskij 1951, 270, fig. 13:5.
- Lučistoe (cemetery, grave 126): Ajbabin 2001, 24, fig. 4:3; Ajbabin, Chajredinova 2008, 45–46, fig. 24:4; Ajbabin, Chajredinova 2009a, 43–45, fig. 24:4.

• Nejzac (cemetery, pit 9; grave 405): **Cat. nos. 1** and **5**.

Eastern Crimea (Bosporos Kimmerikos and neighbouring areas)

• Pantikapaion / Bosporos (settlement): Smokotina 2015, 315–319, fig. 3:1–2; Smokotina 2018a, 643–646, fig. 3:1; Smokotina 2018b, 270–271, fig. 5:3.

• Tyritake (settlement): Knipovič 1952, 315–317, fig. 11:6; Domżalski, Smokotina 2020, 623, fig. 1:1–2; Domžal'skij, Smokotina 2020, 197, fig. 1:1–2.

• Iluraton (settlement): Silant'eva 1958, 298, fig. 12:3.

• Kytaion, Džurg-Oba (cemetery, grave 5): Ermolin 2005, 129–130, fig. 12:3.

Taman Peninsula (Bosporos Kimmerikos and neighbouring areas)

• Phanagoreia (settlement): Golofast, Ol'chovskij 2016, 66–67, fig. 14:5.

Eastern coast of the Black Sea (Caucasus and Colchis)

• Širokaja Balka (cemetery, grave 82): Dmitriev *et alii*, 136–137, fig. 128:1; Malyšev 2011, 251–252, fig. 220:82.

• Pitiunt (settlement): Lordkipanidze 1962, 254–255, pl. 4:13; Berdzenišvili 1963, 113, fig. 3:2; Nikolajšvili 1975, 181–182, fig. 23:5033,5195; Asatiani 1977, 181, 210, figs. 40–41, 236–240; Apakidze 1978, 85–92, figs. 92–93, 98, 100–101; Lordkipanidze 1981, 121, pl. 63:2; Agrba 1985, 36, pl. 30:1.6.

• Sebastopolis (settlement): **Cat. nos. 2** and **8**; Apakidze, Lordkipanidze 1965, 127, pl. 4:4; Trapš 1969, 324–329, pl. 46:15; Voronov 1983, 94, fig. 6:3,11; Gabelia 2014, 442, fig. 30:13–14,16–17, 19–21,23–25.

• Šapky (cemetery, grave 32): Voronov 1969, 59–60, 92, pl. 27:10; Voronov 1975, 80–82, fig. 24:5; Voronov 1983, 94, fig. 4:2.

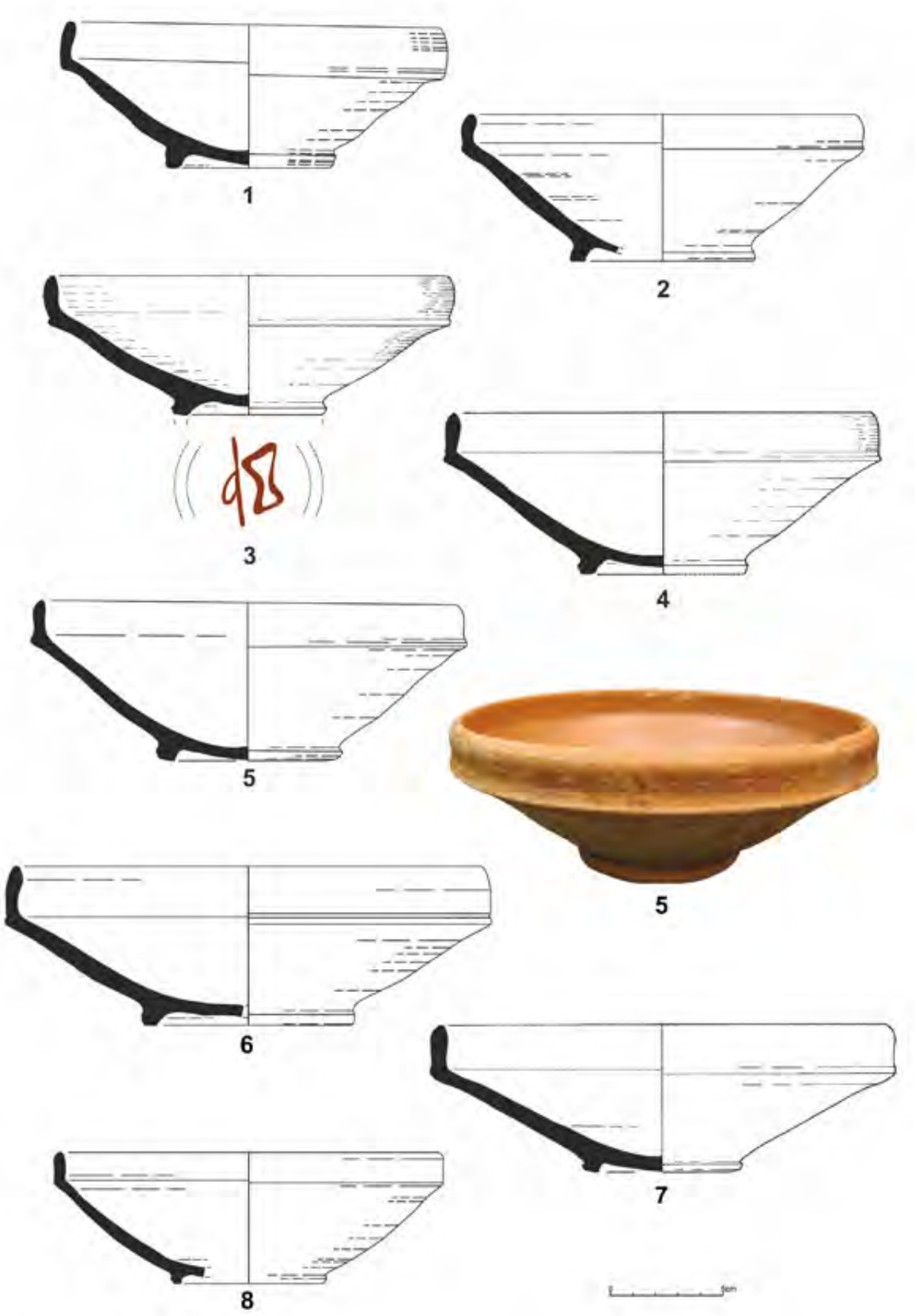
• Rhodopolis (settlement): Džaparidze 1974, 105, pl. 7:4.I; Džaparidze 1989, 147, pl. 5:1.I.

Southern coast of the Black Sea and northern Anatolia

• Sinope (provenience uncertain): unpublished vessel (intact, D. rim 17.1 cm, H. 7.0 cm) in SAM, Sinope, inv. no. 683 (9-36-70).

• Sinope (rural territory, surface survey): unpublished finds, SRAP 1996–1999.

• Pompeiopolis (settlement): Domżalski 2011, 165, pl. 2:10–11; Domżalski 2016–2017, 76–77, fig. 4.



Pl. 1 Pontic Red Slip ware form 0 (Cat. nos. 1–8). ■

Form 1

Large dish with plain incurved rim and straight or curved walls slanting towards broad flat floor on ring-foot of large diameter. The rim is an extension of the walls and is only slightly incurved. Due to the differences of the rim shape and the thickness of the body it is possible to distinguish two basic variants of this form: 1A – rather massive and thick walled body with a rim tapering towards a rounded or sharp edge (**Pls. 2–6**), and 1B – with a significantly thinner walls and a distinctively rounded or rolled rim on the inside, slightly incurved and marked out by a small groove (**Pl. 10**). The transition from the production of vessels variant 1A to 1B was gradual. Therefore, the vessels with some features of both variants, such as rather thin walls and slightly rounded rim, can be determined as variant 1A/B (**Pls. 2, 4–8**).

The remaining features of the discussed form are very similar in all variants. The walls are completely straight or very slightly rounded. The foot is separated from the wall by a characteristic undercut. The vessels of variant 1A have a slightly higher foot whereas variant 1B has a lower, flattened foot. The floor is usually flat but sometimes it is slightly raised in its central part, which concerns all variants.

The dimensions of the vessels of variants 1A and 1A/B are as follows: rim diameter 23 – 32 cm, height 4.5 – 6.5 cm, foot diameter 18 – 23 cm. The most frequent rim diameter is 25 – 29 cm. The dimensions of variant 1B are similar, but there is a series of smaller vessels, with the rim diameter of 21.5 – 25 cm, height 4 – 5 cm, foot diameter 13.5 – 16.5 cm.

This form was distinguished by T. N. Knipovič as type 23, together with Pontic Red Slip ware form 7, among the Early Roman and Late Antique materials from Tyritake,[149] and by L. F. Silant'eva as type 45 among similar finds from Iluraton.[150] The absence of these vessels in Myrmekion was also noted in the aforementioned publications as an indication of their dating to the late 3rd and 4th century. Later on, the form was identified in Abkhazia by Ju. N. Voronov as type 1, dated from the late 4th until the 6th century, related typologically with the Late Roman C / Phocaean Red Slip ware.[151] At approximately the same time the discussed form was distinguished by A. Opaiț as type 4A, the use of which in Topraichioi was dated by coin finds to the first half of the 5th century.[152] In articles published by A. V. Sazanov since the late 1980s, the discussed vessel was identified incorrectly as African Red Slip form 62. Despite of these misleading identifications, dominating in the Russian literature until the first decade of the 21st century, A. G. Atavin distinguished this form as types 2–3 among finds from Phanagoreia and dated them, according to similar finds from Tanais and Chersonesos, to the 4th – early 5th century.[153]

The discussed vessels were first described as form 1 in the papers analysing Late Roman red slip ware finds in the Bosporos Kimmerikos and in Tanais, according to the tentative typo-chronological classification of the Pontic Red Slip ware.[154]

Dishes, form 1, are the most popular Pontic Red Slip vessels, found at the whole area where this group is distributed. Their shapes are very simple but elegant. This form was generally undecorated. There are a few known vessels with a rouletted decoration on the outside of the walls in the form of wide zones of multiple horizontal rouletting (**Pl. 8**), or of single narrow rouletted lines placed one above the other (**Pl. 2:11**).

The PRS dishes, form 1, resemble in their shape similar vessels, form 50, of the North African ARS ware which were extremely popular in the Mediterranean in the late 3rd – 4th century.[155] The Pontic vessels started to be widely traded in the first half of the 4th century.

149 Knipovič 1952, 318–319, fig. 12:1.

150 Silant'eva 1958, 301–302, fig. 15:3.

151 Voronov 1983, 89–91, figs. 2:1–2,5–6, 3:9–15, 4:1,6–8,10–13, 5:7,18, 6:1–2.

152 Opaiț 1985, 155, 159–161, pls. 1:9–12, 2:1.

153 Atavin 1993, 150–152, fig. 1:2–4.

154 Domżalski 2000, 163–164, fig. 2:1; Arsen'eva, Domżalski 2002, 425–426, 453–462, figs. 5–7.

155 The influence of the African Red Slip vessels on the introduction of several PRS shapes is discussed in Chapter 5.2.

The distinguished variants of the described form have a substantial chronological importance. Variant 1A is earlier, dated mainly to the 4th century, whereas variant 1B was produced in the late 5th – early 6th century. In the contexts dated from the turn of the 4th and 5th century until the third quarter of the 5th century, the transitional variant 1A/B occured, initially together with the latest production of variant 1A.

The described form was produced for the longest period of time, which is confirmed by the following finds. The vessels of variant 1A occur in large numbers in grave assemblages typical of the 4th century at several cemeteries in southern Crimea: Družnoe, Rozental', Ozernoe III, Kilen Balka, Krasnaja Zarja, Suvorovo, Višnevoe and Tas-Tepe, as well as in Belen'koe near Tyras. They also dominate among the finds in Olbia, which was abandoned at the turn of the 4th and 5th century. Variant 1A/B prevails in PRS assemblages dated to the first three quarters of the 5th century, found in Tanais, Il'ič (wine press) and Ulmetum. This later production is evidenced by the finds from the cemeteries in Inkerman, Sovchoz 10, Nejzac and Almalyk Dere, where some vessels of variant 1A were identified as well. The latest vessels of the discussed form in variant 1B are present among the grave offerings in Karši-Bair, Džurg-Oba and Djurso, dated to the last quarters of the 5th century and the early 6th century.

Besides the main variants described above, some smaller numbers of irregular shapes of form 1 were found as well (**Pl. 9**). Judging from their massive walls and floors, they represent mostly the early phase of production from the 4th century.

Catalogue of illustrated finds

9. (Pl. 2:9) Inkerman, cemetery; 1948. BGIKZ, Bachčisaraj, inv. no. KP 6171/26, A-D-360, I-V/62-48. Nearly complete, restored (10 frs.), D. rim 23.5 cm, D. foot 18.3 cm, H. 5.2–5.3 cm. Clay orange-brown, softly fired; slip brown-orange, slight metallic lustre.

10. (Pl. 2:10) Belen'koe, cemetery, grave 175; 1990. BDKM, Bilgorod-Dnistrovs'kyj, inv. no. KP 44300, A-9202. Intact, D. rim 24.4–24.8 cm, D. foot 19.0–19.2 cm, H. 4.6–4.8 cm. Clay pinkish-brown, medium fired; slip brown-red with slight lustre inside, brown-pinkish with metallic lustre, with streaks and runs outside; barely visible turning traces on underside of floor.

11. (Pl. 2:11) Kepoi, settlement; 1959. GIM, Moscow, inv. no. Ke-59, Zap. r. XII/4-7. Fragmented (14 frs.), rim to base, D. rim est. 25.0 cm, D. foot est. 18.8 cm, H. est. 5.1–5.2 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous inside, metallic lustre outside; two horizontal lines of rouletting on outside of wall. Sokol'skij 1963, 21, fig. 10(down); Žuravlev *et alii* 2010, 180–182, fig. 9.

12. (Pl. 2:12) Bosporos Kimmerikos? (provenience uncertain). KIKZ, Kerch, inv. no. KMAK 546. Nearly intact, D. rim 25.0 cm, D. foot 18.8 cm, H. 4.7–5.3 cm. Clay orange-brown, softly fired; slip brown-orange, metallic lustre, with streaks, runs and finger marks outside.

13. (Pl. 2:13) Kilen Balka, cemetery; 1991. NZChT, Sevastopol, inv. no. 37211/120. Intact, D. rim 25.2 cm, D. foot 19.0 cm, H. 5.5 cm. Clay orange-brown, medium fired; slip brown-pinkish inside, brown-orange outside, slightly lustrous, with streaks, runs and finger marks outside. Nessel 2003, 109–110, figs. 2:7.

14. (Pls. 2:14 and **3)** Belen'koe, cemetery, grave 160; 1990. BDKM, Bilgorod-Dnistrovs'kyj, inv. no. KP 44299, A-9201. Nearly intact, D. rim 25.0 cm, D. foot 18.0 cm, H. 5.6–5.8 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous, with streaks, runs and finger marks outside; turning traces on underside of floor.

15. (Pl. 4:15) Nejzac, cemetery, grave 306; 2006. KRKM, Simferopol, inv. no. KP-56204, A-31140. Intact, D. rim 25.5–25.8 cm, D. foot 18.6–18.8 cm, H. 4.8–5.2 cm. Clay pinkish-brown, hard fired;

slip brown-pinkish, slightly lustrous inside, metallic lustre, with streaks, runs and finger marks outside; rim partly discoloured.

16. (Pl. 4:16) Bosporos Kimmerikos? (provenience uncertain). KIKZ, Kerch, inv. no. KMAK 1587. Fragmented, ca. 80% of vessel preserved, rim to base, D. rim 25.8–26.0 cm, D. foot 19.0 cm, H. 5.2–5.6 cm. Clay pinkish-brown, medium fired; slip brown-pinkish inside, brown-orange outside, metallic lustre, with streaks, runs and finger marks outside; barely visible turning traces on underside of floor.

17. (Pl. 4:17) Inkerman, cemetery; 1948. GIM, Moscow, inv. no. I-V-96-48, MPG-I-5106. Intact, D. rim 26.5 cm, D. foot 20.2 cm, H. 5.7 cm. Clay orange-brown, softly fired; slip brown-orange, intensively lustrous, with streaks, runs and finger marks outside.

18. (Pl. 4:18) Provenience unknown. GE, Saint Petersburg, inv. no. B.7773, 17307. Intact, D. rim 27.0 cm, D. foot 21.2 cm, H. 4.7–5.1 cm. Clay palepinkish-brown, medium fired; slip brown-pinkish inside, brown-orange outside, metallic lustre, with streaks, runs and finger marks outside.

19. (Pl. 4:19) Tyritake, settlement, pit 76; 2006. CAI, Kerch. Fragmented (3 frs.), ca. 20% of vessel preserved, rim to base, D. rim est. 27.4 cm, D. foot est. 21.0 cm, H. est. 4.9 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, metallic lustre, with streaks, runs and finger marks outside; rim partly discoloured.

20. (Pl. 4:20) Olbia, settlement, Sector 25; 1987 and 2002. NIAZO, Parutyne, inv. nos. O-1987, R-25/58,58a,169 and O-2002, R-25/83. Fragmented (4 frs.), ca. 25% of vessel preserved, rim to base, D. rim est. 27.5 cm, D. foot est. 20.5 cm, H. est. 5.3 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, metallic lustre, discoloured and worn outside. Krapivina, Domżalski 2008, 79, fig. 1:1.

21. (Pl. 5:21) Olbia, settlement, Sector NGS; 1991. NIAZO, Parutyne, inv. no. O-1991, NGS/188. Fragmented (6 frs.), ca. 85% of vessel preserved, rim to base, D. rim 28.4–28.8 cm, D. foot 20.4 cm, H. 5.5–5.8 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, metallic lustre, with streaks, runs and finger marks outside; rim partly discoloured; *dipinto* – A – in red paint or slip on floor's underside. Krapivina 2010, 266, pl. 164:E-55.

22. (Pl. 5:22) Tanais, settlement, Sector XIX, trench 94/10, House AQ, phase 3; 1994. AMZT, Nedvigovka, inv. no. T-94-XIX-653+696. Fragmented (2 frs.), ca. 15% of vessel preserved, rim to base, D. rim est. 28.5 cm, D. foot est. 19.0 cm, H. 4.8 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, metallic lustre; rim partly discoloured. Arsen'eva, Domżalski 2002, 453, no. 8, fig. 5:8.

23. (Pl. 5:23) Olbia, settlement, Sector 25; 2003. NIAZO, Parutyne, inv. no. O-2003, R-25/995. Fragmented (7 frs.), ca. 85% of vessel preserved, rim to base, D. rim est. 28.6 cm, D. foot est. 20.0 cm, H. 6.4 cm. Clay orange-brown, medium fired; slip brown-orange, metallic lustre, with streaks, runs and finger marks outside; *dipinto* – two intersecting uneven lines – in red paint or slip on floor's underside; five holes pierced through various parts of vessel. Krapivina, Domżal'skij 2008, 79, fig. 1:2.

24. (Pl. 5:24) Phanagoreia, cemetery, grave 1988/8, Sector MTF; 1988. TMK, Taman, inv. no. FAN.88. Complete, restored (6 frs.), D. rim 28.6–28.8 cm, D. foot 21.0 cm, H. 5.6 cm. Clay orange-brown, softly fired; slip brown-orange, metallic lustre inside, badly preserved outside.

25. (Pl. 6:25) Provenience unknown (Bosporos Kimmerikos? Caucasian Black Sea coast?). KGIAMZ, Krasnodar, inv. no. KM 3614/407. Complete, restored (5 frs.), D. rim 28.8–29.2 cm, D. foot 20.4 cm, H. 5.4–5.8 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous; rim partly discoloured; *dipinto* – Cross-monogram – in red paint on floor's underside.

26. (Pl. 6:26) Tanais, settlement, Sector XIX, trenches 94/1–94/2; 1994. AMZT, Nedvigovka, inv. no. T-94-XIX-567+733+790. Fragmented (3 frs.), ca. 40% of vessel preserved, rim to base, D. rim est. 29.0 cm, D. foot est. 19.2 cm, H. 5.9 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, metallic lustre; rim partly discoloured; three holes pierced through wall. Arsen'eva, Domżalski 2002, 454, no. 16, fig. 6:16.

27. (Pls. 6:27 and **7)** Phanagoreia, cemetery, grave 1988/8, Sector MTF; 1988. TMK, Taman, inv. no. FAN.88. Intact, D. rim 29.0 cm, D. foot 21.0 cm, H. 5.8–6.0 cm. Clay pinkish-brown, medium fired; slip brown-pinkish, slightly lustrous inside, brown-orange with metallic lustre, with streaks, runs and finger marks outside; rim partly discoloured.

28. (Pl. 8) Inkerman, cemetery; 1948. BGIKZ, Bachčisaraj, inv. no. I48 V259. Intact, D. rim 28.8 cm, D. foot 18.5 cm, H. 5.4–5.8 cm. Clay pinkish-brown, hard-fired; slip brown-pinkish inside, brown-orange, with streaks, runs and finger marks outside, slightly lustrous; rim partly discoloured; multiple rouletted bands on outside of wall.

29. (Pl. 6:29) Nejzac, cemetery, grave 308; 2006. KRKM, Simferopol, inv. no. KP-56317, A-31252. Complete, restored (3 frs.), D. rim 30.2–30.5 cm, D. foot 22.6–22.8 cm, H. 5.2–5.5 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, slightly lustrous inside, metallic lustre outside; rim partly discoloured.

30. (Pl. 9:30) Kilen Balka, cemetery; 1968. NZChT, Sevastopol, inv. no. 36715/8. Nearly intact, D. rim 25.2 cm, D. foot 18.8–19.0 cm, H. 4.9–5.4 cm. Clay orange-brown, medium fired; slip brown-pinkish inside, brown-pinkish-orange, with streaks, runs and finger marks outside, dull; *dipinto* – two intersecting lines – in red paint or slip on underside of floor.

31. (Pl. 9:31) Nejzac, cemetery, grave 4; 1996. KRKM, Simferopol, inv. no. D-8240. Complete, restored (6 frs.), D. rim 27.2–27.4 cm, D. foot 21.4–21.6 cm, H. 5.2–5.8 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous, with streaks and runs outside; turning traces on underside of floor.

32. (Pl. 9:32) Pompeiopolis, settlement, Sector E1; 2009. PAK, Taşköprü, inv. no. P09-E1-(156+163+187)-1. Fragmented (10 frs.), ca. 40% of vessel preserved, rim to base, D. rim est. 27.0 cm, D. foot est. 17.0 cm, H. est. 6.0–6.1 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous, with streaks, runs and finger marks outside. Domżalski 2011, 165, pl. 2:1.

33. (Pl. 9:33) Pompeiopolis, settlement, Sector C2; 2008. PAK, Taşköprü, inv. no. P08-C2-165-75. Complete, restored (4 frs.), D. rim 27.5 cm, D. foot 18.8 cm, H. 6.4–6.7 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous. Domżalski 2011, 165, pls. 1:3, 2:2.

34. (Pl. 9:34) Provenience unknown. OAM, Odessa, inv. no. OGIM A-23257. Intact, D. rim 20.4–20.6 cm, D. foot 13.5–13.6 cm, H. 4.2–4.3 cm. Clay pinkish-brown, hard fired; slip brown-pink, dull inside, slightly lustrous, with streaks and runs outside; rim partly discoloured.

35. (Pl. 10:35) Kytaion, Džurg-Oba cemetery; 2003. KIKZ, Kerch, inv. no. KP 157616. Fragmented (9 frs.), ca. 40% of vessel preserved, rim to base, D. rim est. 21.5 cm, D. foot est. 14.5 cm, H. est. 4.1 cm. Clay pinkish-brown, hard fired; slip brown-pink, slight to metallic lustre, with streaks, runs and finger marks outside; rim partly discoloured.

36. (Pl. 10:36) Djurso, cemetery, grave 440; 1974. NGIMZ, Novorossijsk, inv. no. D-74 p. 440/4949. Fragmented (many frs.), ca. 80% of vessel preserved, rim to base, D. rim est. 21.8 cm, D. foot est. 14.2 cm, H. est. 4.5 cm. Clay orange-brown, medium fired; slip brown-orange, badly worn. Dmitriev 2003, 201, pl. 81:26.

37. (Pl. 10:37) Iluraton (settlement); 1949. GE, Saint Petersburg, inv. no. IL.49-11, I-49-203. Fragmented (many frs.), ca. 80% of vessel preserved, rim to base, D. rim est. 23.5–23.7 cm, D. foot est. 16.4 cm, H. est. 4.8 cm. Clay pinkish-brown, medium fired; slip brown-reddish, dull. Silant'eva 1958, 301–302, fig. 15:3.

38. (Pl. 10:38) Djurso, cemetery, grave 296; 1974. NGIMZ, Novorossijsk, inv. no. D-74 p. 296/4856. Fragmented (many frs.), ca. 80% of vessel preserved, rim to base, D. rim est. 26.0 cm, D. foot est. 17.3 cm, H. est. 4.8 cm. Clay pinkish-brown, hard fired; slip brown-pink, dull.

39. (Pl. 10:39) Kytaion, Džurg-Oba cemetery, grave 34; 2008. KIKZ, Kerch, inv. no. KP 173975. Intact, D. rim 26.6 cm, D. foot 17.8 cm, H. 5.3–5.7 cm. Clay pinkish-brown, hard fired; slip brown-pink, slightly lustrous, with streaks, runs and finger marks outside.

40. (Pl. 10:40) Djurso, cemetery, grave 479; 1974. NGIMZ, Novorossijsk, inv. no. D-74 p. 479/4982. Fragmented (many frs.), ca. 60% of vessel preserved, rim to base, D. rim est. 27.0 cm, D. foot est. 18.0 cm, H. est. 5.3 cm. Clay orange-brown, medium fired; slip brown-orange, badly worn. Dmitriev 1979b, 225, fig. 8:30; Soupault 1996, 62–64, fig. 3:4–6; Kazanski, Mastykova 1999, 527–528, fig. 3:9; Kazanskij 2001, 44–47, fig. 3:22; Kazanski 2002, 146, fig. 3:22; Mastykova 2009, 193, pl. 12:22.

41. (Pl. 10:41) Il'ič, fort, Room XIII/XIV; 1977. TMK, Taman, inv. no. IL.77 p. XIII-XIV/22. Fragmented (1 fr.), ca. 20% of vessel preserved, rim to base, D. rim est. 27.5 cm, D. foot est. 18.0 cm, H. est. 5.4 cm. Clay orange-brown, medium fired; slip brown-orange, slightly lustrous.

42. (Pl. 10:42) Kytaion, Džurg-Oba cemetery; 2003. KIKZ, Kerch, inv. no. KP 157617. Fragmented (many frs.), ca. 80% of vessel preserved, rim to base, D. rim est. 28.2 cm, D. foot est. 19.0 cm, H. est. 5.0–5.3 cm. Clay pinkish-brown, hard fired; slip brown-pink, slightly lustrous, with streaks, runs and finger marks outside; rim partly discoloured.

Find places

Western coast of the Black Sea and the lower Danube area

- Histria (settlement): Suceveanu 1982, 114, pl. 14:4; Bădescu, Cliante 2015, 210, fig. 1:2; Bădescu, Iliescu 2016, 142, fig. 4:12; Iliescu *et alii* 2017, 48, pl. 6:8–9.

- Aegyssus (settlement): Mocanu, Nuțu 2017, 135–136, fig. 9:3.

- Halmyris (settlement): Opaiț 1991a, 137, 165, 169, pls. 6:41, 44:301–303; Topoleanu 2000a, 42, 71–72, pls. 1:1–2, 17:143–146; Topoleanu 2000b, 262–263, pl. 1:6–10; Topoleanu 2003, 191, 199, 205, pls. 31:1, 39:3, 46:13; Mocanu 2018a, 235–236.

- Topraichioi (settlement): Opaiț 1985, 155, 159–160, pl. 1:9–12; Opaiț 1991b, 252, pl. 42:3; Opaiț 1996, 135, pl. 55:4; Opaiț 2004, 75, pl. 54:4.

- Ulmetum (settlement): Băjenaru 2018, 503–504, 506, figs. 2:13,27, 4:69.

- Tropaeum Traiani (settlement): Gămureac *et alii* 2015–2016, 222, pl. 3:33; Domżalski, Panaite 2019, 49, fig. 9:1a–1b.

- Capidava (settlement): surface finds, personal observations made by the author in 2009.

North-western coast of the Black Sea (periphery of the Černjachov culture)

- Olbia (settlement): **Cat. nos. 20–21** and **23**; Krapivina 1993, 110, fig. 48:21–22; Krapivina, Domžal'skij 2008, 76, 79, fig. 1:1–2; Krapivina 2010, 266, pl. 164:E-55.

- Kamenka-Ančekrak (settlement): Magomedov 1987, 77, 82–83, fig. 37:3–4; Magomedov 1991, 16–17, fig. 19:8–9; Kazanski 1993, 220–221, fig. 4:26; Magomedov 2001, 63–64, 107–109, fig. 64:8–8a; Didenko 2009, 64–67, fig. 2:1–2; Magomedov, Didenko 2009, 327–328, fig. 2:14–15; Magomedov, Didenko 2012, 173–175, fig. 2:14–15.

- Viktorovka II (cemetery): Symonovič 1967, 232–233, fig. 18:11; Magomedov 1987, 82–83, fig. 37:2; Magomedov 2001, 63–64, fig. 64:7; Didenko 2009, 64–67, fig. 2:3; Magomedov, Didenko 2009, 327–328, fig. 2:16; Magomedov, Didenko 2012, 173–175, fig. 2:16.

- Lugovoe (settlement): Magomedov, Gudim-Levkovič 2003, 39, pl. 7, fig. 11:1; Didenko 2009, 64–67, fig. 2:4; Magomedov, Didenko 2009, 327–328, fig. 2:17; Magomedov, Didenko 2012, 173–175, fig. 2:17.

- Syčavka (cemetery): Fedorov, Rošal' 1979, 268–270, fig. 2:5–6; Magomedov 1987, 82–83, fig. 37:5; Magomedov 2001, 63–64, fig. 64:9–9a; Didenko 2009, 64–67, fig. 2:5; Magomedov, Didenko 2009, 327–328, fig. 2:13; Magomedov, Didenko 2012, 173–175, fig. 2:13.

- Tyras (settlement): unpublished, fragmented vessel in BDKM, Bilgorod-Dnistrovs'kyj, inv. no. BTE-02-s.105.

- Belen'koe (cemetery, graves 160 and 175): **Cat. nos. 10** and **14**.

South-western Crimea and neighbouring areas

- Chersonesos (settlement): Beljaev 1968, 32–34, 37, fig. 1:3; Ryžov 1986, 133–134, fig. 4:3,5; Kadeev, Soročan 1989, 61–75, figs. 29:3, 33:3; Romančuk, Sazanov 1991, 35–40, figs. 12–17; Sedikova 1996, 179, fig. 2:18; Zolotarev, Ušakov 1997, 34–35, fig. 5:14; Sazanov 1999, 229–230, 235–237, 244–249, figs. 4:8–14, 5:40–47, 12:1–5; Golofast, Ryžov 2000, 80–81, fig. 12:1–8; Golofast 2001, 105–109, 116–117, figs. 5:2–9, 12:1–6, 19:1–4, 24:1–3, 26:2, 60:1–4,7, 66:12; Golofast 2003, 97–100, fig. 2:4; Golofast 2007a, 79–82, fig. 8:3,6; Golofast 2007b, 48–53, fig. 11:4–9; Ušakov *et alii* 2006, 195, fig. 8:1–6,8–9; Ušakov 2010b, 293, 306, fig. 11:1–4; Ušakov *et alii* 2010, 500–506, fig. 11:1–2,4–5; Golofast, Ryžov 2011, 369, 372, fig. 3:3; Ušakov 2011a, 217–220, figs. 3:1–4, 4:2–3,5–6, 8:1–3,5–8, 9:1–2; Ušakov 2011b, 402, fig. 2:27–28; Ušakov 2012, 84–91, fig. 9:14–15; Golofast, Ryžov 2013, 88, fig. 42:6–10; Zolotarev *et alii* 2013, 71–72, 97–104, 136–139, 220, figs. 34:7, 39:15, 62:34, 121:15; Ušakov 2013–2014, 202–203, figs. 8:1–2, 12:1–3,12–14, 13:32; Kutajsov, Trufanov 2014, 242, fig. 11:5–7; Ušakov, Strukova 2016, 111–114, figs. 8:1–3, 10:1,3–6, 12:19, 13:13–14, 14:32; Ušakov 2017a, 183–195, figs. 4:19, 6:14–15, 7:32, 8:13–14, 9:16,23–24, 10:8; Ušakov 2017b, 310–315, figs. 6:13–14, 7:14–15, 8:32, 9:1.

- Herakleian Peninsula, Kamyšovaja Buchta (settlement): Jašaeva 1999, 349, fig. 5:2–6,8–11; Yashaeva 2003, 118–120, fig. 4:2–6,8–11.

- Kilen-Balka (cemetery, graves 1968, 1/1991, 3/1991): **Cat. nos. 13** and **30**; Nessel 2001, 176–179, fig. 2:1; Nessel' 2003, 109–110, figs. 2:1–8,10, 3:1–4.

- Inkerman (cemetery): **Cat. nos. 9, 17** and **28**; Strželeckij 1947, 289–291, figs. 4–6; Vejmarn 1963, 16–42, fig. 13:7–13; Ajbabin 1984, 114–116, fig. 3:15.

- Sovchoz 10 (cemetery, graves 2, 9, 12, 34, 41, 81, 177, 237, 241, 253, 254, 284, 291, SK2, SK7, SK8, SK9, SK10, SK12, SK14, SK20): Ajbabin 1984, 114–116, fig. 5:2; Kazanski 1993, 214–215, fig. 1:34; Vysotskaja 1998, 256–263, fig. 2:1; Ajbabin 1999, 254, pl. 17:7; Ajbabin 2003a, 16, pl. 1:61; Strželeckij *et alii* 2003–2004, 89–91, 198–199, 201, 203– 204, pl. 17:8–12, appendix 2, pls. 5:34.38, 6:41.21, 12:[81].54,83,75, 23:177.19,23, 29:237.16,241.29, 30:253.38, 31:254.2, 33:284.52, 34:291.10,SK2.14, 35:SK7.16,SK8.23,SK9.36,37,44, 36:SK10.9,SK12.18,SK14.22,SK20.40.

- Černaja Rečka (cemetery, graves 15, 22, 40): Babenčykov 1963, 93, pl. 4:14; Ajbabin 1984, 114–116, fig. 7:2; Ajbabin 1990, 15–17, fig. 5:3; Ajbabin 1996, 291, figs. 6:2, 9:1; Ajbabin 1999, 254, pl. 14:5; Ajbabin 2003a, 16, pl. 1:53.

- Mangup (settlement): Gercen, Manaev 2005, 318–326, figs. 11:5, 14:3, 16:5,7–8, 19:4–5,8, 21:17–18,25; Gercen *et alii* 2006, 419, 424, figs. 37:4, 51:8–9; Gercen, Naumenko 2006, 409–411, figs. 15:6, 18:4,6.

- Mangup, Almalyk-Dere (cemetery, graves 1, 2, 3, 6, 31, 33, 158, 161, 175, 184): Ivanova 2009, 29–34, figs. 2:1–10, 3:11–18, 4:19–24.

- Krasnyj Mak (cemetery, graves 2, 8, 10): Loboda 1992, 214, fig. 3:3; Loboda 2005, 194–195, 198, 201, 209–210, figs. 3:7, 8:3, 12:9, pl. 2:12–14.

- Karši-Bair I–II (cemetery, graves K-BI/5, K-BII/3, K-BII/4): Ušakov, Filippenko 2003, 27–29, fig. 5:4–5; Ušakov, Filippenko 2008, 287–288, fig. 3:4–5; Ušakov 2010a, 97, figs. 75:35, 81:16; Ušakov 2012, 96–98, fig. 14:4–5(right/up).

- Višnevoe (cemetery, grave 3): Puzdrovskij *et alii* 2001, 32–36, fig. 12:11.

- Suvorovo (cemetery, graves 11, 30, 36, 38, 53): Zajcev 1997, 108, 110–114, figs. 59:11, 64:30; Juročkin 1997, 305–309, pl. I:21; Zajcev, Mordvinceva 2003, 59–60, fig. 9:1; Juročkin, Trufanov 2003, 213–215, 218, fig. 5:71; Juročkin 2004, 161–162, fig. 1:6; Juročkin, Trufanov 2007, 363–365, fig. 5:11–12; Puzdrovskij *et alii* 2007, 117–125, figs. 2:9,14, 10:10; Levada 2013, 172–174, fig. 1; Didenko 2014, 43–44, fig. 6:29.

- Tas-Tepe (cemetery, grave 14): Puzdrovskij *et alii* 2001, 32–36, fig. 3:7.

- Krasnaja Zarja: (cemetery): two unpublished vessels in BGIKZ, Bachčisaraj, inv. nos. Kr.Z. 00/1, Kr.Z. 00/27.

- Ozernoe III (cemetery, grave 1): Loboda 1977, 243, fig. 5:10; Didenko 2014, 40–41, fig. 4:20.

- Manguš (cemetery): Vysots'ka 1970, 103–104, fig. 7:8.

- Charax (cemetery, 1935): unpublished vessel in GIM, Moscow, inv. no. Hr. 24/I.

- Alonija (cemetery): Turova, Černyš 2015, 139, fig. 18:74.

- Artek II (cemetery): Turova 2018, 230–231, fig. 1:5–6.

- Lučistoe (cemetery, graves 54a, 58, 100): Ajbabin, Chajredinova 1998, 277, 281, 295, figs. 7:9, 8:25; Aibabin, Khairedinova 1999, 278, 282, 295–296, figs. 7:9, 8:25; Ajbabin 1999, 68, pl. 24:5; Ajbabin 2003a, 16–17, pl. 3:140; Juročkin, Trufanov 2007, 370–371, fig. 8:9; Ajbabin, Chajredinova 2008, 45, figs. 12:1, 21:44; Aibabin, Khairedinova 2009, 48, pl. 2:1; Ajbabin, Chajredinova 2009a, 36–39, 43, figs. 12:1, 21:44; Ajbabin, Chajredinova 2014, 19–20, 31–33, figs. 3:52, 8:12, pls. 225:6, 228:5.

- Družnoe (cemetery, graves 3, 18, 36, 58, 59, 64, 66, 78, 87): Chrapunov, Mul'd 1997, 259–260, fig. 149:11; Chrapunov 1998, 119–120, 123, fig. 3:5; Chrapunov, Chrapunov 1999, 252, fig. 8:1; Chrapunov 2000, 53, fig. 6:1; Chrapunov 2002, 15–16, 18–19, 23–24, 27–28, 33–34, 37, 58, figs. 69:7–8, 86:5, 120:1, 140:17, 147:3, 151:1-2, 158:1, 179:1, 211:11; Khrapunov, Mould 2003, 115, fig. 11:7–8; Chrapunov 2008, 377, fig. 11:1–2.

- Opuški (cemetery, grave 290): Maksimenkov 2021, 133–134, fig. 1:7.

- Nejzac (cemetery, graves 4, 6, 306, 308, 321): **Cat. nos. 15, 29** and **31**; Vysotskaja, Machneva 1983, 75–78, fig. 6:7; Chrapunov 2011, 20, fig. 34:2; Khrapunov 2013, 27–28, figs. 17:5, 18:2; Vlasov *et alii* 2013, 209, fig. 28:1–16; Šabanov 2016, 167–168, fig. 3:5; Turova 2018, 232, fig. 5:7, pl. 2:1; Namojlik 2020, 117–118, fig. 2:1.

- Rozental' (cemetery): Čurkin, Škribljak 2017, 285–287, fig. 13:10.

- Orta-Koj (cemetery): Čurkin, Škribljak 2017, 273–274, fig. 6:3.

Eastern Crimea (Bosporos Kimmerikos and neighbouring areas)

- Taraktaš III (settlement): Myc, Trufanov 2005–2009, 407–408, fig. 6:7; Myc, Trufanov 2009, 239–240, fig. 3:7

- Pantikapaion / Bosporos (settlement): Ajbabin 1999, 135–140, figs. 55:37–38, 56:4; Ajbabin 2003b, 29–30, pl. 10:37–38; Ajbabin 2013, 284–285, fig. 2:3,25–26; Žuravlev 1999, 30–31, fig. 8; Sazanov, Mogaričev 2002, 477–479, fig. 2:12–15; Smokotina 2008, 119, fig. 17:10; Smokotina 2015, 315–319, fig. 3:3–8; Smokotina 2018a, 643–646, fig. 3:2–6; Smokotina 2018b, 270–271, fig. 5:4,6.

- Pantikapaion/Bosporos (cemetery, grave 5/2004): Zin'ko 2017, 60.

- Tyritake (settlement): **Cat no. 19**; Gajdukevič 1952, 123, fig. 153[:2]; Knipovič 1952, 318–319, fig. 12:1; Sazanov, Ivaščenko 1989, 95–97, fig. 8:1–3; Sazanov 1989, 51–55, fig. 4:14a,v; Domżalski, Smokotina 2020, 623–624, figs. 1:3–7, 2:1–6, 3:1–6, 4:1–6; Domżal'skij, Smokotina 2020, 197–199, figs. 1:3–7, 2:1–6, 3:1–6, 4:1–6.

- Iluraton (settlement): **Cat. no. 37**; Silant'eva 1958, 301–302, fig. 15:3.

- Nymphaion (settlement, surface survey): Domżalski 1996, 105–107, fig. 4:85.

- Kytaion (settlement): Molev, Moleva 2016, 322–323, 351–352, nos. 109–109a.

- Kytaion, Džurg-Oba (cemetery, graves 2, 9, 34): **Cat. nos. 35, 39** and **42**; Ermolin, Juročkin 2002, 93, fig. 5:10; Ermolin 2003, 9–10, 13–14, figs. 9:18,41, 17:7,12; Ermolin 2004, 14–23, figs. 3:10,12–15, 5:23, 7:26,28, 8:5,8–10; Ermolin 2005, 129–130, figs. 8:23–24, 9:13, 13:7,18–20,23; Ermolin, Juročkin 2008, 57, fig. 8:10.

- Kimmerikon (settlement): Golenko 1999, 43–44, pl. 2:2; Golenko *et alii* 1999, 89, fig. 5:12; Golenko 2007, 115–175, figs. 30a, 38:15, 47, 57:13; Mordvinceva 2017, 355–357, fig. 1:141.

- Belinskoe (settlement): Juročkin, Zubarev 2001, 462–464, fig. 1:19; Zubarev, Šapcev 2014, 293, fig. 3:7.

- Mys Zjuk (settlement): Sazanov 1989, 51–55, fig. 4:14b.

- Zelenyj Mys (settlement): Sazanov, Mokrousov 1999, 172, fig. 1:19.

- Sirenevaja Buchta (settlement): Maslennikov 1997, 21–22, 33, fig. 48:9; Koval'čuk, Dikarev 2016, 291–294, figs. 7:[3]; 9:1171,1290,1372, 10:1444, 11:2318.

- General'skoe (settlement): Maslennikov, Čevelev 1985, 53–54, fig. 4:19.

Taman Peninsula (Bosporos Kimmerikos and neighbouring areas)

- Phanagoreia (settlement): Atavin 1993, 150–152, fig. 1:2–4; Golofast, Ol'chovskij 2016, 64–67, fig. 12.

- Phanagoreia (cemetery, graves 8, 50): **Cat. nos. 24** and **27**; Sorokina 1971, 97–98, fig. 6:2; Kazanski 1999, 306–307, fig. 11:11; Paromov 2003, 158, fig. 64:51; Gavrituchin, Kazanskij 2006, 301–303, fig. 5:22; Šavyrina, Vorošilova 2013, 432–436, fig. 15:4–5.

- Hermonassa (settlement): Pletneva 1963, 33–34, fig. 19:9; Sazanov 2000a, 234–235, fig. 20:28–31.

- Kepoi (settlement): **Cat. no. 11**; Sokol'skij 1963b, 21, fig. 10(down); Žuravlev *et alii* 2010, 180–182, fig. 9.

- Baterejka I (settlement): Sokol'skij 1963a, 186–188, fig. 6:7; Sazanov 1999, 224–225, fig. 1:9.

- Il'ič (settlement): **Cat. no. 41**; Sazanov 2000a, 227, fig. 11; Gavrituchin, Paromov 2003, 153, fig. 63:17–18.

- Volna I (settlement): Solov'ev 1997, 48, fig. 32:12.

- Artjuščenko I (settlement): Vinogradov 2011, 318–320, fig. 4:14.

- Gorgippia (settlement): Alekseeva 1997, 272, pl. 168:1.

Don river delta in the north-eastern Maiotis

- Tanais (settlement): **Cat. nos. 22** and **26**; Arsen'eva 1981, 44–45, fig. 1:1–3; Sazanov 1994–1995, 407, fig. 1:5; Arsen'eva *et alii* 1995, 241–242, 252–255, figs. 18:6, 23:6; Arsen'eva, Naumenko 2001, 73, fig. 47:1; Arsen'eva, Domżalski 2002, 425–426, 453–462, figs. 5–7; Arsen'eva *et alii* 2006–2008, 45, 48, pls. 58:35, 80:82; Arsen'eva *et alii* 2016, 125, figs. 7, 33; Ullrich 2018, 9, 20–22, 27, 30, 34, 36, 41–43, 81–82, 127–128, 141–142, 148–149, figs. 12:7–8, 26:11, 35:1, 40:8, 51:10, 61:4, 92:5, 120:13, 196:15, 215:5, 218:8; Domżalski 2021, 31–32, fig. 1.

- Suchyj-Čaltyr' (settlement): Kopylov 1996, 25, fig. 97:I/4.

- Kobjakovo (settlement): Kapošina 1960, 38, fig. 2:5.

- Rogožkino XIII (settlement): Toločko 2013, 192.

Eastern coast of the Black Sea (Caucasus and Colchis)

- Djurso (cemetery, graves 296, 440, 479): **Cat. nos. 36, 38** and **40**; Dmitriev 1979b, 225, fig. 8:30; Soupault 1996, 62–64, fig. 3:4–6; Kazanski, Mastykova 1999, 527–528, fig. 3:9; Kazanskij 2001, 44–47, fig. 3:22; Kazanski 2002, 146, fig. 3:22; Dmitriev 2003, 201, pl. 81:26; Mastykova 2009, 193, pl. 12:22.

- Bžid (cemetery, grave 158): Gavrituchin, P'jankov 2003, 189–190, pl. 74:26.

- Pitiunt (settlement): Lordkipanidze 1962, 254–255, pl. 3:10; Berdzenišvili 1963, 113, fig. 3:3–4; Ramišvili 1963, 75, 82–83, fig. 6; Nikolajšvili 1975, 181–182, figs. 23:5154, 25:5226; Asatiani 1977, 210, figs. 300–301; Apakidze 1978, 85–92, fig. 108; Lordkipanidze 1981, 121, pl. 63:1.14,54,92, 2; Agrba 1985, 36, pls. 30:1.1, 31:2; Lordkipanidze 1991, 174–177, pl. 12:1–5.

- Sebastopolis (settlement): Apakidze, Lordkipanidze 1965, 127, pl. 4:2; Puturidze 1965, 105–106, fig. 16; Trapš 1969, 324–329, pl. 46:19; Voronov 1969, 51–52, 92, pl. 30:10; Voronov 1980, 90, fig. 24:5; Voronov 1983, 89–91, fig. 6:1–2; Chruškova 2002, 254, fig. 97; Gabelia 2014, 440–441, fig. 29:1–10.

- Šapky (settlement): Voronov 1983, 89–91, figs. 4:11–12, 5:7; Voronov 2002, 340–341, fig. 4:27.

- Šapky (cemetery, graves 4, 6–7, 9–10, 13, 16, 24, 36, 43, 44, 46, 54, 57, 69, CH-4-1, CH-4-10, AH-12, VH-2, VH-5): Voronov 1969, 59–60, 92, pl. 27:1; Trapš 1971, 137, pls. 3:6, 21:4, 24:1; Voronov, Jušin 1973, 171–172, 180–181, 187, figs. 1:3, 10:3; Voronov 1975, 80–82, fig. 24:2; Voronov 1983, 89–91, figs. 4:1,6–8,10,13, 5:18; Voronov *et alii* 1990, 26, 28, pls. 17:4, 22:3, 23:6; Gej, Bažan 1997, 16, 22, pls. 15:8–9, 25:2; Voronov 2002, 340–341, fig. 4:27.

- Cibilium (settlement): Voronov 1983, 89–91, figs. 2:5–6, 3:9–15; Voronov, Bgažba 1985, 77–78, fig. 99:22,26–27; Voronov, Bgažba 1987, 123, fig. 13:7.

- Cibilium (cemetery, graves 43, 61/7, 78/21, 79/9, 311/1): Voronov 1983, 89–91, fig. 2:1–2; Voronov *et alii* 1989, 9, fig. 3:4; Gej, Bažan 1997, 17–18, pl. 20:9; Voronov 2003, 22, 25, 61–62, figs. 27:2, 39:3, 144:4, 234:1, Voronov 2007, 22–23, 26, 71–72, figs. 27:2, 39:3, 144:4; Domżalski 2007, 75–77, fig. 43:1–3.

- Gyenos (settlement): Voronov 1976, 53–54, fig. 6:16.

- Archaeopolis (settlement): Lekvinadze, Chvedelidze 1981, 129–131, fig. 14:d; Lekvinadze 1987, 247, fig. 53.

- Rhodopolis (settlement): Džaparidze 1974, 105, pl. 7:4.II1; Džaparidze 1989, 147, pl. 5:1.II1.

- Cichisdziri (settlement): Inaišvili 1993, 123, pl. 26:1–2.

Southern coast of the Black Sea and northern Anatolia

- Sinope (settlement): unpublished finds, Turkish-American excavations near the western defensive wall (2016–2017).

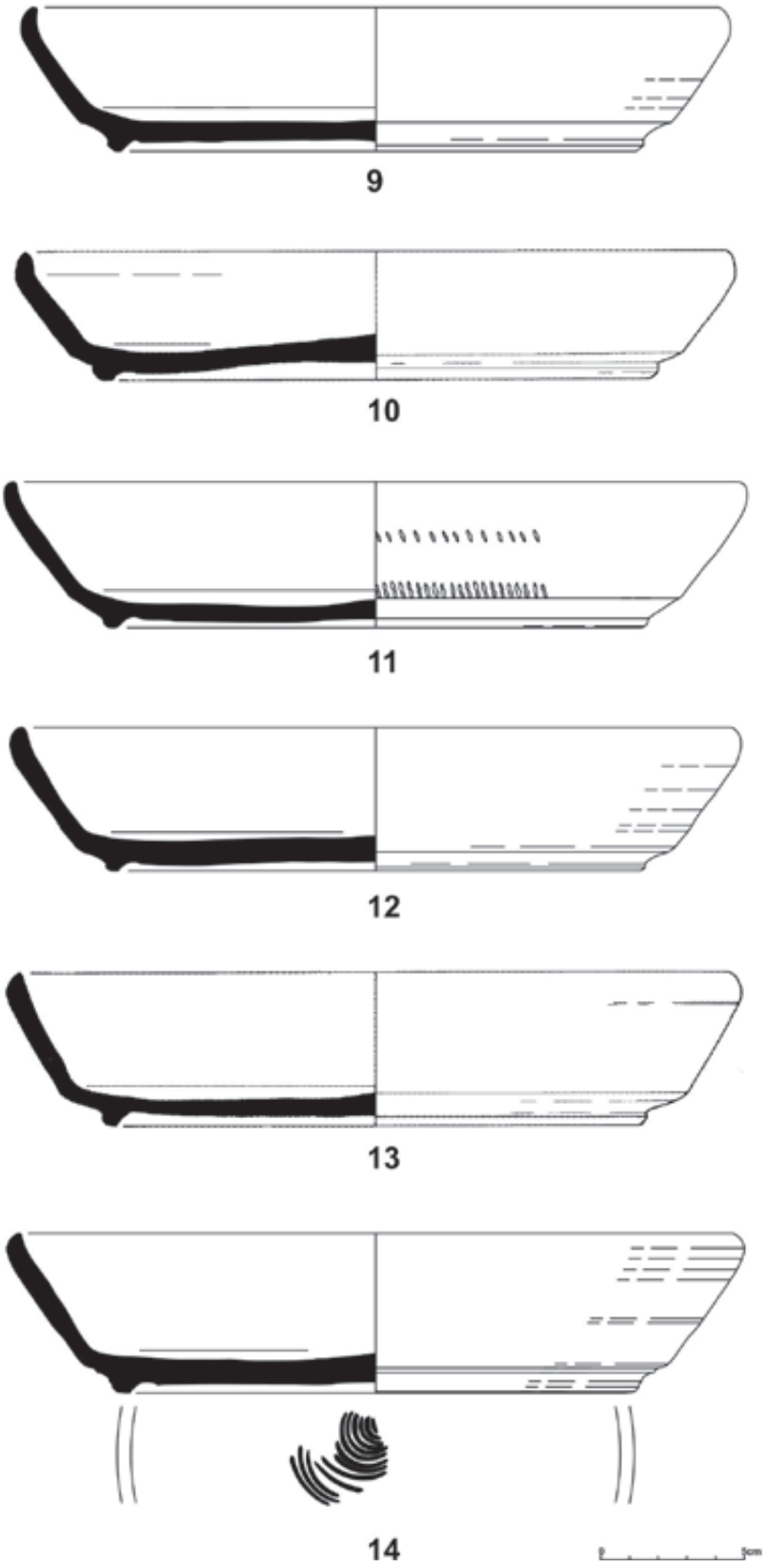
- Sinope (rural territory, surface survey): unpublished finds, SRAP 1996–1999; Doonan 2004, 105–107, fig. 5-11:3.

- Demirci (settlement): Fırat 2010, 187, 189–190, 195, pls. 49:2–3,7, 50:2,12, 54:50.

- Pompeiopolis (settlement): **Cat. nos. 32** and **33**; Domżalski 2011, 165, pls. 1:3, 2:1–6, 3:1; Domżalski 2016–2017, 76–78, fig. 4, pl. 1:1–3.

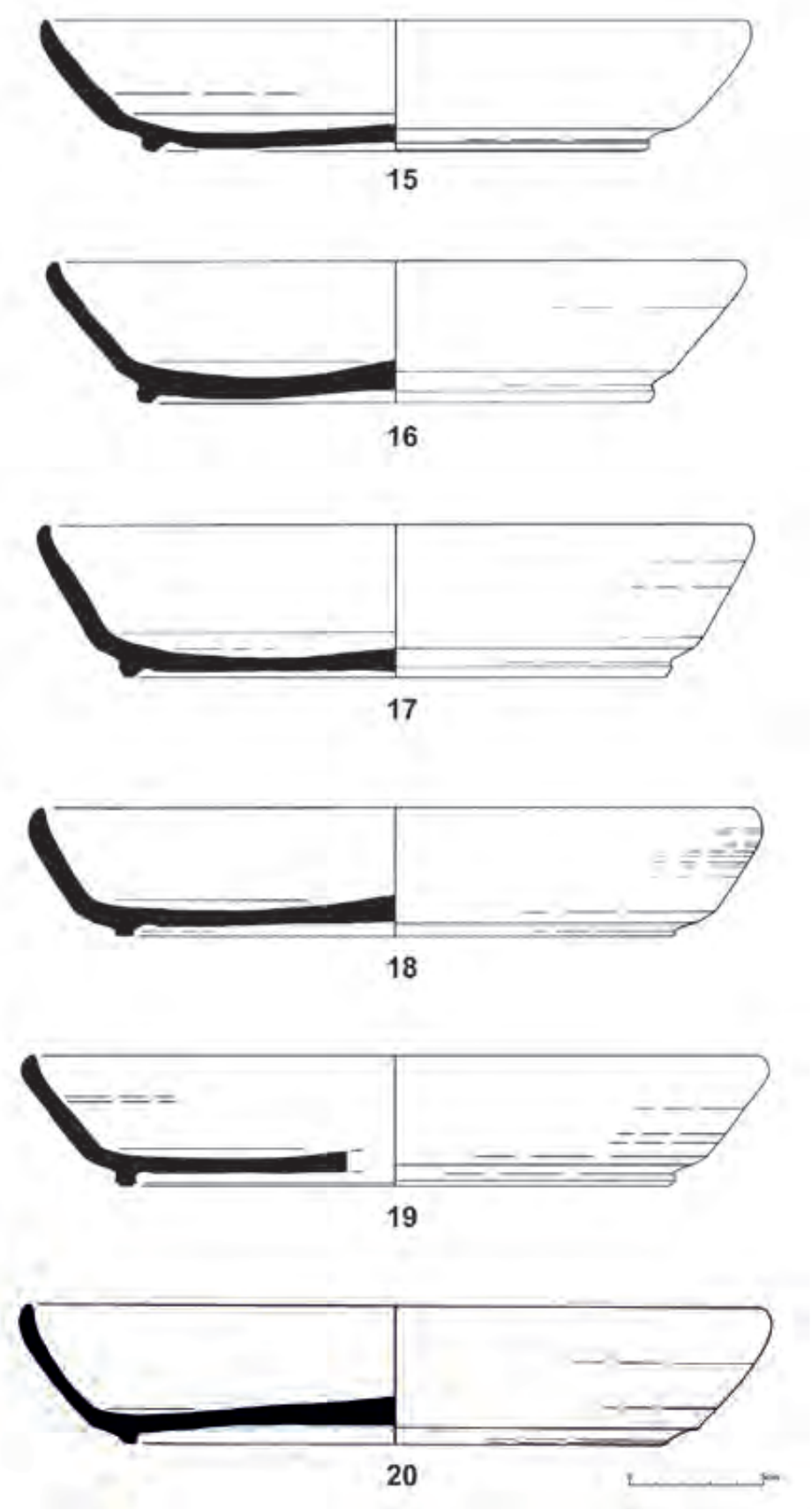
- Elma Tepesi near Merzifon (surface survey): Özsait, Özsait 2002, 529–530, 540, pl. 3:12.

- Tavium (surface survey): Weber-Hiden 2003, 287–289, fig. 17:A11.6.

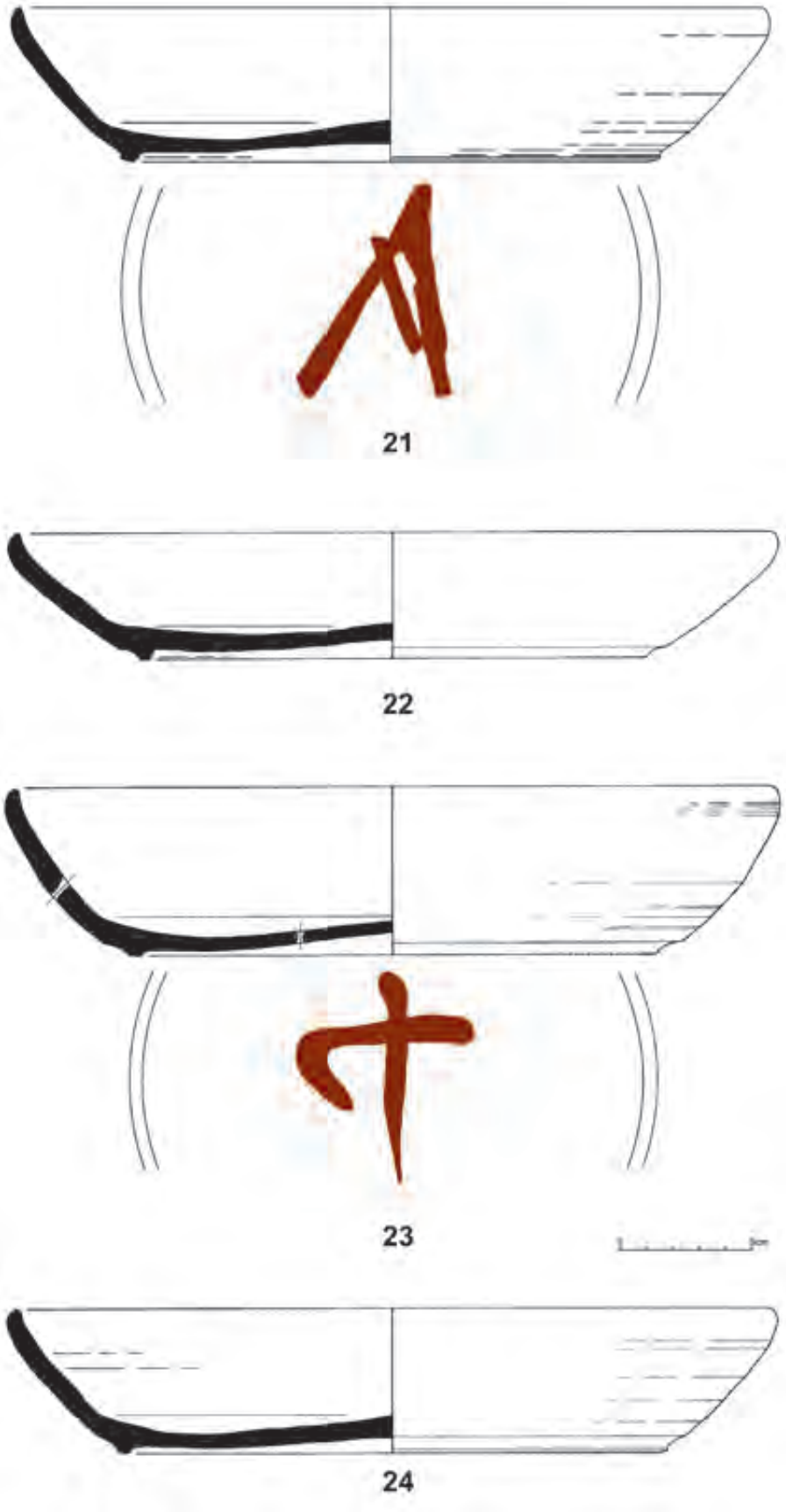


Pl. 2 Pontic Red Slip ware form 1A and 1A/B (Cat. nos. 9–14).

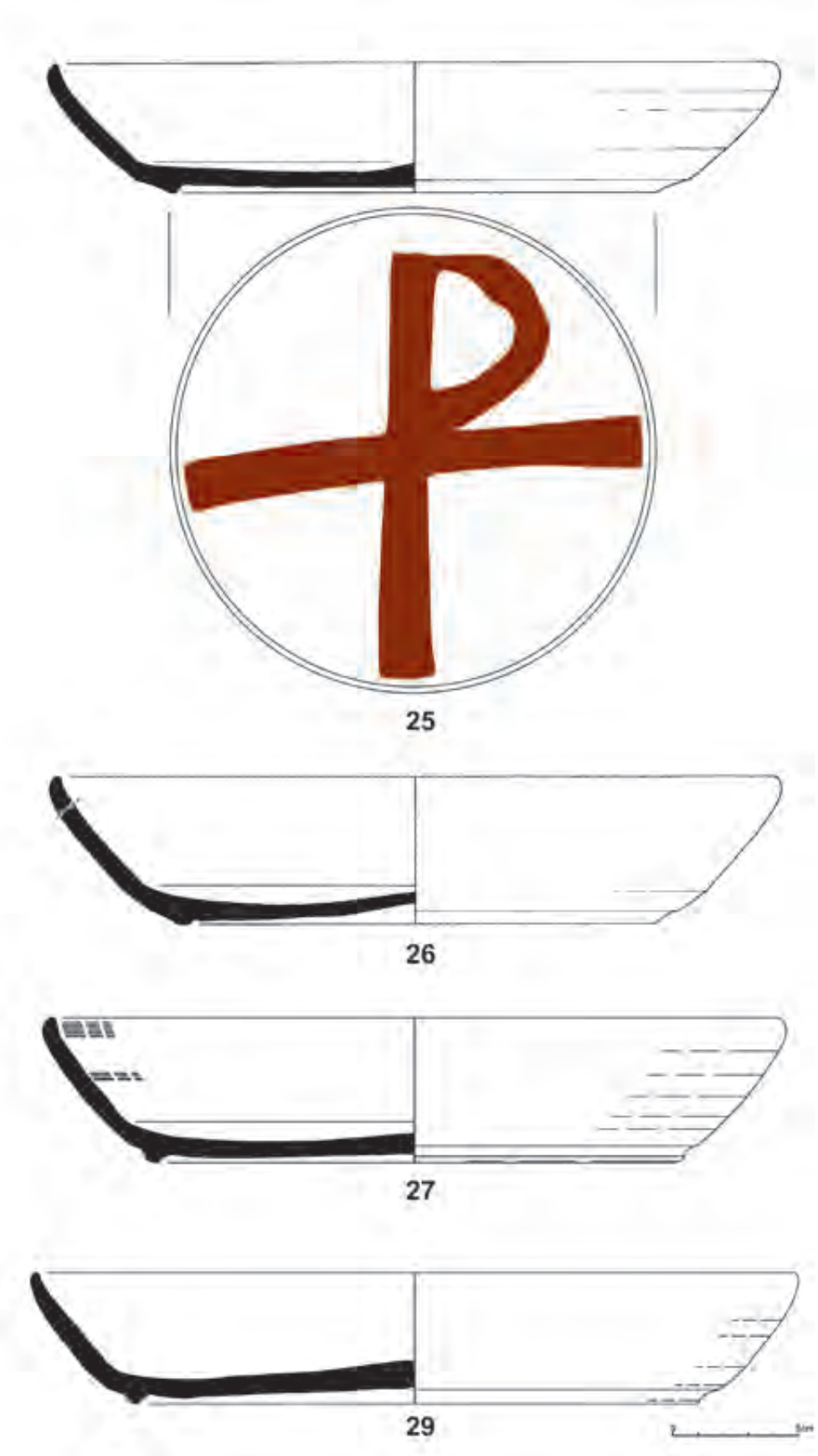
Pl. 3. Pontic Red Slip ware form 1A (Cat. no. 14).



Pl. 4. Pontic Red Slip ware form 1A and 1A/B (Cat. nos. 15–20).



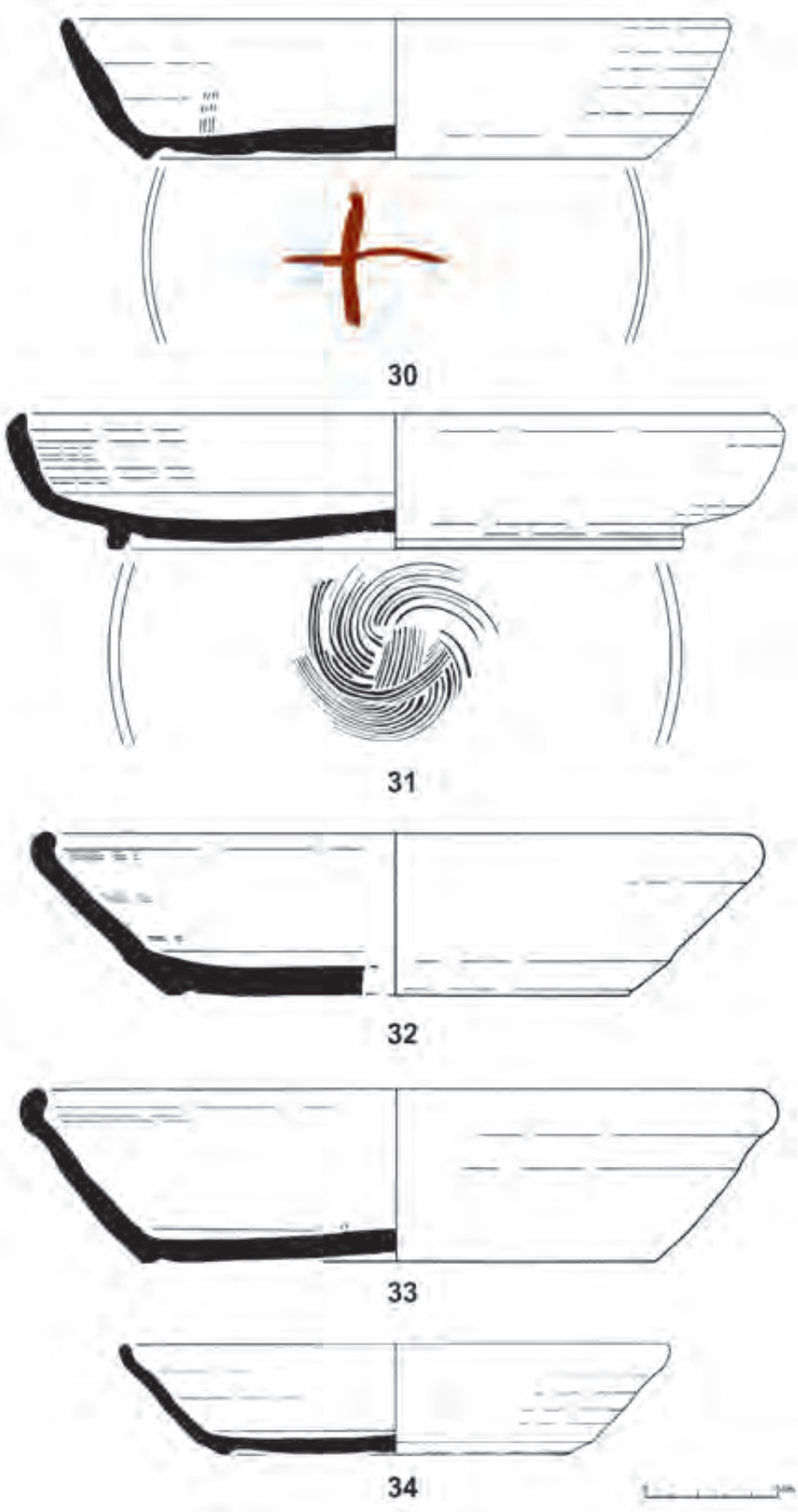
Pl. 5. Pontic Red Slip ware form 1A and 1A/B (Cat. nos. 21–24).



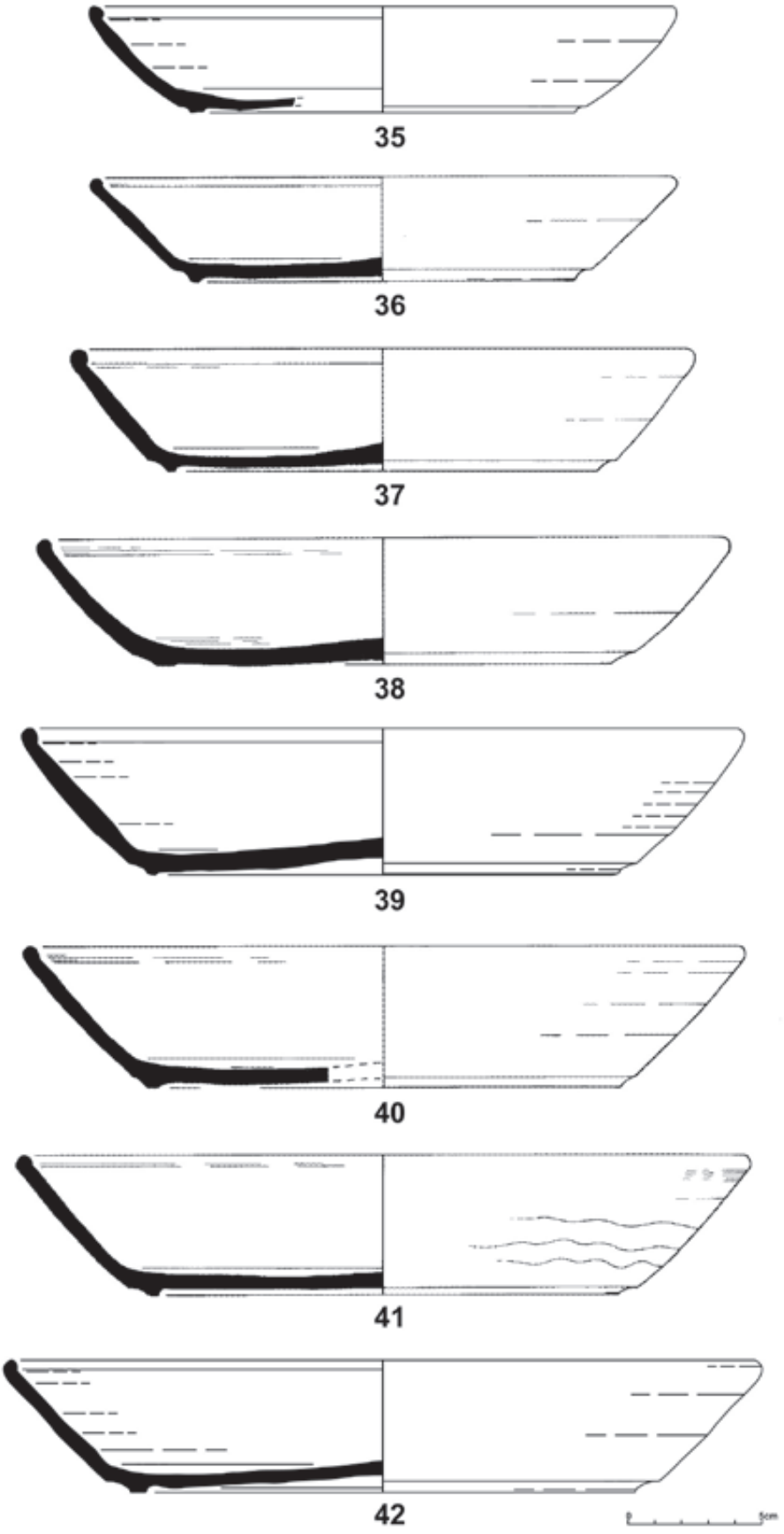
Pl. 6. Pontic Red Slip ware form 1A and 1A/B (Cat. nos. 25–29).

Pl. 7. Pontic Red Slip ware form 1A/B (Cat. no. 27).

Pl. 8. Pontic Red Slip ware form 1A/B (Cat. no. 28).



Pl. 9. Pontic Red Slip ware form 1: irregular variants (Cat. nos. 30–33), and possibly variant 1B (Cat. no. 34).



Pl. 10. Pontic Red Slip ware form 1B (Cat. nos. 35–42). ■

Variant 1/2

Large dish with plain rim and outcurved walls slanting towards broad flat floor on ring-foot of large diameter. The rim is an extension of the outcurved walls. The edge of the rim is rounded. The low but marked out foot is separated from the wall by a characteristic undercut. The floor is probably flat, like in forms 1 and 2. The approximate dimensions of the vessels are: rim diameter – ca. 26 cm, height – ca. 4.5 cm, foot diameter – ca. 18 – 19 cm.

The simple shape of the identified vessel generally resembles plate, form 1. The rim is also an extension of the wall which is, however, outcurved instead of straight or incurved as in form 1. The lower part of the wall with the undercut next to the foot is typical both of forms 1 and 2A.

On the other hand, the gently outcurved wall is similar to some of the vessels of form 2B (cf. **Pl. 12:48**). The upper part of the wall with the rim resembles also a rather irregular vessel of form 2A, which was found in the cemetery of Družnoe.[156]

The discussed dish was not distinguished in any of the previously published classifications. It was introduced here tentatively in the typo-chronological sequence. The only vessel of this shape, known to the author, is presented below in **Pl. 11:43**. Moreover, a few rim fragments possibly representing this variant have been identified recently in Paphlagonian Pompeiopolis.

The aforementioned morphological similarities to the dishes, form 2, suggest that the described dish could have been produced in the later part of the 4th century. Judging from the extremely rare finds, it definitively did not belong to the main production of the Pontic Red Slip ware as a specific form but may rather be identified as an irregular variant.

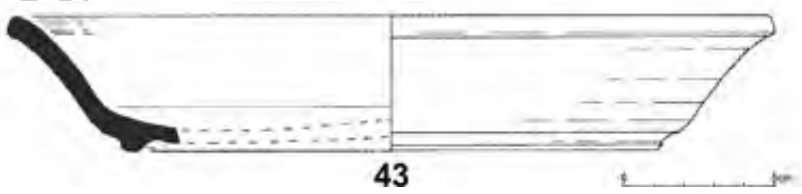
Catalogue of illustrated finds

43. (Pl. 11:43) Hermonassa. TMK, Taman, inv. no. TMGS-V-95II/22 no. 61. Fragmented (1 fr.), rim to base, D. rim est. 26 cm, D. foot est. 18.5 cm, H. est. 4.5 cm. Clay pinkish-brown, medium fired; slip brown-orange-pinkish inside and outside, slightly lustrous.

Find places

Taman Peninsula (Bosporos Kimmerikos)

• Hermonassa (settlement): **Cat. no. 43**.



Pl. 11. Pontic Red Slip ware variant 1/2 (Cat. no. 43).

156 Chrapunov 2002, 29, 58, fig. 151:3.

Form 2

Large dish with flat rim and straight or curved walls slanting towards broad flat floor on ring-foot of large diameter. Basing on the differences in the shape of the rim and walls, it is possible to distinguish two variants of this form: 2A – with a narrow, slightly outturned rim and straight walls (**Pls. 12:44–47** and **13**), and variant 2B – with a broader, horizontal or slanting inwards rim and slightly rounded walls, sometimes with a distinctive undercut on the outside (Pls. **12:48–49** and **14:53–56**). The rim in variant 2A has a gently rounded edge whereas in variant 2B it is blunt or only slightly rounded. Sometimes vessels with the features of both variants are found as well (Pl. **14:50–52**).

The dimensions of the vessels, form 2, are as follows: rim diameter 27 – 31 cm, height 3.5 – 5 cm, foot diameter 20 – 22 cm. This form was much less popular than the contemporaneous dish, form 1A, but it was also distributed at a large area. So far no ornaments have been found on the discussed vessels.

The distinguished vessels were not mentioned in the previously published classifications by other authors. They were first described as a distinctive PRS form in the articles presenting Late Roman red slip ware finds in the Bosporos Kimmerikos and in Tanais.[157]

The dishes, form 2, resemble similar vessels, forms 58–59, of the North African ARS ware which were very popular in the Mediterranean in the 4th and early 5th century.[158] The emergence of the first dishes, form 2A, is connected with the early stage of the Pontic Red Slip ware production in the 4th century. They have been found at the cemeteries in Družnoe, Kilen-Balka, Nejzac, Krasnaja Zarja, Suvorovo, Ozernoe and Tas-Tepe together with PRS dishes, form 1A.[159] At Kilen-Balka these vessels, both variants 2A and 2B, were found in one grave with PRS dishes, form 1A, and ARS dish, form 67, and with the latest coins of Constantine I. Towards the end of the 4th century or the beginning of the 5th century the analysed form was replaced by large dishes, form 3. Vessels representing variant 2B have some features similar to form 3, especially the rim and curved walls, which indicate a gradual transition from the earlier to the later shape.

The discussed vessels were used in Olbia before its abandonment at the turn of the 4th and 5th century. On the other hand, these vessels were not found among any grave offerings together with the later PRS forms: 1B, 3, and 6–9. They were not identified in the predominantly 5th century cemeteries of Almalyk-Dere, Krasnyj Mak, Lučistoe, Phanagoreia and Šapky. They were almost absent in Tanais and totally absent in Scythia Minor. To sum up, form 2 belongs exclusively to the first "generation" of the PRS vessels. Variant 2A most probably marks the emergence of this form in the early 4th century while variant 2B marks its further development until it was finally replaced by form 3, around the turn of the 4th and 5th centuries.

Catalogue of illustrated finds

44. (Pl. 12:44) Bosporos Kimmerikos? (provenience uncertain). KIKZ, Kerch, inv. no. KP 50763, KMAK 6928. Nearly complete, restored (3 frs.), D. rim 27.4 cm, D. foot 19.8 cm, H. 3.7–4.0 cm. Clay orange-brown, medium fired; slip brown-pinkish inside, brown-orange outside, slightly lustrous.

45. (Pl. 12:45) Pantikapaion / Bosporos? (provenience uncertain). KIKZ, Kerch, inv. no. KMAK 547, M.-26. Intact, D. rim 28.0 cm, D. foot 20.0 cm, H. 4.4 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, with streaks and runs outside, metallic lustre; turning traces on underside of floor.

46. (Pls. 12:46 and **13)** Nejzac, cemetery, grave 125; 2000. KRKM, Simferopol, inv. no. KP-50957, A-27855. Intact, D. rim 28.2–28.5 cm, D. foot 20.2 cm, H. 4.3–4.6 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, metallic lustre, with streaks, runs and finger marks outside.

157 Domżalski 2000, 163–164, fig. 2:4; Domżalski, Arsen'eva 2002, 426.

158 The impact of the African Red Slip vessels on the introduction of several PRS shapes is dicussed below, in Chapter 5.2.

159 Cf. above, Chapter 3.2, Table 1.

47. (Pl. 12:47) Baterejka, settlement; 1965. GIM, Moscow, inv. no. BAT.II.65, pit 4/132. Fragmented (4 frs.), ca. 20% of vessel preserved, rim to base, D. rim est. 30.0 cm, D. foot est. 22.0 cm, H. est. 4.4–4.7 cm. Clay orange-brown, softly fired; slip brown-orange, dull; analysed physico-chemically, sample no. **N639**.

48. (Pl. 12:48) Phanagoreia, settlement, Sector XXVI, trench 9; 1998. TMK, Taman, inv. no. FAN.98, XXVI/9/54. Fragmented (3 frs.), ca. 25% of vessel preserved, rim to base, D. rim est. 28.0 cm, D. foot est. 20.0 cm, H. est. 3.8–4.0 cm. Clay orange-brown, softly fired; slip brown-orange, metallic lustre, with streaks, runs and finger marks outside; analysed physico-chemically, sample no. **N638**.

49. (Pl. 12:49) Tanais, settlement; 1923–1928? GE, Saint Petersburg, inv. no. T.E.8. Fragmented (1 fr.), ca. 15% of vessel preserved, rim to base, D. rim est. 30.0 cm, D. foot est. 22.4 cm, H. est. 3.8 cm. Clay pale-pinkish-brown, medium fired; slip brown-orange, slightly lustrous, with finger marks outside; analysed physico-chemically, sample no. **G817**. Knipovič 1949, 70–71, fig. 26:7; Domżalski 2000, 163–164, fig. 2:4.

50. (Pl. 14:50) Pantikapaion / Bosporos, settlement; 1997. GIM, Moscow, inv. no. M97/98. Fragmented (1 fr.), ca. 15% of vessel preserved, rim to base, D. rim est. 29.0 cm, D. foot est. 21.5 cm, H. est. 4.0 cm. Clay pinkish-brown, hard fired; slip brown-pink, slightly lustrous, with streaks, runs and finger marks outside; analysed physico-chemically, sample no. **N637**. Žuravlev 1999, 29–31, fig. 7.

51. (Pl. 14:51) Chersonesos, settlement. GIM, Moscow. Complete, restored (many frs.), D. rim 29.6 cm, D. foot 20.8 cm, H. 4.6–5.2 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous, with streaks, runs and finger marks outside.

52. (Pl. 14:52) Nejzac, cemetery, grave 301; 2006. KRKM, Simferopol, inv. no. D-14780. Complete, restored (8 frs.), D. rim 30.0–30.2 cm, D. foot 20.0–20.2 cm, H. 3.8–4.0 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, slightly lustrous inside, with streaks, runs, finger marks and slight metallic lustre outside.

53. (Pl. 14:53) Provenience unknown. OAM, Odessa, inv. no. OGIM A-23258. Complete, restored (5 frs.), D. rim 28.6 cm, D. foot 19.8 cm, H. 3.8–4.0 cm. Clay palepinkish-brown, medium fired; slip brown-pinkish inside, brown-orange outside, dull; *dipinto* – two intersecting lines – in red paint on inside of floor.

54. (Pl. 14:54) Bosporos Kimmerikos? (provenience uncertain). KIKZ, Kerch, inv. no. KP 50762, KMAK 6927. Nearly complete, restored (6 frs.), ca. 90% of vessel preserved, D. rim 29.4 cm, D. foot 20.0 cm, H. 4.3–4.5 cm. Clay orange-brown, medium fired; slip brown-pinkish inside, brown-orange outside, metallic lustre.

55. (Pl. 14:55) Bosporos Kimmerikos? (provenience uncertain). KIKZ, Kerch, inv. no. KP 50761, KMAK 6926. Fragmented (10 frs.), ca. 75% of vessel preserved, rim to base, D. rim 29.0 cm, D. foot 20.6 cm, H. 4.3–4.8 cm. Clay orange-brown, softly fired; slip brown-orange, dull, with streaks and runs outside.

56. (Pl. 14:56) Kilen Balka, cemetery. NZChT, Sevastopol, inv. no. 39/37211. Intact, D. rim 30.5 cm, D. foot 20.8 cm, H. 4.5 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, dull, with streaks, runs and finger marks outside. Nessel' 2003, 109–110, fig. 3:9.

Find places

North-western coast of the Black Sea (periphery of the Černjachov culture)

• Olbia (settlement): Krapivina 1993, 110, fig. 48:19; Krapivina, Domžal'skij 2008, 76, 79, fig. 1:3–4.

South-western Crimea and neighbouring areas

- Chersonesos (settlement): **Cat. no. 51**; Ryžov 1986, 133–134, fig. 4:4; Kadeev, Soročan 1989, 61–62, fig. 29:6; Romančuk, Sazanov 1991, 12–15, fig. 2:6–8; Sazanov 1994–1995, 407, fig. 1:1; Sazanov 1999, 229–230, 236–237, 244–249, figs. 4:5,7, 13:15–17, 15:21; Golofast 2001, 106–107, figs. 13:1–3; Golofast 2007, 79–82, fig. 8:5; Ušakov *et alii* 2010, 500–502, fig. 7:7; Ušakov 2011b, 402, fig. 2:25–26; Ušakov 2012, 84–91, fig. 9:10; Kutajsov, Trufanov 2014, 242, fig. 11:1–4; Ušakov, Strukova 2016, 111–114, figs. 5:11, 9:15; Ušakov 2017a, 183–185, fig. 4:23.

- Kilen-Balka (cemetery, graves 1968, 3/1991, 6/1992): **Cat. no. 56**; Nessel 2001, 176–179, fig. 2:2; Nessel' 2003, 109–110, fig. 3:6–10.

- Inkerman (cemetery): Vejmarn 1963, 16–42, fig. 13:2,4–6.

- Sovchoz 10 (cemetery, graves 77B, 156, 166, 169, 205, 219): Ajbabin 1984, 114–116, fig. 3:5; Ajbabin 1990, 15–17, fig. 5:8; Strželeckij *et alii* 2003–2004, 91–93, 199, 201–202, pl. 17:13–14, appendix 2, pls. 11:77B.79, 21:156.3,166.40, 22:169.10, 27:205.12, 28:219.17.

- Černaja Rečka (cemetery, grave 6): Ajbabin 1996, 291, fig. 6:1; Ajbabin 1999, 254, pl. 14:4; Ajbabin 2003a, 16, pl. 1:60.

- Mangup (settlement): Gercen, Manaev 2005, 320–322, fig. 11:11–12.

- Mangup, Almalyk-Dere (cemetery): Ivanova 2009, 34–35, fig. 4:25–26.

- Suvorovo (cemetery, graves 30, 38): Zajcev 1997, 110–114, fig. 64:30; Juročkin 1997, 305–309, pl. 1:20; Juročkin, Trufanov 2003, 213–215, 217–218, fig. 3:27–28; Juročkin 2004, 161–162, fig. 1:15; Juročkin, Trufanov 2007, 363–365, fig. 6:6–7; Puzdrovskij *et alii* 2007, 117–120, fig. 7:1–2; Levada 2013, 172–174, fig. 1.

- Tas-Tepe (cemetery, grave 6): Puzdrovskij *et alii* 2001, 32–36, fig. 5:27.

- Krasnaja Zarja (cemetery): unpublished vessel in BGIKZ, Bachčisaraj.

- Ozernoe III (cemetery, grave 3): Loboda 1977, 246–247, fig. 7:7; Soupault 1996, 67–68, fig. 4:11.

- Manguš (cemetery): Vysots'ka 1970, 103–104, fig. 7:7.

- Družnoe (cemetery, graves 3, 18, 22, 42, 58, 78): Chrapunov 1998, 119–120, 123, fig.3:6; Chrapunov, Chrapunov 1999, 252, fig. 8:2; Chrapunov 2000, 54, fig. 7:1; Chrapunov 2002, 15–16, 18–19, 21, 25, 27–29, 33–34, 58, figs. 69:9, 86:6, 105:5, 131:1, 140:18, 151:3, 179:2; Khrapunov, Mould 2003, 114–115, fig. 2:9; Chrapunov 2008, 377, fig. 14:5.

- Nejzac (cemetery, graves 6, 125, 275, 301, 306, 321): **Cat. nos. 46** and **52**; Vysotskaja, Machneva 1983, 75–78 fig. 6:8; Chrapunov 2006, 43, fig. 3:3; Chrapunov 2011, 20, fig. 33:3; Khrapunov 2013, 27–28, fig. 18:1; Vlasov *et alii* 2013, 209, fig. 28:17; Šabanov 2016, 167–168, fig. 3:4; Turova 2018, 232, fig. 5:8, pl. 2:2; Namojlik 2020, 117–118, fig. 2:2.

- Rozental' (cemetery): Čurkin, Škribljak 2017, 285–287, fig. 13:7.

Eastern Crimea (Bosporos Kimmerikos and neighbouring areas)

- Pantikapaion / Bosporos (settlement): **Cat. no. 50**; Žuravlev 1999, 29–31, fig. 7; Smokotina 2015, 315–319, fig. 4:1–2; Smokotina 2018a, 643–646, fig. 3:7; Smokotina 2018b, 270–271, fig. 5:5.

- Tyritake (settlement): Domżalski, Smokotina 2020, 624, figs. 4:7–8, 5:1–2; Domžal'skij, Smokotina 2020, 199–200, figs. 4:7–8, 5:1–2.

- Kepoi (settlement): two unpublished vessels in GIM, Moscow.

Taman Peninsula (Bosporos Kimmerikos and neighbouring areas)

- Phanagoreia (settlement): **Cat. no. 48**; Atavin 1993, 155–156, fig. 3:2; Golofast, Ol'chovskij 2016, 66–67, fig. 14:3–4.

- Patrasys (settlement): unpublished vessel in GIM, Moscow.

- Baterejka (settlement): **Cat. no. 47**; moreover, unpublished fragment (variant 2A, rim to base, D. rim est. 27.0 cm, D. foot est. 19 cm, H. est. 4.5 cm) in GIM, Moscow, inv. no. BAT.II. 1964 r.A no. 23.

- Gorgippia (settlement): Alekseeva 2015, 15, fig. 4:3.

Don river delta in the north-eastern Maiotis

- Tanais (settlement): **Cat. no. 49**; Knipovič 1949, 70–71, fig. 26:7; Domżalski 2000, 163–164, fig. 2:4; Arsen'eva, Domżalski 2002, 426.

Eastern coast of the Black Sea (Caucasus and Colchis)

- Pitiunt (settlement): Lordkipanidze 1962, 254–255, pl. 3:12; Berdzenišvili 1963, 119, fig. 9:3; Lordkipanidze 1981, 121, pl. 63:1.80.

- Cichisdziri (cemetery): Inaišvili 1993, 123, pl. 32:2.

- Pičvnari (cemetery, grave 5/179): Kachidze, Memuladze 2001, 77–83, figs. 9:6, 12:2; Vickers, Kakhidze 2001, 84–87, fig. 41; Vickers, Kakhidze 2004, 210–211, figs. 290, 292.

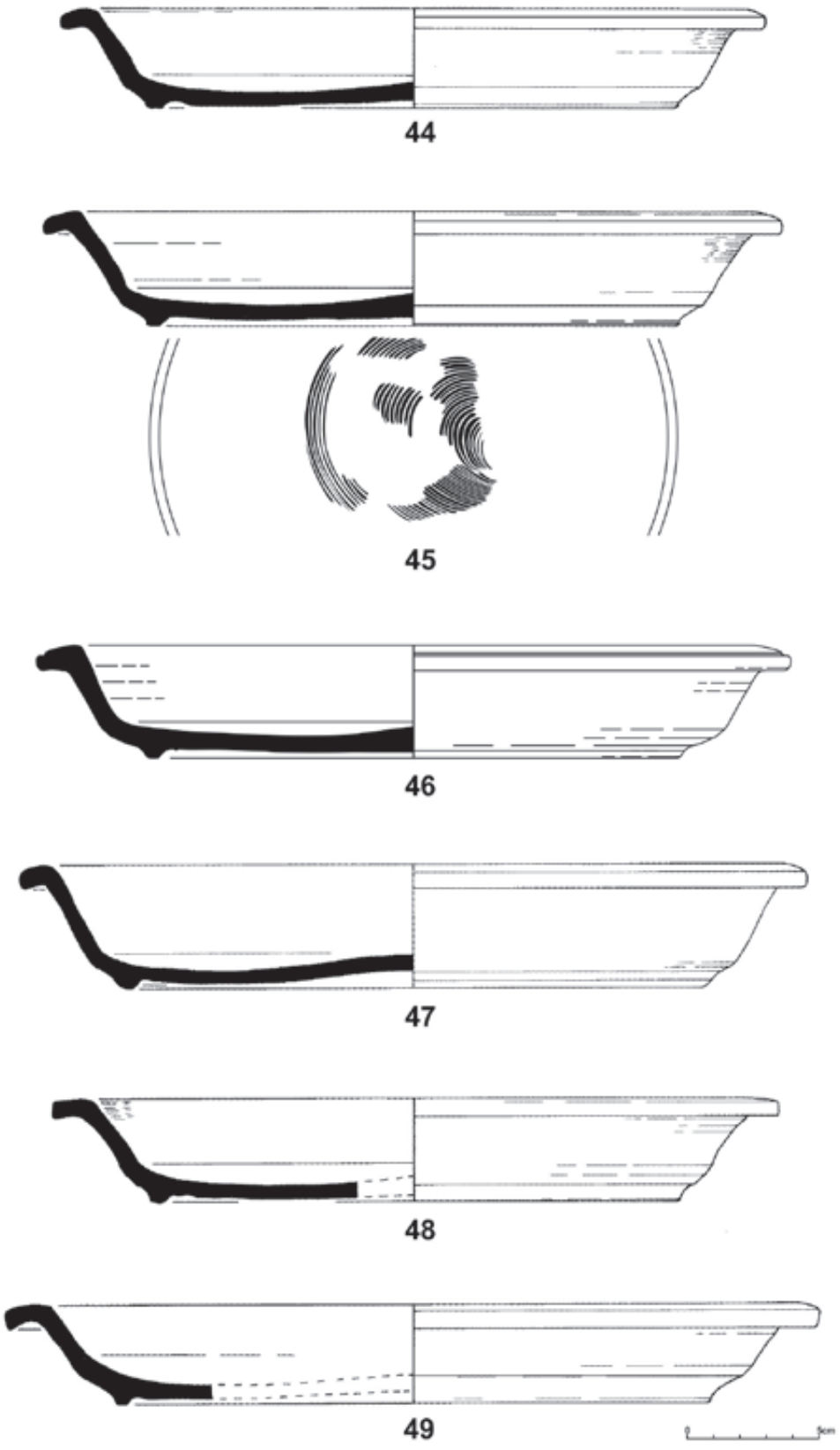
Southern coast of the Black Sea and northern Anatolia

- Sinope (rural territory, surface survey): unpublished finds, SRAP 1996–1999.

- Pompeiopolis (settlement): Domżalski 2011, 165, pl. 2:7–9; Domżalski 2016–2017, 76–77, fig. 4.

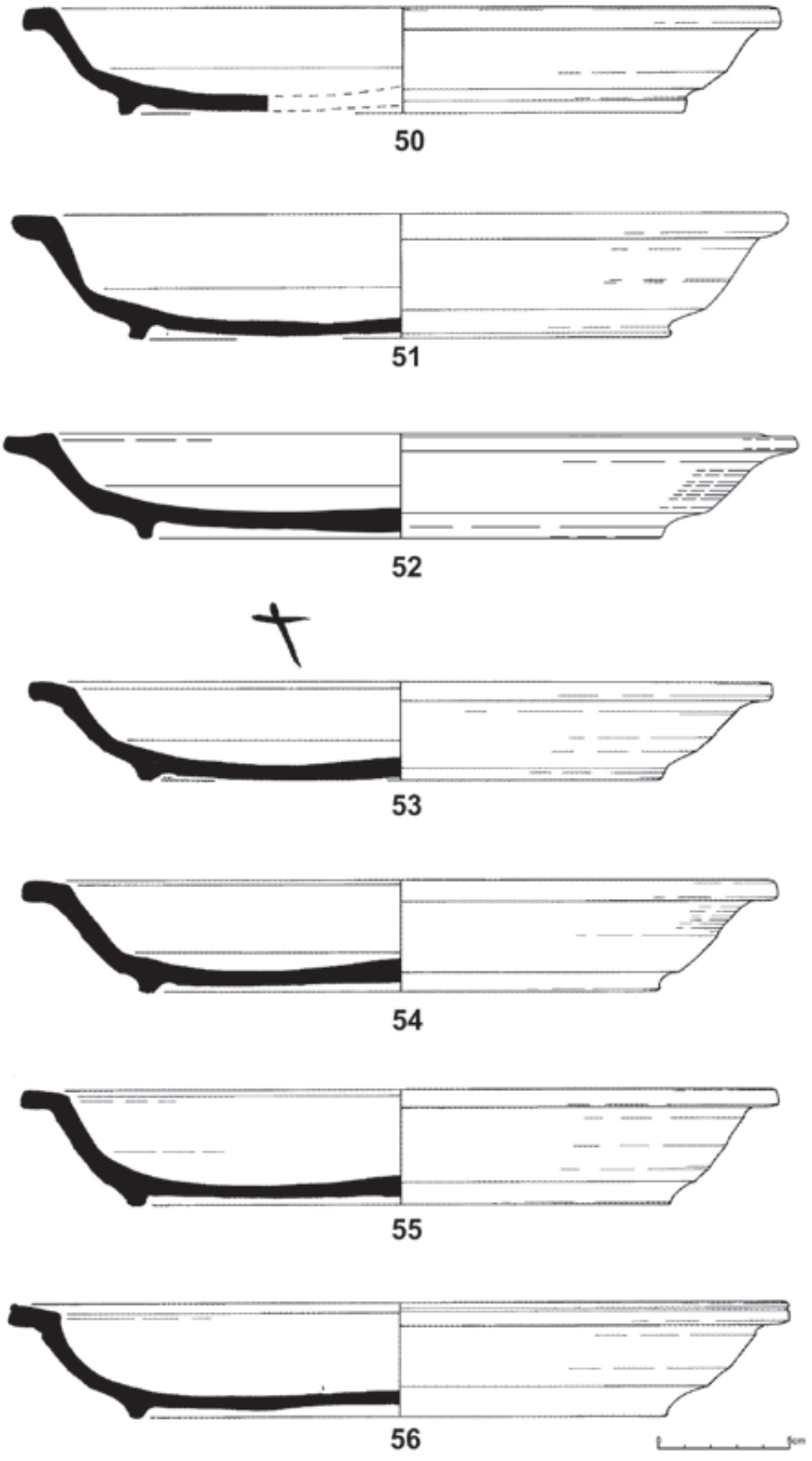
- Komana Pontika (settlement): unpublished vessel from the excavations of METU, Ankara, in 2016.

- Tavium (settlement, surface survey): Weber-Hiden 2003, 285–286, fig. 15:A8.36–37.



Pl. 12. Pontic Red Slip ware form 2A (Cat. nos. 44–47) and 2B (Cat. nos. 48–49).

Pl. 13. Pontic Red Slip ware form 2A (Cat. no. 46).



Pl. 14. Pontic Red Slip ware form 2: irregular variants (Cat. nos. 50–52) and variant 2B (Cat. nos. 53–56). ■

Form 3

Large dish with wide rim and curved walls sloping towards broad flat floor on ring-foot of large diameter. The rim with a more or less rounded edge is usually slightly slanting inwards. The vessels with an almost horizontal rim are rare. The rounded walls have sometimes characteristic undercuts on their outer surfaces left by the shaping tool and not smoothed out. The foot is low but well marked, with a slightly rounded or flat bottom. The large, almost flat floor is characteristically raised in its central part. This is especially well visible in vessels with the largest diameters.

Large dishes, form 3, were very popular at the height of the activity of the workshops producing the Pontic Red Slip ware. The dimensions embrace a large span: the rim diameter ranges from 19 to 42 cm, the height, from 2.5 to 5 cm, and the diameter of the foot, from 12 to 29 cm. Small variants with the rim diameter of 19 – 24 cm, height 2.5 – 3 cm, foot diameter 11 – 15 cm, are very rare. The most common vessels were medium-sized, with the rim diameter 27 – 36 cm, height 3 – 5 cm, and foot diameter 18 – 25 cm. Larger vessels were less numerous.

Another diagnostic parameter for describing the dishes, form 3, which can be taken into account, is the width of the rim, although it is not always proportional to the dimensions of the whole vessel. The width of the rim ranges from 2.1 to 4.1 cm. The most frequently encountered medium-sized vessels have rims with the width between 2.7 and 3.8 cm.

This form was distinguished by L. F. Silant'eva among the finds from Iluraton as type 46, dated to the late 3rd and 4th century.[160] Later on, the form was classified in Abkhazia by Ju. N. Voronov as type 4, dated to the late 4th and 5th century.[161] At approximately the same time the discussed form was identified also by A. Opaiț as type 2, the use of which in Topraichioi was dated by coin finds to the late 4th and the early decades of the 5th century.[162] In articles published by A. V. Sazanov, the described dish was identified incorrectly as Late Roman C / Phocaean Red Slip ware form 2.[163] Despite this, in the early 1990s A. G. Atavin distinguished this form as type 8 among the finds from Phanagoreia and dated these vessels, according to similar finds from other sites, to the 4th – mid-5th century.[164]

The discussed vessels were first described as form 3 in the papers presenting Late Roman and Early Byzantine red slip ware finds in the Bosporos Kimmerikos and in Tanais, according to the typo-chronological classification embracing the Pontic Red Slip vessels.[165]

The typological features presented above are shared by almost all of the regular vessels of the discussed form. The only exception is a large plate with a rim diameter of ca. 38 cm (**Pl. 23:77**). Due to its large dimensions it has two ring-feet: the standard one (external) located at the junction of the wall and floor, and an internal one placed at the distance of 3.3 cm inwards from the external one. The additional foot certainly increased the stability of the vessel but was not necessary, which is evidenced by several finds of still larger vessels of form 3 with the rim diameters of more than 40 cm, which had only one foot. This untypical solution is extremely rare and has no parallels among the Late Roman Mediterranean red slip wares. However, an interesting vessel with a similar double ring-foot was found among Early Roman ARS forms.[166]

Although a considerable number of dishes, form 3, was not decorated, the ones which were embellished had exceptionally rich ornaments in comparison to the other PRS forms. Mainly the combed technique was used to create compositions made of broad wavy bands. They usually were concentric circles on the floor, surrounding sometimes smaller combed polygonal motifs, and were also executed on the rim, along the edge. The circles with large diameters were

160 Silant'eva 1958, 301–302, fig. 15:4.

161 Voronov 1983, 92–94, figs. 4:4-5, 5:5,19–20, 6:4–6.

162 Opaiț 1985, 154, 159, pl. 1:4–5.

163 Cf. above, Chapter 2.2., notes 52–60, 62.

164 Atavin 1993, 155–156, figs. 3:1–3, 7:1–4.

165 Domżalski 2000, 163–164, fig. 2:5; Domżalski, Arsen'eva 2002, 426–427, 462–477, figs. 8–12, 20–24.

166 Salomonson 1968, 108, fig. 23:A25a. This find is not dated precisely but possibly the vessel may have been related with the Early Roman ARS form 29, manufactured in the 3rd century; cf. *Atlante* 1981, 55, pl. 24:13.

sometimes made of gentle wavy bands, while the smaller circles, located the closest to the centre of the floor had acute angles resembling a spider's web. The compositions of wavy bands radiating from the central point of the floor or bands creating single polygonal motifs with rounded corners in the centre were less frequent.

The combed motifs made on the floor sometimes created rich compositions of the medallion type complemented with concentric circles of double or multiple grooved lines alternating with the combed wavy bands. The smallest circular grooved lines were made in the centre of the floor. Very rarely, inside the medallion, there were one or more concentric circles composed of small imprinted motifs. The whole composition resembles the stamped decorations occupying large parts of floors of the North African ARS , and Aegean LRC/PhRS vessels.[167]

Also the rims of these vessels were sometimes decorated, especially the widest ones. The decoration consisted of one continuous combed wavy band running in the centre of the rim, parallel to its edge. Very seldom there were two parallel lines.[168] The rims were also decorated sometimes with single or double grooved lines near the outer edge or near both edges. The ornament of double grooved lines near the outer edge combined with a single grooved line near the inner edge is less frequent. Similarly rare is only a single groove near the inner edge.

The not typical dish with a double foot (**Pl. 23:77**) also has an unusual decoration at the floor's underside. It consists of four concentric circles made of incised wavy lines, separated by the inner foot and two concentric circles of grooved lines. Such a composition has not been recorded on any other complete PRS vessels, but only on one fragment found in Tanais.[169] However, its simplified version is evidenced also on a dish discovered in Almalyk-Dere.[170]

Form 3 is basically dated to the first half or the first three quarters of the 5th century. Possibly these dishes were made slightly earlier, at the end of the 4th century, replacing gradually the earlier vessels, form 2. Their rim and general shape resemble the similarly dated vessels of the Mediterranean red slip wares: form 2 of the Aegean Late Roman C / Phocaean Red Slip ware, and form 67 of the North African ARS ware. This concerns also the decorative stamped compositions of the above-mentioned Mediterranean red slip wares, which were replaced on the Pontic dishes by the similarly arranged large combed medallions.[171]

The vessels of the described PRS form 3 are very numerous in Tanais and occur there mainly together with the fragments of the Late Roman C / Phocaean Red Slip dishes, forms 1/2 and 2. They also reached the lower Danube area in significant numbers, where their presence was confirmed, i.a., in Ulmetum, in the contexts from the first half of the 5th century. It is also important to note their very scarce presence in Olbia, where the PRS vessels produced earlier, form 2, were much more popular.

The richest assemblage of completely preserved vessels of this form is known from the predominantly 5th century cemetery of Almalyk-Dere. They were also found among the rich grave offerings in several other cemeteries used in that century, in Sovchoz 10, Krasnyj Mak, Lučistoe, Karši-Bair, Phanagoreia and Šapky. It is important to note their absence in the graves dated earlier, in the 4th century, i.a., in Družnoe, Kilen-Balka and other cemeteries, where the PRS forms 1A and 2 dominated, as well as in the grave assemblages dated to the late 5th and early 6th century, especially in Skalistoe, and Djurso.[172]

The discussed form was the leading vessel of the second "generation" of the Pontic Red Slip ware during its most successful time of intensive production and broad distribution. In the third quarter of the 5th century these vessels began to be replaced by a newly

167 Hayes 1972, 218–220, 346–347. The phenomenon of imitating the North African products in the Late Antiquity by other leading red slip ware producers, Mediterranean and Pontic, is discussed below, in Chapter 5.2; cf. Fig. 9.

168 Out of 150 rim fragments of the dishes, form 3, found in Tanais, 49 ones had combed decoration. They represented large vessels with the rim diameters of 36 – 41 cm; cf. Arsen'eva, Domżalski 2002, 427, note 55, figs. 8–11.

169 Arsen'eva, Domżalski 2002, 475, no. 510, figs. 12:510, 24:510.

170 Ivanova 2009, 36, no. 30, fig. 6:30.

171 These similarities are discussed below, in Chapter 5.2, and illustrated in Fig. 9.

172 Cf. above, Chapter 3.2, Tables 1–4.

introduced dish, described below as form 7. For a certain period of time these two forms could have been produced together, which is indicated by the sporadic occurrence of the comb decoration on the earliest large dishes, form 7, and by some grave offerings, e.g., in Karši-Bair and Phanagoreia, where these two forms were found together.

Catalogue of illustrated finds

57. (Pl. 15:57) Bosporos Kimmerikos? (provenience uncertain). KIKZ, Kerch, inv. no. KMAK 576. Intact, D. rim 18.6 cm, D. foot 11.6 cm, H. 2.7 – 3.0 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, slightly lustrous; rim partly discoloured. Combed decoration in centre of floor: polygonal wavy band.

58. (Pl. 16:58) Tanais, settlement, Sector XXV, trenches 112–114; 2015. AMZT, Nedvigovka, inv. no. T-15-XXV-82+123. Fragmented (4 frs.), ca. 40% of vessel preserved, rim to base, D. rim est. 23.0 cm, D. foot est. 14.4 cm, H. est. 3.2 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous inside, metallic lustre, with streaks and runs outside. Combed and grooved decoration in centre of floor: combed circular wavy band between two concentric circles of double grooved lines. Il'jašenko *et alii* 2018, 114, fig. 100; Lech 2018, 307–309, fig. 2; Domżalski 2021, 31–32, fig. 2.

59. (Pl. 15:59) Tanais, settlement, Sector XXV, trench 112; 2013. AMZT, Nedvigovka, inv. no. T-13-XXV-13. Fragmented (1 fr.), ca. 15% of vessel preserved, rim to base, D. rim est. 23.0 cm, D. foot est. 14.0 cm, H. est. 3.0 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous inside, metallic lustre, with streaks and runs outside.

60. (Pl. 15:60) Kytaion, Džurg-Oba cemetery, grave 31; 2007. KIKZ, Kerch, inv. no. KP 173954. Fragmented (many frs.), ca. 80% of vessel preserved, rim to base, D. rim 27.0–27.2 cm, D. foot 17.7 cm, H. 4.1–4.5 cm. Clay orange brown to pinkish-brown, medium fired; slip brown-orange to brown-pinkish, metallic lustre, with streaks, runs and finger marks outside. Grooved decoration on floor: small circle of double grooved line placed centrally.

61. (Pls. 15:61 and **17:61)** Provenience unknown (Bosporos Kimmerikos? Caucasian Black Sea coast?). KGIAMZ, Krasnodar, inv. no. KM 3614/180. Intact, D. rim 27.6 cm, D. foot 18.2 cm, H. 4.4 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, dull; rim partly discoloured; single hole pierced through rim. Combed and grooved decoration in centre of floor: circular wavy band surrounded by concentric circle of multiple grooved lines.

62. (Pl. 18:62) Tanais, settlement, Sector XIX, Room DK; 1982. AMZT, Nedvigovka, inv. no. T-82-XIV-18. Fragmented (1 fr.), ca. 60% of vessel preserved, rim to base, D. rim est. 28.0 cm, D. foot est. 19.0 cm, H. est. 3.7 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, dull inside, metallic lustre outside. Combed decoration in centre of floor: two concentric wavy bands, circular outside and polygonal inside. Böttger 1991, 195–200, fig. 31:2; Arsen'eva, Domżalski 2002, 462, no. 272, figs. 8:272, 20:272.

63. (Pl. 18:63) Bosporos Kimmerikos? (provenience uncertain). KIKZ, Kerch, inv. no. KMAK 1580. Nearly complete (1 fr.), ca. 90% of vessel preserved, rim to base, D. rim 28.4 cm, D. foot 19.2 cm, H. 3.5–3.9 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, slightly lustrous inside, badly preserved outside. Combed and grooved decoration on floor: two concentric combed wavy bands, circular outside and polygonal inside, and two concentric circles of double grooved lines, big one between combed wavy bands, and small one in centre of floor.

64. (Pl. 18:64) Kytaion, cemetery, grave 5/1929; 1929. KIKZ, Kerch, inv. no. KMAK 613. Intact, D. rim 28.6 cm, D. foot 18.8 cm, H. 3.0–4.2 cm. Clay orange-brown, medium fired; slip brown-

pinkish inside, brown-orange, with streaks and runs outside, dull. Combed and grooved decoration on floor: two concentric combed wavy bands, circular outside and polygonal inside, and two concentric circles of double grooved lines, big one between combed wavy bands, and small one in centre of floor. Gajdukevič 1959, 234–236, fig. 105.

65. (Pl. 19:65) Phanagoreia, cemetery, grave 50; 1937. GMII, Moscow, inv. no. F-48, F.37 s.m.50/393. Complete, restored (many frs.), D. rim 28.7 cm, D. foot 19.6 cm, H. 3.4 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, slightly lustrous; rim partly discoloured. Combed and grooved decoration on floor: two concentric, polygonal combed wavy bands between two concentric circles of multiple and double grooved lines, big one outside and small one in centre of floor. Paromov 2003, 158, fig. 64:61; Gavrituchin, Kazanskij 2006, 301–303, fig. 5:20.

66. (Pl. 19:66) Bosporos Kimmerikos? (provenience uncertain). KIKZ, Kerch, inv. no. KP 50760, KMAK 6925, D23V222. Fragmented (5 frs.), ca. 70% preserved, rim to base, D. rim 29.2 cm, D. foot 18.2 cm, H. 3.5–4.0 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, slightly lustrous. Combed and grooved decoration in centre of floor: two concentric combed wavy bands, circular outside and polygonal inside, arranged alternately with two concentric circles of multiple grooved lines.

67. (Pl. 19:67) Bosporos Kimmerikos? (provenience uncertain), from dr. Byhan collection, purchased in Kerch or Taman in 1910. RGZM, Mainz, inv. no. O.5744. Nearly intact, D. rim 29.1–29.3 cm, D. foot 19.7 cm, H. 3.6–3.8 cm. Clay orange-brown, medium fired; slip brown-reddish, dull inside, slightly lustrous, with streaks, runs and finger marks outside. Combed and grooved decoration in centre of floor: two concentric polygonal combed bands and two concentric circles of double grooved lines, big one between combed wavy bands, and small one placed in centre of floor.

68. (Pl. 20:68) Phanagoreia, settlement, Sector XXVII, trench 7; 1998. TMK, Taman, inv. no. FAN.98, XXVII/7, no. 01/18/4. Fragmented (1 fr.), ca. 15% of vessel preserved, rim to base, D. rim est. 30.0 cm, D. foot est. 20.6 cm, H. est. 3.6 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, slightly lustrous. Combed decoration on rim: continuous wavy band along edges.

69. (Pl. 20:69) Tanais, settlement, Sector VI; 1980. AMZT, Nedvigovka, inv. no. T-80-VI-858. Fragmented (20 frs.), ca. 60% of vessel preserved, rim to base, D. rim est. 30.5 cm, D. foot est. 21.0 cm, H. est. 3.2 cm. Clay orange-brown, softly fired; slip brown-orange, dull, badly preserved; four holes pierced through floor and rim. Combed and grooved decoration on floor: two concentric circular combed wavy bands, and small grooved circle in centre. Arsen'eva, Domżalski 2002, 465, no. 285, figs. 9:285, 21:285.

70. (Pl. 20:70) Chersonesos, settlement; 1957. GE, Saint Petersburg, inv. no. X 1957.36. Fragmented (many frs.), ca. 75% of vessel preserved, rim to base, D. rim 31.5 cm, D. foot 21.0 cm, H. 3.6 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, metallic lustre; rim partly discoloured.

71. (Pl. 20:71) Nejzac, cemetery, grave 321; 2006. KRKM, Simferopol, inv. no. D-15052. Complete, restored (25 frs.), D. rim 31.0–31.6 cm, D. foot 22.8–22.9 cm, H. 4.0–4.3 cm. Clay orange-brown, softly fired; slip brown-orange, dull, partly worn. Cf. Šabanov 2016, 167–168.

72. (Pl. 20:72) Kepoi, settlement, Sector XI, trench 7; 1959. GIM, Moscow, inv. no. Ke-59, zap.r.XI/7/1065. Fragmented (9 frs.), ca. 25% of vessel preserved, rim to base, D. rim est. 32.0 cm, D. foot est. 22.0 cm, H. est. 4.0 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, slightly lustrous inside, metallic lustre, with streaks, runs and finger marks outside; rim partly discoloured.

73. (Pl. 21:73) Kytaion, Džurg-Oba cemetery; 2006. KGIKZ, Kerch. Nearly intact, broken and mended in antiquity, D. rim 34.0 cm, D. foot 23.3 cm, H. 4.8 cm. Clay orange brown, softly fired; slip brown-orange, slightly lustrous inside, dull outside; rim partly discoloured; 11 holes pierced through floor and walls: 5 pairs of holes of mending and one single hole for hanging.

74. (Pl. 21:74) Provenience uncertain. OAM, Odessa, inv. no. OGIM A-23259. Intact, D. rim 36.2 cm, D. foot 24.4 cm, H. 4.0–4.4 cm. Clay pinkish-brown, hard fired; slip brown-pink, dull, with streaks and runs outside; barely visible turning traces on underside of floor. Combed and grooved decoration in centre of floor: combed polygonal band between two concentric circles of multiple and double grooved lines.

75. (Pls. 21:75 and **22:75)** Pantikapaion / Bosporos, cemetery; 1859. GE, Saint Petersburg, inv. no. P.1859.13. Intact, D. rim 36.6 cm, D. foot 24.6 cm, H. 4.1 cm. Clay pinkish-brown, medium fired; slip brown-reddish, slightly lustrous, with streaks, runs and finger marks outside; rim partly discoloured; single hole for hanging pierced through wall below rim. Combed and grooved decoration in centre of floor and on rim: three concentric circular combed wavy bands arranged alternately with three concentric circles of double grooved lines on floor; continuous combed wavy band along rim. Domżalski 2000, 163–164, fig. 2:5.

76. (Pl. 23:76) Phanagoreia, cemetery, grave 50; 1937. GMII, Moscow, inv. no. F-46, F.37 s.m.50/381. Complete, restored (many frs.), D. rim 38.4 cm, D. foot 26.0 cm, H. 4.1 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous; single hole for hanging pierced through wall below rim. Combed and grooved decoration in centre of floor and on rim: two concentric combed wavy bands, circular outside and polygonal inside, and two concentric circles of double grooved lines, big one between combed bands and small one in centre of floor; combed wavy band between two double and single grooved lines on rim. Blavatskij 1941b, 44–45, pl. 9:3; Sorokina 1971, fig. 6:2; Kazanski 1999, 306–307, fig. 11:13; Paromov 2003, 158, fig. 64:55; Gavrituchin, Kazanskij 2006, 301–303, fig. 5:19.

77. (Pl. 23:77) Pantikapaion / Bosporos, cemetery; 1873. GE, Saint Petersburg, inv. no. P.1873.95. Intact, D. rim 38.4 cm, D. outer foot 25.5 cm, H. 4.4 cm. Clay orange-brown, medium fired; slip brown-pinkish, slightly lustrous, with streaks, runs and finger marks outside. Combed, grooved and imprinted decoration in centre of floor, underside of floor, and on rim: three concentric circles of double grooved lines arranged alternately with two combed circular wavy bands, as well as with one circle composed of many small elongated motifs imprinted radially in centre of floor; four incised concentric circular and polygonal wavy lines arranged alternately between two feet and two incised concentric circles on underside of floor; continuous combed wavy band along rim.

78. (Pl. 24:78) Tanais, settlement, Sector XIV, trench 72; 1984. AMZT, Nedvigovka, inv. no. T-84-XIV-101. Fragmented (7 frs.), ca. 30% of vessel preserved, rim to base, D. rim est. 41.5 cm, D. foot est. 29.0 cm, H. est. 3.7 cm. Clay grey-pinkish, hard-fired; slip dark brown-pinkish-grey, slightly lustrous; secondarily overfired. Combed and grooved decoration in centre of floor and on rim: five radially diverging wavy bands between two circles of multiple and double grooved lines on floor; continuous combed wavy band and double grooved line along rim. Böttger 1991, 195–200, fig. 31:1; Sazanov 1994-1995, 410–411, fig. 4:v; Arsen'eva, Domżalski 2002, 465–466, no. 299, figs. 11:299, 22:299.

Find places

Western coast of the Black Sea and the lower Danube area

- Apollonia (underwater investigations in Ropotamo river-mouth): Minčev 1982, 28–29, pl. 1:25; Minchev 1983, 196–197, pl. 2.1:5.

- Novae (settlement): Klenina 2013, 102–103, fig. 16:7.

- Iatrus (settlement): Conrad 2007, 224, fig. 24:1152–1155.

- Aegyssus (settlement): Mocanu, Nuțu 2017, 135–136, fig. 9:4–5.

- Halmyris (settlement): Opaiț 1991a, 165, 169, pls. 44:300, 48:29660,37143; Opaiț 1996, 135, pl. 55:1; Topoleanu 1996, 144–145, pl. 1:3; Topoleanu 2000a, 46, 63, pls. 3:20, 12:108; Topoleanu 2003, 200, pl. 41:2; Opaiț 2004, 75, pl. 54:1; Mocanu 2018a, 236.

- Topraichioi (settlement): Opaiț 1980, 428–432, pls. 10:2, 11:1; Opaiț 1985, 154, 159, pl. 1:4–5; Opaiț 1991b, 252, pl. 42:1; Opaiț 1996, 135, pl. 55:2; Opaiț 2004, 75, pl. 54:2.

- Ulmetum (settlement): Băjenaru 2018, 503–504, 506, figs. 2:28–31, 4:70.

- Ibida (settlement): Mocanu 2011, 229–230, pl. 2:6,8; Mocanu 2014, 152.

- Tropaeum Traiani (settlement): Gămureac *et alii* 2015–2016, 222, pl. 3:32; Domżalski, Panaite 2019, 121.

- Târgşoru Vechi (cemetery): Tejral 2011, 53–55, fig. 24:3.

North-western coast of the Black Sea (periphery of the Černjachov culture)

- Olbia (settlement): Krapivina, Domžal'skij 2008, 76, 79, fig. 1:5.

South-western Crimea and neighbouring areas

- Chersonesos (settlement): Beljaev 1968, 32–34, 37, fig. 1:2,4; Kadeev, Soročan 1989, 68–69, fig. 24:1; Romančuk, Sazanov 1991, 12–15, figs. 3:11,13–20,22–23, 4:24–26; Sazanov 1994–1995, 410–411, fig. 4:8,10; Sedikova 1996, 179, fig. 2:19; Zolotarev, Ušakov 1997, 34–35, fig. 5:1–2; Sazanov 1999, 229–230, 236–237, 244–249, figs. 4:1–4, 5:59–64, 14:1; Golofast 2001, 105–106, 108, 116–117, figs. 6:1–5, 24:4–6, 61:1–2; Ušakov *et alii* 2006, 195, fig. 8:23–29; Golofast 2007, 79–82, fig. 8:7; Ušakov 2010b, 293, 306, fig. 11:11–12; Ušakov *et alii* 2010, 500–506, figs. 7:11, 11:18–20; Golofast, Ryžov 2011, 372–374, fig. 11:6; Ušakov 2011a, 217–220, figs. 5–6, 9:3–5, 10; Ušakov 2011b, 402, fig. 2:21–22,24; Ušakov 2012, 84–91, fig. 9:4–7,11–12; Zolotarev *et alii* 2013, 94–97, fig. 32:26; Ušakov 2013–2014, 202–203, fig. 8:3; Ušakov, Strukova 2016, 111–114, figs. 8:19–20, 10:7–8,10–11, 12:17, 13:16–17,20; Ušakov 2017a, 183–195, figs. 4:17, 8:16,20, 9:18–19,30–31, 10:9–10; Ušakov 2017b, 310–315, figs. 6:16–17,20, 9:2–3.

- Chersonesos (cemetery): **Cat. no. 70**; *Vizantijskij Cherson* 1991, 52, no. 41.

- Inkerman (cemetery): Vejmarn 1963, 21, 36–37, fig. 13:3; Ajbabin 1984, 114–116, fig. 5:6; Ajbabin 1990, 15–17, fig. 5:7; Kazanski 1993, 214–215, fig. 1:33.

- Sovchoz 10 (cemetery, graves 277, SK6, SK10, SK19, SK20): Sorokina 1971, 97–98, fig. 6:3; Sazanov 1994–1995, 410–411, fig. 4:A; Vysotskaja 1998, 257–264, fig. 2:3–4,6; Strželeckij *et alii* 2003–2004, 90–94, 204, pl. 16:1–5, appendix 2, pls. 33:277.23, 35:SK6.1,2, 36:SK10.1,SK19.33,SK20.42.

- Mangup (settlement): Gercen, Manaev 2005, 321–326, figs. 11:8, 19:1,6, 21:20.

- Mangup, Almalyk-Dere (cemetery, graves 2, 65, 118, 155, 163, 182, 185, 189, 190, 191, 197): Gercen, Mączyńska 2000, 523–526, fig. 3:1; Ivanova 2009, 35–39, figs. 5–9; Mączyńska *et alii* 2011, 169–170, fig. 20:4; Mączyńska *et alii* 2013, 139, fig. 14:4.

- Černaja Rečka (cemetery, grave 34): Ajbabin 1996, 291, fig. 9:2; Ajbabin 1999, 254, pl. 17:5; Ajbabin 2003a, 16, pl. 1:67.

- Krasnyj Mak (cemetery, graves 2, 7): Loboda 1992, 214, fig. 3:1; Loboda 2005, 194–195, 199, 210–211, figs. 3:9–10, 9:5–6, pl. 2:16–17,20–21.

- Karši-Bair II (cemetery, graves, K-BII/2, K-BII/4): Ušakov, Filippenko 2003, 27–29, fig. 7:1–2; Ušakov, Filippenko 2008, 287–288, fig. 4:1–2; Ušakov 2010a, 97, figs. 79:8, 82:20; Ušakov 2012, 96–98, fig. 14:1–2(left/down).

- Alonija (cemetery): Turova, Černyš 2015, 138–139, fig. 16:180.

- Lučistoe (cemetery, graves 88, 100, 126): Ajbabin, Chajredinova 1998, 287–289, 295, fig. 18:3; Aibabin, Khairedinova 1999, 288–295, fig. 18:3; Ajbabin 1999, 68, pl. 24:4; Ajbabin 2001, 25, fig. 4:7; Ajbabin, Chajredinova 2001, 75–77, fig. 5:1; Aibabin, Khairedinova 2001, 253–254, fig. 5:1; Ajbabin 2003a, 16–17, pl. 3:139; Ajbabin, Chajredinova 2008, 45–46, fig. 24:12–14; Ajbabin, Chajredinova 2009a, 43–45, fig. 24:12–14.

- Nejzac (cemetery, grave 321): **Cat. no. 71**; Vlasov *et alii* 2013, 209–210, fig. 28:18–21.

Eastern Crimea (Bosporos Kimmerikos and neighbouring areas)

- Taraktaš III (settlement): Myc *et alii* 2007, 106, fig. 6.

- Pantikapaion / Bosporos (settlement): Smokotina 2015, 315–319, fig. 4:3–4; Smokotina 2018a, 643–646, fig. 3:8; Smokotina 2018b, 270–271, fig. 5:7.

- Pantikapaion / Bosporos (cemetery): **Cat. nos. 75** and **77**; Domżalski 2000, 163–164, fig. 2:5.

- Tyritake (settlement): Gajdukevič 1952, 123, fig. 154; Domżalski, Smokotina 2020, 624–625, fig. 5:3–6; Domžal'skij, Smokotina 2020, 200, fig. 5:3–6.

- Iluraton (settlement): Silant'eva 1958, 301–302, fig. 15:4.

- Kytaion, Džurg-Oba (cemetery, graves 5, 31): **Cat. nos. 60, 64** and **73**; Gajdukevič 1959, 234–236, fig. 105; Ermolin 2003, 9–10, fig. 9:27; Ermolin 2004, 14–23, figs. 3:7–9, 8:2,6; Ermolin 2005, 129–130, figs. 11, 13:2–4, 14:1,3.

- Kimmerikon (settlement): Mordvinceva 2017, 355–358, fig. 2:115.

- Belinskoe (settlement): Zubarev, Šapcev 2014, 295, 297, fig. 4:8,12.

- Sirenevaja Buchta (cemetery, grave 19/7): Maslennikov 1997, 19–20, 33, fig. 45:14.

- Zolotoe (vostočnoe, v buchte) (settlement): Sazanov, Mokrousov 1996, 90–91, fig. 3:2–3; Maslennikov 1998, 264–266, fig. 165:7.

- Sjujurtaš (cemetery, grave 10/1): Maslennikov 1997, 11, 33, fig. 19:3.

Taman Peninsula (Bosporos Kimmerikos and neighbouring areas)

- Phanagoreia (settlement): **Cat. no. 68**; Atavin 1993, 155–156, figs. 3:1,3, 7:1–4; Golofast, Ol'chovskij 2016, 66–67, fig. 14:1–1.

- Phanagoreia (cemetery, graves 50, 142, 169): **Cat. nos. 65** and **76**; Blavatskij 1941b, 44–45, pl. 9:3; Sorokina 1971, 97–98, fig. 6:2; Sazanov 1994–1995, 410–411, fig. 4:B; Kazanski 1999, 306–307, fig. 11:13; Paromov 2003, 158, fig. 64:55,61; Gavrituchin, Kazanskij 2006, 301–303, fig. 5:19–20; Vorošilova 2011, 138, fig. 1:1; Vorošilova 2013, 125, 128–129, figs. 2:5, 5:2–3, 7.

- Kepoi (settlement): **Cat. no. 72**; Sokol'skij 1963b, 21, fig. 10(middle).

- Il'ič (settlement): Sazanov 2000a, 227–228, fig. 12:9–10,12; Gavrituchin, Paromov 2003, 153, fig. 61:45–46.

Don river delta in the north-eastern Maiotis

- Tanais (settlement): **Cat. nos. 58–59, 62, 69** and **78**; Knipovič 1949, 70–71, fig. 26:9; Arsen'eva 1969, 98–100, fig. 2; Arsen'eva 1981, 45–46, figs. 1:9, 2:1–2; Sazanov 1989, 51–55, fig. 5:18a; Böttger 1991, 195–200, fig. 31:1–2; Sazanov 1994–1995, 410–411, fig. 4:11,V; Arsen'eva *et alii* 1995, 254–255, fig. 25:4; Arsen'eva, Naumenko 1995, 47, 49, fig. 4:1,3–4; Arsen'eva, Böttger 1996, 435–436, fig. 30:1; Bettger, Ull'rich 2000, 286–291, figs. 3:3, 5:11; Arsen'eva *et alii* 2001, 361–362, fig. 19:1–5; Arsen'eva, Naumenko 2001, 72–73, figs. 45:7, 46:6; Arsen'eva, Domżalski 2002, 426–427, 462–477, figs. 8–12, 20–23, 24:508–513; Arsen'eva *et alii* 2009–2010, 72, pl. 102:111; Arsen'eva *et alii* 2016, 125, fig. 8; Il'jašenko *et alii* 2018, 114, fig. 100; Ullrich 2018, 5, 19–20, 24, 63, 67–68, 78, 80, 84, 89, 90, 96, 109, 111, 138–139, figs. 7:4, 26:8–9, 31:7, 96:12, 103:5, 117:2, 128:6, 140:16, 168:5, 190:10, 213:7; Lech 2018, 307–309, fig. 2; Domżalski 2021, 31–32, fig. 2.

Eastern coast of the Black Sea (Caucasus and Colchis)

- Pitiunt (settlement): Lordkipanidze 1962, 254–255, pls. 3:12, 6:18; Berdzenišvili 1963, 114–116, figs. 4–7; Ramišvili 1963, 76, 82–83, fig. 8; Nikolajšvili 1975, 181–182, fig. 24:5020,5093, pls. 11–12, 13:1–2; Asatiani 1977, 197, 210, figs. 50–52, 345–367, 380–400; Apakidze 1978, 85–92, figs. 94–97, 243–244; Lordkipanidze 1981, 121, pls. 63:1.14,98, 63.2, 64:1.41.54.81; Agrba 1985, 36, pl. 30:1.7.

- Sebastopolis (settlement): Apakidze, Lordkipanidze 1965, 127, pl. 4:1; Voronov 1983, 92–94, fig. 6:4–6; Gabelia 2014, 441, fig. 29:14,16–17,19.

- Šapky (cemetery, graves 4, 5, 6, 41, CH-4-5, CH-4-6): Trapš 1971, 138, pl. 20:10; Voronov, Jušin 1973, 175–177, 187, figs. 5:4, 6:5; Voronov 1975, 80–82, fig. 24:6; Gej, Bažan 1997, 16, 26, pls. 15:10–11, 29:23; Voronov 1983, 92–94, figs. 4:4–5, 5:5,19–20; Voronov 2002, 340–341, fig. 4:20; Kazanski, Mastykova 2009, 151–153, fig. 1:4.

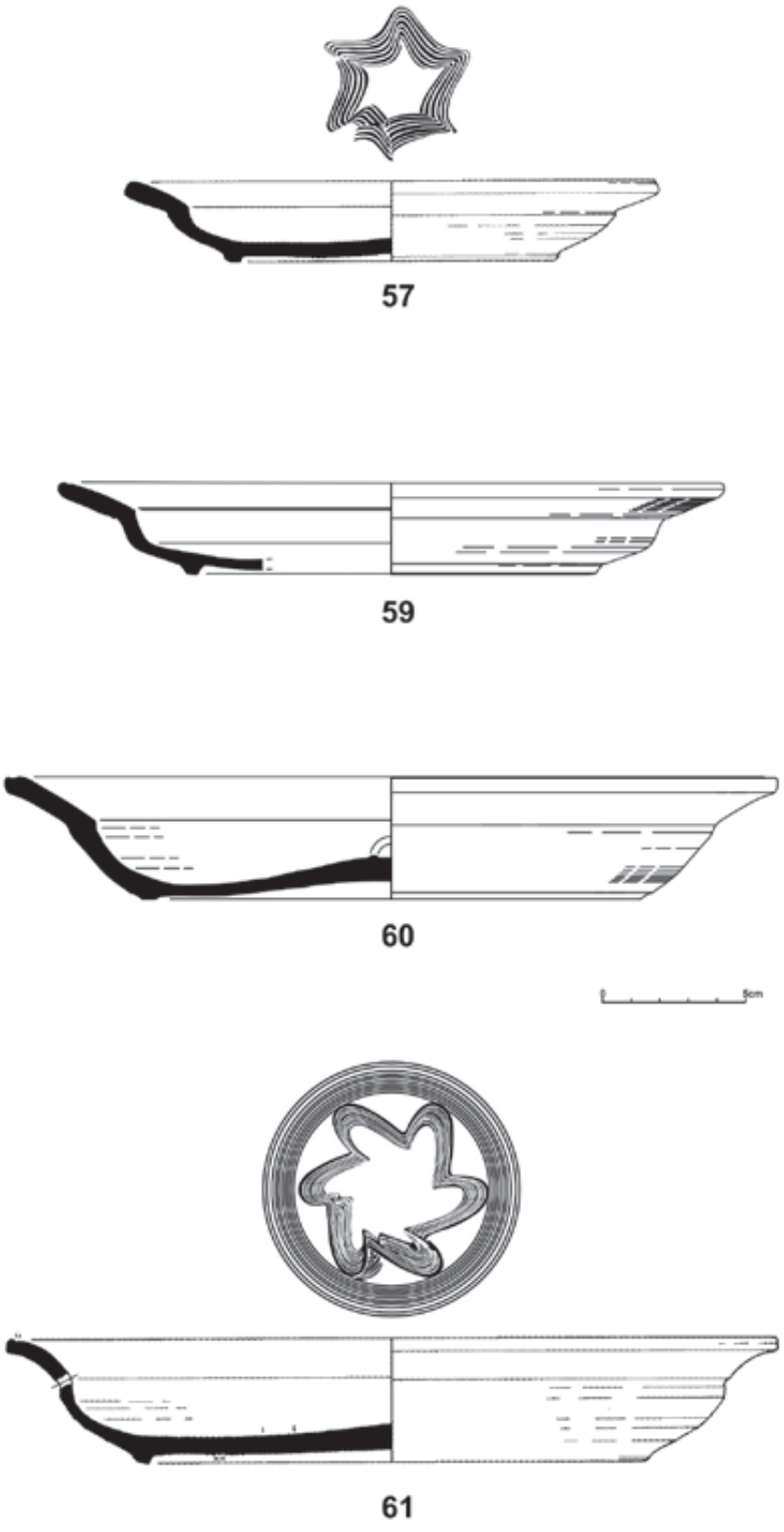
- Rhodopolis (settlement): Džaparidze 1974, 105, pl. 7:4.V; Džaparidze 1989, 147, pl. 5:1.V.

- Archaeopolis (settlement): Timby *et alii* 2014, 64–65, fig. 6.5:72.

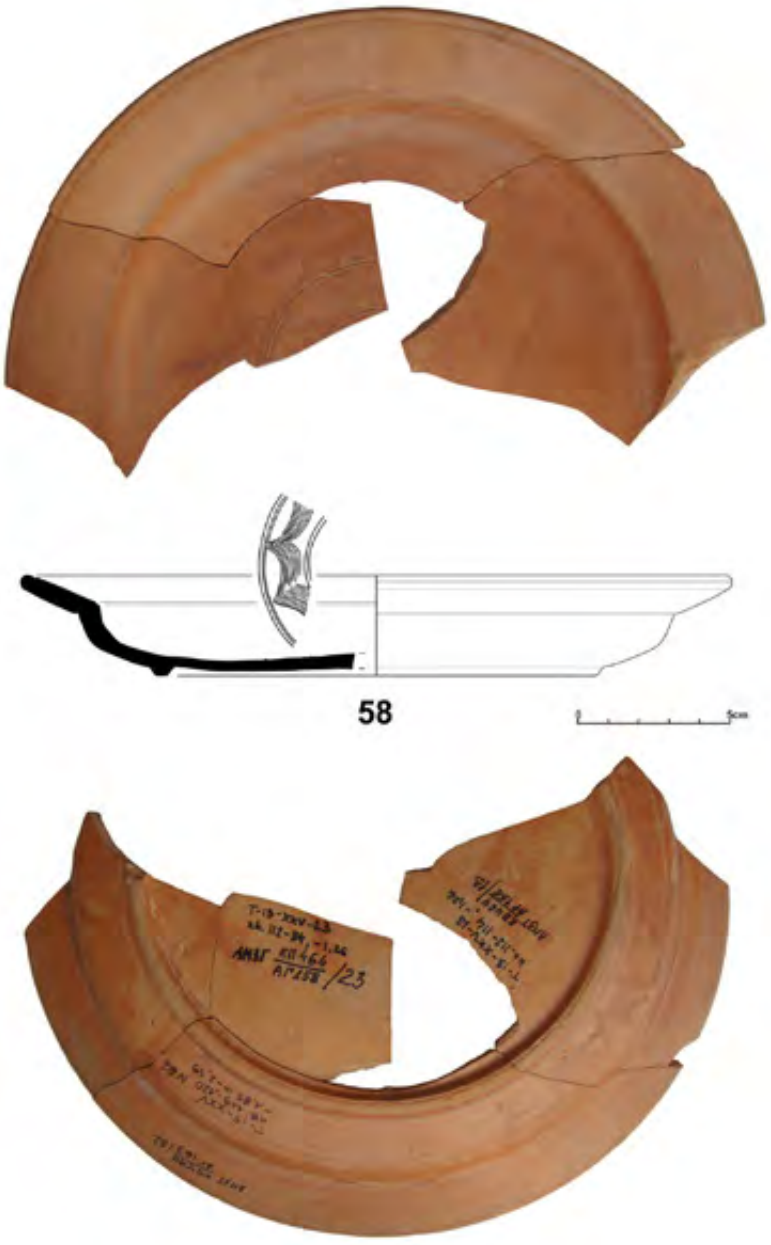
- Cichisdziri (settlement): Inaišvili 1993, 123, pl. 26:4–5.

Southern coast of the Black Sea and northern Anatolia

- Sinope (rural territory, surface survey): unpublished finds, SRAP 1996–1999.
- Demirci (settlement): Fırat 2010, 187, 190–191, pls. 50:13–16, 51:17.
- Pompeiopolis (settlement): Domżalski 2011, 165, pl. 3:2; Domżalski 2016–2017, 76–78, fig. 4, pl. 1:4–6.

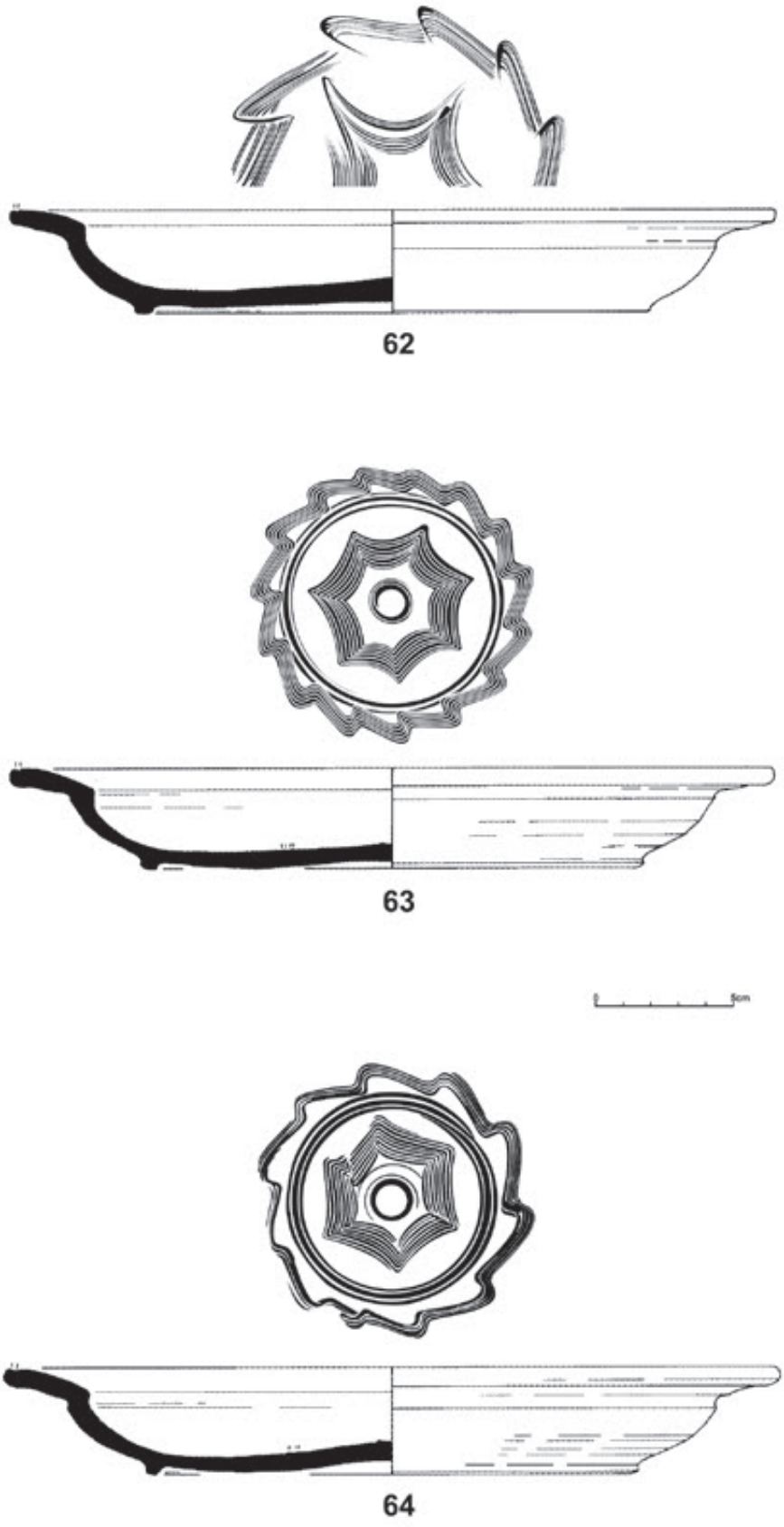


Pl. 15. Pontic Red Slip ware form 3 (Cat. nos. 57–61).

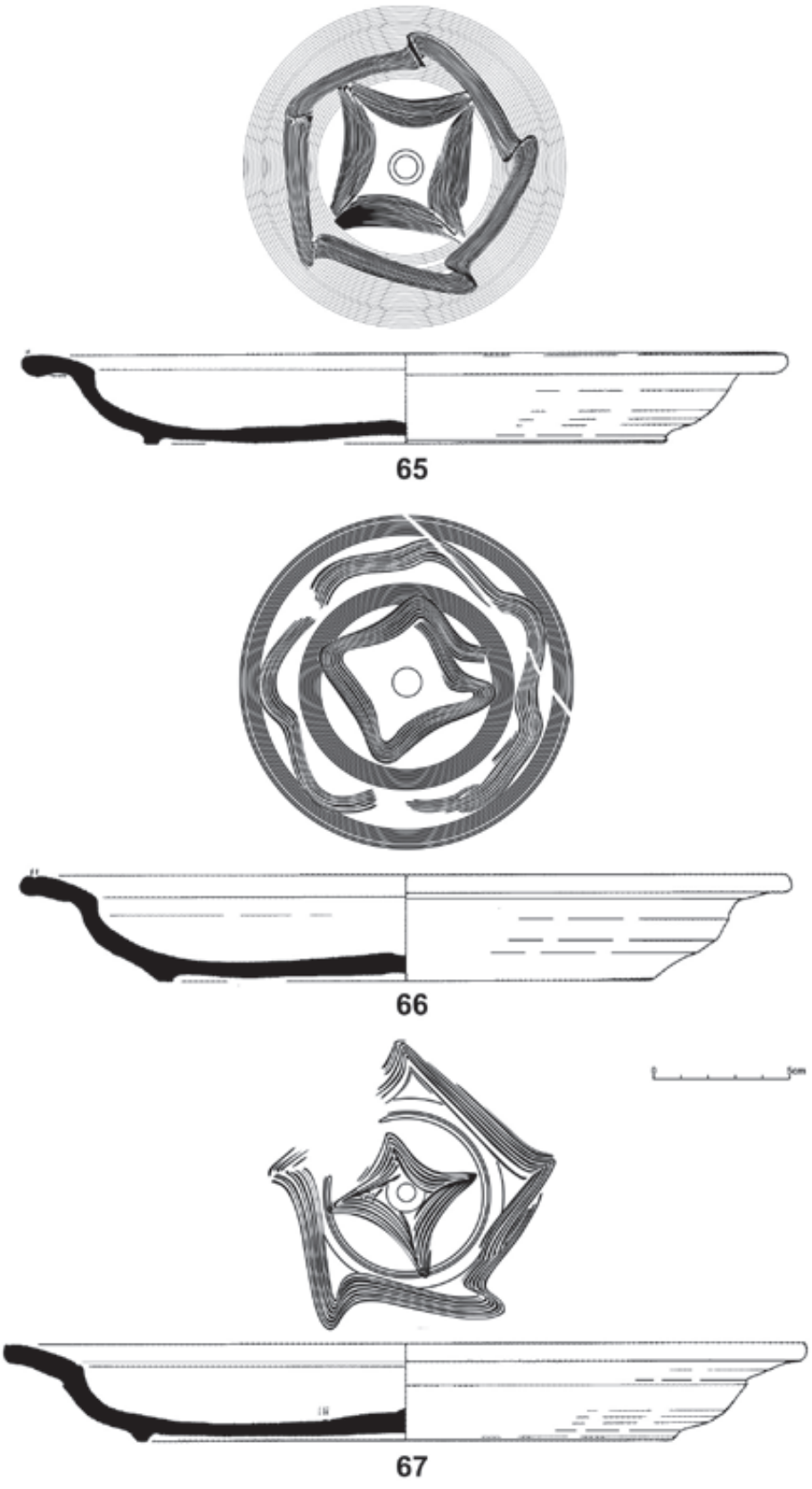


Pl. 16. Pontic Red Slip ware form 3 (Cat. no. 58).

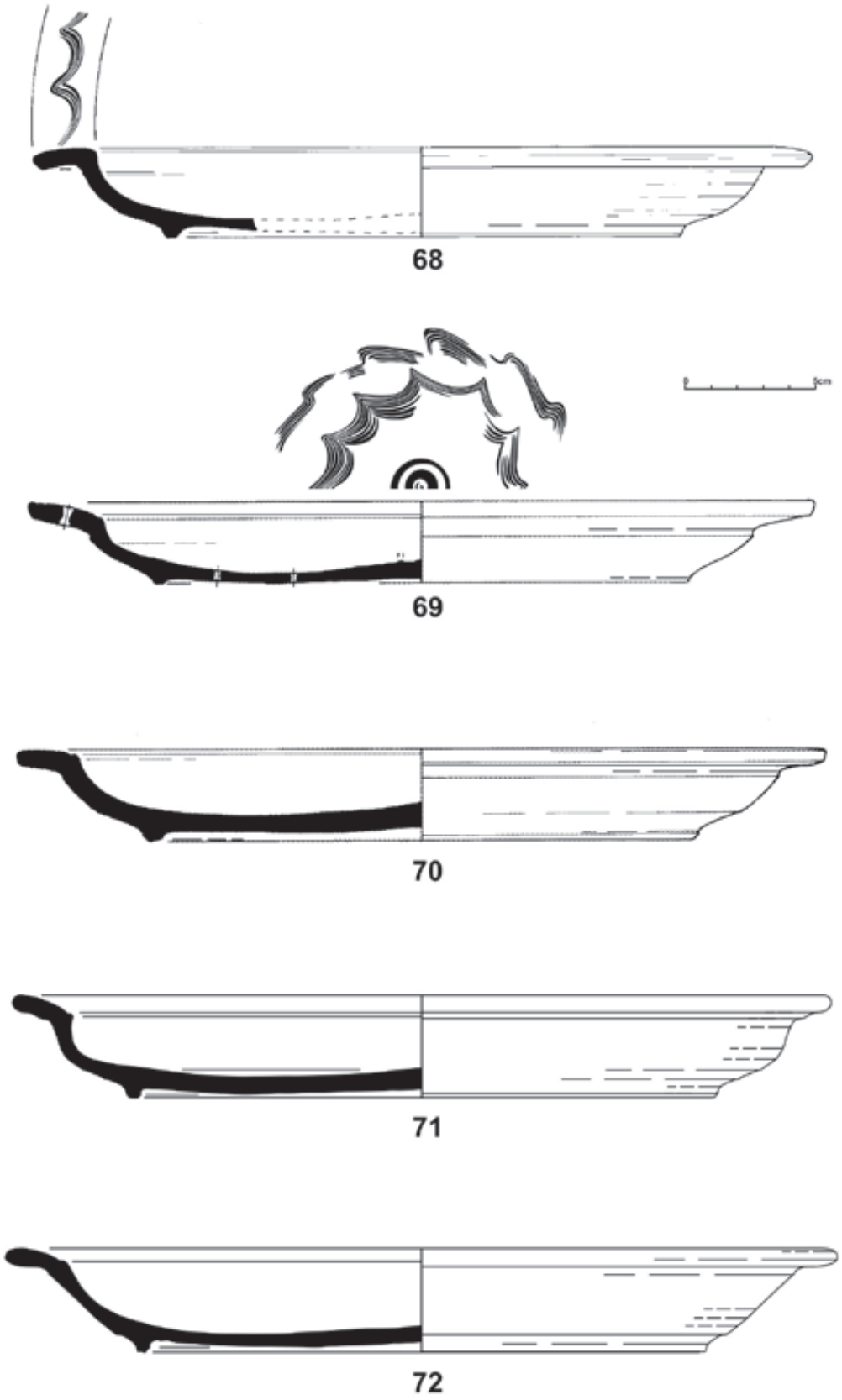
Pl. 17. Pontic Red Slip ware form 3 (Cat. no. 61).



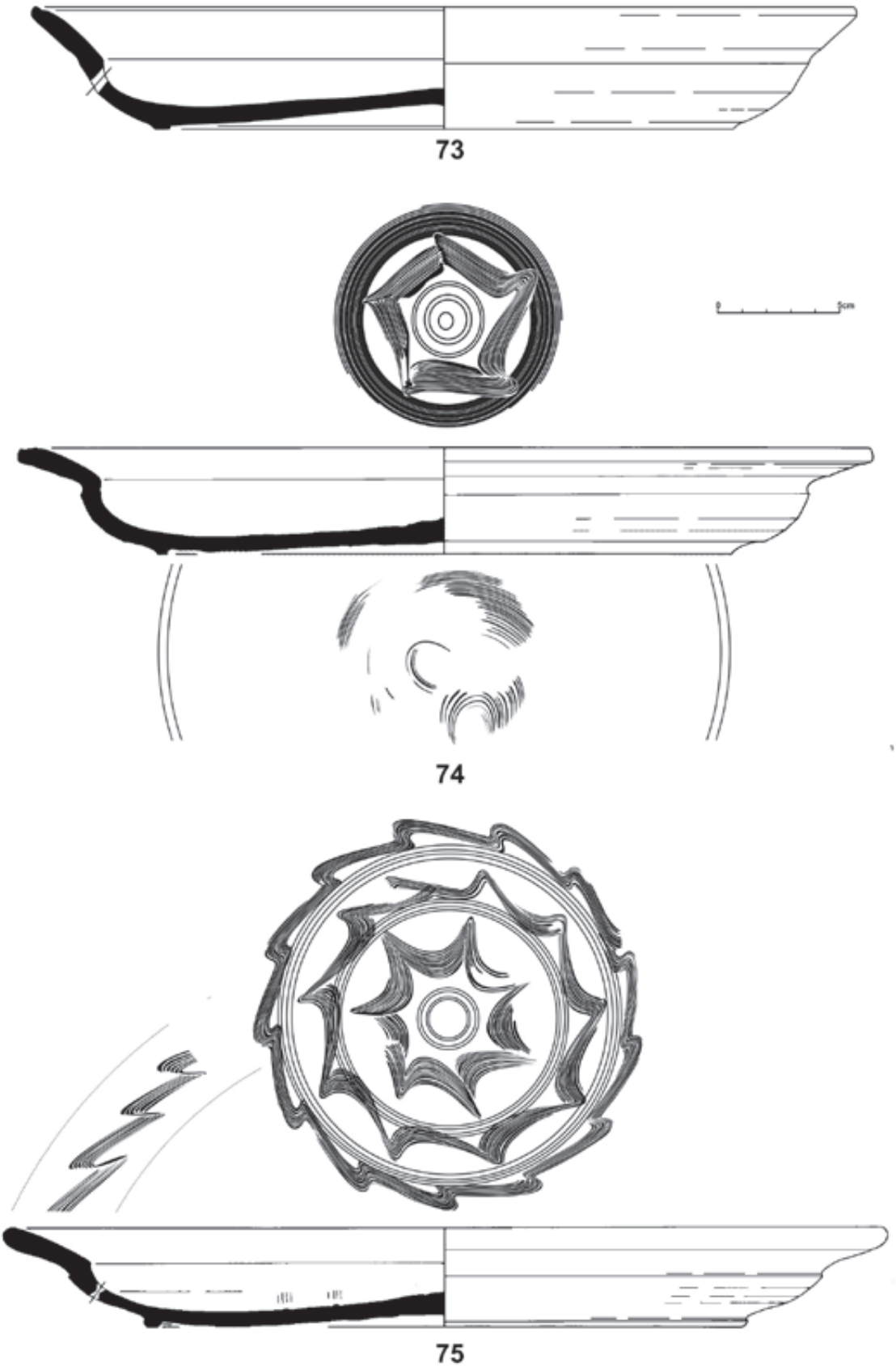
Pl. 18. Pontic Red Slip ware form 3 (Cat. nos. 62–64).



Pl. 19. Pontic Red Slip ware form 3 (Cat. nos. 65–67).

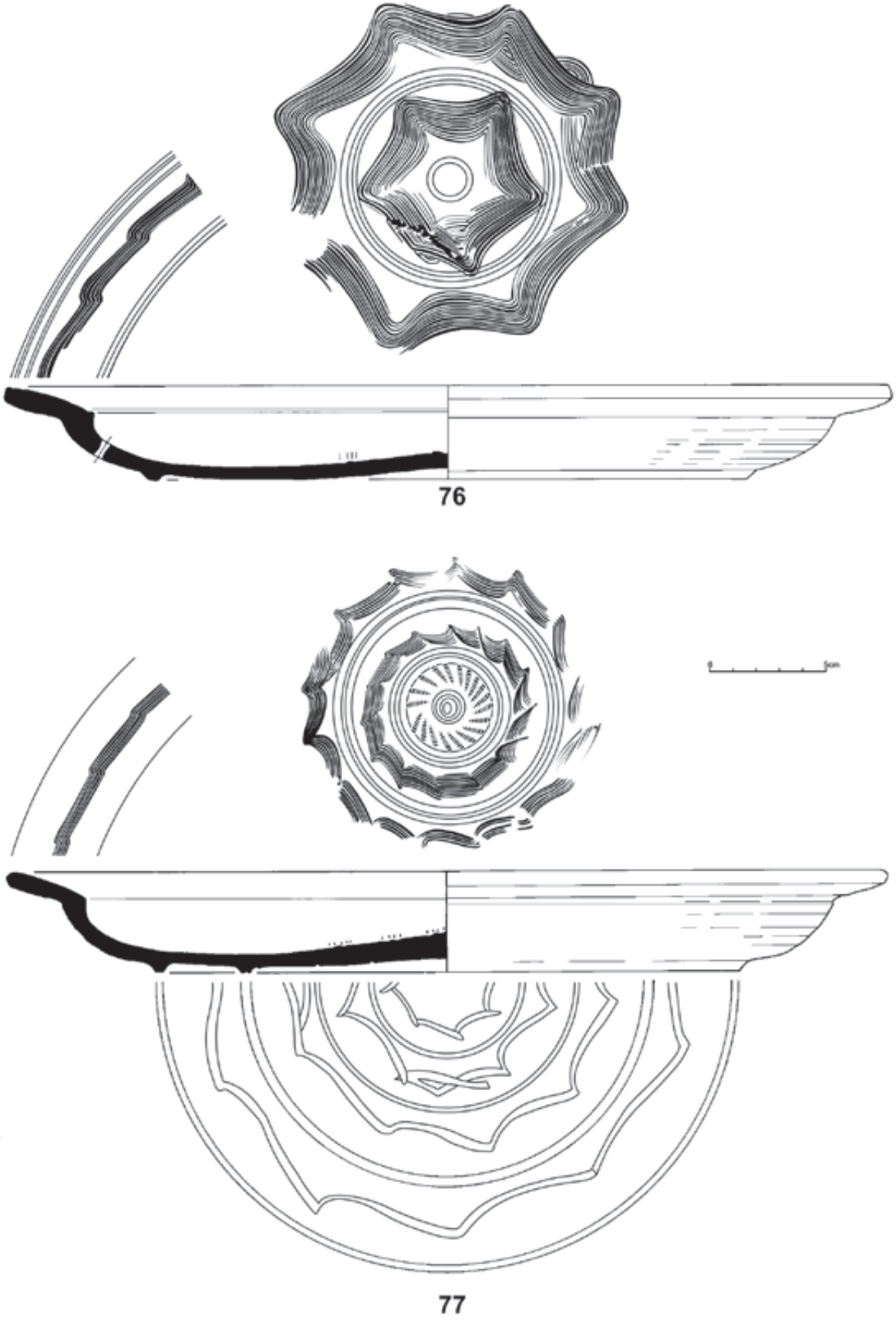


Pl. 20. Pontic Red Slip ware form 3 (Cat. nos. 68–72).



Pl. 21. Pontic Red Slip ware form 3 (Cat. nos. 73–75).

Pl. 22. Pontic Red Slip ware form 3 (Cat. no. 75).



Pl. 23. Pontic Red Slip ware form 3 (Cat. nos. 76–77).

Pl. 24. Pontic Red Slip ware form 3 (Cat. no. 78). ■

Form 4

Small, deep or shallow hemispherical bowl with vertical, incurved or slanting rim with plain edge, and straight or curved walls sloping towards floor on ring-foot of small diameter. The edge of the rim is rounded or tapering, the floor is flat or concave, sometimes slightly raised in the centre, and the foot is low but clearly marked out. According to the different rim types it is possible to distinguish three basic variants of the described form: 4A – with a vertical rim (**Pl. 25**), 4B – with an incurved rim (**Pl. 26:86–94**), and 4C – with a slightly slanting rim which is a simple extension of the wall (**Pl. 28:97–100**). Variants 4A and 4B were more popular. Moreover, an exceptional, smaller shape, resembling rather a salt-cellar than a bowl, with the rim similar to that in variant 4B, but characterised with flat base instead of ring-foot, was distinguished as variant 4D (**Pl. 28:102–103**).

The discussed form is much less common than the large dishes, forms 1–3 and 7, but it is the most popular among the small PRS vessels. These bowls were not decorated and their average dimensions were as follows: rim diameter 11 – 12 cm, height 3.5 – 5 cm, foot diameter 5 – 6 cm. Larger bowls with rim diameter 13 – 16.5 cm, as well as much smaller salt-cellars, were less popular. On the undersides of the floor and foot sometimes traces of turning on the potter's wheel are visible.

This form was distinguished by T. N. Knipovič as type 13 among the materials from Tyritake but it was related to the Early Roman terra sigillata.[173] Later on, A. G. Atavin identified this form as type 5 among the finds from Phanagoreia and dated according to similar finds from other sites, to the late 4th – mid-5th century.[174] These vessels were first described as form 4 and included in the tentative typo-chronological classification of the Pontic Red Slip ware in the papers presenting Late Roman red slip ware finds in the Bosporos Kimmerikos and in Tanais.[175]

The described form is quite simple. Both the general shape and the traces of turning on the underside of the floor indicate the connection of the PRS bowls, form 4, with the late group of the Early Roman Pontic Sigillata which was distributed in the Black Sea region in the 2nd century and in the first half of the 3rd century.[176] In order to identify these Pontic Red Slip vessels one has to take into account the characteristic features of the rim, walls and the foot, which are more compact than in the Early Roman ones.

PRS bowls, form 4, were produced over a long period of time. They were found at several cemeteries and settlements, in the contexts dated from the early 4th century until the early 6th century. The vessels produced in the 4th century were identified in Družnoe, Suvorovo, Krasnaja Zarja, Tas Tepe and Nejzac, as well as in Olbia. The bowls used later, in the 5th century, were found among the grave offerings in Sovchoz 10, Inkerman, Almalyk-Dere, Lučistoe and Phanagoreia, as well as in such settlements as Tanais and Ulmetum. The latest products, dated to the late 5th and early 6th century, were identified in the cemeteries in Skalistoe, Džurg-Oba and Djurso, and in settlement contexts in Sebastopolis.

It is difficult to connect precisely the variants distinguished above with the chronology of production of the discussed form. It seems that vessels, variant 4A, with larger dimensions are related to the transitory form 0A. Their early, 4th century dating is suggested by the finds from Suvorovo, Nejzac and Olbia. Small bowls of that variant, as well as variant 4B, are identified in various contexts dated to the 4th – early 6th century. Vessels in variant 4C have so far been found in the 5th – early 6th century assemblages in Almalyk-Dere (toghther with variant 4D) and Skalistoe, as well as in Tanais and Sebastopolis. The vessels produced in the 4th and early 5th century are relatively big and deep. The latest bowls from Il'ič, Djurso and Sebastopolis show the tendency to make rather shallower and more compact vessels. An unusually large and shallow shape of the vessel from Komana Pontika (**Pl. 28:101**) has been associated with variant 4C tentatively. There is no evidence about its chronology and no other finds of such PRS vessels are known.

173 Knipovič 1952, 315, fig. 11:3.

174 Atavin 1993, 153–154, fig. 2:1.

175 Domżalski 2000, 163–164, fig. 2:6; Domżalski, Arsen'eva 2002, 427, 479, fig. 13:568–574.

176 Cf. below, Chapter 5.2, Fig. 11.

Catalogue of illustrated finds

79. (Pl. 25:79) Mys Zjuk, cemetery, grave 70; 1995. KIKZ, Kerch, inv. no. KP 136506. Fragmented (4 frs.), ca. 80% of vessel preserved, rim to base, D. rim 11.1 cm, D. foot 5.8 cm, H. 3.6 cm. Clay palepinkish-brown, medium fired; slip brown-palepinkish-orange, dull, with streaks and runs outside; turning trace on underside of floor.

80. (Pl. 25:80) Bosporos Kimmerikos? (provenience uncertain). KIKZ, Kerch, inv. no. KMAK 6921, KP 50685. Fragmented (1 fr.), ca. 50% of vessel preserved, rim to base, D. rim est. 12.8 cm, D. foot est. 6.4 cm, H. est. 4.6 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous, with streaks and runs outside.

81. (Pl. 25:81) Il'ič, fort. TMK, Taman, inv. no. IL16/3. Fragmented (1 fr.), ca. 15% of vessel preserved, rim to base, D. rim est. 13.5 cm, D. foot est. 7.0 cm, H. est. 3.8 cm. Clay orange-brown, softly fired; slip brown-orange, dull, with streaks and runs outside; rim partly discoloured; hole pierced through wall.

82. (Pl. 25:82) Suvorovo, cemetery, grave 53; 2001. BGIKZ, Bachčisaraj. Complete, restored (15 frs.), D. rim 15.3 cm, D. foot 8.0 cm, H. 4.6–4.9 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous, with streaks and runs outside. Zajcev, Mordvinceva 2003, 59–60, fig. 9:9.

83. (Pl. 25:83) Bosporos Kimmerikos? (provenience uncertain). KIKZ, Kerch, inv. no. KMAK 292. Intact, D. rim 15.5 cm, D. foot 7.5 cm, H. 5.3–5.5 cm. Clay orange-brown, softly fired; slip brown-orange, dull, with streaks and runs outside.

84. (Pl. 25:84) Nejzac, cemetery, grave 243; 2004. KRKM, Simferopol, inv. no. KP-54860, A-29435. Complete, restored (5 frs.), D. rim 15.7 cm, D. foot 7.8 cm, H. 5.5–5.8 cm. Clay orange-brown, softly fired; slip brown-orange, metallic lustre, with streaks, runs and finger marks outside.

85. (Pl. 25:85) Olbia, settlement, Sector 25; 1989 and 1992. NIAZO, Parutyne, inv. nos. O-1989, R-25/876 and O-1992, R-25/1238. Fragmented (2 frs.), ca. 30% of vessel preserved, rim to base, D. rim est. 16.5 cm, D. foot est. 10.2 cm, H. est. 5.5–5.7 cm. Clay palepinkish-brown, hard fired; slip brown-pinkish, metallic lustre inside, slightly lustrous, with streaks and runs outside.

86. (Pls. 26:86 and **27:86)** Nejzac, cemetery, grave 163; 2001. KRKM, Simferopol, inv. no. KP-51672, A-28200. Intact, D. rim 10.2–10.3 cm, D. foot 5.0 cm, H. 4.7–4.8 cm. Clay orange-brown, softly fired; slip brown-orange, slight metallic lustre, with streaks, runs and finger marks outside.

87. (Pl. 26:87) Nejzac, cemetery, grave 148; 2000. KRKM, Simferopol, inv. no. KP-51007, A-27904. Intact, D. rim 11.0–11.1 cm, D. foot 4.9 cm, H. 4.8–5.0 cm. Clay orange-brown, softly fired; slip brown-orange, slight metallic lustre, with streaks, runs and finger marks outside.

88. (Pl. 26:88) Sebastopolis, fortress, Sector 1, trench 64; 2001. AE AGU, Suchumi, inv. no. 2458. Fragmented (2 frs.), ca. 60% of vessel preserved, rim to base, D. rim est. 11.5 cm, D. foot est. 7.0 cm, H. est. 3.5 cm. Clay orange-brown, medium fired; slip brown-reddish, dull inside, slightly lustrous, with streaks and runs outside.

89. (Pl. 26:89) Provenience unknown. GE, Saint Petersburg, inv. no. 18244, B 8109, D48/09. Intact, D. rim 11.3–11.4 cm, D. foot 5.4 cm, H. 4.0–4.1 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, slight metallic lustre, with streaks and runs outside; rim partly discoloured; turning traces on underside of floor.

90. (Pls. 26:90 and **27:90)** Nejzac, cemetery, grave 275; 2005. KRKM, Simferopol, inv. no. KP-55784, A-30972. Intact, D. rim 11.4 cm, D. foot 6.4 cm, H. 4.5–4.8 cm. Clay orange-brown, softly fired; slip brown-orange, metallic lustre inside, dull, with streaks, runs and finger marks outside.

91. (Pl. 26:91 and **27:91)** Bosporos Kimmerikos? (provenience uncertain), excavated by V. V. Škorpil. KIKZ, Kerch, inv. no. KMAK 560. Intact, D. rim 11.5 cm, D. foot 5.5 cm, H. 4.5–4.7 cm. Clay orange-brown, medium fired; slip brown-pinkish, dull inside, brown-orange, slightly lustrous outside; rim partly discoloured; turning traces on underside of ring-foot.

92. (Pl. 26:92) Inkerman, cemetery. GIM, Moscow, inv. no. I-V-300-48, MPG-I-5133. Complete, restored (3 frs.), D. rim 12.4 cm, D. foot 6.0 cm, H. 4.5–4.8 cm. Clay orange-brown, softly fired; slip brown-orange, dull inside, slightly lustrous, with streaks and runs outside.

93. (Pl. 26:93 and **27:93)** Nejzac, cemetery, grave 250; 2004. KRKM, Simferopol, inv. no. KP-54889, A-29464. Complete, restored (6 frs.), D. rim 11.8–11.9 cm, D. foot 4.8 cm, H. 4.8–5.0 cm. Clay orange-brown, softly fired; slip brown-orange, dull, with streaks, runs and finger marks outside.

94. (Pl. 26:94) Inkerman, cemetery; 1948. BGIKZ, Bachčisaraj, inv. no. I 1948, V 258. Intact, D. rim 12.2 cm, D. foot 5.9 cm, H. 4.5 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous, with streaks and runs outside.

95. (Pl. 26:95) Djurso, cemetery, grave 483; 1974. NGIMZ, Novorossijsk, inv. no. D-74, p.483/4985. Complete, restored (5 frs.), D. rim 11.4 cm, D. foot 5.8 cm, H. 3.5 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, poorly preserved; turning traces on underside of floor. Dmitriev 1982, 91–92, fig. 9:17; Kazanski 1993, 230–231 fig. 9:4; Kazanskij 2001, 56, fig. 5:19; Kazanski 2002, 154, fig. 5:19; Mastykova 2002, 225–235, fig. 2:19; Dmitriev 2003, 201, pl. 81:25; Gavrituchin, Kazanskij 2006, 301–302, fig. 4:31; Mastykova 2009, 193–194, pl. 11:19.

96. (Pl. 26:96) Tanais, settlement, Sector XIV, trench 8, layer 4; 1972. AMZT, Nedvigovka, inv. no. T-72-XIV-77. Fragmented (1 fr.), ca. 25% of vessel preserved, rim to base, D. rim est. 12.0 cm, D. foot est. 6.0 cm, H. est. 3.9 cm. Clay palepinkish-brown, medium fired; slip brown-reddish, slightly lustrous, with streaks and runs outside; rim partly discoloured. Arsen'eva 1981, 47, fig. 1:11; Sazanov 1994–1995, 411, fig. 4:6; Arsen'eva, Domżalski 2002, 479, no. 568, fig. 13:568.

97. (Pl. 28:97) Tanais, settlement, Sector XIV, trench 7, layer 2; 1973. AMZT, Nedvigovka, inv. no. T-73-XIV-7. Fragmented (1 fr.), ca. 20% of vessel preserved, rim to base, D. rim est. 13.0 cm, D. foot est. 5.3 cm, H. est. 5.1 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous; rim partly discoloured; analysed physico-chemically, sample no. **G819**. Arsen'eva 1981, 47, fig. 1:13; Sazanov 1994–1995, 411, fig. 4:7; Domżalski 2000, 163–164, fig. 2:6; Arsen'eva, Domżalski 2002, 479, no. 570, fig. 13:570.

98. (Pl. 28:98) Mangup, Almalyk-Dere cemetery, grave 158; 2003. AM TNU, Simferopol. Nearly intact, D. rim 14.3–14.5 cm, D. foot 7.0 cm, H. 5.5 cm. Clay pinkish-brown, hard fired; slip brown-pink, metallic lustre, with streaks, runs and finger marks outside. Ivanova 2009, 41, fig. 11:54.

99. (Pl. 28:99) Sebastopolis, fortress, Sector 1, Room 1; 1999. AE AGU, Suchumi, inv. no. 2728. Fragmented (2 frs.), ca. 15% of vessel preserved, rim to base, D. rim est. 14.0 cm, D. foot est. 5.8 cm, H. est. 4.8 cm. Clay pinkish-brown, hard-fired; slip brown-pinkish, dull inside, slightly lustrous, with streaks and runs outside; rim partly discoloured.

100. (Pl. 28:100) Tyritake, settlement; 2006. CAI, Kerch, uninventoried. Fragmented (1 fr.), ca. 50% of vessel preserved, rim to base, D. rim est. 16.0 cm, D. foot est. 7.7 cm, H. est. 5.2–5.6 cm. Clay orange-brown, softly fired; slip brown-orange, dull.

101. (Pl. 28:101) Komana Pontika, rural territory, surface survey; 2004. AE METU, Ankara, inv. no. Com 04, Nügü 158. Fragmented (1 fr.) ca. 15% of vessel preserved, rim to base, D. rim est. 19.0 cm, D. foot est. 12.0 cm, H. est. 4.0 cm. Clay orange-brown, softly fired; slip brown-orange, dull.

102. (Pl. 28:102) Bosporos Kimmerikos? (provenience uncertain). OAM, Odessa, inv. no. OGAM A-83547, M-62/767. Nearly intact, D. rim 7.5 cm, D. foot 3.7 cm, H. 4.5–4.6 cm. Clay pale-pinkish-brown, medium fired; slip brown-pinkish inside, brown-orange outside, slightly lustrous; turning traces on base (underside of floor).

103. (Pl. 28:103) Mangup, Almalyk-Dere cemetery, grave 155; 2003. AM TNU, Simferopol. Intact, D. rim 8.0 cm, D. foot 4.0 cm, H. 2.9–3.0 cm. Clay pinkish-brown, hard fired; slip brown-pink, metallic lustre; turning traces on base (underside of floor). Ivanova 2009, 47, fig. 13:69.

Find places

Western coast of the Black Sea and the lower Danube area

- Halmyris (settlement): Mocanu 2018a, 236–237.

- Ulmetum (settlement): Băjenaru 2018, 504–505, fig. 3:46–48.

North-western coast of the Black Sea (periphery of the Černjachov culture)

- Olbia (settlement): **Cat. no. 85**; Krapivina, Domžal'skij 2008, 76, 79, fig. 1:6.

South-western Crimea and neighbouring areas

- Chersonesos (settlement): Romančuk, Sazanov 1991, 10–12, fig. 1:3,5; Zolotarev, Ušakov 1997, 34–35, fig. 5:7; Sazanov 1994–1995, 410–411, fig. 4:2; Sazanov 1999, 236–237, 244–249, figs. 13:6–9,11, 15:4; Golofast 2001, 108–109, 116–117, figs. 26:1, 60:9; Ušakov *et alii* 2006, 195, fig. 8:7,10; Ušakov *et alii* 2010, 501–506, fig. 11:3,9,11; Ušakov 2011a, 217–220, figs. 3:5,9, 7:6; Ušakov 2012, 84–91, fig. 9:29–31; Golofast, Ryžov 2013, 56, fig. 10:7; Ušakov 2013–2014, 202–203, figs. 8:7–12, 12:15–16; Ušakov, Strukova 2016, 111–114, figs. 8:4, 12:8–9, 13:25,27, 19–20; Ušakov 2017a, 183–195, figs. 4:8–10, 6:20–21, 8:25,27, 10:11; Ušakov 2017b, 310–315, figs. 6:25,27, 7:20–21, 9:5.

- Inkerman (cemetery): **Cat. nos. 92** and **94**; Vejmarn 1963, 16–42, fig. 7:6–7,20; Kazanski 1993, 214–215, fig. 1:35.

- Sovchoz 10 (cemetery, graves 77A, 251, 282, 284, SK8, SK12, SK20): Ajbabin 1984, 114–116, fig. 5:8; Kazanski 1993, 214–215, fig. 1:36; Strželeckij *et alii* 2003–2004, 83–86, 203–204, pls. 14:2,5,14,28,31,33, 15:9, appendix 2, pls. 11:77A.73, 30:251.24, 33:282.36,284.45, 35:SK8.25, 36:SK12.14,SK20.48.

- Černaja Rečka (cemetery, graves 7, 86, 88): Ajbabin 1984, 114–116, fig. 3:17,20; Ajbabin 1996, 291, fig. 9:4; Ajbabin 2003a, 16–17, pls. 1:69, 3:73.

- Mangup (settlement): Gercen, Naumenko 2006, 411, fig. 18:5; Gercen *et alii* 2006, 425, fig. 51:6.

- Mangup, Almalyk-Dere (cemetery, graves 2, 6, 155, 158, 168, 185): **Cat. nos. 98** and **103**; Ivanova 2009, 40–44, 46–47, figs. 10:47–50, 11:54,57–59,61–62, 13:69.

- Krasnyj Mak (cemetery, graves 2, 5, 10): Loboda 2005, 194–195, 197–198, 201, 209, figs. 3:2, 7:3, 12:8, pl. 2:2–4.

- Suvorovo (cemetery, graves 47, 38, 53): **Cat. no. 82**; Juročkin 1997, 305–307, pl. 1:31; Puzdrovskij *et alii* 2001, 32–36, fig. 8:22; Zajcev, Mordvinceva 2003, 59–60, fig. 9:9; Juročkin, Trufanov 2003, 202, fig. 3:35,43.

- Krasnaja Zarja (cemetery): two unpublished vessels in BGIKZ, Bachčisaraj.

- Skalistoe (cemetery, grave 434): Ajbabin 1984, 114–116, fig. 5:15.

- Lučistoe (cemetery, graves 88, 126, 173): Ajbabin, Chajredinova 1998, 293, 295, figs. 18:8–10; Aibabin, Khairedinova 1999, 288–295, fig. 18:7–10; Ajbabin 1999, 68, pls. 22:2, 24:7; Ajbabin 2003a, 16–17, pl. 3:126–128; Juročkin, Trufanov 2007, 370–371, fig. 8:7; Ajbabin, Chajredinova 2008, 45–46, fig. 24:5–8; Ajbabin, Chajredinova 2009a, 43–45, fig. 24:5–8; Ajbabin, Chajredinova 2009b, 17, fig. 4:2; Ajbabin, Chajredinova 2010, 513–514, fig. 4:2.

- Družnoe (cemetery, graves 66, 76, 81, 84): Chrapunov 2002, 29–30, 33–36, figs. 158:6, 175:4, 189:16, 199:10.

- Nejzac (cemetery, graves 148, 150, 163, 275): **Cat. nos. 84**, **86–87**, **90** and **93**.

Eastern Crimea (Bosporos Kimmerikos and neighbouring areas)

- Pantikapaion / Bosporos (settlement): Smokotina 2015, 315–319, fig. 4:5–6; Smokotina 2018a, 643–646, fig. 3:9; Smokotina 2018b, 270–271, fig. 5:8.

- Tyritake (settlement): **Cat. no. 100**; Knipovič 1952, 315, fig. 11:3; Domżalski, Smokotina 2020, 625, fig. 5:7–9; Domžal'skij, Smokotina 2020, 200, fig. 5:7–9.

- Kytaion, Džurg-Oba (cemetery): Ermolin 2004, 14–23, figs. 3:11,20, 5:24; Ermolin 2005, 129–130, figs. 9:12, 13:8.

- Belinskoe (settlement): Juročkin, Zubarev 2001, 464, fig. 1:17.

- Mys Zjuk (cemetery, grave 70): **Cat. no. 79**.

- Staražilovo I (cemetery, grave 6/6): Maslennikov 1997, 8, 33, fig. 15:1.

- Sjujurtaš (cemetery, grave 10/1): Maslennikov 1997, 11, 33, fig. 19:7.

Taman Peninsula (Bosporos Kimmerikos and neighbouring areas)

- Phanagoreia (settlement): Atavin 1993, 153–154, fig. 2:1; Golofast, Ol'chovskij 2016, 66–67, fig. 14:6–7.

- Phanagoreia (cemetery, grave 34): Medvedev 2009, 182, fig. 2:2; Medvedev 2010, 360–361, fig. 3:d; Medvedev 2013, 384–385, fig. 40:2.

• Il'ič (settlement): **Cat. no. 81**.

Don river delta in the north-eastern Maiotis

• Tanais (settlement): **Cat. nos. 96–97**; Arsen'eva 1981, 46–47, fig. 1:11–13; Sazanov 1994–1995, 410–411, fig. 4:6–7, Domżalski 2000, 163–164, fig. 2:6; Arsen'eva, Domżalski 2002, 427, 479, fig. 13:568–574.

Eastern coast of the Black Sea (Caucasus and Colchis)

• Djurso (cemetery, grave 483): **Cat. no. 95**; Dmitriev 1982, 91–92, fig. 9:17; Kazanski 1993, 230–231, fig. 9:4; Kazanskij 2001, 56, fig. 5:19; Kazanski 2002, 154, fig. 5:19; Mastykova 2002, 225–235, fig. 2:19; Dmitriev 2003, 201, pl. 81:25; Gavrituchin, Kazanskij 2006, 301–302, fig. 4:31; Mastykova 2009, 193–194, pl. 11:19.

• Pitiunt (settlement): Lordkipanidze 1962, 254–255, pl. 4:15; Berdzenišvili 1963, 113, 119, figs. 3:1, 9:1; Nikolajšvili 1975, 181–182, fig. 25:5075; Asatiani 1977, 178–181, 210, figs. 37–39, 42–43, 286–291; Lordkipanidze 1981, 121, pl. 63:2; Agrba 1985, 36, pl. 30:1.2–5.

• Sebastopolis (settlement): **Cat. nos. 88** and **99.**

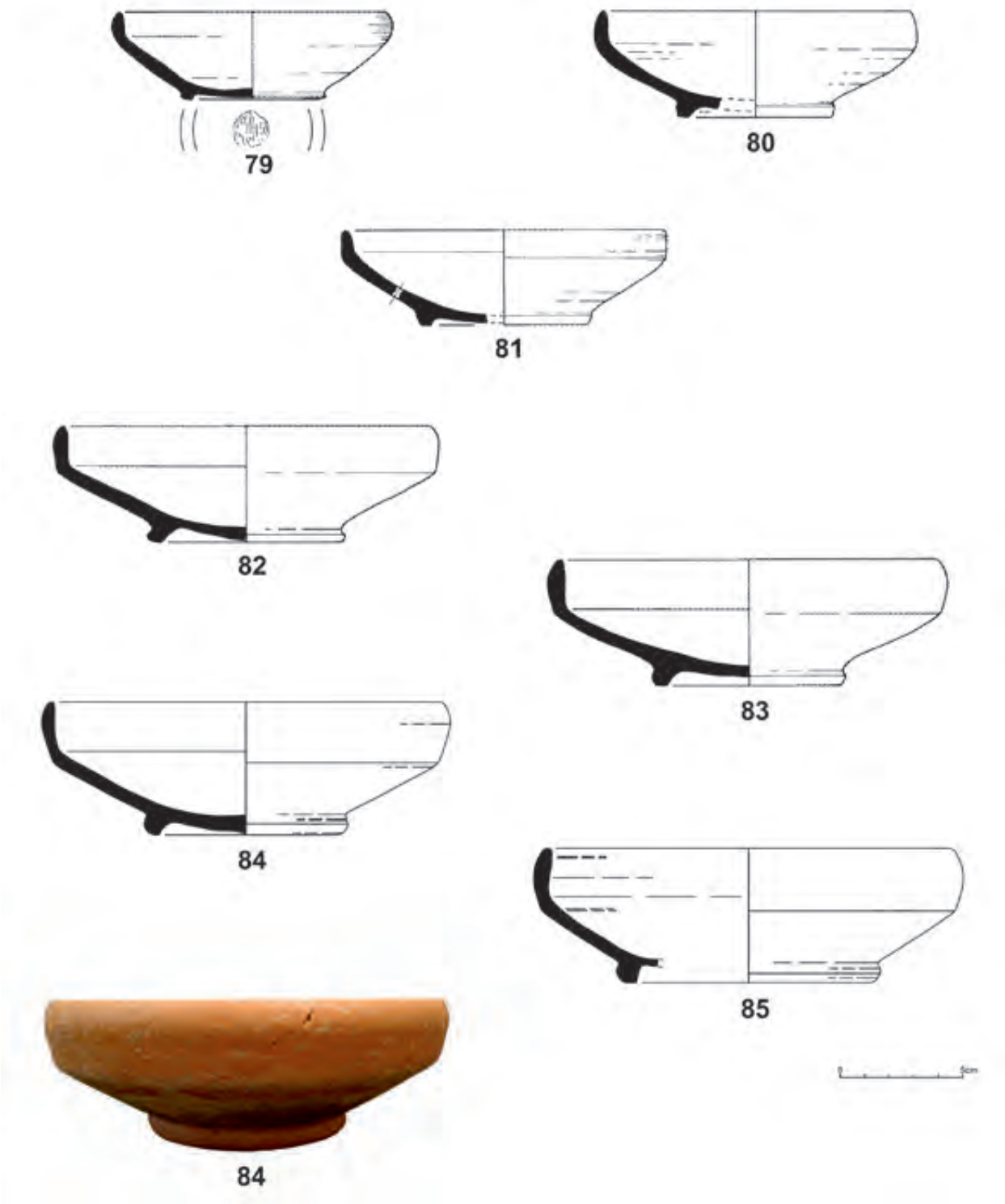
• Archaeopolis (settlement): Lekvinadze 1987, 247, fig. 53.

• Rhodopolis (settlement): Džaparidze 1974, 105, pl. 7:4.III; Džaparidze 1989, 147, pl. 5:1.III.

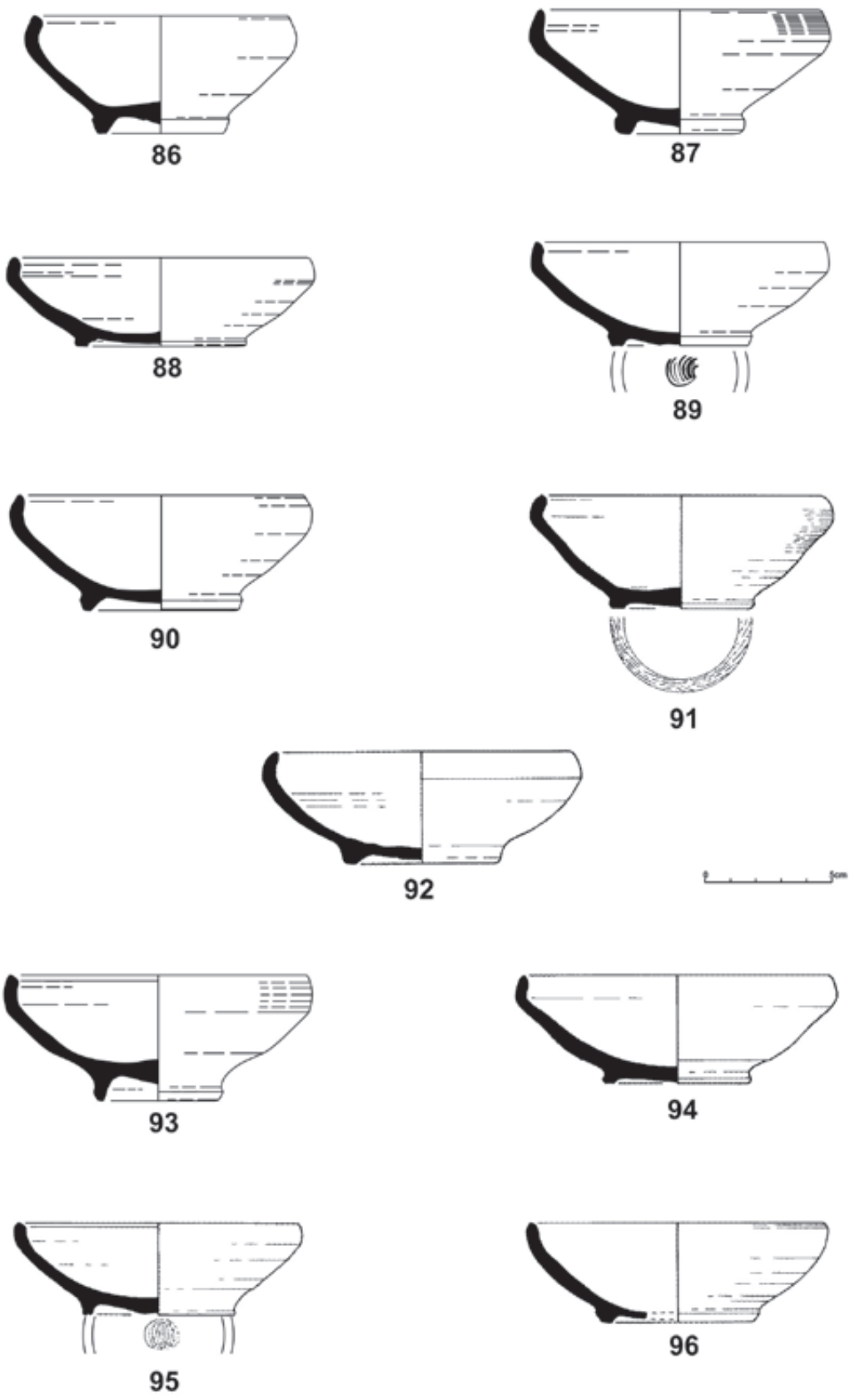
Southern coast of the Black Sea and northern Anatolia

• Pompeiopolis (settlement): Domżalski 2016–2017, 76–78, fig. 4, pl. 1:7.

• Komana Pontika (rural territory, surface survey): **Cat. no. 101**.

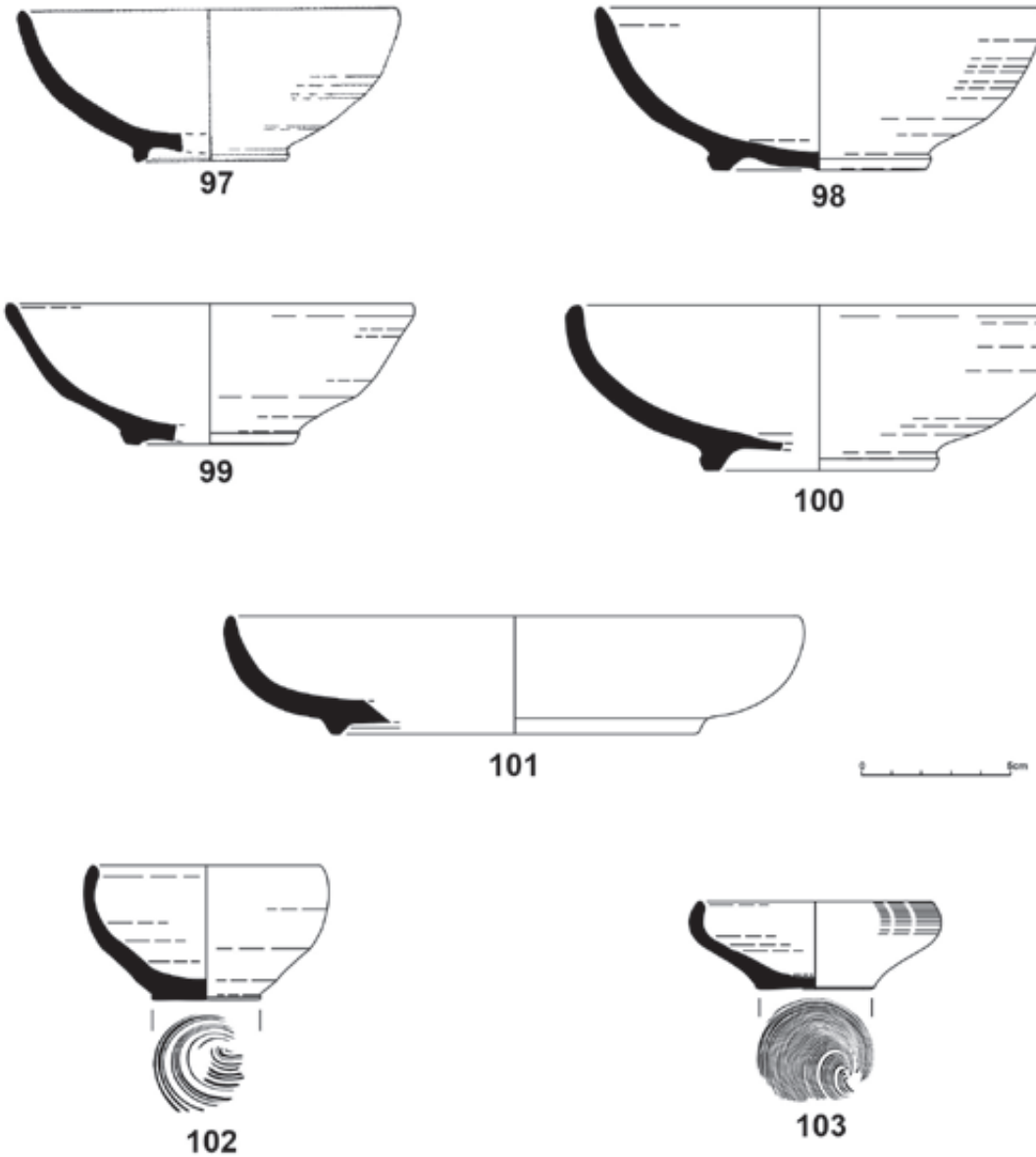


Pl. 25. Pontic Red Slip ware form 4A (Cat. nos. 79–85).



Pl. 26. Pontic Red Slip ware form 4B (Cat. nos. 86–94) and 4B/C (Cat. nos. 95–96).

Pl. 27. Pontic Red Slip ware form 4B (Cat. nos. 86, 90–91 and 93).



Pl. 28. Pontic Red Slip ware form 4C (Cat. nos. 97–101) and 4D (Cat. nos. 102–103). ■

Form 5

Small bowl with vertical rim with outturned edge and curved walls descending towards floor on ring-foot of small diameter. The rim has a rounded edge which is distinctively turned out. The floor is flat or concave, sometimes raised in the centre, and the foot is rather low. Traces of turning on the potter's wheel are sometimes visible on the floor's undersides. The basic variant of this bowl – 5A (**Pl. 29:104–107**) resembles in its shape the previously described form 4 (variants 4A and 4B) but the characteristic rim makes the discussed form distinctive. Moreover, an exceptional, smaller bowl of the salt-cellar type with the standard rim but with a flat base instead of ring-foot, similarly to the variant 4D, was distinguished as variant 5B (**Pl. 29:108**).

The dimensions of the dominating bowls, form 5A, are as follows: rim diameter 9.5 – 10.5 cm, height 3.5 – 4.5 cm, foot diameter 4.5 – 5.5 cm. Salt cellars, form 5B were significantly smaller. The finds of all these vessels are generally infrequent and in all cases they are undecorated.

The discussed form was omitted in the previously published classifications, and it was first mentioned as form 5 in the paper analysing Late Roman red slip ware finds in Tanais, according to the tentative typo-chronological classification of the Pontic Red Slip vessels.[177]

The chronology of the described bowls is similar to that of the most intensive production of form 4. They were found in the 4th century contexts in the cemeteries Družnoe and Rozental'. The vessels used at the same time or later were identified in Sovchoz 10, Inkerman and Nejzac, among the grave offerings deposited until the mid-5th century. The similarly or only slightly later dated finds were reported from the grave assemblages in Karši-Bair and Kytaion.

Catalogue of illustrated finds

104. (Pl. 29:104) Inkerman, cemetery, grave 7; 1950. BGIKZ, Bachčisaraj, inv. no. KP-6112/131/A-D-925, I-II/156/1950. Intact, D. rim 9.5–9.6 cm, D. foot 4.5 cm, H. 4.2–4.3 cm. Clay orange-brown, softly fired; slip brown-orange, dull.

105. (Pl. 29:105) Nejzac, cemetery, grave 305; 2006. KRKM, Simferopol, inv. no. KP-56191, A-31127. Intact, D. rim 9.9–10.1 cm, D. foot 5.2–5.3 cm, H. 3.9–4.0 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous inside, dull, with streaks, runs and finger marks outside.

106. (Pl. 29:106) Kytaion, cemetery, Sector 17, grave 46; 1984. KIKZ, Kerch, inv. no. KP 105921, KMAK 10230. Intact, D. rim 9.9 cm, D. foot 5.0–5.1 cm, H. 4.2–4.4 cm. Clay palepinkish-brown, medium fired; slip brown-pinkish-orange, slightly lustrous, with streaks, runs and finger marks outside; turning traces on underside of floor. Molev, Šestakov 1991, 91, no. 46.

107. (Pl. 29:107) Inkerman, cemetery; 1948. BGIKZ, Bachčisaraj, inv. no. I-48 V/194. Intact, D. rim 10.2 cm, D. foot 5.5 cm, H. 3.6 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous, with streaks and runs outside.

108. (Pl. 29:108) Bosporos Kimmerikos? (provenience uncertain). KIKZ, Kerch, inv. no. KMAK 561. Nearly intact, D. rim 8.4 cm, D. foot 4.4 cm, H. 3.3 cm. Clay orange-brown, softly fired; slip brown-orange, dull; turning traces on base (underside of floor).

177 Arsen'eva, Domżalski 2002, 427.

Find places

South-western Crimea and neighbouring areas

- Inkerman (cemetery): **Cat. nos. 104** and **107**; Vejmarn 1963, 16–42, fig. 7:9; Ajbabin 1984, 114–116, fig. 3:21; Ajbabin 1999, 254, pl. 17:1; Ajbabin 2003a, 16–17, pl. 3:71.
- Sovchoz 10 (cemetery, graves 219, 255, 269): Strželeckij *et alii* 2003–2004, 84–85, 202–203, pl. 14:34–35,37, appendix 2, pls. 28:219.14, 31:255.11, 32:269.45.
- Černaja Rečka (cemetery, grave 7): Ajbabin 1984, 114–116, fig. 3:19; Ajbabin 1990, 15–17, fig. 5:4.
- Karši-Bair II (cemetery, grave K-BII/4): Ušakov, Filippenko 2003, 27–29, fig. 4:1; Ušakov, Filippenko 2008, 287–288, fig. 3:1; Ušakov 2010a, 97, fig. 82:28; Ušakov 2012, 96–98, fig. 14:1(right/up).
- Družnoe (cemetery, grave 66): Chrapunov 2002, 29–30, fig. 158:8.
- Nejzac (cemetery, grave 305): **Cat. no. 105**; Šabanov 2016, 167–168, fig. 175:3.
- Rozental' (cemetery): Čurkin, Škribljak 2017, 285–286, fig. 13:9,18.

Eastern Crimea (Bosporos Kimmerikos and neighbouring areas)

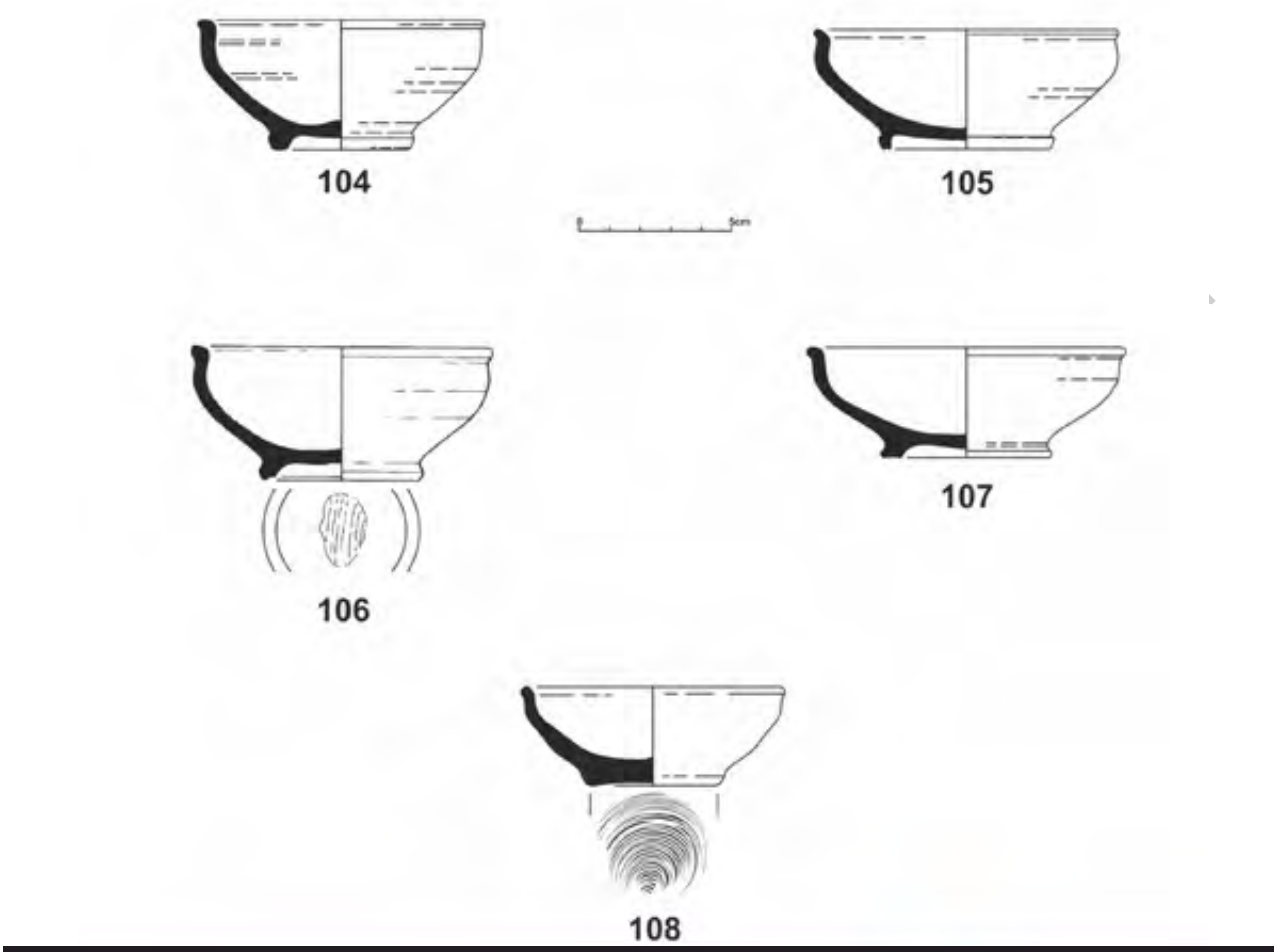
- Pantikapaion / Bosporos (settlement): Smokotina 2015, 315–319, fig. 4:7; Smokotina 2018a, 643–646, fig. 3:10; Smokotina 2018b, 270–271, fig. 5:9.
- Kytaion (cemetery, grave 46/1984): **Cat. no. 106**; Molev, Šestakov 1991, 91 no. 46.

Eastern coast of the Black Sea (Caucasus and Colchis)

- Pitiunt (settlement): Berdzenišvili 1963, 119, fig. 9:2; Asatiani 1977, 181, 210, fig. 44.

Southern coast of the Black Sea and northern Anatolia

- Pompeiopolis (settlement): Domżalski 2016–2017, 76–78, fig. 4, pl. 1:8.



Pl. 29. Pontic Red Slip ware form 5A (Cat. nos. 104–107) and 5B (Cat no. 108). ■

Form 6

Small or medium-sized bowl with wide rim and rounded walls sloping towards floor on ring-foot of small diameter. The rim with a rounded edge may be horizontal, slightly outturned or slightly slanting inwards. The upper part of the rim has usually one or two grooved lines along the outer and inner edge. The walls sometimes have characteristic undercuts on their outer sides made by the shaping tool. The foot is low but clearly marked out. The floor is flat, slightly concave, or raised in the centre.

These vessels were produced in rather small numbers. Their dimensions are as follows: rim diameter 12 – 20 cm; height 3.5 – 6 cm, foot diameter 6 – 8 cm. The bowls were usually undecorated, with the exception of the grooved lines on the rims. However, rare examples with combed wavy bands or imprinted small motifs made with the edge of a comb-like tool on the rims were found as well (**Pls. 30–31:114**).[178]

The discussed form was mentioned by T. N. Knipovič as type 19 among the materials from Tyritake but it was related to the Early Roman terra sigillata.[179] Later on, the bowl was distinguished by A. Opaiț as type 10, which was used in Topraichioi, according to coin finds, in the late 4th – early decades of the 5th century.[180] Recently, the shape was classified as form 6 of the typo-chronological sequence of the PRS ware, in the papers analysing Late Roman and Early Byzantine red slip ware finds in Tanais and Pompeiopolis.[181]

The characteristic wide horizontal rim, sometimes having the grooved, combed or imprinted decoration, suggests that the described bowls were smaller equivalents of the large dishes, form 3. Taking into account these observations and the similarity of the discussed vessels to the ARS ware bowls, forms 70–74, as well as to the LRC/PhRS ware bowl, form 2B,[182] it is possible tentatively to establish the chronology of their production within the first half or the first three quarters of the 5th century. This dating is confirmed by the finds of such bowls in the grave assemblages in Sovchoz 10, Inkerman, Černaja Rečka, Krasnyj Mak, Lučistoe and Džurg-Oba.

Catalogue of illustrated finds

109. (Pls. 30:109 and **31:109)** Krasnyj Mak, cemetery; 1983. BGIKZ, Bachčisaraj, inv. no. KMM-83/120. Complete, restored (4 frs.), rim to base, D. rim 12.7 cm, D. foot 6.1 cm, H. 3.5 cm. Clay orange-brown, softly fired; slip brown-orange, dull, with streaks and runs outside.

110. (Pl. 31:110) Inkerman, cemetery; 1948. BGIKZ, Bachčisaraj, inv. no. KP-6171/276, A-D-610, I-48/4939. Intact, D. rim 14.6–15.0 cm, D. foot 6.4–6.5 cm, H. 4.0–4.3 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, slight metallic lustre.

111. (Pl. 31:111) Bosporos Kimmerikos? (provenience uncertain), excavated by V. V. Škorpil; 1906. KIKZ, Kerch, inv. no. KMAK 587. Intact, D. rim 14.8 cm, D. foot 6.0 cm, H. 4.0 cm. Clay orange-brown, softly fired; slip brown-orange, dull inside, metallic lustre outside.

112. (Pl. 31:112) Inkerman, cemetery; 1948. BGIKZ, Bachčisaraj, inv. no. KP-6171/281, A-D-615, I-48 I/V/313/48. Nearly intact, D. rim 17.9–18.1 cm, D. foot 7.9–8.0 cm, H. 4.1–4.3 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous, with streaks, runs and finger marks outside.

178 For the combed wavy motif, cf. Domżalski 2011, 165, fig. 3:3.

179 Knipovič 1952, 315–317, fig. 11:5.

180 Opaiț 1985, 157–159, pl. 4:2–6.

181 Domżalski, Arsen'eva 2002, 427; Domżalski 2011, 165, fig. 3:3.

182 Cf. below, Chapter 5.2, Fig. 9.

113. (Pl. 31:113) Phanagoreia, settlement, Sector A; 1972. GMII, Moscow, inv. no. F.72/998. Fragmented (2 frs.), ca. 20% of vessel preserved, rim to base, D. rim est. 20.0 cm, D. foot est. 7.4 cm, H. est. 5.7 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, dull; analysed physico-chemically, sample no. **N647**.

114. (Pls. 30:114 and **31:114)** Krasnyj Mak, cemetery; 1983. BGIKZ, Bachčisaraj, inv. no. KMM-83/16. Nearly complete, restored (4 frs.), rim to base, D. rim 14.6–14.8 cm, D. foot 6.2 cm, H. 3.8–4.3 cm. Clay palepinkish-brown, medium fired; slip brown-pinkish-orange, dull, with streaks and runs outside; rim partly discoloured. Imprinted decoration on rim: small motifs on upper rim surface.

115. (Pl. 31:115) Kepoi, settlement, Sector West; 1959. GIM, Moscow, inv. no. Ke-59, zap.r. X-XI/7, no. 482. Fragmented (11 frs.), ca. 90% of vessel preserved, rim to base, D. rim 19.5 cm, D. foot 7.3 cm, H. 4.0 cm. Clay palepink-brown, medium fired; slip brown-pinkish, slightly lustrous.

Find places

Western coast of the Black Sea and the lower Danube area

- Topraichioi (settlement): Opaiț 1985, 157–159, pl. 4:2–6; Opaiț 1991b, 252, pl. 42:4–5; Opaiț 1996, 135, pl. 55:5–6; Opaiț 2004, 75, pl. 54:5.

South-western Crimea and neighbouring areas

- Chersonesos (settlement): Sazanov 1999, 248, fig. 15:3.
- Inkerman (cemetery): **Cat. nos. 110** and **112**; Vejmarn 1963, 16–42, fig. 7:11.
- Sovchoz 10 (cemetery, grave 76A): Strželeckij *et alii* 2003–2004, 85–86, 199, pl. 15:28, appendix 2, pl. 11:76A.50.
- Mangup (settlement): Gercen, Manaev 2005, 324–325, fig. 16:4.
- Černaja Rečka (cemetery, grave 1): Ajbabin 1999, 254, pl. 17:3.
- Krasnyj Mak (cemetery, graves 2 and 4): **Cat. nos. 109** and **114**; Loboda 2005, 194, 197, 209, figs. 3:6, 6:5, pl. 2:10–11.
- Alonija (cemetery): Turova, Černyš 2015, 138–139, fig. 16:183.
- Lučistoe (cemetery, graves 82 and 88): Ajbabin, Chajredinova 1998, 285, 295, figs. 13:[11], 18:4–5; Aibabin, Khairedinova 1999, 288–295, figs. 13:11, 18:4–5; Ajbabin 1999, 68–69, fig. 25:14, pl. 22:4; Ajbabin 2003a, 16–17, pl. 3:137–138; Juročkin, Trufanov 2007, 370–371, fig. 8:5–6; Ajbabin, Chajredinova 2008, 45–46, fig. 24:1–3; Ajbabin, Chajredinova 2009a, 43–45, fig. 24:1–3.

Eastern Crimea (Bosporos Kimmerikos and neighbouring areas)

- Pantikapaion / Bosporos (settlement): Smokotina 2015, 315–319, fig. 4:8; Smokotina 2018a, 643–646, fig. 3:11; Smokotina 2018b, 270–271, fig. 5:10.
- Tyritake (settlement): Knipovič 1952, 315–317, fig. 11:5.
- Kytaion, Džurg-Oba (cemetery, graves 5 and 31): Ermolin 2005, 129–130, fig. 13:5–6,9.

Taman Peninsula (Bosporos Kimmerikos and neighbouring areas)

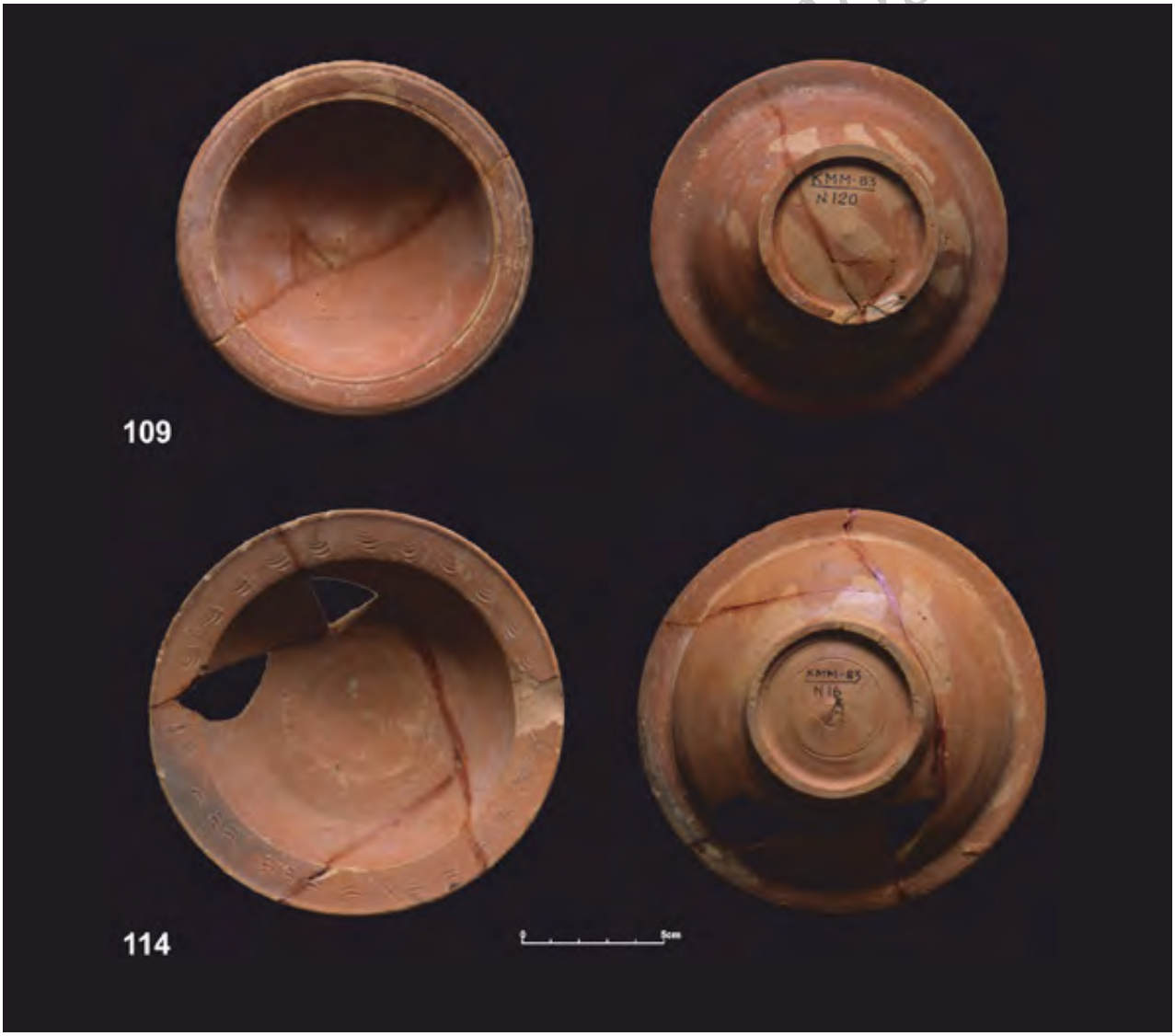
- Phanagoreia (settlement): **Cat. no. 113**.
- Kepoi (settlement): **Cat. no. 115**.

Eastern coast of the Black Sea (Caucasus and Colchis)

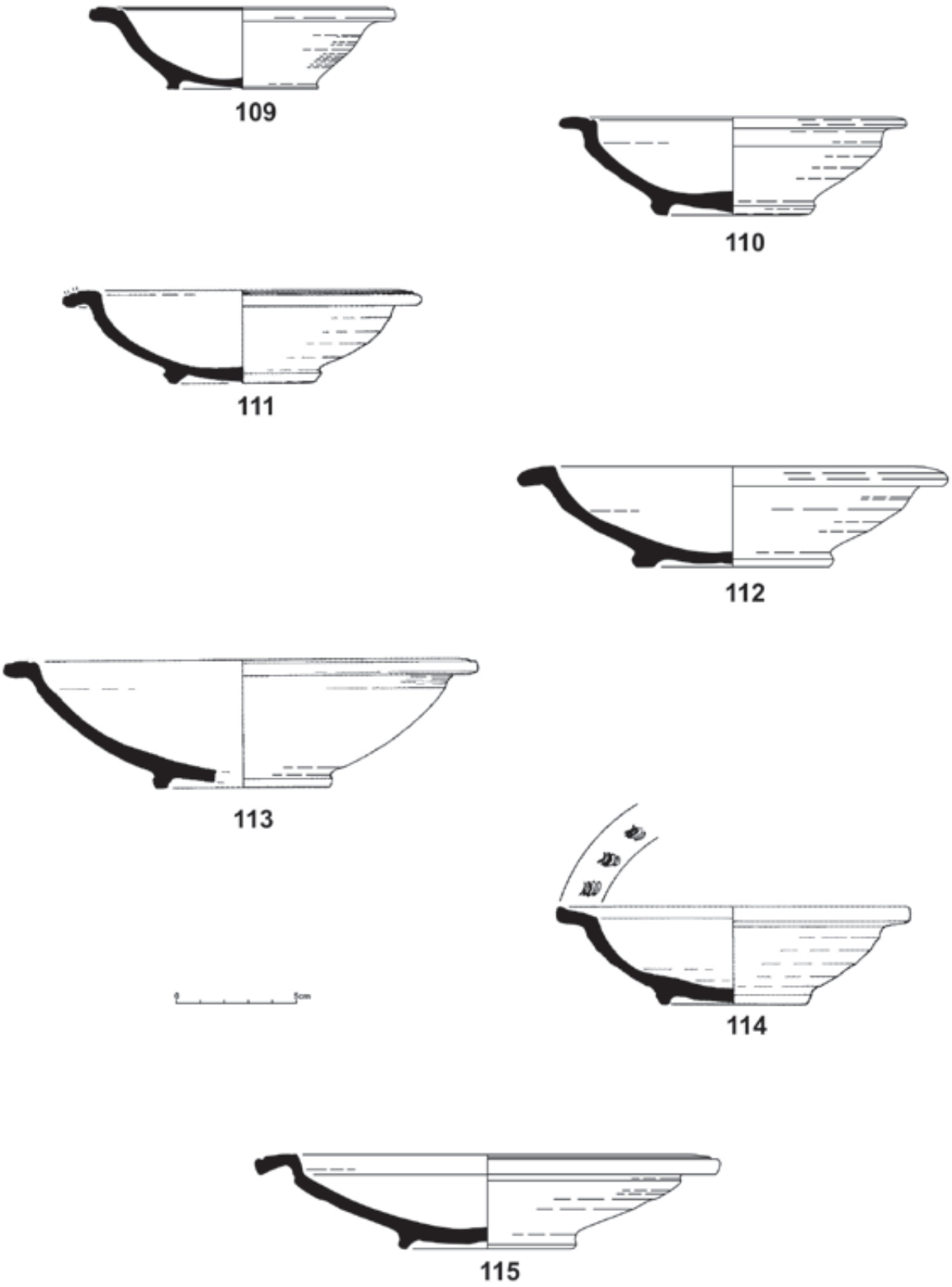
- Pitiunt (settlement): Lordkipanidze 1962, 254–255, pl. 4:16; Asatiani 1977, 181, 186, 210, figs. 45–46, 294; Lordkipanidze 1981, 121, pl. 63:2.
- Sebastopolis (settlement): Apakidze, Lordkipanidze 1965, 127, pl. 4:3.

Southern coast of the Black Sea and northern Anatolia

- Pompeiopolis (settlement): Domżalski 2011, 165, pl. 3:3; Domżalski 2016–2017, 76–77, fig. 4.



Pl. 30. Pontic Red Slip ware form 6 (Cat. nos. 109 and 114).



Pl. 31. Pontic Red Slip ware form 6 (Cat. nos. 109–115). ■

Form 7

Large dish with knobbed or narrow flat rim and straight or curved walls slanting towards broad flat floor on ring-foot of large diameter. The foot is clearly lower and flatter than in dishes produced earlier, forms 1A – 1A/B, and 2 – 3, resembling rather the foot of contemporaneous vessels, form 1B, with a small undercut on the outside, separating it from the wall. The floor is usually flat but sometimes it is slightly raised in the central part.

The most specific diagnostic element of the discussed form is its knobbed or flattened rim, made possibly with the use of a special template. In some cases it is entirely horizontal but more often it is slightly slanting outside. Usually the upper part of the rim has two parallel more or less pronounced grooved lines along the edges. The differences in the shape of the rim and in the thickness of the body allow to distinguish two variants of the described form: 7A – with a thick, knobbed and rather narrow rim, and with relatively thick walls and floor (**Pls. 32–35**), as well as 7B – with a much thinner, flattened and slightly wider rim, and significantly thinner walls and floor (**Pls. 34** and **36**).

The discussed vessel was the last popular form of the Pontic Red Slip ware, resembling in its general shape, with the exception of the rim, deep dishes, forms 1 and 2. The dimensions of the vessels are: the rim diameter 19 – 35 cm, height 4.5 – 5.5 cm, and foot diameter 12 – 25 cm. Small variants are very rare. The most popular vessels have rim diameter of 26 – 28 cm, and foot diameter 16 – 18 cm. However, the bigger dishes were also relatively common.

This form was distinguished by T. N. Knipovič as type 23, together with Pontic Red Slip ware form 1, among the materials from Tyritake.[183] The absence of these vessels in Myrmekion, abandoned around the mid-3rd century, was also noted as an indication of their dating to the late 3rd and 4th century. Later on, the form was distinguished in Abkhazia by Ju. N. Voronov as type 2, dated to the late 4th and 5th century.[184] At approximately the same time, this form was identified also in Dobrudja by A. Opaiț as type 4B, the use of which in Topraichioi was dated by coin finds to the second quarter of the 5th century.[185] In articles published later on by A. V. Sazanov, the discussed vessels were identified incorrectly as Late Roman D / "Cypriot" Red Slip ware form 2.[186] Despite this, in the early 1990s A. G. Atavin distinguished these vessels as type 4 among the finds from Phanagoreia and dated them, according to similar finds from other sites, to the 4th – early 5th century.[187]

The discussed vessels were first mentioned and described as form 7 in the papers analysing Late Roman red slip ware finds in Bosporos Kimmerikos and in Tanais, according to the tentative typo-chronological classification of the Pontic Red Slip ware.[188]

Dishes, form 7, were decorated very rarely. It seems that only the earliest ones had combed ornaments typical of the earlier dishes, form 3. Examples of such vessels are quite infrequent and the repertoire of the motifs is rather modest. The reduced in size circular or polygonal compositions of combed wavy bands surrounded by multiple grooved concentric circles in the middle of the floors (**Pl. 33:123–124**) are merely inferior successors of the magnificent medallions known from the above-mentioned large vessels, form 3.

A still more simplified version of the earlier combed decorative compositions executed on the floors of the vessels are rarely encountered incised motifs of a rosette and a wavy line, placed in the centre of the floor (**Pls. 32:118** and **36:134**).[189]Another technique used for decorating dishes, form 7, is rouletting. It was also used very rarely and, like in the case of the dishes, form 1, exclusively on the external parts of the

183 Knipovič 1952, 318–319, fig. 12:2.

184 Voronov 1983, 91–92, figs. 3:17–18,25–26, 5:1–3,6,15,17, 6:16–19.

185 Opaiț 1985, 155, 159, pls. 1:7, 2:2–4.

186 Cf. above, Chapter 2.2, notes 52–60, 62.

187 Atavin 1993, 151–152, fig. 1:5–7.

188 Domżalski 2000, 163–164, fig. 2:2–3; Arsen'eva, Domżalski 2002, 427–428, 479, fig. 13:575–577.

189 See also: Ivanova 2009, 45, fig. 12:66; Dmitriev1979a, 52, fig. 1:33.

walls. The motifs executed in this way comprise single or double horizontal lines made up from quite large, oval-shaped notches (**Pls. 32:119** and **33:121**). Moreover, the decoration embraced also both variants of the rim, the upper part of which was embellished with two parallel grooved lines running along the edges.

This newly introduced form seems to be inspired by the very popular in the Mediterranean African Red Slip C ware dishes, forms 83–84, dated from the second quarter until the end of the 5th century.[190] The described Pontic Red Slip ware form emerged shortly after the mid-5th century and was produced until the early 6th century. The analysis of the vessels found in various contexts indicates that the two distinguished variants of form 7 reflect the diachronic development of those vessels. The fragmented finds from Tanais and Topraichioi, as well as the vessels with the combed motifs, presented in the Catalogue (**Cat. nos. 123–124**), may indicate that variant 7A was earlier.

The described form represents the final, third "generation" of the Pontic Red Slip ware leading vessels. They replaced the large dishes with horizontal rim, form 3, especially popular in the first half of the 5th century. It is possible that in the third quarter of the 5th century both forms were produced simultaneously for a certain time. It is indicated by presence of the combed compositions on the floors of the dishes, form 7A, as well as by the finds of both the aforementioned forms among the grave offerings in the cemeteries of Karši-Bair, Almalyk-Dere, Phanagoreia and Šapky.

The vessels representing the early variant of the discussed dishes, 7A, were found also in the cemeteries of Krasnyj Mak, Kytaion (Džurg-Oba) and Djurso, in the contexts dated to the second half of the 5th century.[191] Their successors with flattened rim, 7B, dominated among the Pontic Red Slip ware vessels in Skalistoe, Džurg-Oba and Djurso. In the last two cemeteries the discussed vessels were found together with numerous imports of the Aegean Late Roman C / Phocaean Red Slip ware dishes, forms 3C–G, dated to the second half of the 5th and the first half of the 6th century.

The discussed dishes were still very broadly distributed. They were delivered to Scythia Minor, replacing their predecessors, dishes, form 3. Their presence in the Crimea embraced not only the aforementioned cemeteries as their fragments were found in large numbers also in Chersonesos and in numerous settlements on both sides of the Kerch Strait. In Tanais their finds were scarce, indicating that those vessels arrived there shortly before the abandonment of the settlement. A similar situation was evidenced in Pompeiopolis where the first imports of form 7 arrived at the time of the rapid development of the local production of the fine ware burnished vessels, which finally replaced the imported red slip wares. On the other hand, the absence of the discussed vessels in several contexts in the Black Sea region, dated to the second half of the 6th century, indicates that their production and broad distribution discontinued shortly before the middle of that century.

Pontic Red Slip ware form 7 was introduced at the time when the export of the Aegean Late Roman C / Phocaean Red Slip vessels was increasing in the second half of the 5th century. Later on, during the most intensive long-distance distribution of the Aegean products in the first half of the 6th century, the Pontic vessels were gradually eliminated and finally disappeared from the Black Sea market.

190 Hayes 1972, 131–133, fig. 23. The shapes of those African Red Slip vessels were also imitated in other Mediterranean workshops, especially in the Levantine Late Roman D / "Cypriot" Red Slip ware, where similar dishes, form 2, were produced in the second half of the 5th and the first half of the 6th century (Hayes 1972, 373–376, fig. 80). The African prototypes inspired also the Aegean potters who, at the same time, successfully developed production of the deep dishes with overhanging rim, called form 3 (Hayes 1972, 329–338, figs. 67–69). The phenomenon of imitating the African products in the Late Antiquity and in the Early Byzantine times by other leading red slip ware producers, Mediterranean and Pontic, is discussed below, in Chapter 5.2, and illustrated in Figs. 7–10.

191 Cf. above, Chapter 3.2, Tables 3–4.

Catalogue of illustrated finds

116. (Pl. 32:116) Chersonesos, settlement; 1957. GE, Saint Petersburg, inv. no. X 1957.33. Fragmented (many frs.), ca. 80% of vessel preserved, rim to base, D. rim 26.3–26.5 cm, D. foot 15.6–15.8 cm, H. 4.6–4.8 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, metallic lustre, with streaks, runs and finger marks outside; rim partly discoloured.

117. (Pl. 32:117) Phanagoreia, cemetery, grave 50; 1937. GMII, Moscow, inv. no. F-45, F.37 s.m. 50/374. Complete, restored (many frs.), D. rim 27.4 cm, D. foot 17.4 cm, H. 4.8–5.1 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, dull inside, slightly lustrous with streaks, runs and finger marks outside; rim partly discoloured. Grooved decoration on rim: double line. Sorokina 1971, fig. 6:2; Kazanski 1999, 306–307, fig. 11:12; Paromov 2003, 158, fig. 64:50; Gavrituchin, Kazanskij 2006, 301–303, fig. 5:21.

118. (Pl. 32:118) Tyritake, settlement; 1946. KIKZ, Kerch, inv. no. KMAK 8867. Fragmented (1 fr.), ca. 20% of vessel preserved, rim to base, D. rim est. 27.0 cm, D. foot est. 18.0 cm, H. est. 5.2 cm. Clay palepinkish-brown, medium fired; slip brown-pinkish, dull inside, slightly lustrous with streaks, runs and finger marks outside; hole pierced through wall below rim. Incised and grooved decoration on floor and on rim: circle of incised wavy line within concentric grooved circle in centre of floor; grooved double line on rim. Domżalski 2000, 163–164, fig. 2:3.

119. (Pl. 32:119) Chersonesos, settlement; 1957. GE, Saint Petersburg, inv. no. X 1957.32. Fragmented (many frs.), ca. 75% of vessel preserved, rim to base, D. rim 27.4–27.5 cm, D. foot 17.4–17.7 cm, H. 5.4–5.6 cm. Clay pinkish-brown, medium fired; slip brown-reddish, slightly lustrous. Grooved and rouletted decoration on floor, rim and outside of wall: small circle of double grooved line in centre of floor, and grooved double line on rim; two horizontal lines of rouletting outside in lower part of wall. Domżalski 2000, 163–164, fig. 2:2.

120. (Pl. 32:120) Bosporos Kimmerikos? (provenience uncertain), from dr. Byhan collection, purchased in Kerch or Taman, in 1910. RGZM, Mainz, inv. no. O.5756. Complete, restored (5 frs.). D. rim 27.6 cm, D. foot 17.1 cm, H. 5.2–5.4 cm. Clay palepinkish-brown, hard fired; slip brown-pinkish, dull, with streaks and runs outside. Grooved decoration on floor and rim: small circle of grooved double line in centre of floor; barely visible grooved double line on rim.

121. (Pl. 33:121) Il'ič, fort, pit Z; 1989. TMK, Taman, inv. no. IL.89. Nearly complete, restored (many frs.), D. rim 28.0 cm, D. foot 17.5 cm, H. 4.4–4.7 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, dull, with streaks, runs and finger marks outside; rim partly discoloured. Grooved and rouletted decoration on rim and outside of wall: grooved double line on rim; horizontal line of rouletting outside in lower part of wall.

122. (Pl. 33:122) Djurso, cemetery, grave 500; 1974. NGIMZ, Novorossijsk, inv. no. D-74, p.500/4999. Complete, restored (many frs.), D. rim 35.0 cm, D. foot 24.6 cm, H. 5.0 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, dull, with runs and finger marks outside; single hole for hanging pierced through wall below rim. Grooved decoration on floor and rim: circle of grooved double line in centre of floor; grooved double line on rim. Dmitriev 1979b, 226–227, fig. 10:32; Soupault 1996, 62–64, fig. 3:7–10; Kazanski, Mastykova 1999, 530–560, fig. 21:32; Kazanskij 2001, 56, fig. 7:32; Kazanski 2002, 154, fig. 7:32; Mastykova 2002, 225–235, fig. 1:32; Dmitriev 2003, 201, pl. 81:27; Kazanski, Mastykova 2003, 139, fig. 32; Mastykova 2009, 194–195, pl. 14:32.

123. (Pl. 33:123) Mangup, Almalyk-Dere cemetery, grave 171; 2004. AM TNU, Simferopol. Intact, D. rim 32.2 cm, D. foot 21.8–22.0 cm, H. 5.8–6.0 cm. Clay pinkish-brown, hard fired; slip brown-pink, dull, with streaks, runs and finger marks outside; rim partly discoloured. Combed and

grooved decoration on floor and on rim: circle of combed band surrounded by concentric circle of multiple grooved lines in centre of floor; grooved double line on rim. Ivanova 2009, 45, fig. 12:65.

124. (Pl. 33:124) Kytaion, Džurg-Oba cemetery, grave 29; 2007. KIKZ, Kerch, inv. no. KP 173952. Nearly complete, restored (many frs.), ca. 95% of vessel preserved, D. rim 34.4–34.7 cm, D. foot 24.4–24.6 cm, H. 4.7–5.0 cm. Clay orange-brown, softly fired; slip brown-orange, metallic lustre, partly washed, with streaks, runs and finger marks outside. Combed and grooved decoration on floor and rim: polygonal combed band surrounded by circle of two grooved lines in centre of floor; barely visible grooved double line on rim.

125. (Pl. 34:125) Il'ič, fort, Room XVI; 1979. TMK, Taman, inv. no. IL.79, p.XVI/18. Fragmented (3 frs.), ca. 15% of vessel preserved, rim to base, D. rim est. 19.2 cm, D. foot est. 12.0 cm, H. est. 4.4 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, dull, with streaks, runs and finger marks outside. Grooved decoration on rim: double line.

126. (Pl. 34:126) Djurso, cemetery, grave 410; 1974. NGIMZ, Novorossijsk, inv. no. D-74, p.410/4917. Complete, restored (many frs.), D. rim 25.8–26.4 cm, D. foot 17.0–17.2 cm, H. 4.6–4.8 cm. Clay orange-brown, softly fired; slip brown-orange, badly preserved; single hole for hanging pierced through wall below rim. Grooved decoration on rim: single line. Dmitriev 1982, 88–89, fig. 8:12; Kazanskij 2001, 56, fig. 9:7; Kazanski 2002, 154, fig. 9:7; Mastykova 2002, 225–235, fig. 6:7; Dmitriev 2003, 201, pl. 81:28; Gavrituchin, Kazanskij 2006, 301–306, fig. 7:43; Mastykova 2009, 191–192, pl. 10:7.

127. (Pl. 34:127 and **35:127)** Skalistoe (Bakla), cemetery, grave 127e; 1959. BGIKZ, Bachčisaraj, inv. no. KP-6271-2823/A-ZB-3835, BM-60, BM-59/10 skl.127E. Complete, restored (3 frs.), D. rim 26.8–27.2 cm, D. foot 17.8 cm, H. 4.8–5.4 cm. Clay orange-brown, medium fired; slip brown-reddish-orange inside, brown-orange outside, slight metallic lustre with streaks, runs and finger marks outside; turning traces on underside of floor. Grooved decoration on rim: double line. Vejmarn, Ajbabin 1993, 15–16, 190, fig. 7:17.

128. (Pl. 34:128) Kytaion, cemetery, Sector XXVII, grave 145; 1998. KIKZ, Kerch, inv. no. KP 134255, KMAK 13561. Complete, restored (11 frs.), D. rim 27.4 cm, D. foot 17.4 cm, H. 4.4–4.6 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, slightly lustrous, with streaks, runs and finger marks outside; rim partly discoloured. Grooved decoration on rim: double line. Chanutina, Chršanovskij 2009, 60–64, fig. 2:8–9.

129. (Pl. 34:129) Djurso, cemetery, grave 259; 1974. NGIMZ, Novorossijsk, inv. no. D-74, p.259/4860. Complete, restored (many frs.), D. rim 27.4 cm, D. foot 18.0 cm, H. 4.8 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, not preserved inside, dull outside. Grooved decoration on rim: double line. Dmitriev 1982, 81–83, fig. 5:37; Kazanski, Mastykova 1999, 530–560, fig. 22:4; Kazanskij 2001, 56, fig. 10:6; Kazanski 2002, 154, fig. 10:6; Mastykova 2002, 225–235, fig. 3:6; Gavrituchin, Kazanskij 2006, 301–306, fig. 7:23; Mastykova 2009, 187, pl. 6:6.

130. (Pl. 34:130) Tyritake, settlement, Sector XXVI; 2004. KIKZ, inv. no. KMAK 16798, KP 160218. Fragmented (8 frs.), ca. 40% of vessel preserved, rim to base, D. rim est. 33.0 cm, D. foot est. 23.5 cm, H. est. 5.0–5.2 cm. Clay orange-brown, softly fired; slip brown-orange, dull, with streaks, runs and finger marks outside; four mending holes and one hole for hanging pierced through wall, floor and rim. Grooved decoration on rim: double line. Domżalski, Smokotina 2020, 625, fig. 7:2; Domžal'skij, Smokotina 2020, 201, fig. 7:2.

131. (Pl. 36:131) Kytaion, Džurg-Oba cemetery; 2003. KIKZ, Kerch, inv. no. KP 157605. Fragmented (many frs.), ca. 50% of vessel preserved, rim to base, D. rim est. 26.6 cm, D. foot est. 15.6 cm,

H. est. 4.5 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, dull inside, slightly lustrous with streaks, runs and finger marks outside. Grooved decoration on rim: double line.

132. (Pl. 36:132) Tyritake, settlement, Sector XXVI; 2003. CAI, Kerch. Fragmented (1 fr.), ca. 20% of vessel preserved, rim to base, D. rim est. 27.6 cm, D. foot est. 18.0 cm, H. est. 4.4 cm. Clay orange-brown, softly fired; slip brown-orange, dull inside, slightly lustrous with streaks, runs and finger marks outside; turning traces on underside of floor. Grooved decoration on rim: double line. Domżalski, Smokotina 2020, 621, fig. 6:2; Domžal'skij, Smokotina 2020, 194, fig. 6:2.

133. (Pl. 36:133) Kytaion, Džurg-Oba cemetery, grave 33; 2008. KIKZ, Kerch, inv. no. KP 173960. Intact, D. rim 32.3–32.5 cm, D. foot 21.8 cm, H. 5.0–5.3 cm. Clay orange-brown, softly fired; slip brown-orange, partly dull and slightly lustrous, with streaks, runs and finger marks outside. Grooved decoration on floor and rim: small circle of grooved double line in centre of floor; barely visible grooved double line on rim.

134. (Pl. 36:134) Djurso, cemetery, grave 420; 1974. NGIMZ, Novorossijsk, inv. no. D-74, p.420/4935. Complete, restored (many frs.), D. rim 32.5 cm, D. foot 22.2 cm, H. 5.3–5.6 cm. Clay orange-brown, softly fired; slip brown-orange, dull, with streaks, runs and finger marks outside; pair of holes pierced through wall below rim. Incised and grooved decoration on floor and rim: incised four-petal rosette surrounded by circle of grooved double line in centre of floor; single grooved line on rim. Dmitriev 1979a, 52–53, fig. 1:34; Dmitriev 1982, 89–90, fig. 8:34–34a; Soupault 1996, 62–64, fig. 3:1–3; Kazanski, Mastykova 1999, 530–560, fig. 12:33; Kazanskij 2001, 56, fig. 5:15; Kazanski 2002, 154, fig. 5:15; Mastykova 2002, 225–235, fig. 5:15; Dmitriev 2003, 201, pl. 81:30,36; Gavrituchin, Kazanskij 2006, 301–308, fig. 9:23; Mastykova 2009, 192–193, pl. 11:15.

135. (Pl. 36:135) Kytaion, Džurg-Oba cemetery, grave 34; 2008. KIKZ, Kerch, inv. no. KP 173976. Nearly complete, restored (4 frs.), D. rim 34.2–34.5 cm, D. foot 24.5–24.6 cm, H. 4.8–5.3 cm. Clay orange-brown, softly fired; slip brown-orange, dull, with streaks, runs and finger marks outside; rim partly discoloured. Grooved decoration on floor and rim: small circle of grooved double line in centre of floor; single grooved line on rim.

Find places

Western coast of the Black Sea and the lower Danube area

- Dičin (settlement): Swan 2007, 266–267, fig. 4:35.
- Argamum (settlement): Opaiț 1985, 155, 159, pl. 2:4; Mocanu 2018b, 338, 343, fig. 2:14; Mocanu 2020, 122, 126, fig. 3:18.
- Noviodunum (settlement): surface finds, personal observations made by the author in 2009.
- Halmyris (settlement): Opaiț 1991a, 165, 169, pl. 44:304; Topoleanu 2000a, 56–57, pl. 8:75–78; Mocanu 2018a, 237.
- Topraichioi (settlement): Opaiț 1985, 155, 159, pls. 1:7, 2:2–4; Opaiț 1991b, 252, pl. 42:2,6; Opaiț 1996, 135, pl. 55:3; Opaiț 2004, 75, pl. 54:3.
- Ulmetum (settlement): Băjenaru 2018, 504, 506, fig. 4:72.
- Ibida (settlement): Mocanu 2011, 230, pl. 2:9; Mocanu 2014, 152.

South-western Crimea and neighbouring areas

- Chersonesos (settlement): **Cat. nos. 116** and **119**; Kadeev, Soročan 1989, 67–74, fig. 33:2,6–8; Romančuk, Sazanov 1991, 44–45, fig. 22:221–223; Sazanov 1994–1995, 410–411, fig. 4:9; Zolotarev, Ušakov 1997, 34–35, fig. 5:13,16; Sazanov 1999, 235–237, 244–249, figs. 5:53–54, 13:14; Golofast, Ryžov 2000, 80–81, fig. 12:15–17; Domżalski 2000, 163–164, fig. 2:2; Golofast 2001, 105–108, 112–113, 117–118, figs. 5:15–16, 19:17, 42:2,4, 66:17, 68:2; Golofast 2003, 97–100, fig. 2:2; Golofast 2007a, 79–82, 94–95, figs. 8:1–2,4; 45:7,10; Golofast 2007b, 48–53, fig. 11:1–3; Ušakov 2010b, 293, 306, figs. 7:30, 11:9–10; Ajbabin 2010a, 365–366, fig. 6:6,8; Ajbabin 2010b, 407, fig. 6:6,8; Golofast, Ryžov 2011, 372; Ušakov 2011b, 402, fig. 2:23; Ušakov 2012, 84–91, fig. 9:9; Golofast, Ryžov 2013, 88, fig. 42:11–13; Zolotarev *et alii* 2013, 136–139, 220, figs. 62:35, 121:14; Ušakov 2013–2014, 202–203, figs. 8:4,6, 12:4–7; Ušakov, Strukova 2016, 111–114, figs. 12:11–16, 13:19, 14:30; Ušakov 2017a, 183–195, figs. 4:11–13,15–16, 6:16–19, 8:19, 9:25; Ušakov 2017b, 310–315, figs. 6:19, 7:16–19, 8:30, 9:4.

- Chersonesos (western cemetery, grave 75): Farbej 1998, 125–126, fig. 3:4.

- Mangup (settlement): Gercen *et alii* 2006, 419, 424, figs. 39:14, 53:1; Gercen, Naumenko 2006, 409–411, figs. 15:1, 18:3.

- Mangup, Almalyk-Dere (cemetery, grave 171): **Cat. no. 123**; Ivanova 2009, 45–46, fig. 12:65–66.

- Krasnyj Mak (cemetery, grave 3): Loboda 1992, 214, fig. 3:2; Loboda 2005, 196, 210, fig. 5:5, pl. 2:15.

- Karši-Bair I (cemetery, grave K-BI/5): Ušakov, Filippenko 2003, 27–29, fig. 5:3; Ušakov, Filippenko 2008, 287–288, fig. 3:6; Ušakov 2010a, 97, fig. 75:36; Ušakov 2012, 96–98, fig. 14:3,6(right/up).

- Skalistoe (cemetery, grave 127e): **Cat. no. 127**; Vejmarn, Ajbabin 1993, 15–16, 190, fig. 7:17; Ajbabin 2003a, 60–61, pl. 38:47.

Eastern Crimea (Bosporos Kimmerikos and neighbouring areas)

- Pantikapaion/Bosporos (settlement): Ajbabin 1999, 135–139, fig. 55:35; Ajbabin 2003b, 29–30, pl. 10:35; Ajbabin 2013, 284–285, fig. 2:23; Smokotina 2015, 315–319, figs. 4:9, 5:2; Smokotina 2018a, 643–647, figs. 3:12, 4:2.

- Tyritake (settlement): **Cat. nos. 118, 130** and **132**; Gajdukevič 1952, 123, fig. 153[:1,3]; Knipovič 1952, 318–319 fig. 12:2; Sazanov, Ivaščenko 1989, 95–97, fig. 8:4–6; Sazanov 1989, 51–55, fig. 4:15a-b; Sazanov 1994–1995, 416–417, fig. 8:1,3,5,7–9; Sazanov 1999, 250–252, fig. 16:20; Domżalski 2000, 163–164, fig. 2:3; Domżalski, Smokotina 2020, 625, figs. 6:1–6, 7:1–6; Domžal'skij, Smokotina 2020, 200–201, figs. 6:1–6, 7:1–6.

- Kytaion (cemetery, grave 145): **Cat. no. 128**; Chanutina, Chršanovskij 2009, 60–64, fig. 2:8–9.

- Kytaion, Džurg-Oba (cemetery, graves 1, 29, 33-34): **Cat. nos. 124, 131, 133** and **135**; Ermolin 2004, 14–23, figs. 2:15, 5:19.

- Mys Zjuk (settlement): Sazanov 1989, 51–55, fig. 4:16; Maslennikov 2012, 281–285, fig. 15:16.

- Zelenyj Mys (settlement): Sazanov, Mokrousov 1999, 175–176, 181–183, figs. 2:14, 3:20–21.

- Sirenevaja Buchta (settlement): Koval'čuk, Dikarev 2016, 291–294, figs. 7, 9:1039,1103,1120,1264, 10:1454,1707, 12, 13:3255.

- Zolotoe (vostočnoe, v buchte) (settlement): Sazanov, Mokrousov 1996, 91–91, 93–94, 99–100, figs. 3:7, 6:10, 11:6; Maslennikov 1998, 264–266, fig. 165:8.

- Sjujurtaš (cemetery, grave 10/1): Maslennikov 1997, 11, 33, fig. 19:1.

Taman Peninsula (Bosporos Kimmerikos and neighbouring areas)

- Phanagoreia (settlement): Atavin 1993, 151–152, fig. 1:5–7; Golofast, Ol'chovskij 2016, 65–67, fig. 13.

- Phanagoreia (cemetery, grave 50): **Cat. no. 117**; Sorokina 1971, 97–98, fig. 6:2; Kazanski 1999, 306–307, fig. 11:12; Paromov 2003, 158, fig. 64:50; Gavrituchin, Kazanskij 2006, 301–303, fig. 5:21.

- Hermonassa (settlement): Pletneva 1963, 33–34, fig. 19:13; Sazanov 2000a, 234–235, fig. 20:33, 37–42.

- Il'ič (settlement): **Cat. nos**. **121** and **125**; Sazanov 1994–1995, 416–417, fig. 8:2,4,6,11; Sazanov 2000a, 230, figs. 18, 19:1–2; Gavrituchin, Paromov 2003, 153, fig. 63:13–16.

Don river delta in the north-eastern Maiotis

- Tanais (settlement): Arsen'eva, Domżalski 2002, 427–428, 479, fig. 13:575–577; Ullrich 2018, 54–55, 61, 64, figs. 81:1, 92:6.

Eastern coast of the Black Sea (Caucasus and Colchis)

- Djurso (cemetery, graves 259, 410, 420, 500): **Cat. nos. 122, 126, 129** and **134**; Dmitriev 1979a, 52–53, fig. 1:34; Dmitriev 1979b, 226–227, fig. 10:32; Dmitriev 1982, 81–83, 88–90, figs. 5:37, 8:12,34–34a; Soupault 1996, 62–64, fig. 3:1–3,7–10; Kazanski, Mastykova 1999, 530–560, figs. 12:33, 21:32, 22:4; Kazanskij 2001, 56, figs. 5:15, 7:32, 9:7, 10:6; Kazanski 2002, 154, figs. 5:15, 7:32, 9:7, 10:6; Mastykova 2002, 225–235, figs. 1:32, 3:6, 5:15, 6:7; Dmitriev 2003, 201, pl. 81:27–28,30,36; Gavrituchin, Kazanskij 2006, 301–308, figs. 7:23,43, 9:23; Mastykova 2009, 187, 191–195, pls. 6:6, 10:7, 11:15, 14:32.

- Bžid (cemetery, grave 128): Gavrituchin, P'jankov 2003, 193–194, pl. 76:17.

- Pitiunt (settlement): Lordkipanidze 1962, 254–255, pl. 3:11; Nikolajšvili 1975, 181–182, fig. 24:5193,5227; Asatiani 1977, 186, 210, fig. 48; Apakidze 1978, 85–92, figs. 106–107; Lordkipanidze 1981, 121, pl. 63:2.

- Sebastopolis (settlement): Trapš 1969, 324–329, pl. 46:4,12; Voronov 1983, 91–94, fig. 6:16–19; Chruškova 2002, 254, fig.97; Gabelia 2014, 443–444, figs. 32:16–18, 33:1–9.

- Šapky (settlement): Voronov 1983, 91–93, fig. 5:1–3.

- Šapky (cemetery GS): Voronov 1975, 80–82, fig. 24:3; Voronov 1983, 91–93, fig. 5:6,17.

- Cibilium (settlement): Voronov 1983, 91–92, fig. 3:17–18,25–26; Voronov, Bgažba 1985, 78, fig. 99:29,42.

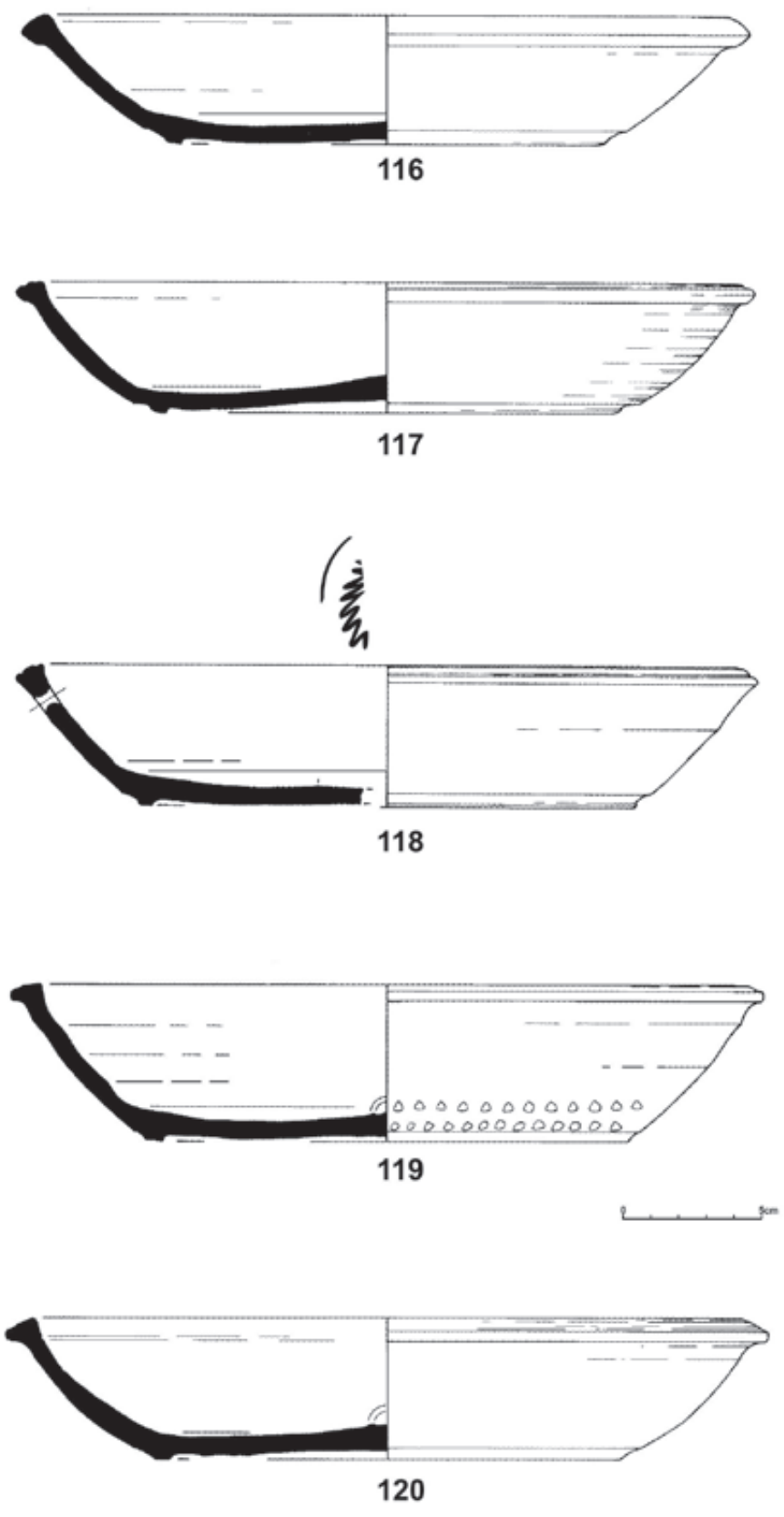
- Pskal (settlement): Voronov 1977, 51–52, fig. 10:17.

- Ažara (cemetery): Voronov 1975, 80–82, fig. 24:4; Voronov 1983, 91–93, fig. 5:15.

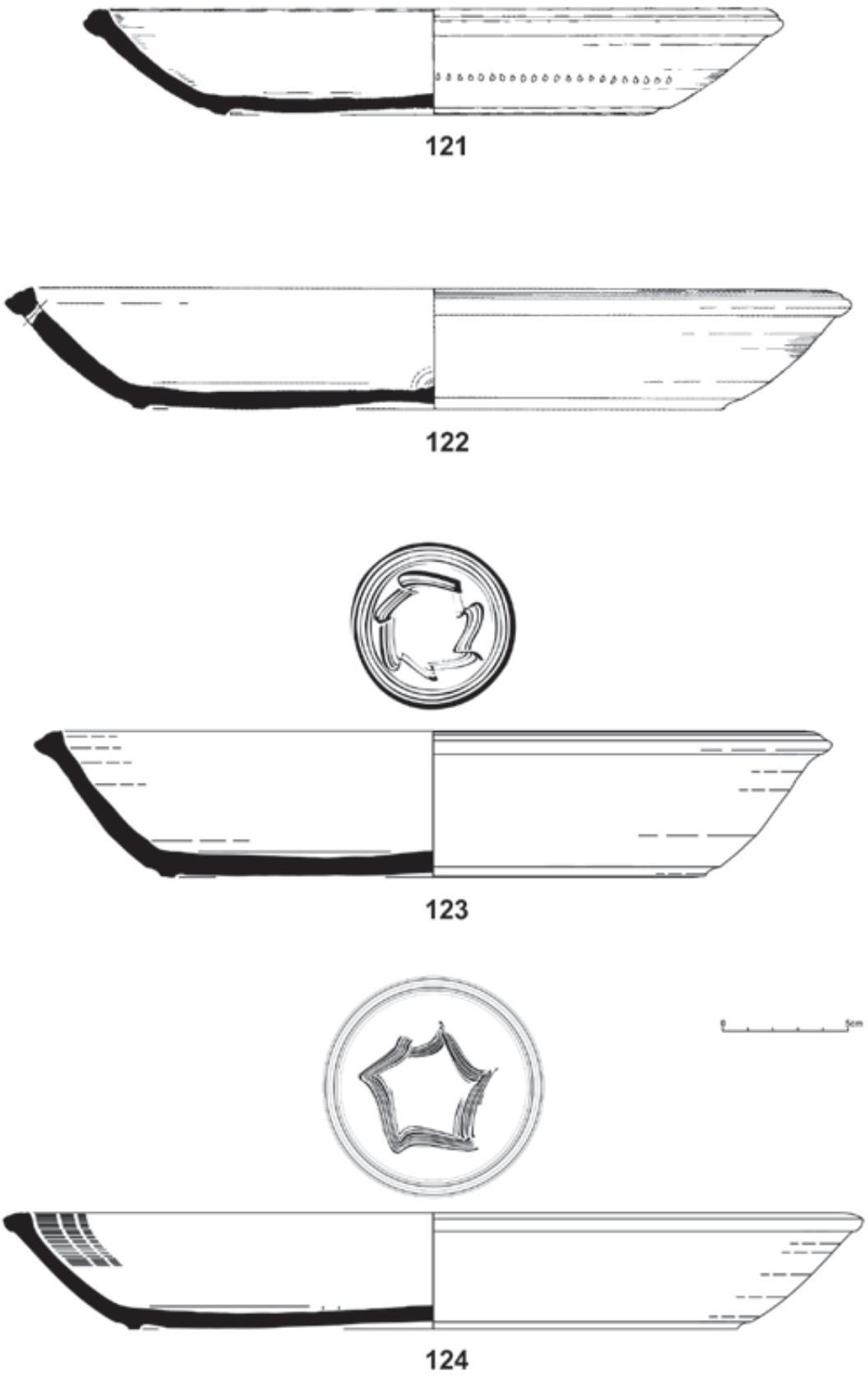
- Gyenos (settlement): Voronov 1976, 53–54, fig. 6:15.
- Archaeopolis (settlement): Lekvinadze, Chvedelidze 1981, 129–131, fig. 14:b; Lekvinadze 1987, 247, fig. 53.
- Rhodopolis (settlement): Džaparidze 1974, 105, pl. 7:4.II2,IV; Džaparidze 1989, 147, pl. 5:1.II2,IV.
- Cichisdziri (settlement): Inaišvili 1993, 123, pl. 26:3.

Southern coast of the Black Sea and northern Anatolia

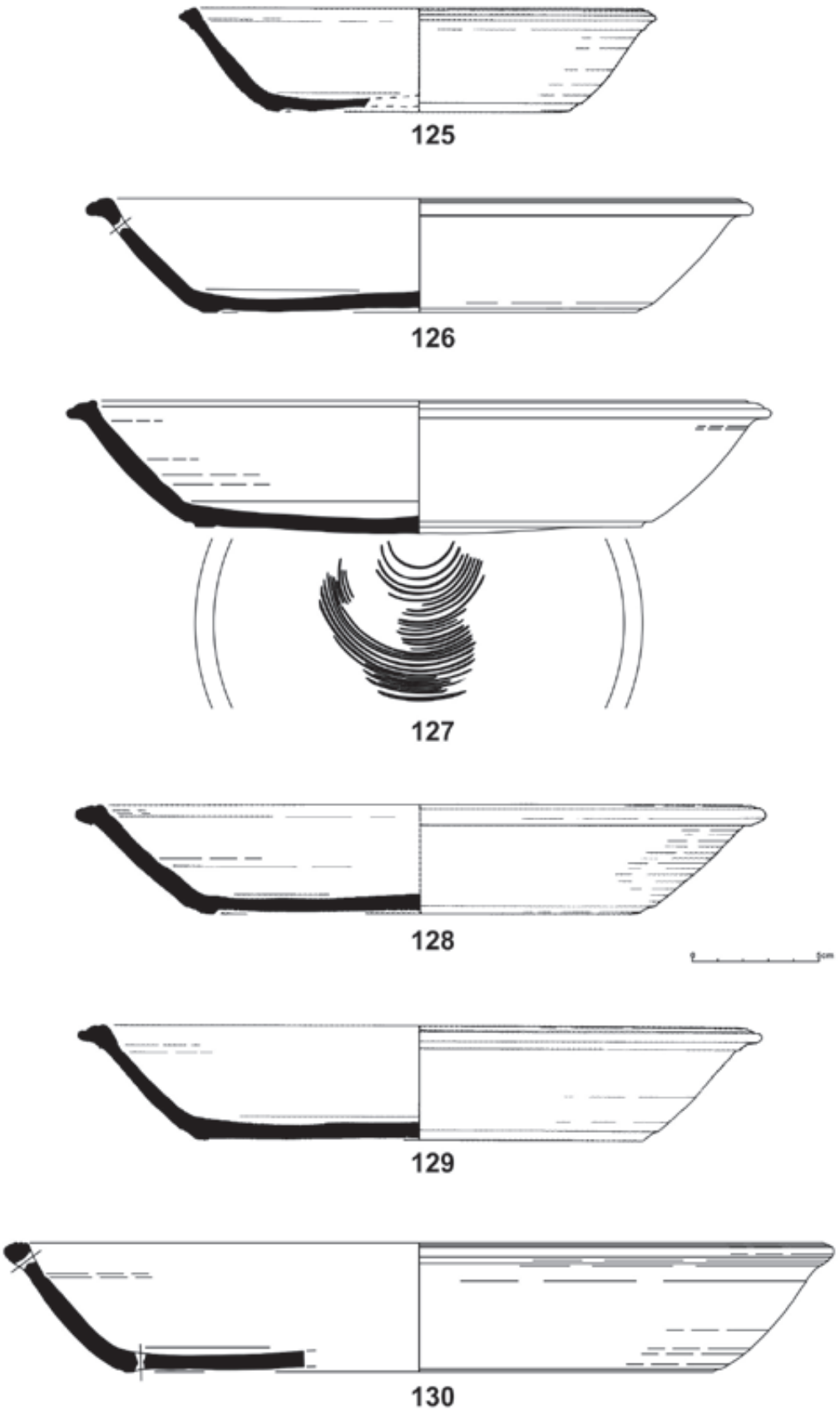
- Sinope (settlement): unpublished finds, Turkish-American excavations near the western defensive wall in 2016–2017; SAM, Sinope.
- Sinope (rural territory, surface survey): unpublished finds, SRAP 1996–1999.
- Pompeiopolis (settlement): Domżalski 2016–2017, 76–77, fig. 4.
- Neoklaudiopolis (settlement, surface survey): Winther-Jacobsen, Bekker-Nielsen 2017, 32–33, 42, fig. 4.



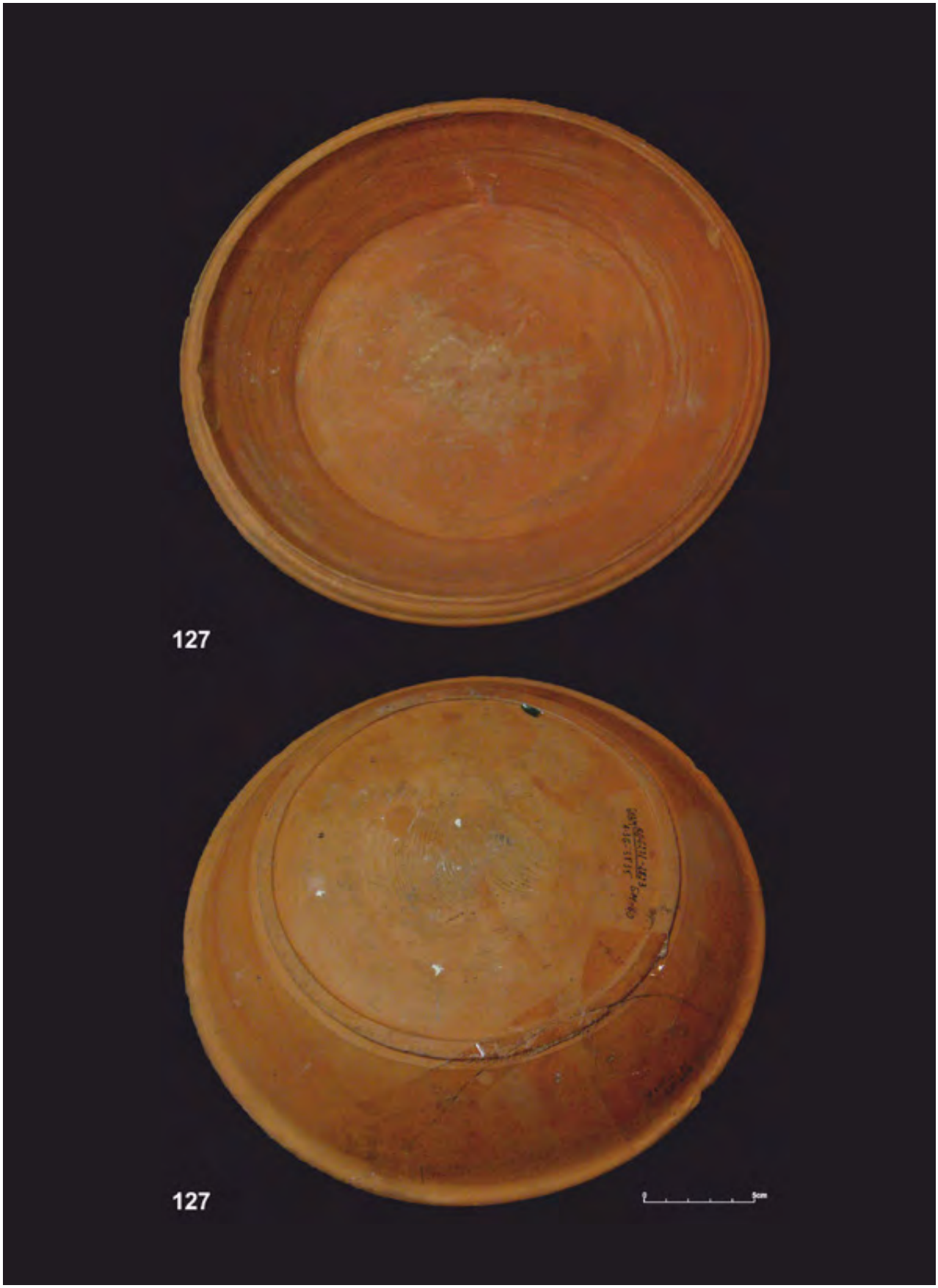
Pl. 32. Pontic Red Slip ware form 7A (Cat. nos. 116–120).



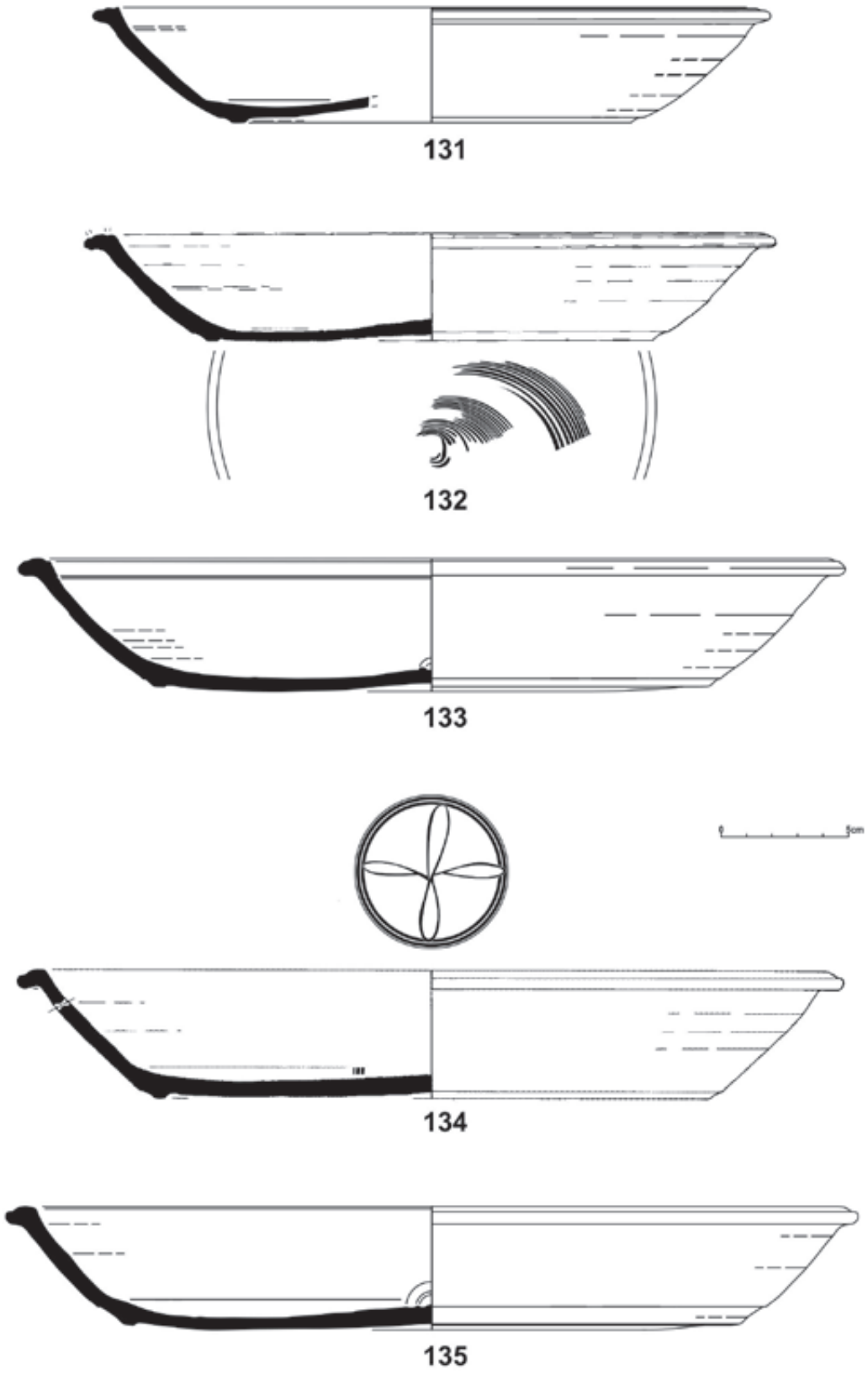
Pl. 33. Pontic Red Slip ware form 7A (Cat. nos. 121–124).



Pl. 34. Pontic Red Slip ware form 7A and 7B (Cat. nos. 125–130).



Pl. 35. Pontic Red Slip ware form 7A (Cat. no. 127).



Pl. 36. Pontic Red Slip ware form 7B (Cat. nos. 131–135). ■

Form 8

Large bowl with knobbed or narrow flat rim and curved walls sloping towards floor on ring-foot of small diameter. The differences in the shape of the rim, very similar to the ones observed in the dishes, form 7, allow to distinguish two basic variants: 8A – with a thick, knobbed rim (**Pl. 37**), and 8B – with a much thinner, flattened and wider rim. Both variants have double grooved lines on the upper surfaces of their rims. The ring-foot of rather small diameter is low but clearly marked out, and the floor is flat or slightly concave.

These bowls were produced in small quantities and their finds are rare. The examples known so far bear no decoration, with the exception of the aforementioned grooved lines on the rim. The dimensions of the vessels are: rim diameter 18 – 20 cm, height 4 – 5 cm, and foot diameter 7.5 – 8.5 cm.

The discussed vessels were not identified in previously published classifications and they were first described as Pontic Red Slip ware form 8 in the paper analysing Late Roman and Early Byzantine fine ware finds in Pompeiopolis.[192]

The characteristic rim shape, resembling the rims of the dishes, form 7, indicates that the discussed bowls were produced at the same time, from the second half or the late 5th century until the early 6th century. They replaced the earlier bowls, form 6, with a clearly broader rim. Therefore, it may be said that the change was similar to that of the large dishes, where form 3 was replaced by form 7. The observations noted above are confirmed by the finds of the bowls, variants 8A and 8B, in Almalyk-Dere and in Il'ič, respectively. [193]

Catalogue of illustrated finds

136. (Pl. 37:136) Sebastopolis, fortress, Sector 1, Room 2; 2001. AE AGU, Suchumi, inv. no. SK-2001/2046. Fragmented (1 fr.), ca. 15% of vessel preserved, rim to base, D. rim est. 18.0 cm, D. foot est. 8.2 cm, H. est. 4.2 cm. Clay orange-brown, medium fired; slip brown-pinkish, poorly preserved; rim partly discoloured. Gooved decoration on rim: double line.

Find places

South-western Crimea and neighbouring areas

• Mangup, Almalyk-Dere (cemetery, grave 175): Ivanova 2009, 47, fig. 13:70.

Eastern Crimea (Bosporos Kimmerikos and neighbouring areas)

• Tyritake (settlement): Appendix 1, cat. no. 49.

Taman Peninsula (Bosporos Kimmerikos and neighbouring areas)

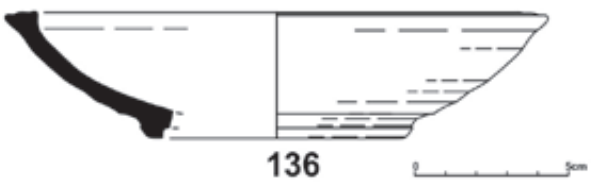
• Il'ič (settlement): Appendix 1, cat. no. 50.

Eastern coast of the Black Sea (Caucasus and Colchis)

• Sebastopolis (fortress): **Cat. no. 136**.

Southern coast of the Black Sea and northern Anatolia

• Pompeiopolis (settlement): Domżalski 2016–2017, 76–77, fig. 4. ■



Pl. 37. Pontic Red Slip ware form 8A (Cat. no. 136).

192 Domżalski 2016–2017, 76–77.

193 Cf. above, Chapter 3.2, Table 3.

Form 9

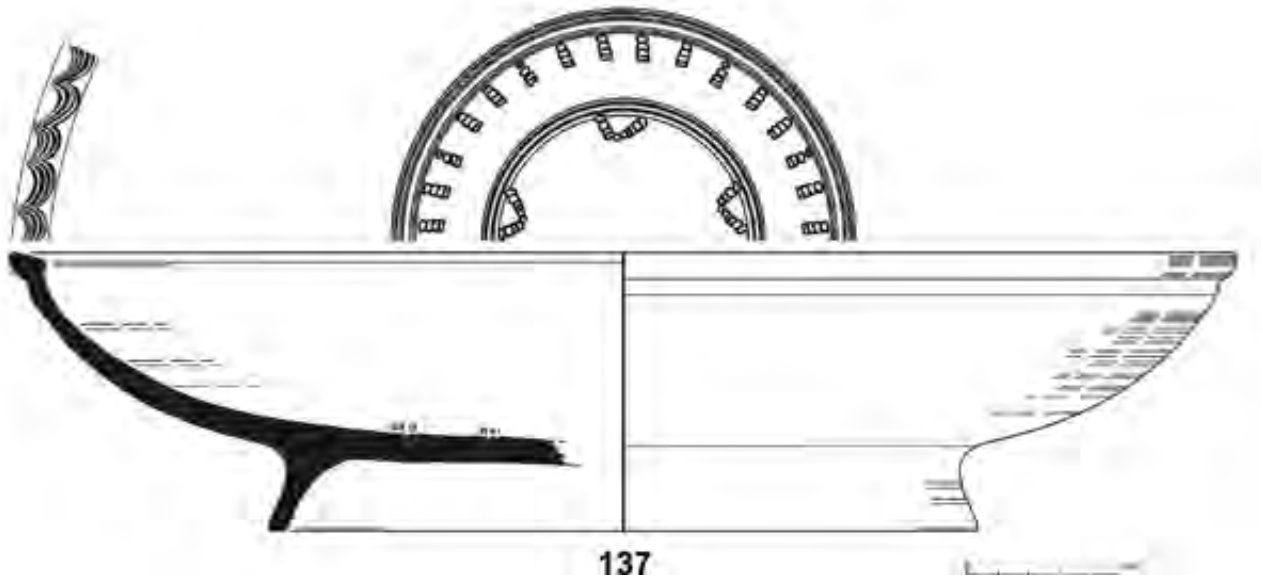
Large dish with knobbed rim and curved walls slanting towards broad flat floor on high ring-foot of medium diameter. The rim is similar to that in form 7A but slightly slanting inside. The general shape of the vessel and especially the distinctively high ring-foot is unusual in comparison to the other Pontic Red Slip ware forms, resembling rather the African Red Slip ware dish, form 93.[194]

The find of the discussed dish in Pompeiopolis possibly indicates large dimensions of these vessels: rim diameter ca. 40 cm, height ca. 9 cm, and foot diameter ca. 22 cm. The dish described below was decorated with a combed wavy band on the rim, as well as a large medallion composed of concentric grooved circles and radially imprinted small motifs made by the comb-like tool, which is a modest version of the compositions known from the dishes, form 3.

The described form was not mentioned in the previously published classifications and it is introduced here for the first time in the typo-chronological classification of the Pontic Red Slip ware.

The morphological similarity of the rim of the discussed vessel to that of the above described dish, form 7A, and the decoration resembling the reduced combed motifs typical also of some dishes, form 7A, as well as the general shape with a high ring-foot similar to the African Red Slip ware dish, form 93, suggest that the Pontic dishes, form 9, began to be manufactured in the late 5th century and the production was possibly continued in the early 6th century. It is also important to note that the described shape, unusual for the Pontic Red Slip ware, is similar to the fine burnished vessels, called Late Roman Pontic Burnished ware, which emerged at the Black Sea markets in the second quarter of the 6th century and continued to be distributed there until the early or mid-7th century, replacing the Pontic Red Slip ware ones.[195]

As the contexts of the few finds listed below are not dated precisely, the observations noted above are the only indication about the chronology of the described form.



Pl. 38. Pontic Red Slip ware form 9 (Cat. no. 137).

194 These similarities are discussed below in Chapter 5.2, and illustrated in Fig. 10.

195 Cf. below, Chapter 5.3, note 238.

Catalogue of illustrated finds

137. (Pl. 38:137) Pompeiopolis, settlement, Sector A12A; 2016. PAK, Taşköprü, inv. no. P16-A11A-66-3/2+97-5/4. Fragmented (8 fragments), ca. 30% of vessel preserved, rim to base, D. rim est. 40.0 cm, D. foot est. 22.5 cm, H. est. 9.0 cm. Clay orange-brown, medium fired; slip brown-orange, slightly lustrous, with streaks, runs and finger marks outside. Combed, grooved and imprinted decoration on rim and on floor: combed wavy band along rim; two concentric circles of multiple grooved lines, bigger one surrounding circle composed of small elongated imprinted motifs arranged radially, smaller one surrounding four or five V-shaped compositions of same elongated motifs placed near circle.

Find places

Western coast of the Black Sea and the lower Danube area

• Ibida (settlement): Mocanu 2014, 155, fig. 3:16.

South-western Crimea and neighbouring areas

• Chersonesos (settlement): unpublished rim fragment with combed decoration in GIM, Moscow.

Southern coast of the Black Sea and northern Anatolia

• Pompeiopolis (settlement): **Cat. no. 137**. ■

Form 10

Jug with ring-shaped mouth, short neck and oval or spindly belly on low ring-foot. The mouth has a plain, tapering or rounded edge. The neck is decorated in its lower part with one or two raised collars. The short handle, almost oval-shaped in cross-section links the lower part of the mouth or the upper part of the neck, above the decorative collars, with the upper part of the belly. The ring-foot is rather low and indistinctive, and its diameter is only slightly bigger than the diameter of the rim.

Basing on the shape of the belly it is possible to distinguish two variants of the described form: 10A – with an oval-shaped belly with the largest diameter in the lower part of the vessel (**Pl. 39:138–139**), and 10B – with a rather spindly belly with the largest diameter only slightly below the middle of the jug (**Pls. 39–40:140–142**). Other diagnostic parts of the jugs are the same in both variants.

The dimensions of the vessels are: height 17.5 – 20 cm; mouth diameter 4 – 5 cm, foot diameter 5 – 5.5 cm. The jugs were sometimes decorated with incised horizontal wavy lines in the lower part of the belly. These lines surround the vessel, sometimes crossing or overlapping each other. On the underside of the bottom, in its centre sometimes traces of turning on the potters' wheel are visible. The described form was not mentioned in the previously published classifications.

The rather scarce dating evidence indicates that jugs, form 10, began to be made in the 4th century, in the early phase of the Pontic Red Slip ware production. It is demonstrated by the find from the grave context in Kytaion, made together with the early and mid-4th century coins. However, the similarity of the rim and the belly of the described small jugs to the next form presented below, suggesting that the both forms belonged to one "service", may allow to extend this dating towards the first half of the 5th century.

This general chronology seems to be confirmed by the datings of the finds of parallel shapes among the African Red Slip ware,[196]

196 *Atlante* 1981, 44, 116–117, pls. 132:4, 136:5.

provincial glazed and burnished pottery,[197] and glass vessels.[198] A similar jug was found among the provincial Late Roman fine pottery in the Barbarian cemetery in Spanțov or Căcaleți, in the lower Danube area, together with other materials dated to the 4th century.[199]

Catalogue of illustrated finds

138. (Pl. 39:138) Provenience unknown, from A. A. Bobrinskij collection. GE, Saint Petersburg, inv. no. B.6976, 14795. Intact, H. 17.8 cm, D. mouth 5.1 cm, D. max. 9.3, D. foot 5.2 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, slightly lustrous, with streaks and runs in lower part of vessel; belly partly discoloured; turning trace surrounded by small incised circle in centre of bottom's underside. Single decorative collar on neck; incised decoration in lower part of belly: horizontal wavy overlapping line.

139. (Pl. 39:139) Kytaion, cemetery, grave 265; 1998–1999; 2001. KIKZ, Kerch, inv. no. KP 145680. Intact, H. 17.6 cm, D. mouth 4.8 cm, D. max. 9.0 cm, D. foot 5.0–5.2 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous, with streaks and runs in lower part of vessel. Single decorative collar on neck. Chršanovskij 2002, 316–319.

140. (Pls. 39:140 and **40:140)** Bosporos Kimmerikos? (provenience uncertain), from D. G. Burylin collection. KIKZ, Kerch, inv. no. KMAK 874, I-V M 1856. Intact, H. 18.1 cm, D. mouth 4.5 cm, D. max. 9.8 cm, D. foot 5.3 cm. Clay pinkish-brown, medium fired; slip brown-reddish-orange, slightly lustrous, with streaks and runs in lower part of vessel; turning trace surrounded by small incised circle in centre of bottom's underside. Single decorative collar on neck.

141. (Pls. 39:141 and **40:141)** Provenience unknown. OAM, Odessa, inv. no. OGIM A-26404. Intact, H. 19.6 cm, D. mouth 4.7 cm, D. max. 10.0 cm, D. foot 5.5 cm. Clay palepinkish-brown, medium fired; slip brown-orange, slightly lustrous, with streaks and runs in lower part of vessel. Decorative double collar on neck.

142. (Pl. 39:142 and **40:142)** Bosporos Kimmerikos? (provenience uncertain). KIKZ, Kerch, inv. no. KMAK 1100. Intact, H. 19.8 cm, D. mouth 4.8 cm, D. max. 10.1 cm, D. foot 5.4 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous, poorly preserved on belly, with streaks and runs in lower part of vessel; turning trace in centre of bottom's underside. Single decorative collar on neck.

Find places

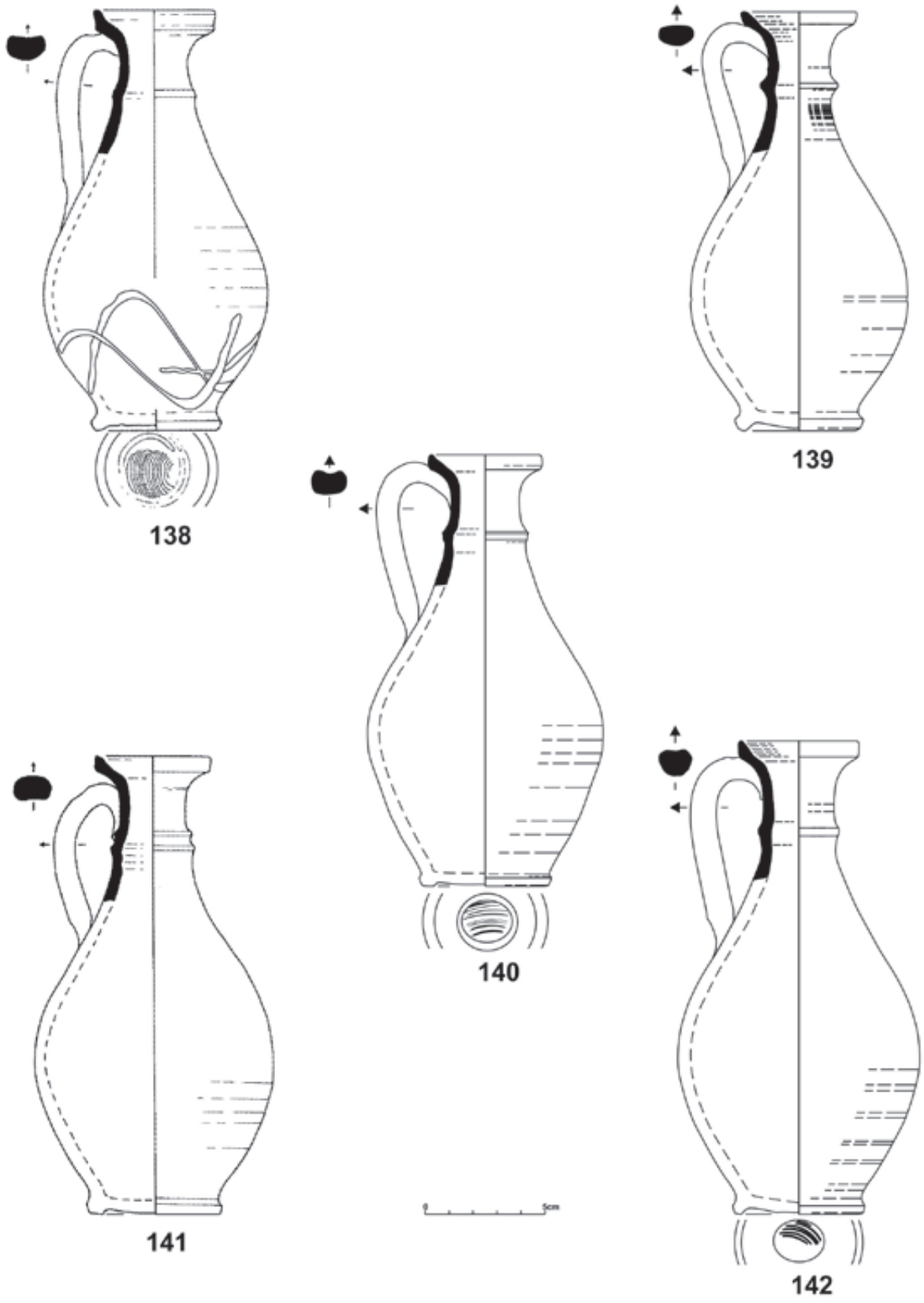
Eastern Crimea (Bosporos Kimmerikos and neighbouring areas)

- Kytaion (cemetery, grave 265): **Cat. no. 139**; Chršanovskij 2002, 316–319.
- Bosporos Kimmerikos? (provenience uncertain): **Cat. nos. 140** and **142**; Dodonova 1997, 64, pl. 9 (upper shelf, left).

197 *Glasierte Keramik in Pannonien* 1992, 84, no. 184; Kuzmanov 1985, 28–31, pl. 15:K4,5,8,10,11; Vagalinski 2002, 88–91, 152–153, nos. K14, K21; repectively.

198 Isings 1957, 150–151, no. 120b; Zaseckaja 2008, 43–46, 118–119, figs. 15:1, 16:5, pl. 13.3–4.

199 Mitrea, Preda 1964, 212–213, 216, fig. 8:4.



Pl. 39. Pontic Red Slip ware form 10 (Cat. nos. 138–142).

Pl. 40. Pontic Red Slip ware form 10 (Cat. nos. 140–142). ■

Form 11

Jug with ring-shaped mouth, short neck and oval or spindly belly on low massive foot with narrow edge. The mouth has a plain, tapering or rounded edge. The neck is decorated in its lower part with one or two raised collars. The handle, almost oval-shaped in cross-section, links the mouth with the upper part of the belly.

Basing on the shape of the belly it is possible to distinguish two variants: 11A – with an oval-shaped belly of the largest diameter in the lower part of the vessel (**Pls. 41:143–144** and **43:144**), and 11B – with an almost spindly belly of the largest diameter only slightly below the middle of the jug (**Pls. 41:145–146** and **42–43:147–148**). In both cases, the belly is separated from the foot with a specific waist. The diameter of the foot, triangular in cross-section, is slightly bigger than the diameter of the mouth. The dimensions of the vessels are: height 19 – 37 cm, mouth diameter 4.5 – 8 cm, foot diameter 5 – 10 cm.

Jugs, form 11, were sometimes decorated with horizontal, multiple grooved, as well as incised wavy lines, surrounding the upper and lower part of the belly, respectively. On the underside of the bottom, in its centre, sometimes traces of turning on the potter's wheel are visible. The described form was not mentioned in the previously published classifications.

Several of the described jugs were found in the contexts confirming their production from the early 4th until the mid-5th century. The earliest vessels are known from Kamenka-Ančekrak and Tyritake, found in the settlement and a grave dated to the 4th century. The jugs from the cemeteries in Kilen-Balka, Suvlu-Kaja and Nejzac were identified in the assemblages dated to the late 4th – early 5th century. The next find from Krasnyj Mak was unearthed in a grave context with the PRS and LRC/PhRS vessels indicating its early to mid-5th century date.

The discussed form represents one of the most elegant shapes of the Pontic Red Slip ware jugs. Its prototypes may be found among the

metal products,[200] which had a strong influence on shaping the fine pottery and glass vessels. Parallel shapes are known in the African Red Slip ware, provincial glazed and burnished pottery, glass products, and even among the Černjachov culture ceramics. [201]

Catalogue of illustrated finds

143. (Pl. 41:143) Tyritake, cemetery, grave 8; 1941. Vessel lost during World War II; drawing and measurements based on photograph and description in Blavatskij 1941a, 73, fig. 108. Intact, H. est. 19 cm, D. mouth est. 4.5 cm, D. max. est. 10.0 cm, D. foot est. 5.0 cm. Single decorative collar on neck.

144. (Pls. 41:144 and **43:144)** Pantikapaion / Bosporos? (provenience uncertain). OAM, Odessa, inv. no. OGIM A-21545, Παν, III 3778. Nearly intact, H. 33.5 cm, D. mouth 7.7 cm, D. max. 14.0 cm, D. foot 9.8 cm. Clay palepinkish-brown, medium fired; slip brown-palepink, slightly lustrous, with streaks and runs in lower part of vessel. Single decorative collar on neck; incised decoration in lower part of belly: horizontal wavy overlapping line.

145. (Pl. 41:145) Kilen-Balka, cemetery, grave 1968. NZChT, Sevastopol, inv. no. 1/36715. Intact, H. 37.2 cm, D. mouth 7.4 cm, D. max. 13.7 cm, D. foot 9.0 cm. Clay palepinkish-brown, medium fired; slip brown-reddish, slightly lustrous, with streaks and runs in lower part of vessel. Single decorative collar on neck. Nessel 2001, 181, fig. 3:1; Nessel' 2003, 116, fig. 5:1.

146. (Pl. 41:146) Krasnyj Mak, cemetery, grave 2; 1983. BGIKZ, Bachčisaraj, inv. no. KMM-83/13. Nearly intact, H. 25.1 cm, D. mouth 4.8 cm, D. max. 10.5 cm, D. foot 6.5 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous, with streaks and runs in lower part of vessel. Decorative double collar on neck. Multiple grooved lines in upper part of belly; incised decoration in lower part of belly: horizontal wavy overlapping line. Loboda 2005, 194, 211, fig. 3:8, pl. 2:18.

147. (Pls. 42:147 and **43:147)** Nejzac, cemetery, pit; 2015. KRKM, Simferopol. Nearly intact, H. 33.5 cm, D. mouth 6.8 cm, D. max. 13.4 cm, D. foot 8.0 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous, with streaks and runs in lower part of vessel; turning trace in centre of bottom's underside. Single decorative collar on neck; incised horizontal lines in lower part of belly.

148. (Pl. 42:148) Suvlu-Kaja, cemetery, grave 10. BGIKZ, Bachčisaraj, inv. no. KP-11991, AI 8921. Nearly intact, H. 33.8 cm, D. mouth 7.0 cm, D. max. 13.2 cm, D. foot 8.8 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous, with streaks and runs in lower part of vessel. Single decorative collar on neck; incised decoration in lower part of belly: horizontal wavy lines. Masyakin *et alii* 2013, 374–379, no. 13:3, fig. 7:29.

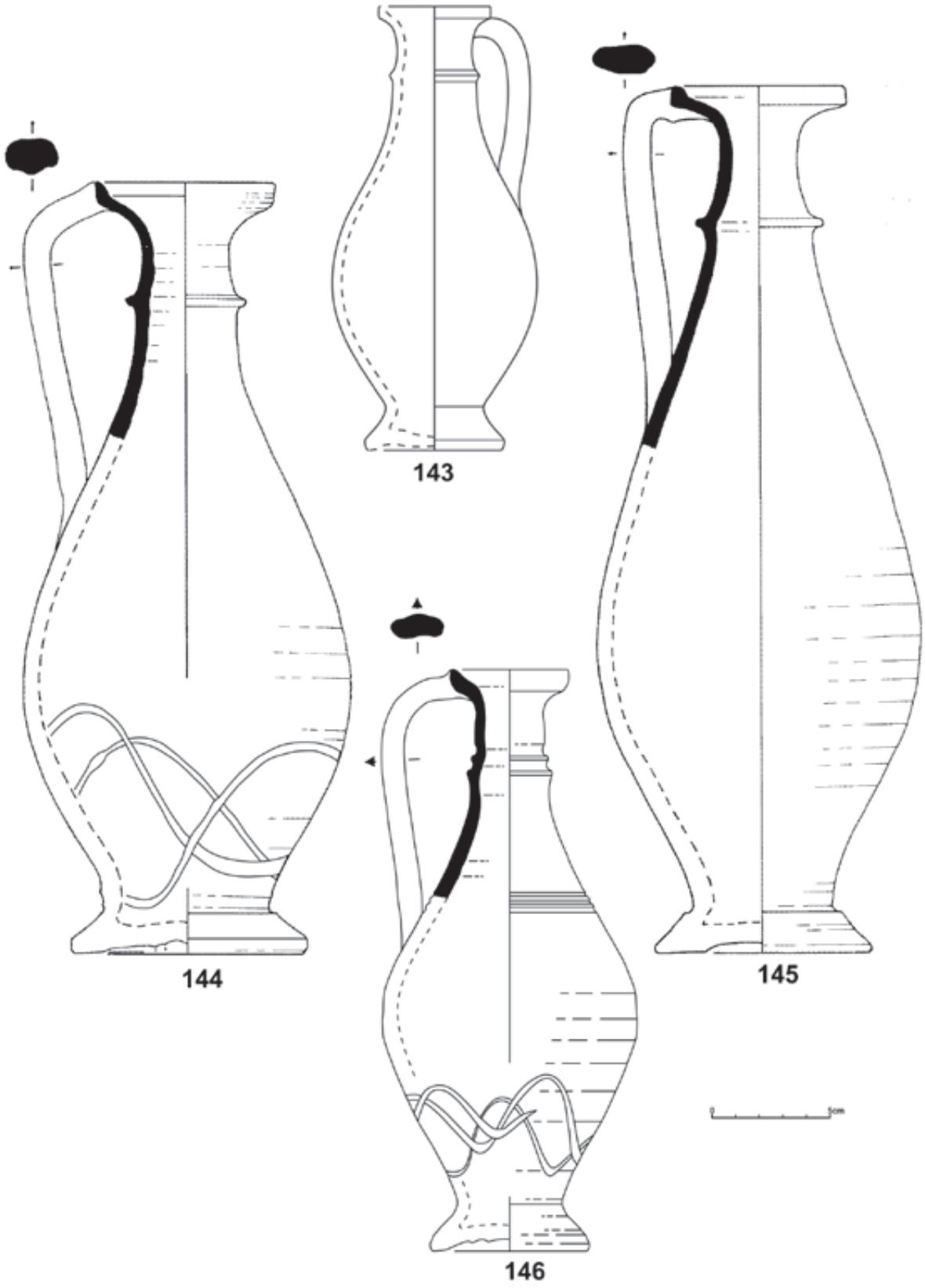
Find places

North-western coast of the Black Sea (periphery of the Černjachov culture)

- Kamenka-Ančekrak (settlement): Magomedov 1987, 77, 81–83, fig. 36:3–3a; Magomedov 1991, 16–17, fig. 19:2–2a; Magomedov 2001, 63–64, 107–109, fig. 64:2–2a; Didenko 2009, 64–67, fig. 2:7; Magomedov, Didenko 2009, 334–335, fig. 5:5; Magomedov, Didenko 2012, 179–180, fig. 5:5.

200 Cf. Mundell Mango, Bennett 1994, 240–245, 267–270, 364–367, 402–419; Harhoiu 1998, 124–127, 184–185, 190, pls. 29–30, 72–73; Zaseckaja 2003, 34–37, pls. 14:1, 16:4; Zalesskaja 2006, 47–48, no. 10; Bonora Andujar 2012, 162–163, fig. 138; Kaufmann-Heinimann, Martin 2017, 94–111, 121, 125–126.

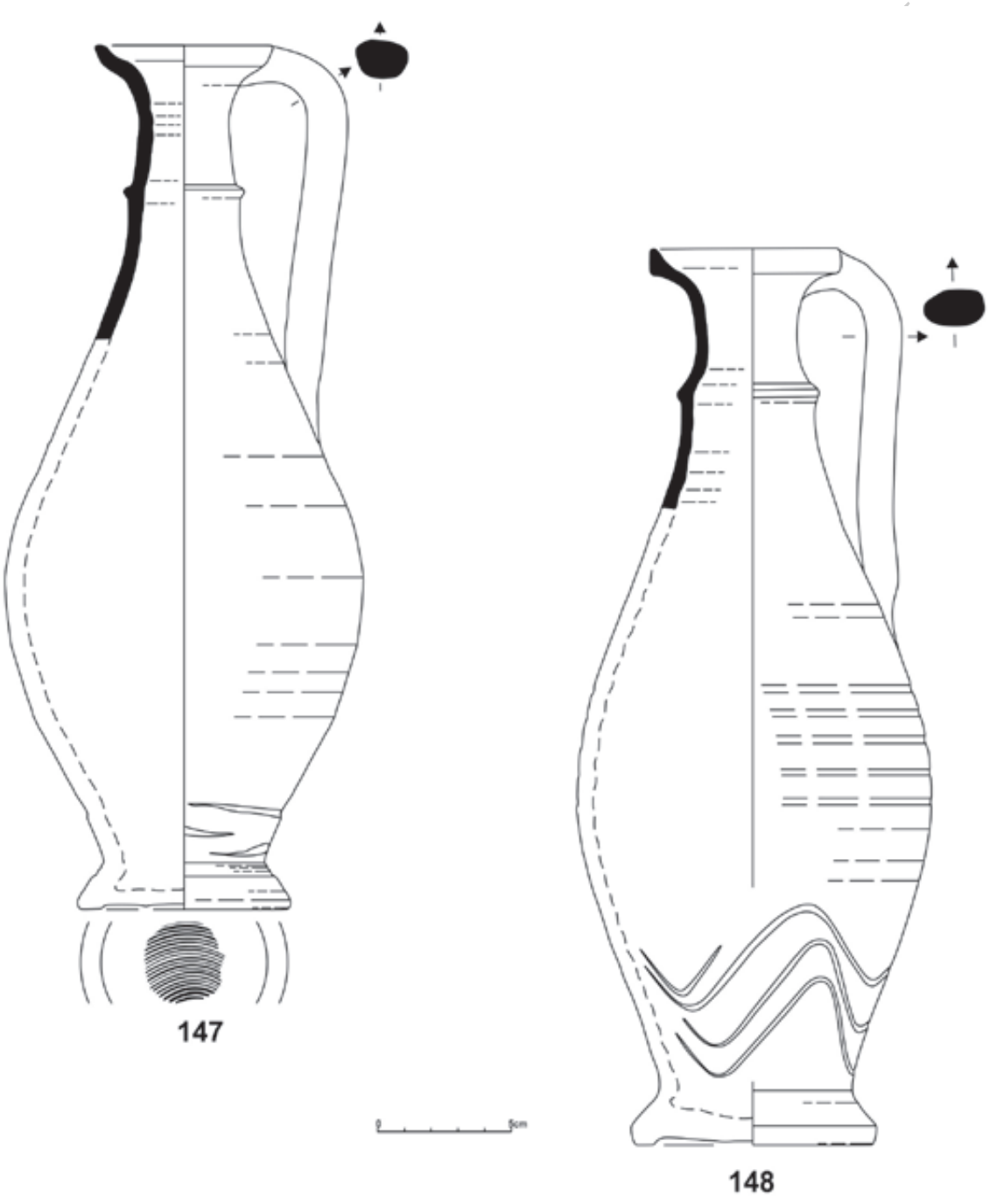
201 ARS: *Atlante* 1981, 117, pl. 136:6; glazed ware: *Glasierte Keramik in Pannonien* 1992, 80, 84, nos. 91, 182; provincial burnished ware: Kuzmanov 1985, 28–31, pl. 15:K2,3,6; Vagalinski 2002, 88–91, 152–153, nos. K17, K19; glass: Isings 1957, 151–152, no. 120d; Zaseckaja 2003, 34–37, pls. 13:1, 16:7; Zalesskaja 2006, 249–252, 260–261, 265–267, nos. 609, 616, 643, 655, 662; Zaseckaja 2008, 39–41, 114–115, fig. 14:3, pls. 10–11; Šabanov 2011, 154–157, figs. 7:48,50, 8:55–56; Černjachov culture ceramics: Petrauskas 2008, 91–92, figs. 1–2 (type 2.4).



Pl. 41. Pontic Red Slip ware form 11 (Cat. nos. 143–146).

South-western Crimea and neighbouring areas

- Kilen-Balka (cemetery, grave 1968): **Cat. no. 145**; Nessel 2001, 181, fig. 3:1; Nessel' 2003, 116, fig. 5:1.
- Krasnyj Mak (cemetery, grave 2): **Cat. no. 146**; Loboda 2005, 194, 211, fig. 3:8, pl. 2:18.



Pl. 42. Pontic Red Slip ware form 11 (Cat. nos. 147–148).

• Suvlu-Kaja (cemetery, grave 10): **Cat. no. 148**; Masyakin *et alii* 2013, 374–379, no. 13:3, fig. 7:29.

• Nejzac (cemetery, pit): **Cat. no. 147**.

Eastern Crimea (Bosporos Kimmerikos and neighbouring areas)

• Pantikapaion / Bosporos? (provenience uncertain): **Cat. no. 144**.

• Tyritake (cemetery, grave 8): **Cat. no. 143**.

Pl. 43. Pontic Red Slip ware form 11 (Cat. nos. 144 and 147). ■

Form 12

Jug with funnel-shaped mouth, very short neck and oval or spindly belly on ring-foot. The mouth has a plain, tapering or rounded edge, and the place where it joins the neck is marked with a slight undercut or grooved lines. The short handle, almost oval-shaped in cross-section, connects the neck with the upper part of the belly.

Basing on the shape of the belly resting on a low, rather indistinctive ring-foot, one can distinguish two variants: 12A – with an oval-shaped belly with the largest diameter in the lower part of the vessel (**Pls. 44–45:149–152**), and 12B – with a more spindly belly with the largest diameter in the middle of the jug (**Pls. 44–45:153–154**). The dimensions of the small jugs are: height 17 – 20 cm, mouth diameter 3.5 – 4.5 cm, foot diameter 4.5 – 5.5 cm.

The jugs discovered so far bear no decoration with the exception of the rarely encountered residual collars on the neck, and multiple grooved lines in the upper part of the belly (**Cat. no. 44:153**). On the underside of the bottom, in its central part, and of the foot, sometimes traces of turning on the potter's wheel are visible.

This form was distinguished by Ju. N. Voronov as type 8 among the Late Roman and Early Byzantine red slip vessels found in Abkhazia, and dated to the 4th – 6th centuries.[202]

The finds of the described jugs in grave assemblages in Crimea allow to date them between the mid-4th and the mid-5th century. The vessel, variant 12A, from the cemetery Starožilovo I was discovered together with a mid-4th century coin. Other vessels of the same variant were found in Almalyk-Dere and Pantikapaion / Bosporos among the grave offerings dated to the 4th – mid-5th century. Interesting finds of similar jugs, probably one covered with red slip and two imitations, are known from the Barbarian cemetery Nagornoe 2 near the Danube delta and dated to the early 4th – early 5th century. This chronology corresponds generally with the dating of parallel shapes of glass vessels.[203]

Catalogue of illustrated finds

149. (Pls. 44:149 and **45:149)** Bosporos Kimmerikos? (provenience uncertain); 1900. KIKZ, Kerch, inv. no. KMAK 676. Intact, H. 18.3 cm, D. mouth 3.8 cm, D. max. 9.2 cm, D. foot 5.5 cm. Clay orange-brown, medium fired; slip brown-palepinkish, slightly lustrous, with streaks and runs in lower part of vessel; turning trace in centre of bottom's underside.

150. (Pl. 44:150) Pantikapaion / Bosporos, cemetery, grave 31; 2001. KIKZ, Kerch. Nearly complete, partly restored (6 frs.), rim to base without handle, H. 18.3 – 18.5 cm, D. mouth 4.4 cm, D. max. 9.2 cm, D. foot 5.0 cm. Clay orange-brown, softly fired; slip brown-orange, dull, with streaks and runs in lower part of vessel; turning trace in centre of bottom's underside. Lysenko, Juročkin 2004, 111–112, 128, fig. 25:14.

151. (Pls. 44:151 and **45:151)** Bosporos Kimmerikos? (provenience uncertain). KIKZ, Kerch, inv. no. KMAK 877. Nearly intact, part of rim missing, H. 16.7 cm, D. mouth est. 4.2 cm, D. max. 9.0 cm, D. foot 5.5 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous, with streaks, runs and finger marks in lower part of vessel.

152. (Pl. 44:152) Provenience unknown. GIM, Moscow, inv. no. 78607. Nearly intact, H. 18.0 cm, D. mouth 3.5 cm, D. max. 9.2 cm, D. foot 4.6 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous, with streaks and runs in lower part of vessel.

202 Voronov 1983, 95, fig. 3:7.

203 Isings 1957, 156, no. 125. The mouths of the analysed PRS jugs resemble also the ones of the Late Roman, very popular distinctive handleless glass flasks, cf. Isings 1957, 122–125 no. 104a–b; Zaseckaja 2003, 34–38, pl. 13:13,29,33; Zaseckaja 2005; Zaseckaja 2008, 49–62, figs. 18–20, 22–23, 31:5, 32:6–7, 33:9, pls. 16–17, 25.

153. (Pl. 44:153) Provenience unknown. GIM, Moscow, inv. no. 67/18a. Nearly intact, small part of rim missing, H. 20.4 cm, D. mouth 4.0 cm, D. max. 9.2 cm, D. foot 5.0 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous, with streaks and runs in lower part of vessel; part of belly discoloured. Residual decorative double collar in upper part of neck; multiple grooved lines in upper part of belly.

154. (Pls. 44:154 and **45:154)** Bosporos Kimmerikos? (provenience uncertain), from D. G. Burylin collection. KIKZ, Kerch, inv. no. KMAK 900, IVM 1265. Complete, restored (3 frs.), H. 20.1 cm, D. mouth 3.9 cm, D. max. 10.5 cm, D. foot 5.5 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous, with streaks and runs in lower part of vessel; turning traces in centre of bottom's underside and on underside of ring-foot.

Find places

Western coast of the Black Sea and the lower Danube area

- Nagornoe 2 (cemetery, graves 38, 61, 87): Magomedov, Didenko 2009, 335–336, fig. 6:3; Magomedov, Didenko 2012, 181–182, fig. 6:3; Magomedov 2013, 111, fig. 1:1–2; Gudkova, Schultze 2017, 57–58, 211, 219, 233, figs. 27:6, 28:1, pls. 33:3, 48:13, 75:2.

South-western Crimea and neighbouring areas

- Mangup, Almalyk-Dere (cemetery, graves 65, 161): Gercen, Mączyńska 2000, 523–526, fig. 3:2; Ivanova 2009, 52–53, fig. 14:83–84; Mączyńska *et alii* 2011, 169–170, fig. 20:2; Mączyńska *et alii* 2013, 139, fig. 14:2.

Eastern Crimea (Bosporos Kimmerikos and neighbouring areas)

- Pantikapaion / Bosporos (cemetery, graves 31, 1/2004): **Cat. no. 150**; Lysenko, Juročkin 2004, 111–112, 128, fig. 25:14; Zin'ko 2017, 59–60, 103, fig. 41.

- Starožilovo I (cemetery, grave 3/3): Maslennikov 1997, 6–7, 33, fig. 9:1.

- Bosporos Kimmerikos? (provenience uncertain): **Cat. nos. 149, 151** and **154.**

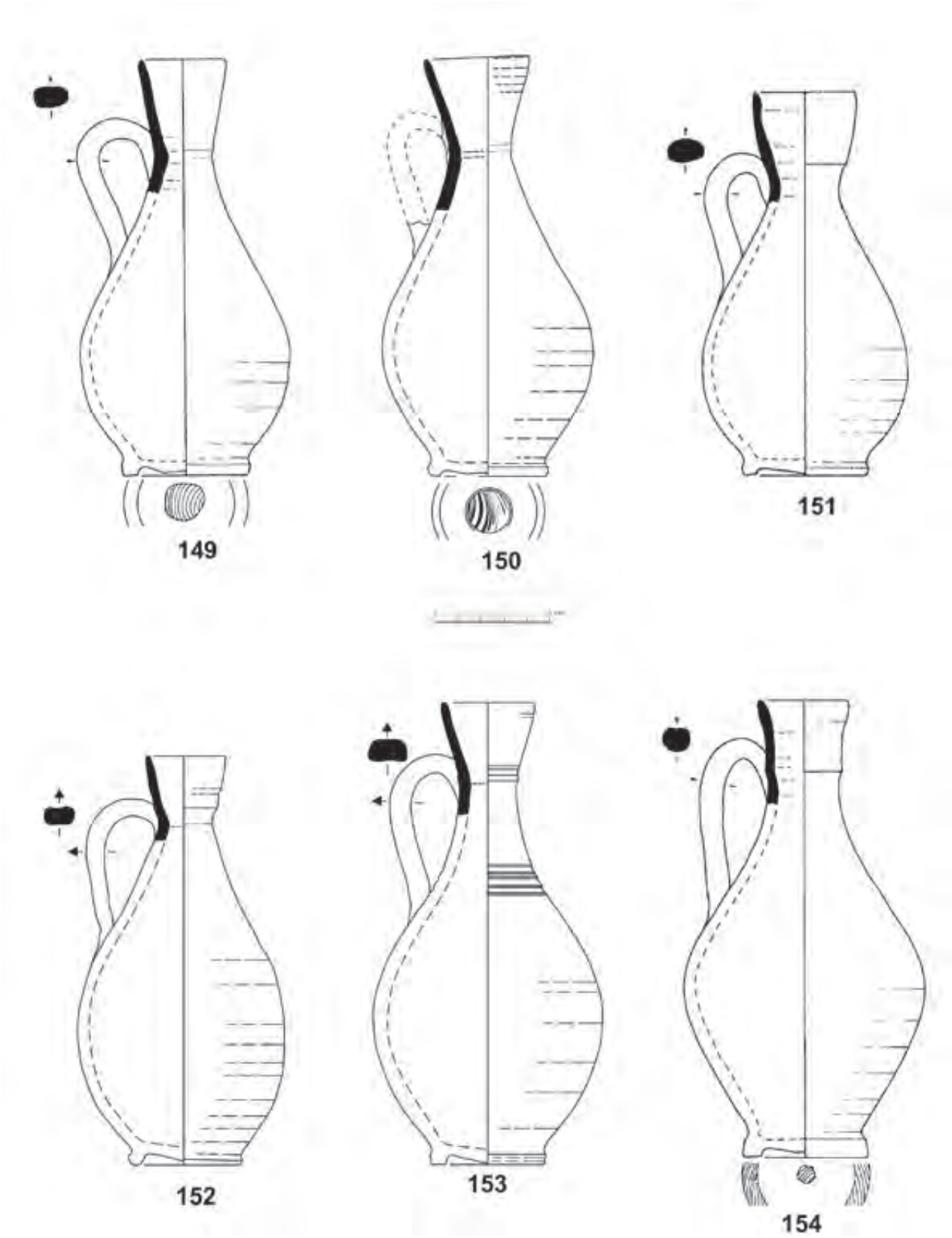
Eastern coast of the Black Sea (Caucasus and Colchis)

- Pitiunt (cemetery): Lordkipanidze 1991, 174–177, pl. 64:2.

- Cibilium (settlement): Voronov 1983, 95, fig. 3:7.

Southern coast of the Black Sea and northern Anatolia

- Sinope (context unknown, excavations in 1951–1954): unpublished vessel (intact, H. 18.2 cm, D. max. 8.5 cm) in SAM, Sinope, inv. no. 1484 (2-229-54).



Pl. 44. Pontic Red Slip ware form 12 (Cat. nos. 149–154).

Pl. 45. Pontic Red Slip ware form 12 (Cat. nos. 149, 151 and 154). ■

Form 13

Jug with trefoil mouth, short neck and oval to cylindrical belly on wide base with residual ring-foot. The mouth has a plain, rounded edge. The neck is decorated in its upper part with a single raised collar. The joining place of the neck and belly is marked by a double grooved line. The vessel was additionally embellished with two horizontal combed wavy bands in the upper part of the belly, divided by double grooved line. The strap-like handle links the mouth with the upper part of the belly. The belly is squat, from oval to almost cylindrical, tapering insignificantly in its lower part. On the slightly concave underside of the bottom there are visible traces of turning on the potter's wheel.

The medium-sized jug presented below is the only example of the described form known to the author. Its dimensions are given in the Catalogue.

The identified form was not mentioned in the previously published classifications. It differs from the ones described above by its flat base and almost cylindrical belly.[204] However, some of the features typical of all the PRS ware jugs, such as the decorative raised collar on the neck and traces of turning on the underside are present on the analysed vessel as well.

There is no direct dating evidence confirming the chronology of production of the described jug. The presence of the extensive combed decoration may indicate, however, its tentative date within the first half of the 5th century.

Catalogue of illustrated finds

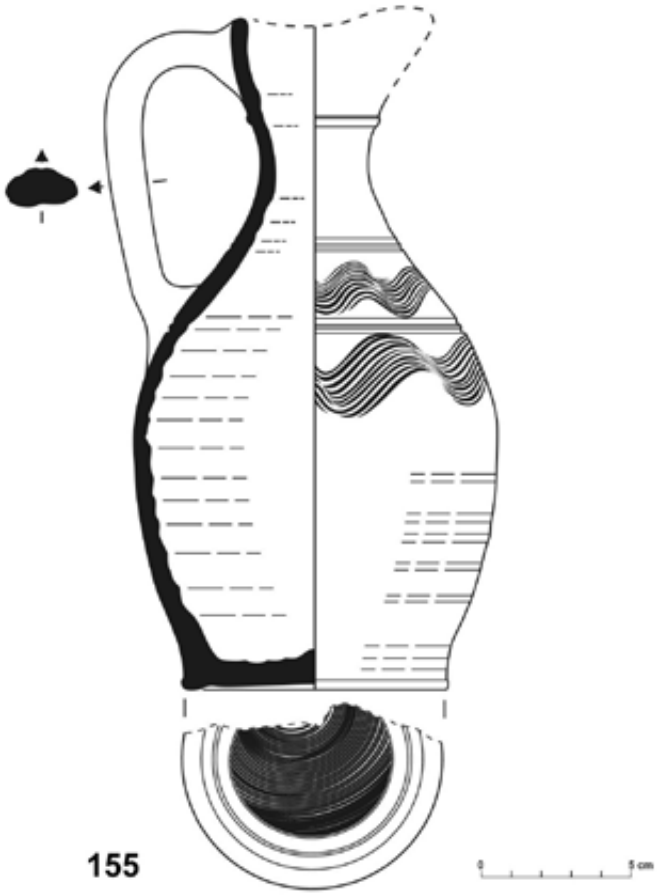
155. (Pl. 46:155) Komana Pontika, settlement; 2016. AE METU, Ankara, inv. no. KARP16-HTP01-031 272/628 T02. Fragmented (15 frs.) ca. 90% of vessel preserved, rim to base, H. preserved 22.5 cm, D. max. 12.0 cm, D. base 8.8 cm. Clay pinkish-brown, medium fired; slip brown-pinkish, metallic lustre; turning traces on bottom's underside. Single decorative collar in upper part of neck; two combed wavy bands in upper part of belly, alternating with two grooved double lines.

204 For similar shapes among the metal vessels, see: Harhoiu 1998, 158, pl. 60; Kaufmann-Heinimann, Martin 2017, 114, 121, nos. E40, V54.

Find places

Southern coast of the Black Sea and northern Anatolia

• Komana Pontika (settlement): **Cat. no. 155**.



Pl. 46. Pontic Red Slip ware form 13 (Cat. no. 155). ■

Form 14A

Jug with trefoil mouth, elongated neck and slim spindly belly on massive foot with narrow edge. The mouth has a plain, rounded edge. The neck is decorated in its central part with one or two raised collars. The strap-like handle links the mouth just under the edge with the upper part of the belly. The joining place of the neck and belly is marked by a distinctive undercut. The belly is oval-shaped, and has the largest diameter in its upper part. It tapers significantly towards the bottom, creating a characteristic waist above the foot, which is almost flat, triangular in cross-section and has a rounded or blunt outer edge.

The dimensions of the vessels are: height 20 – 24 cm, and foot diameter 6 – 7.5 cm. Jugs of this shape often had incised decoration in the form of wavy lines in the lower part of the belly. The lines surround the vessel, sometimes crossing or overlapping each other. On the underside of the bottom, in its centre sometimes traces of turning on the potter's wheel are visible. The discussed form was not identified in the previously published classifications but the fragments found in Tanais (see below) most probably represent the described shape.

The jug from Sovchoz 10 cemetery in Crimea and the fragmentarily preserved finds from Tanais, similar to the discussed form, indicate that its dating may embrace primarily the late

4th and the first half of the 5th century. The described vessels represent the second, after form 12, of the most elegant shapes of the Pontic Red Slip ware jugs. Their prototypes may be found among the metal products,[205] which influenced also the shapes of some glass vessels.[206]

Catalogue of illustrated finds

156. (Pls. 47:156) Provenience unknown, from A. A. Bobrinskij collection. GE, Saint Petersburg, inv. no. B.6949. Intact, H. max. 20.3 cm, D. max. 10.4 cm, D. foot 6.4 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous, with streaks and runs in lower part of vessel. Decorative double collar on neck; incised decoration in lower part of belly: horizontal wavy line. *Graffito* – Cross-monogram – on bottom's underside.

157. (Pls. 47:157 and **48:157)** Provenience unknown, from J. Choynowski collection. MNW, Warsaw, inv. no. 23734 MN, 31985 MN. Intact, H. max. 20.8 cm, D. max. 10.1 cm, D. foot 6.2 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous, with streaks, runs and finger marks in lower part of vessel; part of belly discoloured; turning trace in centre of bottom's underside. Decorative double collar on neck; incised decoration in lower part of belly: horizontal wavy overlapping line. Choynowski 1904, 65, no. 399.

158. (Pl. 48:158) Sovchoz 10, cemetery, grave 284. NZChT, Sevastopol, inv. no. 36636/203. Nearly intact, H. max. 23.5 cm, D. max. 10.8 cm, D. foot 6.6 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous, with streaks and runs in lower part of vessel. Decorative double collar on neck; incised decoration in lower part of belly: horizontal wavy overlapping line. Strželeckij *et alii* 2003–2004, 103–105, 204, pl. 24:5, appendix 2, pl. 33:284.53.

159. (Pls. 47:159 and **48:159)** Olbia? (provenience uncertain). OAM, Odessa, inv. no. OGIM A-22595. Nearly complete, restored (4 frs.), part of rim missing, H. max. 21.5 cm, D. max. 9.8 cm, D. foot 7.3–7.6 cm. Clay palepinkish-brown, medium fired; slip brown-palepinkish, slightly lustrous, with streaks, runs and finger marks in lower part of vessel. Incised decoration in lower part of belly: horizontal line.

Find places

North-western coast of the Black Sea (periphery of the Černjachov culture)

- Olbia? (provenience uncertain): **Cat. no. 159**.

South-western Crimea and neighbouring areas

- Sovchoz 10 (cemetery, grave 284): **Cat. no. 158**; Strželeckij *et alii* 2003–2004, 103–105, 204, pl. 24:5, appendix 2, pl. 33:284.53.

Eastern Crimea (Bosporos Kimmerikos and neighbouring areas)

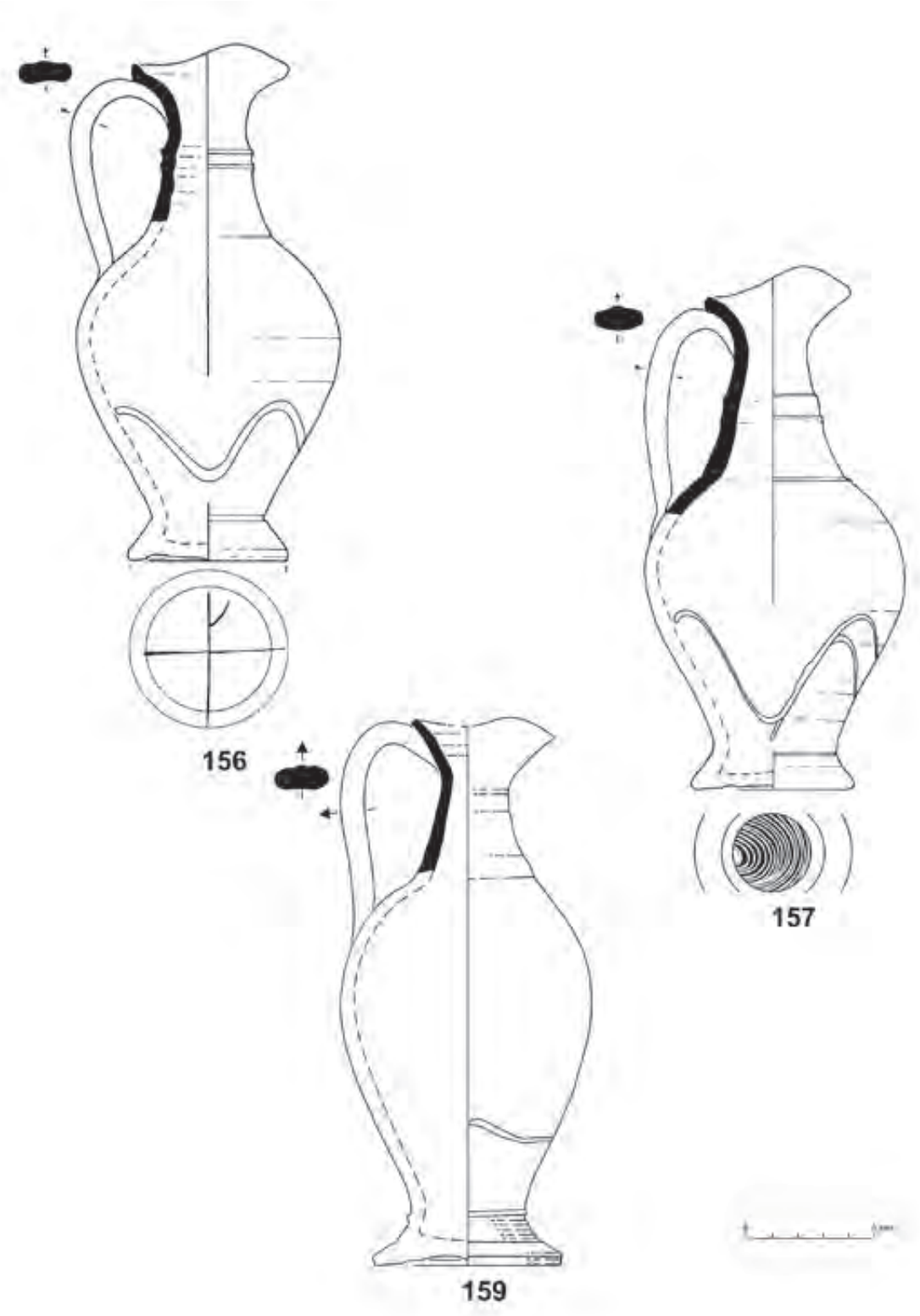
- Bosporos Kimmerikos? (provenience uncertain): Dodonova 1997, 64, pl. 9 (upper shelf, right)

Don river delta in the north-eastern Maiotis

- Tanais (settlement): Arsen'eva, Domżalski 2002, 428, 479, figs. 13:579–582, 24:580.

205 Cf. Zaseckaja 2003, 34–37, pls. 14:2, 16:1; Zalesskaja 2006, 48, no. 11; Kaufmann-Heinimann, Martin 2017, 116–117.

206 Isings 1957, 154, no. 124a; Zalesskaja 2006, 249, no. 608.



Pl. 47. Pontic Red Slip ware form 14A (Cat. nos. 156, 157 and 159).

Pl. 48. Pontic Red Slip ware form 14A (Cat. nos. 157–159). ■

Form 14B

Jug with trefoil mouth, short neck and squat spindly or oval belly on wide, massive foot with narrow edge. The mouth has a tapering, plain edge, sometimes grooved on the outside. The neck is wide, decorated in its central part with a raised collar. The joining place of the neck and belly is sometimes marked by an indistinctive undercut. The squat belly, which has the largest diameter slightly above the halfway of its height, tapers significantly towards the bottom, making a characteristic waist above the foot. The foot is triangular in cross-section, tapering towards a rounded or blunt outer edge. The strap-like or oval-shaped handle extends from below the mouth to the upper, widest part of the belly.

The dimensions of the vessels are: height 18 – 20 cm, and foot diameter 7 – 8.5 cm. Jugs of the described form were decorated with incised, horizontal wavy lines in the lower part of the belly. They surround the vessel, crossing or overlapping each other. On the underside of the bottom, in its centre, sometimes traces of turning the vessels on the potter's wheel are visible.

The discussed form is very similar to the previously described jug, form 14A, and therefore it was assumed to be its second variant. It was not mentioned in the hitherto published classifications. As no finds of these jugs have been made in dated contexts, their chronology may be only hypothetically established, according to the similarities of their diagnostic parts to those in form 11 (foot) and in form 14A (mouth and general shape). These observations allow to date the vessels tentatively to the late 4th century and the first half of the 5th century.

Catalogue of illustrated finds

160. (Pls. 49:160 and **50:160)** Bosporos Kimmerikos? (provenience uncertain). KIKZ, Kerch, inv. no. KMAK 671. Nearly intact, part of foot missing, H. max. 18.2 cm, D. max. 11.0 cm, D. foot 7.4 cm. Clay pinkish-brown, medium fired; slip brown-pinkish to brown-orange, slightly lustrous, with streaks and runs in lower part of vessel. Single decorative collar on neck; incised decoration in lower part of belly: horizontal wavy overlapping line.

161. (Pls. 49:161 and **50:161)** Bosporos Kimmerikos? (provenience uncertain), from Kerch museum collection. OAM, Odessa, inv. no. OGIM A-20804, previous no. 7762 III/265. Nearly intact, part of rim missing, H. max. 19.7 cm, D. max. 11.5 cm, D. foot 7.1 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous, with streaks and runs in lower part of vessel; turning trace in centre of bottom's underside. Single decorative collar on neck; incised decoration in lower part of belly: horizontal wavy overlapping line. *Graffito* – tamga (?) – in upper part of belly.

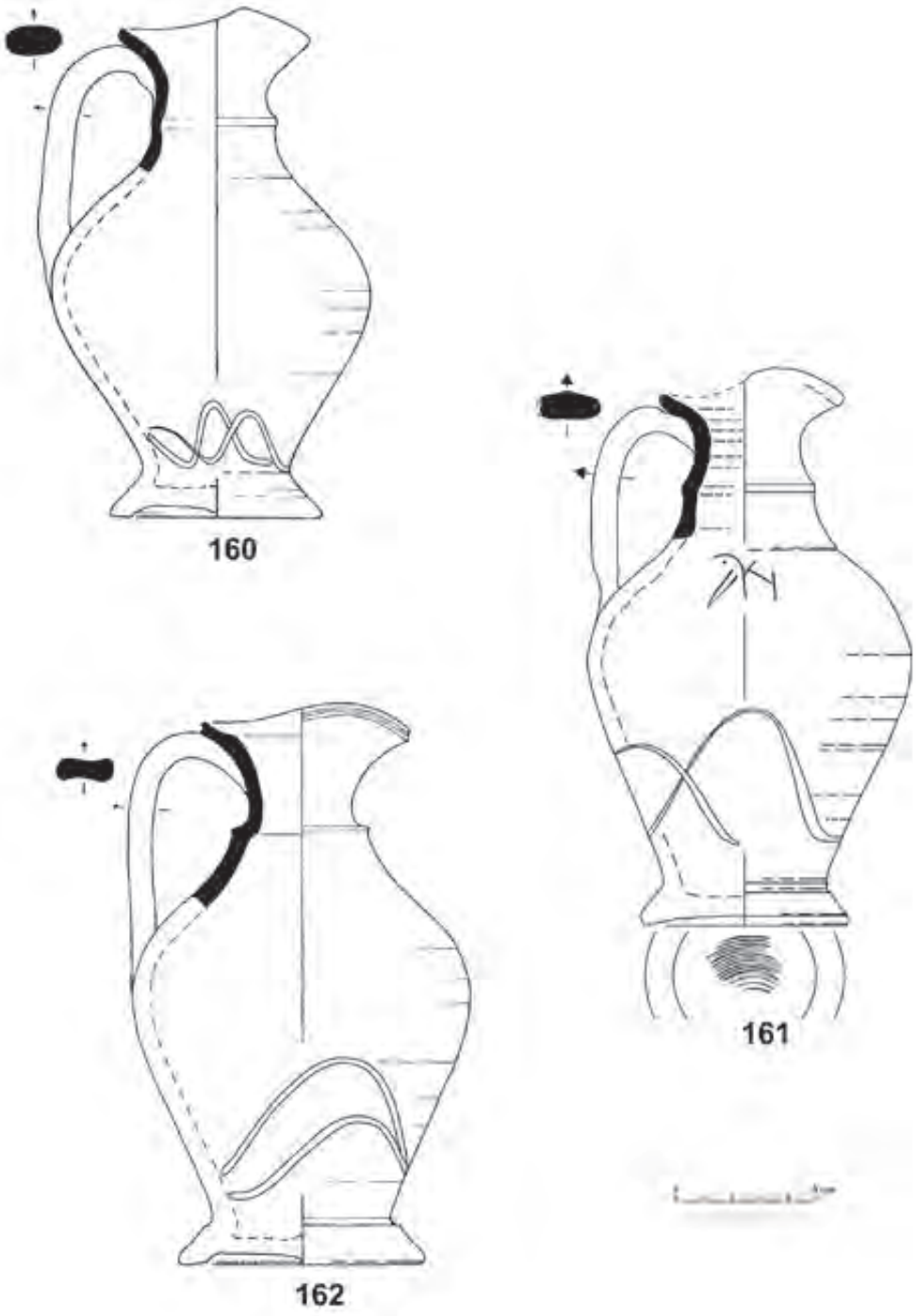
162. (Pl. 49:162) Pantikapaion / Bosporos, cemetery; 1873. GE, Saint Petersburg, inv. no. P.1873.133. Intact, H. max. 20.1 cm, D. max. 11.9 cm, D. foot 8.6 cm. Clay pinkish-brown, hard fired; slip brown-pinkish, slightly lustrous, with streaks and runs in lower part of vessel. Single decorative collar on neck; incised decoration in lower part of belly: horizontal wavy overlapping line.

Find places

Eastern Crimea (Bosporos Kimmerikos and neighbouring areas)

- Pantikapaion / Bosporos (cemetery): **Cat. no. 162**.

- Bosporos Kimmerikos? (provenience uncertain): **Cat. nos. 160–161**.



Pl. 49. Pontic Red Slip ware form 14B (Cat. nos. 160–162).

Pl. 50. Pontic Red Slip ware form 14B (Cat. nos. 160–161). ■

Form 15

Jug with funnel-shaped mouth, short neck and oval to cylindrical belly on wide base. The mouth has a plain, rounded edge. The neck is decorated in the middle with a single or double raised collar. The joining place of the neck and belly is marked by an indistinctive undercut. The strap-like handle links the upper part of the neck with the upper part of the belly. The belly is squat, from slightly oval to almost cylindrical, insignificantly tapering in its lower part. The joining place of the belly with the base is usually marked with a small undercut. On the surface of the slightly concave underside of the bottom there are visible traces of turning on the potters' wheel.

The dimensions of the squat jugs are: height 20 – 23 cm, mouth diameter 4 – 6 cm, base diameter 9 – 11 cm. Besides the aforementioned ornametal collars on the neck, the vessels found so far were not decorated in any other way. They were omitted in the previously published classifications.

The discussed form represents the most ordinary shape among the Pontic Red Slip ware jugs. However, the potters tried to make these vessels somehow distinctive by embellishing them with the raised collars on the neck, and by marking the joining places of the neck and the belly, as well as the belly and the base, with the characteristic undercuts.

The finds of the jugs in the Crimean cemeteries of Kilen-Balka and Pereval'noe allow to date the described vessels tentatively to the second half of the 4th century, during the early production phase, together with the first "generation" of the PRS ware open vessels.

Catalogue of illustrated finds

163. (Pl. 51:163) Pereval'noe, cemetery, grave 13; 1989. Vessel not found during museum survey in Simferopol. Drawing and measurements according to unpublished field report by A. E. Puzdrovskij. H. est. 22.0 cm, D. mouth est. 4.8 cm, D. max. est. 13.4 cm, D. base est. 10.4 cm. Decorative double collar on neck.

164. (Pls. 51:164 and **52:164)** Pantikapaion / Bosporos? (provenience uncertain), excavated by J. Kulakovskij; 1891. GIM, Moscow, inv. no. 28789, Kerč' B1/34 no. 25. Intact, H. 22.7 cm, D. mouth 5.2 cm, D. max. 13.3 cm, D. base 9.2 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous, with streaks and runs in lower part of vessel; turning traces on bottom's underside. Single decorative collar on neck.

165. (Pl. 51:165 and **52:165)** Pantikapaion / Bosporos? (provenience uncertain), from P. I. Ščukin collection. GIM, Moscow, inv. no. II 680-9, 161 68/Šč, Kerč' VII 52/16. Intact, H. 22.5 cm, D. mouth 5.8 cm, D. max. 13.6 cm, D. base 10.8 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous, with streaks and runs in lower part of vessel; turning traces on bottom's underside. Decorative double collar on neck.

166. (Pl. 52:166) Kilen-Balka, cemetery, grave 1968. NZChT, Sevastopol, inv. no. 88/36713A. Intact, H. 21.2 cm, D. mouth 4.2 cm, D. max. 11.2 cm, D. base 9.1 cm. Clay orange-brown, softly fired; slip brown-orange, partly dull and slightly lustrous, with streaks and runs in lower part of vessel.

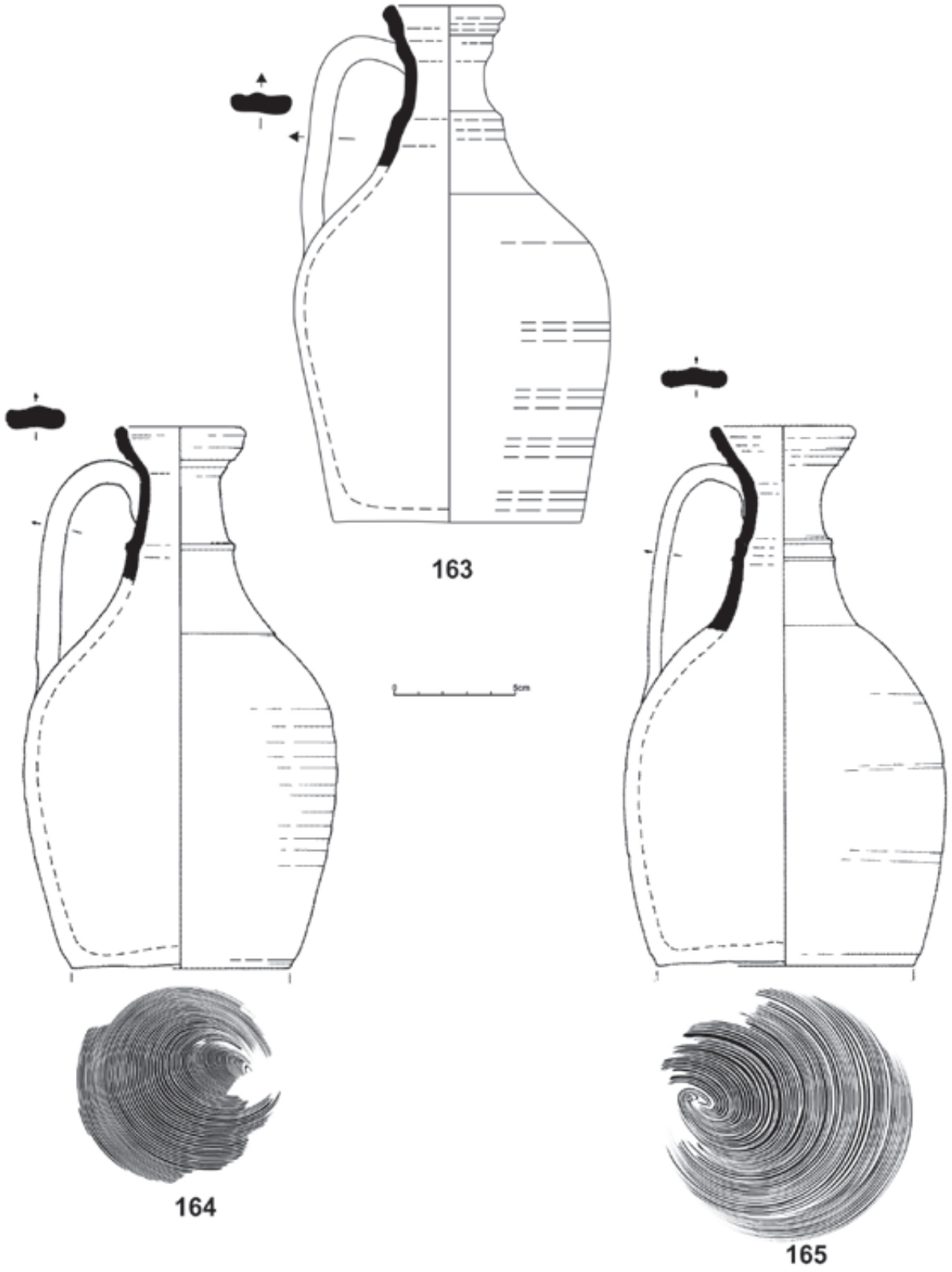
Find places

South-western Crimea and neighbouring areas

- Kilen-Balka (cemetery, grave 1968): **Cat. no. 166.**
- Pereval'noe (cemetery, grave 13): **Cat. no. 163.**

Eastern Crimea (Bosporos Kimmerikos and neighbouring areas)

- Pantikapaion / Bosporos? (provenience uncertain): **Cat. nos. 164–165.**



Pl. 51. Pontic Red Slip ware form 15 (Cat. nos. 163–165).

Pl. 52. Pontic Red Slip ware form 15 (Cat. nos. 164–166). ■

Jugs: Fragmented finds

Besides the intact or nearly completely preserved vessels, described and classified above, there are also several other finds of the red slip ware jugs in the Black Sea region, the fragmentary preservation of which does not allow to determine the vessel forms precisely. However, the analysis of the diagnostic sherds, mostly the ring-foot parts or the less diagnostic body and other fragments decorated with the incised wavy motifs, allows to identify them tentatively as representing the Pontic Red Slip ware closed vessels.

Find places

North-western coast of the Black Sea (periphery of the Černjachov culture)

- Olbia (settlement): Krapivina, Domžal'skij 2008, 76, 79, fig. 1:7.

South-western Crimea and neighbouring areas

- Chersonesos (settlement): Ryžov 2015, 9, fig. 20:6.

Eastern Crimea (Bosporos Kimmerikos and neighbouring areas)

- Pantikapaion / Bosporos (settlement): Smokotina 2015, 315–319, fig. 5:3–4; Smokotina 2018, 643–647, fig. 4:3–4.
- Tyritake (settlement): Domžal'skij, Smokotina 2020, 202, fig. 7:8.
- Kytaion, Džurg-Oba (cemetery): Ermolin 2005, 129–130, fig. 9:11.

Taman Peninsula (Bosporos Kimmerikos and neighbouring areas)

- Il'ič (settlement): unpublished fragment in TMK, Taman: cf. Appendix 1, cat. no. 54.

Eastern coast of the Black Sea (Caucasus and Colchis)

- Pitiunt (settlement): Asatiani 1977, 210, figs. 341–344.
- Sebastopolis (settlement): fortress, Sector 1, layer 2; 1999, unpublished fragment in AE AGU, Suchumi, inv. no. 3574.

Southern coast of the Black Sea and northern Anatolia

- Pompeiopolis (settlement): Domżalski 2016–2017, 76–77, fig. 4.
- Neoklaudiopolis (settlement, surface survey): Winther-Jacobsen, Bekker-Nielsen 2017, 43, fig. 37.

5. PRODUCTION AND LONG-DISTANCE TRADE

All the available information about the distribution of the individual vessel forms of the Pontic Red Slip ware in the Black Sea region was critically approached, processed and listed in Chapter 4.5, according to the sites' geographical location, in a clockwise direction, from the western Black Sea coast and the lower Danube, through the north-eastern coast towards the mouth of the Dnieper river, the south-western and southern part of the Crimean Peninsula, Bosporos Kimmerikos (Kerch and Taman Peninsulae), the mouth of the Don river in the north-eastern Maiotis, the eastern littoral of the Black Sea, including the Caucasian coast and western Colchis, as well as the northern part of Asia Minor. The summary of the geographical distribution of all these finds is discussed below and presented in **Figs. 5A–C**.

The observations of the distribution pattern of the studied vessels in various parts of the Black Sea basin, combined with the evidence of their quantitative presence there, and with the knowledge about specifics of the economic basis of each of the distinguished areas have allowed to put forward a hypothesis that the Pontic Red Slip vessels were produced in the central part of northern Anatolia, within the western part of the province of Pontus.

Despite the fact that the geographical distribution of the studied vessels does not exceed the Black Sea basin towards the Mediterranean, their forms look very similar to the most popular of the contemporaneous red slip vessels produced there and imported on a limited scale to the investigated region. The unilateral influence of the leading imported Mediterranean vessels, especially of the African Red Slip ware, on the shapes of the Pontic Red Slip ware is discussed later on, and illustrated in **Figs. 6–10**. Some other, less popular PRS forms, which were similar to their Early Roman predecessors in Pontic Sigillata, are mentioned as well, and illustrated in **Fig. 11**.

The excavation works carried out in the last decades by archaeological expeditions in Tanais, Olbia, Phanagoreia and Sebastopolis allowed also to conduct quantitative analyses of the materials from the settlement contexts. The Late Roman and Early Byzantine red slip vessels and diagnostic fragments were counted there by ware and form. The results are summed up, presented in a series of pie-charts in **Figs. 12–16**, and supplemented with the information about similar analyses made in Tyritake, Tropaeum Traiani and Pompeiopolis, published recently. On this basis, diachronic changes of the patterns of trade and regional consumption of the Pontic Red Slip vessels and the Mediterranean imports of red slip wares in the Black Sea region are discussed in the final part of this chapter.

5.1 DISTRIBUTION AND THE QUESTION OF ORIGIN

Thanks to their good quality, the Pontic Red Slip vessels were widely traded in the Late Antiquity within the Black Sea basin and they have been found at more than one hundred archaeological sites located mostly along the coastal lines, with their concentrations visible in the lower Danube area, in south-western Crimea, in Bosporos Kimmerikos, in southern part of the Caucasian coast and in western Colchis (**Figs. 5A–C**). This distribution pattern shows that the trade was conducted mainly by the sea, and the discussed vessels reached the northernmost merchant outposts in Olbia and Tanais.

Interestingly, the discussed vessels are not found in the south-western part of the Black Sea region. To some extent this could have been

caused by the unsatisfactory state of research, yet at present there is also no evidence that the Pontic vessels were used by the inhabitants of Constantinople.[207] Moreover, they are extremely rarely found along the Thracian coast. The influx of the Pontic Red Slip ware was more perceptible in Scythia Minor, between the lower Danube and the Black Sea coast, but in comparison with the Aegean imports of the red slip wares, especially the Late Roman C / Phocaean Red Slip ware, Pontic vessels constituted a distinct minority there. It was despite the fact that they were imported

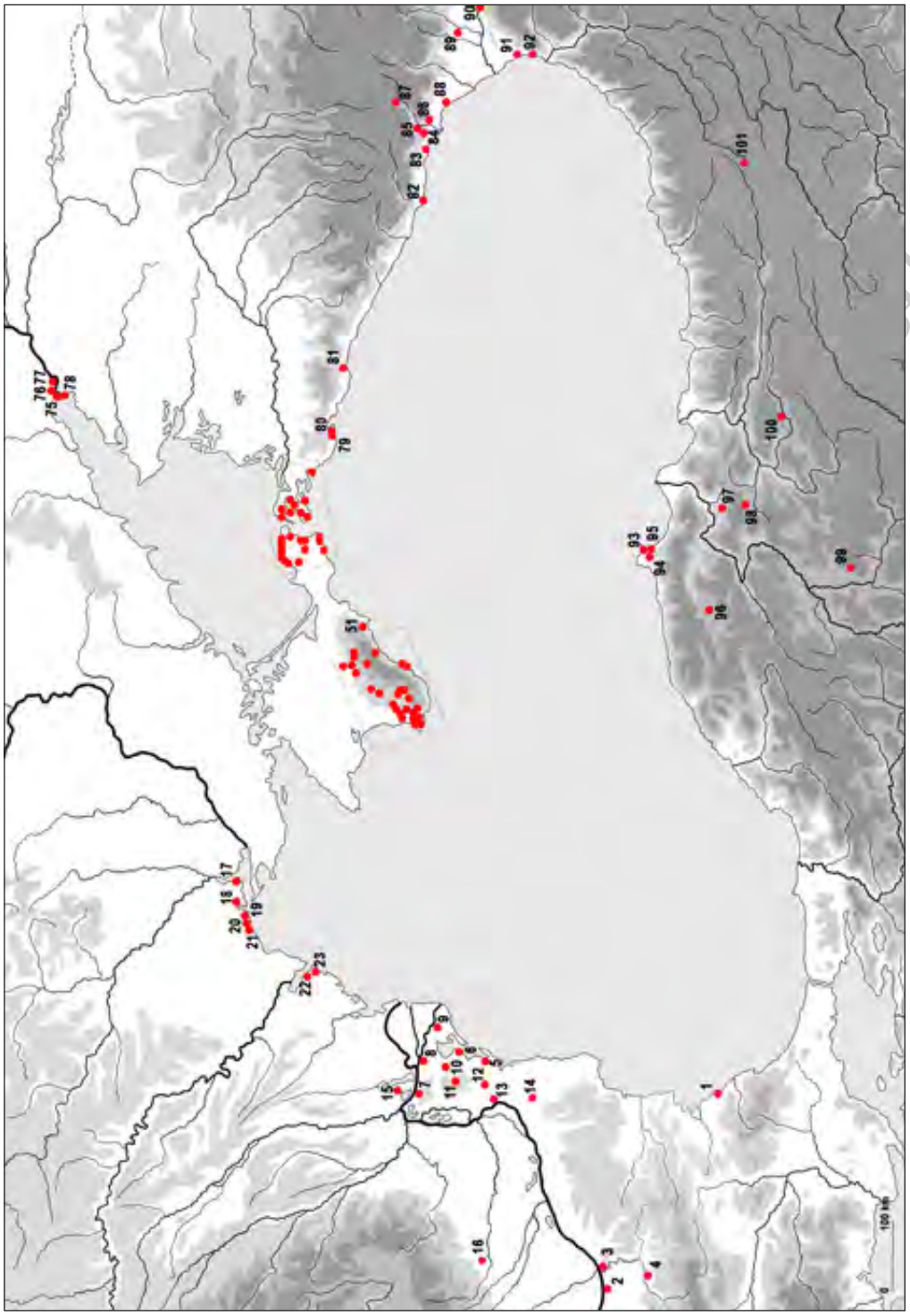


Fig. 5A. Distribution of Pontic Red Slip vessels at archaeological sites in the Black Sea region: 1 – Apollonia, 2 – Novae, 3 – Iatrus, 4 – Dičin, 5 – Histria, 6 – Argamum, 7 – Noviodunum, 8 – Aegyssus, 9 – Halmyris, 10 – Topraichioi, 11 – Ibida, 12 – Ulmetum, 13 – Capidava, 14 – Tropaeum Traiani, 15 – Nagornoe 2, 16 – Târgşoru Vechi, 17 – Olbia, 18 – Kamenka-Ančekrak, 19 – Viktorovka II, 20 – Lugovoe, 21 – Syčavka, 22 – Tyras, 23 – Belen'koe, 24–50 – see below, Fig. 5B, 51 – Tarakataš III, 52–74 – see below, Fig. 5C, 75 – Tanais, 76 – Suchyj-Čaltyr', 77 – Kohjakovo, 78 – Rogožkino XIII, 79 – Djurso, 80 – Širokaja Balka, 81 – Bžid, 82 – Pityunt, 83 – Sebastopolis, 84 – Šapky, 85 – Cibilium, 86 – Pskal, 87 – Azara, 88 – Gyenos, 89 – Archaeopolis, 90 – Rhodopolis, 91 – Cichisdziri, 92 – Pičvnari, 93 – Sinope, 94 – Sinope, rural territory, 95 – Demirci, 96 – Pompeiopolis, 97 – Neoklaudiopolis, 98 – Elma Tepesi near Merzifon, 99 – Twium, 100 – Komana Pontika, 101 – Satala.

207 No finds of such vessels were reported from Saraçhane in Istanbul, where many pottery assemblages containing Late Roman and Early Byzantine red slip wares were studied; cf. Hayes 1992, 5–8, 91–211.

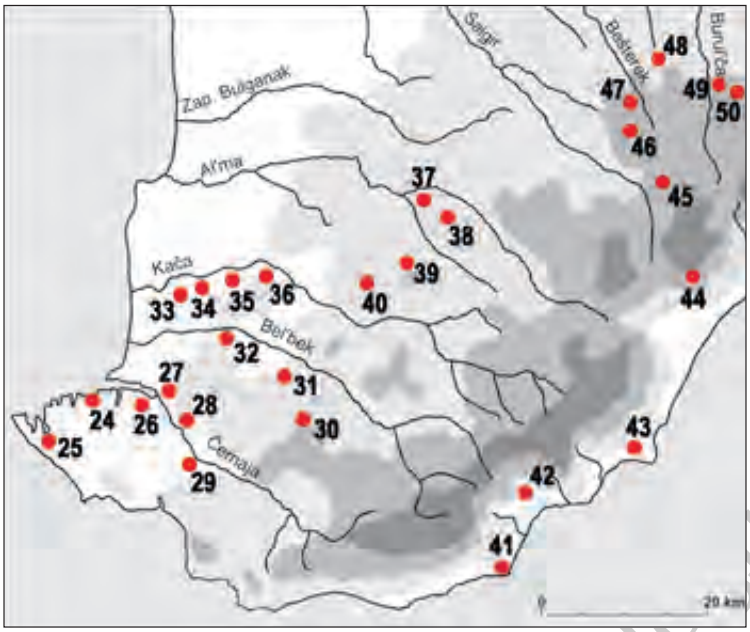


Fig. 5B. Distribution of Pontic Red Slip vessels at archaeological sites in south-western Crimea and neighbouring areas: 24 – Chersonesos, 25 – Herakleian Peninsula, Kamyšovaja Buchta, 26 – Kilen-Balka, 27 – Inkerman, 28 – Sovchoz 10, 29 – Černaja Rečka, 30 – Mangup / Almalyk-Dere, 31 – Krasnyj Mak, 32 – Karši-Bair I–II, 33 – Višnevoe, 34 – Suvorovo, 35 – Tas-Tepe, 36 – Krasnaja Zarja, 37 – Skalistoe, 38 – Ozernoe III, 39 – Manguš, 40 – Suvlu-Kaja, 41 – Charax, 42 – Alonija, 43 – Artek II, 44 – Lučistoe, 45 – Pereval'noe, 46 – Družnoe, 47 – Opuški, 48 – Nejzac, 49 – Rozental', 50 – Orta-Koj.

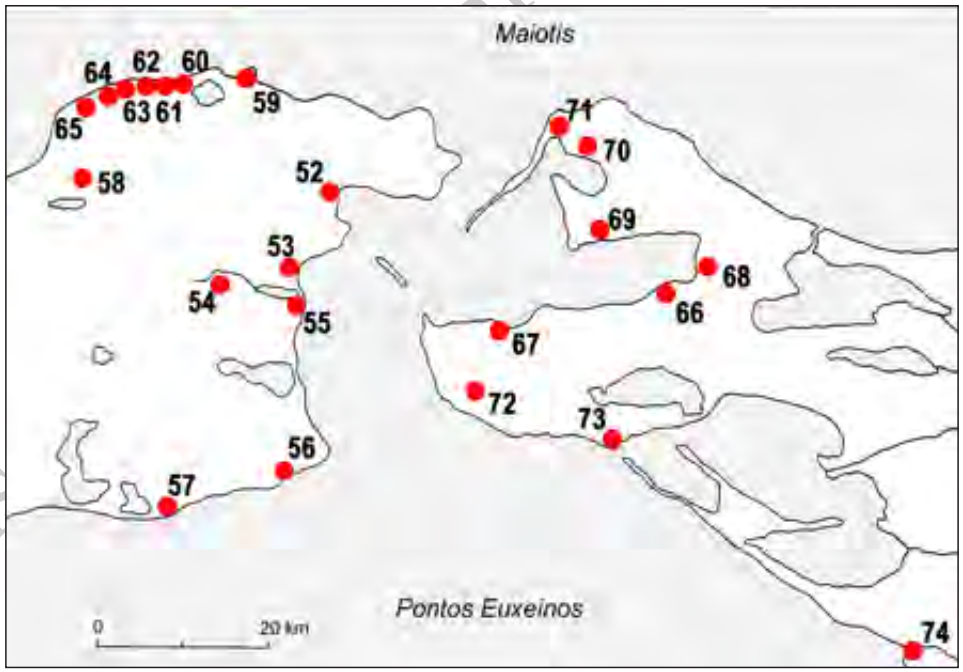


Fig. 5C. Distribution of Pontic Red Slip vessels at archaeological sites in eastern Crimea and Taman Peninsula (Bosporos Kimmerikos and neighbouring areas): 52 – Pantikapaion / Bosporos, 53 – Tyritake, 54 – Iluraton, 55 – Nymphaion, 56 – Kytaion / Džurg-Oba, 57 – Kimmerikon, 58 – Belinskoe, 59 – Mys Zjuk, 60 – Zelenyj Mys, 61 – Sirenevaja Buchta, 62 – General'skoe, 63 – Staroživolovo I, 64 – Zolotoe (vostočnoe, v buchte), 65 – Sjujurtaš, 66 – Phanagoreia, 67 – Hermonassa, 68 – Kepoi, 69 – Patrasys, 70 – Baterejka I–II, 71 – Il'ič, 72 – Volna I, 73 – Artjuščenko I, 74 – Gorgippia.

to Scythia Minor particularly at the time of their most intensive production and broad distribution in the 5th century. However, the discussed vessels reached also some Moesian settlements located at a considerable distance from the sea, such as Novae, Iatrus and Dičin.

It is important to note the presence of the discussed vessels at the southern outskirts of the Černjachov culture, in the north-western part of the Black sea basin, along the coastal line between the Danube and Dnieper rivers. A rather small number of Pontic Red Slip ware finds in Olbia and the neighbouring settlements or cemeteries reflects not necessarily or not only the scant volume of the import but first of all the fact that it embraced almost exclusively the earliest vessels and it discontinued already around the turn of the 4th and 5th century. The above-noted absence of the earliest Pontic Red Slip forms in Thracia and Scythia Minor may indicate that these vessels reached Olbia and other Černjachov sites via Chersonesos rather than along the western Black Sea coast.

The biggest concentrations of the Pontic Red Slip ware finds and the longest presence of these vessels, from the beginning until the end of their broad distribution, are known from the south-western part of the Crimean Peninsula and from Bosporos Kimmerikos. These were the most strategic parts of the Black Sea region located outside the borders of the Empire, and the Romans always tried to control and protect the key outposts in these territories especially Chersonesos and Pantikapaion / Bosporos, from the threats of the nomadic tribes inhabiting the steppe zones. Numerous Pontic Red Slip vessels were distributed from the main harbour settlements throughout their neighbouring rural territories in both regions. A substantial share of the finds made there comes from the cemeteries of the Barbarian population, especially in the south-western Crimea, and from numerous rural settlements, particularly at the Kerch Strait.

From the turn of the 4th and 5th century until the 470–480s, Pontic Red Slip vessels were regularly delivered to Tanais in the north-eastern Maiotis, and a small part of them was also distributed to some other settlements in and around the Don river delta. This took place approximately at the time when Olbia was finally abandoned. The forms recorded in Tanais represent the second "generation" of vessels from the most successful period of their production and this merchant outpost was the north-easternmost destination of their broad distribution.

A continuous presence of the Pontic Red Slip vessels along the eastern Black Sea littoral can be observed in the main harbour towns, such as Pitiunt, Sebastopolis and other settlements, as well as at some cemeteries, concentrated especially in the southern part of the Caucasian coast and in western Colchis. The repertoire of Pontic forms recorded there embraces the vessels produced from around the late 4th until the mid-6th centuries.

The evidence about the distribution of the Pontic Red Slip ware in northern Asia Minor is very fragmentary as the first regular archaeological projects began there only in the recent decades. In the coastal area, these finds were revealed in Sinope and in its rural territory. However, the distribution of the discussed vessels embraces very large inland territories of northern Anatolia, from Satala in the east to Pompeiopolis in the west. The first insights into the materials from Satala have shown that the finds of the Pontic Red Slip vessels are scarce there, just like the Mediterranean red slip wares, African and Aegean, which reached this strategically important fortified settlement in small numbers as well.[208] The main fine pottery vessels commonly used by the inhabitants of Satala were red slip products of regional, possibly eastern Anatolian origin, which have not been a subject of any scientific interest so far.

The situation is different in Komana Pontika and Pompeiopolis where Pontic Red Slip ware was the basic fine pottery used by the inhabitants in the 4th and 5th centuries. The evidence from Komana Pontika is rather fragmentary, as the main structures and layers excavated there are Early Mediaeval and, more recently, Early

208 A brief inspection of the fine pottery materials excavated in Satala in 2018–2021 was made possible for the author in 2021, thanks to the kind permission by the director of the excavations, Prof. Şahin Yıldırım from the Bartın University.

Roman.[209] But among the residual and some other finds, including also the materials from a surface survey in the rural territory, Pontic Red Slip vessels are found regularly. Moreover, the macroscopic features typical of the discussed Pontic vessels show some similarities to the common pottery used in this area.

Very rich materials discovered in Pompeiopolis every year since 2006 show that the import of the Pontic Red Slip vessels to that town began in the early 4th century and declined in the late 5th century.[210] Later on, in the early 6th century, imported red slip wares were replaced by the emergence and very successful development of the local or regional manufacturing of the fine ware burnished vessels, imitating the shapes of the leading Mediterranean red slip ones. They were used commonly by the inhabitants until around the late 7th or early 8th century.

Pontic Red Slip vessels were also found at some other sites in the northern part of Anatolia, especially in Tavium and Neoklaudiopolis, but the projects carried out there embraced only surface surveys and therefore the number of finds is much smaller.[211] According to the available evidence, Pompeiopolis in Paphlagonia was the westernmost place in Asia Minor where the discussed vessels were distributed. The next important urban centre located further to the west, Hadrianoupolis, is beyond a high mountain range. Abundant fine pottery materials found there show no presence of the Pontic Red Slip ware forms. Instead, the inhabitants used there the locally or regionally produced red slip vessels.[212]

No traces of production workshops of the Pontic Red Slip ware have been discovered so far. Therefore, it is impossible precisely to indicate today the place, or even the area, where these vessels were made. The observed broad distribution of their finds embraces mainly the northern and eastern Black Sea littorals, where the most systematic archaeological investigations were conducted. Much less investigated is the southern part of the Black Sea basin. Today it may be only said that it is highly improbable that the workshops producing Pontic Red Slip vessels were located at the areas where the concentrations of finds are the largest, in south western Crimea and in Bosporos Kimmerikos, as the fine and common pottery produced in both regions show different macroscopic and physico-chemical characteristics than the discussed Pontic vessels.[213]

A certain suggestion helpful in the search for the centres of production of the Pontic Red Slip ware is the much greater quantity of these vessels in the above-mentioned, northern and eastern parts of the Black Sea littoral, especially in the Bosporan region and in south-western Crimea, than along the western coast. A very scarce distribution of these finds in many important centres of the lower Danube *limes,* and their total absence in Constantinople, is particularly significant. This distribution pattern allows to assume that the unknown centre or centres producing Pontic Red Slip vessels were located in the archaeologically little known southern part of the Black Sea basin, not necessarily in the coastal area of Asia Minor but rather in one of the adjoining inland regions.

The moderate quantities of the Pontic Red Slip vessels in Moesia and Scythia Minor[214] may reflect the main directions in long-distance maritime trade in bulky goods in the Black Sea basin. As we are able to estimate a substantial share of that trade thanks to the finds of transport amphorae, it is clear that the most important product identified in this way, delivered to the lower Danube *limes* zone, was olive oil. Wine was brought there in smaller quantities, as it could have been produced locally, and olive oil could not. Olive oil was imported to the lower Danube

209 Personal inspection of the materials from these excavations was possible in 2017 thanks to the kind invitation by the director of the project, Prof. Burcu Erciyas from the Middle East Technical University in Ankara.

210 Domżalski 2016–2017, 76–78.

211 Weber-Hiden 2003, 287–289; Winther-Jacobsen, Bekker-Nielsen 2017, 32–33, 42–43.

212 Laflı, Kan Şahin 2016, 143–204.

213 Ušakov 2004; Ušakov *et alii* 2017; Schneider, Daszkiewicz 2020, 431–434.

214 Domżalski, Panaite 2019, 121; with further references.

area from the Aegean and from the rest of the Mediterranean, mainly from the Levant.[215]

At the same time, southern Pontic producers and merchants were focused on the production and distribution of wine to the northern consumers, which is also evidenced by the numerous finds of trade amphorae throughout the northern Black Sea territories and beyond.[216] Some of them were marked with *dipinti* indicating their contents.[217] They confirm that particularly wine was the main product transported there, while the Mediterranean olive oil was rather an expensive extravagance, shipped in much smaller quantities. The long-lasting large-scale production of transport amphorae in Heraklea, Sinope, and the so-called South Pontic ones of unknown origin,[218] shows how important this trade was for the economy of the northern Asia Minor coastal regions.

Naturally, the Mediterranean red slip wares, Phocaean, African and others, supplemented the bulky transports from the Aegean to Moesia and Scythia Minor, including the regular deliveries shipped from the central part of the Empire to the military troops protecting the Danube border area. Similarly, the Pontic Red Slip vessels were most probably added to the cargoes sent from the northern coast of Asia Minor to the opposite regions, crossing directly the Black Sea or moving along the eastern littoral.

In the Mediterranean regions, where the main red slip ware workshops were located, i.e., in Northern Africa, eastern Aegean and Pamphylia, the emergence of manufacturing of the highest quality fine pottery was initially connected with the local or regional demand for these products. Later on, the production centres were able to expand and sell their products at a supra-regional scale. A similar scheme may be assumed for the Pontic Red Slip ware. The probable area where such a regional demand for good quality tableware could have emerged seems to be the most fertile, western part of the province of Pontus, located approximately between Neoklaudiopolis, Tavium, Komana Pontika, Neokaisareia and Laodikeia. This part of Pontus has also the most convenient access to the Black Sea, not limited by the high mountains, as in the remaining part of the northern Asia Minor. To prove this hypothesis, however, it is necessary to wait for the results of some new archaeological projects there, as the scant evidence available today does not allow us to speculate about the economy of this region in the Late Roman and Early Byzantine times.[219]

5.2. REGIONAL TRADITION AND INTERREGIONAL INFLUENCE

As it has been observed while analysing the macroscopic, physical and technological features of the Pontic Red Slip ware, its fabric resembles that of the dominating ware of the Early Roman terra sigillata, called Pontic Sigillata.[220] This may indicate that the still unknown source of both wares, hypothetically placed in the northern part of Asia Minor, was situated in one region, and suggests a continuity of production technology used by the potters before and after the disastrous Gothic incursions in the second half of the 3rd century.

The typical production features of the Pontic Red Slip ware, discussed in Chapter 4.1–2, consist in less precise shaping of the vessels in comparison to the leading Mediterranean fine ware products, careless application of the slip on the outside surfaces of the vessels, often with finger marks, streaks and runs of the slip, frequent presence of the traces of removing the vessel from the potter's wheel on their undersides or feet, as well as rather poorly controlled firing conditions resulting sometimes in uneven colour of large vessels. Also, the decorations of the Pontic Red Slip vessels are more limited,

215 Grigoraș, Panaite 2021, 87, 95–96, pl. 15:7; with further literature.

216 Didenko 2014, 34, 45–46; Smokotina 2016, 715–716; Smokotina 2018b, 264–272; with further literature.

217 Il'jašenko 2013, 130–132.

218 Kassab Tezgör 2020, 15–49, 77–89.

219 Cf. Izdebski 2013, 354–355.

220 Cf. above, Chapter 4, note 120.

Fig. 6. Production areas of the leading Mediterranean red slip wares, and the hypothetical source of Pontic Red Slip ware.

and the stamped compositions, very frequent on some of the popular Mediterranean products, on the Pontic vessels were replaced by the combed ones. Many of these features, which may be perceived as a result of the specific *chaîne opératoire*, were typical also of some of the latest Pontic Sigillata vessels. On the other hand, these shared characteristics differ significantly the discussed Pontic Red Slip ware from the contemporaneous Mediterranean, North African and Aegean, red slip imports (**Fig. 6**).[221]

The most advanced technology of the Late Roman fine ware production in the Mediterranean was developed in North Africa, the highest quality being reached in the workshops situated in today's Central Tunisia, producing the African Red Slip C ware between the 3rd and 5th century.[222] Precise potting, finishing, covering with slip and firing the vessels in special containers called *saggars* resulted in an excellent appearance of the products characterised by relatively thin walls and uniform colour.[223] A less elaborate but basically similar technology of firing was applied by the producers of the Late Roman C / Phocaean Red Slip ware. Here, the *saggars* were replaced by very tight and stable stacks of vessels, especially the dishes, form 3, with specifically designed overhanging rims.[224] The use of tight stacks allowed to make the vessels uniform in colour on the inside and outside, with the exception of the rims, which were often overfired, and to produce them on a mass scale.

The excellent quality of the African Red Slip vessels made them highly popular in the whole Mediterranean and beyond. In the 2nd century, small numbers of the African Red Slip vessels were first brought to the Black Sea basin.[225] In the Early Roman times, they had no impact on the regional producers of fine pottery, who continued to manufacture late variants of the Pontic Sigillata vessels,[226] initially, in the 1st century, designed to follow the widespread Italian Terra Sigillata, and also some other shapes. The situation changed in the late 3rd century, after the Gothic incursions in the Black Sea region and in the Aegean. The decline of the Pontic Sigillata, as well as the Eastern Sigillata C / Çandarlı ware from the Aegean,[227] commonly exported to the Black Sea region, brought a relatively long break in the production and distribution of the high quality table wares, until the early 4th century, when it was taken up again owing to the more stable economic conditions. This discontinuity lasted probably for some decades, as the most popular forms of the newly emerged Pontic Red Slip ware did not resemble their Early Roman regional predecessors but they were designed under the influence of the leading shapes of the African Red Slip ware.

221 Interestingly, some macroscopic and technological similarities between the Pontic Red Slip vessels and the Late Roman D / "Cypriot" Red Slip ware ones were also identified during the reported analysis. They were already mentioned above, in Chapter 4, note. 119. However, no finds of the LRD/CRS vessels have been confirmed in the Black Sea region so far.

222 Mackensen, Schneider 2002; Mackensen 2009.

223 Bonifay 2004, 45–65, figs. 30–32; Peña 2009.

224 Vaag 2003, 203–205, pls. 112:1, 113:1.

225 Unpublished single finds of the ARS A ware carinated bowls, form 8, were noticed by the author in Olbia and Novae.

226 Hayes 1985, 92–96; Žuravlev 2010, 140–143.

227 Hayes 1972, 316–322; Hayes 1985, 71–78.

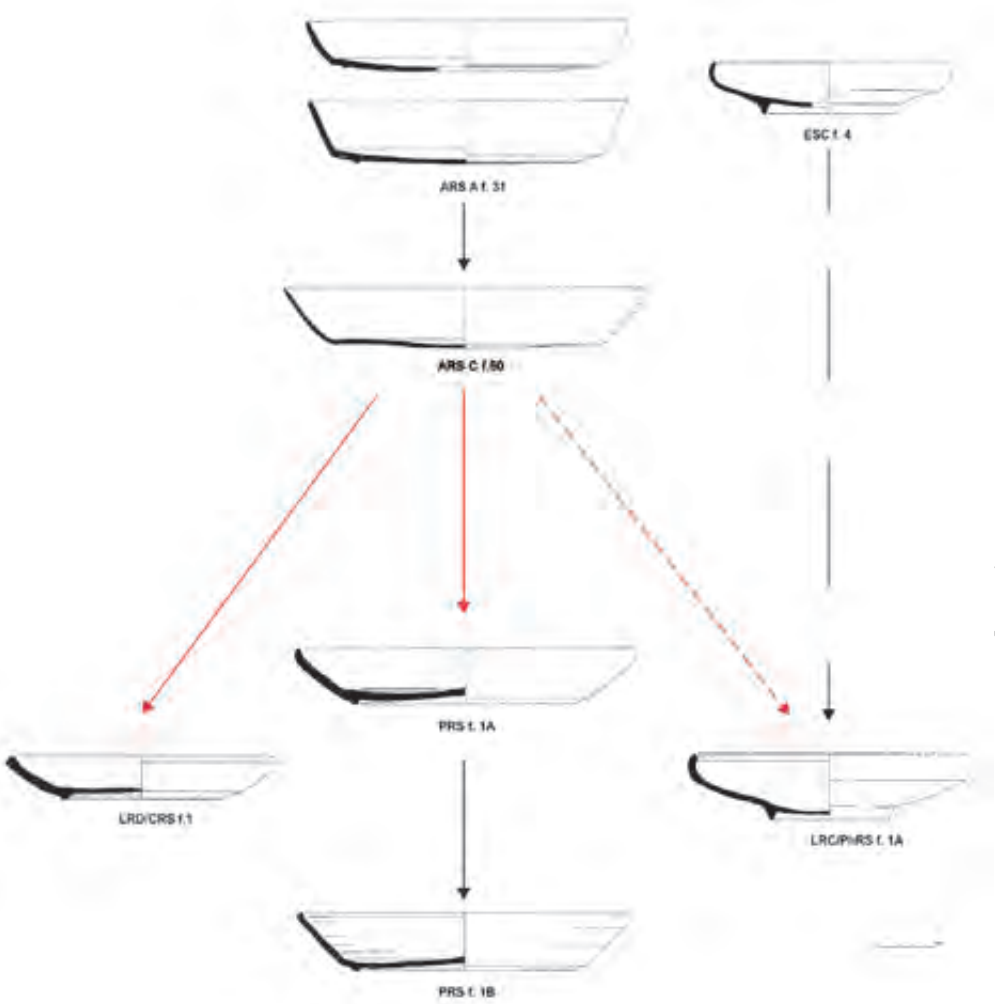


Fig. 7. African Red Slip ware forms 31 and 50, and their influence on other red slip wares.

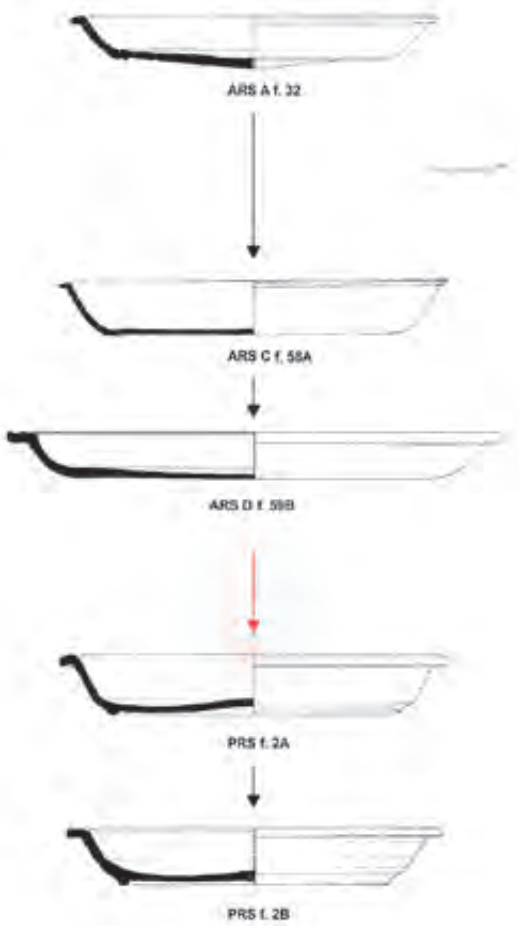


Fig. 8. African Red Slip ware forms 32, 58 and 59, and their influence on Pontic Red Slip ware form 2.

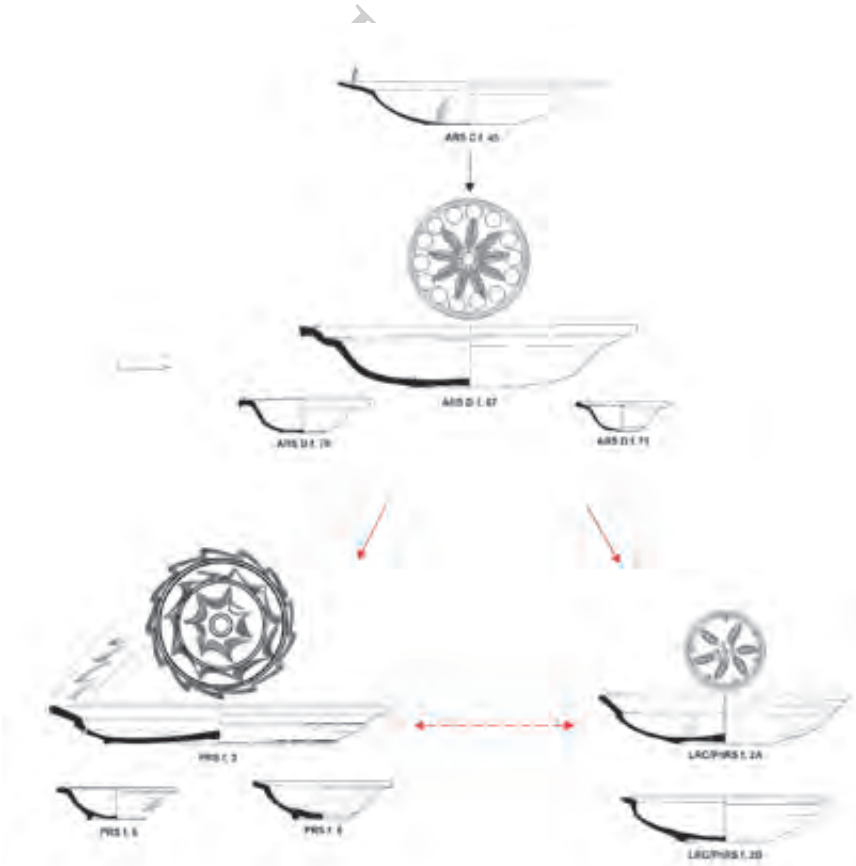


Fig. 9. African Red Slip ware forms 67 and 70-71, and their influence on other red slip wares.

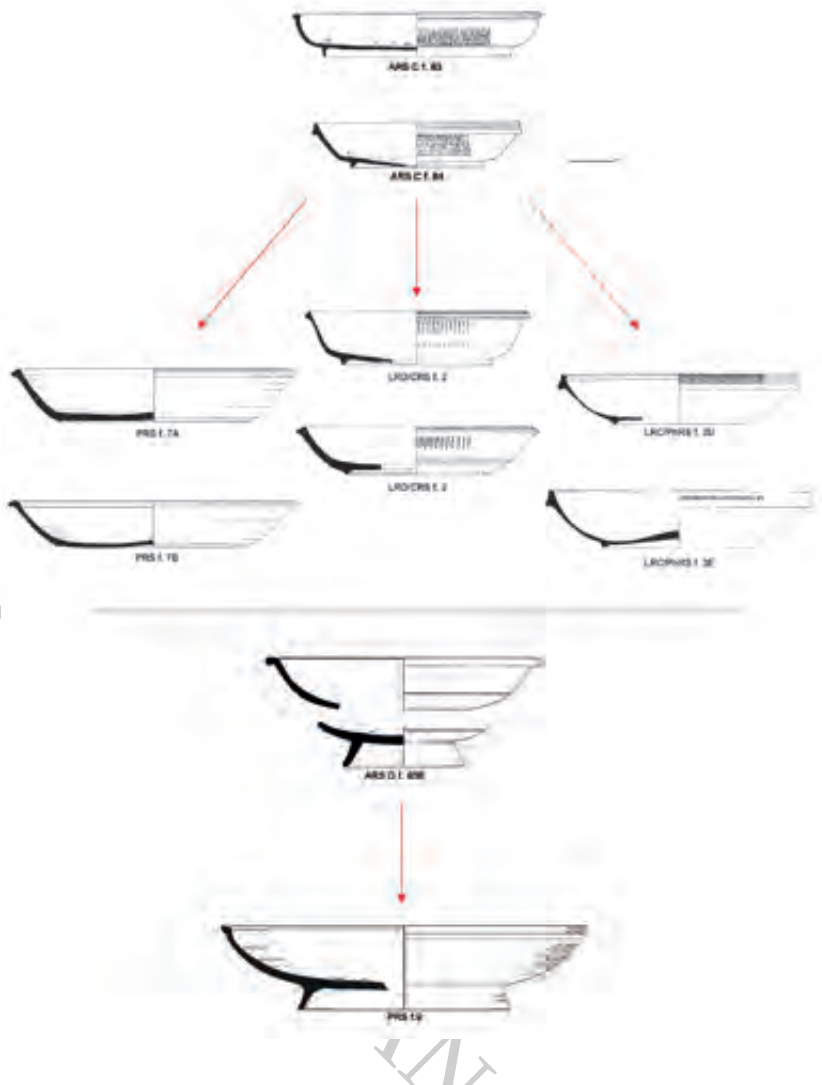


Fig. 10. African Red Slip ware forms 83-84 and 93, and their influence on other red slip wares.

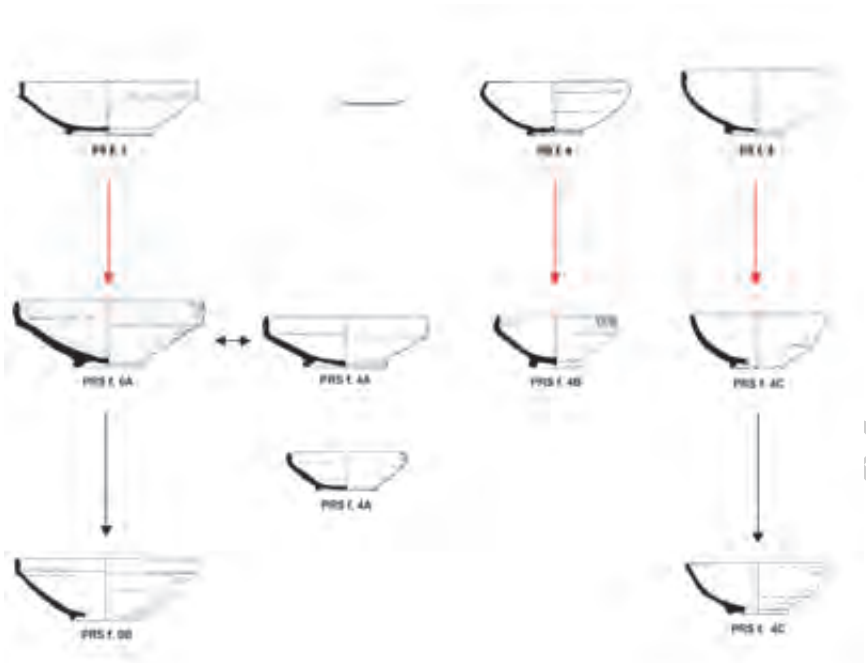


Fig. 11. Pontic Sigillata and its relation to respective Pontic Red Slip ware forms of small vessels.

The most popular African vessel in the 4th century was the ARS C dish, form 50, characterised by a simple but elegant shape and the absence of decoration (**Fig. 7**).[228] It was a developed version of the Early Roman ARS A dish, form 31, which gained great popularity in the western part of the Mediterranean in the early 3rd century. The above-mentioned product of the newly established Central Tunisian workshops, form 50, was, however, of a much better quality and its distribution embraced the whole Mediterranean and beyond, reaching some remote corners of the Empire. This popularity was a natural inspiration for the Pontic potters trying to design their vessels according to the dominating trends in the highest quality tablewares. It resulted in creating a very similar dish, form 1, which became the basic vessel of the Pontic Red Slip ware for the next two centuries. Similar inspiration may be observed in the case of the very popular ARS D dishes, forms 58-59, and the second early shape of the Pontic Red Slip ware, form 2 (**Fig. 8**). These dishes, forms 1A and 2, constituted the first "generation" of the Pontic Red Slip vessels, produced in the 4th century.

The impact of the discussed African Red Slip dishes, form 50, concerned also other Mediterranean producers, especially the Late Roman D / "Cypriot" Red Slip ware ones (**Fig. 7**). This inspiration was rather indirect for the Late Roman C / Phocaean Red Slip vessels, resulting in the continuity of the production of the vessels designed for the Early Roman Eastern Sigillata C, which, however, matched the above-mentioned trend dominating in the 4th century (**Fig. 7**).[229]

It is possible to trace a similar influence of the North African vessels on the other producers in the beginning of the next century (**Fig. 9**). It is also reflected in the second "generation" of the Pontic Red Slip vessels, dominated by the large, elegant dish with broad rim, form 3, which replaced its predecessor, form 2. The Pontic dish, form 3, was strongly influenced by the popular in the late 4th and in the first half of the 5th century African Red Slip D dish, form 67, which

228 Hayes 1972, 68–73, fig. 12.

229 Hayes 1972, 325–327, fig. 65, and 372–374, fig. 80, respectively.

was the successor of the earlier ARS C dish, form 45.[230] In this case not only the general shapes of these vessels were similar but also the tendency to embellish them with large medallions on their floors. The North African compositions made by radial stamping of repetitive floral and geometric motifs (Style A), were replaced on the Pontic dishes by combed concentric wavy bands. Interestingly, in both cases the large dishes were accompanied by similarly designed small bowls, ARS forms 70–71, and Pontic form 6. The discussed trend concerned also the Late Roman C / Phocaean Red Slip ware producers, which is evidenced by the dishes and bowls, form 2, and their decorative stamped compositions (Group I) (**Fig. 9**).[231]

The next impact of the highest quality African Red Slip vessels on the other, Mediterranean and Pontic, producers happened around the middle of the 5th century, when the newly designed ARS C dishes, forms 83 and 84,[232] provided a new inspiration for similar vessels: Pontic Red Slip ware form 7, which became the leading form of the latest, third "generation" of the Pontic vessels, as well as for LRD/CRS form 2, and LRC/PhRS form 3 (**Fig. 10**).[233] It is important to note that the aforementioned ARS C ware forms 83–84 were designed at the time when the North Africa began to be occupied by the Vandals. It resulted in a considerable decrease of the regular supplies of the fine pottery vessels to *pars Orientis*, especially to the Aegean.[234] Nevertheless, the fame of these products, still transported, e.g., to Egypt, was so great that even the Pontic potters decided to produce vessels following the predominant trend. Despite the above-mentioned difficulties, some of the ARS dishes, forms 83–84, reached also the remote north-eastern corners of the Empire, as it has been confirmed by the impressive find from Novae on the Danube.[235]

The last example, shown in **Fig. 10**, is one more piece of evidence that the Pontic producers often followed the North African masters. A rare and only recently distinguished Pontic Red Slip ware dish on an unusually high foot, form 9, may be seen as as being inspired by the ARS D ware form 93, dated to the late 5th - early 6th century.[236] This form, however, had a very limited impact on the eastern Mediterranean producers, which is evidenced merely by the rather unsuccessfully introduced LRC/PhRS ware bowl on a high foot, form 7.[237] Also the Pontic dishes, form 9, were produced on a very small scale and, most probably, for a brief time, judging from the extremely small number of their finds. Interestingly, the discussed shape seems to have its continuation in the Black Sea region in the burnished fine ware vessels, called Late Roman Pontic Burnished ware, which began to be broadly distributed shortly before the middle of the 6th century. The most popular shape of this ware was a dish on a high foot, very similar to the discussed ones.[238]

The influence of the North African products embraced three "generations" of the most popular and mass produced large Pontic Red Slip ware dishes, forms 1A and 2, 1A/B and 3, 1B and 7, as well as the rare late dish, form 9, and small bowl, form 6. The other small vessels, bowls, forms 0, 4 and 5, were produced less frequently. Their general shapes are so conservative that they can be easily confused with some of the equally simple vessels of the Early Roman Pontic Sigillata (**Fig. 11**).[239] However, their distinguishing feature seems to be the rim which is usually vertical or only slightly incurved, and a very solid ring-foot.

230 Hayes 1972, 62–65, fig. 11, and 112–116, fig. 19, respectively.

231 Hayes, 1972, 327–329, 346, fig. 66.

232 Hayes 1972, 130–133, fig. 23.

233 Hayes 1972, 329–338, figs. 67–69, and 373–376, fig. 80, respectively.

234 Bonifay 2005, 568–569; Willet 2014, 279–281, figs. 2–3; Bes 2015, 137–138.

235 Klenina 2014, 934, fig. 4:1.

236 Hayes 1972, 145–148, fig. 27.

237 Hayes 1972, 340–341, fig. 70.

238 Cf. Fedoseev *et alii* 2010, 68–71, fig. 9; Domžal'ski, Žuravlev 2013; with further references.

239 Žuravlev 2010, 140–143, pls. 23-25.

The bowls, form 4, probably derive directly from the similar vessels of the late phase of the Pontic Sigillata. The largest vessels of form 4A are characterised by the high vertical rims with a plain edge. They seem to be a simplified version of the earliest but produced for a long time Pontic Red Slip ware shape called a "transitory" form 0, due to its similarity to the latest forms of the Pontic Sigillata from the mid-3rd century.[240]

For the Pontic Red Slip ware jugs it is not possible to trace any direct influence of the Mediterranean red slip wares. Closed vessels produced in North Africa were significantly less popular than their open shapes, and they had very limited distribution outside their home region. Other producers of the Mediterranean red slip vessels did not offer such forms to the markets, or offered them at a very limited scale. It can be therefore assumed that the shapes of the Pontic Red Slip ware jugs, introduced in the early 4th century and produced later on, were inspired directly by the metal products.[241]

5.3. PONTIC RED SLIP WARE IN THE LATE ROMAN FINE POTTERY TRADE

Before presenting a reconstruction of the history of the broad distribution of the Pontic Red Slip ware in the Black Sea region it is necessary briefly to review the situation in the fine pottery production and trade there in the preceding centuries. The Early Roman period, especially the 2nd century and the first half of the 3rd century, saw an extreme prosperity in production and trade in the high quality tableware, mainly terra sigillata, in the whole Black Sea region. Hadrian's reign was particularly conducive to the origination of new centres producing that pottery, especially in Moesia and Dacia, where several workshops have been found. However, the origin of the Pontic Sigillata, which was the predominant ware in the Black Sea region, is still unknown.[242] It can be only assumed that these workshops may have been located in the northern part of Asia Minor.

The broad distribution of Pontic Sigillata flourished as it seems to counter the crisis of the production of similar ceramics in the eastern part of the Mediterranean. The demand for the high quality fine ware vessels there, especially in the Levant, began to decrease already in the 2nd century, due to the incredible growth in affluence of the region, resulting in more common use of metal and glass vessels. The Black Sea region, which was at that time entering the stage of prosperity, ensured by sharing the trading space of the Empire, apparently did not reach such a state of affluence for the consumers to give up using good quality pottery tableware.

The sudden decline of the crafts and trade in the Pontic basin in the mid-3rd century, which lasted for several decades, was caused by the Goths' disastrous incursions,[243] which destroyed the economic base determining the purchasing power of the distant and close customers, and completely disrupted the long-distance trade links. Terra sigillata was no longer distributed across the Black Sea region or brought to the customers from the former Aegean suppliers.

In the first half of the 4th century in the Black Sea littoral there appeared vessels resembling in their macroscopic features, the fabric, and the technology of production of the Early Roman Pontic Sigillata, but the repertoire of their shapes was completely different. These vessels, identified as the Pontic Red Slip ware, are found at almost all the archaeological sites of the Black Sea coastal regions which contained layers from the Late Antiquity. However, as no precisely dated pottery assemblages from the early 4th century contexts have been found so far, it is difficult to determine when exactly the Pontic Red Slip vessels were first traded across the Black Sea region. Finds from burial contexts indicate that it happened around the second quarter of the 4th century. The early vessels of the Pontic Red Slip ware, generally dated to the 4th century, were found in several cemeteries in the northern coast of the Black Sea, particularly

240 Cf. above, Chapter 4.5, note 148.

241 Cf. above, Chapter 4.2, notes 130–135, and Chapter 4.5, notes 196–206.

242 Cf. above, note 226.

243 Schwarcz 1992; Myzgin 2016, 156–158; with further literature.

in the south-western Crimea,[244] as well as at the southern outskirts of the Černjachov culture, in cemeteries and settlements,[245] including Olbia, which was finally abandoned at the turn of the 4th and 5th century, according to the chronology of the Mediterranean red slip wares and other finds.

The shares of the imported red slip wares found in Olbia, together with the proportions of the Pontic Red Slip ware forms identified there, are presented in **Figs. 12A–B**.[246] The quantitative analysis shows the strong domination of the Pontic Red Slip vessels with their typical 4th century dishes, forms 1A and 2, while the scale of the Mediterranean import is insignificant. Interestingly, the number of the ARS dishes, forms 50, 59, 61 and 67, was much bigger at that time than of the Aegean, LRC/PhRS ware ones, embracing exclusively the dishes, form 1. Apparently, the scale of the Phocaean production was rather limited in the late 4th century.

The extension of the distribution area of the Pontic Red Slip ware in the 5th century is evidenced in the lower Danube area, especially in the light of the recently published materials from Ulmetum.[247] It seems that the import of the Pontic vessels, embracing the second "generation" of their shapes, was considerable at that time, as it is confirmed also by the new evidence from Aegyssus, where they reached about 20% of the total red slip ware finds dated predominantly to the 5th century.[248] However, the majority of the published reports from the lower Danube area contain materials which include also later finds, particularly the great numbers of the LRC/PhRS vessels dated to the 6th century. Therefore, the shares of the Pontic Red Slip ware are smaller in these assemblages.[249] The results of similar studies conducted in the northern and eastern parts of the Black Sea basin (see below) show that the scale of the Pontic Red Slip ware import to Scythia Minor was generally much smaller in comparison to the above-mentioned Pontic regions.

The prevalence of the Pontic Red Slip vessels dated to the 5th century in the long-distance distribution across the Black Sea is confirmed again at several cemeteries in the south-western Crimea.[250] In Bosporos Kimmerikos these vessels were found also in some grave contexts, especially in Phanagoreia,[251] as well as in several settlements, particularly in Tyritake and Phanagoreia, but mostly as residual materials, similar to those in Sebastopolis on the Caucasian coast, and in Pompeiopolis in Paphlagonia.[252]

At the time of the expansion of the Pontic Red Slip ware export towards Scythia Minor, in the early 5th century, these vessels, however, ceased to be delivered to the north-western Black Sea coastal consumers, to Olbia and other Černjachov culture settlements, which had been abandoned by then. Instead, a new settlement was established in Tanais at the mouth of the Don river after more than one hundred years of abandonment. The local community continued there, though at a much more limited scale, the Late Hellenistic and Early Roman traditions of maintaining regular trade contacts with Asia Minor. Judging from the chronology of the Mediterranean and Pontic red slip vessels found in Tanais, this north-easternmost trade outpost was finally abandoned around the turn of the third and fourth quarter of the 5th century.[253]

244 Cf. above, Chapter 3.2, notes 93–100, Table 1, and Chapter 4.5.

245 Cf. above, Chapter 3.2, note 101, Table 1, and Chapter 4.5.

246 The pie-charts present materials analysed by the author and preliminarily published in Krapivina, Domžal'skij 2008, 76–79.

247 Băjenaru 2018, 501–506.

248 Mocanu, Nuțu 2017, 135–138.

249 Domżalski, Panaite 2019, 114–121, fig. 4A; with further literature.

250 Cf. above, Chapter 3.2, notes 102–107, Tables 2–3, and Chapter 4.5.

251 Cf. above, Chapter 3.2, note 108, Table 3, and Chapter 4.5.

252 Cf. below, notes 256 and 260–262.

253 Domżalski 2021, 32–33.

The proportions of the imported red slip ware finds from Tanais are shown in **Figs. 13A–B**, indicating the predominant position of the Pontic Red Slip vessels, making again up to 90% of the finds.[254] The majority of these vessels were the large dishes, forms 1A/B and 3, typical of the most successful phase of the Pontic Red Slip ware production. The share of the LRC/PhRS vessels, mainly dishes, forms 1, 1/2 and 2, reaching up to 10%, clearly indicates the growing tendency to regain the traditional Black Sea fine pottery market by the Aegean producers, while the number of the ARS ware imports (dishes, forms 59, 61, 64 and 67) decreased significantly.

A very similar picture was revealed for the finds from the wine-press complex at Il'ič on the Taman Peninsula, destroyed by fire around the third quarter of the 5th century,[255] and for the very rich materials excavated recently in various contexts in Pompeiopolis,[256] where the imported red slip wares began to be replaced by the locally manufactured burnished vessels in the late 5th century. At both archaeological sites, Pontic Red Slip vessels constituted the vast majority of the identified red slip ware products.

The late 5th and the early 6th centuries make up a transitional period between the initial domination of the Pontic Red Slip ware in the northern and eastern Black Sea regions, and the "conquest" of these markets by the Aegean producers. Large numbers of the red slip ware materials dated to the aforementioned period were found at many archaeological sites throughout the Black Sea basin. Their analyses indicate a considerable increase of the Aegean imports, mainly the Late Roman C / Phocaean Red Slip vessels, which were sometimes, particularly in Scythia Minor, supplemented also with the Late Roman Light Coloured ones. The dominating vessels were the successfully introduced and developed LRC/PhRS dishes with overhanging rim, form 3, successive

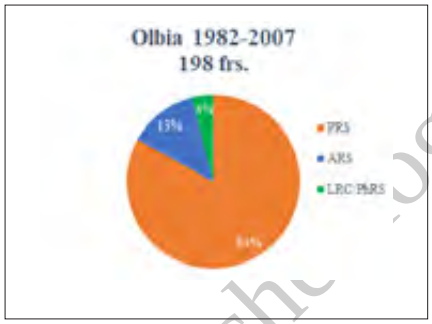


Fig. 12A. Late Roman red slip wares in Olbia.

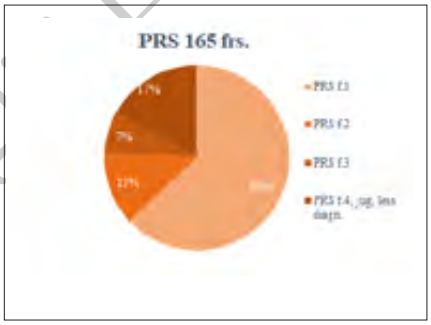


Fig. 12B. Pontic Red Slip ware forms in Olbia.

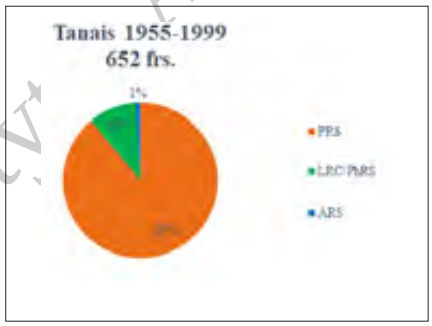


Fig. 13A. Late Roman red slip wares in Tanais.

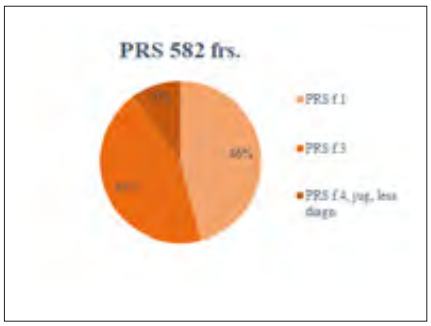


Fig. 13B. Pontic Red Slip ware forms in Tanais.

254 The pie-charts present materials analysed by the author and published in Arsen'eva, Domżalski 2002.

255 Cf. Vinokurov, Nikolaeva 2000, 10–12. These unpublished materials were studied by the author at TMK, Taman in 2001, thanks to the kind permission by Elmira R. Ustaeva.

256 Domżalski 2016–2017, 76–80, fig. 3.

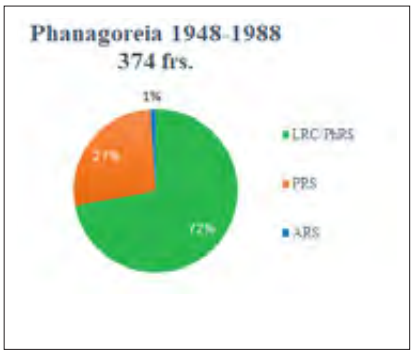


Fig. 14A. Late Roman red slip wares in Phanagoreia (1948-1988).

Fig. 14B. Pontic Red Slip ware forms in Phanagoreia (1948-1988).

Fig. 14C. Late Roman C / Phocaean Red Slip ware forms in Phanagoreia (1948-1988).

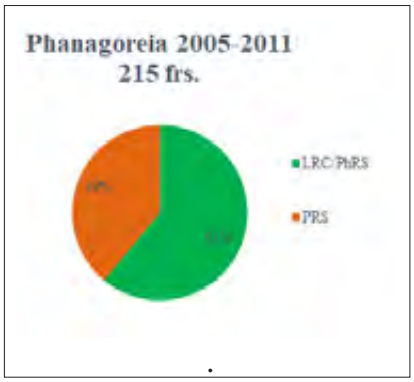


Fig. 15A. Late Roman red slip wares in Phanagoreia (2005-2011).

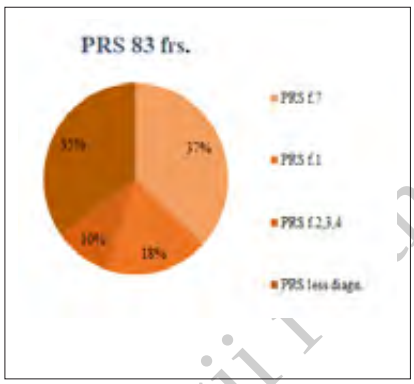


Fig. 15B. Pontic Red Slip ware forms in Phanagoreia (2005-2011).

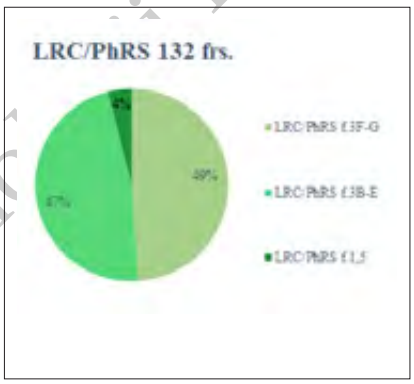


Fig. 15C. Late Roman C / Phocaean Red Slip ware forms in Phanagoreia (2005-2011).

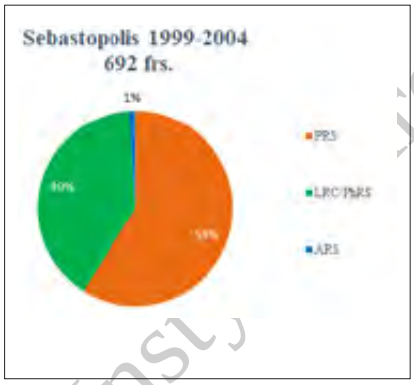


Fig. 16A. Late Roman red slip wares in Sebastopolis.

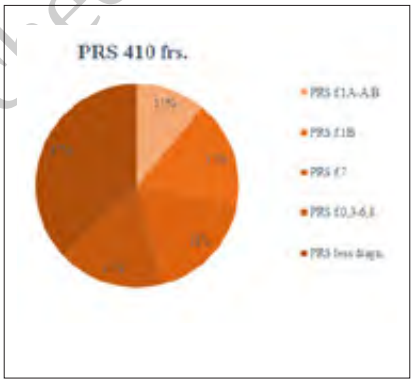


Fig. 16B. Pontic Red Slip ware forms in Sebastopolis.

Fig. 16C. Late Roman C / Phocaean Red Slip ware forms in Sebastopolis.

variants of which were delivered until the mid-6th century.

Together with this tendency there occurred a gradual decline in the trade of the yet predominant Pontic Red Slip ware. The dynamics of this process is difficult to determine due to the lack of precisely dated finds from the beginning of the 6th century. A clear indication of the general decrease in the popularity of the Pontic Red Slip ware is the limitation of the repertoire of the forms of these vessels and the lesser number of their finds. They occur at cemeteries in Skalistoe, Džurg-Oba and Djurso, together with several

variants of the LRC/PhRS form 3, constituting already a minority in these assemblages.[257]

The latest phase of the systematic long-distance trade of the Pontic Red Slip vessels in the Black Sea region is dated to the first half of the 6th century. Reliable information about the red slip vessels imported at that time was yielded especially by the excavations at several settlements on both sides of the Kerch Strait, which were destroyed or abandoned in the mid-6th century, especially in Phanagoreia and Tyritake,[258] and confirmed also by similar finds from other settlements in this region.[259]

The quantitative analyses of the finds from Phanagoreia are shown in **Figs. 14–15**.[260] Among the latest finds, the predominant artefacts are fragments of the vessels used right before the destruction and abandonment. Despite the fact that the analysed assemblages also include residual finds from the 5th century, the total share of the Pontic Red Slip ware is significantly smaller than in the 5th century materials presented above. A comparison of the latest popular Pontic Red Slip dishes, form 7, with the most commonly encountered LRC/PhRS dishes, form 3F and 3G, indicates the domination of the Aegean products in the last decades of the settlement activity at both sites.

A slightly different picture is provided by the finds from Sebastopolis which, however, include also some later artefacts, dated to the second half of the 6th century, namely the LRC/PhRS form 10A (**Figs. 16A–C**).[261] Despite this fact, the share of the Pontic Red Slip ware is significantly bigger than in Phanagoreia. Comparable results were obtained in Tyritake which was, similarly to Phanagoreia, abandoned in the mid-6th century.[262] In both cases the slight domination of the Pontic Red Slip ware can be explained by the greater proportion of the residual and other earlier finds among the analysed materials.

The above-discussed intensification of the Aegean red slip ware imports to the Bosporos Kimmerikos in the first half of the 6th century reflects the political and military engagement of the Empire there during the long-lasting Byzantine-Persian conflict.[263] This prolonged war brought first of all the destruction of the main harbour towns on the Caucasian coast but also the attacks of the local Hunnic tribes at the Kerch Strait,[264] which resulted in the destruction and abandonment of many towns and settlements there. The latter raids were most probably inspired by the Persians as a kind of the military sabotage. That brought about an almost total depopulation of the Kerch and Taman Peninsulae. The surviving local communities found refuge in the capital town of Pantikapaion / Bosporos, which continued to maintain political and trade relations with the Empire in the subsequent decades and centuries. However, in the late 6th century contexts revealed there, no finds of the Pontic Red Slip vessels were identified, similarly to some contemporaneous deposits discovered in Chersonesos.[265]

The gradual decline and final disappearance of the Pontic Red Slip ware from the Black Sea market in the mid-6th century, and the replacement of those vessels mainly by the increased imports of Aegean LRC/PhRS ware, inspires questions about the reasons of this change. It is possible that the long-lasting Byzantine-Persian war in Lazica was one of those reasons. It brought destruction to the eastern Black Sea coast and to Bosporos Kimmerikos, which were the main long-distance importers of these

257 Cf. above, Chapter 3.2, notes 111–113, Table 4, and Chapter 4.5.

258 Cf. below, notes 260 and 262.

259 Cf. above, Chapter 3.2, note 86.

260 The diagrams embrace materials published in Atavin 1993, and in Golofast, Ol'chovskij 2016, respectively.

261 The results shown in Figs. 16A–C embrace materials published in Gabelia 2014, 439–446.

262 Domżalski, Smokotina 2020, 621–622, 644–645; Domžal'skij, Smokotina 2020, 189–193.

263 Braund 1994, 287–311.

264 Bolgov 1996, 61–63.

265 Cf. above, Chapter 3.2, notes 87–89 and 92.

vessels. The whole economy of Bosporos Kimmerikos, based on growing grain and processing fish, was ruined and it never recovered after these dramatic events.

At the same time, looking at the change of the main supplier of the discussed red slip wares from the perspective of the Aegean producers, we can see an extremely efficient distribution of the Late Roman C / Phocaean Red Slip vessels along the supply lines connecting the central part of the Empire with the strategically important border regions. The Phocaean artisans developed technologies allowing to produce strongly standardised and rather thin-walled vessels at an unprecedentedly mass scale, which lowered the production and transport costs. Their specific shapes enabled arranging the vessels in compact stacks, which was helpful not only in placing them in the kilns but also in their transport.

The increased presence of the Late Roman C / Phocaean Red Slip ware in the lower Danube area has been explained by the participation of these vessels in the regular transports supplying the army troops protecting the border.[266] A similar phenomenon has been observed along the military supply routes in the eastern Mediterranean. Namely, it has been noticed that the distribution of the Phocaean vessels in the 6th century followed mainly the route along which provisions for the army were transported, from the Aegean via Antioch and other towns in north-western Syria, towards the *limes* on the Euphrates.[267] This route crossed the central part of the distribution area of the Late Roman D / "Cypriot" Red Slip ware, which was the main red slip pottery produced and traded in the Eastern Mediterranean. Despite this, the Phocaean vessels began to be much more commonly used in northern Syria than the Late Roman D / "Cypriot" Red Slip ones, in the 6th century. At the same time, in the neighbouring lands, in Cyprus, southern Palestine and northern Egypt, the LRD/CRS vessels of Pamphilian origin were distributed in bigger quantities than the Aegean LRC/PhRS ware. It is very probable that a similar model of distribution of the Aegean red slip vessels during the same Byzantine-Persian conflict was adopted in the eastern Black Sea basin, in the 6th century.

However, the final explanation of the decline of the Pontic Red Slip ware, exactly in the time of the most successful production of all of the leading Mediterranean red slip wares, should be found rather in the home region where these vessels were manufactured. Only future archaeological projects can shed some light on the economy of the western part of the province of Pontus. The recent evidence from the neighbouring Pompeiopolis in Paphlagonia shows that in the late 5th and early 6th century a pivotal change took place in the fine pottery supply there. Pontic Red Slip vessels, which had been the main imported fine ware products in the 4th – 5th century, were completely replaced by the locally or regionally produced fine ware burnished vessels, resembling in their appearance the red slip ones.[268] It is important to note that it happened approximately a half of a century earlier than the disappearance of the Pontic Red Slip ware from the Black Sea markets.

PRS vessels were replaced in the long distance trade shortly before the mid-6th century not only by the Aegean imports discussed above, but also by the distinctive fine ware burnished vessels, called Late Roman Pontic Burnished ware.[269] Finds of these products were reported in Chersonesos and Bosporos Kimmerikos. The most popular of their shapes were large dishes on a high foot, resembling Pontic Red Slip ware form 9. Also the macroscopic features of their fabric are similar to those of the Pontic Red Slip ware, which may indicate the same provenience. If it is true, there arises another intriguing question about the reason of the replacement of the traditional technology of covering the fine ware vessels with the red slip by burnishing, in the neighbouring regions of eastern Paphlagonia and western part of Pontus.

266 Cf. above, Chapter 5.1, 162–163.

267 Hayes 2001, 279; cf. also Bes 2015, 105–122, 127–132.

268 Domżalski 2016–2017, 82–86.

269 Cf. above, note 238.

6. CONLUSION

The studies on the Late Roman and Early Byzantine red slip wares in the Black Sea basin are still at a rather initial stage in comparison with those in the Mediterranean. This is mainly due to the lack of exchange of the methodological experience in processing materials in the two regions, in the last century. In recent times, the reason was the small number of specialists working in that field and the resulting insufficient, though gradually growing, number of important publications. At present, large amounts of material from several sites in various parts of the Black Sea littoral still need to be studied and published, and vast areas in north Asia Minor are awaiting regular archaeological investigations.

The data about the red slip vessels traded across the Pontic region collected in this monograph were analysed with the use of the methods elaborated in the Mediterranean, which allowed to fill in the gap in the research to some extent. Also, the studies on the Pontic Red Slip vessels were facilitated by their numerous finds made among the rich grave offerings in the Barbarian cemeteries in the northern part of the Black Sea region, used between the 4th and the mid-6th century. Systematic explorations of these cemeteries allowed to collect large numbers of completely preserved vessels found in contexts from the times covering the whole period of production of the studied pottery.

The analyses of these materials and the ones from other contexts made it possible to establish the time ranges within which the identified vessel forms were produced, from their emergence on the market, through the growing popularity, decline, until the final replacement by the succeeding forms. In this way three phases of production of the Pontic Red Slip ware between the early 4th and mid-6th century, embracing three cycles of manufacturing the most popular vessels, have been distinguished.

The comparison of the studied vessels with the most popular ones from the Mediterranean revealed two tendencies manifested by the PRS ware producers. One of them was imitating the shapes of those ARS vessels which were the most popular supraregionally. This gave rise to the changes of the PRS ware shapes typical of the distinguished phases. The second tendency was a pronounced conservatism, owing to which some forms were produced for a long time almost unchanged, throughout all the phases. This concerned dish, form 1, which was one of the earliest PRS vessels, shaped after the most popular ARS form 50, and produced much longer than the North African prototype, until the decline of the PRS ware. The case was similar for the bowls, forms 0 and 4, which resembled the vessels of the Early Roman Pontic Sigillata and were also produced for a long time without any significant modifications of their shapes.

These contradictory tendencies are also reflected in the way the most elegant Pontic Red Slip vessels were decorated. Large medallions on the floors of dishes, form 3, clearly imitate the stamped compositions on the ARS and LRC/PhRS wares but were made with the use of the combing technique. The wish to embellish their products after the Mediterranean models was the priority but in order to achieve it, the Pontic potters used a technique which was closer to them and thus expressed the unwillingness to use the one that was alien in their region.

This latter phenomenon is one more argument for the claim that the Pontic Red Slip ware workshops were not, as it may be indicated by a cursory look at their distribution pattern, located on the very coast of the Black Sea, where

all the technological novelties arrived quickly and people were more open to them. According to the author's hypothesis, the PRS vessels were produced deeper into the mainland, in northern Asia Minor, in the western part of the province of Pontus. This was a region where the information about the fashionable novelties from the Mediterranean did arrive, but their imitation was limited to single, leading shapes, while other vessels and decorations were made according to the local habits.

When summing up the presented investigations, one more aspect should be noted. It concerns the importance of the red slip wares as a source of archaeological information in the studies on the last stages of the Ancient civilisation in the Black Sea basin, and especially the role of the PRS ware for understanding the production and long-distance trade mechanisms in this region. The analysis of the concentrated and scattered finds has proved that the migrations of Huns in the late 4th and the first half of the 5th century resulted in the depopulation only of the north-western part of the Black Sea coastal areas whereas the other northern ones, such as the Crimean and Taman Peninsulae, maintained regular trade relations with the Empire.

The identification of the so far poorly known PRS vessels has shed a new light on the economic links within the Black Sea region. Their distribution pattern confirms that in the 4th – 6th centuries there existed two zones with different economic relations, which has already been indicated by the finds of transport amphorae. The first zone embraced the western Pontic coast, particularly the lower Danube area, which was tightly integrated with Constantinople and the Aegean. The second zone included the eastern and northern coastal areas, which were connected primarily with the main harbour centres in northern Asia Minor. In the western zone the long-distance trade was dominated by the regular imports of olive oil for the military troops guarding the Danubian border, and the Aegean red slip vessels supplemented those cargoes. In the eastern zone the intensive exports of wine from Asia Minor to the northern consumers prevailed, and the PRS vessels were the obvious products making the offer more attractive.

The analysis of the Pontic Red Slip vessels has indicated that their long-distance distribution during the most successful production time was far more intensive in the eastern zone than in the case of the red slip wares imported from the Mediterranean to the western Black Sea coast. PRS ware was the basic fine pottery traded across the Black Sea region in the early 4th – late 5th centuries, whereas the Mediterranean imports began to arrive in significant numbers since the late 4th century mainly to Scythia Minor. The situation changed at the turn of the 5th and 6th century with the rapid influx of the Aegean LRC/PhRS vessels, having its peak in the second quarter of the 6th century. At the same time, PRS ware gradually disappeared from its traditional market.

The easiest explanation of this change was the prolonged Byzantine-Persian military conflict during the reign of Justinian, which embraced the south-eastern and north-eastern parts of Asia Minor together with the neighbouring lands, and resulted in massive, extra economic supplies of the LRC/PhRS ware in both directions. These wars finally brought destruction and depopulation to the areas which were the traditional recipients of the Pontic Red Slip ware, such as the eastern coast of the Black Sea and Bosporos Kimmerikos. However, the reasons for the decline of the investigated pottery may have in fact resulted from replacing the red slip vessels with the burnished ones in the northern part of Asia Minor in the early 6th century. This process has been revealed recently in Paphlagonia and possibly embraced also the western part of Pontus where the production centre of the Pontic Red Slip ware was hypothetically located.

It should be hoped that the results presented in this work will contribute towards organising the knowledge about the production and trade in the Late Roman and Early Byzantine red slip wares in the Black Sea region, and facilitating the processing of the past, present and future finds. The results of the ongoing and new archaeological excavations, surface survey projects and laboratory analyses, especially in northern Anatolia, will allow us to confirm or modify the above-presented hypotheses in the coming years or decades.

APPENDIX 1

CATALOGUE OF PONTIC RED SLIP VESSELS ANALYSED PHYSICO-CHEMICALLY*

K. DOMŻALSKI

1. Form 0A. **N660**. Pantikapaion / Bosporos, surface find, 1997. Rim fr., D. est. 20 cm. Clay pink-brown, hard fired; slip brown-pink, metallic lustre, discoloured outside.

2. Form 0A. **T267**. Tyritake, surface find, 2003. CAI, Kerch. Rim fr., D. est. 20 cm. Clay pink-brown, hard fired; slip brown-pink, dull; rim discoloured.

3. Form 1A. **C452**. Nymphaion, surface find, 1994. Rim fr., D. est. 29 cm. Clay orange-buff, softly fired; slip brown-orange, slightly lustrous. Domżalski 1996, 107, no. 85, fig. 4:85.

4. Form 1A. **G810**. Pantikapaion / Bosporos, surface find, 1997. Rim fr., D. est. 30 cm. Clay grey-brown, softly fired; slip brown-grey, metallic lustre.

5. Form 1A. **G818**. Tanais, surface find, 1999. AMZT, Nedvigovka. Rim fr., D. est. 30 cm. Clay orange-brown, soft fired; slip brown-orange, slightly lustrous.

6. Form 1A. **N635**. Il'ič, wine press, 1993. TMK, Taman. Rim to base fr., D. rim est. 28 cm, D. foot est. 21 cm, H. est. 5 cm. Clay pink-brown, medium fired; slip brown-pink-grey, metallic lustre; rim discoloured.

7. Form 1A/B. **H588**. Tanais, settlement, 1976. AMZT, Nedvigovka, inv. no. T–76–VI–2071. Rim to base, 5 frs., D. rim est. 29 cm, D. foot est. 20–21 cm, H. est. 5.4 cm. Clay palepink-brown, medium fired; slip brown-orange, slightly lustrous; rim discoloured; hole pierced through wall. Arsen'eva, Domżalski 2002, 453, no. 11, fig. 6:11.

8. Form 1A/B. **H589**. Tanais, settlement, 1955. AMZT, Nedvigovka, inv. no. T–55–II–34. Rim to base fr., D. rim est. 28 cm, D. foot est. 18 cm, H. est. 5.4 cm. Clay orange-brown, medium fired; slip brown-reddish inside, discoloured outside, dull. Arsen'eva, Domżalski 2002, 453, no. 4, fig. 5:4.

9. Form 1A/B. **H590**. Tanais, settlement, 1973. AMZT, Nedvigovka, inv. no. T–73–XIV–279. Rim fr., D. est. 28 cm. Clay pink-brown, hard fired; slip brown-pink, dull inside, slightly lustrous outside; rim discoloured. Arsen'eva, Domżalski 2002, 455, no. 42.

10. Form 1A/B. **H591**. Tanais, settlement, 1993. AMZT, Nedvigovka, inv. no. T–93–XIX–879. Rim to base, 6 frs., D. rim est. 30 cm, D. foot est. 22 cm, H. est. 5 cm. Clay pink-brown, hard fired; slip brown-pink, dull inside, slightly lustrous outside; rim discoloured. Arsen'eva, Domżalski 2002, 454, no. 21, fig. 7:21.

11. Form 1A/B. **H592**. Tanais, settlement, 1974. AMZT, Nedvigovka, inv. no. T–74–XIV–744. Rim to base, 3 frs., D. rim est. 29 cm, D. foot est. 19 cm, H. est. 5.9 cm. Clay brown-grey, hard fired; slip brown-pink-grey, slightly lustrous; rim discoloured; three holes pierced below rim. Arsen'eva, Domżalski 2002, 454, no. 17, fig. 6:17.

12. Form 1A/B. **N633**. Il'ič, wine press, 1992–1993. TMK, Taman. Rim to base fr., D. rim

*The samples for the physico-chemical analyses discussed in Appendix 2 were taken in several archaeological expeditions and museums, in 1994–2002. The author is indebted to all the archaeologists and museum curators for their help, particularly to Tatjana M. Arsen'eva and Svetlana A. Naumenko in Tanais, Denis V. Žuravlev in Pantikapaion, Viktor N. Zin'ko in Tyritake, Elmira R. Ustaeva in Taman, and Galina N. Žestkova in Sevastopol. The laboratory numbers listed in Appendix 2, Table 1, are presented in the catalogue in bold after the vessel forms.

est. 30 cm, D. foot est. 21 cm, H est. 5.4 cm. Clay pink-brown, medium fired; slip brown-orange, slightly lustrous, with streaks, runs and finger marks outside.

13. Form 1A/B. **N634**. Il'ič, wine press, 1988. TMK, Taman. Rim to base fr., D. rim est. 28 cm, D. foot est. 18 cm, H est. 5.7 cm. Clay orange-brown, medium fired; slip brown-orange, slightly lustrous, with streaks, runs and finger marks outside; rim partly discoloured.

14. Form 1B. **G807**. Chersonesos, surface find, 1997. NZChT, Sevastopol. Rim fr., D. est. 25 cm. Clay orange-brown, medium fired; slip brown-orange, dull; rim discoloured.

15. Form 1B. **N636**. Il'ič, fort, 1977. TMK, Taman. Rim to base fr., D. rim est. 19.5 cm, D. foot est. 13 cm, H. est. 4.4 cm. Clay pink-brown, hard fired; slip brown-pink, metallic lustre inside, slightly lustrous outside.

16. Form 2A. **N639**. Baterejka, settlement, 1965. GIM, Moscow. Rim to base, 4 frs., D. rim est. 30 cm, D. foot est. 22 cm, H. est. 4.4–4.7 cm. Clay orange-brown, softly fired; slip brown-orange, dull. *Catalogue of illustrated finds* no. **47**.

17. Form 2A. **N640**. Baterejka, settlement, 1964. GIM, Moscow. Rim to base fr., D. rim est. 27 cm, D. foot est. 18 cm, H. est. 4.5 cm. Clay pink-brown, hard fired; slip brown-pink, dull.

18. Form 2B. **G817**. Tanais, settlement, 1923–1928? GE, Saint Petersburg. Rim to base fr., D. rim est. 30 cm, D. foot est. 22.4 cm, H. est. 3.8 cm. Clay palepinkish-brown, medium fired; slip brown-orange, slightly lustrous, with finger marks outside. *Catalogue of illustrated finds* no. **49**.

19. Form 2A/B. **N637**. Pantikapaion / Bosporos, settlement, 1997. GIM, Moscow. Rim to base fr., D. rim est. 29 cm, D. foot est. 21.5 cm, H. est. 4 cm. Clay pinkish-brown, hard fired; slip brown-pink, slightly lustrous, with streaks, runs and finger marks outside. *Catalogue of illustrated finds* no. **50**.

20. Form 2B. **N638**. Phanagoreia, settlement, 1998. TMK, Taman. Rim to base, 3 frs., D. rim est. 28 cm, D. foot est. 20 cm, H. est. 3.8–4 cm. Clay orange-brown, softly fired; slip brown-orange, metallic lustre, with streaks, runs and finger marks outside. *Catalogue of illustrated finds* no. **48**.

21. Form 2B. **T268**. Tyritake, settlement, 2002. CAI, Kerch. Rim fr., D. est. 30 cm. Clay orange-brown, softly fired; slip brown-orange, dull.

22. Form 3. **G809**. Chersonesos, surface find, 1997. NZChT, Sevastopol. Rim fr., D. est. 38 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous.

23. Form 3. **G812**. Pantikapaion / Bosporos, surface find, 1997. Rim fr., D. est. 22. Clay orange-brown, softly fired; slip brown-orange, metallic lustre, with streaks, runs and finger marks outside.

24. Form 3. **G820**. Tanais, surface find, 1999. AMZT, Nedvigovka. Rim to base, D. rim est. 39 cm, D. foot est. 29 cm, H. est. 4.7 cm. Clay palepink-brown, medium fired; slip brown-orange to brown-pink, dull inside, slightly lustrous outside.

25. Form 3. **H593**. Tanais, surface find, 1999. AMZT, Nedvigovka. Rim fr., D. est. 30 cm. Clay pink-brown, hard fired; slip brown-pink, metallic lustre; rim discoloured; combed decoration on rim: single wavy band.

26. Form 3. **H594**. Tanais, surface find, 1999. AMZT, Nedvigovka. Rim fr., D. est. 40–42 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous; rim discoloured; combed decoration on rim: single wavy band.

27. Form 3. **H595**. Tanais, surface find, 1999. AMZT, Nedvigovka. Rim fr., D. est. 40 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous; combed decoration on rim: single wavy band.

28. Form 3. **H596**. Tanais, settlement, 1972. AMZT, Nedvigovka, inv. no. T–72–XIV–459. Rim to base fr., D. rim est. 32 cm, D. foot est. 23 cm, H. est. 4.2 cm. Clay pink-brown, hard fired; slip brown-pink, metallic lustre. Arsen'eva, Domżalski 2002, 465, no. 288, fig. 9:288.

29. Form 3. **H597**. Tanais, surface find, 1999. AMZT, Nedvigovka. Rim fr., D. est. 30 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous; rim discoloured.

30. Form 3. **N641**. Il'ič, wine press, 1987. TMK, Taman. Rim to base fr., D. rim est. 24 cm, D. foot est. 15 cm, H. est. 3.1 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous, with streaks, runs and finger marks outside; rim partly discoloured.

31. Form 3. **N642**. Il'ič, wine press, 1987. TMK, Taman. Rim fr., D. est. 29 cm. Clay orange-brown, hard fired; slip brown-pink, metallic lustre.

32. Form 3. **N643**. Il'ič, wine press, 1987. TMK, Taman. Rim fr., D. est. 38 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous.

33. Form 4A. **N644**. Il'ič, wine press, 1991. TMK, Taman. Rim fr., D. est. 12 cm. Clay orange-brown, softly fired; slip brown-orange, dull.

34. Form 4C. **G819.** Tanais, settlement, 1973. AMZT, Nedvigovka, inv. no. T–73–XIV–7. Rim to base fr., D. rim est. 13 cm, D. foot est. 5.3 cm, H. 5.1 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous; rim partly discoloured. *Catalogue of illustrated finds* no. **97**.

35. Form 4C. **N645**. Il'ič, wine press, 1987. TMK, Taman. Rim fr., D. est. 13 cm. Clay orange-brown, softly fired; slip brown-orange, dull, discoloured outside.

36. Form 6. **T269**. Tyritake, settlement, 2003. CAI, Kerch. Rim fr., D. est. 16 cm. Clay orange-brown, softly fired; slip brown-orange, dull.

37. Form 7A. **G808**. Chersonesos, surface find, 1997. NZChT, Sevastopol. Rim fr., D. est. 28 cm. Clay pink-brown, hard fired; slip brown-pink, slightly lustrous.

38. Form 7A. **G811**. Pantikapaion / Bosporos, surface find, 1997. Rim fr., D. est. 28 cm. Clay orange-brown, medium fired; slip brown-orange, slightly lustrous, with streaks, runs and finger marks outside.

39. Form 7A. **N648**. Il'ič, fort, 1965. TMK, Taman. Rim to base fr., D. rim est. 28 cm, D. foot est. 19 cm, H. est. 4.4 cm. Clay pink-brown, hard fired; slip brown-pink, slightly lustrous inside, metallic lustre outside; rim discoloured.

40. Form 7A. **N649**. Il'ič, fort, 1988. TMK, Taman. Rim fr., D. est. 25 cm. Clay pink-brown, hard fired; slip brown-pink, metallic lustre; rim discoloured.

41. Form 7A. **N650**. Il'ič, fort, 1988. TMK, Taman. Rim fr., D. est. 28 cm. Clay pink-brown, medium fired; slip brown-pink-grey, dull; rim slightly discoloured.

42. Form 7A. **N651**. Il'ič, fort, 1988. TMK, Taman. Rim to base fr., D. rim est. 30 cm, D. foot est. 21 cm, H. est. 4.9 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous.

43. Form 7A. **N652**. Il'ič, fort, 1981. TMK, Taman. Rim fr., D. est. 29 cm. Clay pink-brown, hard fired; slip brown-pink, metallic lustre, with streaks, runs and finger marks outside; rim discoloured.

44. Form 7A. **N653**. Il'ič, fort, 1967. TMK, Taman. Rim fr., D. est. 26 cm. Clay palepink-brown, medium fired; slip brown-pink, metallic lustre; rim discoloured.

45. Form 7A. **N654**. Il'ič, wine press, 1987. TMK, Taman. Rim fr., D. est. 28 cm. Clay pink-brown, hard fired; slip brown-pink, slightly lustrous.

46. Form 7A. **N655**. Il'ič, wine press, 1987. TMK, Taman. Rim fr., D. est. 30 cm. Clay pink-brown, hard fired; slip brown-pink, dull; rim partly discoloured.

47. Form 7A. **N656**. Il'ič, wine press, 1992–1993. TMK, Taman. Rim fr., D. est. 28 cm. Clay orange-brown, medium fired; slip brown-orange, dull.

48. Form 6. **N647**. Phanagoreia, settlement, 1972. GMII, Moscow. Rim to base fr., D. rim est. 20 cm, D. foot est. 7.4 cm, H. est. 5.7 cm. Clay pink-brown, hard fired; slip brown-pink, dull. *Catalogue of illustrated finds* no. **113**.

49. Form 8A. **T270**. Tyritake, settlement, 2003. CAI, Kerch. Rim fr., D. est. 19 cm. Clay pink-brown, hard fired; slip brown-pink, metallic lustre; rim discoloured.

50. Form 8B. **N646**. Il'ič, fort, 1988. TMK, Taman. Rim fr., D. est. 18 cm. Clay pink-brown, hard fired; slip brown-pink, dull inside, metallic lustre outside.

51. Dish, less diagn. **F227**. Nymphaion, surface find, 1994. Foot and floor fr. Clay orange-red, medium fired; slip brown-pink, inside only, slightly lustrous. Domżalski 1996, 107, no. 86.

52. Jug, less diagn. **N657**. Tanais, settlement, 1985. AMZT, Nedvigovka, inv. no. T–85–VI–101. Body fr., D. max. est. 10.5 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous; incised decoration outside: two intertwining wavy lines. Arsen'eva, Domżalski 2002, 479, no. 579, fig. 13:579.

53. Jug, less diagn. **N658**. Tanais, settlement, 1967. AMZT, Nedvigovka, inv. no. T–67–VI–2088. Foot and bottom fr., D. est. 8.2 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous; incised line outside. Arsen'eva, Domżalski 2002, 479, no. 582, fig. 13:582.

54. Jug, less diagn. **N659**. Il'ič, wine press, 1987. TMK, Taman. Foot and bottom fr., D. est. 9 cm. Clay orange-brown, medium fired; slip brown-orange, dull.

55. Jug, less diagn. **T271.** Tyritake, settlement, 2002. CAI, Kerch. Foot and bottom fr., D. est. 10 cm. Clay orange-brown, softly fired; slip brown-orange, slightly lustrous. Domżal'skij, Smokotina 2020, 202, fig. 7:8.

APPENDIX 2

PHYSICO-CHEMICAL ANALYSES OF PONTIC RED SLIP WARE

G. SCHNEIDER*, M. DASZKIEWICZ**

Altogether 55 sherds of Pontic Red Slip ware pottery from various find spots (**Table 1**) were analysed in 1994–2004 using WD-XRF to determine their chemical composition. Four samples were additionally studied in thin sections and ten samples were selected for MGR-analysis. Chemical composition is a secure way to define a ceramic ware.[1] Even its provenance may be determined when chemically analysed pottery with known place of production is available for comparison. This, however, is not the case with the PRS ware. Further methods of archaeological ceramic analysis are necessary to support and to interpret the chemical data.[2]

1. CHEMICAL COMPOSITION ANALYSED BY WD-XRF (WAVELENGTH-DISPERSIVE X-RAY FLUORESCENCE)

Wavelength-dispersive X-ray fluorescence analysis (spectrometer Philips PW1400) was used to determine the contents of major elements, including phosphorus and a rough estimation of sulphur and chlorine. It was also used to determine a series of fifteen trace elements, six of which, however, could only be ascertained with poor precision.[3] Samples were prepared by pulverising fragments weighing 2–4 g. (sample size was determined by the number and size of the non-plastic components) having first removed their surfaces and cleaned the remaining fragments with distilled water in an ultrasonic device. The resulting powders were ignited at 900°C (heating rate 200°C/h, soaking time 1h), melted with a lithium-borate mixture (Merck Spectromelt A12) and cast into small discs for measurement. This data is, therefore, valid for ignited samples but, with the losses on ignition (l.o.i.) given, may be recalculated to a dry basis. For easier comparison the oxide percentages of the major elements are normalised to a constant sum of 100%. Values for S and Cl have not been included in the table as, in most instances, they amounted to less than 0.01%. The trace elements determined with low precision, La, Pb, Th, are also omitted in the table.

The analysis results (**Table 2**) show that among the selected material there are clearly two chemical subgroups, which differ to such an extent that they represent different clay raw materials (different clay beds within one region but, more probable, from two geologically different regions). Subgroup B (n = 6) is characterised by much higher titanium (Ti), iron (Fe), magnesium (Mg), chromium (Cr) and nickel (Ni) than in subgroup A (n = 49). The two subgroups

* Freie Universität Berlin, Institut für Prähistorische Archäologie, Fabeckstr. 23-25, 14195 Berlin, Germany, schnarch@zedat.fu-berlin.de.

** Freie Universität Berlin, Institut für Prähistorische Archäologie, Fabeckstr. 23-25, 14195 Berlin, Germany / ARCHEA, Ogrodowa 8 m 95, 00-896 Warszawa, Poland, m.dasz@wp.pl.

1 For examples from the Pontic area, see: Schneider, Daszkiewicz 2020.

2 Daszkiewicz 2014; Daszkiewicz, Schneider 2021.

3 Si = silicon, calculated as SiO_2; Al = aluminium, calculated as Al_2O_3; Ti = titanium, calculated as TiO_2; Fe = iron, total iron calculated as Fe_2O_3; Mn = manganese, calculated as MnO; Mg = magnesium, calculated as MgO; Ca = calcium, calculated as CaO; Na = sodium, calculated as Na_2O; K = potassium, calculated as K_2O; P = phosphorus, calculated as P_2O_5; V = vanadium; Cr = chromium; Ni = nickel; Cu = copper; Zn = zinc; Rb = rubidium; Sr = strontium; Y = yttrium; Zr = zirconium; Nb = niobium; Ba = barium; Ce = cerium; the six elements determined with lower precision are: Cu, Nb, La, Ce, Pb, Th.

are also clearly seen in the bivariate diagrams (**Fig. 1**) and in the multivariate dendrogram (**Fig. 2**). Calcium is high in both subgroups and largely varying. Therefore, the average should be handled with care, as is the case with phosphorus.

The results also show that the analysed Pontic Red Slip ware sherds differ from the main groups of the Mediterranean Late Roman red slip pottery (**Fig. 1)**, from African Red Slip ware, produced in nowadays Tunisia,[4] from Late Roman C / Phocaean Red Slip ware produced in Phokaia and other places in the Eastern Aegean,[5] from Late Roman D / Cypriot Red Slip ware from Cyprus,[6] as well as from fine ceramics the production of which was confirmed in the south-western part and in the easternmost area of the Crimean Peninsula.[7] The limited variability of the chemical composition of groups A and B indicates two production sites which may have been located probably within two different regions.

In the dendrogram (**Fig. 2**) subgroups of the main subgroup A can be detected but these seem not to be significant. Only sample G810 differs clearly, having lower Si, Ti, Al, Ba and higher Mg, Ca, Na, Sr, but it may still be attributed to the major subgroup A. It was therefore not included in the calculation of the average. In other samples some elements are outliers, too: H592, H594 because of Ca; H593 because of Si, Ti, Al; N641 because of Mg. Only the Zn value of H588, which very probably is a contamination from soil conditions, was not included in the average.

2. THIN SECTIONS STUDIES

The images of four thin sections also show the differences between the two subgroups A and B of Pontic Red Slip ware (**Fig. 3**). Both are from calcareous clay but the subgroup B has a quite different matrix (with fine mica) and inclusions of volcanic rocks. The higher Mg, Cr and Ni values of subgroup B can not be interpreted from the thin sections.

H594 (**Fig. 3a**) – subgroup A: fine calcareous matrix with inclusions of quartz and calcite, right side pyroxene in the centre, besides, also plagioclases and hornblende are detected;

G811 (**Fig. 3b**) – subgroup A: same fabric as above, one large inclusion of an iron-rich clay aggregate, right side: three larger inclusions (from left to right: calcite aggregate, quartz, clay aggregate);

C452 (**Fig. 3c**) – subgroup B: somewhat higher fired calcareous matrix, large inclusion of porphyritic volcanic rock fragment, the second photo (right side) shows fine matrix with few inclusions of quartz and pyroxene (elongated grain in the middle), some small mica inclusions, plagioclase;

N638 (**Fig. 3d**) – subgroup B: isotropic matrix with inclusions of silty quartz and mica, right side; inclusion of porphyritic rock fragment (the two dark grey parts are pores).

3. MGR-ANALYSIS (MATRIX GROUPING BY REFIRING)

The next procedure to be undertaken was MGR-analysis.[8] MGR-analysis is a method for defining the matrix groups in view of the fact that the thermal behaviour of plastic components of the ceramic body during firing is governed by their chemical and phase composition. After refiring the sherds at a higher temperature than their original firing temperature, i.e. once the effects induced by the original firing temperature and conditions have been 'removed', the colour and thermal behaviour of the matrix relate to the chemical and phase composition of the plastic part of the body. Thus, the analysed pottery can be divided into groups made of the same plastic raw material. MGR-analysis also enabled the range of original firing

4 Mackensen, Schneider 2002; Mackensen, Schneider 2006.

5 Part of data published in: Schneider, Daszkiewicz 2005.

6 Daszkiewicz *et alii* 1995; Daszkiewicz, Schneider 1997.

7 Schneider, Daszkiewicz forthcoming.

8 Daszkiewicz, Schneider 2001; Daszkiewicz, Maritan 2017.

temperatures to be estimated. The original firing temperature (Teq)[9] is indicated by that temperature at which the first changes in the refired fragments become visible. This, however, does not apply for grey sherds. The temperature at which they change to a reddish colour depends on the nature of the grey colour, which can be due to reduced iron-oxide or to organic material or both.

MGR-analysis was carried out on ten fragments of Pontic Red Slip ware. Nine thin slices were cut from the ceramic sherds. One of these sections was left as an indicator of the sample's original appearance, the remainder being fired in an electric laboratory chamber furnace, each one at a different temperature (700, 800, 900, 1000, 1050, 1100, 1150 and 1200°C) in air, static, with a heating rate of 200°C/h and a soaking time of 1h at the peak temperature. The results of this analysis are presented in **Table 3** and **Fig. 4**.

The equivalent original firing temperature (Teq) of ten fragments of PRS ware, as estimated by MGR-analysis, was not lower than 900°C and not higher than 1050°C. Most samples were originally fired at a Teq of 1000 – 1050°C (six samples). Three samples were originally fired at a Teq of 900 – 1000°C. One exception was a sample originally fired at c. 1000°C (sample T271), thus the Teq can be estimated as 1000 – 1050°C of the near-edge parts of the vessel's wall and as 900 – 1000°C of the rest of sherd. In this sample changes in thermal behaviour are noted between the near-edge parts of the matrix and the rest of the cross-section surface. After refiring at 1200°C changes are clearly visible in those parts of the matrix at the edges on the outer surface of the vessel. This means slightly different composition of the near-edge part of the vessel (penetration in the sherd of the components of the slip?) and a short original firing at 1000 – 1050°C.

The thermal behaviour of the sample refired at three temperatures (1100°C, 1150°C and 1200°C) was taken into account when defining different MGR-groups (definitive classification is based on thermal behaviour at 1200°C). If samples display the same appearance (matrix type), colour and shade after refiring at 1200°C, this indicates that they were made using the same plastic raw material. All ceramic samples belonging to the same MGR-group represent groups of greatest similarity, i.e. those samples in which the plastic part of the ceramic body has the same chemical and phase composition. MGR-groups can be merged into major MGR-groups (these groups consist of samples which have the same categories of matrix).

In this instance we can identify six MGR-groups, groups A – F (**Table 3**) which are grouped into two major MGR-groups: MGR-1 (group A) and MGR-2 (groups B – F). There is no doubt that these are two very distinct groups, meaning that the samples were made from various clays of different origin.

As expected, chemical composition groups are fully consistent with the groupings resulting from MGR-analysis. The pottery fragments belonging to major group MGR-1 differ very distinctly from the samples belonging to major group MGR-2. Group MGR-1 corresponds to chemical group PRS ware-B and the major group MGR-2 is corresponding to chemical group PRS ware-A.

4. CONCLUSIONS

1. The analysed Pontic Red Slip ware pottery fragments are not belonging to one provenance group. Both groups are chemically clearly distinguished from other Late Roman red slip wares produced in the Mediterranean.

2. Two major provenance groups can be distinguished: PRS ware-A and PRS ware-B. These two groups are clearly different in terms of chemical composition and of plastic as well as non-plastic part of the ceramic body. The two groups are not connected with certain find spots but it seems that most of the sherds classified as form 2 belong to PRS ware group B.

3. Both groups could be divided into sub-groups (production centres or workshops within particular provenance areas).

9 Teq = equivalent original firing temperature. Since the temperature at which changes take place is linked to the conditions of refiring, the result should be referred to as the "equivalent original firing temperature".

Lab. No.	Form / find site	Thin-section	MGR		Provenance area
			group	major	
F227	f. dish, Nymphaion, cat no. 51.				
G807	f. 1B, Chersonesos, cat. no. 14.				
G808	f. 7A, Chersonesos, cat. no. 37.				
G809	f. 3, Chersonesos, cat. no. 22.				
G811	f. 7A, Pantikapaion / Bosporos, cat. no. 38.	yes	B	MGR-2	
G812	f. 3, Pantikapaion / Bosporos, cat. no. 23.				
G818	f. 1A, Tanais, cat. no. 5.				
G819	f. 4C, Tanais, cat. no. 34.				
G820	f. 3, Tanais, cat. no. 24.				
H588	f. 1A/B, Tanais, cat. no. 7.		C	MGR-2	
H589	f. 1A/B, Tanais, cat. no. 8.				
H590	f. 1A/B, Tanais, cat. no. 9.				
H591	f. 1A/B, Tanais, cat. no. 10.				
H592	f. 1A/B, Tanais, cat. no. 11.				
H593	f. 3, Tanais, cat. no. 25.				
H594	f. 3, Tanais, cat. no. 26.	yes	C	MGR-2	
H595	f. 3, Tanais, cat. no. 27.				
H596	f. 3, Tanais, cat. no. 28.				
H597	f. 3, Tanais, cat. no. 29.				
N633	f. 1A/B, Il'ič (wine press), cat. no. 12.				
N634	f. 1A/B, Il'ič (wine press), cat. no. 13.				
N636	f. 1B, Il'ič (fort), cat. no. 15.				
N640	f. 2A, Baterejka, cat. no. 17.				
N641	f. 3, Il'ič (wine press), cat. no. 30.				
N642	f. 3, Il'ič (wine press), cat. no. 31.				PRSW - A
N643	f. 3, Il'ič (wine press), cat. no. 32.				
N644	f. 4A, Il'ič (wine press), cat. no. 33.				
N645	f. 4C, Il'ič (wine press), cat. no. 35.				
N646	f. 8B, Il'ič (fort), cat. no. 50.				
N647	f. 6, Phanagoreia, cat. no. 48.				
N648	f. 7A, Il'ič (fort), cat. no. 39.		B	MGR-2	
N649	f. 7A, Il'ič (fort), cat. no. 40.				
N650	f. 7A, Il'ič (fort), cat. no. 41.		D	MGR-2	
N651	f. 7A, Il'ič (fort), cat. no. 42.				
N652	f. 7A, Il'ič (fort), cat. no. 43.				
N653	f. 7A, Il'ič (fort), cat. no. 44.				
N654	f. 7A, Il'ič (wine press), cat. no. 45.				
N655	f. 7A, Il'ič (wine press), cat. no. 46.				
N656	f. 7A, Il'ič (wine press), cat. no. 47.				
N657	f. jug, Tanais, cat. no. 52.				
N658	f. jug, Tanais, cat. no. 53.				
N659	f. jug, Il'ič (wine press), cat. no. 54.				
N660	f. 0A, Pantikapaion / Bosporos, cat. no. 1				
T267	f. 0A, Tyritake, cat. no. 2.		E	MGR-2	
T268	f. 2B, Tyritake, cat. no. 21.				
T269	f. 6, Tyritake, cat. no. 36.		F	MGR-2	
T270	f. 8A, Tyritake, cat. no. 49.				
T271	f. jug, Tyritake, cat. no. 55.		F.1	MGR-2	
G810	f. 1A, Pantikapaion / Bosporos, cat. no. 4.				outlier of group A
C452	f. 1A, Nymphaion, cat. no. 3.	yes	A	MGR-1	
G817	f. 2B, Tanais, cat. no. 18.				
N635	f. 1A, Il'ič (wine press), cat. no. 6.				PRSW - B
N637	f. 2A/B, Pantikapaion / Bosporos, cat. no. 19.				
N638	f. 2B, Phanagoreia, cat. no. 20.	yes	A	MGR-1	
N639	f. 2A, Baterejka, cat. no. 16.				

Table 1. List of analysed PRS ware samples with references to the catalogue in Appendix 1.

Lab. No.	SiO_2 % by weight	TiO_2	Al_2O_3	Fe_2O_3	MnO	MgO	CaO	Na_2O	K_2O	P_2O_5	V ppm	Cr	Ni	(Cu)	Zn	Rb	Sr	Y	Zr	(Nb)	Ba	(Ce)	l.o.i. %	TOTAL %
Group A (n = 48)																								
F227	61.81	0.889	21.22	5.94	0.079	1.47	4.70	0.65	3.12	0.126	143	136	78	92	110	140	179	24	163		929	69	1.24	100.69
G807	65.79	0.875	20.07	5.29	0.057	1.29	2.95	0.73	2.83	0.112	139	126	69	75	118	124	148	28	175	14	1085	93	1.34	99.42
G808	63.36	0.877	20.51	5.41	0.063	1.22	4.84	0.74	2.75	0.233	127	126	69	78	119	119	180	27	184	16	1063	68	1.69	98.94
G809	63.47	0.918	21.22	5.97	0.070	1.33	3.02	0.46	3.39	0.144	130	126	63	56	110	150	227	27	176	14	527	92	0.78	99.51
G811	57.34	0.817	20.44	6.06	0.117	1.46	9.70	0.76	3.14	0.170	150	127	67	73	113	135	252	27	160	16	846	90	0.00	99.44
G812	63.56	0.830	19.49	5.26	0.053	1.14	6.04	0.61	2.66	0.356	129	117	60	71	107	114	229	26	184	14	924	94	2.02	97.72
G818	60.81	0.808	19.54	4.81	0.054	1.16	8.34	0.69	2.82	0.956	115	111	56	60	125	112	290	26	178	14	905	72	3.03	98.98
G819	63.77	0.838	19.73	5.20	0.049	1.15	5.91	0.55	2.68	0.116	115	125	62	65	99	113	160	27	175	14	1076	60	1.25	99.26
G820	59.48	0.875	20.28	5.92	0.067	1.58	8.03	0.35	3.19	0.220	118	124	57	39	100	138	318	26	173	15	507	75	4.75	99.18
H588	61.59	0.837	19.52	5.01	0.045	1.06	8.55	0.51	2.71	0.167	135	121	54	70	362	123	212	29	180	14	762	71	1.49	100.56
H589	63.08	0.914	21.16	5.96	0.056	1.40	3.60	0.67	3.08	0.084	158	141	72	81	113	144	144	30	174	16	899	80	2.91	99.91
H590	61.90	0.877	20.37	5.75	0.062	1.37	6.07	0.66	2.83	0.114	154	134	66	77	111	133	159	30	175	15	955	75	0.74	101.05
H591	60.65	0.858	20.60	6.40	0.089	1.40	5.92	0.74	2.96	0.388	174	133	69	88	119	146	154	31	170	14	856	80	0.80	100.77
H592	56.27	0.789	19.39	6.16	0.097	1.56	12.06	0.74	2.76	0.172	157	126	64	68	112	133	211	28	158	14	685	66	2.93	101.01
H593	66.94	0.780	17.93	4.90	0.033	1.01	5.43	0.43	2.41	0.131	135	114	56	61	102	118	160	31	174	14	1190	64	0.75	101.06
H594	59.31	0.799	18.50	5.58	0.061	1.14	11.50	0.55	2.37	0.182	135	131	57	67	98	110	226	27	181	14	1218	54	1.26	100.61
H595	61.92	0.879	20.94	5.69	0.054	1.32	5.49	0.67	2.88	0.150	149	126	66	81	115	130	184	29	179	14	1074	95	0.88	101.04
H596	62.54	0.861	20.26	5.28	0.050	1.14	6.46	0.58	2.71	0.129	146	129	60	81	104	123	196	30	179	14	929	62	2.24	100.75
H597	62.83	0.852	19.56	5.53	0.063	1.25	6.42	0.62	2.67	0.223	154	122	61	82	114	124	195	30	187	15	898	67	0.85	100.90
N633	60.47	0.820	19.17	5.69	0.069	1.85	8.21	0.39	3.14	0.198	133	113	52	41	88	134	306	27	179	13	455	83	4.69	99.92
N634	62.05	0.871	20.47	5.81	0.072	1.45	5.51	0.70	2.96	0.103	161	132	69	79	114	130	179	30	172	15	972	80	1.25	99.93
N636	61.61	0.880	20.89	6.05	0.073	1.48	5.20	0.77	2.88	0.174	144	139	75	79	114	134	159	30	174	14	903	76	1.21	100.14
N640	62.81	0.897	20.54	5.88	0.077	1.39	4.66	0.64	2.99	0.128	145	126	69	84	113	127	173	30	182	14	992	68	3.15	100.01
N641	61.80	0.857	19.36	6.34	0.075	2.07	5.79	0.36	3.11	0.227	124	123	61	42	104	139	293	27	186	14	441	73	3.44	100.12
N642	62.75	0.784	17.94	4.92	0.045	1.10	9.38	0.41	2.41	0.281	102	119	59	60	94	108	202	27	175	13	1065	67	4.90	99.95
N643	64.24	0.861	19.26	5.57	0.068	1.31	5.33	0.51	2.68	0.171	119	122	63	88	104	119	178	28	182	13	994	66	2.87	100.04
N644	60.41	0.832	18.90	5.55	0.055	1.67	9.24	0.60	2.61	0.138	114	130	64	65	99	112	258	27	178	15	986	70	2.72	99.80
N645	62.63	0.887	20.72	5.80	0.076	1.41	4.48	0.75	3.10	0.146	143	135	70	80	125	128	209	28	179	15	1065	72	1.66	99.71
N646	58.41	0.830	20.03	6.04	0.112	1.60	8.93	0.71	3.15	0.178	134	124	67	80	114	135	230	29	166	15	824	73	3.96	100.03
N647	65.63	0.810	18.37	5.30	0.051	1.13	5.48	0.57	2.49	0.165	121	122	63	75	99	111	144	26	177	14	1122	70	1.09	99.79
N648	61.23	0.839	20.05	6.07	0.087	1.45	6.68	0.63	2.86	0.102	133	128	68	74	113	133	166	30	169	15	944	71	1.48	99.87
N649	62.22	0.864	20.18	5.61	0.060	1.41	5.95	0.74	2.79	0.183	134	129	66	87	119	123	202	28	179	15	1027	68	2.41	100.03
N650	59.84	0.858	20.47	5.52	0.082	1.92	6.79	1.02	3.36	0.137	136	126	66	73	118	134	213	29	166	15	762	74	2.36	100.04
N651	61.94	0.871	20.50	5.64	0.069	1.48	5.61	0.68	3.11	0.114	139	130	69	81	118	132	198	27	174	17	969	73	1.91	100.30
N652	59.22	0.843	20.60	5.88	0.098	1.50	7.86	0.72	3.11	0.181	149	125	68	82	115	138	202	28	164	16	936	84	2.20	100.24
N653	62.13	0.895	21.23	5.93	0.075	1.45	4.46	0.68	3.04	0.114	148	130	71	87	122	134	183	31	181	16	1019	88	1.52	100.28
N654	61.66	0.902	21.13	5.96	0.072	1.46	4.92	0.67	3.12	0.112	149	128	70	84	117	132	195	30	176	15	985	82	1.61	99.73
N655	63.42	0.904	20.86	5.60	0.058	1.40	3.99	0.63	3.04	0.108	141	128	67	72	115	128	175	28	182	15	911	58	1.17	99.50
N656	60.98	0.892	21.47	5.78	0.072	1.51	5.21	0.63	3.32	0.127	144	134	71	78	110	138	194	29	167	15	903	83	1.21	100.11
N657	63.60	0.874	20.15	5.61	0.056	1.28	4.98	0.54	2.81	0.100	130	125	67	80	105	125	152	27	171	15	902	71	1.34	100.13
N658	60.40	0.844	20.32	5.65	0.061	1.37	7.47	0.58	3.18	0.129	153	124	64	92	103	127	176	28	162	15	1126	62	2.55	99.98
N659	64.15	0.852	19.73	5.79	0.064	1.15	4.74	0.61	2.79	0.118	129	126	64	81	105	118	149	29	190	13	1130	78	1.29	100.25
N660	62.60	0.848	19.54	5.35	0.053	1.39	6.94	0.51	2.62	0.139	133	118	61	76	109	116	206	29	185	13	875	76	3.32	100.06
T267	59.22	0.828	19.59	6.20	0.090	1.56	8.81	0.68	2.89	0.135	130	131	66	74	104	131	228	28	165	16	876	68	4.13	100.23
T268	65.65	0.853	19.14	5.56	0.057	1.01	4.43	0.47	2.64	0.200	126	118	61	81	104	118	166	29	193	16	887	70	1.67	99.82
T269	58.51	0.833	20.00	5.40	0.060	1.54	9.90	0.76	2.88	0.107	153	130	62	90	110	125	275	28	165	17	1068	66	4.25	100.27
T270	61.77	0.843	19.41	4.92	0.059	1.28	8.43	0.56	2.62	0.118	133	127	61	81	101	119	257	27	181	17	1135	71	2.89	99.95
T271	62.96	0.852	19.67	5.81	0.064	1.22	6.02	0.61	2.63	0.174	137	136	65	84	101	111	161	26	171	17	1254	79	1.49	99.73
mean	61.89	0.854	20.01	5.65	0.067	1.38	6.47	0.62	2.88	0.177	138	127	65	75	109	127	201	28	175	15	935	74	2.10	
std	2.16	0.033	0.85	0.38	0.017	0.22	2.09	0.13	0.25	0.130	14	6	5	12	37	10	44	2	8	1	181	10	1.20	
cv %	3.5	3.9	4.3	6.7	25.1	16.0	32.3	20.3	8.8	73.6	10.3	5.0	8.3	16.4	34.1	8.1	22.0	5.6	4.5	7.5	19.4	12.9	57.1	
outlier of group A																								
G810	56.21	0.780	16.35	6.35	0.085	2.30	13.35	1.33	3.08	0.171	165	141	72	31	96	116	405	23	159	13	345	64	4.23	99.25
Group B (n = 6)																								
C452	53.47	1.036	17.54	8.96	0.115	4.85	9.57	1.16	3.08	0.213	170	282	172	51	115	124	362	26	155	14	376	46	2.60	100.70
G817	53.17	0.994	17.65	8.68	0.107	4.66	10.33	1.14	3.09	0.196	148	285	176	49	118	114	302	24	147	14	322	49	3.06	99.93
N635	51.91	0.998	17.04	8.48	0.104	4.92	12.30	1.15	2.85	0.247	181	278	151	45	110	113	377	25	147	15	295	21	3.75	99.19
N637	52.76	1.001	17.64	8.64	0.114	4.83	10.64	1.14	2.95	0.287	168	275	158	54	113	114	339	26	150	15	345	41	2.03	99.61
N638	54.83	1.030	17.63	8.66	0.097	4.59	8.62	1.19	3.16	0.195	179	314	179	45	94	122	282	25	153	15	260	49	1.85	99.42
N639	54.89	1.018	17.61	8.82	0.114	4.79	8.25	1.15	3.15	0.207	180	282	163	78	87	118	291	25	150	16	311	59	1.36	99.60
mean	53.51	1.013	17.52	8.71	0.108	4.77	9.95	1.15	3.05	0.224	171	286	167	54	106	118	326	25	150	15	318	44	2.44	
std	1.17	0.018	0.24	0.17	0.007	0.13	1.48	0.02	0.12	0.036	13	14	11	12	13	5	40	1	3	1	40	13	0.87	
cv %	2.2	1.8	1.4	1.9	6.7	2.6	14.9	1.5	4.0	16.1	7.3	4.9	6.6	23.1	11.9	3.9	12.1	3.0	2.1	5.1	12.6	28.9	35.7	

Table 2. WDXRF analysis results of the PRS ware samples.

Lab. No.	MGR-analysis					MGR group	Major MGR group
	Original firing temperature Teq	Thermal behaviour					
		after refiring at 1150oC		after refiring at 1200oC			
		colour	appearance	colour	appearance		
C452	1000 - 1050°C	br\y-gr	sovM	br\y-gr	MLT	**A**	**MGR-1**
N638	900 - 1000°C	br\y-gr	sovM	br\y-gr	MLT	**A**	
G811	900 - 1000°C	br-rd\y-gr-gy	SN/sovM	br\y-gr-gy	SN\ovM	**B**	
N648	900 - 1000°C	br-rd	SN	br	SN	**B**	
H588	1000 - 1050°C	br-rd\y-gr-gy	SN/sovM	br\y-gr-gy	SN/ovM	**C**	
H594	1000 - 1050°C	br-rd\y-gr-gy	SN/sovM	br\y-gr-gy	SN/ovM	**C**	
N650	1000 - 1050°C	br\y-gr\rd-br	ovF/SN	br\y-gr	ovM/sMLT	**D**	**MGR-2**
T267	1000 - 1050°C	rd-br\y-gr	SN	br\y-gr-gy	SN/sMLT	**E**	
T269	1000 - 1050°C	br-rd\y-gr	SN	br\y-gr	SN {\ovM	**F**	
T271	900 - 1000°C {1000 - 1050°C}	br-rd	SN	br	SN/sovM {/ovM	**F.1**	

Table 3. Results of MGR-analysis.

- *SN (sintered) matrix type = the sherd is well compacted, it may or may not become smaller in size in comparison to the original sample, whilst its edges remain sharp;*
- *ovF (over-fired) matrix type = the sample changes in shape, bloating, however, does not occur nor does the surface of the sample become over-melted;*
- *sovM (slightly over-melted) matrix type = the surface of the sample becomes slightly over-melted and its edges slightly rounded;*
- *ovM (over-melted) matrix type = the surface of the sample becomes over-melted and its edges rounded;*
- *sMLT (semi melted) matrix type = over-melting of the surface occurs, changes in sample shape are noted (not just rounded edges) but no bloating;*
- *MLT (melted) matrix type = the sample becomes spherical or almost spherical in shape;*
- *{ = rim; \ = chaotic distribution; / = regular distribution; br = brown; rd = red; y = yellow; gr = green; gy = grey.*

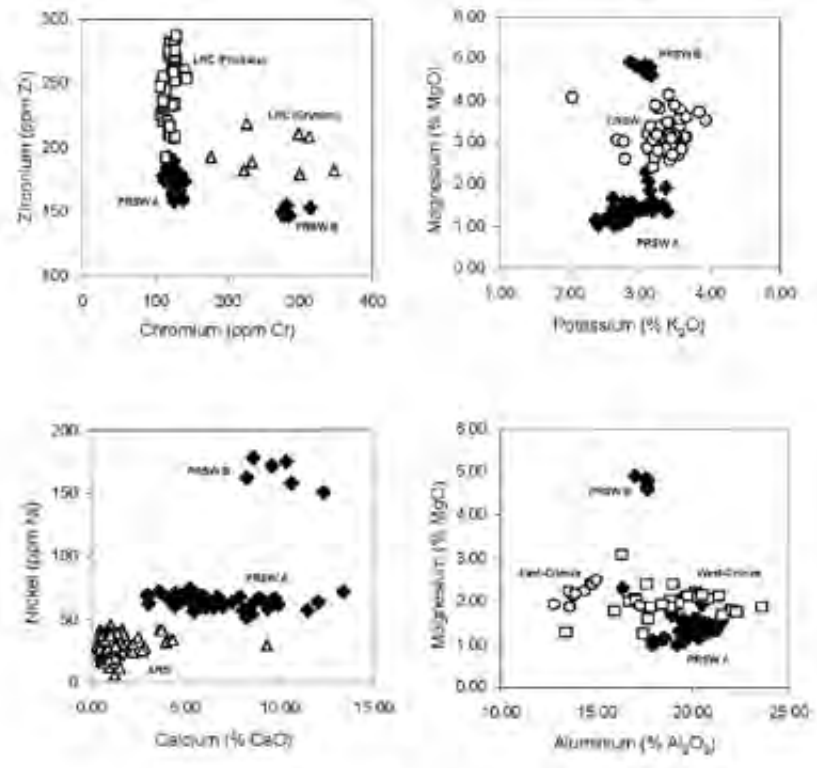


Fig. 1. Some chemical data of PRS ware A and PRS ware B compared to those of other wares (LRC, CRS, ARS, East- and West-Crimea).

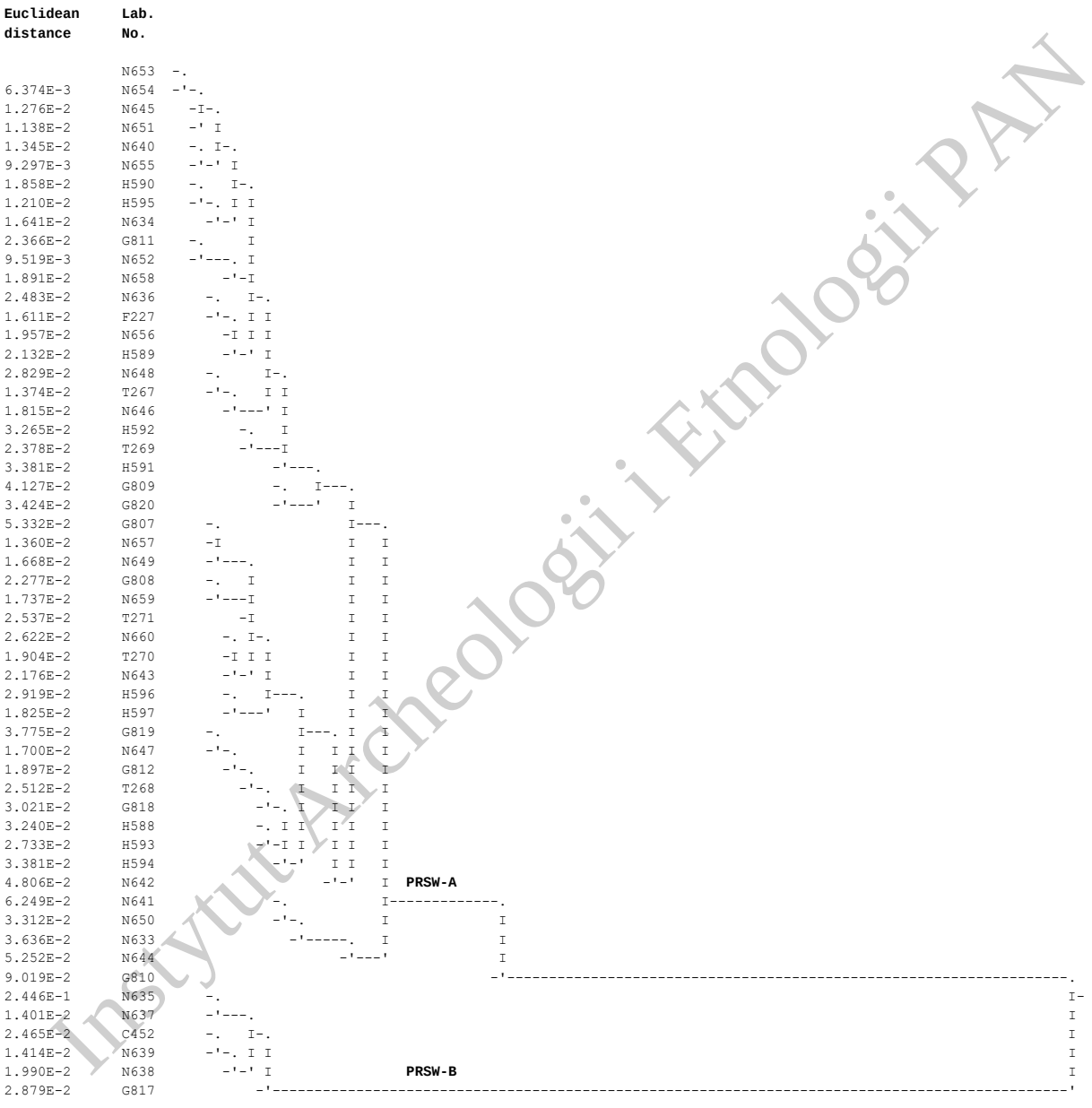


Fig. 2. Dendrogram of multivariate clustering of WDXRF analysis of the PRS ware samples.

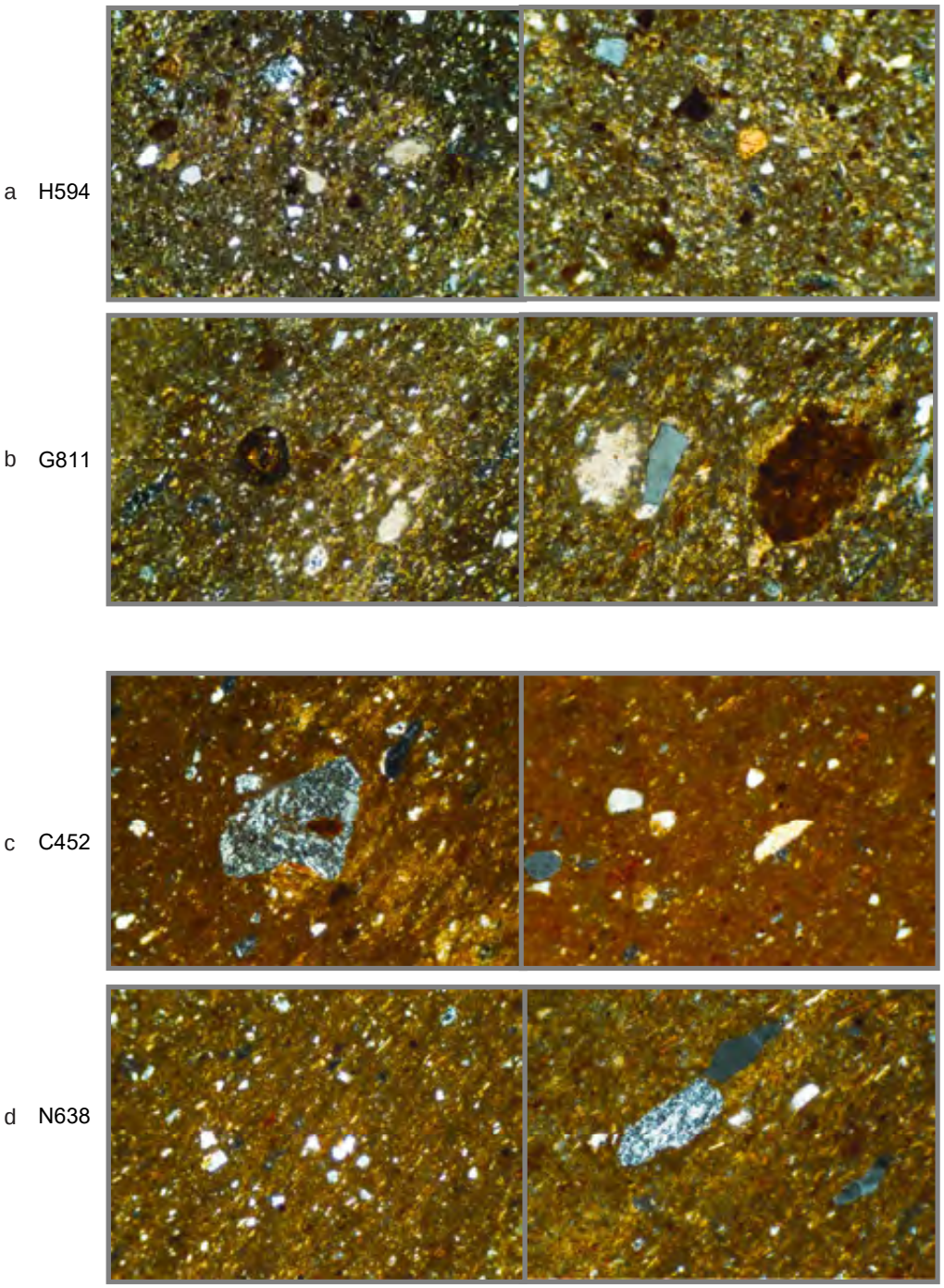


Fig. 3. Thin section images of PRS ware samples (XPL, width of field 1.75 mm): a – sample H594, b – sample G811, c – sample C452, d – sample N638.

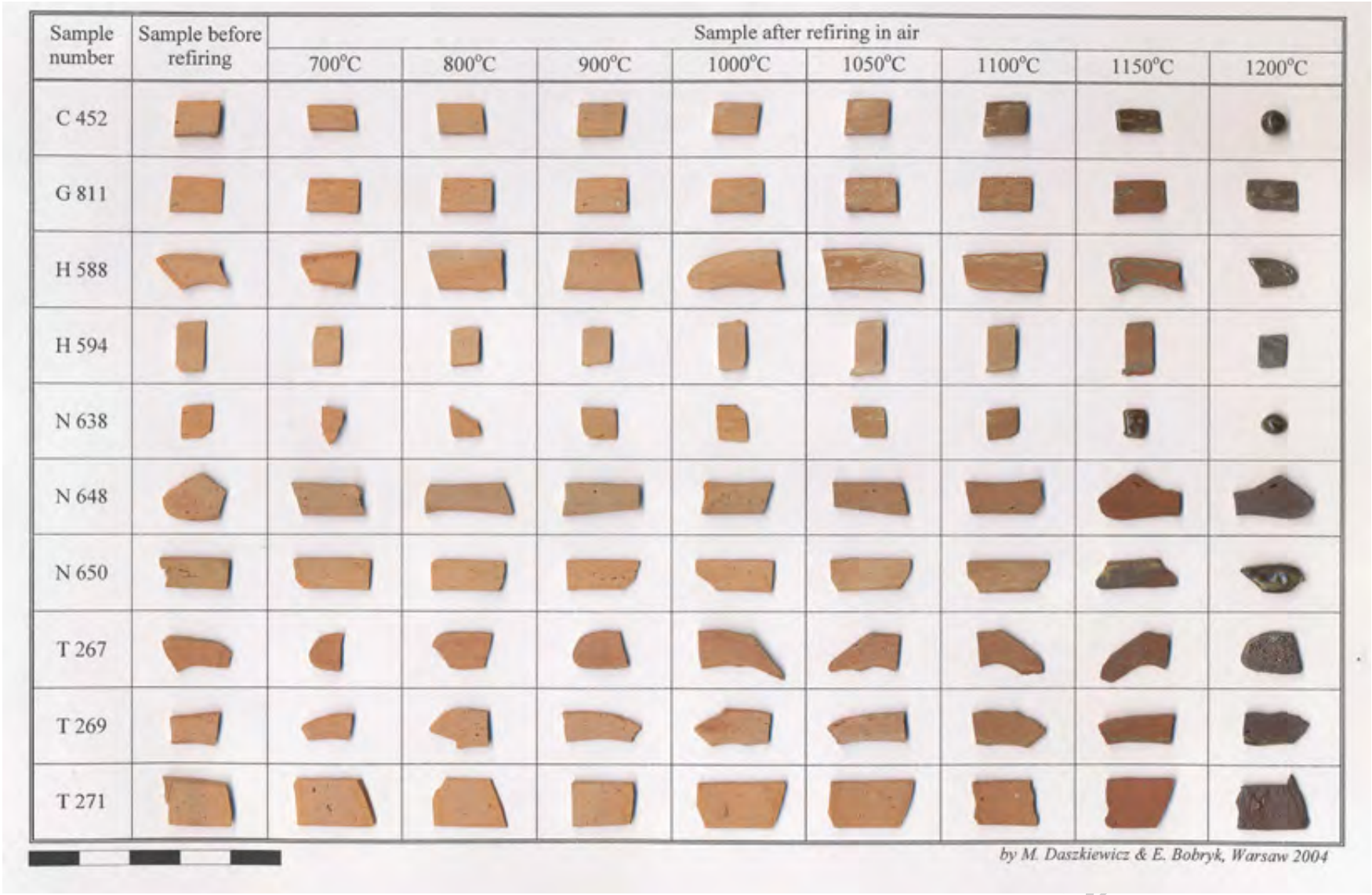


Fig. 4. MGR-analysis of PRS ware samples before and after refiring.

РЕЗЮМЕ (SUMMARY)

В монографии обобщается информация об одной из ведущих групп позднеантичной краснолаковой керамики, широко распространенной на археологических памятниках Причерноморья и получившей название Понтийская краснолаковая керамика (*Pontic Red Slip ware*).

Начиная с позднеэллинистического и римского времени парадная столовая посуда традиционно покрывалась красным лаком. В западных и южных континентальных европейских языках (немецком, французском, итальянском и других) производившиеся в Средиземноморье позднеэллинистические, римские, позднеантичные и ранневизантийские краснолаковые сосуды называются терра сигиллата (*terra sigillata)*, в то время как в публикациях на русском, украинском и болгарском языках все они, включая импортировавшиеся в причерноморский регион и изготовленные регионально, описываются как краснолаковые / червенолакове.

В научной литературе на английском языке общепринятым является использование термина терра сигиллата (*terra sigillata)* для описания только позднеэллинистической и раннеримской керамики, покрытой красным лаком. Это особенно касается групп, изготовление которых прекратилось в раннеримский период, таких как Италийская сигиллата (*Italian Terra Sigillata*), Восточная сигиллата A, B и C (*Eastern Sigillata A, B* и *C*), или групп у которых наблюдается определенное сокращение производства, широкого распространения и типологической последовательности между сосудами раннеримского и позднеримского времени, как в случае с Восточной сигиллатой D (*Eastern Sigillata D*) иначе называемой „Кипрская" сигиллата (*„Cypriot" Sigillata*).

Основные группы покрытых красным лаком сосудов, производившиеся в позднеантичный и в ранневизантийский периоды, обычно описываются как краснолаковые (*red slip wares*): Позднеримская C / Фокейская краснолаковая (*Late Roman C / Phocaean Red Slip ware*), Позднеримская D / „Кипрская" краснолаковая (*Late Roman D / „Cypriot" Red Slip ware*) и другие. Исключение касается только одной группы – Африканской краснолаковой керамики (*African Red Slip ware*), которая изготавливалась начиная с раннеримского и до ранневизантийского времени без каких-либо заметных разрывов или спадов производства, отраженных в типологической последовательности. В таком случае африканские сосуды раннеримского времени также обозначались в литературе на английском языке как краснолаковые (*red slip ware*), а не терра сигиллата (*terra sigillata*). Следуя этой общепринятой традиции, и чтобы подчеркнуть морфологические отличия от более ранних сосудов Понтийской сигиллаты (*Pontic Sigillata*), являвшейся основной группой высококачественной столовой посуды в причерноморском регионе в середине I – середине III вв. н.э., изучаемая в книге группа посуды получила название Понтийская краснолаковая керамика (*Pontic Red Slip ware*).

Автор приступил к работе над темой данной книги в 1999–2001 годах, когда сосуды рассматриваемой группы были выявлены им среди позднеримской керамики в Танаисе. В последующие годы изучение этого материала продолжалось при обработке находок из археологических раскопок Боспора Киммерийского (2002–2005), Ольвии (2006–2008), Тиритаки (2006–2014), Помпеиополиса (2009–2021) и Тропеум Траяни (2016–2019). Проведенные в различных частях Черноморского бассейна исследования позволили подтвердить гипотезу о региональном, понтийском происхождении этой керамики. В отдельных статьях автором была предложена схема морфолого-хронологической классификации этих сосудов, которая

в дальнейшем была доработана и в завершенном виде представлена в монографии.

Сосуды группы Понтийской краснолаковой керамики производились начиная с первой половины IV в. и приблизительно до середины VI в. Их появление стало одним из результатов экономического восстановления после катастрофических вторжений готов во второй половине III в., нарушивших торговые связи и приведших к упадку ремесел в пострадавших прибрежных районах Черного и Эгейского морей. Восстановление стабильности в начале IV в. привело к возрождению производства и торговли высококачественной керамикой.

Средиземноморская модель эффективного распространения краснолаковой керамики по морю из очень немногочисленных производственных центров, среди которых доминировали североафриканские, в самые отдаленные уголки империи и за ее пределы, продолжала активно функционировать с IV в. вплоть до середины VII в., когда арабские вторжения нарушили всю систему межрегиональной морской торговли. С IV в. продукция средиземноморских центров в очень небольшом количестве возвращается на причерноморский рынок, где, как и в раннеримское время, ведущая роль снова принадлежала производителям региональной, теперь уже Понтийской краснолаковой керамики. Ее производство и широкое распространение успешно продолжалось на протяжении всего V в. и прекратилось незадолго до середины VI в. Причины этого события являются одним из актуальных вопросов ранневизантийской экономики в причерноморском регионе и до сих пор не имеют исчерпывающего объяснения, так как прекращение производства рассматриваемой группы сосудов произошло во время наибольшего расцвета производства и торговли средиземноморской краснолаковой посудой.

Находки позднеримской и ранневизантийской краснолаковой керамики со всего побережья Черного моря длительное время очень плохо документировались и почти не изучались. На протяжении многих десятилетий значение поздней античной цивилизации недооценивалось во многих районах Причерноморья, особенно в его северной части. Считалось, что гуннские вторжения уже в конце IV в. привели к быстрой варваризации и разрыву связей с греко-римским миром. Основной акцент в исследованиях делался на более ранних эпохах, особенно на периоде греческой колонизации, а также эллинистическом и раннеримском времени. Найденные в более поздних слоях материалы часто игнорировались, а иногда полностью забывались. Основная археологическая деятельность была сосредоточена на крупномасштабных раскопках, гораздо меньше внимания уделялось документации, анализу и публикации находок. В результате археологи при публикации керамических материалов рассматриваемого времени были вынуждены ссылаться на аналогии из Средиземноморья и, поскольку обмена методологическим опытом в отношении выявленных артефактов не существовало, в итоге было сделано множество ошибок в идентификации находок, которые в свою очередь привели к накоплению неверной информации о происхождении и датировке краснолаковой керамики.

Эта ситуация резко контрастирует с продолжавшимися исследованиями в Средиземноморье, информация о которых кратко представлена в главе 2.1. Уже несколько десятилетий назад они позволили добиться заметного прогресса в изучении краснолаковой керамики. Это стало возможным благодаря применению единообразной методологии исследований, в соответствии с которой отправной точкой стало наблюдение за макроскопическими характеристиками керамических изделий, только после изучения которых следовал анализ морфологии и декора сосудов. Хронология производства выделенных форм сосудов определялась путем сопоставления их наличия в различных контекстах на многочисленных археологических памятниках и благодаря наблюдению за взаимовстречаемостью разных форм сосудов, изготовленных в отдельных регионах. Происхождение выявленных групп керамики было установлено главным образом исходя из модели их распространения, что в ряде случаев подтверждалось находками остатков производственных мастерских или свалок керамического брака. В результате были разработаны всеобъемлющие морфолого-хронологические классификации двух ведущих групп краснолаковой керамики межрегионального распространения: Африканской и Фокейской краснолаковой керамики (*Africa*n и *Phocaean Red Slip wares*), а также двух других групп регионального значения, так

называемых Кипрской и Египетской краснолаковой керамики („*Cypriot*" и *Egyptian Red Slip wares*). Особенности распространения сосудов этих групп, физико-химические анализы и обнаружение некоторых гончарных мастерских позволили определить фактическое и вероятное местонахождение производственных центров.

Методологические стандарты, разработанные уже в первой половине XX в., главным образом Ф. О. Вааге и Н. Ламбогиа, и успешно использовавшиеся позднее, особенно британским исследователем Дж. Хейсом, позволили добиться реального прорыва и с тех пор широко применяются. Книга Дж. Хейса Позднеримская керамика (*Late Roman Pottery*, 1972), в которой подробно рассказывается о вышеперечисленных группах краснолаковой керамики, по-прежнему является одной из наиболее часто цитируемых публикаций в средиземноморской археологии и не только. Всеобъемлющий характер этого исследования, а также последующие публикации Дж. Хейса и других ученых, прежде всего М. Бонифе, М. Маккензена, П. Рейнольдса, Й. Поблома, Е. Эргюрера, подкрепленные серией физико-химических анализов обсуждаемых изделий, сделали описываемую категорию находок важным источником для изучения экономики, материальной культуры и ремесла в позднеантичный и ранневизантийский периоды.

Информация об исследованиях позднеримской и ранневизантийской краснолаковой керамики в причерноморском регионе представлена в главе 2.2. Несмотря на сравнительно большой масштаб раскопок в северо-западных, северных и восточных прибрежных районах Черного моря в период до и после Второй мировой войны, находки обсуждаемой краснолаковой керамики длительное время не привлекали серьезного внимания археологов. Наиболее интенсивные археологические исследования проводились в районе Боспора Киммерийского (на берегах Керченского пролива). По итогам анализа материала из этих раскопок появились и первые классификации краснолаковой керамики, представленные Т. Н. Книпович (Knipovič 1952) и Л. Ф. Силантьевой (Silant'eva 1958).

Среди находок сосудов раннеримского и позднеантичного времени в Тиритаке и Илурате исследовательницы описали также наиболее популярные формы рассматриваемой краснолаковой посуды и датировали их концом III–IV вв., что коррелировалось с теорией В. Ф. Гайдукевича о падение древней цивилизации на Боспоре Киммерийском после вторжения гуннов в конце IV в. Они проиллюстрировали свой анализ лишь немногими отдельными находками и утверждали, что большинство описанных краснолаковых сосудов происходят из эгейских и, возможно, также из некоторых других центров на севере Малой Азии. Такой подход носил довольно общий характер, различные формы анализировались только с точки зрения их морфологии, без учета таких технологических аспектов, как макроскопические особенности глиняного теста и лакового покрытия. В результате все исследования были сосредоточены только на изучении соответствующих форм сосудов, а не групп керамики из различных мастерских и производственных центров, которым эти формы принадлежали.

Следующие предварительные публикации с находками группы Понтийской краснолаковой керамики были сделаны грузинскими археологами, О. Д. Лордкипанидзе, К. И. Бердзенишвили и В. М. Джапаридзе, работавшими в Питиунте, Севастополисе и Родополисе (Lordkipanidze 1962; Berdzenišvili 1963; Džaparidze 1974). Они расширили датировку выявленных форм сосудов до V и VI вв., отмечали необычайное изобилие таких находок и относили их к средиземноморскому и южнопонтскому импорту, а также его местным (как они утверждали) подражаниям. Однако эти замечания не сопровождались публикацией каких-либо свидетельств, подтверждающих гипотезу о производстве краснолаковой посуды или ее имитаций на кавказском или колхидском побережье.

Другие работы советских авторов, С. А. Беляева, Э. Я. Николаевой и Т. М. Арсеньевой, опубликованные с конца 1950-х до начала 1980-х годов, содержат довольно скудные данные о находках из Херсонеса, Ильичевского городища и Танаиса (Beljaev 1968; Nikolaeva 1978; Arsen'eva 1981). Последние два археологических памятника были весьма ценными для проведения керамологических исследований обсуждаемой группы краснолаковой посуды, так как основные выявленные в них контексты включали материалы, использовавшиеся жителями до

момента окончательного оставления (Танаис) и разрушения (Ильичевское городище) поселений, и впоследствии послужили отправными точками для определения хронологии соответствующих форм краснолаковой керамики. Только в одной статье, опубликованной в начале 1980-х годов и посвященной находкам из нескольких поселений и некрополей в Цебельде (в центральной части современной Абхазии), Ю. Н. Вороновым была предложена более полная классификация позднеримской и ранневизантийской краснолаковой керамики, как средиземноморского, так и понтийского происхождения (Voronov 1983).

Вышеупомянутые авторы попытались, следуя подходу Т. Н. Книпович и Л. Ф. Силантьевой, идентифицировать средиземноморский импорт, используя для этой цели главным образом публикации Ф. О. Вааге, а затем Дж. Хейса. С другой стороны, замечания грузинских археологов о возможном южнопонтийском импорте краснолаковой посуды были забыты в последующие годы. Прогрессу в исследованиях в значительной степени препятствовали недостаточное количество предлагаемых иллюстраций и тенденция к концентрации внимания на формальном, морфологическом анализе находок. Использование устаревших методов анализа форм сосудов не давало возможности комплексно изучать вопросы, касающиеся особенностей производства и распространении краснолаковой керамики в позднеримском и ранневизантийском периодах.

Изредка публиковавшиеся румынские и болгарские исследования краснолаковой посуды с западного побережья Черного моря были похожи по качеству. Поскольку доля импорта из Средиземноморья на археологических памятниках там была больше, анализ был сосредоточен на его идентификации с использованием вышеупомянутых публикаций западних авторов. Такой подход мог бы стать более успешным, но этого не произошло. Исследования краснолаковой керамики из Том и Истрии были посвящены главным образом штампованным сосудам и их фрагментам (Popescu 1965; Papuc 1973; Munteanu, Papuc 1976). В статье представлявшей находки с болгарского побережья была проанализирована лишь небольшая группа отдельных, лучшие всего сохранившихся сосудов, большинство из которых также имели штампованный орнамент (Minčev 1982). Хронология керамических находок из Ятруса, разработанная археологами из восточной Германии и основанная исключительно на нумизматических данных из выявленных слоев разрушений V в. (Böttger 1982), несколько десятилетий спустя была признана некорректной в свете датировки однотипных находок в Средиземноморье (Mackensen 1991).

На фоне приведенных выше публикаций гораздо более значимой является статья А. Опайца (Opaiț 1985), посвященная анализу краснолаковой керамики из нескольких небольших поселений расположенных недалеко от устья Дуная. Помимо выявления большинства преобладающих на этих памятниках форм средиземноморского импорта конца IV и первой половины V вв., автор также выделил четыре формы сосудов, обнаруженных ранее только на северном и восточном побережье Черного моря, и описал их как понтийские. Это определение также использовалось в его дальнейших работах, но из-за малочисленности таких находок на нижнем Дунае вводные замечания А. Опайца о понтийских сосудах не сопровождались более глубоким изучением вопроса ни данным автором, ни какими-либо другими исследователями.

В конце 1980-х годов к изучению найденной на Боспоре Киммерийском краснолаковой посуды приступил А. В. Сазанов (Sazanov 1989; Sazanov, Ivaščenko 1989). Он использовал монографию Дж. Хейса (Hayes 1972) в качестве основного исследовательского инструмента для идентификации и датировки краснолаковых сосудов. Результаты работы автора были достаточно полезными в части позволившей скорректировать датировку многих позднеантичных комплексов, выявленных на нескольких археологических памятниках на берегах Керченского пролива в послевоенные годы. Датировка В. Ф. Гайдукевичем, Т. Н. Книпович и Л. Ф. Силантьевой концом IV в. слоев разрушения и оставления жителями большинства боспорских поселений была перенесена почти на два столетия вперед. Тем не менее, значительная часть работы А. В. Сазанова по идентификации краснолаковой керамики, касающаяся сосудов, которые не прибыли из Средиземного моря и не были описаны Дж. Хейсом, оказалась совершенно неудачной. Не принимая во внимание макроскопический анализ глиняного теста и лакового покрытия, он определял такие

находки исходя только из их морфологических характеристик. В результате сосуды с исключительно понтийским региональным распространением, уже отмеченные ранее А. Опайцем, были идентифицированы как североафриканские (*African Red Slip ware*), эгейские (*Late Roman C / Phocaean Red Slip ware*) или так называемые кипрские (*Late Roman D / „Cypriot" Red Slip ware*) изделия.

В последующие годы А. В. Сазанов опубликовал большое количество находок краснолаковой керамики позднеримского и ранневизантийского времени из раскопок нескольких археологических памятников в Северном Причерноморье: Херсонеса (Romančuk, Sazanov 1991; Sazanov 1992; Sazanov 1999), Пантикапея (Sazanov, Mogaričev 2002), Гермонассы (Sazanov 2000a), поселений Золотое Восточное и Зеленый мыс (Sazanov Mokrousov 1996; 1999), и Ильичевского городища (Sazanov 2000a). Однако во всех этих исследованиях не учитывалось существование понтийской группы краснолаковой керамики и повторялись ошибки в идентификации соответствующих форм сосудов. В работе над хронологией исследуемых сосудов, А. В. Сазанов проанализировал многочисленные керамические коллекции, которые он называл комплексами. Однако полученные результаты ставят под сомнение единообразие и правильность применявшихся методических подходов. Очевидно, что автор уделял недостаточно внимания выделению среди актуального материала примеси более раннего времени. В результате для большинства проанализированных форм краснолаковых сосудов были определены слишком широкие хронологические рамки. Близкий подход, хотя, скорее всего, и независимый от работ А. В. Сазанова, был принят Ф. Тополеану. Публикация находок из Халмириса (Topoleanu 2000a) содержит почти те же ошибки в идентификации и датировке форм краснолаковых понтийских сосудов.

Основной задачей нескольких статей А. В. Сазанова был сбор и обобщение информации о географии распространения и хронологии краснолаковой керамики позднеримского и ранневизантийского времени в Северном Причерноморье (Sazanov 1994–1995; 1999; 2000a). В них рассматривалось значительное количество находок, однако использовались низкого качества иллюстрации, которые часто имели схематический характер и, как правило, являлись небрежно переработанными чертежами из полевой документации или неопубликованных отчетов об археологических раскопках. Наряду с описанными выше методическими подходами, это приводило к ошибочным в своей основной части выводам, переоценивающим роль средиземноморского, особенно североафриканского, импорта в Причерноморье. Результаты исследований А. В. Сазанова часто использовались многими российскими и украинскими археологами для идентификации и датировки материалов из новых раскопок.

На этом фоне следует упомянуть о публикации А. Г. Атавина (Atavin 1992), который представил находки из Фанагории традиционным способом, подобно Т. Н. Книпович, Л. Ф. Силантевой, Ю. Н. Воронову и А. Опайцу. В случае с понтийскими краснолаковыми сосудами, А. Г. Атавин выделил три наиболее популярные формы, отметив их сходство со средиземноморскими образцами, но избегая приписывать им африканское, фокейское или какое-либо другое происхождение.

Критические замечания о выводах А. В. Сазанова уже были высказаны автором данной книги в некоторых ранее опубликованных сообщениях. За первыми заметками с описанием находок из Нимфея (Domżalski 1996) последовала более основательная публикация посвященная позднеримской краснолаковой посуде из Танаиса (Arsen'eva, Domżalski 2002), в которой впервые была предложена основа морфолого-хронологической типологии группы Понтийской краснолаковой керамики, первоначально включавшая семь форм открытых сосудов и данные о некоторых закрытых формах. Предварительные результаты этих исследований, представленные также в нескольких более поздних статьях (Domżalski 2007; Krapivina, Domžal'skij 2008; Domżalski 2016–2017), стали альтернативой публикациям А. В. Сазанова и постепенно начали использоваться в работах современных исследователей.

Последние два десятилетия были достаточно продуктивными в плане появления новых данных об обсуждаемой группе керамики. Проведенные в различных районах Причерноморья многочисленные раскопки позволили ввести в научный оборот значительное количество

новых находок. Здесь следует особо отметить статьи с материалами из городских слоев и комплексов Херсонеса (Golofast 2001; 2003; 2007a; 2007b; Golofast, Ryžov 2000; 2011; 2013; Ušakov 2004; 2010b; 2011a; 2011b; 2012; 2013–2014; 2017a; 2017b; Ušakov, Strukova 2016; Ušakov *et alii* 2006; 2010; 2017), Боспора (Smokotina 2008; 2015, 2018a; 2018b), Тиритаки (Domżalski, Smokotina 2020), Фанагории (Golofast, Ol'chovskij 2016), Севастополиса (Gabelia 2014), Ульметума (Băjenaru 2018) и Помпеиополиса (Domżalski 2016–2017). Кроме того, очень ценными для темы нашего исследования являются подробные публикации многочисленных находок краснолаковой керамики из богатых могильников, особенно в Крыму, характеристика которых представлена в главе посвященной источникам (см. ниже).

В главе 3.1 данной монографии рассматривается методология исследования. Она предусматривает изучение всех доступных исходных материалов, к числу которых относятся находки позднеримских и ранневизантийских краснолаковых сосудов на различных археологических памятниках – поселениях и некрополях. Многолетняя работа автора с материалами из нескольких археологических раскопок, а также в многочисленных музеях, особенно в Керчи, Симферополе, Севастополе, Бахчисарае, Тамани, Новороссийске, Москве, Санкт-Петербурге и Киеве, привела к подготовке подробной документации, состоящей из описаний, чертежей и фотографий значительной части сохранившихся находок из Причерноморского региона и прилегающих к нему районов. Все материалы были классифицированы на основе макроскопических, технологических и морфолого-хронологических критериев с целью сбора информации об их происхождении, датировке и географии распространения. На первом этапе был проведен макроскопический анализ сосудов. Основными критериями стали характеристики глиняного теста и лакового покрытия. На их базе были выделены соответствующие группы средиземноморской керамики, уже известные из литературы, а также была определена основная региональная причерноморская группа, получившая название Понтийская краснолаковая керамика (*Pontic Red Slip ware*). Выяснилось, что появление, успешное производство и широкое распространение в Причерноморье преобладавшей в IV – середине VI вв. понтийской краснолаковой посуды произошло благодаря внедрению гончарами в местное производство ведущих традиценных технологий и форм сосудов популярных в Средиземноморье.

Для проверки гипотезы о едином, пока еще точно не локализованном, центре производства различимых форм сосудов выделенной группы Понтийской краснолаковой керамики были отобраны образцы от 55 фрагментов сосудов или фрагментов нескольких форм из различных археологических памятников для проведения физико-химических анализов. Результаты этих анализов, проведенных Г. Шнейдером и М. Дашкевич в рабочей группе по археометрии Свободного университета в Берлине (Arbeitsgruppe Archäometrie, Freie Universität Berlin), которые позволили определить химический и минеральный состав глиняного теста, а также температуру обжига, представлены в Приложении.

На следующем этапе исследований наиболее важной задачей для реконструкции истории производства, направлений торговых связей в межрегиональной торговле и особенностей потребления Понтийской краснолаковой керамики было накопление и изучение находок из определенных комплексов, обсуждению которых посвящена глава 3.2. Оказалось, что керамические находки из поселений жизнедеятельность на которых не прерывалась в позднеримский или ранневизантийский период не всегда бывают достаточно полезны, так как они, как правило, сохраняются до наших дней только фрагментарно и обнаруживаются главным образом в переотложенном состоянии. С учетом этих ограничений наиболее надежные результаты были получены по итогам обработки материалов из поселений, которые были заброшены или разрушены в древности и никогда больше не восстанавливались. Особенно это касается двух наиболее северных торговых форпостов – Ольвии и Танаиса, первый из которых был окончательно оставлен жителями на рубеже IV и V вв., а второй – около рубежа третьей и четвертой четверти V в. Понтийская краснолаковая керамика являлась основной группой импортной парадной столовой посуды на последнем этапе функционирования этих поселений.

Наиболее поздние сосуды группы Понтийской краснолаковой керамики, производившиеся и

использовавшиеся в первой половине VI в., были найдены на многих поселениях, расположенных по обоим берегам Керченского пролива, разрушенных и заброшенных около середины VI в. Кроме того, в этом же регионе были получены важные свидетельства отсутствия исследуемой керамики в контекстах Ильичевского городища и г. Боспора второй половины VI и начала VII вв., где сосуды группы Поздний Римский С / Фокейская краснолаковая (*Late Roman C / Phocaean Red Slip ware*) преобладали. Аналогичные свидетельства поступают из нескольких закрытых комплексов, выявленных недавно в Херсонесе и Помпеиополисе. Понтийские краснолаковые сосуды являлись там стандартной посудой и широко использовались в позднеантичное время до начала или середины VI в. В Помпеиополисе их сменили лощеные сосуды местного производства, а в Херсонесе – интенсивный импорт Фокейской краснолаковой керамики (*Late Roman C / Phocaean Red Slip ware*) вместе с новой группой Позднеримской понтийской лощеной посуды (*Late Roman Pontic Burnished ware*) пока еще неопределенного происхождения.

Установить относительную последовательность, а затем и приблизительную датировку форм Понтийской краснолаковой керамики помогают материалы из нескольких варварских некрополей IV – середины VI вв. в северной части Причерноморья, особенно на юго-западе Крыма, на Боспоре (в районе Керченского пролива), а также вдоль черноморского побережья Кавказа. Эти могильники состояли из большого количества могил и гробниц с многократными погребениями, иногда с богатым погребальным инвентарем, включавшим также многочисленные краснолаковые сосуды. Детальный анализ погребального инвентаря позволил установить не только датировку отдельных захоронений, но и общую хронологию могильников, определить их последовательность, а в дальнейшем использовать эти наблюдения для изучения хронологии форм Понтийской краснолаковой керамики. Наиболее важные находки позднеримской и ранневизантийской краснолаковой посуды из этих некрополей представлены на Табл. 1–4.

Очень ценную информацию для выявления самой ранней стадии производства Понтийской краснолаковой керамики предоставили многочисленные материалы из некрополей Дружное и Килен-балка. Близкие находки были обнаружены в могильниках Красная Заря, Озерное III, Суворово, Тас-Тепе (Тенистое), Вишневое и Розенталь в Крыму, а также Беленькое в округе Тиры. Все они содержали материалы IV в. и перестали использоваться примерно в конце этого столетия. Чуть более поздние сосуды Понтийской краснолаковой керамики, с первой половины V в., были найдены вместе с другими находками в крымских могильниках Совхоз 10, Инкерман и Нейзац. Эти некрополи использовались также в IV в., но последние захоронения могут быть датированы временем примерно около середины V в. (Совхоз 10, Инкерман). Они содержали сосуды, представляющие собой основной этап производства рассматриваемой группы керамики. Немного более поздние сосуды второй и третьей четверти V в. происходят из могильников Алмалык-Дере, Красный Мак и Лучистое, а также из Фанагории и Шапкы. Последний этап производства Понтийской краснолаковой керамики в конце V в. и начале VI в. подтверждается уменьшением присутствия таких сосудов в могильниках Скалистое, Карши-Баир, Джург-Оба (около Китея) и Дюрсо.

Важно отметить, что на самых ранних некрополях, использовавшихся на протяжении IV в. и начале V в., понтийская посуда рассматриваемой группы сопровождалась находками многочисленных краснолаковых сосудов херсонесского производства, которые являлись поздними вариантами так называемой Херсонесской Сигиллаты (*Cheronesos Sigillata*). Импортные краснолаковые сосуды из средиземноморских центров в комплексах этого времени встречались крайне редко. Ситуация изменилась в конце V и начале VI вв., когда сосуды Понтийской краснолаковой керамики попадались реже, зато они были найдены вместе с многочисленными сосудами группы Поздний Римский С / Фокейская краснолаковая (*Late Roman C / Phocaean Red Slip ware*). В наиболее поздних захоронениях первой половиной VI в. в Джург-Обе и Дюрсо понтийские сосуды уже составляли меньшинство среди доминирующей в погребальном инвентаре фокейской краснолаковой посуды.

В главе 4.1 рассматриваются макроскопические характеристики глиняного теста и лакового покрытия сосудов Понтийской краснолаковой керамики. Они были изготовлены из

мелкозернистого, хорошо отмученного и очень плотного глиняного теста. Единственными отличительными особенностями являются регулярные, но довольно редкие мелкие включения известняка кремово-белого цвета, а также иногда визуально различимые небольшие пластинки серебристой слюды, которые встречаются почти исключительно только у сосудов с относительно низкой температурой обжига. Лак, как правило, хорошего качества наносился тщательно на внутреннюю поверхность сосудов толстым слоем, на что иногда указывают следы кисти. Он полностью покрывает внутреннюю поверхность и только верхнюю часть на внешней стороне сосудов. На внешней поверхности под венчиком, покрытие является не всегда полным и более тонким, и часто сопровождается отпечатками пальцев гончаров, полосами и потеками лака, которые встречаются на стенках открытых сосудов и в нижней части кувшинов. На нижней стороне дна, внутри кольцевого поддона, лак обычно отсутствует, только иногда фиксируются отдельные его капли или полосы. После обжига лак обычно становится глянцевым, но встречаются также некоторые сосуды с частично или полностью матовым лаковым покрытием, особенно на внутренней поверхности. На внешней стороне сосудов лак обычно неоднородный и пятнистый, но иногда имеет очень интенсивный металлический блеск.

Открытые сосуды Понтийской краснолаковой керамики обычно обжигались стопками, расположенными непосредственно в камере печи. Об этом часто свидетельствуют дефекты покрытия на внешней стороне венчика и в верхней части тулова. Они являются прямым результатом влияния высоких температур, приводящих к появлению серо-коричневых, светлых или темно-серых пятен. Это наблюдение касается в первую очередь наиболее популярных в рассматриваемой группе керамики крупных блюд. Интересно отметить, что у нескольких полностью сохранившихся сосудов такие пятна затрагивали не всю окружность венчиков, а лишь их довольно небольшие части. Окончательный вид и основные характеристики сосудов, такие как цвет глиняного теста и лака, а также плотность черепка, являются результатом процесса обжига. Лабораторные анализы позволили установить, что температура обжига Понтийских сосудов варьировалась в пределах от 900°C до 1050°C (внешние части венчиков в основном 1000°C – 1050°C), что в целом характерно для производства высококлассной краснолаковой столовой посуды в римский и позднеантичный периоды.

Структура черепка хорошо обожженных сосудов плотная, иногда с небольшими полостями, появившимися в результате выгорания органических примесей, или разрывами от более крупных включений частиц известняка. Подобные пустоты иногда видны также и на поверхности сосудов рассматриваемой группы. Глина хорошо обожженных сосудов чрезвычайно плотная и твёрдая, розовато-коричневого цвета (2.5YR 6/4–6/6 или 5YR 6/6–7/6). Лаковое покрытие близкой расцветки обычно только немного темнее – коричневато-розового цвета (2.5YR 5/4–5/6 или 10R 5/6–4/8). Лак с небольшим или интенсивным металлическим блеском или полностью матовый.

Черепок сосудов с более низкой температурой обжига менее однородный, скорее шероховатый и средней твердости. В таких случаях глиняное тесто приобретает оттенки оранжево-коричневого цвета (2.5YR 6/8–5/8 или 5YR 7/8–6/8–6/6). Лак немного темнее – коричнево-оранжевый (2.5YR5/8), слегка блестящий или матовый. Анализ большого числа изделий Понтийской краснолаковой керамики показал, что доля сосудов с твёрдым черепком лишь незначительно меньше доли сосудов с черепком средней твёрдости. Более того, некоторые сосуды имеют промежуточные характеристики. В этих случаях глиняное тесто бледное розовато-коричневое (2.5YR 5/6) и лак красновато-коричневый (2.5YR 4/8).

В главах 4.2–5 подробно рассматриваются десять основных форм открытых сосудов (формы 0–9) и шесть форм кувшинов (формы 10–15) Понтийской краснолаковой керамики. Морфология самых популярных открытых форм, в основном больших блюд, была сильно стандартизирована. Находки небольших чаш и закрытых сосудов менее многочисленны. Все сосуды этой группы были изготовлены на гончарном круге без использования форм. Они довольно толстостенные, сопоставимые в этом отношении со стандартными вариантами сосудов Африканской краснолаковой посуды (*African Red Slip D ware*) или с чуть более популярным в причерноморской регионе ранним импортом эгейской керамики группы Поздний Римский С / Фокейская

краснолаковая (*Late Roman C / Phocaean Red Slip ware*) – формы 1 и 2.

Большие глубокие блюда с диаметром венчика около 22–32 см производились в течение длительного времени и являлись наиболее многочисленными сосудами рассматриваемой группы. Они имели усечено-коническое тулово и донья на кольцевом поддоне большого диаметра, приблизительно на 10 см меньше диаметра венчика. Они впервые появились в начале IV в. и производились до первой половины VI в. Такие блюда отличались только морфологией венчика, в то время как другие диагностические элементы оставались неизменными. Они были разделены на три формы: 1 (1A–1A/B–1B), 2 (2A–2B) и 7 (7A–7B). Сосуды формы 1A и 2 являются самыми ранними и датируются начальным этапом производства в IV в., в то время как блюда формы 1B и 7 характерны для наиболее поздней стадии производства во второй половине V в. и первой половине VI в.

Блюда формы 1 с простым венчиком со слегка вогнутым краем изготавливались в течение длительного времени. В контекстах IV в. они встречались вместе с формой 2, а в комплексах второй половины V в. и начала VI в. – вместе с более поздней формой 7. Производство таких сосудов на протяжении приблизительно двух столетий приводило к эволюции отдельных морфологических элементов. Они послужили основой для выделения трех вариантов этой формы: раннего варианта 1A с венчиком с заостренным внутренним краем и толстыми стенками, позднего варианта 1B с валикообразным венчиком и заметно более тонкими стенками, а также промежуточного варианта 1A/B со скорее тонкими стенками и округлой формой венчика. Редкие отклонения от типичных вариантов формы 1 также встречаются, особенно в начальной стадии производства.

Блюда формы 2 с небольшим горизонтально отогнутым венчиком перестали использоваться гораздо раньше, чем сосуды формы 1. По форме этого венчика можно выделить два основных варианта таких сосудов: более ранний (2A) с узким и слегка отогнутым вниз краем, и поздний (2B) с более широким, горизонтальным или слегка приподнятым вверх внешним краем. В целом датировка этой формы не выходит за пределы IV в. На рубеже IV и V вв. блюда формы 2 сменились менее глубокими и обычно большего диаметра (в среднем около 28–36 см) сосудами формы 3. Их особенностью является широкий горизонтально отогнутый венчик, внутренний край которого часто скошен вниз. Встречаются также некоторые сосуды позднегой варианта формы 2 морфологически очень близкие форме 3, что позволяет предположить появление новой формы 3 в результате постепенной эволюции формы 2. Блюда формы 3 являются единственными сосудами, которые часто украшались врезным гребенчатым орнаментом. Он наносился на венчик и внутреннюю поверхность дна гребенчатым инструментом, а также дополнялся многочисленными концентрическими желобками и иногда группами насечек, нанесенных краем гребня. Эта форма датируется временем начиная с рубежа IV и V вв. и примерно до третьей четверти V в.

К концу этого периода, около середины V в., появились новые блюда формы 7, характеризующиеся утолщенным венчиком с выступающим внешним краем, обычно с двумя узкими желобками на верхней поверхности венчика. Отличия в форме венчика позволяют выделить два варианта: предположительно более ранний (7A) с подтреугольным краем и поздний (7B) с выступающим плоским краем. Такие сосуды окончательно заменили блюда формы 3. Однако в течение определенного периода эти две формы могли изготавливаться одновременно, на что, возможно, указывает редкое появление гребенчатого орнамента на самых ранних больших блюдах формы 7. Более поздние стандартные сосуды этой формы обычно не были декорированы.

В дополнение к наиболее популярным блюдам форм 1–3 и 7, недавно были выделены широкие и достаточно глубокие блюда еще одной, довольно редкой формы 9. Они имеют венчик диаметром около 40 см с выступающим заостренным внешним краем, напоминающим форму 7, но отличаются более округлым туловом и необычно высоким кольцевым поддоном, не имеющим аналогов среди сосудов данной группы. Эта сравнительно поздняя форма блюд изготавливалась, вероятно, около коньца V - начала VI вв., на что указывает как морфология венчика, близкая форме 7, так и высокий кольцевой поддон, похожий на только что появившуюся форму 93 Африканской краснолаковой керамики (African Red Slip ware). Кроме того, врезной гребенчатый

орнамент на венчике и медальон, оформленный врезными концентрическими линиями и насечеками, нанесенными краем гребня, на внутренней стороне дна, предполагают время производства синхронное ранним вариантам формы 7.

Находки небольших чаш различных диаметров, обычно 10 до 20 см, с вертикальным или слегка вогнутым краем и на кольцевом поддоне, встречаются реже. Такие сосуды были выделены в формы 0 и 4. Морфология формы 4 настолько простая и распространенная, что иногда ее сложно отличить от аналогичных сосудов раннеримской Понтийской Сигиллаты (*Pontic Sigillata*). Тем не менее характерной особенностью чаш Понтийской краснолаковой керамики (*Pontic Red Slip ware*), по-видимому, является вертикальная или только слегка вогнутая форма венчика. Обе формы (0 и 4) принадлежат к раннему набору сосудов рассматриваемой группы, но их датировка охватывает как IV, так и V вв, до начала VI в.

Кроме того, некоторые другие чаши небольших размеров были выделены в отдельные формы 5 и 6. Форма 5 является вариантом стандартных чаш формы 4 и отличается только венчиком со слегка отогнутым выступающим внешним краем. Чаши формы 6 являются копиями блюд формы 3 небольшого размера, с широким горизонтально отогнутым венчиком, иногда с приподнятым внешним и скошенным внутренним краем. Сосуды формы 5 были найдены в контекстах IV – середины V вв. Датировка формы 6 первыми двумя или тремя четвертями V в. близка хронологии формы 3. Наиболее поздние миски формы 8 являются небольшими или среднего размера сосудами морфологически близкими чашам формы 6. Они отличаются формой венчиков с выступающим внешним краем, явно более узким чем у формы 6 и напоминающим венчики блюд формы 7. Так как до сих пор эта редкая форма не была обнаружена в хорошо датированных комплексах, это морфологическое сходство является единственным признаком того, что она была изготовлена в последней четверти V в. и, возможно, немного позднее.

Помимо анализа контекстов находок, изучение наиболее характерных морфологических особенностей сосудов и сравнение их с характерными чертами краснолаковой посуды из других производственных центров, дает очень важные дополнительные сведения о хронологии таких изделий. Как выяснилось, некоторые морфологические особенности сосудов Понтийской краснолаковой керамики характерны также для хорошо датирующихся форм из Северной Африки (*African Red Slip ware*) и бассейна Эгейского моря (*Late Roman C / Phocaean Red Slip ware*). В качестве примера можно привести блюда формы 1, 2, 7 и 9 Понтийской краснолаковой керамики, которые имеют явное сходство с соответствующими формами 50, 58–59, 83 и 93 Африканской краснолаковой керамики (*African Red Slip ware*). Понтийские сосуды формы 3 и 6 наиболее близки фокейской форме 2 (*Late Roman C / Phocaean Red Slip ware*) и североафриканским формам 45, 67, 70 и 71 (*African Red Slip ware*). В главе 5.2 представлен подробный анализ общих типологических особенностей средиземноморских и понтийских форм краснолаковой посуды.

Группа Понтийской краснолаковой керамики помимо открытых сосудов включает в себя также шесть разновидностей кувшинов формы 10–15. Четырём из них (10–12 и 14) принадлежат довольно стройные или слегка приземистые сосуды на стандартном кольцевом поддоне или на более массивном, широком поддоне с выступающим внешним краем, с венчиком простым или типа ойнохоэ. Кувшины двух других форм (13 и 15) являются более приземистыми сосудами с широким дном. Значительная часть этих кувшинов довольно небольшого размера и имеют высоту около 20 см. Только некоторые из них почти в два раза больше. Почти все кувшины имеют характерные одинарные или двойные декоративные валики на горле, а некоторые из них были также украшены простыми врезными или гребенчатыми волнистыми линиями и лентами в нижней или верхней части тулова. Все вышеперечисленные формы имеют ряд общих морфологических особенностей.

Хронология краснолаковых сосудов закрытого типа, как правило, определяется менее точно, чем у открытых форм. Это происходит вследствие гораздо меньших масштабов их производства и по причине небольшого количества диагностических осколков от разбитого кувшина по сравнению с сосудами открытого типа. Многие из хорошо сохранившихся кувшинов были найдены на могильниках, но контекст наиболее ранних находок остается неизвестным. На основании

анализа контекстов зафиксированных находок, а также соответствующих их морфологиии декоративных особенностей, общих для открытых и закрытых сосудов, на сегодняшний день можно предположить датировку производства закрытых сосудов рассматриваемой группы временем с конца первой четверти IV в. до начала второй половины V в. Морфология кувшинов, особенно у форм 11 и 14, соответствует стилю элегантных металлических сосудов этого времени. В позднеантичный период преобладали стройные кувшины в форме флакона или с веренообразным туловом, с довольно коротким горлом и широким венчиком. Похожие сосуды, в том числе форма 12 с воронковидным горлом, встречаются также среди наборов стеклянных сосудов.

Важнейшая часть исследования представлена в главе 4.5, где было проанализировано 166 сосудов. Они происходят из определенных комплексов различных археологических памятников Причерноморья, но учтены также некоторые другие сосуды хорошей сохранности из музейных коллекций без точного места находки. Все они проиллюстрированы рисунками и фотографиями, сопровождаются детальным каталогом и подробным анализом их морфолого-хронологической эволюции. Представление каждой формы *Pontic Red Slip ware* дополнено списком всех опубликованных свидетельств находок соответствующих сосудов на археологических памятниках в различных прибрежных районах Черного моря и его окрестностях.

Общее распространение сосудов Понтийской краснолаковой керамики показано на картах (Fig. 5A–C). Его диахронические изменения описаны в главе 5.1, где также обсуждается гипотеза о вероятном производстве такой посуды в Северной Анатолии в провинции Понт. Кроме нескольких исключений, находки Понтийских сосудов сосредоточены на узких полосах вдоль побережья Черного и Азовского морей: от нижнего Дуная до периферийных районов Черняховской культуры, на юго-западном и восточном побережье Крыма, в устье реки Дон, на побережье Кавказа, Колхиды и Северной Анатолии. Больше всего сосудов было найдено в крупных портах и в близлежащих к ним сельских районах. На севере наиболее отдаленными населенными пунктами, в которых использовались понтийские краснолаковые сосуды, были Ольвия и Танаис, доступные для поставок по морю. С другой стороны, сосуды Понтийской краснолаковой керамики не были обнаружены в северо-западной части Малой Азии и в Константинополе, а также в юго-западной, фракийской части побережья Черного моря. В северной части Малой Азии Помпеиополис в Пафлагонии был самым западным городом снабжавшимся сосудами Понтийской краснолаковой керамики, где такие поставки доминировали и составляли основную часть краснолаковой керамики IV и V вв. Понтийские сосуды были тоже обнаружены и на некоторых недавно исследованных памятниках к востоку и югу от Помпеиополиса, таких, как Неоклаудиополис, Комана Понтика, Тавиум и Сатала.

До сих пор не было обнаружено никаких следов производства Понтийской краснолаковой керамики и на сегодняшний день трудно указать место, где она изготавливалась. Определенную пользу в поиске центров производства этих сосудов может принести наблюдение об их гораздо более широком и массовом распространении в северной и восточной части черноморского побережья, особенно в боспорском регионе и в Юго-Западном Крыму, в отличие от западной части Причерноморья. Так как эти районы интенсивно исследовались археологами в течение очень длительного времени, и весьмамаловероятно, что следы производства могли там остаться незамеченными, упомянутая выше схема распространения Понтийской краснолаковой керамики скорее позволяет предположить, что неизвестный производственный центр или центры находились в южной, гораздо менее изученной части бассейна Черного моря, которая имела наиболее тесные торговые отношения с северными партнерами.

Незначительное количество сосудов Понтийской краснолаковой керамики в Мёзии и Малой Скифии отражает особенности основных направлений дальней морской торговли в Причерноморье. Насколько мы можем судить о значительной части такой торговли благодаря находкам транспортных амфор, ясно, что наиболее важным импортировавшимся в западно-причерноморский регион товаром было оливковое масло, в то время как вино доставлялось в меньших количествах, так как в отличие от оливкового масла оно могло быть произведено на месте.

Оливковое масло импортировалось на Нижний Дунай из Эгейского моря и из остальной части Средиземного моря. Вместо этого, южные понтийские центры были сосредоточены на производстве и распространении вина среди северных потребителей, для которых оливковое масло было экстравагантной роскошью. В результате, краснолаковая керамика эгейского производства (*Late Roman C / Phocaean Red Slip ware*) дополняла другие товары на кораблях из Эгейского моря в Малую Скифию, в то время как сосуды Понтийской краснолаковой керамики (*Pontic Red Slip ware*) дополняли в основном грузы с северного побережья Малой Азии до северных и восточных прибрежных районов Причерноморья.

Тем не менее, для производителей Понтийской краснолаковой керамики потребители из отдаленных регионов, скорее всего, не были главными адресатами. Основные потребители должны были располагаться где-то поблизости. Поэтому мы должны рассматривать, скорее, крупнейшие городские центры в самой плодородной части Северной Анатолии, такие как Амасья, Лаодикея, Неокесария, Тавиум или Комана Понтика, как естественный первичный рынок для обсуждаемой группы краснолаковой керамики. По мнению автора, эту часть провинции Понт следует рассматривать и как наиболее вероятное место производства Понтийской краснолаковой керамики. Излишки продукции можно было легко переправить в торговые центры на черноморском побережье, особенно в Амисос (современный Самсун), благодаря самому простому выходу к морю через Северо-Анатолийские горы в этой части Малой Азии.

В главе 5.2 обосновывается тезис о том, что окончательный внешний вид обсуждаемых понтийских сосудов был обусловлен сочетанием двух аспектов: региональных традиций изготовления керамики и межрегионального влияния. Первый аспект проявился в качестве глиняного теста и лака, деталях оформления, и отсутствии штампованного орнамента, замененного так называемыми врезными гребенчатыми мотивами и композициями, что является результатом *chaîne opératoire*, специфичной для этой керамики. Второй фактор проявился в попытке сделать краснолаковые сосуды похожими на производившиеся в средиземноморских центрах, особенно на изделия ведущего производственного центра, расположенного в Северной Африке (*African Red Slip ware*).

Недавние раскопки, проведенные археологическими экспедициями в Танаисе, Ольвии, Тиритаке, Севастополисе, Фанагории, Тропеум Траяни и Помпеиополисе, позволили также провести количественный анализ краснолаковой керамики из различных контекстов поселений, где наилучшим образом сохранившиеся позднеримские и ранневизантийские сосуды и их диагностические фрагменты были подсчитаны и распределены по группам и формам. Результаты, представляющие собой диахроническое исследование моделей торговли, а также регионального потребления сосудов Понтийской и другой краснолаковой керамики, обсуждаются в главе 5.3. Анализ показал, что контакты между многими районами вдоль северного побережья Черного моря, населенными преимущественно варварскими племенами с одной стороны и экономическими и торговыми центрами в северной части Малой Азии с другой стороны, были непрерывными и систематическими, хотя на протяжении IV–VI веков они постепенно сокращались. Первой областью, которая перестала поддерживать торговые отношения с Византийской империей в начале V в., была северо-западная часть Причерноморья – окраины территории Черняховской культуры, с доминирующим положением Ольвии. За этой тенденцией последовало прекращение функционирования позднего поселения в Танаисе, в устье Дона, примерно в конце третьей четверти V в. До этого времени сосуды Понтийской краснолаковой керамики абсолютно преобладали среди краснолаковой керамики, распространявшейся по всему северному и восточному Причерноморью.

Византийско-персидские войны, особенно в 540-х годах, принесли разрушения восточному побережью Черного моря и Боспору Киммерийскому, которые были одними из основных импортеров сосудов Понтийской краснолаковой керамики. Наиболее вероятно, что именно эти события были одной из причин прекращения дальнего экспорта понтийских сосудов примерно в середине VI в. В более позднее время, в конце VI и начале VII вв., империя регулярно и интенсивно снабжала различными товарами только стратегически важный район Нижнего Дуная, Херсонес и, в

некоторой степени, Боспор и Севастополис, но в это время посуда Понтийской краснолаковой керамики уже исчезла с рынка и была заменена главным образом фокейской краснолаковой керамикой (*Late Roman C / Phocaean Red Slip ware*). Важно также отметить, что незадолго до середины VI в. сосуды Понтийской краснолаковой керамики в Юго-Западном Крыму и на Боспоре Киммерийском начали замещаться в некоторой степени схожими по макроскопическим признкам изделиями группы Позднеримской понтийской лощеной посуды (*Late Roman Pontic Burnished ware*).

В заключении (глава 6) обобщаются наиболее важные результаты и определяются возможные направления дальнейших исследований. Они включают поиск закрытых комплексов для уточнения хронологии форм сосудов и получения исчерпывающей информации о географии их распространении. Это должно помочь более уверенно определить место производства сосудов Понтийской краснолаковой керамики и создать более полное представление об общей экономической ситуации и торговых связях в регионе, приведших к широкому распространению такой керамики в Причерноморье. Эта цель может быть достигнута только благодаря результатам новых археологических проектов, особенно в северных районах Анатолии, и, возможно, путем проведения большего количества физико-химический анализов для определения района, сырье которого соответствует глине исследуемой керамики. В будущем это также поможет объяснить, почему производство и экспорт обсуждаемой керамики были прекращены незадолго до середины VI в., во время, которое являлось наиболее продуктивным для производителей краснолаковой керамики из Средиземноморья, главным образом фокейских и африканских сосудов (*Phocaean* и *African Red Slip wares*), заменивших понтийскую краснолаковую посуду на обширном региональном причерноморском рынке.

LIST OF FIGURES AND PLATES

FIGURES

PLATES

BIBLIOGRAPHY

ABBREVIATIONS

BAR	– British Archaeological Reports. Oxford.
BI	– Bosporskie issledovanija. Kerč', Simferopol'.
ChS	– Chersonesskij sbornik. Sevastopol'.
DB	– Drevnosti Bospora. Meždunarodnyj ežegodnik po istorii, archeologii, epigrafike, numizmatike i filologii Bospora Kimmerijskogo. Moskva.
DKZ	– Drogobyc'kyj kraeznavčyj zbirnyk. Drogobyč.
IAK	– Istorija i archeologija Kryma. Simferopol'.
JRA	– Journal of Roman Archaeology. Ann Arbor, Portsmouth.
KSIA	– Kratkie soobščenija Instituta archeologii Akademii Nauk SSSR. Moskva.
LAA	– Late Antique Archaeology. Leiden, Boston.
MAGK	– Materialy po archeologii Gruzii i Kavkaza. Tbilisi.
MAIET	– Materialy po archeologii, istorii i etnografii Tavrii. Simferopol', Kerč'.
Mat. Cerc. Arh.	– Materiale şi cercetări arheologice. Bucureşti.
MIA	– Materialy i issledovanija po archeologii SSSR. Moskva, Leningrad.
Peuce	– Peuce. Studii şi cercetări de istorie şi arheologie. Tulcea.
PIFK	– Problemy istorii, filologii, kul'tury. Moskva, Magnitogorsk, Novosibirsk.
RCRF Acta	– Rei Cretariae Romanae Fautorum Acta. Abingdon, Bonn, Oxford.
SA	– Sovetskaja archeologija. Moskva.
Stratum plus	– Stratum plus. Archeologija i kul'turnaja antropologija. Sankt-Peterburg, Kišinev, Odessa, Bucharest.

Agrba Z. V. 1985. Archeologičeskie raskopki 1981 g. na territorii mysa Picunda. [in:] G. K. Šamba (ed.), *Archeologičeskie otkrytija 1981–1982 gg. v Abchazii*. Tbilisi, 35–37.

Aibabin A., Khairedinova E. 1999. Les ensembles clos de la phase initiale de la nécropole de Loutchistoe en Crimée. [in:] J. Tejral, Ch. Pilet, M. Kazanski (eds.), *L'Occident romain et l'Europe centrale au début de l'époque des Grandes Migrations*. Brno, 275–308.

Aibabin A. I., Khairedinova E. A. 2001. New early assemblages from Luchistoe cemetery in the Crimea. [in:] E. Istvánovits, V. Kulcsár (eds.), *International Connections of the Barbarians of the Carpathian Basin in the 1st–5th Centuries A.D. Proceedings of the International Conference Held in 1999 in Aszód and Nyíregyháza*. Aszód, Nyíregyháza, 249–266.

Aibabin A. I., Khairedinova E. A. 2009. Chronology of complexes dating back to the 6th–7th centuries from the cemetery near the village of Luchistoye. [in:] D. Aparaschievi (ed.), *Studia Antiqua et Medievalia. Miscellanea in honorem annos LXXV peragentis Profesoris Dan Gh. Teodor oblata*. Bucureşti, 27–68.

Ajbabin A. I. 1984. Problemy chronologii mogil'nikov Kryma pozdnerimskogo perioda. *SA* (1), 104–122.

Ajbabin A. I. 1990. Chronologija mogil'nikov Kryma pozdnerimskogo i rannesrednevekovogo vremeni. *MAIET* 1, 3–86.

Ajbabin A. I. 1996. Naselenie Kryma v seredine III – IV vv. *MAIET* 5, 290–303.

Ajbabin A. I. 1999. *Etničeskaja istorija rannevizantijskogo Kryma*. Simferopol'.

Ajbabin A. I. 2001. Sklep epochi „Velikogo pereselenija narodov" na mogil'nike bliz sela Lučistoe v Krymu. [in:] *Srednevekovye drevnosti evrazijskich stepej*. Archeologija vostočnoevropejskoj lesostepi 15. Voronež, 24–31.

Ajbabin A. I. 2003a. Step' i Jugo-Zapadnyj Krym. [in:] *Krym, Severo-Vostočnoe Pričernomor'e...*, 16–22, 40–48, 59–64.

Ajbabin A. I. 2003b. Bospor. [in:] *Krym, Severo-Vostočnoe Pričernomor'e...*, 27–31.

Ajbabin A. I. 2010a. Rannevizantijskij Chersones – Cherson. [in:] V. N. Zalesskaja (ed.), *Vizantija v kontekste mirovoj kul'tury. Materialy konferencii, posvjaščenoj pamjati Alisy Vladimirovny Bank (1906–1984)*. Trudy Gosudarstvennogo Ermitaža 51, 353–379.

Ajbabin A. 2010b. Das frühbyzantinische Chersonesos/Cherson. [in:] F. Daim, J. Drauschke (eds.), *Byzanz – das Römerreich im Mittelalter. Teil 2, 1. Schauplätze*. Monographien des Römisch-Germanischen Zentralmuseums 84, 2, 1. Mainz, 397–423.

Ajbabin A. I. 2013. Archeologičeskoe nasledie chazar vremeni sozdanija kaganata. *MAIET* 18, 277–315.

Ajbabin A. I., Chajredinova E. A. 1998. Rannie kompleksy mogil'nika u sela Lučistoe v Krymu. *MAIET* 6, 274-311.

Ajbabin A. I., Chajredinova E. A. 2001. Novye rannie kompleksy iz mogil'nika u s. Lučistoe v Krymu. *MAIET* 8, 74–90.

Ajbabin A. I., Chajredinova E. A. 2008. *Mogil'nik u sela Lučistoe* 1. *Raskopki 1977, 1982–1984 godov*. BI Suppl. 4. Simferopol', Kerč'.

Ajbabin A. I., Chajredinova E. A. 2009a. *Das Gräberfeld beim Dorf Lučistoe* 1. *Ausgrabungen der Jahre 1977, 1982–1984*. Monographien des Römisch-Germanischen Zentralmuseums 83. Mainz.

Ajbabin A. I., Chajredinova E. A. 2009b. Rimskaja voinskaja prjažka iz Lučistogo. *MAIET* 15, 15–25.

Ajbabin A. I., Chajredinova E. A. 2010. Rimskaja voinskaja prjažka iz Lučistogo. [in:] A. Urbaniak *et alii* (eds.), *Terra Barbarica. Studia ofiarowane Magdalenie Mączyńskiej w 65. rocznicę urodzin*. Monumenta Archaeologica Barbarica. Series Gemina 2. Łódź, Warszawa, 509–516.

Ajbabin A. I., Chajredinova E. A. 2014. *Mogil'nik u sela Lučistoe* 2. *Raskopki 1984, 1986, 1991, 1993–1995 godov*. BI Suppl. 14. Simferopol', Kerč'.

Alekseeva E. M. 1997. *Antičnyj gorod Gorgippija*. Moskva.

Alekseeva E. M. 2015. Gorgippija. Poslednij etap razvitija (konec I–III v. n.e.). DB 19. Moskva, 7–27.

Apakidze A. 1978. Velikij Pitiunt. Archeologičeskie raskopki v Picunde. [in:] A. Apakidze (ed.), *Velikij Pitiunt* 3. Tbilisi, 9–99.

Apakidze A. M., Lordkipanidze O. D. 1965. Materialy k archeologii Dioskurii – Sebastopolisa. (Raskopki Pričernomorskoj archeologičeskoj ekspedicii Instituta Istorii AN GSSR v g. Suchumi v 1959 g.). *Vestnik otdelenija obščestvennych nauk Akademii Nauk GSSR* (3), 127–131.

Arsen'eva T. M. 1969. Issledovanie vala na zapadnom učastke gorodišča Tanaisa (1957 g.). [in:] D. B. Šelov (ed.), *Antičnye drevnosti Podon'ja – Priazov'ja*. Moskva, 98–103.

Arsen'eva T. M. 1981. Krasnolakovaja keramika iz Tanaisa konca IV – načala V v. n.e. *KSIA* 168, 43–47.

Arsen'eva T. M., Böttger B., Vinogradov Ju. 1995. Griechen am Don. Die Grabungen in Tanais 1994. *Eurasia Antiqua* 1, 213–263.

Arsen'eva T. M., Böttger B. 1996. Griechen am Don. Die Grabungen in Tanais 1995. *Eurasia Antiqua* 2, 405–453.

Arsen'eva T. M., Böttger B., Fornasier J. 2001. Griechen am Don. Die Grabungen in Tanais 2000. *Eurasia Antiqua* 7, 329–366.

Arsen'eva T. M., Domżalski K. 2002. Late Roman red slip pottery from Tanais. *Eurasia Antiqua* 8, 415–491.

Arsen'eva T. M., Il'jašenko S. M., Šoll' T., Matera M., Naumenko S. A. 2016. Issledovanija v Zapadnom gorodskom rajone Tanaisa v 2012–2014 gg. (raskop XXV). *Novensia* 27, 123–180.

Arsen'eva T. M., Naumenko S. A. 1995. Tanais IV – V vv. n.e. (po materialam raskopok 1989–1992 gg.). Bosporskij sbornik 6. Moskva, 45–58.

Arsen'eva T. M., Naumenko S. A. 2001. Raskopki Tanaisa v centre vostočnoj časti gorodišča. DB 4. Moskva, 56–124.

Arsen'eva T. M., Šoll' T., Matera M., Naumenko S. A., Rovin'ska A. 2006–2008. Otčet ob issledovanijach v Tanaise v 2007 godu (raskop XXV). *Światowit* 7 (A), 45–53.

Arsen'eva T. M., Šoll' T., Matera M., Naumenko S. A., Rovin'ska A. 2009–2010. Issledovanija v Zapadnom gorodskom rajone Tanaisa v 2008 g. (raskop XXV). *Światowit* 8 (A), 69–85.

Arslan N. 2004. Antiocheia (Pisidya) Kazılarında Bulunan Seramikler. *Olba* 10, 209–238.

Asatiani L. V. 1977. Krasnolakovaja keramika iz Picundy (Katalog). [in:] A. Apakidze (ed.), *Velikij Pitiunt* 2. Tbilisi, 177–210.

Atavin A. G. 1993. Krasnolakovaja keramika IV – VI vv. n.e. iz Fanagorii. Bosporskij sbornik 2. Moskva, 149–171.

Ateş G. 2015. *Die rote Feinkeramik von Aizanoi als lokaler Kulturträger. Untersuchungen zum Verhältnis von lokaler roter Feinkeramik und importierter Sigillata.* Aizanoi 2. Archäologische Forschungen 32. Wiesbaden.

Atlante 1981. A. Carandini *et alii*, *Ceramica fine romana nel bacino mediterraneo (medio e tardo impero)*. Enciclopedia dell'arte antica, classica e orientale. Atlante delle forme ceramiche 1. Roma.

Babenčykov V. P. 1963. Čornoričens'kyj mogil'nyk. Archeologični pam'jatky URSR 13. Kyiv, 90–123.

Bădescu A., Cliante L. 2015. Late Roman kitchen pottery discovered at Histria in the Centre – North Sector (2012). *Mat. Cerc. Arh.* s.n. 11, 209–226.

Bădescu A., Iliescu I. 2016. Late Roman pottery discovered at Histria in the Acropolis Centre – South Sector (2015). *Vasa escaria* – Late Roman C Wares. *Mat. Cerc. Arh.* s.n. 12, 141–157.

Băjenaru C. 2018. Fine wares from the excavations of the Late Roman fort at *Ulmetum* (province of *Scythia*). *RCRF Acta* 45, 501–510.

Beljaev S. A. 1968. Krasnolakovaja keramika Chersonesa IV – VI vv. [in:] V. F. Gajdukevič (ed.), *Antičnaja istorija i kul'tura Sredizemnomor'ja i Pričernomor'ja. K stoletiju so dnja roždenija akademika Sergeja Aleksandroviča Žebeleva, 1867–1967. Sbornik statej*. Leningrad, 31–38.

Berdzenišvili K. I. 1963. K izučeniju „krasnolakovoj" keramiki Bičvinty. (Po materialam raskopok 1952–53 gg.). MAGK 3. Tbilisi, 107–123.

Bes P. 2015. *Once upon a Time in the East. The Chronological and Geographical Distribution of Terra Sigillata and Red Slip Ware in the Roman East*. Roman and Late Antique Mediterranean Pottery 6. Oxford.

Bettger B., Ull'rich M. 2000. Pozdneantičnoe poselenie v Tanaise (rezul'taty rabot na raskope XIX). [in:] Ju. K. Guguev (ed.), *Sarmaty i ich sosedi na Donu. Sbornik statej*. Materialy i issledovania po archeologii Dona 1. Rostov-na-Donu, 282–307.

Blavatskij V. D. 1941a. Raskopki nekropolja Tiritaki v 1933 g. [in:] S. A. Žebelev, V. F. Gajdukevič (eds.), *Archeologičeskie pamjatniki Bospora i Chersonesa*. MIA 4. Moskva, Leningrad, 61–74.

Blavatskij V. D. 1941b. Otčet o raskopkach Fanagorii v 1936–1937 gg. [in:] D. N. Eding (ed.), *Raboty archeologičeskich ekspedicij*. Trudy Gosudarstvennogo Istoričeskogo muzeja 16. Moskva, 4–74.

Blavatskij V. D. 1951. Charaks. [in:] V. D. Blavatskij, B. N. Grakov (eds.), *Materialy po archeologii Severnogo Pričernomor'ja v antičnuju epochu*. MIA 19. Moskva, 250–291.

Bolgov N. N. 1996. *Zakat antičnogo Bospora. Očerki istorii Bosporskogo gosudarstva pozdneantičnogo vremeni (IV – V vv.)*. Belgorod.

Bonifay M. 2004. *Etudes sur la céramique romaine tardive d'Afrique*. BAR International Series S1301. Oxford.

Bonifay M. 2005. Observations sur la diffusion des céramiques africaines en Médietrranée orientale durant l'Antiquité tardive. *Mélanges Jean-Pierre Sodini*. Travaux et Mémoires 15. Paris, 565–581.

Bonora Andujar I. 2012. La vaiselle de métal. [in:] N. Bel *et alii* (eds.), *L'Orient romain et byzantin au Louvre*. Arles, Paris, 162–165.

Bortoli-Kazanski A., Kazanski M. 1987. Les sites archéologiques datés du IVe au VIIe siècle au Nord et au Nord-Est de la mer Noire: état des recherches. Travaux et Mémoires 10. Paris, 437–489.

Böttger B. 1982. Die Gefäßkeramik aus dem Kastell Iatrus. [in:] G. v. Bülow *et alii* (eds.), *Ergebnisse der Ausgrabungen 1966–1973*. Iatrus-Krivina. Spätantike Befestigung und frühmittelalterliche Siedlung an der unteren Donau 2. Berlin, 33–148.

Böttger B. 1991. Ein neuer Gebäudekomplex des 1.-3. Jh. in Tanais. Ausgrabungsbefund und Funktionsbestimmung. *Klio* 73 (1), 171–207.

Braund D. 1994. *Georgia in Antiquity. A History of Colchis and Transcaucasian Iberia 550 BC – AD 562*. Oxford.

Bülow G. v. 2007. The fort of Iatrus in Moesia Secunda: Observations on the Late Roman defensive system on the Lower Danube (fourth – sixth centuries AD). [in:] A. G. Poulter (ed.), *The Transition to Late Antiquity on the Danube and Beyond*. Proceedings of the British Academy 141. Oxford, 459–478.

Chanutina Z. V., Chršanovskij V. A. 2009. Pogrebal'nyj kompleks gunnskogo vremeni iz nekropolja Kiteja. [in:] V. Ju. Zuev (ed.), *Bosporskij fenomen: Iskusstvo na periferii antičnogo mira. Materialy meždunarodnoj naučnoj konferencii*. Sankt-Peterburg, 58–69.

Choynowski J. 1904. *Słowianie w czasach przedhistorycznych. Opis zbiorów archeologicznych*. Warszawa.

Chrapunov I. M. 1998. Sklep IV st. n.e. iz mogyl'nyka Družne. *Archeologija* (Kiev) (4), 118–127.

Chrapunov I. N. 2000. Tri podbojnye mogily IV v. n.e. iz nekropolja Družnoe. *MAIET* 7, 51–64.

Chrapunov I. N. 2002. *Mogil'nik Družnoe (III – IV vv. našej ery)*. Monumenta Studia Gothica 2. Lublin.

Chrapunov I. N. 2006. Pogrebenie voina IV v. n.e. iz mogil'nika Nejzac. [in:] R. V. Terpilovskij (ed.), *Goty i Rim. Sbornik naučnych statej*. Kiev, 42–51.

Chrapunov I. N. 2008. Sklep IV v. n.e. iz mogil'nika Nejzac. *PIFK* 21, 356–392.

Chrapunov I. N. 2011. *Sklep s pogrebenijami III – IV vv. n.e. iz mogil'nika Nejzac*. Simferopol'.

Chrapunov I. N., Chrapunov N. I. 1999. Sklep s zachoronenijami IV v. n.e. iz mogil'nika Družnoe v Krymu. ChS 10. Sevastopol', 242–256

Chrapunov I. N., Mul'd S. A. 1997. Zaveršenie issledovanij mogil'nika Družnoe. [in:] V. A. Kutajsov (ed.), *Archeologičeskie issledovanija v Krymu. 1994 god. Sbornik naučnych statej*. Simferopol', 256–262.

Chršanovskij V. A. 2002. Pogrebal'nye kompleksy IV v. n.e. na nekropole Kiteja. *BI* 2, 313–326.

Chruškova L. G. 2002. *Rannechristianskie pamjatniki Vostočnogo Pričernomor'ja (IV – VII veka)*. Moskva.

Conrad S. 2007. Die Gefäßkeramik. [in:] G. von Bülow *et alii*, *Die Ergebnisse der Ausgrabungen 1992–2000*. Iatrus–Krivina. Spätantike Befestigung und frühmittelalterliche Siedlung an der unteren Donau 6. Mainz am Rhein, 209–264.

Conspectus 1990. E. Ettlinger *et alii*, *Conspectus formarum terrae sigillatae italico modo confectae*. Materialien zur römisch-germanischen Keramik 10, Bonn.

Crowfoot G. M., Kenyon K. M. 1957. Pottery: Hellenistic and Later. [in:] J. W. Crowfoot, G. M. Crowfoot, K. M. Kenyon (eds.), *The Objects from Samaria*. Samaria-Sebaste 3. London, 217–364.

Čurkin A. S., Škribljak I. I. 2017. Novye pozdneantičnye nekropoli v Central'nom Krymu. [in:] O. V. Šarov (ed.), *Meždu Limesom i Podnebesnoj: centry vlasti i proizvodstva. Stratum plus* (4), 265–293.

Daszkiewicz M. 2014. Ancient pottery in the laboratory – principles of archaeoceramological investigations of provenance and technology. *Novensia* 25, 177–197.

Daszkiewicz M., Maritan L. 2017. Experimental firing and re-firing. [in:] A. Hunt (ed.), *The Oxford Handbook of Archaeological Ceramic Analysis*. Oxford, 487–508.

Daszkiewicz M., Schneider G. 1997. Chemical composition of Cypriot Red Slip Ware from Kourion and Nea Paphos. *Polish Archaeology in the Mediterranean* 8, *Reports 1996*, 139–143.

Daszkiewicz M., Schneider G. 2001. Klassifizierung von Keramik durch Nachbrennen von Scherben. *Zeitschrift für Schweizerische Archäologie und Kunstgeschichte* 58, 25–32.

Daszkiewicz M., Schneider G. (in cooperation with E. Bobryk) 2021. Analyzes of archaeological ceramics. [in:] M. Meyer (ed.), *Approaching Economic Spaces. Methods and Interpretation in Archaeometric Ceramic Analysis*. Berlin Studies of the Ancient World 64. Berlin, 25–49.

Daszkiewicz M., Schneider G., Raabe J. 1995. Cypriot Sigillata and Cypriot Red Slip Wares – A comparison of technological and chemical analysis and of thin section studies. [in:] B. Fabbri (ed.), *The Cultural Ceramic Heritage. 3rd European Meeting on Ancient Ceramics*. Fourth Euro-Ceramics 14. Faenza, 151–171.

Didenko S. V. 2009. Sosudy gruppy Pontic Red Slip Ware v černjachovskoj kul'ture. [in:] K. Myzgin (ed.), *Ostrogothica. Archeologija Central'noj i Vostočnoj Evropy pozdnerimskogo vremeni i Epochi Velikogo pereselenija narodov. Sbornik naučnych trudov k 10-letiju Germano-Slavjanskoj archeologičeskoj ekspedicii Char'kovskogo nacional'nogo universiteta imeni V. N. Karazina*. Char'kov, 64–71.

Didenko S. V. 2014. Chronologija svetloglinjanych uzkogorlych amfor tipov Šelov D i F (po materialam pogrebal'nych kompleksov). [in:] O. V. Petrauskas, S. A. Gorbanenko (eds.), *Černjachivs'ka kul'tura. Do 120-ričča vid dnja narodžennja V. P. Petrova*. Oium 4. Kyiv, 34–48.

Dmitriev A. V. 1979a. Mogil'nik epochi pereselenija narodov na reke Djurso. *KSIA* 158, 52–57.

Dmitriev A. V. 1979b. Pogrebenija vsadnikov i boevych konej v mogil'nike epochi pereselenija narodov na r. Djurso bliz Novorossijska. *SA* (4), 212–229.

Dmitriev A. V. 1982. Rannesrednevekovye fibuly iz mogil'nika na r. Djurso. [in:] A. K. Ambroz, I. F. Erdeli (eds.), *Drevnosti epochi Velikogo pereselenija narodov V – VIII vekov. Sovetsko-vengerskij sbornik*. Moskva, 69–107.

Dmitriev A. V. 2003. Mogil'nik Djurso – etalonnyj pamjatnik drevnostej V–IX vekov. [in:] *Krym, Severo-Vostočnoe Pričernomor'e...*, 200–206.

Dmitriev A. V., Dovgaljuk N. P., Malyšev A. A., Maslennikov A. A., Onajko N. A. 2011. Opisanie pogrebal'nych kompleksov. Katalog. [in:] A. A. Malyšev (ed.), *Naselenie predgorij Severo-Zapadnogo Kavkaza v rimskuju epochu. Po materia-*

lam nekropolja v Širokoj Balke. Nekropoli Černomor'ja 4. Moskva, 9–225.

Dodonova A. 1997. *Dmitrij Gennad'evič Burylin*. Ivanovo.

Domżalski K. 1996. Terra sigillata from Nymphaion. Survey 1994. *Archeologia* (Warsaw) 47, 95–109.

Domżalski K. 2000. Notes on Late Roman red slip wares in the Bosporan Kingdom. *RCRF Acta* 36, 161–168.

Domżalski K. 2007. La céramique sigillée romaine tardive en Abkhazie. [in:] M. Kazanski, A. Mastykova (eds.), *Tsibilium. La nécropole apsile de Tsibilium (VIIe av. J.-C. – VII ap. J.-C.) (Abkhazie, Caucase). L'étude du site*. BAR International Series S1721 (2). Oxford, 75–77.

Domżalski K. 2011. Late Roman pottery from Pompeiopolis. [in:] L. Summerer (ed.), *Pompeiopolis I. Eine Zwischenbilanz aus der Metropole Paphlagoniens nach fünf Kampagnen (2006–2010)*. Langenweißbach, 163–177.

Domżalski K. 2016–2017. Roman to Early Byzantine fine pottery from Pompeiopolis in Paphlagonia. From the long distance trade to the local market. *Archeologia* (Warsaw) 67, 73–87.

Domżalski K. 2021. Red slip pottery and Late Roman Tanais in the light of new rsearch. [in:] M. Matera, R. Karasiewicz-Szczypiorski (eds.), *Interdisciplinary Research on the Antiquity of the Black Sea*. Pontica et Caucasica 2. Światowit Suppl. Series C. Warsaw, 29–33.

Domżalski K., Panaite A. 2019. Tropaeum Traiani in the Late Roman trade network and road system. The evidence of the long-distance imports of fine pottery. *Novensia* 30, 109–125.

Domżalski K., Smokotina A. V. 2020. Late Roman and Early Byzantine fine pottery from Tyritake. [in:] V. N. Zin'ko, A. V. Zin'ko, L. Ju. Ponomarev *et alii*, *Tiritaka. Raskop XXVI. Tom III. Archeologičeskie kompleksy vtoroj poloviny III – VII vv*. BI Suppl. Simferopol', Kerč', 618–645.

Domżalski K., Žuravlev D. V. 2013. Fragmenty Pontijskoj pozdnerimskoj loščenoj keramiki s christianskoj simvolikoj iz Chersonesa. *Rossijskaja archeologija* (2), 137–143.

Domžal'skij K., Smokotina A. V. 2020. Pozdnerimskaja i rannevizantijskaja krasnolakovaja keramika Tiritaki. *MAIET* 25, 188–223.

Doonan O. 2004. *Sinop Landscapes. Exploring Connection in a Black Sea Hinterland*. Philadelphia.

Dragendorff H. 1897. Zur Terrasigillataindustrie in Griechenland, Kleinasien, Südrussland und Aegypten. *Bonner Jahrbücher* 101, 140–152.

Džaparidze V. M. 1974. Archeologičeskie izučenie gorodišča Vardciche. Archeologičeskie pamjatniki feodal'noj Gruzii 2. Tbilisi, 84–105.

Džaparidze V. M. 1989. *Vardcichskoe gorodišče (k archeologičeskomu issledovaniju gorodov Egrisi)*. Tbilisi.

Empereur J.-Y., Picon M. 1986. A propos d'un nouvel atelier de "Late Roman C". *Figlina. Documents du Laboratoire de céramologie de Lyon* 7, 143–146.

Ergürer H. E. 2014. Late Roman Light Coloured Ware from Parion. [in:] H. Meyza, K. Domżalski (eds.), *Late Hellenistic to Mediaeval Fine Wares of the Aegean Coast of Anatolia. Their Production, Imitation and Use*. Warsaw, 175–191.

Ermolin O. 2003. Archeologični doslidžennja antyčnogo nekropolja Džurg-Oba (Kerč) v 2002 r. *DKZ* 7, 8–42.

Ermolin O. 2004. Archeologični doslidžennja antyčnogo nekropolja Džurg-Oba (Kerč) v 2003 r. *DKZ* 8, 11–37.

Ermolin O. 2005. Archeologični doslidžennja antyčnogo nekropolja Džurga-Oba (Kerč) v 2004 roci. *DKZ* 9, 128–156.

Ermolin O. 2006. Archeologični doslidžennja antyčnogo nekropolja Džurg-Oba (Kerč) v 2005 roci. *DKZ* 10, 11–44.

Ermolin O., Juročkin V. 2002. Rozkopky sklepu no. 2 na mogyl'nyku Džurg-Oba (Kerč) v 2001 r. (dosvid veryfikacijnogo doslidžennja). *DKZ* 6, 84–104.

Ermolin A. L., Juročkin V. Ju. 2008. „Sklep Savaga" na Evropejskom Bospore. [in:] E. B. Petrova (ed.), *Chersonesskij kolokol'. Sbornik naučnych statej, posvjaščenych 70-letiju so dnja roždenija i 50-letiju naučnoj dejatel'nosti Vitalija Nikolaeviča Danilenko*. Simferopol', 51–72.

Farbej O. M. 1998. Pochoval'nyj kompleks rann'oseredn'ovičnogo času i dejaki pytannja z istorii Chersonesa Tavrijs'kogo v IV – VI st. *Archeologija* (Kyiv) (3), 122–129.

Fedorov G. B., Rošal' M. G. 1979. Pogrebenie IV v. n.e. u s. Syčavka. *SA* (2), 265–270.

Fedoseev N. F., Domżalski K., Opaiț A., Kulikov A. V. 2010. Post-Justinian pottery deposit from Pantikapaion – Bosporos (rescue excavations at 12, Teatral'naja St. in Kerch, 2006). *Archeologia* (Warsaw) 61, 63–94.

Fırat N. 2010. Les céramiques sigillées mises au jour dans l'atelier de Demirci. [in:] D. Kassab Tezgör (ed.), *Les fouilles et le materiel de l'atelier amphorique de Demirci pres de Sinope*. Varia Anatolica 22. Istanbul, Paris, 187–195.

Frolova N. A. 1998. Problema kontinuiteta na pozdneantičnom Bospore po numizmatičeskim dannym. *Vestnik drevnej istorii* (1), 247–262.

Frolova N. 1999. The question of continuity in the Late Classical Bosporus on the basis of numismatic data. Ancient Civilizations from Scythia to Siberia 5 (3). Leiden, Boston, Köln, 179–205.

Gabelia A. N. 2014. *Abchazija v predantičnuju i antičnuju epochi*. Suchum.

Gajdukevič V. F. 1952. Raskopki Tiritaki v 1935–1940 gg. [in:] V. F. Gajdukevič, M. I. Maksimova (eds.), *Itogi archeologičeskich issledovanij Tiritaki i Mirmekija v 1935–1940 gg. Bosporskie goroda* 1. MIA 25. Moskva, Leningrad, 15–134.

Gajdukevič V. F. 1959. Nekropoli nekotorych bosporskich gorodov. (Po materialam raskopok 1930-ch godov). [in:] V. F. Gajdukevič (ed.), *Nekropoli bosporskich gorodov*. MIA 69. Moskva, Leningrad, 154–238.

Gămureac Ş., Ionescu M. S., Drăghici F. 2015–2016. The A9 Edifice from Tropaeum Traiani (II). A Late Roman house in Scythia Minor (5th – 6th century AD). *Pontica* 48–49, 209–239.

Gavrituchin I. O., Kazanskij M. M. 2006. Bospor, tetraksity i Severnoj Kavkaz vo vtoroj polovine V – VI vv. *Archeologičeskie vesti* 13, 297–344.

Gavrituchin I. O., Paromov Ja. M. 2003. Il'ičevskoe gorodišče i poselenija ego okrugi. [in:] *Krym, Severo-Vostočnoe Pričernomor'e...*, 152–157.

Gavrituchin I. O., P'jankov A. V. 2003. Mogil'niki III–IV vekov. Drevnosti V–VII vekov. Mogil'niki V–VII vekov. [in:] *Krym, Severo-Vostočnoe Pričernomor'e...*, 187–195.

Gej O. A., Bažan I. A. 1997. *Chronologija epochi „gotskich pochodov" (na territorii Vostočnoj Evropy i Kavkaza)*. Moskva.

Gempeler R. D. 1992. *Die Keramik römischer bis früharabischer Zeit*. Elephantine 10. Archäologische Veröffentlichungen 43. Mainz am Rhein.

Gerber Ch. 2003. Die Keramikgruppen von Tavium / Büyüknefes. *Anatolia Antiqua* 11, 223–251.

Gercen A., Mączyńska M. 2000. Ein frühvölkerwanderungszeitliches Kammergrab aus dem Gräberfeld Almalyk-dere bei Mangup auf der Krim. [in:] M. Mączyńska, T. Grabarczyk (eds.), *Die spätrömische Kaiserzeit und die frühe Völkerwanderungszeit in Mittel- und Osteuropa*. Łódź, 522–544.

Gercen A. G., Manaev A. Ju. 2005. Demir-Kapu (ukreplenie A.XIX) v sisteme oboronitel'nych sooruženij Mangupa. *MAIET* 11, 314–345.

Gercen A. G., Naumenko V. E. 2006. K istorii citadeli Mangupa (po materialam archeologičeskich issledovanij na jugo-vostočnom sklone mysa Teškli-Burun). Antičnaja drevnost' i srednie veka 37. Ekaterinburg, 384–432.

Gercen A. G., Zemljakova A. Ju., Naumenko V. E., Smokotina A. V. 2006. Stratigrafičeskie issledovanija na jugo-vostočnom sklone mysa Teškli-Burun (Mangup). *MAIET* 12, 371–494.

Glasierte Keramik in Pannonien 1992. P. Kovács (ed.). Mitteilungen des König Sankt Stephan Museums 212. Székesfehérvár.

Golenko V. K. 1999. K voprosu o vremeni sooruženija „citadeli" na gore Opuk. ChS 10. Sevastopol', 39–49.

Golenko V. K. 2007. *Drevnij Kimmerik i ego okruga*. Simferopol'.

Golenko V. K., Juročkin V. Ju., Sin'ko O. A., Džanov A. V. 1999. Runičeskij kamen' s g. Opuk v Krymu i nekotorye problemy istorii severopričernomorskich germancev. DB 2. Moskva, 77–97.

Golofast L. A. 2001. Steklo rannevizantijskogo Chersonesa. *MAIET* 8, 97–260.

Golofast L. A. 2003. Cherson in the 7th century AD: The archaeological aspect. [in:] G. R. Tsetskhladze (ed.), *Ancient West and East* 2.1. Leiden, Boston, 96–115.

Golofast L. A. 2007a. Zapadnyj rajon Chersonesa v rannevizantijskoe vremja. *MAIET* 13, 68–128.

Golofast L. A. 2007b. Early Byzantine deposits from Chersonesos. [in:] A. Aibabin, H. Ivakin (eds.), *Kiev – Cherson – Constantinople. Ukrainian Papers at the 20th International Congress of Byzantine Studies (Paris, 19–25 August 2001)*. Kiev, Simferopol, Paris, 45–75.

Golofast L. A., Ol'chovskij S. V. 2016. Kompleks keramiki iz podvodnogo fundamenta v akvatorii Fanagorii. [in:] A. A. Zavojkin (ed.), *Materialy po archeologii i istorii Fanagorii. Vyp. 2*. Fanagorija. Rezul'taty archeologičeskich issledovanij 4. Moskva, 46–82.

Golofast L. A., Ryžov S. G. 2000. Kompleks rannevizantijskogo vremeni iz raskopok kvartala Xb v severnom rajone Chersonesa. *PIFK* 9, 78–117.

Golofast L. A., Ryžov S. G. 2011. Severnyj rajon Chersonesa v rannevizantijskoe vremja (kvartaly VIII i IX). *MAIET* 17, 363–411.

Golofast L. A., Ryžov S. G. 2013. Severnyj rajon Chersonesa v rannevizantijskoe vremja (kvartaly X, X-A i X-B). *MAIET* 18, 49–161.

Golofast L. A., Ryžov S. G. 2018. K voprosu o proischoždenii posudy gruppy "Pozdnerimskoj pontijskoj loščenoj". *PIFK* 61 (3), 47–59.

Grigoraş B., Panaite A. 2021. The Late Roman amphorae from Tropaeum Traiani, Sector A (north of the Basilica A), 2005–2016. *Mat. Cerc. Arh.* s.n. 17, 87–114.

Gudkova A. V., Schultze E. 2017. *Gräberfeld und Siedlung Nagornoe 2. Ein Fundplatz der Sântana de Mureş – Černjachov-Kultur an der Unteren Donau*. Archäologie in Eurasien 35. Bonn.

Harhoiu R. [1997]. *Die frühe Völkerwanderungszeit in Rumänien*. Archaeologia Romanica 1. Bukarest.

Hayes J. W. 1972. *Late Roman Pottery*. London.

Hayes J. W. 1980. *A Supplement to Late Roman Pottery*. London.

Hayes J. W. 1985. Sigillate orientali. [in:] *Ceramica fine romana nel bacino mediterraneo (tardo ellenismo e primo impero)*. Enciclopedia dell'arte antica, classica e orientale. Atlante delle forme ceramiche 2. Roma, 1–96.

Hayes J. W. 1992. *The Pottery*. Excavations at Saraçhane in Istanbul 2. Princeton.

Hayes J. W. 1998. Introduction. The study of Roman pottery in the Mediterranean: 23 years after *Late Roman Pottery*. [in:] L. Sagui (ed.), *Ceramica in Italia: VI–VII secolo. Atti del Convegno in onore di John W. Hayes, Roma, 11–13 maggio 1995*. Firenze, 9–21.

Hayes J. W. 2000. From Rome to Beirut and beyond: Asia Minor and Eastern Mediterranean trade connections. *RCRF Acta* 36, 285–297.

Hayes J. W. 2001. Late Roman fine wares and their successors: a Mediterranean Byzantine perspective (with reference to the Syro-Jordanian situation). [in:] E. Villeneuve, P. M. Watson (eds.), *La céramique byzantine et proto-islamique en Syrie-Jordanie (IVe–VIIIe siècles apr. J.-C.). Actes du colloque tenu à Amman les 3, 4, et 5 décembre 1994*. Beyrouth, 275–282.

Hayes J. W. 2008. *Roman Pottery. Fine-Ware Imports*. The Athenian Agora 32. Princeton.

Heberdey R. 1906. Kleinfunde. [in:] R. Heberdey, G. Niemann, *Der Rundbau auf dem Panajirdagh*. Forschungen in Ephesos 1. Wien, 167–180.

Iliescu I., Bottez V., Ţârlea A., Liţu A., Bivolaru A. 2017. Late Roman C wares discovered at Histria in the Acropolis Centre-South sector (2013 and 2014). *Mat. Cerc. Arh.* s.n. 13, 47–72.

Il'jašenko S. M. 2013. Standartnye *dipinti* na uzkogorlych svetloglinjanych amforach Tanaisa i ego okrugi III–IV vv. n.e. *BI* 29.

Il'jašenko S. M., Matera M., Lech P., Adamjak M., Ivaščuk U., Sročyn'ska E. 2018. Issledovanija v Zapadnom gorodskom rajone Tanaisa v 2015–2017 gg. (raskop XXV). *Novensia* 29, 103–177.

Inaišvili N. A. 1993. *Archeologičeskie pamjatniki Cichisdziri I – VI vv. n.e.* Pamjatniki Jugo-Zapadnoj Gruzii 21. Tbilisi.

Isings C. 1957. *Roman Glass from Dated Finds*. Groningen, Djakarta.

Ivanova O. S. 2009. Krasnolakovaja keramika iz raskopok mogil'nika v balke Almalyk-Dere (Mangup). *MAIET* 15, 26–88.

Izdebski A. 2013. The economic expansion of the Anatolian countryside in Late Antiquity: The coast versus inland regions. [in:] L. Lavan (ed.), *Local Economies? Production and Exchange of Inland Regions in Late Antiquity*. LAA 10. Leiden, Boston, 343–376.

Jackson M., Zelle M., Vandeput L., Köse V. 2012. Primary evidence for Late Roman D Ware production in southern Asia Minor: a challenge to 'Cypriot Red Slip ware'. *Anatolian Studies* 62, 89–114.

Jašaeva T. Ju. 1999. Rannesrednevekovoe poselenie v predmesti Chersona na Geraklejskom poluostrove. ChS 10. Sevastopol', 349–358.

Jones F. F. 1950. The pottery. [in:] H. Goldman (ed.), *The Hellenistic and Roman Periods*. Excavations at Gözlü Kule, Tarsus 1. Princeton, 149–296.

Juročkin V. Ju. 1997. O chronologii Suvorovskogo pozdneantičnogo mogil'nika. [in:] S. B. Ochotnikov (ed.), *Nikonij i antičnyj mir Severnogo Pričernomor'ja. Sbornik naučnych statej Meždunarodnoj archeologičeskoj konferencji*. Odessa, 304–310.

Juročkin V. Ju. 2004, Voprosy chronologii inventarja IV v. v Tavrike. [in:] V. Ju. Zuev (ed.), *Bosporskij fenomen: Problemy chronologii i datirovki pamjatnikov. Materialy meždunarodnoj naučnoj konferencii. Čast' 2*. Sankt-Peterburg, 159–166.

Juročkin V. Ju., Trufanov A. A. 2003. Pozdneantičnyj pogrebal'nyj kompleks v nizov'jach reki Kači. ChS 12. Sevastopol', 199–225.

Juročkin V. Ju., Trufanov A. A. 2007. Chronologija mogil'nikov central'nogo i jugo-zapadnogo Kryma 3–4 vv. n.e. [in:] Ju. P. Zajcev, V. I. Mordvinceva (eds.), *Drevnjaja Tavrika. Posvjaščaetsja 80-letiju Tat'jany Nikolaevny Vysotskoj*. Simferopol', 359–382.

Juročkin V. Ju., Zubarev V. G. 2001. Kompleks s monetami IV veka iz raskopok gorodišča Belinskoe. DB 4. Moskva, 454–473.

Kachidze A., Memuladze Š. 2001. Pogrebenija rannesrednevekovogo perioda iz Pičvnari. *Rossijskaja archeologija* (1), 76–87.

Kadeev V. I., Soročan S. B. 1989. *Ekonomičeskie svjazi antičnych gorodov Severnogo Pričernomor'ja v I v. do n.e. – V v. n.e. (na materialach Chersonesa)*. Char'kov.

Kapošina S. I. 1960. *Otčet o raskopkach Kobjakova gorodišča v 1960 g*. Rostov-na-Donu (unpublished report, archives of the ROMK, Rostov-na-Donu).

Kassab Tezgör D. 2020. *Corpus des amphores romaines produites dans les centres de mer Noire. Collections des musées de la côte turque de la mer Noire (Ereğli, Amasra, Sinop, Samsun, Giresun, Ordu, Trabzon et Amasya)*. Archaeopress Roman Archaeology 74. Oxford.

Kaufmann-Heinimann A., Martin M. 2017. *Die Apostelkanne und das Tafelsilber im Hortfund von 1628. Trierer Silberschätze des 5. Jahrhunderts*. Trierer Zeitschrift Suppl. 35. Trier.

Kazanski M. 1991. Contribution à l'histoire de la défense de la frontière pontique au Bas-Empire. Travaux et Mémoires 11. Paris, 487–526.

Kazanski M. 1993. The sedentary élite in the "empire" of the Huns and its impact on material civilisation in Southern Russia during the Early Middle Ages (5th–7th centuries AD). [in:] J. Chapman, P. Dolukhanov (eds.), *Cultural Transformations and Interactions in Eastern Europe*. Worldwide Archaeology Series 6. Aldershot, 211–235.

Kazanski M. 1999. Les tombes des chefs militaires de l'époque hunnique. [in:] T. Fischer, G. Precht, J. Tejral (eds.), *Germanen beiderseits des spätantiken Limes. Materialien des X. Internationalen Symposiums "Grundprobleme der frühgeschichtlichen Entwicklung im nördlichen Mitteldonaugebiet", Xanten vom 2.–6. Dezember 1997*. Köln, Brno, 293–316.

Kazanski M. 2002. Die Chronologie der Anfangsphase des Gräberfeldes von Djurso. [in:] J. Tejral (ed.), *Probleme der frühen Merowingerzeit im Mitteldonauraum. Materialien des XI. Internationalen Symposiums "Grundprobleme der frühgeschichtlichen Entwicklung im nördlichen Mitteldonaugebiet", Kravsko vom 16.–19. November 1998*. Brno, 137–157.

Kazanski M., Mastykova A. 1999. Le Caucase du Nord et la région méditerranéenne aux 5e – 6e siècles. À propos de la formation la civilisation aristocratique barbare. *Eurasia Antiqua* 5, 523–573.

Kazanskij M. M. 2001. Chronologija načal'noj fazy mogil'nika Djurso. Istoriko-archeologičeskij al'manach 7. Armavir, Moskva, 41–58.

Kazanskij M. M., Mastykova A. V. 2009. Pogrebenija konej v Abchazii v pozdnerimskoe vremja i v epochu Velikogo pereselenija narodov. [in:] I. I. Marčenko (ed.), *Pjataja Kubanskaja archeologičeskaja konferencija. Materialy konferencii*. Krasnodar, 150–155.

Kenrick P. M. 1985. *The Fine Pottery*. Excavations at Sidi Khrebish, Benghazi (Berenice) 3 (1). Libya Antiqua Suppl. 5. Tripoli.

Khrapunov I. 2013. Several results of the researches of the cemetery of Neyzats. [in:] I. Khrapunov (ed.), *Exploring the Cemetery of Neyzats. Collected Papers*. Simferopol, Kristiansand, 13–123.

Khrapunov I. N., Mould S. A. 2003. The 4th century AD Alan vault from Druzhnoe cemetery in the Crimea. [in:] C. von Carnap-Bornheim (ed.), *Kontakt – Kooperation – Konflikt. Germanen und Sarmaten zwischen dem 1. und dem 4. Jahrhundert nach Christus. Internationales Kolloquium des Vorgeschichtlichen Seminars der Philipps-Universität Marburg, 12.–16. Februar 1998*. Neumünster, 103–122.

Klenina E. Ju. 2013. Nekotorye aspekty ekonomičeskoj žizni v Novach (Mezija II) (V–VI veka). [in:] A. B. Biernacki, E. Ju. Klenina, E. Genčeva, *Biskupstwo w Novae (Moesia Secunda) IV–VI w. Historia – architektura – życie codzienne. Tom II. Życie codzienne*. Novae. Studies and Materials 4. Poznań, 75–116.

Klenina E. Ju. 2014. Trade relations of Novae (Moesia II) according to ceramic evidence from an assemblage of the late 5th – early 6th centuries AD. [in:] N. Poulou-Papadimitriou *et alii* (eds.), *LRCW 4. Late Roman Coarse Wares, Cooking Wares and Amphorae in the Mediterranean. Archaeology and Archaeometry. The Mediterranean: a Market without Frontiers*. BAR International Series 2616 (II). Oxford, 931–941.

Knipovič T. N. 1949. *Tanais. Istoriko – archeologičeskoe issledovanie*. Moskva, Leningrad.

Knipovič T. N. 1952. Krasnolakovaja keramika pervych vekov n.e. iz raskopok Bosporskoj ekspedicii 1935–1940 gg. [in:] V. F. Gajdukevič, M. I. Maksimova (eds.), *Itogi archeologičeskich issledovanij Tiritaki i Mirmekija v 1935–1940 gg. Bosporskie goroda* 1. MIA 25. Moskva, Leningrad, 289–326.

Kopylov V. P. 1996. *Otčet ob issledovanijach v del'te Dona archeologičeskoj ekspedicii NMCA RGPU v 1996 godu*. Rostov-na-Donu (unpublished report, archives of the NMCA JFU, Rostov-na-Donu).

Koval'čuk A .V., Dikarev V. A. 2016. Krasnolakovaja posuda iz Zol'nika 1 u buchty Sirenevaja. Predvaritel'nyj analiz. DB 20. Moskva, 289–307.

Krapivina V. V. 1993. *Ol'vija. Material'naja kul'tura I – IV vv. n.e.* Kiev.

Krapivina V. V. 2010. Red-glossed pottery. [in:] N. A. Lejpunskaja *et alii* (eds.), *The Lower City of Olbia (Sector NGS) in the 6th Century BC to the 4th Century AD*. Black Sea Studies 13. Aarhus, 261–267.

Krapivina V. V., Domžal'skij K. 2008. Pozdneantičnaja Ol'vija v svete nachodok krasnolakovoj keramiki. [in:] V. Ju. Zuev (ed.), *Bospor i Severnoe Pričernomor'e v antičnuju epochu. Materialy jubilejnogo meždunarodnogo kruglogo stola, posvjaščennogo 10-letiju konferencji „Bosporskij Fenomen"*. Sankt-Peterburg, 73–81.

Krym, Severo-Vostočnoe Pričernomor'e i Zakavkaz'e v epochu srednevekov'ja IV–XIII veka. 2003. T. I. Makarova, S. A. Pletneva (eds.). Archeologija. Moskva.

Kübler K. 1931. Spätantike Stempelkeramik. Mitteilungen aus dem Kerameikos 5. *Mitteilungen des Deutschen Archäologischen Instituts, Athenische Abteilung* 56, 75–86.

Kutajsov V. A., Trufanov A. A. 2014. Bassejn pod četyrechapsidnym chramom v Chersonese (raskopki 1977–1979 gg.). IAK 1. Simferopol', 234–280.

Kuzmanov G. 1985. *Rannovizantijska keramika ot Trakija i Dakija (IV – načaloto na VII v.)*. Razkopki i proučvanija 13. Sofija.

Laflı E., Kan Şahin G. 2016. *Hadrianopolis III. Ceramic Finds from Southwestern Paphlagonia*. BAR International Series 2786. Oxford.

Lamboglia N. 1958. Nuove osservazioni sulla "terra sigillata chiara" (Tipi A e B). *Rivista di Studi Liguri* 24 (3–4), 257–330.

Lamboglia N. 1963. Nuove osservazioni sulla "terra sigillata chiara" (2). *Rivista di Studi Liguri* 29, 145–212.

Lech P. 2018. A preliminary study on table pottery from Polish excavations in Tanais (Russia). [in:] V. Ju. Zuev, V. A. Chršanovskij (eds.), *Bosporskij fenomen. Obščee i osobennoe v istoriko-kul'turnom prostranstve antičnogo mira. Materialy meždunarodnoj naučnoj konferencii*. Čast' 1. Sankt-Peterburg, 306–311.

Lekvinadze V. A. 1987. Massovyj archeologičeskij material IV – XI vv. obnaružennyj v Nokalakevskom gorodišče v 1978–1982 gg. [in:] *Nokalakevi–Archeopolis* 2. *Archeologičeskie raskopki 1978–1982*. Tbilisi, 237–247.

Lekvinadze V. A., Chvedelidze L. I. 1981. Massovye archeologičeskie nachodki iz raskopok Archeopolisa. [in:] P. P. Zakaraja (ed.), *Nokalakevi – Archeopolis. Archeologičeskie raskopki 1973–1977*. Tbilisi, 120–149.

Levada M. E. 2013. O vlijanii alanskich voennych tradicij na vostočnogermanskie narody. [in:] I. N. Chrapunov (ed.), *Krym v sarmatskuju epochu (II v. do n.e. – IV v. n.e.). Sbornik naučnych statej* 1. Simferopol', Bachčisaraj, 171–187.

Loboda I. I. 1977. Raskopki mogil'nika Ozernoe III v 1963–1965 gg. *SA* (4), 236–252.

Loboda I. I. 1992. Issledovanija mogil'nika IV – V vv. v s. Krasnyj Mak. [in:] Ju. M. Mogaričev (ed.), *Problemy istorii „peščernych gorodov" v Krymu. Sbornik naučnych trudov*. Simferopol', 210–215.

Loboda I. I. 2005. Raskopki Krasnomakskogo mogil'nika v 1983–1984 gg. *MAIET* 11, 192–251.

Loeschcke S. 1912. Sigillata-Töpfereien in Tschandarli. (Bericht über die Ergebnisse einer Versuchsgrabung i. J. 1911). *Mitteilungen des Deutschen Archäologischen Instituts, Athenische Abteilung* 37, 344–407.

Lordkipanidze G. 1981. Rezul'taty issledovanija XXII raskopa Picundskogo gorodišča (predvaritel'noe soobščenie). [in:] O. Lordkipanidze, T. Mikeladze, I. Džalagania (eds.), *Polevye archeologičeskie issledovanija v 1978 godu (kratkie soobščenija)*. Tbilisi, 119–124.

Lordkipanidze G. A. 1991. *Picundskoe gorodišče. Pitiunt v sisteme „Kavkazskogo limesa"*. Tbilisi.

Lordkipanidze O. D. 1962. Krasnolakovaja keramika iz raskopok Picundy. (Osnovnye tipy i ich datirovka). *Vestnik otdelenija obščestvennych nauk Akademii Nauk GSSR* (1), 231–255.

LRFW 1. Late Roman Fine Wares. Solivng Problems of Typology and Chronology. A Review of the Evidence, Debate and New Contexts. 2011. M. A. Cau, P. Reynolds, M. Bonifay (eds.). Roman and Late Antique Mediterranean Pottery 1. Oxford, 1–13.

Lysenko A. V., Juročkin V. Ju. 2004. Nekropol' Pantikapeja–Bospora (po materialam issledovanij 2000–2002 gg.). [in:] V. L. Myc (ed.), *„O drevnostjach Južnogo berega Kryma i gor Tavričeskich." Sbornik naučnych trudov (po materialam konferencii v čest' 210-letija so dnja roždenija Petra Ivanoviča Keppena)*. Kiev, 94–166.

Mackensen M. 1991. Zur Datierung mediterraner Sigillata aus der spätantiken Befestigung Iatrus an der unteren Donau. Die Chronologie der Late Roman C – Formen Hayes 3 A–E. *Germania* 69 (1), 79–96.

Mackensen M. 1993. *Die spätantiken Sigillata- und Lampentöpfereien von El Mahrine (Nordtunesien). Studien zur nordafrikanischen Feinkeramik des 4.*

bis 7. Jahrhunderts. Münchener Beiträge zur Vor- und Frühgeschichte 50. München.

Mackensen M. 1998. Centres of African red slip ware production in Tunisia from the late 5th to the 7th century. [in:] L. Saguì (ed.), *Ceramica in Italia: VI–VII secolo. Atti del Convegno in onore di John W. Hayes. Roma, 11–13 maggio 1995*. Firenze, 23–39.

Mackensen M. 2009. Technology and organisation of ARS ware production-centres in Tunisia. [in:] *Studies on Roman Pottery...*, 17–44.

Mackensen M., Schneider G. 2002. Production centres of African red slip ware (3rd–7th c.) in northern and central Tunisia: archaeological provenance and reference groups based on chemical analysis. *JRA* 15, 121–158.

Mackensen M., Schneider G. 2006. Production centres of African Red Slip ware (2nd–3rd c.) in northern and central Tunisia: archaeological provenance and reference groups based on chemical analysis. *JRA* 19, 163–190.

Mączyńska M., Gercen A. G., Černyš S., Lukin S., Urbaniak A., Bemmann J., Schneider K., Jakubczyk I. 2013. Das frühmittelalterliche Gräberfeld Almalyk-dere am Fuss des Mangup-Plateaus. [in:] S. Albrecht, F. Daim, M. Herdick (eds.), *Die Höhensiedlungen im Bergland der Krim. Umwelt, Kulturaustausch und Transformation am Nordrand des Byzantinischen Reiches*. Monographien des Römisch-Germanischen Zentralmuseums 113. Mainz, 125–145.

Mączyńska M., Urbaniak A., Jakubczyk I. 2011. The Early Mediaeval cemetery of Almalyk-Dere near the foot of Mangup. [in:] I. Khrapunov, F.-A. Stylegar (eds.), *Inter Ambo Maria: Contacts between Scandinavia and the Crimea in the Roman Period. Collected papers*. Kristiansand, Simferopol, 154–175.

Magomedov B. V. 1987. *Černjachovskaja kul'tura Severo-Zapadnogo Pričernomor'ja*. Kiev.

Magomedov B. V. 1991. *Kamenka-Ančekrak. Poselenie černjachovskoj kul'tury. Preprint*. Kiev.

Magomedov B. V. 2001. *Černjachovskaja kul'tura. Problema etnosa*. Monumenta Studia Gothica 1. Lublin.

Magomedov B. V. 2013. Keramičeskie importy iz dunajskich provincij na pamjatnikach černjachovskoj kul'tury. [in:] E. V. Smyntyna (ed.), *Varvarskij mir severopontijskich zemel' v sarmatskuju epochu. Sbornik statej k 60-letiju A. N. Dzigovskogo*. Kiev, 110–135.

Magomedov B. V., Didenko S. V. 2009. Krasnolakovaja keramika v černjachovskoj kul'ture. *BI* 21, 320–349.

Magomedov B., Didenko S. 2012. Red slip ware in Chernyakhov culture. [in:] G. R. Tsetskhladze *et alii* (eds.), *The Black Sea, Paphlagonia, Pontus and Phrygia in Antiquity. Aspects of Archaeology and Ancient History*. BAR International Series 2432. Oxford, 171–190.

Magomedov B. V., Gudim-Levkovič A. N. 2003. Poselenie IV–V vv. u s. Lugovoe v Nikolaevskoj oblasti. [in:] A. N. Gudim-Levkovič, O. V. Serov (eds.), *Doslidžennja z archeologii, istorii, etnografii: pam'jati Nadii Mychajlivny Kravčenko. Zbirka naukovych prac'*. Kyiv, 32–44.

Maksimenkov V. K. 2021. Pikoobraznye nakonečniki kopij rimskogo vremeni iz Kryma. [in:] I. N. Chrapunov (ed.), *Krym v sarmatskuju epochu (II v. do n.e. – IV v. n.e.). Sbornik naučnych statej* 7. Simferopol', 132–139.

Malyšev A. A. 2011. Pogrebal'nyj inventar' nekropolja v Širokoj Balke. [in:] A. A. Malyšev (ed.), *Naselenie predgorij Severo-Zapadnogo Kavkaza v rimskuju epochu. Po materialam nekropolja v Širokoj Balke*. Nekropoli Černomor'ja 4. Moskva, 242–302.

Maslennikov A. A. 1997. *Semejnye sklepy sel'skogo naselenija pozdneantičnogo Bospora*. Moskva.

Maslennikov A. A. 1998. *Ellinskaja chora na kraju Ojkumeny. Sel'skaja territorija evropejskogo Bospora v antičnuju epochu*. Moskva.

Maslennikov A. A. 2012. Qu'est-ce que c'est? DB 16. Moskva, 271–287.

Maslennikov A. A., Čevelev O. D. 1985. Razvedočnye raskopki na gorodišče General'skoe. *KSIA* 182, 50–55.

Mastykova A. 2002. Soziale Hierarchie der Frauengräber der nordkaukasischen Dürsonekropole im fünften bis sechsten Jahrhundert (anhand der Trachtmaterialien). [in:] J. Tejral (ed.), *Probleme der frühen Merowingerzeit im Mitteldonauraum. Materialien des XI. Internationalen Symposiums "Grundprobleme der frühgeschichtlichen Entwicklung im nördlichen Mitteldonaugebiet", Kravsko vom 16. –19. November 1998*. Brno, 225–236.

Mastykova A. V. 2009. *Ženskij kostjum Central'nogo i Zapadnogo Predkavkaz'ja v konce IV – seredine VI v. n.e*. Moskva.

Masyakin V., Voloshinov A., Nenevolja I. 2013. Die Nekropole von Suvlu-Kaja. [in:] *Die Krim. Goldene Insel im Schwarzen Meer. Griechen – Skythen – Goten. Begleitbuch zur Austellung*. Bonn, 372–379.

Mayet F., Picon M. 1986. Une sigillée phocéenne tardive ("Late Roman C Ware") et sa diffusion en Occident. *Figlina. Documents du Laboratoire de céramologie de Lyon* 7, 129–142.

Medvedev A. P. 2009. Voinskoe pogrebenie iz Vostočnogo nekropolja Fanagorii. [in:] K. Myzgin (ed.), *Ostrogothica. Archeologija Central'noj i Vostočnoj Evropy pozdnerimskogo vremeni i Epochi Velikogo pereselenija narodov. Sbornik naučnych trudov k 10-letiju Germano-Slavjanskoj archeologičeskoj ekspedicii Char'kovskogo nacional'nogo universiteta imeni V. N. Karazina*. Char'kov, 180–185.

Medvedev A. P. 2010. Novye otkrytija v Vostočnom nekropole Fanagorii (2005–2007 gg.). [in:] S. Ju. Monachov (ed.), *Antičnyj mir i archeologija. Mežvuzovskij sbornik naučnych trudov* 14. Saratov, 350–368.

Medvedev A. P. 2013. Pozdneantičnyj nekropol' Fanagorii 4–5 vv. (raskopki 2005 g.). [in:] V. D. Kuznecov (ed.), *Materialy po archeologii i istorii Fanagorii* 1. Fanagorija. Rezul'taty archeologičeskich issledovanij 1. Moskva, 330–402.

Meyza H. 2007. *Cypriot Red Slip Ware. Studies on a Late Roman Levantine Fine Ware*. Nea Paphos 5. Warsaw.

Minčev A. 1982. Vnosat na kasnoantična červenolakova keramika po zapadnija brjag na Černo More. *Izvestija na Narodnija Muzej – Varna* 18, 17–30.

Minchev A. 1983. The Late Roman fine ware import to the Western Black Sea-coast. [in:] A. G. Poulter (ed.), *Ancient Bulgaria. Papers Presented to the International Symposium on the Ancient History and Archaeology of Bulgaria, University of Nottingham, 1981. Part 2*. Nottingham, 194–201.

Mitrea B., Preda C. 1964. Quelques problèmes ayant trait aux nécropoles de type Sîntana – Tcherniakhov découvertes en Valachie. *Dacia* 8, 211–237.

Mocanu M. 2011. Considerații privind ceramica de masă de la (L)Ibida. Studiu de caz. Sectorul extramuros vest III. *Peuce* s.n. 9, 225–252.

Mocanu M. 2014. Considerații privind ceramica de masă de la (L)Ibida (II). Sectorul *extra muros* nord I. *Peuce* s.n. 12, 147–168.

Mocanu M. 2018a. Ceramica de masă romană târzie descoperită la Halmyris. *Peuce* s.n. 16, 227–250.

Mocanu M. 2018b. Late Roman tableware from Argamum. *Studia antiqua et archaeologica* 24 (2), 335–356.

Mocanu M. 2020. Late Roman tableware from Argamum – 'Faleză Est'. African, Cypriot, Egeean and Pontic wares. *Studia antiqua et archaeologica* 26 (1), 119–127.

Mocanu M., Nuțu G. 2017. Late Roman red slip ware from Aegyssus. *Novensia* 28, 121–140.

Molev E. A., Moleva N. V. 2016. *Bosporskij gorod Kitej* 2. BI Suppl. 5. Simferopol', Kerč'.

Molev E. A., Šestakov S. A. 1991. Nekropol' Kiteja (po materialam raskopok 1972–1985 gg.). [in:] E. A. Molev (ed.), *Voprosy istorii i archeologii Bospora. Mežvuzovskij sbornik naučnych trudov*. Voronež, Belgorod, 74–101.

Mordvinceva V. I. 2017. O vremeni sooruženija krepostnoj steny citadeli na verchnem plato gory Opuk. [in:] V. N. Zin'ko, E. A. Zin'ko (eds.), *Bospor Kimmerijskij i varvarskij mir v period antičnosti i srednevekov'ja. Torgovlja: puti – tovary – otnošenija. Meždunarodnaja naučnaja konferencija XVIII Bosporskie čtenija*. Simferopol', Kerč', 353–358.

Mundell Mango M., Bennett A. 1994. *The Sevso Treasure. Part One: Art Historical Description and Inscriptions. Methods of Manufacture and Scientific Analyses*. JRA Suppl. 12 (1). Ann Arbor 1994.

Munsell [A. H.] 1990. *Soil Color Charts*. Baltimore.

Munteanu M., Papuc G. 1976. La céramique romaine tardive à decor estampé découverte à Tomis. *Pontica* 9, 147–154.

Myc V. L., Lysenko A. V., Semin S. V., Teslenko I. B. 2007. Pozdneantičnoe svjatilišče u s. Dačnoe (byvš. Taraktaš). [in:] V. L. Myc (ed.), *Archeologičeskie issledovanija v Krymu. 1995 god. Sbornik naučnych statej*. Simferopol', 102–110.

Myc V. L., Trufanov A. A. 2005–2009. Poselenije epochi Velikogo pereselenija narodov na sklone g. Taraktaš v jugo-vostočnom Krymu. [in:] M. B. Ščukin, O. V. Šarov (eds.), *Polevoj dnevnik: rimskoe vremja*. *Stratum plus* (4), 401–409.

Myc V. L., Trufanov A. A. 2009. Archeologični doslidžennja poselennja Taraktaš III u Pivdenno-Schidnomu Krymu (rozkopky 2007 r.). Archeologični doslidžennja v Ukraini 2006–2007. Kyiv, 238–241.

Myzgin K. V. 2016. Gotskie vojny, rimskie monety i černjachovskaja kul'tura. [in:] O. V. Šarov (ed.), *„Krug zemnoj". Rim i varvary. Stratum plus* (4), 153–171.

Namojlik A. S. 2020. Graffiti i dipinti iz mogil'nika Nejzac, poselenija na mogil'nike Nejzac i poselenija v Barabanovskoj balke. [in:] I. N. Chrapunov (ed.), *Krym v sarmatskuju epochu (II v. do n.e. – IV v. n.e.). Sbornik naučnych statej* 6. Simferopol', 113–135.

Nessel V. 2001. Red slip pottery from the Kilen-Balka necropolis (South Crimea). *Światowit* 3 (44) (A), 175–182.

Nessel' V. A. 2003. Krasnolakovaja keramika iz mogil'nika Kilen-Balka. ChS 12. Sevastopol', 107–123.

Nikolaeva E. Ja. 1978. Krasnolakovaja keramika so štampami s Il'ičevskogo gorodišča, *KSIA* 156, 110–113.

Nikolajšvili V. V. 1975. XIX raskop vnutrennej kreposti „Velikogo Pitiunta". (Otčet o polevych issledovanijach 1967–1970 gg.). [in:] A. Apakidze (ed.), *Velikij Pitiunt* 1. Tbilisi, 161–182.

Opaiț A. 1980. O nouă fortificație romano-bizantină în nordul Dobrogei – Topraichioi. Raport preliminar. *Peuce* 8, 415–436.

Opaiț A. 1985. Einige Betrachtungen zur spätrömischen Keramik mit rotem Überzug. *Dacia* 29, 153–163.

Opaiț A. 1991a. Ceramica din așezarea și cetatea de la Independența (Murighiol) secolele V î.e.n. – VII e.n. *Peuce* 10, 133–182.

Opaiț A. 1991b. Ceramica. [in:] A. Opaiț, M. Zahariade, G. Poenaru-Bordea, C. Opaiț, Fortificația și așezarea romană târzie de la Babadag–Topraichioi. *Peuce* 10, 211–260.

Opaiț A. 1996. *Aspecte ale vieții economice din provincia Scythia (secolele IV – VI p.Ch.). Producția ceramicii locale și de import*. Bibliotheca Thracologica 16. București.

Opaiț A. 2004. *Local and Imported Ceramics in the Roman Province of Scythia (4th – 6th centuries AD)*. BAR International Series S1274. Oxford.

Özsait M., Özsait N. 2002. Amasya–Merzifon Araştırmaları. *Anadolu Araştırmaları* 16, 527–552.

Pagenstecher R. 1913. Die Gefässe in Stein und Ton. Knochenschnitzereien. [in:] E. von Sieglin (ed.), *Die Griechisch-Ägyptische Sammlung Ernst von Sieglin 3*. Expedition Ernst von Sieglin. Ausgrabungen in Alexandria 2. Leipzig.

Papuc G. 1973. Ceramică romană târzie cu decor ștampilat descoperită la edificul roman cu mozaic din Tomis. *Pontica* 6, 153–192.

Paromov Ja. M. 2003. Fanagorijskaja okruga. [in:] *Krym, Severo-Vostočnoe Pričernomor'e...*, 157–158.

Peacock D. P. S., Bejaoui F., Ben Lazreg N. 1990. Roman pottery production in central Tunisia. *JRA* 3, 59–84.

Peña J. T. 2009. The forming and slipping of African Sigillata: evidence from the Palatine East assemblage. [in:] *Studies on Roman Pottery...*, 45–63.

Petrauskas O. V. 2008. Chronologija nekotorych tipov gončarnych kuvšinov černjachovskoj kul'tury lesostepnoj Ukrainy. [in:] O. A. Radjuš, K. N. Skvorcov (eds.), *Drevnosti Central'noj i Vostočnoj Evropy epochi rimskogo vlijanija i pereselenija narodov. Sbornik materialov*. Germania – Sarmatia [1]. Kaliningrad, 88–103.

Pletneva S. A. 1963. Srednevekovaja keramika Tamanskogo gorodišča. [in:] B. A. Rybakov (ed.), *Keramika i steklo drevnej Tmutarakani*. Moskva, 5–72.

Poblome J. 1999. *Sagalassos Red Slip Ware. Typology and Chronology*. Studies in Eastern Mediterranean Archaeology 2. Leuven.

Poblome J., Fırat N. 2011. Late Roman D. A matter of open(ing) or closed horizons. [in:] *LRFW...*, 49–55.

Popescu E. 1965. Ceramica romană târzie cu decor ștampilat descoperită la Histria. *Studii și cercetări de istorie veche și arheologie* 16 (4), 695–724.

Puturidze R. V. 1965. Krasnolakovaja keramika iz Suchumskoj drevnej kreposti. MAGK 4. Tbilisi, 95–106.

Puzdrovskij A. E., Trufanov A. A., Juročkin V. Ju. 2007. Ochrannye raboty v Bachčisarajskom rajone. [in:] V. L. Myc (ed.), *Archeologičeskie issledovanija v Krymu. 1995 god. Sbornik naučnych statej*. Simferopol', 117–125.

Puzdrovskij A. E., Zajcev Ju. P., Nenevolja I. I. 2001. Novye pamjatniki III – IV vv. n.e. v Jugo-Zapadnom Krymu. *MAIET* 8, 32–50.

Ramišvili R. M. 1963. Archeologičeskie raskopki v Bičvinta. (III učastok, predvaritel'nyj otčet o raskopkach v 1956–1957 gg.). MAGK 3. Tbilisi, 69-83.

Robinson H. S. 1959. *Pottery of the Roman Period. Chronology*. The Athenian Agora 5. Princeton.

Rodziewicz M. 1976. *La céramique romaine tardive d'Alexandrie*. Alexandrie 1. Varsovie.

Romančuk A. I., Sazanov A. V. 1991. *Krasnolakovaja keramika rannevizantijskogo Chersona*. Srednevekovyj Cherson. Istorija, stratigrafija, nachodki 1. Sverdlovsk.

Ryžov S. G. 1986. Keramičeskij kompleks III – IV vv. n.e. iz Severo-vostočnogo rajona Chersonesa. [in:] V. A. Anochin (ed.), *Antičnaja kul'tura Severnogo Pričernomor'ja v pervye veka našej ery. Sbornik naučnych trudov*. Kiev, 130–139.

Ryžov S. G. 2015. Antičnyj chramovyj kompleks v Severnom rajone Chersonesa. *MAIET* 20, 5–30.

Salomonson J. W. 1968. Etudes sur la céramique romaine d'Afrique. Sigillée claire et céramique commune de Henchir el Ouiba (Raqqada) en Tunisie Centrale. *Bulletin Antieke Beschaving* 43, 80–146.

Salomonson J. W. 1969. Spätrömische rote Tonware mit Reliefverzierung aus nordafrikanischen Werkstätten. Entwicklungsgeschichtliche Untersuchungen zur reliefgeschmückten Terra

Sigillata Chiara "C". *Bulletin Antieke Beschaving* 44, 4–109.

Sazanov A. V. 1989. O chronologii Bospora pozdneantičnogo vremeni. *SA* (4), 41–60.

Sazanov A. V. 1992. Importnaja krasnolakovaja keramika pervoj poloviny VII v. n.e. iz Chersonesa. *KSIA* 208, 40–46.

Sazanov A. V. 1994–1995. Krasnolakovaja keramika Severnogo Pričernomor'ja rannevizantijskogo vremeni. *MAIET* 4, 406–433.

Sazanov A. V. 1999. Keramičeskie kompleksy Severnogo Pričernomor'ja vtoroj poloviny IV – V vv. *PIFK* 7, 224–293.

Sazanov A. V. 2000a. Keramičeskie kompleksy Bospora 570–580 gg. DB 3. Moskva, 221–259.

Sazanov A. 2000b. Les ensembles clos de Chersonèse de la fin du VIe – troisième quart du VIIe siècles: la chronologie de la céramique. [in:] M. Kazanski, V. Soupault (eds.), *Les sites archéologiques en Crimée et au Caucase durant l'Antiquité tardive et le haut Moyen Age*. Colloquia Pontica 5. Leiden, Boston, Köln, 123–149.

Sazanov A. 2014. The deposit of the end of the 6th century AD from Chersonesos (Crimea). [in:] N. Poulou-Papadimitriou *et alii* (eds.), *LRCW 4. Late Roman Coarse Wares, Cooking Wares and Amphorae in the Mediterranean. Archaeology and Archaeometry. The Mediterranean: a Market without Frontiers*. BAR International Series 2616 (1). Oxford, 411-423.

Sazanov A. V., Ivaščenko Ju. F. 1989. K voprosu o datirovkach pozdneantičnych sloev gorodov Bospora. *SA* (1), 84–102.

Sazanov A. V., Mogaričev Ju. M. 2002. Bospor i Chazarskij kaganat v konce VII – načale VIII vv. *PIFK* 12, 469–509.

Sazanov A. V., Mokrousov S. V. 1996. Poselenie Zolotoe Vostočnoe v buchte (Vostočnyj Krym): opyt issledovanija stratigrafii rannevizantijskogo vremeni. *PIFK* 3, 88–107.

Sazanov A. V., Mokrousov S. V. 1999. Nekotorye predvaritel'nye dannye o chronologii poselenija Zelenyj Mys (Vostočnyj Krym). *PIFK* 7, 167–223.

Schneider G. 2000. Chemical and mineralogical studies of Late Hellenistic to Byzantine pottery production in the Eastern Mediterranean. *RCRF Acta* 36, 525–536.

Schneider G., Daszkiewicz M. 2005. Chemische Analysen von Late Roman C-Ware aus Ephesos. [in:] F. Krinzinger (ed.), *Spätantike und mittelalterliche Keramik aus Ephesos*. Archäologische Forschungen 13. Wien, 165–167.

Schneider G., Daszkiewicz M. 2020. Late Hellenistic and Roman tableware in the Aegean and the Black Sea region – Why we need chemical analysis. *RCRF Acta* 46, 429–436.

Schneider G., Daszkiewicz M. forthcoming. Chemical analysis by WD-XRF of Late Hellenistic and Roman table wares found in the Black Sea region and of local pottery from NE Crimea and SW Crimea. [in:] U. Schlotzhauer, D. Zhuravlev (eds.), publication of the Round Table, DAI Berlin. *Eurasia Antiqua*.

Schneider G., Japp S. 2009. Röntgenfluoreszenzanalysen von 115 Keramikproben aus Pergamon, Çandarlı, Elaia und Atarneus (Türkei). *Istanbuler Mitteilungen* 59, 287–306.

Schwarcz A. 1992. Die gotischen Seezüge des 3. Jahrhunderts. [in:] R. Pillinger, A. Pülz, H. Wetters (eds.), *Die Schwarzmeerküste in der Spätantike und im frühen Mittelalter*. Wien, 47–57.

Sedikova L. V. 1996. Kompleks nachodok pozdneantičnogo vremeni iz cisterny v VI kvartale Chersonesa. ChS 7. Sevastopol', 175-181.

Silant'eva L. F. 1958. Krasnolakovaja keramika iz raskopok Ilurata. [in:] V. F. Gajdukevič, T. N. Knipovič (eds.), *Raboty Bosporskoj ekspedicii 1946–1953 gg*. Bosporskie goroda 2. MIA 85. Moskva, Leningrad, 283–311.

Smokotina A. V. 2008. Keramičeskij kompleks vtoroj poloviny VI v. iz raskopok g. Bospora. *MAIET* 14, 103–144.

Smokotina A. V. 2015. Import krasnolakovoj keramiki v g. Bospor v konce IV – pervoj polovine VII vv. DB 19. Moskva, 312–339.

Smokotina A. V. 2016. Late Roman amphorae from Tyritake. *RCRF Acta* 44, 715–724.

Smokotina A. V. 2018a. The importation of Late Roman red slip wares into Bosporus (Kerch). *RCRF Acta* 45, 643–652.

Smokotina A. V. 2018b. Import tovarov v amforach i krasnolakovoj keramiki na Bospor v konce IV – pervoj polovine VII vv. [in:] O. V. Šarov (ed.), *Terra Barbarica i „nerimskaja elita". Stratum plus* (4), 263–279.

Sokol'skij N. I. 1963a. Krepost' na gorodišče u chutora Baterejka I. *SA* (1), 179–191.

Sokol'skij N. I. 1963b. K istorii severo-zapadnoj časti Tamanskogo poluostrova v antičnuju epochu. [in:] D. P. Dimitrov, T. Ivanov, O. Ognenova (eds.), *Acta antiqua Philippopolitana. Studia archaeologica. VI meždunarodna konferencija po klasičeski studii, Plovdiv – 1962*. Sofija, 11–25.

Solov'ev S. L. 1997. *Otčet o rabotach archeologičeskoj ekspedicii Gosudarstvennogo Ermitaža na poselenii Volna-1 v 1997 godu*. Sankt-Peterburg (unpublished report, archives of the State Hermitage Museum).

Soupault V. 1996. A propos de l'origine et de la diffusion des poignards et épees à encoches (IVe – VIIe s.). *MAIET* 5, 60–76.

Sorokina N. P. 1971. O stekljannych sosudach s kapljami sinego stekla iz Pričernomor'ja. *SA* (4), 85–101.

Strželeckij S. F. 1947. Raskopki v Inkermane v 1940 g. *SA* 9, 283–302.

Strželeckij S. F., Vysotskaja T. N., Ryžova L. A., Žestkova G. I. 2003–2004. Naselenie okrugi Chersonesa v pervoj polovine I tysjačeletija novoj ery (po materialam nekropolja „Sovchoz no. 10"). [in:] M. B. Ščukin (ed.), *Meždu Pevkinami i Fennami. Stratum plus* (4), 27–277.

Studies on Roman Pottery of the Provinces of Africa Proconsularis *and* Byzacena *(Tunisia). Hommage à Michel Bonifay*. 2009. J. H. Humphrey (ed.). JRA Suppl. 76. Portsmouth.

Suceveanu A. 1982. Céramique. [in:] A. Suceveanu *et alii*, *Les thermes romains*. Histria 6. Bucarest, Paris, 94–120.

Swan V. G. 2007. Dichin (Bulgaria): Interpreting the ceramic evidence in its wider context. [in:] A. G. Poulter (ed.), *The Transition to Late Antiquity on the Danube and Beyond*. Proceedings of the British Academy 141. Oxford, 251–280.

Symonovič E. A. 1967. Itogi issledovanij černjachovskich pamjatnikov v Severnom Pričernomor'e. [in:] B. A. Rybakov, E. A. Symonovič (eds.), *Istorija i archeologija jugo-zapadnych oblastej SSSR načala našej ery*. MIA 139. Moskva, 205–237.

Šabanov S. B. 2011. Stekljannye sosudy iz mogil'nika Nejzac (po materialam raskopok 1996–2011 gg.). *MAIET* 17, 141–191.

Šabanov S. B. 2016. Stekljannyj kubok gruppy Nuppengläser iz pogrebal'nogo kompleksa pozdnerimskogo vremeni mogil'nika Nejzac. [in:] I. N. Chrapunov (ed.), *Krym v sarmatskuju epochu (II v. do n.e. – IV v. n.e.). 20 let issledovanij mogil'nika Nejzac. Sbornik naučnych statej* 2. Simferopol', 166–178.

Šavyrina T. G., Vorošilova O. M. 2013. Issledovanija Zapadnogo nekropolja Fanagorii (po materialam raskopok 1987–2000 gg.). [in:] V. D. Kuznecov (ed.), *Materialy po archeologii i istorii Fanagorii* 1. Fanagorija. Rezul'taty archeologičeskich issledovanij 1. Moskva, 415–481.

Taylor R. J., Robinson V. J. 1996. Provenance studies of Roman African Red Slip Ware using neutron activation analysis. *Archaeometry* 38 (2), 245–255.

Tejral J. 2011. *Einheimische und fremde. Das norddanubische Gebiet zur Zeit der Völkerwanderung*. Brno.

Timby J., Lomitashvili D., Ixer R. 2014. Interim report on the pottery from the 2001–2010 excavations. [in:] P. Everill (ed.), *Nokalakevi – Tsikhegoji – Archaeopolis. Archaeological Excavations 2001–2010. Anglo-Georgian Expedition to Nokalakevi*. BAR International Series 2612. Oxford, 55–72.

Toločko I. V. 2013. Del'ta Dona v epochu pozdnej antičnosti. *Archeologičeskie zapiski* 8, 178-212.

Topoleanu F. 1996. Ceramica romană târzie cu decor ştampilat descoperită la Halmyris. *Peuce* 12, 143–168.

Topoleanu F. 2000a. *Ceramica romană şi romano-bizantină de la Halmyris (sec. I – VII d.Ch.)*. Tulcea.

Topoleanu F. 2000b. Roman and Roman-Byzantine pottery from Halmyris. North-Africa importations and local imitations. [in:] M. Iacob, E. Oberländer-Târnoveanu, F. Topoleanu (eds.), *Istro-Pontica. Muzeul Tulcean la a 50-a aniversare, 1950–2000. Omagiu lui Simon Gavrilă la 45 de ani de activitate, 1955–2000*. Tulcea, 257–294.

Topoleanu F. 2003. Ceramica. [in:] A. Suceveanu, M. Zahariade, F. Topoleanu, G. Poenaru Bordea, *Halmyris I. Monografie arheologică*. Cluj-Napoca, 190–245, 297–319.

Trapš M. M. 1969. *Drevnij Suchumi*. Trudy (2). Suchumi.

Trapš M. M. 1971. *Kul'tura cebel'dinskich nekropolej*. Trudy (3). Suchumi.

Turova N. P. 2018. Nachodki iz nekropolej pozdnerimskogo i rannesrednevekovogo vremeni v kollekcii Jaltinskogo istoriko-literaturnogo muzeja (obzor i istorija formirovanija kollekcii). IAK 7. Simferopol', 229–239.

Turova N. P., Černyš S. A. 2015. Rannesrednevekovyj mogil'nik Alonija na Južnom beregu Kryma (po materialam raskopok 1998, 2001, 2002 gg.). *MAIET* 20, 133–184.

Ullrich M. 2018. *Eine Siedlung der Völkerwanderungszeit auf den Ruinen des antiken Tanais. Ergebnisse der russisch-deutschen Ausgrabungen 1993 bis 2004*. Pontus Septentrionalis 4. Tanais 3. Archäologie in Eurasien 37. Bonn.

Ušakov S. V. 2004. Chersonesskaja sigilljata (k postanovke problemy). ChS 13. Sevastopol', 285–296.

Ušakov S. V. 2010a. *Varvary gornoj Tavriki na rubeže epoch. Etničeskaja situacija v Jugo-Zapadnom*

Krymu (III – seredina VI vv. n.e.). Opyt rekonstrukcji. Archeologičeskij al'manach 23. Doneck.

Ušakov S. V. 2010b. Kogda byli sooruženy mogily v nartekse baziliki "Kruze" v Chersonese? Sugdejskij sbornik 4. Kiev, Sudak, 290–307.

Ušakov S. V. 2011a. Rannevizantijskaja krasnolakovaja keramika iz raskopok XCVII kvartala Chersonesa. ChS 16. Sevastopol', 217–233.

Ušakov S. V. 2011b. Chersones Tavričeskij na rubeže epoch (konec IV – pervaja polovina V v.): ekonomika i kul'tura. [in:] M. Ju. Vachtina *et alii* (eds.), *Bosporskij Fenomen. Naselenie, jazyki, kontakty. Materialy meždunarodnoj naučnoj konferencii*. Sankt-Peterburg, 401–407.

Ušakov S. V. 2012. Epocha velikogo pereselenija narodov: Chersones Tavričeskij i varvary. [in:] V. V. Majko (ed.), *Drevnjaja i srednevekovaja Tavrika. Sbornik statej, posvjaščennyj 1800-letiju goroda Sudaka*. Archeologičeskij al'manach 28. Doneck, 81-100.

Ušakov S. V. 2013–2014. Vremja sobirat' kamni... Osnovnye itogi rabot po issledovaniju učastka baziliki "Kruze" (2005–2012 gg.). ChS 18. Sevastopol', 201–238.

Ušakov S. V. 2017a. O vremeni stroitel'stva baziliki "Kruze" v Chersonese: archeologičeskie dannye. *Archeologičeskie vesti* 23, 176–197.

Ušakov S. V. 2017b. Archeologičeskie kompleksy rajona baziliki "Kruze" v Chersonese (itogi raskopok 1998, 2005–2013 gg.). [in:] M. Matera, R. Karasiewicz-Szczypiorski (eds.), *The Crimea and the Northern Black Sea Coast in Archaeological Research 1956–2013*. Pontica et Caucasica 1. Światowit Suppl. Series C. Warsaw, 305–318.

Ušakov S. V., Doroško V. V., Doroško O. P. 2017. Chersonesskaja sigilljata: osnovnye tipy i chronologija (po materijalam raskopok gorodišča Chersonesa i mogil'nika „Sovchoz-10"). IAK 6. Simferopol', 54–93.

Ušakov S. V., Doroško V. V., Kropotov S. I., Makaev I. I., Strukova E. V. 2006. Keramičeskij kompleks zasypi cisterny V–VI vv. v XCVII kvartale Chersonesa (predvaritel'naja informacija). ChS 15. Sevastopol', 191–216.

Ušakov S. V., Filippenko A. A. 2003. Nekotorye tipy krasnolakovoj posudy iz raskopok mogil'nika Karši-Bair. [in:] Ju. A. Babinov (ed.), *Vostok–Zapad: Mežkonfessional'nyj dialog. Sbornik naučnych trudov*. Sevastopol', 27–34.

Ušakov S. V., Filippenko A. A. 2008. Keramičeskij kompleks mogil'nika Karši-Bair. [in:] E. B. Petrova (ed.), *Chersonesskij kolokol'. Sbornik naučnych statej, posvjaščenych 70-letiju so dnja roždenija i 50-letiju naučnoj dejatel'nosti Vitalija Nikolaeviča Danilenko*. Simferopol', 286–296.

Ušakov S. V., Makaev I. I., Strukova E. V. 2010. Cisterny i kolodcy antičnogo i vizantijskogo goroda: konstrukcija, kompleksy nachodok i chronologija (na primere XCVII kvartala Severo-Vostočnogo rajona Chersonesa). Sugdejskij sbornik 4. Kiev, Sudak, 494–511.

Ušakov S. V., Strukova E. V. 2016. Pozdneantičnyj Chersones: novye archeologičeskie kompleksy. Osnovnye itogi issledovanij. IAK 4. Simferopol', 110–131.

Vaag L. E. 2003. A closer look at the making of Phocaean Red Slip Ware bowls. [in:] C. Abadie-Reynal (ed.), *Les céramiques en Anatolie aux époques héllenistique et romaine. Actes de la Table Ronde d'Istanbul, 23–24 mai 1996*. Varia Anatolica 15. Istanbul, Paris, 203–207.

Vagalinski L. F. 2002. *Izlaskana keramika ot I – načalo na VII vek južno ot dolen Dunav (Balgarija)*. Sofija.

Vejmarn E. V. 1963. Archeologični raboty v rajoni Inkermana. *Archeologični Pam'jatky URSR* 13, 15–89.

Vejmarn E. V., Ajbabin A. I. 1993. *Skalistinskij mogil'nik*. Kiev.

Vickers M., Kakhidze A. 2001. The British-Georgian excavation at Pichvnari 1998: the 'Greek' and 'Colchian' cemeteries. *Anatolian Studies* 51, 65–90.

Vickers M., Kakhidze A. 2004. *Pichvnari 1998–2002. Greeks and Colchians on the East Coast of the Black Sea*. Pichvnari. Results of Excavations Conducted by the Joint British-Georgian Pichvnari Expedition 1. Oxford, Batumi.

Vinogradov Ju. A. 2011. Kompleks IV v. n.e. na poselenii Artjuščenko I (Tamanskij poluostrov). [in:] D. A. Mačinskij (ed.), *Evropejskaja Sarmatija. Sbornik posvjaščennyj Marku Borisoviču Ščukinu. Po materialam konferencii, provedenoj v ramkach XIV čtenij pamjati Anny Mačinskoj. Staraja Ladoga, 26–27 dekabrja 2009 g*. Sankt-Peterburg, 314–320.

Vinokurov N. I., Nikolaeva E. Ja. 2000. Vinodel'českie sooruženija Il'ičevskogo gorodišča. Istoriko-archeologičeskij al'manach 6. Armavir, Moskva, 9–12.

Vizantijskij Cherson. Katalog vystavki. 1991. I. S. Čičurov (ed.). Moskva.

Vlasov V., Smokotina A., Khrapunov I. 2013. The cultural layer overlying the cemetery of Neyzats. [in:] I. Khrapunov (ed.), *Exploring the Cemetery of Neyzats. Collected Papers*. Simferopol, Kristiansand, 191–269.

Voronov Ju. N. 1969. *Archeologičeskaja karta Abchazii*. Suchumi.

Voronov Ju. N. 1975. *Tajna cebel'dinskoj doliny*. Moskva.

Voronov Ju. N. 1976. Gienos. *SA* (4), 42–55.

Voronov Ju. N. 1977. *Drevnosti voenno-suchumskoj dorogi*. Suchumi.

Voronov Ju. N. 1980. *Dioskuriada – Sebastopolis – Cchum*. Moskva.

Voronov Ju. N. 1983. Krasnolakovaja keramika Apsilii (V – VI vv.). *Izvestija Abchazskogo instituta jazyka, literatury i istorii im. D. I. Gulia Akademii Nauk GSSR* 12, 88–96.

Voronov Ju. N. 2002. Archeologičeskie drevnosti i pamjatniki Abchazii (V–XIV vv.). *PIFK* 12, 334–362.

Voronov Ju. N. 2003. *Mogily apsilov. Itogi issledovanij nekropolja Cibiliuma v 1977-1986 godach*. Puščino.

Voronov Ju. N., Bgažba O. Ch. 1985. *Materialy po archeologii Cebel'dy. (Itogi issledovanij Cibiliuma v 1978–1982 gg.)*. Tbilisi.

Voronov Ju. N., Bgažba O. Ch. 1987. Krepost' Cibilium – odin iz uzlov Kavkazskogo limesa justinianovskoj epochi. *Vizantiskij vremennik* 48, 116–132.

Voronov Ju. N., Bgažba O. Ch., Šenkao N. K., Loginov V. A. 1989. Issledovanija krepostej i mogil'nikov v Cebel'de. [in:] G. K. Šamba (ed.), *Archeologičeskie otkrytija v Abchazii v 1984 g*. Tbilisi, 9–14.

Voronov Ju. N., Bgažba O. Ch., Šenkao N. K., Loginov V. A. 1990. Novye pogrebenija apsilov iz okrestnostej Cebel'dy. [in:] G. K. Šamba (ed.), *Archeologičeskie otkrytija v Abchazii 1985 g.* Tbilisi, 24–29.

Voronov Ju. N., Jušin V. A. 1973. Novye pamjatniki cebel'dinskoj kul'tury v Abchazii. *SA* (1), 171–191.

Voronov Y. 2007. *Tsibilium. La nécropole apsile de Tsibilium (VIIe av. J.-C. – VII ap. J.-C.) (Abkhazie, Caucase). Les fouilles de 1977–1986*. BAR International Series S1721 (1). Oxford.

Vorošilova O. M. 2011. Pozdneantičnoe pogrebenie s monetami iz nekropolja Fanagorii. *PIFK* 34 (4), 137–145.

Vorošilova O. M. 2013. Sklep pozdneantičnogo vremeni iz raskopok Fanagorii v 2011 godu. [in:] O. V. Šarov (ed.), *V poiskach Ojuma. „Puti narodov". Stratum plus* (4), 123–131.

Vysots'ka T. M. 1970. Pytannja etničnogo skladu naselennja pivdenno-zachidnogo Krymu počatku našoj ery. *Archeologija* (Kiev) 23, 91–107.

Vysotskaja T. N. 1998. Sklepy mogil'nika Sovchoz No. 10 (Sevastopol'skij): problemy etnosa i chronologii. *MAIET* 6, 256–273.

Vysotskaja T. N., Machneva O. A. 1983. Novye pozdneskifskie mogil'niki v central'nom Krymu. [in:] T. N. Vysotskaja (ed.), *Naselenie i kul'tura Kryma v pervye veka n.e. Sbornik naučnych trudov*. Kiev, 66–80.

Waagé F. O. 1933. The Roman and Byzantine pottery. The American excavations in the Athenian Agora, First report. *Hesperia* 2, 279–328.

Waagé F. O. 1948. Hellenistic and Roman tableware of North Syria. [in:] F. O. Waagé (ed.), *Ceramics and Islamic Coins*. Antioch-on-the-Orontes 4.1. Princeton, London, 1–60.

Weber-Hiden I. 2003. Keramik aus hellenistischer bis frühbyzantinischer Zeit aus Tavium/Büyük Nefes: Bemerkungen und Übersicht über das Begehungsmaterial der Kampagnen 1998–2000 aus drei ausgewählten Bereichen des Stadtgebietes. *Anatolia Antiqua* 11, 253–322.

Willet R. 2014. Trends in tableware: An overview of the Roman East in the Theodosian period. [in:] I. Jacobs (ed.), *Production and Prosperity in the Theodosian Period*. Interdisciplinary Studies in Ancient Culture and Religion 14. Leuven, Walpole, 273–300.

Winther-Jacobsen K., Bekker-Nielsen T. 2017. A Late Roman building complex in the Papaz Tarlası, Vezirköprü (ancient Neoklaudiopolis, northern Asia Minor). *Proceedings of the Danish Institute at Athens* 8, 25–58.

Yashaeva T. Y. 2003. On the immediate hinterland of Cherson in Late Antiquity and Early Mediaeval times. [in:] G. R. Tsetskhladze (ed.), *Ancient West and East* 2.1. Leiden, Boston, 116–133.

Zahn R. 1904. Tongeschirr. [in:] T. Wiegand, H. Schrader, *Priene. Ergebnisse der Ausgrabungen und Untersuchungen in den Jahren 1895–1898*. Berlin, 394–468.

Zajcev Ju. P. 1997. Ochrannye issledovanija v Simferopol'skom, Belogorskim i Bachčisarajskom rajonach. [in:] V. A. Kutajsov (ed.), *Archeologičeskie issledovanija v Krymu, 1994 god. Sbornik naučnych statej*. Simferopol', 102–116.

Zajcev Ju. P., Mordvinceva V. I. 2003. Issledovanie mogil'nika u s. Suvorovo v 2001 g. *MAIET* 10, 57–77.

Zalesskaja V. N. 2006. *Pamjatniki vizantijskogo prikladnogo iskusstva IV–VII vekov. Katalog kollekcii. Gosudarstvennyj Ermitaž*. Sankt-Peterburg.

Zaseckaja I. P. 2003. Bosporskij nekropol' kak etalonnyj pamjatnik drevnostej IV – načala VII veka.

[in:] *Krym, Severo-Vostočnoe Pričernomor'e...*, 31–40.

Zaseckaja I. P. 2005. Chronologija stekljannych kolboobraznych sosoudov iz Bosporskogo nekropolja pozdneantičnogo i rannesrednevekovogo periodov. *BI* 10, 90–131.

Zaseckaja I. P. 2008. Stekljannaja posuda nekropolja Bospora vtoroj poloviny IV – rubeža VI–VII vv. n.e. (iz sobranija Gosudarstvennogo Ermitaža). *BI* 20.

Zelle M. 2014. Zur Neuentdeckung eines Töpfereizentrums der Cypriot Red Slip Ware/Late Roman D Ware im südlichen Pisidien. [in:] H. Meyza, K. Domżalski (eds.), *Late Hellenistic to Mediaeval Fine Wares of the Aegean Coast of Anatolia. Their Production, Imitation and Use*. Warsaw, 95–105.

Zin'ko E. A. 2017. *Gruntovye sklepy neropolja Pantikapeja – Bospora (issledovanija 1996–2009 gg.)*. BI Suppl. 16. Simferopol', Kerč'.

Zolotarev M., Korobkov D., Ušakov S., Maklennan R., Overman A., Oliv'e Dž., Edvards D., Linstrom G., Olenina E. 2013. *Drevnjaja sinagoga v Chersonese Tavričeskom: Materialy i issledovanija Pričernomorskogo Proekta 1994–1998 gg*. Moskva 2013.

Zolotarev M. I., Ušakov S. V. 1997. Odin srednevekovyj žiloj kvartal severo-vostočnogo rajona Chersonesa (po materialam raskopok 1989–1990 gg.). ChS 8. Sevastopol', 30–45.

Zubarev V. G., Šapcev M. S. 2014. Krasnolakovaja keramika iz raskopok gorodišča Belinskoe. IAK 1. Simferopol', 289–306.

Žuravlev D. V. 1999. Novye dannye o Pantikapee v pozdneantičnuju epochu. [in:] S. P. Boriskovskaja *et alii* (eds.), *Bosporskij gorod Nimfej: novye issledovanija i materialy i voprosy izučenija antičnych gorodov Severnogo Pričernomor'ja. Meždunarodnaja naučnaja konferencija posvjaščennaja 60-letiju Nimfejskoj archeologičeskoj ekspedicii i 70-letiju so dnja roždenija N. L. Grač. Tezisy dokladov*. Sankt-Peterburg, 28–32.

Žuravlev D. V. 2010. *Krasnolakovaja keramika Jugo-Zapadnogo Kryma I–III vv. n.e. (po materialam pozdneskifskich nekropolej Bel'bekskoj doliny)*. MAIET Suppl. 9. Simferopol'.

Žuravlev D. V., Mokrousov S. V., Saprykin S. Ju. 2010. Epocha pozdnej antičnosti. [in:] G. M. Bongard-Levin, V. D. Kuznecov (eds.), *Antičnoe nasledie Kubani* 2. Moskva, 166–201.