

**AMPHORA GRAFFITI FROM THE BYZANTINE SHIPWRECK AT NOVY  
SVET, CRIMEA**

A Thesis

by

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## ABSTRACT

The thesis presents the results of a study of 1005 graffiti on 13<sup>th</sup> century Byzantine amphorae from a shipwreck in the Bay of Sudak near Novy Svet, Crimea, Ukraine. The primary goals of this thesis are 1) to provide an overview of the excavation and shipwreck, 2) to examine the importance of the Novy Svet wreck in terms of Black Sea maritime trade in the Late Byzantine period, 3) to present the data collected at the Center for Underwater Archaeology at the Taras Shevchenko National University in Kiev, Ukraine (CUA) about the graffiti inscribed on the Günsenin IV amphorae raised from the Novy Svet wreck and 4) to discuss the meaning and importance of the graffiti, both aboard the ship itself and in a more general context.

The thesis introduces the results of the 2002-2008 underwater excavation seasons at Novy Svet. Excavators have identified a 13<sup>th</sup> century shipwreck filled with glazed ceramics and amphorae as a Pisan vessel sunk on August 14, 1277. The majority of the amphorae are Günsenin IV jars and have graffiti inscribed on them. Analysis of the graffiti focuses on the division of the marks into morphological categories, and identifying parallels for the specific forms at other archaeological sites. The graffiti are divided into 5 types; Greek/Cyrillic letters, Turkic runes, geometric or pictorial symbols, numerical designations, and Arabic letters. Their parallels speak to a multi-lingual, multi-ethnic trade network in the Black Sea that included Byzantine Greeks, Hellenized Bulgarians, and Arabs.

*For my parents*

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# CHAPTER I

## INTRODUCTION

### Introduction

In 1999, nautical archaeologists from the Center for Underwater Archaeology (CUA) at the Taras Shevchenko National University in Kiev, Ukraine located a vessel dating to the 13<sup>th</sup> century C.E. in the Bay of Sudak off the southeastern Crimean coast (Fig. 1.1).<sup>1</sup> The wreck lay within sight of the Italian fortress in Sudak (medieval Soldaia, Sugdeya, Surozh), about 50 m offshore of the resort town of Novy Svet. Under the direction of Dr. Sergei Zelenko and Ms. Yana Morozova, underwater archaeologists and divers have been excavating the Novy Svet Wreck since 2002 as part of CUA's Black Sea Shipwreck Research Project (BSSRP). Based on recovered artifacts, mostly coarse and fine pottery, excavators date the vessel to the latter half of the 13<sup>th</sup> century.<sup>2</sup> Searching contemporary archival sources, they found a Genoese description of a Pisan vessel that was sunk in the Bay of Sudak by the Genoese on August 14, 1277.<sup>3</sup> No specific find confirms the identity of the shipwreck as that of the Pisan ship in the archives. Nevertheless, when the artifacts are examined in context there are several similarities between this shipwreck and the historical account. The goals of this first chapter are to introduce the excavation, the shipwreck, the artifact groups, and some of the preliminary conclusions drawn by the excavators.

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<sup>1</sup> All dates are C.E. unless otherwise specified.

<sup>2</sup> Zelenko 2008, Morozova 2007.

<sup>3</sup> Zelenko 2008, 139; Morozova 2007, 6-7.

The majority of the artifacts raised to date are pottery; both coarse and fine ware. The fine ware is primarily glazed ceramics decorated in various forms of *sgraffito*, one of the most popular types of decoration in the medieval Mediterranean. The term, which originates from the Italian ‘*graffita*’, meaning ‘scratched’, describes patterns incised into the pot’s white clay slip that contrast with the reddish fabric underneath.<sup>4</sup> Scholars are avidly studying the Novy Svet glazed ware, as this is only the third excavated shipwreck with a cargo of Byzantine glazed ware ever found in the Mediterranean or Black Seas.<sup>5</sup> The majority of the coarse pottery raised from the site is two-handled ceramic transport vessels known as amphorae. Amphorae had been in use in the Mediterranean and the Black Seas since the Bronze Age to ship goods such as wine, oil, fish, and grain. Although the amphora served as the primary container for liquid transport over seas, by the 13<sup>th</sup> century it was gradually being replaced by the lighter, more stackable wooden barrel. Therefore, this assemblage represents one of the latest confirmed maritime uses of amphorae in the Mediterranean.

In 2007, I joined the excavation at Novy Svet and dived on the wreck. Zelenko and Morozova invited me to CUA at the Taras Shevchenko National University in Kiev to study the graffiti inscribed on the Günsenin IV amphorae, one of the five major types of amphorae from the shipwreck. During spring of 2009, I examined the 720 amphorae that had been stored and displayed in the museum of the University and documented the graffiti found on them. The findings from that research are presented in this thesis, along

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<sup>4</sup> Papanikola-Bakirtzis 1999, 1-22; Zelenko 2008, 164-5.

<sup>5</sup> The other two glazed ware cargoes were found on the Kastellorizo shipwreck and the Pelagonesos-Aloenessos shipwreck, both of which are in Greece. See Pananikola-Bakirtzis 1999, 211-34.

with a discussion of their possible meanings, both for the shipwreck specifically, and for maritime trade in the 13<sup>th</sup> century in general.

### **Structure of the Thesis**

The primary goals of this thesis are 1) to provide an overview of the excavation and shipwreck, 2) to examine the importance of the Novy Svet wreck in terms of Black Sea maritime trade in the Late Byzantine period, 3) to present the data collected at the CUA laboratories about the graffiti inscribed on the Günsenin IV amphorae raised from the Novy Svet wreck and 4) to discuss the meaning and importance of the graffiti, both aboard the ship itself and in a more general context.

Chapter II is a discussion of the historical background of the Black Sea in the 13<sup>th</sup> century. The goal of this chapter is to place the shipwreck in its proper historical context, specifically focusing on the role of Italian merchants in the Northern Black Sea and the position of the Northern Black Sea littoral in the larger intercontinental trade networks of the time.

Chapter III is an overview of the morphology and history of the Günsenin IV amphora type, on which this research is focused. Following a presentation of the scholarship surrounding this jar type, I will discuss the possible production sites and the role that amphora production played in maritime trade of the Late Byzantine period. Chapter III will also include a description of the fabrics of the specific amphorae raised from the shipwreck.

In Chapter IV, I present the graffiti catalogued and studied at the CUA laboratories during February and March of 2009, and discuss possible interpretations.

The approximately 500 graffiti have been divided into five groups; (1) Turko-Bulgarian runes, (2) Greek-Cyrillic letters, (3) Arabic letters, (4) Numbers, and (5) Geometric Symbols. Examples of each category are shown in the first part of the chapter. The second half of the chapter focuses on the interpretation of graffiti as an assemblage, and investigates their specific meanings.

In Chapter V, I conclude the thesis with a discussion of how the graffiti assemblage from the Novy Svet wreck speaks to our understanding of the various players in the economic networks of the Black Sea in the 13<sup>th</sup> century. By researching comparanda tying the graffiti to production sites, potters, and merchants, it may be possible to draw broader conclusions about the final voyage of the Novy Svet ship and the role of graffiti in maritime trade, both in ships and in the process of production, transition, and consumption. It also may be possible to speak to the theory connecting this shipwreck with the account of the 1277 Pisan ship.

There is one appendix. Appendix A is the database of the graffiti studied and catalogued during the research, which include entries for each individual graffiti and photographs of the material.



Fig. 1.1 The Black Sea.

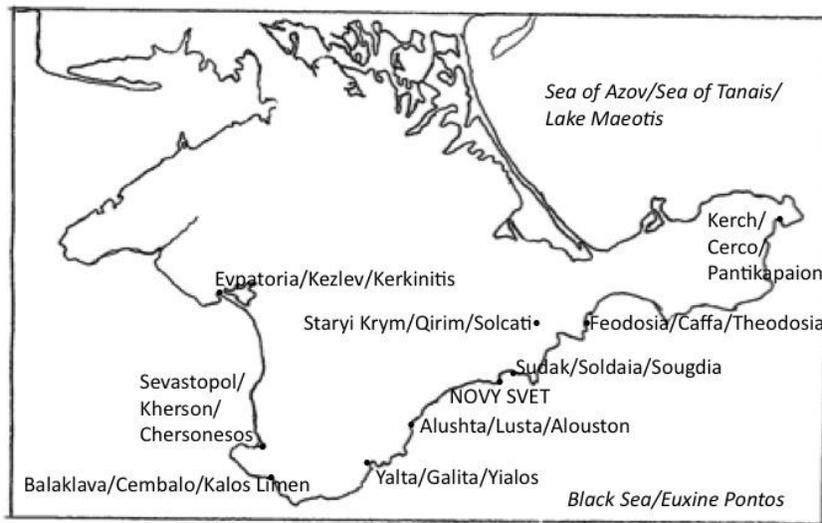


Fig 1.2. Crimea, showing the cities of Sudak (Судак) and Novy Svet (Новый Свет). After Morozova 2007, 1.

### **History of the Project: Survey (1997-2001)**

The site of the shipwreck is located in the shallow harbor around the Crimean town of Novy Svet in the Bay of Sudak, along the northern coast of the Black Sea (Fig. 1.2).<sup>6</sup> The shipwreck was excavated following preliminary surveys conducted by Ukrainian and American archaeologists along the eastern coast of the Crimean Peninsula in the Bay of Sudak in the summers of 1997 and 1998.<sup>7</sup> Divers found plenty of ceramic material indicative of maritime activity, but the site had previously been subjected to looting and unlicensed salvage by both recreational divers and larger, more organized groups. In order to preserve and study the maritime cultural heritage of the area, further survey was conducted in 1999 and 2001.

Sudak Bay stretches from Cape Meganom in the east to Cape Ai-Phoka in the southeast. The coastline is a chain of mountains (Alcjak, Bolvan, Kush-Kaya, Koba-Kaya, and Karaul Oba). The Novy Svet harbor lies in the valley between Mt. Kush-Kaya (also known as Mt. Sokol) and Mt. Koba-Kaya.<sup>8</sup> Structures from the ancient and medieval periods litter the landscape, including an Italian fortress above the city of Sudak. Navigation in the Bay of Sudak is dominated by a wind from the east, which is usually a consistent breeze from April to October. Most of the storms occur in winter, making the areas outside of the Novy Svet harbor under Mt. Koba-Kaya dangerous for sea travel (Fig. 1.3, 1.4, 1.5, 1.6).<sup>9</sup>

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<sup>6</sup> Information about the survey, excavation, and raised artifacts can be found online at *Archaeology* magazine's website: <http://www.archaeology.org/interactive/blacksea/>

<sup>7</sup> Romey 2000, June; Zelenko 2001, 82; Zelenko 2008, 156-7.

<sup>8</sup> Zelenko and Morozova 2010, 81; Zelenko 2008, 126; Zelenko 2001, 82.

<sup>9</sup> Zelenko 2008, 127-8; Zelenko 2001, 82.

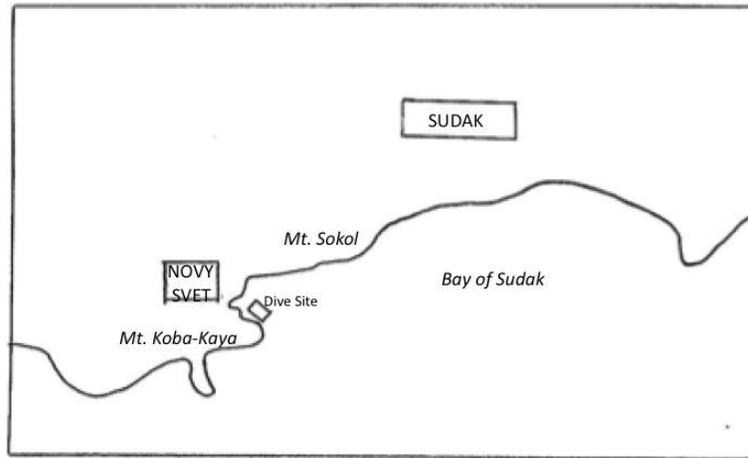


Fig 1.3. Excavation site in the Bay of Sudak (Бухта Судакская). After Zelenko 2001, 83.

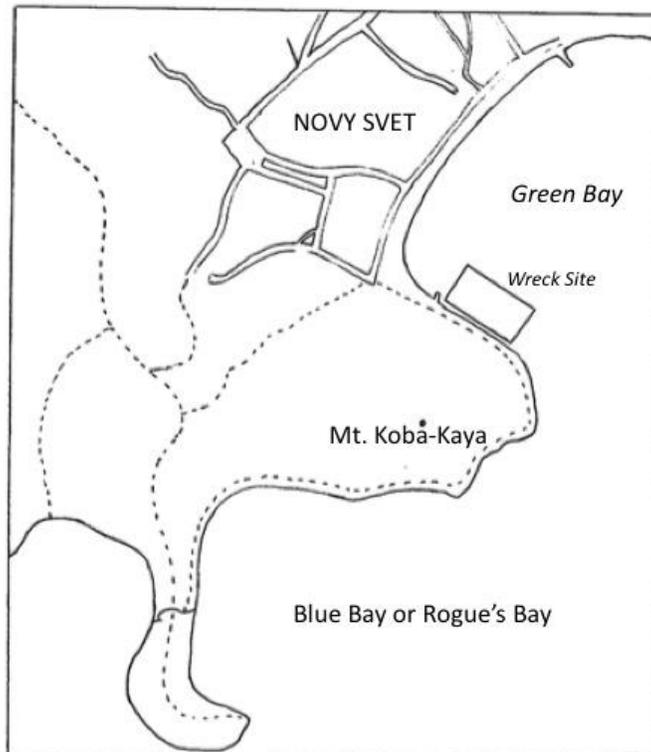


Fig. 1.4. Excavation site off of Novy Svet. After Zelenko 2008, 145.



Fig 1.5. The Novy Svet excavation site, looking at Novy Svet.



Fig. 1.6. The Novy Svet excavation site, looking out into the Black Sea.

The preliminary surveys (1997-1998) covered a 50-100 m wide strip along the whole coast of the Bay of Sudak from the Gulf of Yalta to Cape Meganom. The seabed in this area is referred to as the ‘central zone’ and is characterized by deposits of sandy gravel and small boulders.<sup>10</sup> This survey allowed divers to identify visually two areas distinguished by a density of ceramics, including pithoi, amphorae, table and cooking ware, and glazed ware. The first area is located in the western part of the harbor under Mt. Koba-Kaya near the coast. The second area is closer to the center of the harbor.<sup>11</sup> After several seasons of excavation, it became apparent that these two areas correspond to two wrecks; a 13<sup>th</sup>-century wreck, which is the focus of this thesis, and an 11<sup>th</sup>-century wreck.<sup>12</sup>

### **History of the Project: Excavation (2002-present)**

In 2002, CUA held the first of its yearly excavation seasons off the coast of Novy Svet, which continue to this day.<sup>13</sup> After the divers conducted a visual survey of the amphora piles, they chose to excavate the first area, which is quite close to shore and relatively shallow, no more than 12 m deep (Fig. 1.4). The site is at least 40 m x 60 m and possibly as much as 120 m x 120 m.<sup>14</sup> The site was divided into 2 m x 2 m squares. The location of the site and the grid lines were determined in reference to fixed points on

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<sup>10</sup> Zelenko 2008, 126; Zelenko 2001, 82-3.

<sup>11</sup> Zelenko 2008, 127,156-7; Zelenko 2001, 83.

<sup>12</sup> Zelenko 2008, 128, 168.

<sup>13</sup> Zelenko and Morozova 2010, 81; Collins 2007, August; Morozova 2007, 4-5; Zelenko 2008, 127-9, 156.

<sup>14</sup> Zelenko 2008, 127-8, 157-60.

the shore. Over several summers, the excavators raised artifacts that were dated to the 13<sup>th</sup> century.

### **Overview of the Artifacts**

The majority of the artifacts from the 13<sup>th</sup> century that were raised to the surface were ceramics. Ceramic assemblages usually facilitate the general dating of a wreck, can aid the identification of the ship's itinerary and may serve as an indicator of the direction of trade in which the vessel is participating. The assemblage at Novy Svet included storage vessels such as pithoi and amphorae, and serving/eating vessels. Along with some basic table/kitchen ware, this includes a large assemblage of Byzantine glazed *sgraffito* ware, which may have been a secondary cargo.<sup>15</sup> The raised ceramics are mostly open vessels, such as bowls and plates, making it difficult to achieve an accurate count of the excavated vessels. The less numerous artifact groups at Novy Svet include Venetian glass, wooden artifacts (including combs), and stone and metal objects, usually heavily encrusted beyond recognition, but which may provide some clues about the ship's equipment.<sup>16</sup> This section serves as a brief overview of these artifacts to provide some context for the amphorae that are the focus of the thesis. Further analysis of this corpus has been published in Ukrainian by Zelenko in *Underwater Archaeology of Crimea* and in English on the *Archaeology Magazine's* online 'Interactive Dig' Black Sea Shipwreck Research Project website.<sup>17</sup>

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<sup>15</sup> Zelenko 2008, 139-41.

<sup>16</sup> Zelenko 2008, 161-6.

<sup>17</sup> Goetsch 2007, August.

Because of the large amount of archaeological material on the seabed, excavators decided not to raise all the artifacts and instead focused on the diagnostic pieces suitable for conservation, intensive analysis, and museum display: amphorae with graffiti or the stopper intact, glass ware, metal, marble, and near complete ceramic vessels. All pieces of glazed ware were raised because of the importance of this assemblage to the study of medieval glazed ceramics.<sup>18</sup> Most of these artifacts are currently at the Center for Underwater Archaeology at the National University in Kiev, but some are on display at the archaeological museum in Sudak (Fig. 1.7).



Fig. 1.7. Artifacts from the excavation in the museum at Sudak.

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<sup>18</sup> Zelenko 2008, 139, 156-7,161.

## *Amphorae*

Five types of amphorae have been identified on the 13<sup>th</sup> century wreck. In the publication of artifacts from the shipwreck, Zelenko assigned each of them a type number, but many of them correspond to types from the well-known amphora typology published by Nergis Günsenin. Therefore, they are presented here in a brief concordance with the Novy Svet type, but throughout the rest of the thesis they are referred to by the Günsenin type.

1. Novy Svet Type 1 (Günsenin IV) is a piriform amphora with arched handles ubiquitous in the Mediterranean and Black Seas during the medieval period, and represents the majority of the vessels raised from the Novy Svet site.<sup>19</sup> Several variations of the type exist, some having a rounded toe and others a flat bottom (Fig. 1.8). The variations fall into 3 different sizes, or fractions: small, 20-30 cm high; medium, 35-50 cm high; and large, 60-70 cm high. Those with flat bottoms are usually among the smaller variants. The amphora's piriform body is characterized by convex, sloping shoulders, a short neck, and a thin lip. The handles are oval in section, attach to the neck, arch high above the rim, and meet the body of the amphora at the widest point. The fabric of the vessel is hard, fine, and well-sorted, and corresponds to 5 YR, 7.5 YR, and 2.5 Y in the Munsell chart. Several examples were raised that had diagnostic features such as intact pine bark stoppers, resinous lining, or graffiti. According to archaeologist Dr. Nergis Günsenin, these evenly ribbed amphorae were mostly used to transport bulk dry

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<sup>19</sup> Zelenko and Morozova 2010, 81-2; Zelenko 2008, 131-2, 161-2.

goods or liquids such as grain or wine. This amphora type is found all over the eastern Mediterranean and the Black Sea in the 12<sup>th</sup> and 13<sup>th</sup> centuries, but more commonly along the coast of the Sea of Marmara in north-west Turkey and along the Northern Black Sea littoral.<sup>20</sup> Two other shipwrecks with cargoes of these amphorae were excavated by Günsenin at the site of Çamaltı Burnu in the Sea of Marmara.<sup>21</sup> To date, no production sites have been identified, but Günsenin has speculated that there may be an undiscovered kiln site on the shores of the Sea of Marmara. This type will be discussed further in Chapter 3.<sup>22</sup>

2. Novy Svet Type 2 (Günsenin III) is a spindle-shaped amphora.<sup>23</sup> They range from about 50 to 60 cm high.<sup>24</sup> This amphora is covered in horizontal grooves, has a long, narrow neck, and elongated handles that begin at the rim and loop above the mouth before meeting the shoulder (Fig. 1.9). The fabric is light brown. The examples from the shipwreck display occasional examples of graffiti and signs painted on the vessel after firing, known as *dipinti*, as well as occurrences of cork stoppers.<sup>25</sup> This type is well known in the Byzantine Empire from the 12<sup>th</sup> to 14<sup>th</sup> century, especially in the Black Sea, including the northern Black Sea littoral, and does occur on shipwrecks along with Günsenin IV amphorae.<sup>26</sup> Dr. Günsenin has identified several Günsenin III amphorae aboard

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<sup>20</sup> Günsenin 1990, 31-4.

<sup>21</sup> Günsenin 2000, 125-7.

<sup>22</sup> Zelenko 2008, 131-2, 161-2.

<sup>23</sup> Zelenko and Morozova 2010, 82; Zelenko 2008, 132-3, 162.

<sup>24</sup> Günsenin 1989, 271-2.

<sup>25</sup> Morozova 2007, August.

<sup>26</sup> Romanchuck et al. 1995, 110; Günsenin 1990, 28-30.

- the Çamatlı Burnu I shipwreck, the cargo consisted of which consisted primarily of Günsenin IV amphorae.<sup>27</sup>
3. Novy Svet Type 3 is a small, thick-walled amphora, about 30-35 cm high, with a ribbed, ovoid body, a short neck with an oval rim, flat handles begin just under the rim and meet the body again at the shoulder, and a concave base (Fig. 1.10).<sup>28</sup> The fabric is bright red. Analogous vessels have been excavated along the Crimean coast,<sup>29</sup> the Bulgarian coast,<sup>30</sup> in Constantinople,<sup>31</sup> and at Acre, Israel.<sup>32</sup> These vessels are dated squarely to the middle of the 13<sup>th</sup> century. Type 3 is made from well-sorted clay and contains a thick inner lining of resin causing excavators to suggest that these small, thick amphorae were used for the transport of aromatic resin for incense, an important export to the region from the eastern Mediterranean and the Near East.<sup>33</sup> Analysis of the organic resinous lining, however, has yet to be undertaken. There are currently no theories about the production site of these amphorae, but if they held aromatic resin or incense, they may have originated at sites in the Levant, perhaps being transported by Venetians or Genoese merchants.
4. Novy Svet Type 4 is also quite small, about 40 cm high, with an egg-shaped body, a low neck, and strap handles fastened immediately under an oval mouth with a

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<sup>27</sup> Günsenin 2001, 118.

<sup>28</sup> Zelenko and Morozova 2010, 82-3; Zelenko 2008, 133-4, 163.

<sup>29</sup> Rychov 1997, 4; Mytz 1988, 65-7; Baranov 1982, 242-3.

<sup>30</sup> Changova 1959, 245, 248.

<sup>31</sup> Hayes 1992, 76.

<sup>32</sup> Stern 1997, 38-9.

<sup>33</sup> Zelenko and Morozova 2010, 82; Zelenko 2008, 132-3, 162.

rolled lip (Fig. 1.11).<sup>34</sup> These vessels also were lined with a resinous substance, but a study of the resin revealed the shells of millet grain. The excavators postulate that this grain is what is known as kipper, which was used in the preparation of a specialty olive oil, but no further analysis of the resin has been done to confirm this theory.<sup>35</sup> Analogous vessels have been found in the 13<sup>th</sup> century levels at Constantinople and Acre.<sup>36</sup>

5. Novy Svet Type 5 has a wide, short neck, round handles, and an incised wave pattern on the shoulder (Fig. 1.12). The general dimensions and fabric of this amphora type are not known to the author. There is not much information published about this type and its function and possible origins is as yet unknown.<sup>37</sup>

Graffiti have been found on many of the raised amphorae, including Greek and/or Cyrillic letters, Arabic names, Turko-Bulgarian runes, lines, points, signs and symbols.<sup>38</sup> The majority of the graffiti occur on the Günsenin IV amphorae, about 80% of the raised jars. Many of the amphorae have several examples of graffiti, possibly indicating extensive reuse. In addition to graffiti, there are examples of stamp impressions in the form of rosettes and more complex figures at the base of the handle on nine amphorae.<sup>39</sup> These stamps are different from graffiti in that they can only be applied to the surface of

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<sup>34</sup> Zelenko and Morozova 2010, 83; Zelenko 2008, 134-5, 164.

<sup>35</sup> Zelenko and Morozova 2010, 83.

<sup>36</sup> Zelenko 2008, 133-4, 162; Hayes 1992, 76.

<sup>37</sup> Zelenko 2008, 134, 163.

<sup>38</sup> Zelenko 2008, 131.

<sup>39</sup> Zelenko 2008, 162.

the pot before hardening or firing. Pine bark stoppers, both whole and partial, have been found in examples of the first four types.<sup>40</sup>



Fig. 1.8. Novy Svet 1 amphora, also known as Günsenin IV. From <http://www.archaeology.org/interactive/blacksea/artifacts.html>

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<sup>40</sup> Zelenko 2008, 163.



Fig. 1.9. Novy Svet 2 amphora, also known as Günsenin III. From <http://www.archaeology.org/interactive/blacksea/artifacts.html>



Fig. 1.10. Novy Svet 3 amphora. From <http://www.archaeology.org/interactive/blacksea/artifacts.html>



Fig. 1.11. Novy Svet 4 amphora. From <http://www.archaeology.org/interactive/blacksea/artifacts.html>



Fig. 1.12. Novy Svet 5 amphora. From <http://www.archaeology.org/interactive/blacksea/artifacts.html>

## *Glazed Ware*

The extensive amount of glazed ware is what makes this shipwreck assemblage vital to the study of medieval ceramics. The excavators raised every example they could find, which adds up to several hundred pieces of glazed ware. The glazed pottery from the Novy Svet assemblage contains about 60 unbroken pieces and hundreds of sherds of bowls, plates, dishes, goblets, beakers, and jugs, making it the second largest assemblage of artifacts from the wreck and one of the largest and best documented medieval glazed ware cargoes in the Black Sea.<sup>41</sup> The majority of the pots are open vessels such as bowls, plates, and dishes – shapes that are easily stacked and shipped. These vessels were decorated in a style known as *sgraffito*, which comes from the Italian word ‘graffita’ meaning ‘scratched’. The decorative images or motifs are incised or scratched into the surface of the vessel, in a variety of widths and shapes, and are sometimes accompanied by painted decoration. This is achieved by covering the already fired red clay with a white clay slip, known as an engobe, and using a stylus to carve the desired decoration into the engobe, exposing the red surface. After the second firing, the vessel was often covered with a translucent lead glaze in a variety of colors that highlighted their incised decoration. This popular style of ceramic decoration is thought to have originated in ninth century Persia, but became popular in the Byzantine world by the late 12<sup>th</sup> century.<sup>42</sup> A more in-depth overview of the glazed ware can be found in Drs. S. Waksman and I. Tselenko’s 2009 article.<sup>43</sup>

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<sup>41</sup> Zelenko 2008, 138.

<sup>42</sup> Vroom 2005, 84-133; Papanikola-Bakirtzis 1999, 1-22; Papanikola-Bakirtzis et al. 1992, 4; Morgan 1942, 27, 115-6; Talbot-Rice 1930, 130-2.

<sup>43</sup> Waksman and Tselenko 2010.

Glazed ceramic tablewares are found at archaeological sites along the Mediterranean and Black Seas from the 7<sup>th</sup>-14<sup>th</sup> centuries, and are one of the most diagnostic and datable artifact types in Byzantine archaeology. In 1930, David Talbot-Rice published a study of Byzantine fine wares from excavations in Constantinople in which he identified several categories based on decorative styles.<sup>44</sup> This work drew attention to Byzantine ceramics, particularly the glazed wares, and provided a chronology that, while flawed, has essentially been the baseline for all subsequent studies.<sup>45</sup>

Although fine tablewares were ubiquitous in the Mediterranean from the 8<sup>th</sup>-11<sup>th</sup> centuries, with few exceptions, Constantinople dominated the production and export of tablewares. The major category of ceramics from this period are the ‘Constantinopolitan White Wares’, characterized by a distinctive white clay fabric.<sup>46</sup> These are divided into one of two types, either 1) ‘Polychrome Wares’ or 2) ‘Plain Wares’. The ‘Polychrome Wares’ were finely made, highly fired, and decorated with a variety of mineral paints including green, yellow, or purple lead paint, turquoise alkaline paint, and red clay paint, and then covered with a clear lead glaze.<sup>47</sup> The decoration of these vessels paralleled ceramic decoration and metalwork from Persian and Islamic decorative traditions.<sup>48</sup> The ‘Plain Wares’, on the other hand, were usually coarser than the ‘Polychrome Wares’ and decorated with simple impressions or incisions.<sup>49</sup> They are usually divided into ‘Glazed’ or ‘Unglazed’ categories.

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<sup>44</sup> Talbot-Rice 1930.

<sup>45</sup> Including Morgan, Megaw, Hayes, Papanikola-Bakirtzis, and Vroom.

<sup>46</sup> Talbot-Rice 1930, Class A and B4; Hayes 1992, 12-5.

<sup>47</sup> Sanders 2002, 89; Talbot-Rice 1930, 10-9.

<sup>48</sup> Talbot-Rice 1965, 194-236.

<sup>49</sup> Vroom 2005, 62-3, 70-1, 74-7.

In the late 11<sup>th</sup> century, the production of Byzantine glazed ceramics underwent several stylistic and manufacturing shifts. Production and export of glazed ceramics became more frequent in provincial centers such as Corinth, Nicaea, and Thessaloniki.<sup>50</sup> Ceramic workshops also began producing glazed finewares in red fabric, covered in a slip of heavily levigated white clay, and decorated with incisions, mineral paints, and lead glazes, the elements of *sgraffito*. One such ceramic style is ‘Measles Ware’, which was produced at Corinth in the mid-12<sup>th</sup> century. ‘Measles Ware’ is characterized by red clay fabric, a white slip, a clear lead glaze, and decorative motifs, both figural images and abstract designs, depicted with red dots and outlined in *sgraffito*.<sup>51</sup> Examples of Measles Ware have been found on the Greek mainland at Corinth, Sparta, and Argos, and also in Italy, at Otranto, Brindisi, Padua, and Venice.<sup>52</sup>

True *sgraffito* ceramics date from the 12<sup>th</sup> century onwards, and follow a stylistic and chronological progression.<sup>53</sup> By the mid 12<sup>th</sup> century, *sgraffito* decorated ceramics dominated the market for tablewares and by the end of the 12<sup>th</sup> century, provincial centers had established distinctive regional styles. The earliest forms of *sgraffito* utilized one color of paint, either brown/yellow or green.<sup>54</sup> By the late 13<sup>th</sup> century and through the 14<sup>th</sup> century, however, ceramics were decorated with both *sgraffito* incisions and polychrome paint.<sup>55</sup> The *sgraffiti* themselves underwent stylistic development. *Sgraffito* ceramics in the 12<sup>th</sup> century were decorated with very fine lines, depicting intricate images of humans and animals in the tondo, the encircled space in the center of the inside

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<sup>50</sup> Armstrong 2008, 429; Vroom 2005, 74-7.

<sup>51</sup> Morgan 1942, 90-5.

<sup>52</sup> Dimopoulos 2009, 186.

<sup>53</sup> Vroom 2005, 82-133.

<sup>54</sup> Vroom 2005, 82-3.

<sup>55</sup> Papanikola-Bakirtzis et al 1992, 4, 23-5.

surface of an open vessel, and geometric scrolls or other designs along the rims.<sup>56</sup> In the 13<sup>th</sup> century, there was more variety in the width of the *sgraffiti*, allowing for a greater range of decorative images to be depicted.<sup>57</sup> One technique, known as *champlevé*, involved the removal of large bands or patches of the white slip with broad strokes or gouges, so that the white slip, not the exposed red clay, forms the boundaries of the image.<sup>58</sup>

One of the most distinctive *sgraffito* styles is ‘Zeuxippos Ware’, which is dated to the 13<sup>th</sup> century. Named after its archaeological findspot in the Baths of Zeuxippos in Constantinople,<sup>59</sup> ‘Zeuxippos Ware’ is a highly fired red ware identified by a white slip incised with geometric patterns using both a fine tool and a gouge.<sup>60</sup> The patterns include concentric circles around the inside of the vessel, s-shaped motifs, especially around the rims, and central medallions with figural, floral, or geometric motifs.<sup>61</sup> Although this type was identified at Constantinople,<sup>62</sup> it has a large distribution in the archaeological record, including the Aegean,<sup>63</sup> mainland Greece,<sup>64</sup> Italy,<sup>65</sup> the Levant,<sup>66</sup> Cyprus,<sup>67</sup> Crimea<sup>68</sup> and probably several different production sites.<sup>69</sup> Megaw studied a large

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<sup>56</sup> Vroom 2005, 84-7; Morgan 1942, 117-27.

<sup>57</sup> Morgan 1942, 157.

<sup>58</sup> Papanikola-Bakirtzis et al 1992, 24.

<sup>59</sup> Megaw 1968, 68.

<sup>60</sup> Megaw 1968, 69-72; Talbot-Rice 1930, figs. 5,14.

<sup>61</sup> Megaw 1968, 72, pls. 14-21.

<sup>62</sup> Megaw 1968, 74-6; Stevensen 1947, 53-6, pls. 20, 24-31; Demangel and Mamboury 1939, 139-40, figs. 184-5.

<sup>63</sup> Megaw, 1968, 81-3.

<sup>64</sup> Papanikola-Bakirtzis 2001, 132-3.

<sup>65</sup> Megaw 1968, 85-6; Berti and Galichi 1997, 86-7.

<sup>66</sup> Megaw 1968, 84-5; Stern 2009, 229; Stern and Waksman 2003, 176-178.

<sup>67</sup> Megaw 1989, 264; Megaw 1968, 85-6.

<sup>68</sup> Megaw 1968, 77-81.

<sup>69</sup> Vroom 2005, 108-9; Berti and Galichi 1997, 93.

quantity of ‘Zeuxippos Ware’ excavated from the Saranda Kolones castle in Kato Paphos, Cyprus and linked it with a level that can be securely dated to an earthquake in 1222.<sup>70</sup> It is also one of the most imitated of the *sgraffito* wares,<sup>71</sup> with the imitations being of an inferior quality in regards to both materials and decorative motifs, which are usually restricted to concentric circles.<sup>72</sup> These derivative wares, known as ‘Imitation Zeuxippos’, ‘Zeuxippos Influenced Ware’, and ‘Zeuxippos Derivatives’ have been found in Venice,<sup>73</sup> Sparta,<sup>74</sup> and Cyprus.<sup>75</sup>

The decorative styles of the *sgraffito* ware found at the Novy Svet shipwreck date the sinking to the 13<sup>th</sup> century. The majority of the glazed ceramics fall into three types: ‘Constantinopolitan Glazed White Ware’,<sup>76</sup> ‘Roulette Ware’ from Venice,<sup>77</sup> and the ‘Novy Svet Ware’ of unknown origin.<sup>78</sup> The bulk of the glazed ware cargo is the ‘Novy Svet Ware’. The ware is characterized by cups, plates, and bowls with *sgraffito* decoration of concentric circles under a bright yellowish-brown glaze.<sup>79</sup> The ‘Novy Svet Ware’ gets its name from this site because the 13<sup>th</sup> century wreck has revealed the largest collection to date of this ceramic type.<sup>80</sup> Other examples have been found at various sites along the Crimean coast including Chersonesos, Alushta, Sudak, and Feodosia, as well as

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<sup>70</sup> Megaw 1989, 264; Megaw, 1968, 85-6.

<sup>71</sup> Megaw 1989, 259-66.

<sup>72</sup> Vroom 2005, 110-1.

<sup>73</sup> Lazzarini 1989, 19-28.

<sup>74</sup> Armstrong 1992, 1-9.

<sup>75</sup> Megaw and Jones 1983, 240-2.

<sup>76</sup> Waksman and Tselenko 2010, 358, 360, 362.

<sup>77</sup> Waksman and Tselenko 2010, 359, 362, 367.

<sup>78</sup> Waksman and Tselenko 2010, 358-62.

<sup>79</sup> Waksman and Tselenko 2010, 358.

<sup>80</sup> Zelenko 2008, 164.

at Istanbul/Constantinople, Iznik, Pergamon, and Acre.<sup>81</sup> Previously, examples of this ceramics type had been categorized as ‘Imitation Zeuxippos’, ‘Zeuxippos Influenced Ware’, and ‘Zeuxippos Derivative’, among others, but chemical analysis has revealed that these ceramics are ‘Novy Svet Ware’, leading scholars to postulate the existence of a major, but as of yet unlocated, production center.<sup>82</sup> The strong links between ‘Novy Svet Ware’ and the imitation ‘Zeuxippos Wares’ suggest a 13<sup>th</sup> century date for this ware as well. Other *sgraffito* wares aboard the Novy Svet wreck include ‘Port Saint-Symeon Ware’, ‘Graffita Arcaia Tirrenica’, and ‘Cypriot Ware’.<sup>83</sup>

Another characteristic that allows the excavators to date the glazed ware, including those types that are still relatively unstudied, is the use of triangular kiln stilts in firing. Many of the vessels from the wreck have three small hemispherical indentations representing the vertices of an equilateral triangle on the wells of their decorated interiors.<sup>84</sup> This is because the pots were stacked to maximize space in the kiln during firing, but they could not touch each other because the melting glaze would glue the fired pots together. Therefore potters placed small, triangular ceramic stilts between each pot to prevent them from sticking together when the glaze vitrified. These stilts left their mark in the form of three voids. The use of stilts, which was developed at the beginning of the 13<sup>th</sup> century, increased the capacity of kilns.<sup>85</sup> This led to large-scale

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<sup>81</sup> Waksman and Tselenko 2010, 360.

<sup>82</sup> Waksman and Tselenko 2010, 361, 366-7.

<sup>83</sup> Waksman and Tselenko 2010, 358; Zelenko 2008, 164-6.

<sup>84</sup> Morozova 2007, 2-5.

<sup>85</sup> Francois and Speiser 2008, 606; Papanikola-Bakirtzis et al. 1992, 26; Megaw 1968, 69, 87.

production of Byzantine glazed ceramics after the restoration of Michael Palaiologos as the Byzantine Emperor in 1261.<sup>86</sup>

Glazed ceramics are some of the most common artifacts uncovered at terrestrial excavations, and they are considered diagnostic because they indicate either an economic or a technological connectivity with the major political centers of the time. Ceramics sit at the center of large exchange networks in the ancient world. Large-scale inter-regional trade routes, regionally based or secondary systems of exchange, and production sites, both major and minor, were linked to these networks.<sup>87</sup> The key to understanding the production and distribution of these glazed ceramics is the identification of pottery kilns.<sup>88</sup> Kiln identification is difficult and usually depends on the discovery of wasters, ceramics that have been damaged during production or firing and discarded. Kilns and production sites have been identified at Corinth<sup>89</sup>, Thessaloniki<sup>90</sup>, Didymoteichon<sup>91</sup>, Cherson<sup>92</sup>, Cyprus (Paphos, Enkomi, and Lapithos)<sup>93</sup>, and Serres in Northern Greece.<sup>94</sup> The workshop at Serres has been well studied, and scholars have been able to identify its products. Active in the 13<sup>th</sup> and 14<sup>th</sup> centuries, the workshop produced mostly open vessels such as plates and bowls, mostly decorated with polychrome paints and *sgraffito*

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<sup>86</sup> Papanikola-Bikirtzis 1999, 110-7.

<sup>87</sup> Francois and Speiser 2008, 608.

<sup>88</sup> Francois and Speiser 2008, 603-5.

<sup>89</sup> Morgan 1942, 14-25.

<sup>90</sup> Armstrong and Hatcher 1997, 4; Megaw and Jones 1983.

<sup>91</sup> Bakirtzis 1980, 151-3.

<sup>92</sup> Jakobson 1979, 147-58.

<sup>93</sup> Megaw and Jones 1983, 239-40.

<sup>94</sup> Papanikola-Bakirtzis 1997, 135-56; Papanikola-Bakirtzis et al. 1992, 27.

techniques. These motifs include images from the natural world including floral patterns, birds, fantastic composite creatures, and even humans, especially soldiers.<sup>95</sup>

When kilns cannot be located, some scholars can identify pottery production sites based on chemical signatures of the clay or even frequency of finds. While the analysis of the fabric or clay of vessel cannot produce the physical location of a pottery workshop, it can identify the clay sources used in a specific type. In the absence of archaeological evidence of kilns, it is tempting to draw a link between the source of raw materials and the location of ceramic production. This type of analysis has allowed scholars to identify a 12<sup>th</sup>-14<sup>th</sup> century pottery workshop near Pergamon.<sup>96</sup> An even less certain link is sometimes drawn between findspots of large numbers of ceramics and their production center. The large quantity of ‘White Wares’ found at a multitude of sites at Constantinople relative to the small numbers found elsewhere have led scholars to insist that Constantinople must have been the site of various pottery workshops, even though no kiln has yet been found there.<sup>97</sup>

In terrestrial excavations, examples of Byzantine glazed ceramics have been found in and around Constantinople, Greece, the Anatolian peninsula, the Balkans, Syria, the Levant, Italy, the Black Sea coast, and the Rhineland.<sup>98</sup> At the site of Acre (modern Akko), for example, the 13<sup>th</sup> century is marked by the presence of a large number of glazed tablewares, imported from the Aegean and Italy, which heavily outnumber locally produced tablewares.<sup>99</sup> This remarkably wide diffusion can be attributed to the

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<sup>95</sup> Papanikola-Bakirtzis et al. 1992, 3, 27-9.

<sup>96</sup> Waksman and Spieser 1997, 105-34; Waksman et al. 1994, 824-9.

<sup>97</sup> Hayes 1992, 12; Armstrong and Hatcher 1997, 2-3; Stevenson 1947, 31-63.

<sup>98</sup> Papanikola-Bakirtzis et al 1992.

<sup>99</sup> Stern 2012, 121-3; Stern 2009, 299-300; Stern and Waksman 2003, 170-2.

desirability and portability of glazed ceramics. The majority of findspots of glazed ware in the 12<sup>th</sup> and 13<sup>th</sup> centuries are coastal, or along the major rivers of the Balkans and Northern Italy – indicating that the wares were primarily transported by watercraft.<sup>100</sup>

Along with Novy Svet shipwreck, there are several other shipwrecks that have yielded large amounts of glazed ware. The two shipwrecks previously discovered with a cargo of glazed ware are the Kastellorizo shipwreck and the Pelagonisos-Alonessos shipwreck, both in Greece.<sup>101</sup> Each carried over 1,500 glazed plates with *sgraffito* decoration. The General Directorate of Antiquities and Restoration excavated the Pelagonessos-Alonissos shipwreck, dated to either the 12<sup>th</sup> or 13<sup>th</sup> century, in a salvage operation in the summer of 1970. The cargo of the ship was mostly documented and recovered. It was comprised of pottery and six millstones. Among the recovered items were 1,490 pieces of glazed ware including 412 large bowls, 213 plates, 143 small bowls, 54 amphorae, 5 lamps, 7 amphoriskoi, 9 lagenia, 2 wide-mouthed vase lids, 2 pithoi, 1 bronze cauldron and 2 glass vials. The other 628 artifacts are fragments of decorative plates.<sup>102</sup>

In 1970, another 12<sup>th</sup> or 13<sup>th</sup> century Byzantine shipwreck was discovered, this time off cape Zapheirion on the southwest coast of Kastellorizo. The ship was carrying a cargo of pottery, including 130 painted vases. To date, there has been no systematic

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<sup>100</sup> Dimopoulos 2009, 179-80, fig. 12.1; Francois and Speiser 2002, 605.

<sup>101</sup> Papanikola-Bikirtzis 1999, 211-34; Ioannidaki-Dostoglou 1989, 157-71; Philotheou and Michailidou 1989, 173-6; Loucas 1989, 177-83.

<sup>102</sup> Dimopoulos 2009, 180; Papanikola-Bikirtzis 1999, 118-22; Ioannidaki-Dostoglou 1989, 157-71.

excavation and all known finds have been recovered illegally, such as 90 plates found in the possession of a French antiquities dealer in 1990.<sup>103</sup>

Unfortunately, these exceptionally large cargoes have not been scientifically excavated and all context has been lost. This highlights the importance of the glazed ware assemblage from the Novy Svet shipwreck to a better understanding of the role that glazed ware played in maritime trade in the 12<sup>th</sup> and 13<sup>th</sup> centuries. It is important, therefore, to examine the glazed ware found in smaller quantities on other shipwrecks. The 11<sup>th</sup> century shipwreck at Serçe Limani's cargo was primarily glass cullet and amphorae, but also included 44 glazed bowls decorated with *sgraffito*.<sup>104</sup> These bowls have been attributed to a Fatimid production site, based on analysis of the decoration and the glazes.<sup>105</sup> Glazed ceramics were also discovered at Çamathlı Burnu, the site of a 13<sup>th</sup> century shipwreck. Again, the excavated ceramics are open vessels, mostly plates and bowls decorated with *sgraffito* and polychrome paint.<sup>106</sup>

The most common and widely circulated of glazed ceramic types was *sgraffito* red wares, mostly plates and bowls.<sup>107</sup> Several scholars have postulated that these open shapes were more portable, allowing merchants to stack them and thus load their ships with maximum efficiency.<sup>108</sup> When *sgraffito* wares are discovered on shipwrecks, they are usually part of a larger, varied cargo, and they may have been convenient secondary

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<sup>103</sup> Dimopoulos 2009, 181; Papanikola-Bikirtzis 1999, 143-4; Philotheou and Michailidou 1989, 173-6; Loucas 1989, 177-83.

<sup>104</sup> Bass and van Doorninck, 1978, 125-7.

<sup>105</sup> Mason et al. 1992, 68-70; Jenkins 1992.

<sup>106</sup> Günsenin 2003, 367-71; Günsenin 2001, 132.

<sup>107</sup> Dimopoulos 2009, 179.

<sup>108</sup> Armstrong 2009, 158-9; Stern 2009, 230-1.

cargoes, or even saleable ballast.<sup>109</sup> The relative value of these glazed ceramics is subject to debate. The materials and techniques required to produce such vessels are by no means restrictive, certainly not to the same degree as those for metalwork. The ubiquity of glazed pottery and the imitation of popular decorative shapes and styles, such as ‘Zeuxippos Ware’, suggest that glazed ceramics were desirable and available to a large percentage of the population. It would be unrealistic to equate glazed wares with an ‘elite’ class and unglazed wares with a ‘low’ class.<sup>110</sup> Likewise, it would also be flawed to dismiss glazed ceramics as easily imitable and not worth transport. The variety of skill levels present in the wide range of glazed ceramics, combined with their apparent popularity, makes it likely that although they did not serve as items of luxury or conspicuous consumption, they enjoyed intrinsic value and different stylistic techniques may have been more or less desirable depending on their place and time of production.

### ***Other Ceramics***

#### ***Pithoi***

Pithoi are large all-purpose storage containers. While they may have carried goods such as wax, resin, or ceramics, examples found on ships were also used for water storage.<sup>111</sup> Two types of pithoi have been identified at Novy Svet. The first type has smooth walls, a large mouth, a massive rim, and is decorated below the neck with a rolled impression of ovals. The fabric is light red with large micaceous flakes. The second type

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<sup>109</sup> Stern 2012, 124-5.

<sup>110</sup> François and Speiser 2002, 599.

<sup>111</sup> Large storage jars such as pithoi have been used for freshwater storage aboard ships since the Late Bronze Age, as seen on the Uluburun shipwreck. Pulak 2008, 290; Pulak 1998, 193-201.

has a ribbed surface and thinner rims, and is decorated with a series of appliqué ovals around the shoulder.<sup>112</sup> This type is characterized by light brown fabric with inclusions of mica and sand. Parallels for the second type have been found in the 12<sup>th</sup>-13<sup>th</sup> excavation layers at the southwestern Crimean site of Chersonesos (medieval Cherson).<sup>113</sup> Pithoi with similar decorations on the neck have been found at Novorossiysk, an ancient and medieval settlement that is currently a Russian port on the Black Sea. These may have been produced in Sinope or another major center on the central southern coast of the Black Sea and likely date to the first half of the 13<sup>th</sup> century.<sup>114</sup>

While there is not much published information about the number of pithoi found in the Novy Svet shipwreck excavation, further analysis could be critical for our understanding of the sunken vessel. If these pithoi represent the amount of fresh water available to the ship's crew, a study of their full number and capacity would not only give a good estimate of the size of the ship, but also the size of the crew. They may also shed light on the length of time the vessel was able to spend out of sight of land.

### *Coarseware*

Some excavated ceramics have been identified as kitchen and cooking ware, but it is unclear if they were used in the galley on the ship or intended for sale. One of the more distinctive shapes is a pouring vessel or jug, with a wide, flat bottom, a small, bell-

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<sup>112</sup> Zelenko 2008, 128-9,.

<sup>113</sup> Zelenko 2008, 130; Yakobson 1979, 164.

<sup>114</sup> Zelenko 2008, 130-1, 161, 163-4; Dimitriev 1982, 73-5.

shaped mouth, a triangle or trefoil spout, and a flat handle.<sup>115</sup> This vessel type is seen all along the Black Sea coast and in Constantinople.<sup>116</sup> There are a few jars at Novy Svet that show signs of repair such as metal clamps, indicating that they had been in use, perhaps by the crew, but other identical vessels show no evidence of use at all. Again, the number of these vessels is uncertain, and it is difficult to tell if they were part of a shipment or simply for onboard use.<sup>117</sup>

### *Other Artifacts*

#### *Glass*

A small amount of glass was found with the ceramics at Novy Svet. The glass assemblage of the shipwreck includes several forms of light-olive or green glass, dated to the second half of the 13<sup>th</sup> century and most likely from Italy.<sup>118</sup> Along the vessel types are flask-like vessels with narrow necks ending in a bell shaped mouth, decorated by thick threads or ribs of dark blue glass.<sup>119</sup> This type of vessel is seen in archaeological excavations in the Mediterranean, Hungary, and Germany in 13<sup>th</sup> century contexts.<sup>120</sup> There are several fragments of vessels with an open shape, bowls or plates, with large diameters, convex fused edges, and pronounced concave, conical bottoms on a hollow angular foot.<sup>121</sup>

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<sup>115</sup> Zelenko 2008, 135-6, 138.

<sup>116</sup> Parshina 1991, 64-100; Yakobson 1979, 164; Yakobson 1951, 109-111.

<sup>117</sup> Zelenko 2008, 163-4, 166.

<sup>118</sup> Zelenko 2008, 136, 166.

<sup>119</sup> Zelenko 2008, 136.

<sup>120</sup> Foy and Sennequier 1989, 197-8; Holl-Gyorky 1986, 71-3; Davidson 1940, 309-10.

<sup>121</sup> Zelenko 2008, 135-6.

One vessel of particular interest is a goblet with small round blobs fused to the body, a technique known as prunting, and a concave conical bottom.<sup>122</sup> This type is seen in archaeological excavations of urban centers in South Germany, Italy, Switzerland, South Russia, and Hungary, and is commonly dated to the second half of the 13<sup>th</sup> century.<sup>123</sup> In his excavations of a glass-factory at Corinth, Davidson identifies several prunted vessels with similar morphologies from 12<sup>th</sup> century contexts.<sup>124</sup> He explains that the vessel type was introduced to the Mediterranean from Syria in the 11<sup>th</sup> century, and was introduced to central Europe in the 13<sup>th</sup> and 14<sup>th</sup> centuries.<sup>125</sup> Although he decries the notion of a Greece-South Russia-Germany trade route, preferring a Sicilian origin, the glass found on the Novy Svet shipwreck may be part of a maritime network by which glass products from the Mediterranean were brought into eastern and central Europe through the Black Sea and its network of tributary rivers.

### ***Hull Remains***

Unfortunately, the Novy Svet wreck site has revealed only scant wooden and metal remains. Some of the recovered wood pieces may be fragments of the hull, as they show evidence of being worked. These samples have been sent to the Dendrochronological Laboratory in Verona for analysis and results are pending.<sup>126</sup> Smaller wooden artifacts, such as combs, have been discovered.<sup>127</sup> There are also heavily corroded artifacts of bronze and iron that when conserved or cast may reveal rigging

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<sup>122</sup> Zelenko 2008, 135-6.

<sup>123</sup> Foy and Sennequier 1989, 197-8; Holl-Gyorky 1986, 72-3, fig.4.

<sup>124</sup> Davidson 1940, 308, figs. 11.1-3, 12.1-3.

<sup>125</sup> Davidson 1940, 310.

<sup>126</sup> Zelenko, 2008, 162; Morozova 2007, 6-7.

<sup>127</sup> Zelenko 2008, 165; Morozova 2007, 6-7.

elements or fasteners. Several meters of braided rope of various sizes and thicknesses were found. The depth at which the rope was buried in the seabed and its fragile condition suggest that it may be from the medieval period, but only C-14 analysis will confirm or refute this theory.<sup>128</sup>

### **Identification of the Shipwreck**

The artifacts excavated to date from the Novy Svet wreck answer many questions about 13<sup>th</sup> century trade and ceramics, but less about the wreck itself. Almost nothing is known about the ship's size, construction, or design because of the paucity of excavated hull remains. The pottery, especially the glazed ware, effectively dates the wreck to the 13<sup>th</sup> century but does not provide a definite point of origin for either the ship or the crew. The artifacts were produced at in cities all over the Mediterranean, but could also have been purchased at a major transshipment center such as Constantinople. It is difficult even to identify the primary cargo of the vessel, if it was the contents of the amphorae, the glazed ware itself, or some unknown item that was taken off the ship before sinking, salvaged after the wreck, or perished in the ensuing centuries.

The process of pinpointing the origin or identity of a ship, its crew, and its itinerary is arduous and relies on a dissatisfying equation of material goods with political or ethnic identity. It is easy to assume that there is a direct link between the manufacturing or production site of the commodities and artifacts and the itinerary of the ship or between the origin of certain excavated artifacts and the origin of the individuals onboard. This assumption can be very dangerous, not only because it equates material

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<sup>128</sup> Zelenko 2008, 162,165-6; Morozova 2007, 6-7.

culture with political and ethnic groups, but also because when one takes into account the potential ways for a cargo to be brought onto a ship, an economic model of direct shipment from producer to consumer is only one of dozens of scenarios.

In general, archaeologists eschew using cargo as an indication of the identity of the ship's crew or the homeport of the ship. In the modern historical period, there may be indications of the vessel's name on artifacts that were part of the ship or belonged to the ship, such as the ship's bell or a nameplate, and the development of shipping manifests and customs documents makes identification less difficult. For periods before widespread literacy, however, such information is either not available or not easily substantiated. Instead, archaeologists focus on what could be considered personal items, such as pottery used for the onboard preparation and consumption of food, weapons, religious paraphernalia, and items associated with the mechanics of trade, such as seals, stamps, weights, or coins. No one artifact can definitively identify a homeport or the identity of the sailors and merchants, so instead archaeologists have to look for clusters of clues – and for the outliers. An example of this sort of process is the challenge of identifying the crew of the ship that sank at Uluburun, Turkey in the Late Bronze Age.<sup>129</sup> The primary excavator, Dr. Pulak, determined that the large amount of Cypriot pottery found in the hold did not mean that the Cypriot merchants were aboard the ship, nor did it even mean that the ship stopped at Cyprus during its final voyage. Instead, Pulak hypothesized that the crew consisted of Canaanite merchants, Mycenaean officials, and a

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<sup>129</sup> Pulak 2008, 289-305, 366-80; Pulak 2001, 13-60; Pulak 1998, 188-224; Pulak 1997, 18-22.

potential mercenary from the Balkans, based on the personal items, such as weapons, seals, weights, and pottery, found on the wreck.<sup>130</sup>

This type of analysis has also been conducted on ships that sank during the Byzantine period, most notably the Yassı Ada and Serçe Limanı wrecks. Both of these wrecks sank en route to their final destination, like the Uluburun wreck, giving archaeologists the task of reconstructing the final voyage and crew of the vessel based on artifacts found at the wreck site including tools, pottery, and weights and scales. Inscriptions, such as amphora graffiti, also gave insight into the crew of the ship and the nature of its cargo. Graffiti on the amphorae at Yassı Ada identified potential cargo contents, such as olive oil or lentils, and an inscription on the steelyard balance scale identifies the captain of the ship by name.<sup>131</sup> On the Serçe Limanı ship, the amphora graffiti included a significant occurrence of Bulgarian potter's marks. This allowed the excavator to theorize that the ship was crewed by a group of Hellenized Bulgarians.<sup>132</sup>

The 13<sup>th</sup> century wreck at Novy Svet does not have much to identify its origin or the origin of its crew, although the continued excavations may produce more definitive clues. Ideally, archaeologists hope to find artifacts easily associated with the stern of the ship, traditionally the area where officials or captains resided. Weights, perhaps including a balance scale, that correspond to known measures are especially diagnostic. Coins or precious metal used as cash could also provide clues as to where a ship or a captain had traveled. Personal effects such as combs, razors, games, fetishes, foraging

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<sup>130</sup> Pulak 2008, 299-302; Pulak 2005, 296-8, 305.

<sup>131</sup> van Doorninck 1989, 251-2; Bass 1982 (a), 161, fig. 8.8, 314-8; Bass 1982 (b), 313-17.

<sup>132</sup> van Doorninck 2009, 3-4; van Doorninck 2000, 137-48; van Doorninck 1998, 74-5; van Doorninck 1989, 254.

tools, cooking implements, even food remains may all inform archaeologists as to the material and cultural associations of the people onboard. If the graffiti on the amphorae can be interpreted as referring to the final voyage, they may be able to identify some of the individuals or groups associated with the ship.

In addition to studying the archaeological evidence, the excavators searched contemporary historical records for any mentions of a sunken 13<sup>th</sup> century vessel in the Bay of Sudak. They found an account of such a ship by Obertus Stanconus, a Genoese chronicler in the 13<sup>th</sup> century manuscript *Annali Genovesi di Caffaro e de'suoi Continuatori*.<sup>133</sup> This archival source describes a Pisan ship that was burnt and sunk by the Genoese in the Bay of Sudak on August 14, 1277:

Ipsa etiam anno cum due galee Pisanorum iuissent armate Constantinopoli, et ibidem moram traherent, aliqui ex illis galeis fecerunt insultum in duos Ianuenses qui intus Constantinopolim errant. Ianuenses vero qui errant in Peyra hiis auditis, illuc cucurrere velociter, et aliquos ex Pisanis contumeliis afflixerunt; quare ipsi Pisani de dictis duabus galeis unam fatientes, cogitaverunt intrare in mare maius et in Ianuenses qui ibi errant in magna quantitate offensiones inferre; et intrantes pervenerunt Sinopi a expectantes tempus et locum offendendi. Ianuenses vero qui errant ibi in Peyra, in continenti paraverunt armare unam galeam que iret post ipsam Pisanorum galeam. Set interim galea Bancheriorum honerata mercantionibus de Ianua applicavit in Peyra; et auditis predictis, in continenti insequi cepit predictam Pisanorum galeam et ventis prosperis in Soldaiam pervenit. Dumque ibidem moraretur, ecce quod supervenit predicta Pisanorum galea in vigilia beate Marie de mense augusti. Nostra vero exiens eidem obviam, prelim inter ipsas est commissum durissimum in conspectus hominum Soldaie. Nam cum prope terram per miliare unum esset prelium incoatum, omnes exiverunt videre; sicque Domino concedente, nostra galea inde victoriam reportavit; et acceptis mercatoribus Pisanis qui supervixerant ex ipso prelio, et positis in terra cum eorum mercibus, galeam Pisanorum in conspectus omnium combuxerunt.

In this same year, when two galleys belonging to the Pisans had gone armed to Constantinople, and prolonged their stay there, some men from these galleys made an attack on two Genoese who were at Constantinople. Genoese compatriots heard of the assault, ran to the scene, and thrashed some of the attacking Pisans. The Pisans manned one of their galleys and sailed into the Black Sea, initially to the coast off Sinop, where they awaited an opportunity to exact revenge. Meanwhile, a Genoese galley that just docked at Pera (the Genoese enclave at Constantinople) heard of the

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<sup>133</sup>. Stanconus 1856, 76-7. Stanconus recorded events shortly after they occurred in the latter half of the 13<sup>th</sup> century and writings cover the years 1270 to 1279. The year 1856 is simply the date of the printing.

events and immediately began to pursue the aforesaid Pisans' galley, and, with favorable winds, they arrived at Sudak. And while they tarried there, the aforesaid Pisan galley unexpectedly caught up with them on the Eve of Blessed Mary in the month of August. The Genoese sailed out to attack, and a very harsh battle was engaged between them in sight of the people of Sudak. For when the battle had been started, one mile off shore, they all went out to see; and thus God willing, our galley thence brought back victory; and having received the Pisan merchants who had survived the battle, and placed them on land with their goods, they burnt the galley of the Pisans in view of all.<sup>134</sup>

It is tempting for the excavators to connect this account with the 13<sup>th</sup> century wreck at Novy Svet, but nothing is mentioned about the cargo, except that the traded goods (*merces*) were taken off the ship when the Pisan merchants were taken captive. The Genoese may have ignored the heavy, relatively inexpensive cargo of glazed ceramics or amphorae when ransacking the ship and focused on a more valuable, lighter cargo. The Pisans may have removed weights, coins, seals, and any valuable personal items that would have identified the ship's crew. This situation could explain why few confirmed personal items have been found so far among the artifacts.

The description of the sinking of the ship finds some support in an analysis of the artifacts. The archaeological record is full of clues that point to destruction by fire. Much of the glazed ware bears signs of burning such as carbonized residue, melted glaze, and grayish-black patches on the fabric. Around the bases and rims of many of the vessels are traces of carbon and cinders, suggesting that the pottery may have been laden with packing material such as dunnage, straw, or rags that burned along with the ship.<sup>135</sup>

Finally, the account raises the question of the historical context of the wreck. On the basis of the ceramics alone, the ship dates from the last half of the 13<sup>th</sup> century or early 14<sup>th</sup> century. The historical account gives us a potential date of the sinking. The

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<sup>134</sup> Zelenko 2008, 143.

<sup>135</sup> Zelenko 2008, 140-1, 167.

next appropriate step is to attempt to place the shipwreck, and its contents, in the proper historical context. The Stanconus account, however, cannot be allowed to ‘drive’ the interpretation, for this would privilege a written source over the archaeological record, simply because it is convenient or attractive to do so. Instead the two must be analyzed together, to see if the identification of the 13<sup>th</sup> century Novy Svet shipwreck as the Pisan ship in the historical record stands up to examination, or if it is refuted. The next chapter will examine the historical background of the 13<sup>th</sup> century an attempt to contextualize both the excavated artifacts and the archival account.

## CHAPTER II

### HISTORICAL BACKGROUND

#### Introduction

As discussed in Chapter I, the Novy Svet shipwreck may be connected with a historical account of a clash between Pisan and Genoese merchant galleys in the Bay of Sudak on August 14, 1277. The account was written in 1294 by Obertus Stanconus, a Genoese chronicler, in the *Annali Genovesi di Caffaro e de'suoi Continuatori*, which discusses the struggles between Italian city-states in the northern Black Sea. The identification, while not confirmed by a single find, is plausible owing to the location of the shipwreck and the date of the artifacts. The account, however, offers no explanation of the types of goods and cargo that the Pisan ship was carrying, nor any description of the merchants, crew, or intended route of the final voyage of the ship. A study of the graffiti on amphorae from the Novy Svet shipwreck may be able to illuminate aspects of trade in the northern Black Sea, such as cultural agents or the mechanics of potmarking systems, and further facilitate the identification of the ship.

The northern Black Sea, although remote, is essentially the northern frontier of Mediterranean influence. Its role in the Mediterranean economic and political networks varied depending on the existence of (a) merchants willing to transport goods between the Mediterranean and Black Seas and (b) the stability and willingness of local political entities to protect and foster trade and ensure that goods reached the trading posts. During the Late Byzantine period, the time of the Novy Svet shipwreck, the Black Sea

served as a node connecting two parts of the Eurasian economic network; the Mongol Empire and the Mediterranean (Fig. 2.1).<sup>136</sup>

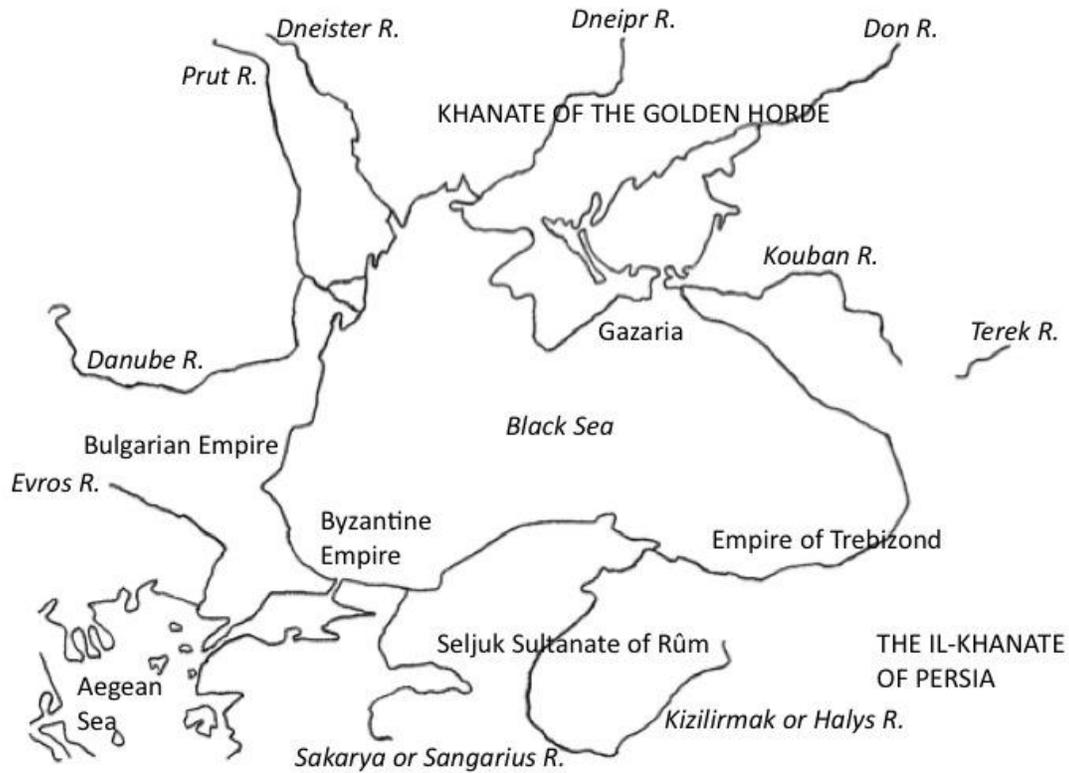


Fig. 2.1 The Black Sea in the 13<sup>th</sup> century. After Balard 1989 (b), 34.

Unfortunately, the surviving historical accounts that have survived are heavily skewed towards one specific voice, that of the Italian merchant. In fact, archaeological investigations of many Byzantine sites in major Black Sea cities, have, until the past ten

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<sup>136</sup> Balard 1989 (b), 31-2.

years, been focused mostly on religious structures.<sup>137</sup> The two lines of evidence, historical and archaeological, are therefore woefully disparate and must be interpreted carefully side by side. As tempting as it is to equate the Novy Svet wreck with Stanconus's account of the Pisan ship, this would be privileging the historical account over the archaeological material, a practice that, while convenient and not uncommon, can blind interpreters to the true breadth of human activity and variety of participants represented in material culture. The purpose of this chapter is to characterize the role of the northern Black Sea in the various economic systems of the 13<sup>th</sup> century, introduce the major players within these systems, and place the Novy Svet wreck in its proper historical and economic context.

### **Chronological Overview of the Northern Black Sea**

The northern Black Sea played an important part in Mediterranean trade systems since the 7<sup>th</sup> century B.C.E. when Ionian Greeks began to colonize the area, founding settlements (*apoikoi*) and trading entrepôts (*emporía*) along the coast despite its inhospitable reputation.<sup>138</sup> At the beginning of the fifth century B.C.E., these colonies

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<sup>137</sup> Bouras 2002, 498-9.

<sup>138</sup> The nature of Greek colonization is a massive topic that cannot be fully dealt with in these pages. Nevertheless, a note must be made about the terminology and language of ancient and medieval colonization. In the modern world, the word 'colony' has strong imperial, expansionist, and exploitative connotations. In the ancient and medieval world, however, the founding of colonies was motivated by the need to alleviate overpopulation, or to establish centers for trade and diplomacy. Because it is still standard practice, I will use the term 'colony' to describe the ancient and medieval settlements on the coasts of the Black Sea. For colonialism and colonization in the Mediterranean, see Dietler and Lopez-Ruiz 2009; Malkin 2009; Hansen and Nielsen 2004; Lyons and Papadopoulos 2002; van Dommelen 1997, 305-23; Boardman 1999; Wilson 1997, 199-207; and Boardman and Hammond 1982. For a discussion about colonization in the Black Sea specifically, see Bilde and Peterson 2008; Trofimova 2007; Petropoulos 2005; Braund 2005, Avram,

united to form the Bosporean Kingdom, where Greek and local populations, including steppe peoples like the Skythians, coexisted. During the Mithridatic Wars (88-63 B.C.E.), the Bosporean Kingdom was the last bastion of Pontic rule resisting Roman imperialism.<sup>139</sup> After the Roman conquest, a part of the Roman Imperial fleet was stationed in the northern Black Sea until the Herulian invasion in 230. When Constantine moved the capital of the Roman Empire to Constantinople in 330, local tribes who had gained control over the area checked imperial interest in the northern Black Sea.<sup>140</sup>

Mediterranean trade with the northern Black Sea flourished when there was a strong local political entity willing to foster and conduct trade. Unlike the southern coast, where the Greek presence had been maintained by colonies at Sinope, Herakleia Pontika, Amasis, and Trapezus since the seventh century B.C.E., the northern coast had only a few Byzantine maritime outposts in the Crimea, the most important of which was Kherson (ancient Chersonesos). Beyond the coast, the northern Black Sea was controlled by local populations who are known to us only through their names in the classical sources; Cimmerians, Taurians, Scythians, Sarmatians, Goths, Khazars, Pechenegs, and Rus. The Khazars, a people of Turkic descent who migrated to the Black Sea from the plains north of the Caucasus mountains, controlled the northern Black Sea from the seventh until the tenth century. Although little is known about these people, they opened up trade routes between the Caspian and Black Seas and served as middle men between the various

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Hind, and Tsetsekhldze 2004, 924-73; Grammenos and Petropoulos 2003; Bilde et al. 2003, Snodgrass and Tsetsekhldze 2002; Solovyov 1999; Tsetsekhldze 1998, Tsetsekhldze 1996; Tsetsekhldze 1994, 111-36; Hind 1997, 107-16; Graham 1982, 83-159; French 1982, 19-30; Drews 1976, 18-31; Labaree 1957, 29-33; and Carpenter 1948, 1-10.

<sup>139</sup> Koromila 1991, 211-25.

<sup>140</sup> Scukin, Kazanski, & Sharov 2006, 13-37.

kings, soldiers, and merchants who came to the shores of the Black Sea.<sup>141</sup> Another local people were the Rus who developed a series of rural trade networks from the Baltic to the Black Sea along the Volga and Dneipr rivers and who imported the Orthodox religion along with finished goods from Constantinople.<sup>142</sup>

The Byzantine Emperors appear to have fostered strong and well-developed connections with the local populations of the Black Sea. In 952, the Emperor Constantine VII Porphyrogenitus finished a treatise on diplomatic policy for his son known as the *De Administrando Imperio* that demonstrated the Byzantine Emperor's continued interest in the Black Sea.<sup>143</sup> In this text, the emperor instructs his son explicitly about dealing with the many peoples and polities around the Black Sea. He writes knowledgably about the geography and history of the area and its peoples, including the Pechenegs, Turks, Bulgarians, and Rus.<sup>144</sup> He also relates the history and character of the Greek settlements in the area, particularly the city of Cherson.<sup>145</sup> The text explicates how to build good relations with local rulers and how to manipulate these relationships to advance one's own agenda. Overall, the emperor advocated a strategy of playing allies against each other in order to maintain general stability in the region, ensure the safety of Greeks in the area, and allow trade to flourish.

In the 13<sup>th</sup> century, the northern Black Sea littoral, including most of the Crimean peninsula, was under the control of the Khan of the Golden Horde, one of four parts of the Mongol Empire (Fig. 2.2). The period of stabilization in Central Asia known as the

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<sup>141</sup> Shepard 2009, 422; King 2004, 73-81.

<sup>142</sup> Makarov 2009, 443-5, 449, 460-1.

<sup>143</sup> Moravcsik and Jenkins 1967, 7-12.

<sup>144</sup> *DAI* 42.

<sup>145</sup> *DAI* 53.1-122.

*Pax Mongolica* ensured that the overland routes from Cathay, China to Caffa, Crimea (the first Genoese colony<sup>146</sup> in the northern Black Sea, known as Theodosia in antiquity, (Fig. 2.3)) were open for trade.<sup>147</sup> The primary exports were the natural resources of the Black Sea area: grain, salt, fish, wine, wax, honey, naptha, and slaves. Luxury goods from further afield, such as silks from China, spices from Persia, amber from the Baltic, and furs from Northern Russia, made their way to the northern Black Sea both over land and by way of the great rivers emptying into the Black Sea basin.<sup>148</sup>

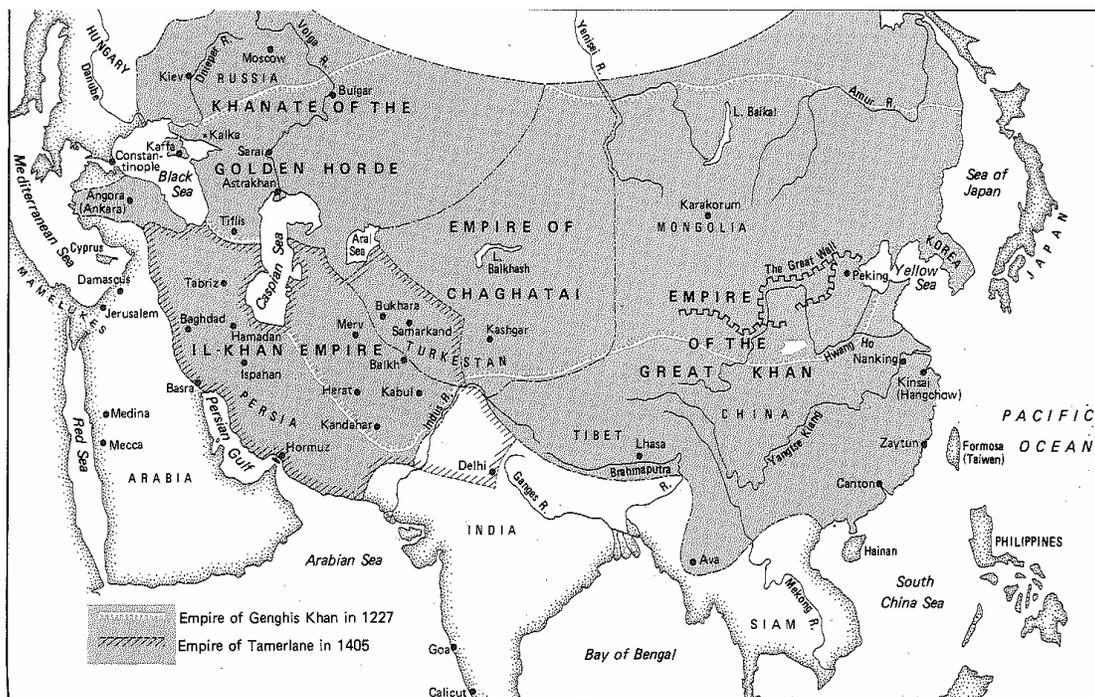


Fig. 2.2 The Mongol Empire in the 13<sup>th</sup> century. Abu-Lughod 1989, 142.  
Reprinted with permission from Oxford University Press.

<sup>146</sup> As discussed above, the use of the term ‘colony’ refers to a medieval construct without the modern associations. These Italian colonies were trading entrepôts where merchants, commercial officers, and diplomats had houses and property, but generally did not engage in agriculture or the production of goods, being concerned only with the mechanics and administration of trade.

<sup>147</sup> Balard 1989 (b); 32-33.

<sup>148</sup> King 2004, 81-7; Abu-Lughod 1989, 154; Balard 1989 (b), 35-6, 40-6.



Fig. 2.3 The Genoese colonies along the Crimean coast. After Balard 1978, 850.

Maritime control of the northern Black Sea had previously been the dominion of the Byzantine Empire, but by the 13<sup>th</sup> century three Italian city-states - Genoa, Venice, and Pisa - controlled the major trade routes (Fig. 2.4). It was a combination of Italian commercial shipping and Byzantine and Mongol rule that made the northern Black Sea, particularly Crimea, such an economically important region. Indeed, in the mid 14<sup>th</sup> century when the Mongol empire began to disintegrate and the *Pax Mongolica* faltered, the Italian city-states, and the rest of Western Europe, entered an economic depression.<sup>149</sup> The Crimean Peninsula, however, still had local inhabitants who were willing to trade the

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<sup>149</sup> Balard 1989 (b), 37-40.

natural and agricultural resources of the region for the manufactured goods of the Italians and the Byzantines, and thus maintained existing economic ties to the Mediterranean.

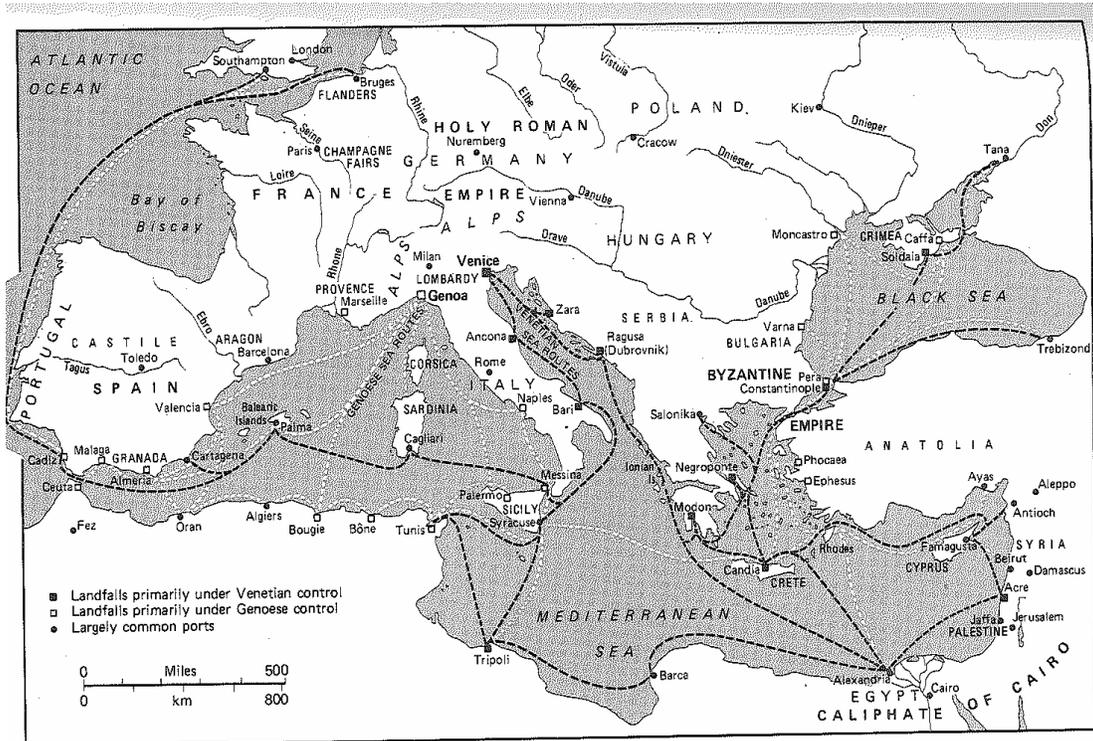


Fig. 2.4 The Italian trade routes in the 13<sup>th</sup> century. Abu-Lughod 1989, 123. Reprinted with permission from Oxford University Press.

### The Mongol Empire

By the 13<sup>th</sup> century, the Mongols were the dominant political power in the northern Black Sea. In 1227, the year Genghis Khan died, the Mongolian Empire stretched across central Asia, from China to the Black Sea. After his death, the empire was split into four regions, and Genghis's son Jochi received Russia and Eastern Europe as his empire. (Fig. 2.2) From 1236 until 1242, the Mongols, led by generals Subedi and

Jochi's son Batu, later Khan of the Golden Horde, conquered southern Russia, Poland, and Hungary, eventually coming within sight of Vienna.<sup>150</sup> By 1251, when Mongke ascended the Supreme Khanate, Batu was Khan of the Golden Horde and, seated at the new capital of al-Sara' on the lower Volga, maintained control over the northern Black Sea.<sup>151</sup>

Despite European fears of conquest, the pan-Eurasian rule of the Mongols led to a *Pax Mongolica* that allowed Italian merchants to meet the Far East directly and with great profit.<sup>152</sup> The Mongols welcomed Italian and Byzantine interests in Crimea and allowed their coastal colonies to flourish as *emporium* or entrepôts.<sup>153</sup> The *Pax Mongolica* stabilized Central Asia and promoted the opening of safe passage for trade routes from China to Europe and the Mediterranean.<sup>154</sup> Papal missionaries were not only able to make contact with the Mongols, they went as far as to establish a mission in Peking, modern Beijing.<sup>155</sup> Merchants, the most famous of whom was Marco Polo, began to make inroads through northern Asiatic trade routes to China and Persia. Although merchants from the Mediterranean had traded in Asia before the 13<sup>th</sup> century, it was the Mongols that unified the historically fragmented region of Central Asia under a single political system and set up an infrastructure for crossing an inhospitable landscape.

As Italian merchants utilized the east-west trade routes, the Golden Horde also took advantage of the stabilization of the north-south trade routes to trade with their Egyptian allies, the Mamlûks. The Mamlûks exported linen, both raw and in textile form,

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<sup>150</sup> Morgan 1989, 200.

<sup>151</sup> King 2004, 87-91.

<sup>152</sup> Abu-Lughod 1989, 154-9; Grousset 1922, 130.

<sup>153</sup> Morgan 1989, 198.

<sup>154</sup> Abu-Lughod 1989, 167; Balard 1989 (b), 33.

<sup>155</sup> Abu-Lughod 1989, 161.

from the Nile Delta to the markets of Constantinople in exchange for slaves from the Mongol campaigns.<sup>156</sup> The Mamlûks, who ruled Egypt, were at war with the Il-Khanate, the Mongol appanage in Persia and Seljuk Anatolia. The Khans of the Golden Horde had no hesitation about allying with the Mamlûks against the Il-Khanate, even though the Il-Khanate and the Golden Horde were technically part of the same Mongol Empire. In 1263, Khan Berke, brother of Batu, joined forces with Baybars I, the Mamlûk Sultan, because of a dispute between the Golden Horde and the Il-Khanate over control of key territories in the Caucasus.<sup>157</sup> The man who brokered the alliance was none other than the restored Byzantine Emperor, Michael VIII Palaiologos. Michael wanted an alliance with the Golden Horde in order to guard against the Il-Khanate, whose victories in Rûm challenged Byzantine control over the northern coast of Asia Minor.<sup>158</sup>

### **The Byzantine Empire**

In the 12<sup>th</sup> and 13<sup>th</sup> centuries, there were several groups intent on taking advantage of new stability in the northern Black Sea. The major players were the Byzantine Greeks and the Italian city-states of Venice, Genoa, and Pisa. The Byzantine Greeks, who called themselves Romans, were the descendants of the eastern Roman Empire. They are often portrayed in scholarship as being hostile towards merchants and maritime trade. But even the briefest examination of the evidence is enough to dissolve the illusion.<sup>159</sup> The Byzantine Greeks always tried to maintain a foothold along the southern coast of the Crimean peninsula in order to safeguard their borders and take part in trade. From the 6<sup>th</sup>

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<sup>156</sup> Matschke 2002, 776-7; Bratianu 1929, 206-7.

<sup>157</sup> Morgan 1989, 203.

<sup>158</sup> Morgan 1989, 204-5.

<sup>159</sup> Laiou 2002, 728-9; Laiou 1997, 675-86.

to 10<sup>th</sup> centuries, the Byzantine city of Cherson, at the site of the ancient colony of Chersonesos, flourished as the Crimean center of inter-regional trade.<sup>160</sup>

Another area that the Byzantine Greeks were determined to control was the Straits of Kerch, formed by the Kerch and Taman peninsulas, which closed the entry to the Sea of Azov. Not only was this area of incredible strategic importance as it controlled access to the northern Black Sea from the Sea of Azov, but it was also famous for surface deposits of naphtha, the main ingredient in Greek fire, the signature weapon of the Byzantine Navy.<sup>161</sup> In the *De Administrando Imperio*, Constantine VII not only discussed the history of the region, which he calls Khazaria, but also revealed the sources of naphtha in the area.<sup>162</sup> He also instructed his son to take care that the secret of Greek fire, ‘liquid fire’ in the text, was never to be given to the Turks, the Khazarians, or the Pechenegs.<sup>163</sup> As late as the 13<sup>th</sup> century, the Byzantine Emperor strove to maintain a level of economic or military influence in the Straits of Kerch by cultivating personal relationships with local rulers, whether they were Khazars, Rus, or ultimately the Mongols.<sup>164</sup>

Byzantine interests in the Black Sea were more developed in other regions, particularly along the southern coast and along the western coast up to the Danube delta. The southern coast was controlled by a series of cities founded in the seventh and sixth centuries B.C.E. as Greek colonies: Sinope, Amasis, Herakleia Pontika, and Trapezos/Trebizond (Fig. 2.1). A network of roads connected these cities, many of

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<sup>160</sup> Bortoli and Kazanski 2002, 659-64.

<sup>161</sup> Shepard 2008, 427-8.

<sup>162</sup> *DAI* 10-12, 53.493-509.

<sup>163</sup> *DAI* 13.73-103.

<sup>164</sup> Shepard 2009, 421-8, 432-41; Shepard 1997, 24-5, 62-5; Haldon 2006, 292-3.

which retained their Hippodamian layout, but these roads were mountainous and dangerous, and the best travel route was simply to sail along the coast.<sup>165</sup> The southern coast of the Black Sea enjoys a Mediterranean climate, which makes it an important production center for olive oil and wine.<sup>166</sup> The west coast, on the other hand, was the major entrepôt for the export of grain from the Black Sea until the end of the 12<sup>th</sup> century, especially the cities of Kilia, Mesembria (modern Nessebar), and Apollonia Pontika (modern Sozopol).<sup>167</sup>

Byzantine merchants are hard to identify in either the historical or archaeological record. The general opinion of Byzantine writers was that an honest man was self-sufficient, did not involve himself in trade, and was unmotivated by money, an opinion which was endorsed by the social elite and the Emperor.<sup>168</sup> But there is evidence that even among the elite, people were playing a far more active and direct role in trade than previously attested. Monasteries were important players in the processing and transport of agricultural products such as wine. Many merchants were simply beyond the scope of Byzantine authors, who did not serve the lower urban class or the provincial merchants, but rather the elite.<sup>169</sup>

### **The Italian City-States**

Although the Byzantine Empire had a maritime mercantile interest in the northern Black Sea during the 12<sup>th</sup> and 13<sup>th</sup> centuries, the Venetians, Genoese, and Pisans

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<sup>165</sup> Avramea 2002, 74.

<sup>166</sup> Geyer 2002, 31-3.

<sup>167</sup> Laiou 2002, 721, 741-8; Balard 1989 (c), 65.

<sup>168</sup> Jacoby 1998, 130-1.

<sup>169</sup> Pryor 1988, 145-6.

controlled the major interregional trade routes of the Mediterranean and Black Seas. There are several factors that contributed to the meteoric rise of the Italians in the Eastern Mediterranean and Black Seas, mostly the changes to the political landscape during the Crusades (1095-1272) and the changes to the economic landscape during the Commercial Revolution, which began in the 13<sup>th</sup> century.<sup>170</sup> Although the Italian city-states had been active in maritime trade before the First Crusade (1095-1099), most historians agree that Pisa, Genoa, and Venice began to dominate the Mediterranean economic system because of economic and political gains following this military action. Each city-state sent fleets to aid Christian forces in the Levant, but the opening of the eastern ports was too great a prize to be ignored and soon each city-state was claiming possessions in the new Crusader kingdoms and shipping eastern goods such as silk and spices around/throughout the Mediterranean.

Along with political changes, a major economic change known as the Commercial Revolution occurred in the 13<sup>th</sup> century. Starting in the 12<sup>th</sup> century, the Italian city-states experienced a growth of local and long distance trade, likely catalyzed by the opening of the Levant by the Crusades. The increase in trade led to the growth of a merchant class, mostly from landless elite and lower nobility, and the rise of urban metropolises. As this merchant class grew in size and wealth, it began to dominate the local government, mostly in the form of commercial or industrial guilds.<sup>171</sup> With the risks inherent in long distance trade and the expansion of markets, merchants were forced to create more methods of financing their ventures and insuring themselves against failure. Merchants and ship captains organized themselves into partnerships for single ventures, known as

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<sup>170</sup> Lopez 1976; Lopez 1987, 330-78.

<sup>171</sup> Lopez 1987, 330-50.

*societates, collegantia, and commenda*.<sup>172</sup> These businessmen then began to enter into *compagnie*, long-term associations with larger numbers of merchants. The partners provided capital, directed the runnings of the firm, and handled increasingly intricate systems of credit and debt that kept the Italian merchants in business.

The Venetians were the first westerners to receive imperially sanctioned trading privileges in exchange for their naval support of the Byzantine Empire in the 11<sup>th</sup> and 12<sup>th</sup> centuries. The Empire had protected Venice in its nascent period, and when Lombard invasions threatened Byzantine holdings on the Italian peninsula, the Venetians defended the Empire's interests, often at their own political expense.<sup>173</sup> In 1082, the Emperor Alexios I Comnenos issued a chrysobull, the first of many, which, along with grants of titles and annual stipends, gave Venetian merchants the right to trade almost anything almost anywhere in the Empire free of any taxes, charges, or duties owed to the Emperor including the *kommerkion*, the 10% tax on imports and exports which other merchants, even Greeks, were required to pay. The Venetians also received quarters, shops, factories, churches, and wharves in Constantinople and Dyrrhachium (modern Durrës, Albania).<sup>174</sup> The first chrysobull was followed by further privileges issued in 1126, 1148, 1187, 1189, and 1198. Each successive chrysobull granted the Venetians more rights as the Byzantine Empire grew more reliant on Venetian naval support. Such privileges formalized the Venetians' position as favored partners in Byzantine domestic and international trade.

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<sup>172</sup> Lopez and Raymond 1955, 174-84.

<sup>173</sup> Lane 1973, 23-9; Nicol 1988, 50-60.

<sup>174</sup> Lane 1973, 29; Nicol 1988, 59-61.

Although the Italian city-states were religiously and, often politically, opposed to the Muslim and Orthodox empires in the East, their fiercest competition was always with each other. Venice's position within the Byzantine Empire granted them an edge over their competitors, Genoa and Pisa. An incident from the First Crusade (1095-1099) illustrates the overlap between the naval struggles of the Crusades and the economic importance of securing prized trade routes. In 1099, a Pisan fleet heading to the Holy Land was waylaid and defeated by a Venetian fleet at Rhodes. The Venetians freed the Pisan prisoners only after they swore an oath not to trade with the Byzantine Empire.<sup>175</sup>

The Byzantine emperors, however, knew the dangers of relying too heavily on one ally and, in an attempt to quell the power of the Venetians and diversify their trading partners, allowed the Genoese and the Pisans to trade within the Empire.<sup>176</sup> In 1111, Alexios, the Byzantine Emperor, after making diplomatic overtures to the Pisan nobles, issued an official statement, known as a chrysobull, to the Pisans, awarding them privileged status within the Empire.<sup>177</sup> The Emperor also granted privileges to Genoa in 1155, much to the dismay of the Venetians.<sup>178</sup> Until the end of the 11<sup>th</sup> century, the young Genoese state had not been a major player in the East, concentrating its mercantile efforts in the Tyrrhenian Sea and western Mediterranean. Their role in the First Crusade made them trusted allies of the Crusader States and opened up the eastern Mediterranean to their ships and merchants.<sup>179</sup> But through the 12<sup>th</sup> century, as the Genoese footholds in

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<sup>175</sup> Lane 1973, 32; Nicol 1988, 71-2.

<sup>176</sup> Day 1988, 8; Otten-Froux 1987, 156-7.

<sup>177</sup> Nicol 1988, 75; Otten-Froux 1987, 155-6.

<sup>178</sup> Day 1988, 3-10; Lane 1973, 33-4; Nicol 1988, 79-80.

<sup>179</sup> Epstein 1996, 28-44; Nicol 1988, 74.

the Holy Land were closed off to western merchants altogether, the markets of the Byzantine Empire grew in economic importance.

Genoa's official relationship with the Byzantine Empire dates to the chrysobull of 1155. The privileges were not extensive and did not make the Genoese competitive with the Venetians. Along with a modest annual stipend, the Genoese were granted commercial quarters and a wharf in Constantinople. In contrast to the Venetians, who were completely excused from the *kommerkion*, the Genoese paid a reduced tax rate of 4%. In exchange for these privileges, the Genoese promised naval support against Frederick Barbarossa and not to enter into any alliances detrimental to the Byzantine Empire.<sup>180</sup>

The events of 1162 and 1171 illustrate the tensions between the Venetians, Genoese and Pisans in Constantinople.<sup>181</sup> The Venetians had held their dominant, if no longer exclusive, position since 1082. The Pisans were legitimately offered a place at the table in 1111. The Genoese, although they had signed a treaty with Emperor in 1155, had not yet received their own merchant's quarter in the city, which they could defend and police. The Genoese merchants settled in Constantinople and in 1162, a thousand Pisan merchants attacked a much smaller group of Genoese merchants. The Genoese, backed by Venetians and Greeks, retaliated, causing large numbers of deadly street fights in the city. The Emperor had no choice but to temporarily expel both the Pisans and the Genoese from the city.<sup>182</sup>

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<sup>180</sup> Day 1988, 22-9.

<sup>181</sup> Nicol 1972, 8-9.

<sup>182</sup> Nicol 1988, 94-5; Day 1988, 19, 27-8.

In 1170, Emperor Manuel I Komnenos signed a chrysobull allowing the Pisans and Genoese trading rights and a quarter in Constantinople. Angered by this apparently blatant show of favoritism, the Venetians stormed the Genoese quarter, plundered the houses, and left them in ruins. When the emperor ordered them to pay for the damages, the Venetians refused. The emperor froze their assets, and the Venetians withdrew from the city. In 1171, the emperor seemingly relented and asked the Venetians to return. It was a trap, a clever ruse. On March 12, 1171, every single Venetian in Byzantine territory was arrested and jailed, their ships were taken by the imperial navy, and all Venetian goods were impounded.<sup>183</sup> This event marked a bitter turning point in the relationship between the Emperor and the Venetians. In 1182, after the death of the Emperor, a cousin of the emperor named Andronikos, led a massacre of Latin merchants in Constantinople, sold into slavery all who had not been killed, and usurped the throne through popular support and strategic murder.<sup>184</sup> The Byzantine-Venetian partnership came to an end in 1204 when the Venetians diverted the armies of the Fourth Crusade to Constantinople and used their galleys and troops to blockade and sack the city.<sup>185</sup>

### **13<sup>th</sup> Century Maritime Trade**

From the second half of the 13<sup>th</sup> century until the Ottoman conquest in the 15<sup>th</sup> century, the Genoese dominated maritime trade in the northern Black Sea despite almost constant fighting with other Italian merchants who wished to exert some measure of influence over the area. The Genoese rise to maritime dominance in the Black Sea during

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<sup>183</sup> Nicol 1988, 96-7.

<sup>184</sup> Nicol 1988, 106-9.

<sup>185</sup> Lane 1973, 36-42; Nicol 1988, 124-57.

the 13<sup>th</sup> century can be attributed largely to the restoration of the Byzantine monarch Michael Palaiologos to the throne in Constantinople in 1261. Michael awarded the Genoese the status of privileged traders in exchange for naval support in the Empire's struggle against Venice.<sup>186</sup> This was the first time that Genoa superseded Venice in matters of trade, and it was critical because the alternative trade routes to the east, specifically the Syrian and Levantine ports, were closed to western merchants after the 12<sup>th</sup> century and the fall of the Crusader States.

Trade with the east took place on what are known as the 'Silk Routes' through Central Asia, linking China with the Mediterranean. These routes, which were characterized by the transport of low volume, high value items such as precious stones, metals, and textiles, were never formal roads but rather a series of caravan routes by which such easily transported luxury items were relayed across the Eurasian continent. The overland trade routes to China and Central Asia through the northern Black Sea are described in great detail by Francis Balducci Pegolotti, in his *Libro di Divisamenti di Paesi*, better known as the *Pratica della Mercatura*. In his book, Pegolotti gives contemporary merchants a cultural and geographical primer for traveling to China for the purpose of trade. Pegolotti begins his manual with a description of the port of Tana, a Venetian colony at the mouth of the Don River on the Sea of Azov (Fig. 2.1). Although it was written in 1340, these routes were first traveled by Western merchants in the second half of the 13<sup>th</sup> century, the period of the Novy Svet shipwreck. Among these travellers were Niccolo and Maffeo Polo, uncle and father of Marco Polo, who were in the area from 1260-1261. According to most famous travelogue of the 13<sup>th</sup> century, *The*

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<sup>186</sup> Balard 1978 (b), 45-55.

*Travels of Marco Polo*, the brothers visited the Italian colony at Soldaia (Sudak), traveled to the court of Khan Berke at Sarai, and thence up the Don, over the portage at Sarkel, and down the Volga into the Caspian Sea.<sup>187</sup>

Information about the trade routes to China can be found in other travelers' accounts of the time. When the Arab traveler Ibn Battuta journeyed to Crimea in the 14<sup>th</sup> century, he set out for the city of al-Qiram (modern Stary Krim), where the Mongol lord governing the province of Crimea lived during the reign of Khan Ozbeg. This city, located just north of the coastal mountains in the steppe region, was an important transit center for goods moving between the Genoese colony of Caffa on the Crimean coast to the capital of the khanate, Sarai on the Volga river.<sup>188</sup> Ibn Battuta's 1334 description of the colony at Caffa is the most detailed contemporary description of the entrepôt available. He sees 200 ships in the harbor, some laden with silk, spices, and slaves, but most laden with the natural resources of the region, grain from the Volga, timber from southeastern Crimea, furs from Russia and Siberia, salt, wax, and honey.<sup>189</sup> These natural resources were the primary incentive for Genoa to maintain economic dominance in the Black Sea in the latter half of the 13<sup>th</sup> century. Exotic goods from the north and the east brought a lot of capital into the region, but the regional economy relied on the bulk local resources that were shipped all over the empire, including grain, salt, slaves, fur, fish, hemp and other raw textile materials.<sup>190</sup>

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<sup>187</sup> Polo 1958, 10-7.

<sup>188</sup> Dunn 2005, 159.

<sup>189</sup> Dunn 2005, 163-4.

<sup>190</sup> Makarov 2009, 449; Nicol 1993, 110.

Grain was probably the most important export from Crimea and the northern Black Sea, because it fed cities.<sup>191</sup> Grain from Crimea played a role in the Mediterranean grain trade in antiquity, especially during the 5<sup>th</sup> century B.C.E.<sup>192</sup>, but during the Byzantine period, the rulers of Crimea showed little interest in exporting grain. Instead, grain from the west coast of the Black Sea, particularly Mesembria, had fed Constantinople.<sup>193</sup> By the late 13<sup>th</sup> century, however, the grain markets at Caffa and other sites along the Crimean coast and in the Sea of Azov, are regularly mentioned in Italian sources. From the 13<sup>th</sup> to the 15<sup>th</sup> century, wheat, which came from southern Russia and the Crimean steppe, reached Caffa by permission of the Mongols who controlled the roads and river passages through the area.<sup>194</sup> The grain from Caffa was so important that, in the economic records, grain from all over the Black Sea was measured by the modius of Caffa.<sup>195</sup> By the 14<sup>th</sup> century, it was crucial to feeding not only Constantinople and other major cities in the Black Sea, like Trebizond, but Genoa and Venice as well.<sup>196</sup>

The goods imported to the Black Sea, through Constantinople or, more accurately, the Italian quarters at Pera, were the finished goods from the west; textiles, glass beads, metal vessels, and ceramics.<sup>197</sup> Italian merchants dealt extensively in raw textiles, clothing, and cloth. The most common textiles were wool and linen. Linen, as mentioned above, came primarily from Mamlûk Egypt, and found major markets in

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<sup>191</sup> Balard 1989 (c), 68, 71-5.

<sup>192</sup> The bibliography on Pontic grain is vast and growing. For background see Moreno 2007, Braund 2007, 39-68; Moreno 2007, 39-68; Carter 2000 et al., 707-41; Whitby 1998, 102-28; Yanushevich and Nikolaenko 1979, 115-24; Noonan 1973, 231-42, Minns 1913, 436-44.

<sup>193</sup> Balard 1989 (c), 65; Laiou 2002, 725-7, 741, 748.

<sup>194</sup> Balard 1989 (c), 66.

<sup>195</sup> Balard 1989 (c), 67, 73; Bratianu 1929, 248-9.

<sup>196</sup> Balard 1989 (c), 71, 73-8.

<sup>197</sup> Makarov 2009, 448, 455; Matschke 2002, 772; Bratianu 1929, 246-7.

Constantinople and several of the Italian colonies. The most important of these was Caffa, where the Mongol slave markets, which supplied the Mamlûk armies, were based.<sup>198</sup> In *Practica della Mercatura*, Pegolotti makes a special point to say that any merchants from Genoa or Venice should bring linen to trade along the way from Tana to Cathay, as they are valuable and easily transported. Although wine was produced in the hinterland of Constantinople and on the southern coast of the Black Sea, there are still accounts of merchants bringing Mediterranean wine through the straits to Constantinople to various cities and settlements on the Black Sea.<sup>199</sup> In the second half of the 14<sup>th</sup> century, Genoese merchants brought Chian wine from the city of Trigleia to Pera and, thence, to many cities in the Black Sea.<sup>200</sup>

From historical accounts, it is possible to reconstruct the major maritime trade routes in the Black Sea. The Black Sea is the crux of the north-south axis that connects the Mediterranean to the Sea of Azov, and the east-west axis that connects the Danube to the Euphrates. Within the Black Sea, there were two major routes from the Bosphorus to Crimea in use in the 13<sup>th</sup> century. The first started at Constantinople, or Pera, and traveled up the western coast to the mouth of the Danube, and thence east to Crimea, and into the Sea of Azov. Ships on this route stayed within sight of the coast, giving the merchants a chance to engage in *cabotage*. The second route, which was utilized when the Greeks first established colonies at Crimea (sixth-fourth centuries B.C.E.), started at Constantinople, continued eastward along the southern coast of the Black Sea to Trebizond or Sinope, and then cut across the open water to the southeastern coast of the

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<sup>198</sup> Matschke 2002, 776-7.

<sup>199</sup> Matschke 2002, 792

<sup>200</sup> Balard 1978, 844.

Crimean peninsula, where Caffa and Soldaia were located (Fig. 2.3).<sup>201</sup> This crossing is not only the shortest in the entire body of water, but it is also aided by the prevailing wind patterns; sailing across open water is, however, more risky.

Unfortunately for archaeologists, many of the goods that were traded in the northern Black Sea are impossible to ‘see’ in the archaeological record because they disintegrate. Grain, linen, and timber are rarely preserved in situ. Even the presence of liquids such as wine and oil must be inferred from the presence of their containers, or microscopic remains inside those containers. Practically the only traded goods that survive in the archaeological record are ceramics (both the glazed tablewares and the transport vessels like amphorae), and metals, which are rare because they can be melted down and reused. Therefore, the fact that the majority of the artifacts raised from the Novy Svet shipwreck are ceramic speaks more to the durability of the material than to the nature of the original cargo.

### **The Novy Svet Wreck and the 13<sup>th</sup> Century**

The immediate historical context of the Novy Svet shipwreck is the second half of the 13<sup>th</sup> century, so it is useful to examine the position and influence of all the major players in the northern Black Sea during this period; a) the Golden Horde of the Mongols, b) the Palaiologan dynasty of the Byzantine Empire, and c) the Italian city states of Pisa, Venice, and Genoa. Arguably, the most important role belongs to the Italian merchants. During the Latin control of Constantinople from 1204 until 1261, members of the Byzantine royal family founded independent Greek states in Epiros, Nicea, and

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<sup>201</sup> Balard 1978, 849-68.

Trebizond. When the Emperor was restored in 1261, the empire lacked the cohesion it had enjoyed before the Fourth Crusade. The international maritime network that had been established by Italian merchants therefore served as a unifying economic force that connected the disparate parts of the Empire.<sup>202</sup>

In 1204, the Fourth Crusade, led by the Venetian fleets, captured and sacked Constantinople. The Venetians took for themselves trading rights in the Black Sea and the eastern Mediterranean. From 1204-1261, the Venetians exploited the economic resources of the Latin Empire, including the Black Sea. Venice was granted 3/8ths of Constantinople, the lands from Adrianople to the Sea of Marmara and west to Gallipoli. The Venetians did grant some trading privileges to the Genoese and the Pisans, but this did not threaten their commercial supremacy over the colonies and commercial routes of the Byzantine Empire.<sup>203</sup>

In 1216, the Venetians established their first Black Sea colony at Tana (ancient Tanais) at the mouth of the Don River. Tana was the major source of hemp, necessary for sails and rope, and the long, narrow building in the Venetian *Arsenale* where the ropemakers twined hemp into cords of rope for the Venetian fleet was called *La Tana*, after the colony.<sup>204</sup> They also established a colony at Soldaia (modern Sudak) where they tapped the natural resources of the area, including grain, salt, fish, fur, and slaves.<sup>205</sup> The area connected the Venetians with the riverine trade in pelts and furs of northern Russia and with the overland silk routes from Central Asia and China.

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<sup>202</sup> Laiou 2002, 312; Matschke 2002, 771-2.

<sup>203</sup> Nicol 1988, 154-5.

<sup>204</sup> Koromila 1991, 144; Lane 1973, 162-3.

<sup>205</sup> Lane 1973, 69; Balard 1989 (b), 40-6; Balard 1989 (c), 68.

In order to establish these colonies, the Venetians had to deal with the Golden Horde, and they may have found that the stabilization policies of the Mongols made the region more conducive to trade than the Levant. When Batu, Khan of the Golden Horde, died in 1256, blood feuds and factionalism in the northern Black Sea stopped, leading to greater stability in the region, the development of infrastructure beneficial to international trade, and the growth of towns.<sup>206</sup> Batu was succeeded by Berke in 1257, at which point the Golden Horde ruled not only the Crimean peninsula, but also the northern Caucasus and the Ukrainian steppes.<sup>207</sup> The Khan of the Golden Horde was probably the most important figure for the economic importance of the northern Black Sea; the Byzantine Emperor and Italian merchants needed to cultivate diplomatic relationships with him to protect their interests in the area. In 1307, for example, Toqta, Khan of the Golden Horde, arrested the Italian residents of Sarai, the capital of the Golden Horde on the Volga River between the Caspian and Black Seas, and besieged Caffa because of his anger at the Italian trade in Turkic slaves. Relations were not repaired until Toqta died and his son, Ozbeg, welcomed the citizens of Genoa back to Caffa in 1312.<sup>208</sup>

When the Byzantine Greeks recaptured Constantinople in 1261, Venetian dominance of the Black Sea trade routes ended. It was the Genoese who had replaced the Venetians as the privileged Latin trading partners of the Byzantine Empire, with access to land routes across Asia.<sup>209</sup> The Genoese and the Byzantine Greeks were unlikely allies but for one factor – they shared a common enemy, Venice. The Venetians had betrayed Constantinople to the Crusader army in 1204 and, in 1258, the Venetians had pushed the

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<sup>206</sup> Dunn 2005, 160-1.

<sup>207</sup> Bratianu 1929, 233-9.

<sup>208</sup> Dunn 2005, 302; Bratianu 1929, 114-5.

<sup>209</sup> Bratianu 1929, 112-3.

Genoese out of their own quarters in Acre, one of the few Levantine ports still open to Christian merchants.<sup>210</sup> That year, the Genoese sent ambassadors to the Byzantine court in exile at Nicea. In 1261, the Genoese and Michael Palaiologos, future Byzantine Emperor, signed the Treaty of Nymphaeum.<sup>211</sup> Under the terms of the treaty, the Genoese navy sent 50 galleys to aid in the recapture of Constantinople and protect the Empire; in return, the Genoese enjoyed access to all imperial ports. The Genoese were given the city of Pera, also known as Galata, a suburb of Constantinople right across the Golden Horn, as well as quarters in all other major ports.<sup>212</sup> Pera eventually became a major port that rivaled Constantinople; in fact, in the 14<sup>th</sup> century, more ships anchored in Pera than in Constantinople.<sup>213</sup> In addition they received all the rights that the Venetians had held before the Fourth Crusade in 1204.<sup>214</sup> Although the Genoese were latecomers to trade in the Black Sea, by the end of the 13th century they had become the most important group of merchants in the northern Black Sea with colonies all along the Crimean coast.

From the Treaty of Nymphaeum in 1261 to the Ottoman annexation of Caffa in 1462, the Crimean grain trade was the lynchpin of Genoese commercial success in the Black Sea. Not only did the grain go to feed Genoa and other Ligurian cities, but it also went to Byzantine cities such as Sinope, Trebizond, and Constantinople.<sup>215</sup> While the Genoese were excused from paying the *kommerkion* on most goods, the grain trade had

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<sup>210</sup> Nicol 1988, 176; Nicol 1993, 33-4.

<sup>211</sup> Balard 1989 (a), 184-7; Ahrweiler 1966, 329-30; Bratianu 1929, 83.

<sup>212</sup> Ahrweiler 1966, 350.

<sup>213</sup> Matschke 2002, 476.

<sup>214</sup> Balard 1978, 45-55.

<sup>215</sup> Balard 2002, 148.

different restrictions.<sup>216</sup> For example, the Genoese didn't pay a tax on the grain, but the Emperor instituted a purchaser's grain tax in Constantinople. This tax encouraged people to buy from local merchants and to prevent Italian merchants from establishing a monopoly over this vital resource. Furthermore, there is evidence that, in times of famine, the Emperor prohibited the export of grain and may have even fixed prices to counteract economic exploitation.<sup>217</sup> The importance of the grain trade was probably what expedited Genoese interest in developing a more rigid administration in Crimea, which they called Gazaria.<sup>218</sup>

The Genoese established maritime emporia all around the Black Sea in order to secure their position in the lucrative inter-continental trade routes that convened on the shores of the Black Sea.<sup>219</sup> The Genoese merchants who set out from their quarters in Pera in summer and winter just to turn a profit were so tenacious that Byzantine writers, such as the historian Pachymeres, wondered at their temerity.<sup>220</sup> In 1266, the Genoese made a treaty with the Khan of the Golden Horde allowing the establishment of the first Genoese colony in the northern Black Sea, Caffa, on the site of the old Greek colony of Theodosia (Fig. 2.3).<sup>221</sup> This colony became the most important Genoese city in the northern Black Sea.<sup>222</sup> By the end of the 13<sup>th</sup> century, the Genoese had colonies at Licostomo at the mouth of the Danube River and Maurocastro at the mouth of the Dneistr

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<sup>216</sup> Balard 1989 (c), 68-9.

<sup>217</sup> Balard 1989 (a), 201; Balard 1989 (b), 33; Balard 1978, 749-68.

<sup>218</sup> The *Officium Gazariae* was the branch of Genoese government that looked after Black Sea trade and the welfare of the colonies. It was formed in 1314 in order to represent the people of Caffa and the interests of Genoese merchants there in the face of Mongol aggression. Balard 2002, 144; Beazley 1906, 474-9; Balard 1989 (b) 35.

<sup>219</sup> Bratianu 1929, 198-208; Matschke 2002, 771-2, 789.

<sup>220</sup> Balard 1978, 501.

<sup>221</sup> Balard 1989 (b), 36; Bratianu 1929, 205-6.

<sup>222</sup> Balard 1978, 115-8; Bratianu 1929, 219-33.

River. But Caffa remained the most important Genoese colony in the Black Sea and the northern coast was the center of Genoese power.<sup>223</sup>

The Genoese presence left an obvious mark on the Crimean landscape. The Genoese built *castra*, or fortress cities, at each of their major colonies or emporia. These structures usually had a small, central town, a castle at the highest point, and a crenellated wall enclosing a large amount of land where people from outside the *castrum* could live in times of crisis.<sup>224</sup> The fortified walls, and sometimes even the castles, can be seen today. A particularly good example is Balaclava (medieval Cembalo and ancient Symbolon) where a naturally deep and well-hidden harbor is crowned by Genoese watchtowers. At Feodosia (medieval Caffa and ancient Theodosia), architectural remains of the primary Genoese colony in the Black Sea can still be seen. But the most impressive and complete fortification can be found at Sudak (medieval Soldaia) (Figs. 2.5-2.7). Here the restored fortress overlooks the modern town and the entire Bay of Sudak, in which the Novy Svet wreck was found. Ukrainian archaeologists have been conducting excavations inside the walls, both in the *castrum* and the outside areas, known as *burgi*. The excavations have revealed a number of workshops in the *castrum*, dedicated to jewelry and glass production, and ceramics workshops in the valley outside the city (Fig. 2.8).<sup>225</sup> The *castrum* is also a major Crimean tourist attraction and the site of an annual medieval fair and music festival (Fig. 2.9).

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<sup>223</sup> Karpov 1995, 35.

<sup>224</sup> Bouras 2002, 507-8.

<sup>225</sup> Baranov 1990/1, 11-3.



Fig. 2.5 The entrance to the *castrum* at Sudak



Fig. 2.6 One of the reconstructed towers of the *castrum* at Sudak.



Fig. 2.7 The fortification wall around the *castrum* of Sudak.



Figure 2.8 The excavations inside the *castrum* at Sudak.



Fig. 2.9 The author participating in a medieval faire inside the *castrum* at Sudak.

It is important to note that in none of the Italian colonies were Italians ever a majority. In Lamberto di Sambuceto's notary acts of Caffa from 1289-1290, the largest group represented was the Greeks. These acts are comprised of a series of notarized contracts concerning merchant ventures in the Genoese colonies of the northern Black Sea and contain information about the voyages proposed and all relevant parties. From these acts, and others, it is obvious that the ruling Genoese formed an elite, but their presence and affluence was dependent on good relationships with the people around

them.<sup>226</sup> In 1316, Eastern Orthodox Christians, such as Greeks, Armenians, and Slavs were prominent and received special treatment from the administrative ruling body, the *Officium Gazariae*, such as areas set aside for their churches and houses. As the 14<sup>th</sup> century progressed, the ethnic make up of the area changed radically. There was an ever-increasing Muslim population and at the end of the 14<sup>th</sup> century a massive influx of Armenians was noted by all contemporary historians.<sup>227</sup>

This ethnic diversity was probably also appreciable in the crews of merchant vessels and the merchants themselves. Genoese and Venetian sea captains, both military and mercantile, staffed their ships with people from all regions, especially Greeks.<sup>228</sup> The Venetians drew on the accumulated technical knowledge of Greek shipbuilding dynasties in developing their own galleys.<sup>229</sup> The language in which sailors are said to have communicated was a form of Greek, the *lingua franca* of the eastern Mediterranean.<sup>230</sup> And even though the Byzantine merchants were disenfranchised in the Black Sea, they still appear in the notary records as the owners of local ships carrying local products to local destinations. They also engaged in international trade networks by buying into Italian ventures, leasing ships, transporting Italian goods, and in all ways, both competing and cooperating with the dominant Italians.<sup>231</sup>

There is sound textual evidence that Byzantine merchants were competitive with other western merchants in the Black Sea at the end of the 13<sup>th</sup> and into the 14<sup>th</sup> century,

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<sup>226</sup> Balard 1995, 24.

<sup>227</sup> Balard 2002, 143-7; Balard 1989 (d), 375-6.

<sup>228</sup> Makris 2002, 102.

<sup>229</sup> Lane 1934, 54.

<sup>230</sup> Makris 2002, 97.

<sup>231</sup> Matschke 2002, 784, 790; Laiou 1988, 168.

when most scholars claim that the Byzantines had given up on maritime trade.<sup>232</sup> In a letter dating to the years between 1283 and 1289, Patriarch Gregorios Kyprios complained that the Genoese were disregarding the imperial treaties, commandeering the ships and goods of Byzantine merchants, and harassing the imperial fleet.<sup>233</sup> The Genoese had established a monopoly on goods coming from the Black Sea, but the Byzantine traders were still attempting to be competitive in the economics of the northern Black Sea. This was probably a frustration that had been building for over a century, since the Emperor first allowed the Venetians to trade within the empire without paying the *kommerkion*, thus allowing the Venetian merchants to pay less for the goods at their source and sell them for more on the market, effectively cutting out the Byzantine merchant from serious economic competition.<sup>234</sup> Emperor Michael Palaiologos attempted to limit the dominance of the Italians by imposing laws regulating trade and preventing the Latins from uniting against the Byzantine Greeks.<sup>235</sup>

In addition to controlling the grain trade, the Genoese also monopolized specific markets, usually as a result of imperial favor. The Emperor granted specific Genoese families certain holdings in exchange for their personal help against the Venetians. For example, in 1267 Michael Palaiologos gave the port of Phokaia, to the north of the gulf of Smyrna (modern day Izmir, Turkey), and its alum mines to Benedetto Zaccaria and his family. Alum is a mordant, which aids the dyeing of textiles. The mineral was vital to the booming Genoese cloth industry and control of the resource made Zaccaria and his family very wealthy, and even allowing them to police the waters with their own private

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<sup>232</sup> Matschke 2002, 791-3.

<sup>233</sup> Laiou 1997, 675-80.

<sup>234</sup> Jacoby 1998, 139.

<sup>235</sup> Nicol 1993, 43; Balard 1989 (b), 44.

fleet.<sup>236</sup> This private fleet encouraged the Emperor to grant Zaccaria control of the island of Chios and the island's mastic trade, which had previously been the sole property of the Emperor.<sup>237</sup>

By the second half of the 13<sup>th</sup> century, Pisa had clearly slipped to a distant third behind Venice and Genoa in competition for economic possessions in the eastern Mediterranean and the Black Sea.<sup>238</sup> In the late 12<sup>th</sup> century, Acre was Pisa's only major entrepôt in the Levant; but as the Venetians controlled more and more of the Levantine trade routes, the Pisans grew less and less invested in the East.<sup>239</sup> The one exception was Cyprus, where the Pisans had colonies at Nicosia, Famagusta, and Limassol.<sup>240</sup> By the end of the 13<sup>th</sup> century, however, war with the Genoese strangled Pisan maritime efforts.<sup>241</sup> In 1284, the Genoese fleet of Obertus Doria destroyed the entire Pisan fleet in battle near Meloria, a defeat from which the Pisan fleet would never recover, essentially ending the Pisan quest for maritime dominance anywhere in the Mediterranean or the Black Sea.<sup>242</sup>

As Balard has pointed out, however, the Battle of Meloria did not prevent Pisan merchants from venturing into the Black Sea and the Sea of Azov.<sup>243</sup> Pisan merchants still conducted trade in the Black Sea in the 13<sup>th</sup> and 14<sup>th</sup> centuries, as evidenced by a series of notary acts found in the *Annali Pisae* describing merchant voyages to Gazaria

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<sup>236</sup> Nicol 1993, 60, 742-9, 769-82.

<sup>237</sup> Lopez et al. 2001, 127-8; Horden and Purcell 2000, 225-30, 359-60.

<sup>238</sup> Balard 1989 (a), 185; Herlihy 1958, 29; Otten-Froux 1987, 158-9.

<sup>239</sup> Herlihy 1958, 162-5.

<sup>240</sup> Otten-Froux 1987, 160.

<sup>241</sup> Herlihy 1958, 44-5.

<sup>242</sup> Dotson 2003, 122-4; Balard 1989 (a), 181; Herlihy 1958, 173-4.

<sup>243</sup> Balard 1989 (a), 181-208.

(Crimea) to purchase grain.<sup>244</sup> The Pisans were still an economic presence in the Black Sea, and although they were not a naval force, they had established a colony on the Sea of Azov, at Porto Pisano, modern Taganarog.<sup>245</sup> Pisans are rarely mentioned in other notary acts of Genoese colonies, and never with any regularity, but often enough to confirm their minor presence.<sup>246</sup>

After the restoration of the Emperor in 1261, the Venetians were understandably *personae non gratae* in Constantinople.<sup>247</sup> The economic instability of the empire, however, gave the Venetian merchants a chance to regain some of the privilege that they once held. The newly restored Emperor was wary of relying too heavily on a single source for naval support and thus was happy to play the Italian city states against each other, just as Alexios Komnenos had done centuries earlier. In 1277, the Venetians signed a treaty with the Emperor, securing a two-year truce during which the Venetians were granted a merchant's quarter in Constantinople, possession of certain islands (most importantly Crete) and freedom from the *kommerikon* or any other duties. The Venetians, however, were forced to honor the treaties between Genoa and the Emperor and acknowledge Genoese primacy in the Black Sea and the Sea of Marmara.<sup>248</sup>

Although Genoese ships were not required in the recapture of Constantinople, they helped Michael Palaiologos maintain control of the newly restored empire by engaging in naval warfare with the Venetians and Pisans.<sup>249</sup> War between the Italian city-states during the last half of the 13<sup>th</sup> century would ultimately establish the Genoese

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<sup>244</sup> Otten-Froux 1987,161; Balard 1989 (a), 181.

<sup>245</sup> Balard 1989 (a), 185; Bratianu 1929, 243.

<sup>246</sup> Balard 1989 (a), 185-6, 194, 197-9.

<sup>247</sup> Arhweiler 1966, 348-51.

<sup>248</sup> Geanakoplos 1959, 302; Nicol 1988, 196-202.

<sup>249</sup> Arhweiler 1966, 335, 344-7.

as the dominant military and economic force in the northern Black Sea. The Pisans had been dealt with in the Battle of Meloria in 1284, but Venice proved to be a more formidable enemy than Pisa. With the Holy Land off limits to western merchants, the Venetians wanted access to the Black Sea ports and the eastern goods being traded there. Conflicts, both official and piratical, escalated and resulted in outright war. The Genoese spent the rest of the 13<sup>th</sup> century locked in naval warfare with the Venetians over trade rights, most notably in the War of St. Savas and the War of Curzola.<sup>250</sup> The Genoese held more strategic locations, such as Pera at the mouth of the Bosphoros, and proved tactically superior to the Venetians in almost every major battle, but the Venetian treasury was more extensive and they could afford to build bigger and better fleets year after year. In 1298, both Venice and Genoa were ready to sign treaties with each other and with the Byzantine Emperor. The end result was that in the early 14<sup>th</sup> century the Black Sea was ringed with fortified Genoese maritime colonies that allowed the Genoese to ship goods through their own markets, thereby replacing the Byzantines as purveyors of eastern goods to the western world.<sup>251</sup>

## **Conclusions**

The Crimean peninsula in Ukraine may seem a long way from the Italian maritime city-states of Venice, Genoa, and Pisa, but in the Late Byzantine period, the northern coast of the Black Sea was a vital part of the Mediterranean's economic and political network. At the end of the 13<sup>th</sup> century, the time of the *Novy Svet* shipwreck, the northern Black Sea was a thriving center of Genoese trade. Despite intense rivalries

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<sup>250</sup> Dotson 2003, 121-2; Balard 1989 (a), 195-6.

<sup>251</sup> Dotson 2003, 125-8.

between the Venetians, the Genoese, and the Byzantines, the area grew in economic importance until the wealth of Caffa rivaled the wealth of Genoa itself. After the Fourth Crusade, the Genoese had replaced the Venetians as the Byzantine Empire's merchants of choice in international trade. By fighting off contenders and forming alliances with local powers, they were able to establish colonies that became inter-regional trading centers. The incredible wealth that came from the area was due both to the trade in silks, spices, ambers, and furs from China, Persia, Central Asia, and Russia, and to the trade in the natural Pontic resources: grain, salt, fish, and slaves. Trouble with the Khan of the Golden Horde in the early 14<sup>th</sup> century encouraged Genoese merchants and rulers to establish in Genoa a headquarters for trade from Gazaria. The *Officium Gazarie*, with positions in Genoa and in Caffa, attempted to make the region safer for their merchants.<sup>252</sup>

The excavators' equation of the Novy Svet shipwreck with Stanconus's account of the Pisan shipwreck is hardly certain. Given the prominence of Italian shipping in the northern Black Sea, however, there is a high probability that the ship belonged to an Italian merchant. One must, of course, be careful not to equate the origin of the venture with the ethnicity of the people aboard. The ship may have had a crew of Italians, Greeks, Armenians, Jews, Turks, and whoever else was available, but it was likely part of the Italian trade network that dominated maritime trade in the northern Black Sea and connected the Black Sea with the Mediterranean. There is nothing in the archaeological evidence laid out in Chapter 1 that prevents the ship from being Italian, but, although there are items that are Italian in origin, there is nothing to rule out the possibility that

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<sup>252</sup> Balard 2002, 35; Beazley 1906, 474-9.

they were simply picked up at a major entrepôt such as Pera. The next two chapters examine and evaluate the amphorae and the graffiti found aboard the Novy Svet shipwreck. The archaeological evidence may not only provide us with clues about the ship's last voyage, but could also illuminate the diversity and cultural agents in the trade networks of the Black Sea beyond what we know from the historical accounts.

## CHAPTER III

### GÜNSENIN TYPE IV AMPHORAE

#### **Introduction**

The majority (~75%) of the amphora sherds raised from the Novy Svet shipwreck were identified by Zelenko as Günseinin Type IV amphorae.<sup>253</sup> The prevalence of this amphora type allowed the excavators to date the wreck to the 13<sup>th</sup> century. This thesis deals with 720 sherds inscribed with graffiti, including 62 rims, 339 handles, and 319 body sherds. As mentioned in Chapter 1, the raised sherds were either diagnostic in shape or had graffiti or *dipinti* on their surfaces. The raised and catalogued sherds represent at least 50% of the artifacts seen on the seabed. Excavators brought up only those artifacts for which they had the conservation and storage resources. Therefore, it is difficult to estimate exactly how many amphorae were onboard the ship, and what percentage of the entire amphora cargo were Günseinin Type IV jars. The purpose of this chapter is to describe the amphora type, its morphology and chronology, other sites where such jars have been found, and to discuss potential production sites. The final section of this chapter presents a short analysis of the amphora fabrics seen in the assemblage.

Although amphorae are one of the most useful tools for determining relative dates in classical archaeology, the study of Byzantine amphorae, especially after the eighth century has only recently been the focus of intense study.<sup>254</sup> Most studies of Byzantine pottery have focused on the artistically and technologically more advanced glazed

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<sup>253</sup> Zelenko and Morozova 2010, 81; Zelenko 2008, 131-2, 161-2.

<sup>254</sup> Dark 2001, 37-8.

tablewares, and ignored the amphorae and coarseware. This is unfortunate because, aside from their role in establishing chronologies, amphorae also provide important information about shipping and maritime economic systems, especially about the connection between rural production and urban consumption. Until the end of the 13<sup>th</sup> century, amphorae were the primary form of transporting liquids available to maritime merchants. They occasionally had secondary purposes as well. As early as the Bronze Age, amphorae are often found in burials, either holding cremated or inhumed remains or as part of a collection of grave goods. Beginning in the Late Roman period, amphorae were also put to architectural use. An example of this can be seen at the church of Apendiko at Mistra, Greece, which was built in the early 14<sup>th</sup> century, using whole amphorae as vaulting elements.<sup>255</sup>

There are several basic morphological features of the Byzantine amphora. Known in contemporary texts as *megarikoi* or *magarika*, they are generally smaller than classical Greek and Roman amphorae and feature a globular-ovoid body with a rounded bottom.<sup>256</sup> There were oblong amphorae and amphorae with pointed toes, but by the 12<sup>th</sup> or 13<sup>th</sup> century, the majority of amphorae in circulation were spherical and well made, often with swelled shoulders, handles that arch above the rim, and thinner walls than in earlier centuries. They generally carried 15-25 liters and probably never more than 50 liters. Oftentimes the shoulders were ribbed and slipped, perhaps to ease loading and unloading. They were stored upright in a ship's hold to maximize space and to avoid accidental breakage.<sup>257</sup>

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<sup>255</sup> Dark 2001, 21.

<sup>256</sup> Bakirtzis 1989, 73; Dark 2001, 37.

<sup>257</sup> Bakirtzis 1989, 73-4.

## **Type Description**

Since 2002, over one thousand amphora sherds were raised from the Novy Svet shipwreck, about 75% of which displayed evidence of graffiti. While a few examples of whole, or even half amphorae were raised or reconstructed, the majority of the assemblage is body and handle sherds. The raised amphorae belong to five general types, as outlined in Chapter 1. The majority are piriform amphorae with arched handles of a type ubiquitous in the Mediterranean and the Black Sea during the 13<sup>th</sup> century. Although they are labeled in site reports as Type I, they have since been identified as Günsenin Type IV and are heretofore referred to as such.

The Type IV amphorae are globular shaped with a very short neck. The handles are oval in section and begin at the rim of the pot, arch above the rim, and fall straight down to meet the pot again at the juncture of the shoulder and the body.<sup>258</sup> The shoulders are thinly and evenly ribbed, and, on some of amphorae, covered in a pale slip. The walls range in thickness from ca. 2 cm for the upper walls to about 1 cm for the lower body. The fabric of the clay is usually hard, fine, and well-sorted, indicating a high firing temperature. The color of the clay has a lot of variation, corresponding to 5 YR, 7.5 YR, and 2.5 YR of the Munsell chart. The interior and exterior surfaces are often different colors. The interior surfaces are 5YR 7/6, 7/4, 6/6, or 5/6. The exterior surfaces display a greater range of colors, from 2.5 YR 6/6 to 7.5 YR 7/4. Some of the amphorae are lined with resin, but no analysis has been done on these to the best of my knowledge.

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<sup>258</sup> Zelenko and Morozova 2010, 81-2.

## Günsenin Type IV Amphorae

In 1990, Turkish archaeologist Nergis Günsenin published a typology of Byzantine amphorae from the 10<sup>th</sup> to 13<sup>th</sup> centuries based on unprovenanced examples from museum collections in Turkey. In this typology she established four principal types (I-IV), 24 secondary types (V-XXVIII), and three intermediate types (I-III, I-IV, II-III).<sup>259</sup> The four types correspond to four major forms that dominated later Byzantine amphora morphology, Type IV being the last. Type IV is also the final refinement of the Type I amphorae from the same typology.<sup>260</sup>

Günsenin describes the Type IV amphorae as having a conical belly, convex, sloping shoulders, a short neck, and handles that extend high above the mouth and reconnect at the shoulders. She also mentions that the fabric of this type is much finer and harder than earlier types, and that the color ranges from reddish brown (2.4 YR 5/4) to red-orange (5YR 6/4). The heights vary between 42-70 cm, and the belly diameters from 33 – 60 cm. The shoulders are ribbed, or thinly ridged, and have a pale yellow to white slip. The amphorae also have stamps or graffiti at the juncture of the handles or on the shoulders.<sup>261</sup>

Other studies of Byzantine amphorae include the amphora type that is here referred to as Günsenin Type IV. Vroom catalogues the various names for the type in her field guide to Byzantine pottery: Bjelajac Type III, Bakirtzis Type IV, Garver Class 2,

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<sup>259</sup> Günsenin first published the four basic types in the *Bulletin de Correspondence Hellenistique* in 1989 and then expanded on the typology in 1990 in her thesis *Les Amphores Byzantines (Xe-XIIIe siècles): Typologie, Production, Circulation D'Après Les Collection Turques*.

<sup>260</sup> Günsenin 1990, 31-4.

<sup>261</sup> Günsenin 1989, 274-6; Günsenin 1990, 31-4; Vroom 2005, 99-101.

and Hayes Type 62.<sup>262</sup> Hayes used his excavations at Saraçhane, Istanbul to create an extensive pottery typology that includes Late Byzantine amphorae. His Type 62 jars (Günsenin IV) are described as very broad bellied, with wide sloping shoulders and a small, narrow, out-curved mouth with a thin lip. Heavy high-swung handles merge with the rim. The shoulders are shallowly ribbed. The ware is thin and highly fired, with a red-brown matrix and a cream slip on the body. It is larger than earlier types and often is found with graffiti on the shoulders and at the base of the handles.<sup>263</sup>

The distribution of Günsenin Type IV jars is concentrated in the Eastern Mediterranean and the Black Sea, but no production site has yet been identified. The most common find spots of this amphora type are in northwest Turkey and along the coasts of the Sea of Marmara.<sup>264</sup> In Turkey, Günsenin identified unprovenanced examples in museums at Sinope and Samsun.<sup>265</sup> Another major region where these amphorae have been found is along the Northern Black Sea littoral, including Chersonesos, Balaklava, Eski-Kermen, Sarkel and Kerch.<sup>266</sup> Examples have also been excavated and identified at Paphos (Cyprus), Akko (Israel), Nesebar and Silistra (Bulgaria), Dinogetia (Romania), Belgrade (Serbia), and Hvar (Croatia).<sup>267</sup> Along with the Novy Svet shipwreck, two other shipwrecks have been found with Günsenin Type IV amphorae aboard, the Çamalti Burnu I and II wrecks, both excavated in the Sea of

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<sup>262</sup> Vroom 2005, 99.

<sup>263</sup> Hayes 1992, 76.

<sup>264</sup> Günsenin 2000, 125-35; Günsenin 1998 282-3; Günsenin 1993, 193-5.

<sup>265</sup> Günsenin 1990, 32.

<sup>266</sup> Yakobson 1951, 340-2, figs. 11.37-39; Yakobson 1979, 111-4, figs. 69.1-5; Rudakov 1975, 4; Romanchuk et al. 1995, 71-81; 145. 35. 150, 152; 146. 36. 151, 147. 37. 153, 148. 38. 154,155, 149. 39. 156, 150. 40. 157, 158, 151. 41. 159, 160, 161.

<sup>267</sup> Megaw 1972, fig. 23 (Paphos); Stern and Waksman 2003, 169 (Akko); Chagnova 1959, 257-8, figs. 12-13 (Nesebar); Todorova 2011, 136-7, fig. 6; Barnea 1967, 266-7, figs. 159.2, 159.6 (Dinogetia); Bjelajac 1989, 115, fig.3.3 (Belgrade); Brusic 1976, 42.

Marmara by Dr. Günsenin. They will be discussed later in this chapter, as their presence may help Günsenin's theory of a production site on the northern coast of the Sea of Marmara.

### **Günsenin Type I Amphorae**

Günsenin has theorized that the Type IV amphorae are the final development and refinement of an earlier amphora shape, Günsenin Type I, which were common in the 10<sup>th</sup> and 11<sup>th</sup> centuries.<sup>268</sup> It is important, therefore, to give an overview of the type, although no Type I jars were found on the Novy Svet wreck. Günsenin Type I amphorae are also known as Bjelajac Type I, Bakirtzis Type II, Garver Type 2, and Hayes Type 54 Variant B.<sup>269</sup> Morphologically, they share a lot of similarities with the Type IV jars. Günsenin I amphorae have a spherical body with a short, wide neck. Two short D-shaped handles are attached at the rim and the wide sloping shoulder. The amphorae were probably made in two parts and then luted together, as indicated by the narrowing of the generally thick amphora walls towards the bottom. The shoulders are partially ribbed and the lower part and bottom are covered with a series of heavy horizontal ridges. A cream-yellowish slip covers the entire body and neck. Stamps and graffiti are found at the juncture of the handles and the shoulders, and along the shoulder.<sup>270</sup>

There are some slight differences between the two types that should be noted. Günsenin I amphorae are smaller than the Günsenin Type IV vessels; they range in height from 28 to 48 cm and in diameter of the belly between 24 and 41 cm. They have thicker

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<sup>268</sup> Günsenin 1993, 195; Günsenin 1990, 25; Günsenin 1989, 269-71. Hayes also makes the same observation at Saraçhane, Hayes 1992, 75.

<sup>269</sup> Vroom 2005, 95.

<sup>270</sup> Vroom 2005, 25-6; Günsenin 1990, 21-4; Günsenin 1989, 269-71.

walls, coarser fabric, are less regularly shaped, and overall not as well made.<sup>271</sup> Despite these differences, there are enough morphological similarities to support Günsenin's theory that they are part of the same sequence and may have related or even identical production sites.

An important aspect of Type I amphorae is they are one of the most widely exported types of all Byzantine amphorae from the northern Black Sea to the Greek peninsula, including the Athenian Agora.<sup>272</sup> At the site of Saraçhane in Constantinople, it comprises 30-50 % of amphorae fragments from the late 10<sup>th</sup> to early 12<sup>th</sup> century contexts.<sup>273</sup> Examples are found in Sozopol, Varna, Svistov, and Silistra (Bulgaria), Dinogetia and Mangalia (Romania).<sup>274</sup> They are also seen along the Northern Black Sea littoral in Chersonesos, Sarkel, and Kerch.<sup>275</sup> A piece has even been found as far west as Otranto (Italy).<sup>276</sup> The type has also been identified aboard the 11<sup>th</sup> century Serçe Limani shipwreck, found off the southeastern coast of Turkey.<sup>277</sup> Workshops and kilns associated with Type I amphorae and amphora sherds have been located and excavated found along the northern coast of the Sea of Marmara and on one of the Marmara Islands.<sup>278</sup> Günsenin has suggested that it is here that the production of this amphora type, and perhaps of Type IV as well, was centered.<sup>279</sup>

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<sup>271</sup> Günsenin 1989, 269-71; Günsenin 1990, 21-4.

<sup>272</sup> Günsenin 1990, 23.

<sup>273</sup> Hayes 1992, 73-5, tab. 24 1-11, 14.

<sup>274</sup> Cangova 1959, 250 (Sozopol, Varna, and Svistov); Todorova 2011, 132-4 (Silistra); Barnea 1967, 249-52 (Mangalia and Dinogetia).

<sup>275</sup> Romanchuk et al. 1995, Yakobson 1979, 72; Yakobson 1951, 335, figs. 6.26-27.

<sup>276</sup> Arthur 1989, 11.

<sup>277</sup> Bass and van Doorninck 1978, 126; van Doorninck 1989, 253.

<sup>278</sup> Günsenin 2009, 147-8; Günsenin 1995, 165-78; Günsenin 1993, 194-5.

<sup>279</sup> Günsenin 2000, 131.

## **Günsenin Type IV Comparanda**

As outlined above, examples of the Günsenin IV amphorae have been found both in terrestrial and maritime contexts throughout the Mediterranean and Black Seas.

Günsenin's typology, however, was based on unprovenanced jars in Turkish museums. Therefore, it is important to discuss the physical context of other Günsenin IV amphorae with more certain provenance. Overall, Günsenin IV jars have been excavated in urban or commercial areas at sites of the Black Sea and, occasionally, the Mediterranean.

The majority of Günsenin IV amphorae in the archaeological record are concentrated in the regions around the Black Sea and the Sea of Marmara. The jars that Günsenin identified as Type IV are in the Museum of Tekirdag, along the northwest coast of the Sea of Marmara, and at the Museum of Sinope and the Museum of Samsun (ancient Amisos), both important ports on the southern coast of the Black Sea.<sup>280</sup> In Constantinople, Günsenin IV amphorae were excavated at Saraçhane, an urban complex comprised of the Church of St. Polyeuktos and several adjoining drains.<sup>281</sup> The amphorae there were found in cisterns and drains, presumably as part of a dump after the destruction of the church in 1204.<sup>282</sup>

In addition to the Novy Svet wreck, there are at least two other shipwrecks that carried Günsenin Type IV amphorae. They are the Çamaltı Burnu I and II shipwrecks, located in the Sea of Marmara, off the Marmara Islands, surveyed and excavated by Dr. Günsenin. Both ships date to the 13<sup>th</sup> century, a period that has been underexplored by underwater archaeologists. Only Çamaltı Burnu I, however, has been excavated and

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<sup>280</sup> Günsenin 1990, 31-3; Günsenin 1989, 275, figs.12-4.

<sup>281</sup> Harrison 1986, 111-4.

<sup>282</sup> Hayes 1992, 75-6, 138, 149.

studied. The majority of the finds from the site were Type IV amphorae in a wide range of sizes, but probably shipping mostly wine as indicated by the resin sealant and grape pips found in many of the jars.<sup>283</sup> Like the amphorae found at Novy Svet, these had stamps and graffiti at the base of the handles and on the shoulders, perhaps indicative of the potter, workshop, or owner of the amphorae. Along with the Günsenin IV amphorae, there were Günsenin III amphorae, storage jars, and open-shaped glazed ceramics aboard, just like the Novy Svet wreck.<sup>284</sup> Two or three broken anchors were also carried aboard the ship, perhaps intended to be used as scrap metal.<sup>285</sup>

Around the Black Sea, the Günsenin IV amphorae are usually found inside urban centers, such as the Italian *castra*. At Sudak, for example, a group of Günsenin IV amphorae were found in the late 13<sup>th</sup>/early 14<sup>th</sup> layers of a workshop within the walls of the fortress.<sup>286</sup> Excavations conducted at the fortresses of medieval Kerch, Alushta, and Chersonesos, and Balaklava also uncovered amphorae, or amphora sherds, within deposits in commercial areas.<sup>287</sup> At Chersonesos, almost all the Günsenin IV jars were found in the area around the port.<sup>288</sup> On the west coast of the Black Sea, the jars are found in the same contexts, especially at in Bulgaria at Nessebar (ancient Mesembria),<sup>289</sup> at in Romania at Dinogetia.<sup>290</sup>

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<sup>283</sup> Günsenin 2003, 364; 367-73; Günsenin 2000, 131-2.

<sup>284</sup> Günsenin 2001, 118-9; figs. 9, 11-13, 21-25.

<sup>285</sup> Günsenin 2001, 119-20, figs. 14-17c.

<sup>286</sup> Baranov 2001, 200-1.

<sup>287</sup> Zankin 2001, 47; Teslenko 2001, 124; Dioshchenko 2001, 93-5; Romanchuk et al. 1995, 71-81; 145. 35. 150, 152; 146. 36. 151, 147. 37. 153, 148. 38. 154,155, 149. 39. 156, 150. 40. 157, 158, 151. 41. 159, 160, 161; Yakobson 1979, 69; Yakobson 1951, 340-1.

<sup>288</sup> Romanchuk et al. 1995, 73-6.

<sup>289</sup> Cangova 1959, 257-8.

<sup>290</sup> Barnea 1967, 266-7; Barnea 1954, 524-5.

In addition to the sites along the coast, Günsenin IV amphorae are also seen in small numbers at settlements along the major rivers in Eastern Europe. Type IV amphorae are found in fortified centers along the Don river, from Tana, on the Sea of Azov, to Sarkel, the Khazar fortress at the site of the portage between the Don and Volga rivers.<sup>291</sup> At Silistra (ancient Durostorum) in Bulgaria, the jars were found during excavations within the medieval fortified town, in deposits, perhaps garbage pits, along the city walls.<sup>292</sup> Further along the Danube, at the Serbian sites of Belgrade and Branicevo, Günsenin IV jars were found in 13<sup>th</sup> century deposits within fortified settlements.<sup>293</sup>

Unlike the Günsenin I amphorae, the Type IV jars are not well attested in the Eastern Mediterranean. In her studies of the Late Byzantine amphorae in the Museum at Bodrum, Dr. Garver observed several examples of late Günsenin I amphorae, but no examples of the developing Type IV form in the 12<sup>th</sup> and 13<sup>th</sup> century.<sup>294</sup> Isolated examples, however, do exist. One Günsenin IV jar was found in 1222 earthquake destruction layers at the Saranda Kolones castle at Paphos on Cyprus.<sup>295</sup> Single examples of Günsenin IV jars have also been raised at several sites in the Adriatic, including Hvar, Crkvina, and Sibenik.<sup>296</sup>

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<sup>291</sup> Yakobson 1951, 341-2.

<sup>292</sup> Todorova 2011, 131, 136-7.

<sup>293</sup> Bjelajac 1989, 114-5.

<sup>294</sup> Garver 1993, 93-4.

<sup>295</sup> Megaw 1972, 327, fig. 23.

<sup>296</sup> Brusic 1976, 41-2.

## Production Sites

Amphora scholars are sometimes able to draw a link between an amphora class or type and a distinct production region.<sup>297</sup> Cities, workshops, even individual producers used the shape of the jar in combination with distinctive potmarks, such as stamps or graffiti, as a type of ‘brand’ easily recognized by consumers. Of course, competitors manufactured similar looking amphorae in order to capitalize on the reputation of the original ‘brand’, but the association still holds water.<sup>298</sup> During the 13<sup>th</sup> century, however, the amphora was replaced as the major form of transport by the wooden barrel, known in Greek as *voutsia*.<sup>299</sup> But in the East where the Byzantine Empire still prevailed, amphorae were being produced and used, especially for wine, until the end of the 14<sup>th</sup> century.<sup>300</sup>

No specific production site for the Günsenin Type IV amphorae has yet been discovered. There are, however, a few excavations that indicate that a production site (or sites) was on or near the shores of the Sea of Marmara. The Sea of Marmara, located between the Mediterranean and Black Seas, was still firmly under Byzantine control in the second half of the 13<sup>th</sup> century (the period of the *Novy Svet* shipwreck), unlike many of the other confirmed production sites of earlier Byzantine amphorae. Günsenin conducted several excavations both underwater and along the shores, and has found kilns and production sites for the earlier Type I amphorae and two shipwrecks with Type IV amphora cargoes.<sup>301</sup>

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<sup>297</sup> Dark 2001, 38-9.

<sup>298</sup> Orton *et al.* 1993, 26.

<sup>299</sup> Bakirtzis 1989, 76.

<sup>300</sup> Bakirtzis 1989; Dark 2001, 47-52.

<sup>301</sup> Günsenin 2003, 2001, 2000, 1998.

Günsenin has identified the ancient and medieval site of Ganos, now Gaziköy, a coastal village on the northwest coast of the Sea of Marmara, and the surrounding countryside, as a production site of Type I piriform amphorae.<sup>302</sup> Günsenin observed that the region is ideal for viticulture today and, based on the few ancient, medieval, and Ottoman references in the original sources, it was so in antiquity.<sup>303</sup> She conducted a survey of the area in 1989 that revealed deposits of amphora sherds and wasters.<sup>304</sup> In 1990, Günsenin examined these sites using a magnetometer and identified several potential kiln sites.<sup>305</sup> She began archaeological investigations there in 1993, which confirmed the identification of the kiln sites.<sup>306</sup> The settlement and associated structures were found in a survey of a small series of valleys along the northwest coast of the Sea of Marmara near modern day Gaziköy and Hosköy, ancient Chora. A large quantity of broken Type I amphorae and kilns were found, leading Günsenin to conclude that the area was a primary production site for Type I amphorae.<sup>307</sup>

The monastery at Ganos was founded in the 10<sup>th</sup> century at the base of a mountain sacred to the monks in this area, comparable to the sacred monasteries of Bithynia or Athos. From the 10<sup>th</sup> century on, the site was a monastic center connected to amphora production, probably for the export of locally produced wine.<sup>308</sup> Archaeological surveys revealed the existence of medieval kilns not only around Ganos, but also on Marmara

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<sup>302</sup> Günsenin 2000, 125-7; Günsenin 1998, 281-2.

<sup>303</sup> Günsenin 2009, 150-2; Günsenin 1998, 281-2.

<sup>304</sup> Günsenin 1993, 194.

<sup>305</sup> Günsenin 1993, 194.

<sup>306</sup> Günsenin 1995, 165-9.

<sup>307</sup> Günsenin 2009, 147; Günsenin 1995, 165-78.

<sup>308</sup> Günsenin 2009, 145-6; Günsenin 2000, 127.

Island (Proconessos) and along the north coast of the Sea of Marmara.<sup>309</sup> It appears that the monastery was an economic unit producing wine, not only for its own purpose, but also for sale, the containers for export and transport, and, perhaps, even its own ships.<sup>310</sup> Ottoman sources claim that the Greeks in this area used amphorae long after they fell out of fashion, and that they paid taxes with the new wine.<sup>311</sup>

Scholars have debated whether production of this type of amphora, so widespread in the Eastern Mediterranean and the Black Sea in the Late Byzantine period, can be traced to a single monastic settlement. Given the presence of kilns on Marmara Island and along the north coast of the Sea of Marmara, it may be possible to theorize that the vineyards and amphora production of the monks led to the rise of lay settlements in this area, perhaps with local potters and their families taking over the production of amphorae. Günsenin's description of an agricultural region with a monastic center that produced and exported its own wine, however, refers to the 11<sup>th</sup> century when the Type I amphorae were in circulation and not to the 13<sup>th</sup> century and the sinking of the *Novy Svet* shipwreck.

To date, there is no conclusive evidence that the Type IV amphorae were produced either at Ganos or on the Island of Marmara. The morphological link between Type I and Type IV amphorae, however, suggests that they may be part of a continuous ceramic tradition and the similarity of the graffiti found on both types supports this idea. In any event, the presence of two shipwrecks off the coast of the Island of Marmara with

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<sup>309</sup> Günsenin 1997, 249-60.

<sup>310</sup> Günsenin 2009, 151.

<sup>311</sup> Günsenin 2000, 125-8.

Type IV amphorae aboard does not necessarily place the production sites of this type in the area.

### **Sample Fabrics**

All the amphorae studied for this thesis were identified morphologically as Günsenin Type IV. Although Günsenin claims that Type IV, Type I, and Type II share the same fabric and possibly production sites, there seemed to be a lot of fabric variation within the Novy Svet corpus. In order to assess these variations of fabric, several different tests were conducted. A quick visual examination was made of every amphora sherd studied, leading to six different groupings based on fabrics. Small samples of each fabric were taken, 17 samples in all, and brought back to Texas A&M University for analysis. The samples were analyzed in two different ways: chemically using Laser Ablation Inductively Coupled Plasma Mass Spectroscopy (LA-ICP-MS), and petrographically after being thin-sectioned. The results are presented here, in Table 3.1.<sup>312</sup>

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<sup>312</sup> The samples were analyzed under the instruction of Dr. Suzanne Eckert in the Anthropology Department at Texas A&M University

**Table 3.1 – Six fabric types identified visually**

Type	Clay	Color	Inclusions	Voids
1	Medium grain, well-sorted	Orange	Red, black, brown, grey, < 2mm, sub angular – sub rounded, large gold micaceous flakes	Long and round voids
2	Fine grain, hard, very well sorted	Reddish-beige	Black, dark grey, < 2 mm, sub angular, small micaceous flakes	Round voids
3	Fine grain, hard, very well sorted	Beige	Dark grey, reddish brown < 2 mm, angular - subrounded, some micaceous flakes	Round voids, few long voids
4	Fine grain, well sorted	Orange-beige	Red, brown, reddish-brown, some micaceous flakes	Round voids
5	Extremely fine, smaller variant	Orange-beige	Few micaceous flakes	Few voids
6	Fine grain, well sorted	Orange-beige	Black inclusions	Round voids, long voids

The first analysis was a strictly visual one. Different fabric colors were noted, prompting the identification of two different general groups of amphorae, an ‘orange’ group (5 YR 5/6, 5YR 6/6, 7.5 YR 5/6, 7.5 YR 6/6) and a ‘reddish-beige’ group (5 YR 6/4, 7.5 YR 6/4, 7.5 YR 7/4). The more orange amphorae are generally slipless, while the reddish-beige amphorae have a white slip on the shoulders. The fabrics are occasionally evenly colored, but usually have some color differentiation such as cores, layers, or even

a slight difference along the interior and exterior surfaces. There is enough variation within these groups, however, that such identification swiftly becomes a creation of a color continuum rather than several distinct fabric types. Furthermore, the discoloration from centuries of being under water ensures that in many cases the coloring is rather subjective and that several previously identified ‘types’ may be present in the same sherd. Finally, as has been observed by ceramic specialists, color varies enough within kiln batches of amphorae depending on placement and heat regulation that it may be possible to see three Munsell charts within a single batch.<sup>313</sup>

Nevertheless, it may be instructive to set out the results of the visual observations. There are two major visible elements in the fabric of the Gunsenin Type IV amphorae raised from the Novy Svet shipwreck; voids, both round and long, and various mineral inclusions. Almost all of the examples studied showed round voids. The round voids range from less than 1 mm to 3 mm in diameter. Sometimes the voids are regularly distributed through the fabric, other times they are seen at rare intervals. These voids are vegetal voids, air bubbles, or places where the inclusions have fallen out of the clay. There are examples where air bubbles do appear on the exterior surface of the amphora. The long voids are more difficult to describe and explain. They are less frequently seen than round voids, and are particularly rare in handle sherds. They are much, much thinner than they are long, and usually, though not always, occur along the planes of the fabric and are accompanied by changes in color levels, which may indicate that these long voids are the result of stress on the fabric during firing.

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<sup>313</sup> Orton *et al.* 1993, 68-9, 132-8.

Overall, the fabrics are fine and well sorted. Inclusions are rarely more than a few mm in diameter, and vary from angular to sub rounded. The inclusions are classified by color, but there is one mineral that is easily identifiable to the naked eye – mica. Almost every studied example has shown evidence of mica in the clay. Sometimes the micaceous flakes are small, and barely noticeable. Other times the flakes are quite large and can be seen on every surface. The larger micaceous flakes are in the more orange fabrics and, maybe because of this, appear to have a gold sheen. The presence of other inclusions is more difficult to quantify. There are combinations of dull black, dark grey, red, dark red, red-brown, brown, or beige inclusions. When many of these colors appear together in a single jar, they are generally quite small and sub-rounded, and are labeled in the notes as ‘sand’ or ‘sandy’. Occasionally, there are no inclusions to be seen at all. These usually have very small, round voids.

As noted above, purely visual identification of fabric types is not that reliable, especially when the examples have been underwater for centuries. In the end, the differences in fabric may be a result of several differences in clay sources, different production techniques, and different workshops. Overall, these analyses support Gunsenin’s identification of a primarily orange clay with many small-cut inclusions, including frequent pieces of white mica and calcite.<sup>314</sup>

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<sup>314</sup> Gunsenin 1990, 45-6.

## CHAPTER IV

### GRAFFITI FROM THE NOVY SVET SHIPWRECK

#### **Introduction and Methodology**

Over a period of nine years, thousands of amphora sherds were raised from the Novy Svet shipwreck, most of which displayed evidence of graffiti. When translated, graffiti could potentially speak to various aspects of the context in which they are found, including the ship's cargo, the names of merchants or sailors who owned the goods inside, the process of exchange, or even the origin or destination of the ship. By connecting graffiti with similar examples elsewhere, it may also be possible to reconstruct trade routes and exchange networks. The excavators, furthermore, hope that the graffiti will establish a concrete link between the Novy Svet shipwreck and the archival account of the Pisan ship loss.

As explained in Chapter I, the excavators almost exclusively raised those amphorae and amphora sherds with graffiti. This selective methodology makes it difficult to determine exactly how many amphorae were associated with the wreck and what percentage was inscribed with graffiti. The graffiti themselves, therefore, are analyzed as a closed corpus and compared with data from other sites. My analysis of the graffiti suggests that they should be divided into five categories: (1) Greek or Cyrillic letters, (2) Turkic/Oghuric runes, (3) geometric or pictorial signs, (4) numerical designations, and (5) Arabic letters. In addition, there were also examples of amphora stamps. While not all of the graffiti are illustrated, several examples from each category

are presented in this chapter, along with a discussion of the interpretation of the markings.

The study of the graffiti took place over two months in 2009 and was focused primarily on documentation. The storerooms of CUA were organized by excavation year, and thus the amphorae are organized. Each amphora or sherd retained the identification it was given by the excavators, usually the abbreviation of the site name (HC, the Cyrillic NS for Novy Svet), the last two digits of the survey or excavation season (02-08) and the accession number of the artifact. During documentation, several sherds were discovered in the storeroom that had either lost or never received an accession number. With the permission of the excavators, I identified these sherds as belonging to excavation season HC 08 and gave them numbers in the order that they were processed in the lab. I entered each sherd into a notebook, which is presented here as a catalog (Appendix A), and included information about findspot, dimensions, shape, state of preservation, and the type and number of graffiti. Each graffito was drawn to scale and photographed.

As explained in Chapter III, the excavators raised approximately 50% of the ceramic material from the seabed, about 75% of which was identified as Günsenin IV amphorae or amphora sherds. Of over 1000 sherds, 720 had one or more examples of graffiti inscribed on them for a total of 1005 graffiti. The graffiti usually occur in three specific areas with high frequency: 1) the arch of the handle, 2) the lower shoulder, and 3) the handle base. (Fig. 4.1) Of the 1005 graffiti studied, 134 examples are comprised of two or more symbols that serve as a single mark. The rest are single mark graffiti. Of the 720 amphora sherds studied, 171 have more than one instance of graffiti. I observed

that the larger sherds and all examples with both handles present have more than one instance of graffiti, suggesting that many jars had more than one mark. Therefore, it is important to consider whether these graffiti were applied concurrently or at different times.

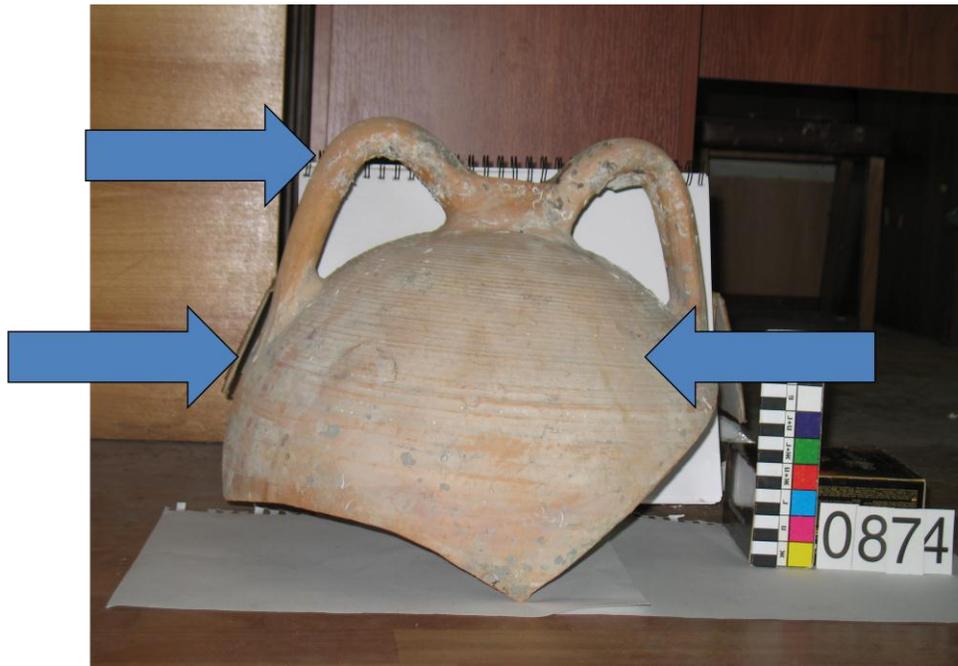


Fig. 4.1 The zones of high use on the Novy Svet amphorae (HC 08 74).

It can be difficult to determine when a specific graffito was applied to an amphora. There are three times in the 'life' of an amphora when graffiti are applied. The first is immediately after the amphora is thrown. The second is after the amphora has dried to a leather-like hardness, but before it is fired. And the third is anytime after the firing of the vessel, including lading, filling, unlading, counting, etc. In general, the

shape and color of the mark can help to identify the time of application. It is easy to identify the marks incised into the clay immediately after the vessel is thrown; they are deep, clean, and smooth. The task of distinguishing between marks that were incised after the hardening of the clay and after the firing of the vessel, however, is far more difficult. There are a few guidelines. Marks inscribed after firing are typically a different color than the surface of the vessel. They also are characterized by a rougher, sharper mark, often with voids where inclusions have been removed during the application of the graffito. By contrast, marks inscribed before firing have smoother incisions, are the same color as the surface of the vessel, and still contain the inclusions. The edges of these incisions often are ridged, the result of the leather hard, but still malleable clay being ‘thrown up’ by the incision tool.

Given the worn condition and discoloration of the amphorae from the Novy Svet wreck, due to long ‘use-lives’ of the vessels and the effect of the underwater environment, it is often impossible to determine when a graffito was inscribed. There are a few examples that seem to have been applied immediately after being thrown, most notably the stamps, but the overwhelming majority were applied either after hardening or firing. On one amphora, HC 07 214, with multiple marks, (**TR 37** and **GC 52**), it is possible to see one graffito, a runic mark  $\backslash/$ , that was applied to the base of the handle before firing, and another graffito, the letter III, below the rune, that was inscribed after firing. (Fig. 4.2) The runic mark was smoothly applied with deep, wide incisions, while the letter is thinner, lighter, and displays the rough edges characteristic of being applied to a fired ceramic surface. Because of their proximity, it may be that these two graffiti

are somehow related, perhaps as part of a dialogue between potter and merchant, or merchant and customs official, or even between two merchants.



Fig. 4.2. **TR 37** and **GC 52** on HC 07 214.

In contrast, another amphora, HC 06 35, has a double mark, **TR 31**, applied to the shoulder (Fig. 4.3). The mark, which is categorized as a rune, is comprised of a /\\ mark and a + mark. Both of these marks were applied after firing, but it is difficult to determine if they were applied concurrently or at different times. Given that the marks are joined together, have the same degree of wear, and do not obscure each other, it is my opinion that they were applied concurrently and by the same hand.



Fig. 4.3 **TR 31** on HC 06 35.

It is difficult to identify the specific tools used in the graffiti application process. A series of pointed styli or knives could account for almost all the markings on the amphorae that are not stamps. There are two examples, however, of a graffiti that is a near perfect circle with a small point in the center (**GC 137**, **GC 138**); both marks appear to have been applied with a compass. (Figs. 4.4-5)



Fig. 4.4 **GC 137**, a compass-drawn circle on HC 06 264.



Fig. 4.5 **GC 138**, a compass-drawn circle on HC 04 375.

## Application of Graffiti

As observed above, the majority of the graffiti are located either on the shoulder of the vessel, the handle, or at the base of the handle. In most of the amphorae that retain the top half of the vessel, graffiti can be found on all of these zones. Multiple examples of graffiti are also common on some of the larger amphora sherds. In this regard, the amphorae at Novy Svet are not unique; single amphorae with multiple graffiti have been found in 13<sup>th</sup> century levels at Chersonesos<sup>315</sup> and Kerch.<sup>316</sup> Interestingly, at Kerch, Zankin documents three amphorae (dating to the 13<sup>th</sup> century) that were covered by graffiti of multiple types, including Greek or Cyrillic letters (e.g., θ, NH, ω), runes or rune-like signs, (e.g., a quartered O, a bisected loop or oval, the double-axe or bowtie |x| shape), geometric signs (e.g., pentagram, 6-rayed star), and numerical signs (e.g., |||, ≡).<sup>317</sup> This range of graffiti types on the surface of a single amphorae is also seen at Novy Svet.

Although determining the time of application of the graffiti has been greatly hindered by the discoloration and damage done to the surface of the amphorae, there are some general trends that seem to emerge regarding time of application and placement of the graffiti. Overall, marks located at the handle base and on the handle show a greater likelihood of having been applied before firing.<sup>318</sup> This is not to say that those applied to the shoulder were always done after firing; both examples of compass formed circles, which would have only been possible before firing, occur on the shoulder.

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<sup>315</sup> Romanchuck et al. 1995, 158-9, 161.

<sup>316</sup> Zankin 2001, 49-51.

<sup>317</sup> Zankin 2001, figs .2.1, 3.1, 5.18.

<sup>318</sup> It must be noted that this trend could be the result of the better preservation of the thicker and sturdier handles than the walls of amphorae.

All types of graffiti, however, seem to have been applied to the various zones with equal frequency, albeit with a few exceptions. Marks shaped like grain sheaves or fish bones are often found on the handles, as are many of the numerical symbols, including most of the parallel strokes and all of the drilled holes. All of the stamps are also located on handles, or at the base of handles. But overall, most of the symbols are found everywhere, including the prominent runes  $\backslash/$ ,  $/\backslash$ ,  $|x|$ , the various crosses, grids, and the letters M, X, and K.

It is interesting to speculate about the various scenarios that resulted in the greater frequency of marks on the handles or handle bases before firing. Presumably, the only people who could have applied the marks before firing were the potters. Therefore, one approach would be to view the marks applied before firing exclusively as potters' marks or the marks of specific workshops. However, other scenarios spring to mind. Potters could have applied the marks of the merchant who owned the amphorae, or the goods contained within them. The marks could have been indicative of measures or weights of the amphorae. Some of the marks, especially the stamps, could also have been applied by administrators or officials reviewing amphorae before they were fired.<sup>319</sup> Another consideration is the ability to see these graffiti while the amphorae were stored in the hold of the ship. The graffiti on the handle bases may not have been visible, but those on the high shoulders and on the arch of the handle should have been, even when the amphorae were packed together. This may add credence to the theory that potters were primarily responsible for those graffiti applied to the base of the handles, because

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<sup>319</sup> Volkov 2001, 221.

merchants, sailors, officials, and stevedores would not have been able to see the graffiti during most of the voyage.

### **Graffiti Types**

I divided the graffiti from the Novy Svet shipwreck into five major types: (1) Greek or Cyrillic letters, (2) Turkic/Oghuric runes, (3) geometric or pictorial symbols, (4) numerical designations, and (5) Arabic letters. Despite the reference to several writing systems, the typology is based on the morphology of the mark in an effort to avoid an immediate invitation to translation. The reason for this distinction is that there are numerous marks that could fit into several categories. These include X, M, +, K, A, and III.<sup>320</sup> These marks will be discussed and their characterization explained.

Of the 1005 graffiti identified on the Günsenin IV amphorae from Novy Svet, only 476 are included in this typology. The remaining 529 are either obscured, illegible, or incomplete. Ligatures and symbols that are clearly associated are treated as a single mark. 186 examples have been identified as Greek/Cyrillic letters. The Greek and Cyrillic letters have been collapsed into one category because the two alphabets are almost identical, except for a few consonants such as ж and щ. 104 other graffiti are identified as geometric and pictorial symbols.<sup>321</sup> The next largest category are the marks that have been identified as Turkic/Oghuric runes, with 105 examples. 61 marks are

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<sup>320</sup> In his discussion of graffiti from Chersonesos, Duzhenko points out that in such a multilingual and multiethnic area, multiple readings occur for several symbols like M, Σ, Π, and K. Duzhenko 2001, 94-5.

<sup>321</sup> Some of the most common Turkic runes and geometric signs have morphological parallels in potmarking systems of Iron Age and Classical Greece as seen in Alan Johnston's *Trademarks on Greek Vases* and Mabel Lang's *Graffiti and Dipinti*. These marks however, cannot be sorted into the Greek/Cyrillic categories because they have no obvious or persuasive parallels among Byzantine and medieval Greek potmarks.

identified as numerical designations (Table 4.1). The smallest category are the inscriptions with Arabic letters, of which there are only three. Occasionally, there are 'mixed' graffiti, marks with elements that can be sorted into several different categories. In these cases, I have sorted them into one of the present categories based on what appears to be the most legible or central signs. In the catalog, I have also represented the nine stamps, and six examples of indecipherable graffiti.

**Table 4.1. Novy Svet graffiti sorted by type**

<b>Type</b>	<b># of Marks</b>
Greek/Cyrillic Letters	186
Turkic/Oghuric Runes	105
Arabic Letters	3
Signs	106
Numerical Designations	61
Stamps	9
Indecipherable Marks	6
<b>Total</b>	<b>476</b>

***Glazed Ware Graffiti***

One important set of parallels for the Novy Svet amphora graffiti is the corpus of graffiti that occur on the glazed ware raised from the site. The glazed bowls often have a single graffito on the underside of the foot of the vessel, perhaps indicating a specific

workshop, merchant, or owner. Although there does not seem to be any exact parallels between the two sets of graffiti, there are some marks with similar content or form. One of the bowls bear the sign of an M surmounted with a +, either a tau or a cross, like several examples from the corpus of amphora graffiti. Several other common letters occur, including a K and an X. Occasionally, double letters occur. A mark which looks like a monogram containing the letters A and X occurs twice. Also, there is an example with three letters, I A D.<sup>322</sup>

### **Interpretation of the Novy Svet Graffiti**

This chapter presents the graffiti inscribed on the Günsenin IV amphorae from the Novy Svet shipwreck. The interpretation of such marks is difficult and partially reliant on both the interpreter's linguistic background and access to relevant comparative data. Simple translation is not enough, if translation can ever be called simple. These graffiti are not texts in the classical sense of the word, to be translated with the help of a dictionary and grammatical aids. These documents are not divorced from their materiality, and so may be referred to as textual artifacts. Their interpretation relies on several levels of contextualization, which include examining other examples of amphora graffiti, comparing and analyzing frequency of occurrence, and also by constantly questioning the function of the textual artifact at various points in its 'life'.

The interpretation of amphora graffiti relies heavily on determining the function of the incised marks. Amphora scholars theorize that graffiti and other markings on

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<sup>322</sup> Some of these graffiti can be seen in Waksman and Teslenko's 2009 article "'Novy Svet Ware', an Exceptional Cargo of Glazed Wares from a 13<sup>th</sup>-Century Shipwreck near Sudak (Crimea, Ukraine)".

transport jars have commercial or mercantile significance and speak to the mechanics of exchange and trade.<sup>323</sup> These processes, however, are made up a wide range of activities spread out over many years, which can be grouped into three general phases: production, transport or distribution, and consumption.

Marks that deal with amphora production, including graffiti and stamps, are the first marks that could be applied to a transport jar. These are more commonly identified as potter's marks, or workshop marks. Often, if there is a graffiti applied to the vessel before firing, it is interpreted as the name or mark of the potter who made it, or oversaw its production. It is conceivable, however, that such a mark could also refer to the region or specific workshop where the jar was produced. Finally, it is also possible to see the names of the first owners of the amphorae, those who commissioned their production, filled them, and loaded them on a boat or ship.

During transportation and distribution, graffiti serve a wide range of functions. Amphorae were usually valued not for their form but for their contents, which may be reflected in the incised marks. Graffiti can sometimes refer to the goods within the amphorae, such as wine, fish, grain, etc. They also can indicate the capacity of the amphora, either by volume or by weight. During maritime and riverine trade, a wide variety of individuals handled the amphorae, from the stevedores who loaded and unloaded them to the commercial officials who regulated trade. It is very likely that some of these handlers incised marks on the amphorae. Customs officials may have left graffiti, either tallying totals or marking taxes, as well as merchants ensuring that their goods were accounted for. Some of the marks, such as those invoking various deities,

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<sup>323</sup> Johnston 2006, Lawall 2000, Garver 1995, Hirschfeld 1990, van Doorninck 1989, Johnston 1979, Lang 1976, Johnston 1974.

could have had a magical function, protecting both the contents of the amphorae from spoiling and the ship from sinking.

Finally, there are marks that may speak to the consumption of the amphora's contents. The marks could signify owners who, once an amphora was purchased, inscribed their own sign over their predecessor's. One of the most common interpretations of amphora graffiti is that of price. Price marks, either for the whole amphora or its contents, would have to be visible and clear, but whether they take the form of numerals or acrophonic marks is entirely dependent on the numerical system in use, something which is not always easily determined as amphorae were always moving.

Before attempting analysis, it is beneficial to examine the various challenges to meaningful interpretation. These include the excavation methodology, the long use-lives of the vessels in question, and the implications of a language-based typology. The excavation methodology is a challenge to contextualization, in that the majority of raised amphora sherds are inscribed with graffiti, but this does not necessarily mean that all amphorae from the wreck are inscribed with graffiti. Furthermore, the excavators consider the assemblage of glazed ware to be the most important aspect of the cargo. The amphorae have not yet been fully excavated and studied, so it is difficult to determine what percentage of the corpus are Günsenin IV amphorae, and what capacities or sizes are represented. This is work for future scholars, but the preliminary nature of this study makes it difficult to contextualize the current amphora assemblage within the shipwreck site.

Another challenge to interpretation is the long use-life of the amphorae in question. As discussed in Chapter III, the barrel replaced the amphora in the 13<sup>th</sup> century

as the primary container for liquid transport.<sup>324</sup> Workshops were not producing amphorae on the same scale as they had been in previous centuries, which may have resulted in more amphora reuse.<sup>325</sup> Early examples of amphorae being reused come from the 7<sup>th</sup> century shipwreck at Yassı Ada off the coast of Turkey. The variety of archaeobotanical remains within the amphorae suggests multiple contents in the use-lives of the pots. These amphorae have multiple examples of graffiti that were translated to refer to several different owners. The amphorae from the 11<sup>th</sup> century shipwreck at Serçe Limanı also display evidence of reuse. Some of the rims and handles of the vessels had been carved down along the points of previous breaks in order to prolong the use-life of the vessel.<sup>326</sup> This phenomenon was also documented by Garver in her analysis of Late Byzantine amphorae from the Museum of Underwater Archaeology at Bodrum.<sup>327</sup>

Some evidence of reuse can be seen among the amphorae from Novy Svet. Although the majority of the assemblage is composed of wall sherds and handle sherds, occasionally intact top halves of vessels are preserved. The majority of the larger sherds have multiple examples of graffiti on them, which may indicate that these amphorae were being reused and being remarked over many years or multiple voyages. The carving down of rims is also seen in the Novy Svet amphorae. Of the 62 rims counted, seven displayed evidence of being carved down in order to preserve the integrity of the vessel. One of these, HC 07 235, has triangular recesses or notches on the weaker sections of the rim. (Fig. 4.6)

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<sup>324</sup> Bakirtzis 1989, 76.

<sup>325</sup> Garver 1995, 18-20; van Doorninck 1989, 256.

<sup>326</sup> van Doorninck 1989, 253-6.

<sup>327</sup> Garver 1993, 181.



Fig. 4. 6 Amphora with triangular recess in rim.

The biggest challenge to interpretation is how the language-based nature of the typology invites immediate translation. Although the typology is based on the form of the symbols, and not any inherent meaning, the use of terms such as Greek/Cyrillic and Arabic implies that meaning exists. This anxiety about assigning meaning where there may be none is a common feature of incised potmarks' studies. In her thesis *Incised Marks on Late Helladic and Late Minoan Pottery*, Nicolle Hirschfeld explicitly rejects the Cypro-Minoan signs as the basis for the organization of her catalogue, even though the incised marks are clearly based on the Cypro-Minoan system.<sup>328</sup> By doing so, she avoids the practical problems of trying to force the incised potmarks to fit into categories associated with Cypro-Minoan signs. She too has theoretical qualms about this approach,

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<sup>328</sup> Hirschfeld 1990, 46-9.

stating that “[o]rdering the potmarks specifically in accordance with the formal writing system precluded independent assessment of the relation between these systems.”<sup>329</sup> In his work on trademarks on Greek painted vases, Alan Johnston voices the same apprehension, hesitating to label the marks as a coherent pot-marking system and using speculative examples to provide interpretation for some of the signs.<sup>330</sup> The form-based typology used for the Novy Svet assemblage was developed in order to deal with those graffiti or marks that cut across many of the types.

As explained in the first half of the chapter, even though some symbols fit into multiple categories, they had to be assigned to a single category. The M and B marks were categorized as Greek/Cyrillic forms and not as runes, even though there are runic parallels for these marks. The marks Π and Δ could be translated as either letters or as acrophonic numbers. In the study of graffiti from the Classical period the the letters Π and Δ stand for 5 (πεντε) and 10 (δεκα), respectively.<sup>331</sup> In studies of Byzantine amphorae, including this one, symbols such as Π and Δ are usually categorized as letters.

Awareness of these multiplicities of meaning can stymie interpretation, especially if the ultimate goal is the translation of the corpus. As stated above, the interpretation of any commerical amphora graffiti rests on their identification as texts, or textual artifacts. For many scholars, including archaeologists, ‘texts’ do not simply mean words preserved on paper. A text is any example of symbols encoded with information and intended to convey meaning; therefore texts can include scrolls, books, papyri, codices, inscriptions, stelai, monumental architectural, figured pots, paintings, even body modification.

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<sup>329</sup> Hirschfeld 1990, 47.

<sup>330</sup> Johnston 1974, 138, 143.

<sup>331</sup> Lawall 2000, 9; Lang 1976, 21-3; Johnston 1979, 27-8, Johnston 1974, 147.

Textual artifacts, however, are unique in that they carry information consciously intended to extend beyond the artifact itself and can influence individuals and societies.

Therefore, when they are part of the archaeological record – or when they inform archaeological reasoning, their interpretation and analysis is particularly attractive to archaeologists and historians.<sup>332</sup>

Several archaeologists have addressed the issues of dealing with textual artifacts along with other sorts of data. Narrative-based traditions of history privilege certain types of data above others; textual artifacts are considered more informative than nontextual artifacts because of the information encoded on them.<sup>333</sup> Only translate, we believe, and be informed. The very concept of translation, however, is narrowing, because it places the ‘literary’ meaning of the artifact over the contextual aspects of the text. True, meaningful interpretation rests on constant contextualization at all levels of the project. In his article ‘Graffiti, Wine-Selling, and the Reuse of Amphoras in the Athenian Agora, ca. 430 to 400 B.C.’ Mark Lawall relies on several different types of contextualization to study a group of amphorae and graffiti; including date, findspot, amphora type, time of application, the use-life of an amphora, and the larger economic and political context.<sup>334</sup> His interpretation does provide optional meanings for some of the graffiti, hypotheses to be tested, but also addresses the marked increase in the use of graffiti in the last third of the 5<sup>th</sup> century B.C.

The interpretation of the Novy Svet graffiti, therefore, is not a complete translation of the corpus. Instead, it is an attempt to identify patterns in the Novy Svet

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<sup>332</sup> Hodder 1999, *passim*.

<sup>333</sup> Hodder 1999, 73.

<sup>334</sup> Lawall 2000, 65.

corpus, and find parallels between these graffiti and similar markings from other excavations and studies. These parallels may begin to serve as a sort of key for understanding not only what the inscriptions ‘mean’, but also what purpose they served and for whom. Some of the markings, especially the Greek and Cyrillic symbols, have been linked to specific names or words based on other amphora studies. This allows some other Greek or Cyrillic marks to be identified as names, even though no clear translation exists yet. Other markings find parallels in the various Turkic runic scripts, which may speak to the identity of those who placed the marks on the vessels. There are also non-alphabetic marks that may serve a variety of purposes, whether economic, administrative, or protective.

### **Greek/Cyrillic Letters**

The 186 marks in this category are identified as letters from the Greek and Cyrillic alphabets. Both single letter marks and multiple letter marks are present. Occasionally the multiple letter marks are connected together as a monogram or ligature. Although amphorae from earlier shipwrecks have sometimes had graffiti that included entire words, there are very few examples of words or phrases from this assemblage.<sup>335</sup>

One of the most common marks is X, with 30 examples on 29 amphora sherds (Table 4.2). 11 of these are on handles, four are on handle bases, and the rest are on shoulder sherds. The X symbol has been categorized as a Greek/Cyrillic letter, although it also has parallels in the runic alphabet and may possibly represent a number, such as the Roman numeral ten. It also should not be confused with the + graffito, which has

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<sup>335</sup> van Doorninck 1989, 256.

been classified as a geometric sign. X appears in multiple character marks, including ligatures AAX, XS, and either MX or NX.

**Table 4.2. Examples of the Greek/Cyrillic letter ‘X’**

Catalog #	Amphora#	Graffito	Placement
GC 71	HC 08 82-1	X	Shoulder
GC 72	HC 04 550	X	Handle
GC 73	HC 05 147	X	Shoulder
GC 56	HC 05 148	X	Handle
GC 57	HC 05 676	X	Shoulder
GC 58	HC 05 81	X	Shoulder
GC 59	HC 06 546	X	Handle
GC 60	HC 06 556	X	Handle
GC 61	HC 07 150	X	Handle
GC 62	HC 07 374	X	Handle
GC 63	HC 07 504	X	Shoulder
GC 64	HC 08 179	X	Handle
GC 65	HC 08 339	X	Shoulder
GC 66	HC 08 542	X	Handle
GC 67	HC 08 595	X	Handle
GC 68	HC 08 683	X	Handle Base
GC 69	HC 08 689	X	Shoulder
GC 70	HC 08 830	X	Handle Base
GC 74	HC 06 220-2	VX	Shoulder
GC 75	HC 07 120	XX	Handle Base
GC 76	HC 06 537-1	XP, retrograde	Shoulder
GC 77	HC 08 533	XP	Handle Base
GC 78	HC 08 355	/\ II X	Shoulder
GC 79	HC 08 293	XS, ligature	Handle
GC 80	HC 07 578	NX or MX, ligature	Handle Base
GC 14	HC 08 296	XB, retrograde	Shoulder
GC 16	HC 08 239-1	AAX	Shoulder
GC 17	HC 08 239-2	AAX	Shoulder
GC 18	HC 08 723	AAX	Shoulder
GC 19	HC 08 724	AAX	Shoulder

Another common mark is A. There are 20 examples of the letter A in the Novy Svet corpus (Table 4.3). In 11 instances, the A is a single mark graffito, seen twice at the

base of a handle, thrice on the handle itself, and six times on the amphora shoulder. The letter A is also seen nine times in conjunction with other marks. The most common multiple mark graffito is AΛX, which occurs four times. All four examples are found on shoulder sherds. The most complete examples are **GC 16** and **GC 17** which are two sherds that belong to the same amphora.

**Table 4. 3. Examples of the Greek/Cyrillic letter ‘A’**

Catalog #	Amphora #	Graffito	Placement
GC 29	HC 04 386	A	Handle
GC 20	HC 05 306	A	Shoulder
GC 28	HC 06 162	A	Shoulder
GC 21	HC 06 502	OA	Shoulder
GC 22	HC 07 162	A	Shoulder
GC 23	HC 07 579	A	Shoulder
GC 26	HC 08 80	A	Handle Base
GC 27	HC 08 82-1	A	Handle
GC 24	HC 08 591	A	Handle
GC 30	HC 04 387	A	Shoulder
GC 31	HC 06 426	A	Shoulder
GC 25	HC 08 593	A	Handle Base
GC 15	HC 08 770	AN	Shoulder
GC 16	HC 08 239-1	AΛX	Shoulder
GC 17	HC 08 239-2	AΛX	Shoulder
GC 18	HC 08 723	AΛX	Shoulder
GC 19	HC 08 724	AΛX	Shoulder
GC 33	HC 08 775	AI	Handle
GC 34	HC 08 354	IA	Handle
GC 32	HC 06 42	\A/	Shoulder
GC 10	HC 08 350	AB, retrograde	Shoulder
GC 36	HC 06 628	+AΣ \ Iω	Handle

The sign B occurs 16 times on 13 amphorae (Table 4.4). Four examples were found on handles, one at the base of a handle, and the rest were found on the shoulder. The mark occurs both prograde, (**GC 1**), and retrograde, (**GC2**). It occurs in ligature

with P on **GC 3**, and with a ligature P on **GC 4**. Sometimes a horizontal line crosses the backstaff of a retrograde B, as seen on **GC 5** and **GC 6**. One particularly interesting example is **GC 7**, a shoulder sherd with three Bs, each surmounted by a cross or a T.

**Table 4.4. Examples of the Greek/Cyrillic letter ‘B’**

Catalog #	Amphora #	Graffito	Placement
GC 3	HC 03 431	BP, Ligature	Handle
GC 12	HC 05 378	B, retrograde, with + crossing backstaff	Shoulder
GC 11	HC 06 137	B, retrograde	Shoulder
GC 5	HC 06 218	B, retrograde, horizontal line crossing backstaff	Handle Base
GC 13	HC 06 556	B, retrograde	Handle
GC 4	HC 07 361	BP	Handle
GC 8	HC 07 401	B, retrograde	Shoulder
GC 7	HC 08 144	BBB, each surmounted with +	Shoulder
GC 1	HC 08 225	B	Handle
GC 14	HC 08 296	XB, retrograde	Shoulder
GC 10	HC 08 350	AB, retrograde	Shoulder
GC 9	HC 08 528	B, retrograde	Handle Base
GC 6	HC 08 730	I B I, retrograde, horizontal line crossing backstaff	Shoulder
GC 2	HC 08 823	B, retrograde	Body

One of the most numerous graffiti is the letter K, which is seen 34 times in the Novy Svet corpus (Table 4.5). It occurs alone 18 times, in a variety of orientations. Of these, five are found on handle base, four are found on the handle itself, and the rest are found on the shoulder. The remaining 16 examples include K and at least one other symbol. This other symbol is, with one exception, another Greek/Cyrillic letter or letters. Nine of these have both the K and a letter that might be Λ. In four cases, the K precedes a lowercase λ, but the rest are far less clear. In three cases, it is even difficult to determine if the accompanying symbol is N or uppercase Λ.

**Table 4.5. Examples of the Greek/Cyrillic letter ‘K’**

Catalog #	Amphora #	Graffiti	Placement
GC 91	HC 03 770	K	Shoulder
GC 92	HC 06 572	K	Handle
GC 93	HC 07 499	K	Handle Base
GC 94	HC 07 602-2	K	Shoulder
GC 95	HC 08 295	K	Shoulder
GC 96	HC 08 424-1	K	Shoulder
GC 97	HC 04 563	K	Handle
GC 98	HC 04 604	K	Handle Base
GC 99	HC 05 674	K	Handle Base
GC 100	HC 06 57	K	Handle
GC 101	HC 07 266	K	Shoulder
GC 102	HC 08 163	K	Shoulder
GC 103	HC 08 523	K	Shoulder
GC 104	HC 08 740	K	Handle Base
GC 105	HC 08 77	K	Handle
GC 106	HC 08 806	K	Handle
GC 107	HC 04 424	K	Shoulder
GC 109	HC 08 183	KI	Shoulder
GC 110	HC 05 329	KI, retrograde	Shoulder
GC 111	HC 03 710	⊥K v N	Handle
GC 73	HC 08 799	KMHI	Shoulder
GC 71	HC 07 400	MKA	Shoulder
GC 112	HC 05 219	ΦK	Handle
GC 113	HC 05 328	K retrograde, surmounted by +	Handle
GC 114	HC 04 477	N or Λ K	Shoulder
GC 115	HC 04 373	N or Λ K	Shoulder
GC 116	HC 08 82-1	N or Λ K	Shoulder
GC 117	HC 08 338	K	Shoulder
GC 118	HC 06 159	K λ	Handle Base
GC 119	HC 05 81	(T)Kλ	Shoulder
GC 120	HC 05 364	K λ	Handle
GC 121	HC 04 548	λ K	Shoulder
GC 122	HC 04 548	λ   K χ λ	Shoulder
GC 108	HC 08 673	>K	Handle



Fig. 4.7 **GC 86**, M with short strokes at the base of each staff on HC 08 796

Another symbol that cuts across several categories is M (Table 4.6). Usually the M is a Greek or Cyrillic letter, but there are variations with strong parallels in the runic alphabet, such as the ‘bow-tie M’, where the bow-tie  $|><|$  rune is found between the two staffs, like this  $|>^<|$ . Excluding these runes, 11 graffiti have been identified as Greek/Cyrillic letters. M occurs alone only once in the corpus. The letter is most often seen in conjunction with a + sign. In five instances, the + is over the M, and once it is to the upper right of the letter. In two of these, **GC 85** and **GC 86**, the M is also marked by outwardly angled short strokes at the base of each staff, making it easy to categorize them as two instances of the same mark (Fig. 4.7).

**Table 4.6. Examples of the Greek/Cyrillic letter ‘M’**

Catalog #	Amphora #	Graffito	Placement
GC 81	HC 07 132	M	Shoulder
GC 82	HC 08 105	ΜΗ	Shoulder
GC 83	HC 06 504-1	M surmounted with double-barred +	Shoulder
GC 84	HC 06 504-1	M +, + underneath	Handle
GC 85	HC 08 749	M surmounted with +	Shoulder
GC 86	HC 08 796	M surmounted with +	Shoulder
GC 87	HC 08 791	M surmounted with + \\\	Shoulder
GC 88	HC 07 400	MKA	Shoulder
GC 89	HC 08 179	MH surmounted with +	Handle
GC 90	HC 08 799	KMHI	Shoulder
GC 80	HC 07 578	NX or MX, ligature	Handle Base

There are eight different marks with ω, omega, the last letter in the Greek alphabet (Table 4.7). The sign Γω may be an abbreviation for George (Γιωργος). This mark occurs once on an amphora handle, applied after firing. The sign Ιω can be an abbreviation for John (Ιωαννης). It occurs five times in the current corpus, thrice on an amphora handle. Twice, the letter appears by itself on a shoulder sherd.

**Table 4.7. Examples of the Greek/Cyrillic letter ‘ω’**

Catalog #	Amphora #	Graffito	Placement
GC 35	HC 08 611	Γω	Handle
GC 37	HC 03 753	Ιω     ο	Handle
GC 40	HC 05 693	ω	Shoulder
GC 39	HC 05 327	Ιω	Handle
GC 36	HC 06 628	+ΑΣ \ Ιω	Handle
GC 38	HC 08 93	Ιω	Shoulder
GC 40	HC 08 2	ω	Shoulder
GC 42	HC 08 817	ΙωΙ	Shoulder

In addition to the Greek  $\omega$ , there is similar mark that looks like a Cyrillic  $\text{и}$  (Table 4.8). This mark can be understood as either the Greek or Cyrillic letter, and even has parallels in the runic writing systems. It occurs 15 times on 13 amphorae from the Novy Svet corpus, thrice on handles and twice on the bases of the handles. Seven times it occurs alone. The remaining examples are either linked with or associated with another mark. **GC 52** is seen on a handle base below the  $\text{/}\backslash$  rune, **TR 37**, as presented in fig. 1. On HC 08 783, a handle sherd, **GC 48** is immediately below a + sign, **SN 22**.

**Table 4.8. Examples of the Greek/Cyrillic letter ‘III’**

Catalog #	Amphora #	Graffito	Placement
GC 43	HC 03 457	III	Handle
GC 44	HC 08 298	III	Shoulder
GC 45	HC 08 76	III	Shoulder
GC 46	HC 08 812	III	Handle
GC 47	HC 08 818	III	Shoulder
GC 48	HC 08 783	III	Handle
GC 49	HC 08 337	III III	Shoulder
GC 50	HC 08 266	III III	Shoulder
GC 51	HC 04 376	III	Shoulder
GC 52	HC 07 214	III	Handle Base
GC 53	HC 05 72	III	Handle Base
GC 54	HC 04 197	III	Shoulder
GC 55	HC 07 617	III	Shoulder

Sometimes it is difficult to determine what letter a mark corresponds to, even if the mark is perfectly distinct, as is the case with  $\Theta$  and  $\Phi$  (Table 4.9). These two Greek letters are only distinguishable by orientation, something which is not necessarily easy to establish with such informal, haphazard marks. Unless there is another mark providing

context, these letters can only be categorized as  $\Theta$  or  $\Phi$ . This nebulous mark appears alone nine times, eight times on shoulders, and once on a handle base. The  $\Theta$  is seen three times with another symbol, once a ‘c’ and twice an ‘ε’. The  $\Phi$  sign is also seen three times with another symbol, once followed by a K, once following a T, and once inside a  $\Delta$ . There are also six examples of a quartered O, a mark that is usually read as a crossed  $\Theta$ .<sup>336</sup> Twice, the quartered O appears on a handle base, and twice on a handle.

**Table 4.9. Examples of the Greek/Cyrillic letters ‘ $\Phi$ ’ and ‘ $\Theta$ ’**

Catalog #	Amphora #	Graffito	Placement
GC 140	HC 03 519	$\Theta$ or $\Phi$	Shoulder
GC 141	HC 03 531	$\Theta$ or $\Phi$	Shoulder
GC 150	HC 03 818	$\Theta$ or $\Phi$	Shoulder
GC 151	HC 04 4	$\Theta$ or $\Phi$	Shoulder
GC 154	HC 06 318	$\Theta$ or $\Phi$	Handle Base
GC 152	HC 07 100	$\Theta$ or $\Phi$	Shoulder
GC 142	HC 08 746	$\Theta$ or $\Phi$	Shoulder
GC 143	HC 08 773	$\Theta$ or $\Phi$	Shoulder
GC 144	HC 08 82-1	$\Theta$ or $\Phi$	Shoulder
GC 145	HC 08 82-1	$\Theta$ or $\Phi$	Shoulder
GC 146	HC 06 519	$\Theta$ c	Handle
GC 147	HC 06 606	$\Theta$ ε	Shoulder
GC 148	HC 06 645	$\Theta$ ε	Handle
GC 112	HC 05 219	$\Phi$ K	Handle Base
GC 149	HC 07 516	T $\Phi$	Shoulder
GC 153	HC 07 439	$\Phi$ inside $\Delta$	Shoulder
GC 155	HC 03 580	Quartered O	Shoulder
GC 156	HC 04 603	Quartered O	Handle Base
GC 157	HC 05 241	Quartered O	Shoulder
GC 158	HC 08 711	Quartered O	Handle
GC 159	HC 06 544	Quartered O	Handle Base
GC 160	HC 08 826	Quartered O	Handle

There is one graffito with a tantalizing string of Greek letters that may be several words or a phrase. **GC 123** is found inscribed down the length of amphora handle HC 06

<sup>336</sup> Johnston 1979, 22, 97-8; Lang 1976, 3.

560. (Fig. 4.8) The first two letters are damaged and are difficult to discern. What remains of the first is the upper portion of what may be Λ, an N, or a Δ. Two short strokes make up the second, which could be the top of any number of letters, including H, v, υ, or even the Cyrillic н or и. The next two letters are probably μν or μω, and they are joined together. After a space, the remaining letters are τ ρ Η σ ο κ λ ο Η. The eta (η) is in the uppercase form and the final letter is cut off, as is the rest of the phrase.



Fig. 4.8 GC 123, string of letters along amphora handle HC 06 560.

### **Names in the Novy Svet Graffiti**

One of the most intriguing analytical aspects of amphora graffiti is the identification and interpretation of personal names. Names are relatively easy to identify for several reasons: 1) personal names relevant to the Byzantine period and culture are preserved in the textual evidence; 2) these names often occur in the archaeological record across a variety of media including inscriptions, stamps, monograms, and graffiti; and 3)

scholars are quick to identify and publish documented cases of personal names in graffiti on order to add to an ever-growing wealth of parallel examples. For the moment, these names are restricted to the Greek/Cyrillic letters and the Arabic letters, although it is possible that the runes represent names, or abbreviations thereof. Names can be represented by single letters, multiple letters, monograms, and ligatures (Table 4.10).

**Table 4.10. Greek/Cyrillic letters and their combinations**

#	Letter/s	Interpretation
1	A	Alexander
2	AΛX	Alexander, Alexios
3	AN	Andreas
4	B	Вино
5	BA	Βασίλης
6	BP	
7	Γω	Γιωργος, Γεωργος
8	Δ	
9	Iω	Ιωαννης
10	Θ, Θε	Theodoros, Theodora, Theophilos, Theos (God), Theotokos (Mother of God)
11	K	Constantine
12	ΚΛ	
13	ΚΜΗΙ	
14	ΛΚ	Luke
15	ΛΥ	Luke, runes
16	M	Michael, Minas, Miroslav, Manuel
17	M +	

**Table 4.10. Continued**

18	ΜΗ	Minas, Miroslav
19	ΜΚΛ	Michael
20	Ν	Nikos, Nikophoros
21	Π	
22	Ρ	
23	+ΑΣ	
24	ΤΦ	
25	Φ	Φακες
26	Χ, ΙΧ, Ж	Ιχθος
27	ΧΡ	Χριστος
28	Ш	
29	/\ Π Χ	
30	ω	
31	[??]μω τρησοκλο -	.....3.....

There are several possible names present in the Greek/Cyrillic letters, many of which have parallels in amphora graffiti, stamps, and dipinti from other excavations. Table 10 shows the graffiti from Novy Svet that can be identified as Greek/Cyrillic, and 17 of the letter combinations can be read as names. The letters ΑΛΧ (**GC 16-19**) and ΜΚΛ (**GC 88**) have no direct parallels in any previously published studies, but they are strongly suggestive of the names Alexander/Alexios and Michael, respectively. The problem with the identification of ΑΛΧ as Alexander/Alexios is that the Greek name is spelled with a ξ and not a χ, but this may be an alternate method of spelling, or a convention of the graffiti. Similarly, ΜΚΛ has a κ where the Greek and Cyrillic spellings of the name use the χ.

Many of the other names have been identified by examining parallels among graffiti and stamps. The single A, which is seen in graffiti from Chersonesos<sup>337</sup> and on stamps from Constantinople and Ganos, has been taken to mean Alexios.<sup>338</sup> One name that was easy to identify was the Iω sign for Ioannis or John (**GC 37-39, 42**). This sign has parallels in graffiti, *dipinti* and stamps on other examples of 11<sup>th</sup>-13<sup>th</sup> century amphorae.<sup>339</sup> These examples show the many different ways to write the name, with both curved and angular letters, and occasionally with horizontal strokes over the ω or ι. If the symbol is curved, ω, the identification becomes easier, but when the mark is entirely straight lines and angles, differentiating between a Cyrillic ι, a Greek ω, and a rune becomes very difficult.<sup>340</sup> Another name (or title) is Βασιλης, and this is seen in both *dipinti* and stamps.<sup>341</sup> This abbreviated name can be written both with a BA or an AB, as seen on **GC 10**. The final name worth noting is the XP, **GC 76** and **GC 77**, which is known as the Chi-Rho sign, and is an old Christian symbol for Χριστος, or Christ. Such a name may not indicate an owner but may, like several of the crosses and some of the phrases, serve as a talisman to protect or bless the wine, and perhaps the entire cargo.

Sometimes, there are conflicting or competing parallels, making interpretation even more difficult. I have already discussed the various types into which the sign M can be sorted, but even as a Greek or Cyrillic letter, it could have many meanings. In other assemblages, the letter M has been interpreted to mean Michael, Minas, Manuel, or

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<sup>337</sup> Romanchuck et al. 1995, 165.55.1-2, 168.58.1-7.

<sup>338</sup> Parshina 2001, 112.8.

<sup>339</sup> Bulgakov 2001, 154-5; Parshina 2001, 105.1.

<sup>340</sup> Bulgakov 2001, 165.

<sup>341</sup> Bulgakov 2001, 154-5, Parshina 2001, 112.2-4.

Miroslav.<sup>342</sup> The only time these interpretations become clearer is when another letter is associated with the M. The letters MIR or MP (mu-rho), found on the 11<sup>th</sup> century Serçe Limanı shipwreck and at a 12<sup>th</sup> century underwater site near Mjlet in the Adriatic, can convincingly be argued to refer to the name Miroslav.<sup>343</sup> Similarly the MH stamp can be associated with the name Minas.<sup>344</sup> In the Novy Svet assemblage, there are also two identical Ms surmounted with crosses, **GC 85** and **86**, applied after firing, which probably indicate a single owner.

There are several theories to explain presence of names amid the graffiti, usually focused on identifying an individual who either made or owned the vessel. It is safe to say that the names applied before firing, including the stamps, were likely applied by potters, but the names don't necessarily correspond to potters or workshops. Volkov's analysis of amphora stamps based on the current ruler may indicate that some of the stamps served an administrative function, perhaps certifying the amphora for use. They also could indicate owners, as van Doorninck's analysis of the erasure of old names and the application of new ones seems to suggest.<sup>345</sup>

### **Words or Phrases in the Novy Svet Graffiti**

Along with names, there are a few letters or letter combinations that may be single words or phrases (Table 4.10). Amphora graffiti with words are not unknown in the medieval Mediterranean. Among the graffiti found at Novy Svet, there are words or

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<sup>342</sup> Romanchuck et al. 1995, 165.55.3-5; Volkov 2001, 212.5.13; van Doorninck 1989, 253-6, Parshina 2001, 112.1, Bulgakov 2001, 154-5.

<sup>343</sup> Brusic 1976 43, 46.XI; van Doorninck 1989, 256.

<sup>344</sup> Volkov 2001, 212.5.13; Bulgakov 2001, 154-5.

<sup>345</sup> van Doorninck 1989, 256.

phrases could refer to the contents of the amphorae or be invocations of a deity. These identifications, however, are highly speculative, and parallels for meaning as well as letterform are difficult to identify.

One of the most common letters in the Novy Svet assemblage is Β. The symbol is seen throughout amphorae found in and around the Black Sea.<sup>346</sup> It can be formed in several ways, rounded or angular, prograde, or retrograde. Diozhenko notes its presence on medieval inscriptions all over Chersonesos. He postulates that it may be short for вино, *vino*, wine.<sup>347</sup> The symbol ΦΚ may also refer to contents, as a shortened form of φακος, *fakos*, lentil. Van Doorninck documented an example of the graffito φακεα, *fakea*, lentils, on an amphora from Yassı Ada.<sup>348</sup> Finally, the most speculative association is that of X or Ж with ιχθος, *ichthos*, fish.<sup>349</sup> Without corroborating evidence, however, it is difficult to confirm these interpretations that speak to the contents of amphorae.

There are two examples that might be religious. The letters Θε, although they could stand for a variety of names, including Theodoros and Theophilos,<sup>350</sup> could also be an invocation of Θεος, God, or the Θεοτοκος, the Mother of God. Van Doorninck interprets several graffiti with Θε as phrases invoking the name of God.<sup>351</sup> Similar examples have been studied at Kerch, Chersonesos, Varna, and Preslav.<sup>352</sup> Finally, there is an amphora handle, HC 06 650, with the letters [??] μω τρησοκλο-. (Fig.4.8) No

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<sup>346</sup> Romanchuck et al. 1995, 162.52.4, 163,54.1-3, 166.56.6-8; Duzhenko 2001, 94.1; Garver 1993, fig. 32, Barnea 1954, fig. 2; Stanchev 1960, fig. 15-16.; Dovzhenok 1966, pl. XIII:8.

<sup>347</sup> Duzhenko 2001, 94-5.

<sup>348</sup> van Doorninck 1989, fig. 2.5.

<sup>349</sup> Duzhenko 2001, 98.

<sup>350</sup> Parshina 2001, 114.34-4.

<sup>351</sup> van Doorninck 1989, 252.

<sup>352</sup> Parshina 2001, 114.34-4; Zankin 2001, 48.2.1.

definite interpretation exists as of yet, but it is interesting to note that the Greek word for 3, τρις, may be contained within the graffiti.<sup>353</sup>

It is important to note that any attempt to link the writing represented in graffiti with the ethnicity or identity of the inscriber constructs a direct correlation between a language and an ethnicity. Accepting this correlation at face value can be problematic. One merely has to take into account the graffiti recorded on the walls of the Monastery of Saint Anthony on the coast of the Gulf of Suez. The graffiti there include Arabic, Syriac, Coptic, Armenian, and Ethiopic inscriptions, most of which are Christian in nature, and some of which are signed with names in writing systems that include Greek, Arabic, and Armenian.<sup>354</sup> Therefore, assuming that only a Greek could have written in Greek, an Arab or a Muslim in Arabic, and a Slav in Cyrillic, is naïve and detrimental to useful analysis.

### **Turkic/Oghuric Runes**

One hundred and five of the 480 categorized potmarks have been identified as symbols from the various runic alphabets that were in use around the Black Sea, particularly in Bulgaria and Crimea, in the medieval period. There are some common shapes, including the ‘trident’ shape  $\text{\\|}$  and the ‘bow-tie’ or ‘double-axe’ shape  $\text{|><|}$ , and several unique examples.

The most common rune is the trident-shaped mark that faces either up  $\text{\\|}$  or down  $\text{/|}$ . Overall, 46 examples of the trident rune have been identified within the Novy Svet

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<sup>353</sup> Searches of the Perseus Digital Library, the Thesaurus Linguae Graecae, and various lexica have yielded no usable results.

<sup>354</sup> Griffith 2002, 185-194.

corpus, making it the most common symbol in the entire assemblage (Table 4.11). 18 of these occur at the base of an amphora handle, and six occur atop the handles. The other 22 are on body sherds. The rune occurs alone 26 times. The other 20 examples occur either with extra strokes or another symbol. While this mark has been categorized as a rune, there are instances where it may actually represent a Greek/Cyrillic letter. There are three examples where the  $\backslash/$  rune may actually be an E, an epsilon. For example, **TR 42** shows a  $\backslash/$  mark that opens to the right and could be a form of epsilon. If this is the case, then **TR 40**, the upward facing trident  $\backslash/$  over a bisected semicircle on the base of the handle of HC 06 583, and **TR 39**, the upward facing trident  $\backslash/$  over a quartered semicircle on the base of the handle of HC 04 604, could, in fact, be examples of  $\Theta E$ . Nevertheless, because this typology is based on the shape of the marks, the  $\backslash/$  marks are grouped together.

**Table 4.11. Examples of the rune ' $\backslash/$ '**

Catalog #	Amphora #	Graffito	Placement
TR 1	HC 03 531	$\backslash/$	Shoulder
TR 2	HC 05 282	$\backslash/$	Handle Base
TR 3	HC 06 292	$\backslash/$	Shoulder
TR 4	HC 06 597	$\backslash/$	Handle Base
TR 5	HC 06 598	$\backslash/$	Shoulder
TR 6	HC 07 235	$\backslash/$	Handle Base
TR 7	HC 07 235	$\backslash/$	Handle Base
TR 8	HC 07 251	$\backslash/$	Handle Base
TR 9	HC 07 617	$\backslash/$	Shoulder
TR 10	HC 08 338	$\backslash/$	Shoulder
TR 11	HC 08 264	$\backslash/$	Shoulder
TR 12	HC 08 309	$\backslash/$	Shoulder
TR 13	HC 08 57	$\backslash/$	Handle Base
TR 14	HC 08 690	$\backslash/$	Shoulder

**Table 4.11. Continued**

TR 15	HC 08 533	/\	Shoulder under Handle
TR 16	HC 08 733	/\	Shoulder
TR 17	HC 08 74	/\	Shoulder
TR 18	HC 08 800	/\	Handle Base
TR 19	HC 08 689	/\	Shoulder
TR 20	HC 03 299-2	\/\	Handle
TR 21	HC 05 645	\/\	Handle Base
TR 22	HC 06 512	\/\	Handle
TR 23	HC 07 615	\/\	Handle Base
TR 24	HC 08 738	\/\	Handle
TR 25	HC 06 352	\/\	Handle
TR 26	HC 05 330	/\, connected	Handle Base
TR 27	HC 07 110	/\, connected	Shoulder
TR 28	HC 08 76	/\, connected	Shoulder
TR 29	HC 07 605	\/\, connected	Handle
TR 30	HC 07 506	\/\, connected	Shoulder
TR 31	HC 06 35	/\ +	Shoulder
TR 32	HC 05 277	/\	Handle
GC 78	HC 08 355	/\ II X	Shoulder
SN	HC 06 402	/\, 1 column grid	Shoulder
TR 33	HC 04 548	/\, surmounted with 6 parallel horizontal lines	Handle Base
TR 34	HC 07 297	/\, surmounted with 3 parallel horizontal lines	Handle Base
TR 35	HC 07 297	/\, surmounted with 3 parallel horizontal lines	Handle Base
TR 36	HC 03 247	\/\	Handle Base
TR 37	HC 07 214	\/\ over III	Handle Base
TR 38	HC 08 787	\/\ over +	Handle Base
TR 39	HC 04 604	\/\ over quartered semi-circle	Handle Base
TR 40	HC 06 583	\/\ over bisected semi-circle	Handle Base
TR 41	HC 06 402	/\ , 6 horizontal lines overlapping	Shoulder
TR 42	HC 08 819	/\, facing right	Shoulder
TR 43	HC 03 412	\/\ inside O	Handle Base
TR 44	HC 05 383	/\ \	Shoulder

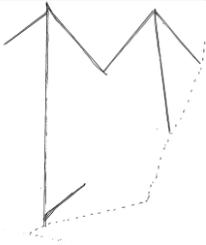
Another common rune is the  $|\gt;<|$ , which looks approximately like a bow-tie or a double axe. This rune occurs 22 times, five times on handle bases and twice on the handle itself (Table 4.12). There are several variations of this symbol. There is the basic  $|\gt;<|$ , which occurs nine times. There is the bisected rune,  $|\gt;<|$ , which occurs twice, both on handles. There is also the truncated rune  $|X$  that occurs only once. Finally there is a mark where the parallel sides of the triangles extend below the rune to look like an M,  $|^X|$ . These variations may represent different phonetic sounds or numerical designations, or they may simply be different methods of writing the same symbol.

**Table 4.12. Examples of the rune ‘ $|\gt;<|$ ’**

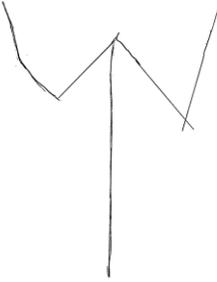
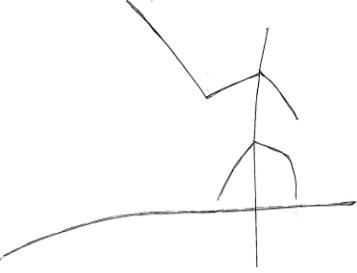
Catalog #	Amphora #	Graffito	Placement
TR 45	HC 03 319	$ \gt;< $	Handle Base
TR 46	HC 03 515	$ \gt;< $	Shoulder
TR 47	HC 05 337	$ \gt;< $	Shoulder
TR 48	HC 06 544	$ \gt;< $	Shoulder
TR 49	HC 06 580	$ \gt;< $	Handle Base
TR 50	HC 08 787	$ \gt;< $	Handle Base
TR 51	HC 08 821	$ \gt;< $	Shoulder
TR 52	HC 08 688	$ \gt;< $	Shoulder
TR 53	HC 08 532	$ \gt;< $	Shoulder
TR 54	HC 05 357	$ \gt;< $	Handle
TR 55	HC 08 770	$ \gt;< $	Handle
TR 56	HC 07 561	$ \gt;< $	Handle Base
TR 57	HC 03 544	$ ^X $	Shoulder
TR 58	HC 06 507	$ ^X $	Handle Base
TR 59	HC 07 604	$ ^X $	Shoulder
TR 60	HC 08 679	$ ^X $	Shoulder
TR 61	HC 08 792	$ ^X $	Shoulder
TR 62	HC 08 82-1	$ ^X $	Shoulder
TR 63	HC 08 829	$ ^X $ T	Shoulder
TR 64	HC 07 589	$  ^X  $	Shoulder
TR 65	HC 06 501	$ \gt;<$	Handle
TR 66	HC 06 594	$ ^X$	Shoulder

Finally, there are a series of distinctive runes, made up of zig-zags or arrows, often resembling Ws or Zs. Given the difficulty of describing or transcribing these signs, I have elected to simply present the pictures (Table 4.13).

**Table 4.13. Examples of the runes ‘W’ or ‘Z’**

Catalog #	Amphora #	Graffito	Placement
TR 73	HC 04 375		Shoulder
TR 74	HC 05 70		Handle Base
TR 75	HC 06 33		Handle
TR 76	HC 07 308		Handle

**Table 4.13. Continued**

TR 77	HC 08 677		Shoulder
TR 78	HC 08 678		Shoulder

These 105 examples from the graffiti have been identified as runes based on their similarity to symbols in various runic alphabets, primarily within the family of Turkic runes.<sup>355</sup> Although these runes do correspond to specific sounds, questions about which language they represent prevents translation on the same level as the Greek/Cyrillic signs. The history of the Turkic runic script is a very complex subject. While I am not an expert in understanding Turkic runes, much of my knowledge has come from the work of Elizabeth Garver and Ludmila Doncheva-Petkova. Here I've sketched out some of the basic information about the Turkic runes in order to address the question of who may have been using this script in the 13<sup>th</sup> century and why it was found on these amphorae.

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<sup>355</sup> It should be noted that there is no correlation between the Turkic runes and various Germanic runic scripts, such as Futhark. Their perceived similarities are the result of a common inscription technique, not a shared writing system.

Turkic languages are part of the Altaic language group.<sup>356</sup> Although the Altaic languages date as far back as the 5<sup>th</sup> millennium B.C.E., the earliest forms of Turkic writing are attributed to the Göktürks, a nomadic people in Central Asia that formed the first Turkic Khaganate in the eighth century C.E.<sup>357</sup> The earliest confirmed<sup>358</sup> examples of this writing system are runic inscriptions found on eighth century stone stelai in Mongolia, especially along the Orkhon River, and in Siberia, especially along the Yenisei river.<sup>359</sup> These Orkhon-Yenisei runes, as they are known, are found throughout Central Asia and date from the eighth to the tenth centuries.<sup>360</sup> They represent what is known as the Common Turkic branch of Turkic, which was in use in Central Asia, the Pontic-Caucasus, and Anatolia.<sup>361</sup> Languages from this branch of Turkish, specifically Kipchak, would have been in use from the 10<sup>th</sup> to the 13<sup>th</sup> century in the northern Black Sea area and the Caucasian steppes by several groups, including the Pechenegs and possibly even the Golden Horde.<sup>362</sup> The alphabets are presented and analyzed in several sources, most notably in I. L. Kyzlasov's *Runic Scripts from the Eurasian Steppes*,<sup>363</sup>

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<sup>356</sup> Golden 1998, 16.

<sup>357</sup> Golden 1998, 19-21; Johanson 1998, 81; Amajolov 2003, 305-8.

<sup>358</sup> Some scholars have suggested that the earliest example of the runic script, however, is an inscription on a silver drinking vessel that was found in the Issyk kurgan, a 5<sup>th</sup> century B.C. burial in Khazakstan, which has been translated as a form of Proto-Turkish. Amanjolov 2003, 217-222.

<sup>359</sup> An excellent resource for these inscriptions is the website *Türkik Bitig*, which includes descriptions and pictures of almost every example of the Old Turkic runes.

<http://irq.kaznpu.kz/?lang=e>

<sup>360</sup> Johanson 1998, 85; Rona-Vas 1998, 127.

<sup>361</sup> Rona-Vas 1998, 127; Dogan 2002, 18-20.

<sup>362</sup> Johanson 1998, 82-84.

<sup>363</sup> Kyzlasov 1994, tb. 23.

A.S. Amanjolov's *History of Ancient Turkish Script*,<sup>364</sup> I. Dogan's *Göktürk Runic Inscriptions from Eastern Europe*,<sup>365</sup> and T. Tekin's *A Grammar of Orkon Turkish*.<sup>366</sup>

One branch of the Turkic language group, Oghur Turkic, also known as Lir-Turkic, is associated with western Turkic scripts. Oghur was a western form of Turkic that split early on from the Common Turkic branch, and which does not survive today except among the Chuvash, an ethnic minority population who live on the Middle Volga River, around Cheboksary, Russia.<sup>367</sup> During the medieval period, the major Oghuric speakers were the Bulgars. Beginning in the eighth century, they formed polities near the Black Sea, including settlements around the Don, the Kuban, along the lower Volga, around the mouth of the Danube, and in the Balkans, which has become modern Bulgaria.<sup>368</sup> Archaeological excavations have uncovered runic inscriptions at sites in these areas. The Oghur runic script is also known as the Proto-Bulgar script, and looks very similar to the Old Turkic scripts. Several variations of this script are found along the Don River, the Kuban River, and the Danube River, areas where the Bulgars settled.<sup>369</sup> The Old Hungarian runic script, also known as Rovas or Székel-Magyar Rovás, is also a Turkic runic script.<sup>370</sup>

The Khazars, who controlled Crimea before the Mongols, were also speakers of a form of Oghuric Turkic.<sup>371</sup> To date, there is only one example of Khazar writing in the

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<sup>364</sup> Amanjolov 2003, tb. 2a,b, 58-59.

<sup>365</sup> Dogan 2002, 19.

<sup>366</sup> Tekin 1968.

<sup>367</sup> Johanson 1998, 81; Clark 1998, 434; Greller 2000, 87-88.

<sup>368</sup> Golden 1998, 22-23; Baichorov 1989, 37; Kyzlasov 1994.

<sup>369</sup> Baichorov 1989, 90-91.

<sup>370</sup> Rona-Tas 1987, 7-14; Dogan 2002, 15-16.

<sup>371</sup> Golden 1998, 22; Johanson 1998, 81; Greller 2000, 88.

Turkic runes, which can be seen at the end of a document known as the Kievian letter.<sup>372</sup> This document, dated to ca. 930, indicates the presence of Jewish Khazars in Kiev and is mostly in Hebrew, except for a notation at the end, which is in the runic script. The runes, which can be viewed online at the Cambridge University Library, translate to ‘I have read (it)’, indicating that the letter was authorized by a Khazarian administrator.<sup>373</sup>

By the 13<sup>th</sup> century, the Turkic/Oghuric runic scripts were not as dominant as they had been centuries earlier. The scripts that were in use were those associated with the various religions gaining converts around the Black Sea at this time, particularly the Greek-derived Cyrillic alphabet that accompanied the spread of Orthodox Christianity and the Arabic alphabet that accompanied the spread of Islam. In the 13<sup>th</sup> century, the Volga Bulgars were still using Oghuric runes, as evidenced by tomb inscriptions in the area, but for other purposes, religious and secular, they were using the Arabic script.<sup>374</sup> The runes also survive in 13<sup>th</sup> century Balkan Bulgaria and around the mouth of the Danube, especially in Pliska.<sup>375</sup> Inscribed into stone stelai or metal and ceramic objects, the runes and rune-like symbols, are found alongside other symbols, including geometric signs, crosses, Cyrillic letters, Greek letters, and numbers.<sup>376</sup> This writing system was not used for scripture or administrative records, but may have been preserved for symbolic familial use.

The study of the published examples of these inscriptions does reveal several parallels to the runes seen in the Novy Svet graffiti (Table 4.14). Doncheva-Petkova

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<sup>372</sup> Dogan 2002, 21.

<sup>373</sup> [http://www.lib.cam.ac.uk/cgi-bin/GOLD/thumbs?class\\_mark=T-S\\_12.122](http://www.lib.cam.ac.uk/cgi-bin/GOLD/thumbs?class_mark=T-S_12.122)

<sup>374</sup> Johanson 1998, 85; Greller 2000, 88.

<sup>375</sup> Baicherova 1989, 37.

<sup>376</sup> Doncheva-Petkova 1980, 28-29.

identifies a group of symbols commonly seen in inscriptions from Bulgaria that correspond to the Turkic runes.<sup>377</sup> Some of these have direct parallels in the Novy Svet graffiti, including the /| and \|\ signs, the |X| signs, the crossed 7s, the Z signs, and signs shaped like arrows. There are also examples of some signs that have been classified as Greek/Cyrillic letters or geometric signs, including variations of M, A, X, and +.

**Table 4.14. Parallels for the Novy Svet runes**

Novy Svet Sign	Sound	Doncheva-Petkova	Baichorov	Kyzlasov	Amanjolov
\	Chi or ich	✓		✓	✓
/		✓			
X	Rt, bas	✓		✓	✓
X		✓			
<sup>x</sup>					
<sup>x</sup>	Sh			✓	✓
Crossed 7s	Г	✓			✓
X	D	✓		✓	✓
↴	A	✓	✓	✓	✓
↑ ↓	Qu	✓			✓
Y	L, ca, ch	✓		✓	
λ		✓			
	S	✓	✓		✓
M	-lt, III	✓	✓	✓	
<sup>v</sup>		✓			✓
Diamond/Loop	B	✓	✓	✓	✓
Zig-Zag	N, nch	✓	✓		✓
<, >	u/o				✓
⊗	D	✓			✓
Half-grain	G, k			✓	✓
O over III	III			✓	
W over	R			✓	✓
Single Column Grids	Z, Ж, Dz, DЖ	✓		✓	✓

<sup>377</sup> Doncheva Petkova 1980, 29-31.

Along with the parallels found in inscriptions, there are also plenty of parallels with amphora graffiti on amphorae found at terrestrial sites around the Black Sea and on Byzantine shipwrecks. On the amphorae from the 11<sup>th</sup> century Serçe Limanı shipwreck there are marks that could be Turkic/Oghuric runes, including an excellent parallel for the /ʌ/ rune and the Z rune.<sup>378</sup> Van Doorninck has hypothesized in his discussion of the Serçe Limanı amphorae, that these runes are the family marks of Bulgarian potters working along the coast of the Sea of Marmara.<sup>379</sup> This hypothesis is interesting because the amphorae on the Serçe Limanı shipwreck are mostly Günsenin I amphorae, the type from which the Günsenin IVs are supposedly descended. In addition to those seen at Serçe Limanı, /ʌ/ signs have parallels all around the Black Sea basin, including Chersonesos, Sarkel, Kiev, Aegyssus-Tulcea, Dinogetia, Pliska, Sinope, and the mouth of the Don.<sup>380</sup> In his analysis of amphorae from Chersonesos, Romanchuck documents several examples of runes inscribed onto the shoulders and handles of Günsenin IV jars.<sup>381</sup>

The presence of the runes on the Novy Svet amphorae raises several interesting questions about participants in maritime trade in the Black Sea during the Byzantine period. Van Doorninck attributes the runes on the Serçe Limanı amphorae to Hellenized Bulgar potters and workshops that were producing the Günsenin I and possibly the Günsenin IV amphorae along the northern coast of the Sea of Marmara. Zankin attributes the runes on the amphorae from Kerch to the local Khazar populations who

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<sup>378</sup> van Doorninck 1989, 253, fig. 3.16.

<sup>379</sup> van Doorninck 1998, 74-5.

<sup>380</sup> Garver 1995, 68-74; Artamonov 1935, fig. 36; Günsenin 1990, pl.LVII; Stanchev 1960, fig.16.26; Sherbak 1959, pl. VIII, Barnea 1967, fig. 155.4, 156.13, 160.1; Karger 1958, fig. 107.

<sup>381</sup> Romanchuck et al. 1995, 150.40.157-8, 151.41.159, 164.54.4,7-8.

were reusing Byzantine-made amphorae for local trade.<sup>382</sup> What can be taken away from this is that a) there may have been several different potmarking systems that utilized a runic script, b) individuals who used runes and rune-like signs probably were involved in every step in the transport of amphorae, and other goods and products, in the Black Sea, from potters, to merchants, to owners, to sailors, and finally to consumers, and c) the multi-lingual nature of the graffiti seen at Chersonesos and in Bulgaria probably reflects the multi-ethnic nature of maritime trade in the Black Sea. There does seem to be a correlation between the existence of multiple examples of graffiti on the later amphorae and sites along the northern Black Sea meaning that Zankin's idea of a local network in Mongol territory that reused and remarked amphorae may be worthy of further investigation.

### **Geometric/Pictorial Signs**

There are 106 symbols that are best identified as either geometric or pictorial signs. The interpretation of these geometric or pictorial is often highly speculative. Among the pictorial/geometric marks, there are four often-repeated symbols; crosses, grids, stars, and grain sheaves. The 'meaning' of these symbols can be difficult to access, even if parallels do exist.

The most common sign is the cross. There are 39 instances of the cross in the Novy Svet corpus. 26 of these marks, two-thirds, occur alone (Table 4.15). Ten were incised on handle bases, and 13 on handles. In one instance, **SN 27**, the + is seen with embellishments at each of its equidistant arms (Fig. 4.9). There are two crosses on HC

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<sup>382</sup> Zankin 2001, 50-1.

07 235, SN 11 and SN 12, each atop one of the handles. These crosses may have a magic or religious function; invoking the name of Christ as a blessing on the contents of the amphorae.



Fig. 4.9 SN 27, Cross with embellishments on HC 03 299-2

**Table 4.15. Examples of the + sign**

Catalog #	Amphora #	Graffito	Placement
SN 1	HC 03 680	+	Handle
SN 2	HC 03 712	+	Handle Base
SN 3	HC 03 719	+	Handle
SN 4	HC 04 2	+	Handle
SN 5	HC 05 280	+	Handle Base
SN 6	HC 05 304	+	Handle Base
SN 7	HC 06 504-1	+	Handle Base
SN 8	HC 07 122	+	Shoulder
SN 9	HC 07 18	+	Handle
SN 10	HC 07 220	+	Shoulder

**Table 4.15. Continued**

SN 11	HC 07 235	+	Handle
SN 12	HC 07 235	+	Handle
SN 13	HC 07 344	+	Handle
SN 14	HC 07 602-1	+	Handle Base
SN 15	HC 08 121	+	Handle Base
SN 16	HC 08 179	+	Handle
SN 17	HC 08 273	+	Shoulder
SN 18	HC 08 434	+	Shoulder
SN 19	HC 08 676	+	Handle Base
SN 20	HC 08 769	+	Shoulder
SN 21	HC 08 777	+	Handle Base
SN 22	HC 08 783	+	Handle
SN 23	HC 08 815	+	Handle
SN 24	HC 08 82-1	+	Handle Base
SN 25	HC 08 824	+	Handle
SN 26	HC 08 829	+	Handle Base
SN 27	HC 03 299-2	+ with extra lines at the end of each arm	Handle Base
SN 28	HC 08 216	Loop +	Shoulder
SN 29	HC 07 418	O +	Shoulder
SN 30	HC 08 737	O +	Shoulder
TR 31	HC 06 35	// +	Shoulder
GC 83	HC 06 504-1	M surmounted with double-barred +	Shoulder
GC 84	HC 06 504-1	M +, + underneath	Handle
GC 85	HC 08 749	M surmounted with +	Shoulder
GC 86	HC 08 796	M surmounted with +	Shoulder
GC 87	HC 08 791	M surmounted with + \\\	Shoulder
GC 89	HC 08 179	MH surmounted with +	Handle
GC 36	HC 06 628	+AΣ \ Iω	Handle

There are several different signs that have been categorized as crosses in the Novy Svet corpus. It is almost impossible to distinguish between crosses and letters that look like crosses such as ‘t’ and ‘x’. Crosses are prominent in many of the runic alphabets, often

associated with sounds ‘d’ or ‘y/i’. Nevertheless, it is likely that there are several instances of the + functioning as the symbol of the Christian cross. Crosses are often seen in combination with other signs, sometimes next to them like in **TR 31**, but more often surmounted on top of them. This occurs several times with M signs, as seen **GC 83-87, 89**.

There are parallels for Christian crosses at terrestrial sites including Sarkel (Russia) and Chersonesos (Ukraine),<sup>383</sup> and underwater sites at Varna (Bulgaria) and Serçe Limanı (Turkey).<sup>384</sup> The most distinctive cross in the Novy Svet corpus is a cross with equidistant arms, each ending in a 3-pronged flange, applied to the handle base, **SN 27** (Fig. 4.9). Crosses with equidistant arms and flanges have been found as graffiti on amphorae from Dinogetia (Romania) and Preslav (Bulgaria) and as stamps on amphorae from Chersonesos (Ukraine), Saraçhane and Bodrum (Turkey).<sup>385</sup> This symbol is an invocation of Christ, similar to the Chi-Rho, that was intended to protect and bless the contents of the amphorae and, by extension, the ship.

After the cross, the most common symbol is the grid, a series of intersecting vertical and horizontal lines. There are 27 examples of this sign in the Novy Svet corpus, including 12 inscribed on shoulders, ten on handle bases, and five on handles (Table 4.16)

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<sup>383</sup> Romanchuck et al. 1995, 165.55.7; Duzhenko 2001, 98.8; Scherbak 1959, pls. III, VIII, IX.

<sup>384</sup> Minchev 2011, 148-50; van Doorninck 1989, 251.

<sup>385</sup> Hayes 1992, fig. 27.17; Yakobson 1951, fig. 7.7; Garver 1993, fig. 56; Barnea 1985 fig. 1.1; Barnea 1967, fig. 161.1; Changova 1959, fig. 8.11.

**Table 4.16. Examples of grids**

Catalog #	Amphora #	Graffito	Placement
SN 47	HC 03 293	Grid	Handle
SN 48	HC 03 505	Grid	Handle
SN 49	HC 04 175	Grid	Handle Base
SN 50	HC 05 72	Grid	Handle Base
SN 51	HC 06 217	Grid	Shoulder
SN 52	HC 06 392	Grid	Shoulder
SN 53	HC 06 548	Grid	Shoulder
SN 54	HC 06 9	Grid	Shoulder
SN 55	HC 07 13	Grid, 1 column	Handle
SN 56	HC 07 13	Grid, 1 column	Handle
SN 57	HC 07 127	Grid	Shoulder
SN 58	HC 07 214	Grid	Handle Base
SN 59	HC 07 214	Grid, 1 column	Shoulder
SN 60	HC 07 265	Grid	Handle Base
SN 61	HC 07 563	Grid, 1 column	Shoulder
SN 62	HC 07 59	Grid	Shoulder
SN 63	HC 07 622	Grid	Handle Base
SN 64	HC 08 174	Grid	Handle Base
SN 65	HC 08 351	Grid	Handle Base
SN 66	HC 08 353	Grid	Shoulder
SN 67	HC 08 519	Grid	Shoulder
SN 68	HC 08 524	Grid	Handle Base
SN 69	HC 08 535	Grid	Handle Base
SN 70	HC 08 608	Grid	Shoulder
SN 71	HC 08 710	Grid	Handle Base
SN 72	HC 08 739	Grid	Handle Base
SN 73	HC 08 759	Grid	Shoulder

The grid is one of the most difficult symbols to decipher. Many grids are comprised of very thin strokes, making it difficult to determine if they were applied before or after firing. Because of the irregular and non-systematic composition of the majority of the grids, it is difficult to uncover direct parallels on other amphorae. There are five examples in Garver's catalogue. Four of them come from excavations at

Dinogetia, a Greco-Dacian settlement in Romania on the Danube.<sup>386</sup> One more example is seen on an amphora from Tulcea (medieval Aegyssus) in Romania. There are several examples of amphorae stamps with gridded patterns in the archaeological record, found at Saraçhane, Samsun, Sinope, Athens, and from Azov.<sup>387</sup> Volkov associates the stamps with the administration of amphora production at Trapezon.<sup>388</sup> The grids at Novy Svet may be an example of graffiti taking the place of stamps.

The most readily recognizable geometric sign seen in the Novy Svet corpus is the star. Seventeen stars have been identified among the graffiti, including four on handle bases and three on the amphora handles themselves. There are two basic shapes of the star, the pentagram, or five-pointed star, which occurs eight times, and the multi-rayed linear star, like an asterisk, which also occurs eight times. In the final example, the star is actually part of a picture. Graffito **SN 45** shows a double lined hexagram, or six-pointed star, surrounding the outline of some type of bird, perhaps a waterfowl (Fig. 4.10).

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<sup>386</sup> Barnea 1967, figs. 160.15, 161.2,9; Barnea 1954, fig. 5.12; Vasiliu 1984, pl.XIV.4.

<sup>387</sup> Hayes 1992, fig. 27:11; Günsenin 1990, pls. LVI, LXII, LXXXVIII; Volkov 1989, fig. 14.1-3.

<sup>388</sup> Volkov 2001, 221.4.1-2.



Fig. 4.10 SN 45, a hexagram with a bird graffito on HC 04 432.

**Table 4.17. Examples of stars**

Catalog #	Amphora #	Graffito	Placement
SN 31	HC 98 18	Six rayed star	Handle Base
SN 32	HC 04 556	Six rayed star	Handle Base
SN 33	HC 05 149	Seven rayed star	Handle
SN 34	HC 06 150	Seven rayed star	Shoulder
SN 35	HC 08 827	Six rayed star	Shoulder
SN 36	HC 08 810	Six rayed star	Shoulder
SN 37	HC 08 811	Six rayed star	Handle Base
SN 38	HC 08 816	Eight rayed star	Handle
SN 39	HC 03 445	Pentagram	Handle Base
SN 40	HC 05 140	Pentagram	Shoulder
SN 41	HC 06 86	Pentagram	Shoulder
SN 42	HC 06 466	Pentagram	Shoulder
SN 43	HC 07 250	Pentagram	Handle
SN 44	HC 07 534-3	Pentagram	Shoulder
AR 3	HC 08 435-1	الله + م, geometric symbols, Pentagram	Handle Base
SN 45	HC 04 432	Hexagram, bird	Shoulder

As seen above, stars are depicted in several different ways, the most common of which is a 5-pointed star, called a pentagram. The pentagram, as a graffito, has parallels all over the Mediterranean and the Black Sea. There are examples from the shipwrecks at Serçe Limanı and Mljet, as well as from terrestrial contexts, including Chersonesos, Kiev, Dinogetia, and Mangalia.<sup>389</sup> Pentagrams also exist on stamp seals and on stone inscriptions.<sup>390</sup> There are other star-symbols in addition to the pentagrams. There are a few examples of a star created by 8 lines intersecting at the same point, although these may also be rudimentary rosettes. Parallels for this type of star also exist at Dinogetia and Chersonesos.<sup>391</sup>

Finally, there is the rather intriguing example of **SN 45**; a double-lined six-pointed star, a hexagram, within which is the scratched outline of a bird (Fig. 4.10). The pictorial depiction of a bird on an amphora, while rare, is not necessarily without parallel. On the shoulder of an amphora from Dinogetia, two lines can be seen with protrusions which look like the legs of birds, and on another amphora from Dinogetia, a rectangle appears to have a bird head and wings.<sup>392</sup> Birds are commonly seen as sgraffito decorations on Byzantine glazed ceramics, so it may simply be a highly favored decorative motif, or even a simple doodle.<sup>393</sup> The association of the bird with the hexagram, however, may indicate another function for the mark. Stars, both pentagrams and hexagrams, have long been associated with protective and binding magic. Magical stars can be found in many Near Eastern, Central Asian, and Mediterranean cultures,

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<sup>389</sup> van Doorninck 1989, fig. 3.7; Karger 1958, fig. 107; Barnea 1967, figs. 155.8, 161.8; Romanchuck et al. 1995, 165.55.5; Duzhenko 2001, 95.3.

<sup>390</sup> Parshina 2001 106.2.3,5; Doncheva-Petkova 1980, 32.

<sup>391</sup> Barnea 1967, 161.8; Romanchuck et al. 1995, 166.56.9.

<sup>392</sup> Barnea 1967, 156.9,11.

<sup>393</sup> Morgan 1942, 119, fig. 93, no. 965.

including the Greeks, especially for the Pythagoreans.<sup>394</sup> In the Abrahamic religious traditions, there are also protective stars, including the Seal of Solomon, a pentacle that takes the form of a seven or six pointed star, often bound in a circle and filled with magical words or symbols.

One of the more perplexing motifs is a sign that is comprised of a vertical line with short diagonal lines meeting it at about a 45 degree angle on either side. Scholars who study amphora graffiti from this time period describe as a sheaf of grain.<sup>395</sup> The mark, however, bears a strong resemblance to a group of Roman Sestius stamps found on amphorae at Cosa that have been identified as fish spines or pine boughs.<sup>396</sup>



Fig. 4.11 **SN 93** ‘Grain sheaf’ graffito facing both directions on HC 08 31

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<sup>394</sup> Encyclopedia of Symbols, 116, 142-3.

<sup>395</sup> Zankin 2001, 48-9.

<sup>396</sup> Will 1987, 190-1, 208-9, figs. IX-178-89.

There are 23 ‘grain sheaf’ marks in the corpus, 11 of which are found on amphora handles, eight on shoulders, and four on the handle bases (Table 4.18). The diagonal lines, or ‘laces’, usually face only one direction, but in **SN 93** the laces face in both directions (Fig. 4.11).

**Table 4.18. Examples of grain sheaf signs**

Catalog #	Amphora #	Graffito	Placement
SN 77	HC 03 494	Grain Sheaf	Handle
SN 78	HC 03 786	Grain Sheaf	Handle
SN 79	HC 04 175	Grain Sheaf	Handle
SN 80	HC 05 357	Grain Sheaf	Handle Base
SN 81	HC 05 433	Grain Sheaf	Shoulder
SN 82	HC 05 681	Grain Sheaf	Shoulder
SN 83	HC 06 247	Grain Sheaf	Handle Base
SN 84	HC 07 279	Grain Sheaf	Shoulder
SN 85	HC 08 767	Grain Sheaf	Shoulder
SN 86	HC 06 424	Grain Sheaf	Handle Base
SN 87	HC 06 605	Grain Sheaf	Handle
SN 88	HC 07 12	Grain Sheaf	Shoulder
SN 89	HC 07 279	Grain Sheaf	Shoulder
SN 90	HC 07 29	Grain Sheaf	Shoulder
SN 91	HC 07 357	Grain Sheaf	Handle
SN 92	HC 07 456	Grain Sheaf	Handle
SN 93	HC 08 31	Grain Sheaf, laces both directions	Shoulder
SN 94	HC 08 425	Grain Sheaf	Handle
SN 95	HC 08 570	Grain Sheaf	Handle
SN 96	HC 08 646	Grain Sheaf	Handle
SN 97	HC 08 788	Grain Sheaf	Handle
SN 98	HC 08 800	Grain Sheaf	Handle
SN 99	HC 08 247	Grain Sheaf	Handle Base

There are plenty of parallels for this sign, from Dinogetia, Sarkel, Chersonesos, and Saraçhane.<sup>397</sup> They can also be seen on some of the amphorae from Bozburun, Turkey.<sup>398</sup> It is conceivable that the sign was an ideograph for the amphora's contents, perhaps grain, which was an important export from various ports in the Black Sea, or, if the sign represents fish spines, garum, the fish sauce ubiquitous in Roman and Byzantine cooking. It is important, however, to note the similarity between the shape of the sign and some of the runic signs. Interestingly, one of the *sgraffito* wares from the Novy Svet excavation depicts a bird holding what looks like a sheaf of grain in its beak, although it could be another type of plant such as an olive branch.

There are two noteworthy geometric signs that occur only once in the corpus (Table 4.19). The first is **SN 100** (Fig. 4.12). This graffito, incised on an amphora handle, shows a small 'o', a triangle or  $\Delta$ , and another small 'o' in a column. A vertical line connects and bisects each of the three symbols. The second is **SN 101**, found on a shoulder sherd, and shows two hearts connected at their points (Fig. 4.13).

**Table 4.19. Other geometric signs**

Catalog #	Amphora #	Graffito	Placement
SN 99	HC 08 145	O- $\Delta$ -O	Handle
SN 100	HC 06 9	Two hearts	Shoulder

<sup>397</sup> Bjelajac 1989, fig. 2.3; Barnea 1967, 156.3, 160.11, 162.15; Hayes 1992, pls.14-15; Scherbak 1959, pl. IX, Romanchuck et al. 1995, 147.37.153, 162.52.18, 169.59.1-2.

<sup>398</sup> Personal communication with van Doorninck, May 2009.



Fig. 4.12 **SN 100** Unique graffito on handle sherd HC 08 145



Fig. 4.13 **SN 101** Unique 'hearts' graffito on HC 06 9

## Numerical Designations

In the Novy Svet corpus, 61 of the amphora graffiti have been categorized as numerical designations that take the form of notches, holes, and short parallel lines, or tally marks. The holes and notches are always seen on the handles. The tally marks usually occur on the handle, but they can also be seen on the shoulders.

The tally marks are the most common of the numerical designations, with 45 examples (table 4.20). These marks are mostly short parallel lines, either alone or all crossed with a single perpendicular stroke. It may be worth considering that vertical and horizontal lines have different values, but so far there is no indication that this is the case. The most common tally marks are ||| and ≡, with 12 examples of each. There are also tally marks that appear as part of larger or more complicated combinations. For example, **TR 33** shows six short, horizontal, parallel strokes inscribed on a handle sherd. They are all connected, however, by a thicker vertical stroke that runs from the highest horizontal mark down the handle and onto the handle base where it becomes part of a /|\ rune.

**Table 4.20. Examples of tally marks**

Catalog #	Amphora #	Graffito	Placement
NM 1	HC 08 751		Handle
NM 2	HC 08 80		Handle
NM 3	HC 07 18	≡	Shoulder
NM 4	HC 07 509	≡	Handle
NM 5	HC 08 543	≡	Handle
NM 6	HC 08 741	≡	Handle
NM 7	HC 04 473		Shoulder
NM 8	HC 05 10		Handle
NM 9	HC 05 94		Handle Base
NM 10	HC 06 626		Handle
NM 11	HC 07 217		Handle
NM 12	HC 08 688		Shoulder

**Table 4.20. Continued**

NM 13	HC 08 10		Handle
NM 14	HC 08 533		Handle
NM 15	HC 08 543		Handle
NM 16	HC 08 784		Handle
NM 17	HC 08 9		Handle
NM 18	HC 08 180		Shoulder
NM 19	HC 07 399-3	##	Handle
NM 20	HC 04 385	##	Handle
NM 21	HC 04 551	##	Handle
NM 22	HC 07 424	##	Handle
NM 23	HC 06 151	##	Handle Base
NM 24	HC 08 312	##	Shoulder
NM 25	HC 08 351	##	Shoulder
NM 26	HC 08 647	##	Handle
NM 27	HC 08 645	##	Handle
NM 28	HC 08 296	##	Handle Base
NM 29	HC 08 81	##	Shoulder
NM 30	HC 08 295	##	Handle
NM 31	HC 08 649	/	Handle
NM 32	HC 05 700	###	Handle
NM 33	HC 07 219	###	Handle
NM 34	HC 08 178	###	Handle
NM 35	HC 04 167	####	Handle
NM 36	HC 08 135	#####	Handle
NM 37	HC 08 542		Handle
NM 38	HC 03 289		Handle
NM 39	HC 08 732	N	Handle
NM 40	HC 07 215-1	V X\	Handle
NM 41	HC 08 530	#VX\	Handle
NM 42	HC 08 683	K###	Handle
NM 43	HC 08 675	#V##	Handle
NM 44	HC 08 747	>	Shoulder
NM 45	HC 04 375	<	Shoulder
TR 33	HC 04 548	/\, surmounted with 6 parallel horizontal lines	Handle Base
TR 34	HC 07 297	/\, surmounted with 3 parallel horizontal lines	Handle Base
TR 35	HC 07 297	/\, surmounted with 3 parallel horizontal lines	Handle Base
AR 3	HC 08 435-1	م + الله and	Handle Base

The remaining numerical designations are notches and holes (Table 4.21). There are three instances of notches in the Novy Svet corpus, all on handles. The notches are always parallel to each other, like the tally marks, but the notch is shorter and deeper than the tally. There are 13 examples of holes, all drilled into amphora handles. The holes do not pierce the handle, but just leave a small, parabolic depression. On one amphora, HC 03 362-1, there are 3 holes drilled into both handles, **NM 54** and **NM 55**.

**Table 4.21. Examples of notches and drilled holes**

Catalog #	Amphora #	Graffito	Placement
NM 46	HC 07 206	2 notches	Handle
NM 47	HC 08 241	6 notches	Handle
NM 48	HC 08 756	10 notches	Handle
NM 49	HC 08 537	1 drilled hole	Handle
NM 50	HC 05 673	1 drilled hole	Handle
NM 51	HC 07 617	2 drilled holes	Handle Base
NM 52	HC 08 733	2 drilled holes	Handle Base
NM 53	HC 08 725	2 drilled holes	Handle
NM 54	HC 03 362-1	3 drilled holes	Handle
NM 55	HC 03 362-1	3 drilled holes	Handle
NM 56	HC 06 137	3 drilled holes	Handle Base
NM 57	HC 07 214	3 drilled holes	Handle
NM 58	HC 08 117	3 drilled holes	Handle Base
NM 59	HC 07 495	4 drilled holes	Handle
NM 60	HC 08 570	4 drilled holes	Handle
NM 61	HC 06 465	8 drilled holes	Handle

These signs do not have alphabetic significance, making their interpretation even more difficult, and mostly reliant on context and frequency of occurrence. Both notches

and drilled holes are always found on the handles of the amphorae and never number above ten. One interesting example is **NM 61**, where four holes are drilled in a cruciform shape, and then repeated immediately above on the handle, but the holes are much shallower and less definite. The drilled holes are found on several other examples of Byzantine amphorae, including one from the Genoese fortress at Alushta, Ukraine with three holes in a vertical line and one with a single hole<sup>399</sup> and one from the Underwater Museum at Bodrum in Turkey with four holes in cruciform shape on a handle base.<sup>400</sup> The holes on the amphora from Bodrum are overlapped by 4 parallel tally marks. This may indicate that the drilled holes were intended to serve the same role as tally marks. What the numbers correspond to, however, is a matter for speculation. It is difficult to settle on a meaning for the holes and marks. There are little to no general patterns that would indicate a system of bureaucratic control or taxation.

The tally marks also occur overwhelmingly on the amphorae handles and handle bases. The identification of these short, parallel strokes as tally marks is based on van Doorninck's assessment of similar marks on the amphorae from the Serçe Limani shipwreck, but they have also been seen at other sites around the Black Sea, including Kerch, Sarkel, Dinogetia, and Tulcea.<sup>401</sup> These tally marks also never go above the number ten, although the most common number of parallel lines is three, both with and without strikethroughs. Three parallel strokes connected by a perpendicular line are also seen on an amphora handle from Kerch.<sup>402</sup>

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<sup>399</sup> Teslenko 2001, 125.2.3-4, 126.3.

<sup>400</sup> Garver 1993, fig. 32.

<sup>401</sup> van Doorninck 1989, 252; Scherbak 1959, pls. IV, XIX; Adamesteanu 1984, pl. XIV; Barbea 1967, fig. 162.21.

<sup>402</sup> Zankin 2001, 50.5.18.

## Arabic Letters

There are three identifiable examples of Arabic letters among the graffiti from the Novy Svet shipwreck (Table 4.22).<sup>403</sup> All three include names. On two examples, there are other marks on the sherd. To the right of the Arabic graffiti, **AR 2**, there is **NM 7**, three vertical parallel lines, which look like they were applied by a different hand than the letters. On **AR 3**, the Arabic letters at the base of the handle are part of a larger composition that includes geometric symbols and potential numerals.

**Table 4.22. Arabic letters**

Catalog #	Amphora #	Graffito	Placement
AR 1	HC 02 40	محمود	Shoulder
AR 2	HC 04 473	وسيم	Shoulder
AR 3	HC 08 435-1	الله + م, geometric symbols, X, O, =, and pentagram	Handle Base

The few Arabic letters may also correspond to names. In **AR 1**, the sequence of letters translates to the name Mahmoud or Mahmud. The sequence of letters in **AR 2** is probably Waseem or Wassim. The final example of Arabic letters, **AR 3** on HC 08 435-1, has a group of letters immediately at the handle base, and then one more letter below them. The first group, immediately at the base of the handle, looks like the name of

<sup>403</sup> In Table 4.22, I have used the available Arabic typescripts to approximate the incised markings as closely as possible.

Allah. Immediately below that appears the sign for the sound ‘M’, which could be a shortening for several Arabic names, including Mahmoud or Muhammad.

### **Stamps from Novy Svet**

Of the nine pre-firing amphora stamps found on five amphorae from the Novy Svet corpus, the majority are symmetrical signs such as crosses or wheels (Table 4.23). An eight-spoked wheel or asterisk appears twice in the corpus, **ST 1** and **ST 7**. This stamp has several parallels, including one on a handle base from Alushta, a coastal city on the Crimean peninsula.<sup>404</sup> Examples of this stamp also appear on the southern coast of the Black Sea, two side by side on an 11<sup>th</sup> century amphorae handle from the excavations at Saraçhane in Istanbul, and two at the base of both handles of a Günsenin IV amphora from the Sinope Museum.<sup>405</sup> Four stamps in the shape of crosses, **ST 3-6**, are arranged in cruciform at the handle base of HC 05 285. These also have parallels at Alushta. An amphora handle there has two cross stamps, although one of the stamps is only partially preserved.<sup>406</sup> Finally there is **ST 2**, an asymmetrical stamp on the handle base of HC 03 439, which also has parallels from Alushta.<sup>407</sup>

Amphora stamps are usually linked with production, so these stamps may be able to provide some insight into certain production techniques. The small number of amphora stamps in the corpus suggests that stamping was not a very common process during the 13<sup>th</sup> century. The fact that the best parallels for three of the stamp types are seen at Alushta may point to a strong connection between the Crimean coast and an

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<sup>404</sup> Teslenko 2001, 123-4, fig. 2.3-4, 5.2.

<sup>405</sup> Hayes 1992, 78, fig. 27.19, pl. 14.19; Günsenin 1990, 242, pl. LXIV.

<sup>406</sup> Teslenko 2001, 124, fig. 4.

<sup>407</sup> Teslenko 2001, 124.5.1, 125.2.2,6.

unknown production site, perhaps one in the southern Black Sea or the Sea of Marmara.<sup>408</sup>

**Table 4.23. Examples of stamps**

Catalog #	Amphora #	Stamp	Placement
ST 1	HC 02 112	8 spoked wheel	Handle Base
ST 2	HC 03 349	Indecipherable	Handle Base
ST 3	HC 05 285	Cross	Handle Base
ST 4	HC 05 285	Cross	Handle Base
ST 5	HC 05 285	Cross	Handle Base
ST 6	HC 05 285	Cross	Handle Base
ST 7	HC 05 327	8 spoked wheel	Handle
ST 8	HC 05 80	Rosette	Handle
ST 9	HC 05 80	Rosette	Handle

## Conclusions

This study of the graffiti on the Günsenin IV amphorae presents only the ‘first impressions’ of the Novy Svet corpus and what it may say about the Novy Svet shipwreck. A total of 1005 examples of graffiti were found on 720 Günsenin amphorae and amphora sherds raised from the wreck site. The graffiti occur in three specific areas with high frequency. They are: 1) the arch of the handle, 2) the low shoulder, and 3) the handle base where it joins the body. On many of the amphora sherds there are multiple examples of graffiti, possibly indicating the heavy reuse of amphorae in the 13<sup>th</sup> century. Other evidence of reuse includes the carving down of rims after breakage.

This typology breaks the graffiti into 5 types; (1) Greek/Cyrillic letters, (2) Turkic/Oghuric runes, (3) geometric/pictorial signs, (4) numerical designations, and (5)

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<sup>408</sup> Teslenko 2001, 128.

Arabic letters. 474 identifiable examples of graffiti were sorted into this typology. In order to do this, some marks that could be read multiple ways had to be sorted into only one category. Therefore, it is necessary to state explicitly that the typology is morphological and that interpretation relies more on finding parallel examples for the symbols within the archaeological record and less on the ‘translation’ of the marks.

Within the Greek/Cyrillic and Arabic letters were personal names, words, and phrases. Some of the names are paralleled on other amphorae found around the Black Sea, whether as graffiti or as stamps. The names could be the names of potters, owners, merchants, or even administrative seals, either invoking the name of a magistrate or a political authority. The words and phrases suggested as interpretations of some of the graffiti usually relate to the contents of the amphorae, with the common sign B standing for вино, the Slavic word for wine. And there are some letters and letter combinations for which there are as yet no possible interpretations.

The rune-like symbols are identifiable as a type of Turkic script, probably Oghuric. Whether the runes represent one specific branch of the Oghuric Turkic languages, such as Proto-Bulgar or Khazar, or multiple languages or dialects is as yet undetermined. The runes may also not be a full writing system, but their inclusion with other symbols such as Greek letters and geometric signs may reflect the holdover of a tradition after the language grew less common in the 11th century. Nevertheless, the runes do indicate the potential participation in Black Sea maritime trade of several groups including the Danube and Balkan Bulgars, the Khazars or other local Crimean populations, or the Volga or Don Bulgars.

There are also geometric signs and numerical designations. Symbols are more difficult to interpret, but some of them may have had a protective or magical power. The crosses, pentagrams, and the hexagram probably served the purpose to protect and bless the contents of the amphorae. The grids and grain sheaves, however, are more problematic to parse. The placement of the grids on and near handles may be indicative of their purpose. Other signs that also congregate around handle bases are numerical designations, drilled holes, notches, and tally marks. Because none of these marks exceeds a count of ten, it is difficult to see them as a type of taxation or system of measure or weight. They may, however, refer to specific orders being filled or amphorae in a shipment being inventoried.

Although it is difficult to determine when these graffiti were applied to the amphorae, there are examples of graffiti applied both before and after firing. It is possible, therefore, to say that graffiti were probably applied at multiple moments in the use-life of an amphora by multiple individuals. Along with the difference in time of application, the difference in language may refer to different individuals applying the marks for different purposes. For example, the higher percentage of pre-firing graffiti applied on handles and handle bases may indicate that the marks on the handles are potters' marks, administrators' marks, or the mark of the first owner of the amphorae. In his study of amphora *dipinti*, Bulgakov draws a connection between the marked amphorae found in 11<sup>th</sup> century Constantinople and the state control over local products, especially agricultural goods. Whether the state ever employed graffiti as a measure of economic control is not yet known, but it is certainly a topic worth exploring.<sup>409</sup>

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<sup>409</sup> Bulgakov 2001, 163-164.

It is important, however, to remember that the identification of language is not linked with the identification of the ethnicity of participating individuals and groups. The multiple examples of writing systems on the amphorae from Novy Svet, and indeed on amphorae from all around the Black Sea, is indicative of an incredibly diverse maritime network. Whether this multi-cultural network included the entire Black Sea, or flourished in certain areas such as the Crimean peninsula and the northern Black Sea littoral is only now beginning to be discussed with the excavation and publication of sites like the Novy Svet shipwreck.

## CHAPTER V

### DISCUSSION AND CONCLUSIONS

#### **Introduction**

In his work *The Mediterranean and the Mediterranean World in the Time of Phillip II*, Fernand Braudel describes the Mediterranean as “movement in space.”<sup>410</sup> The same description could apply to the Black Sea. The sea grants a high level of mobility to individuals, allowing them to transport themselves, their material goods, their technologies, their cultural beliefs, and whatever else they desire. No one settles on the open water, but people move over it, use it, and rely on it until it becomes a permanent part of their lives, what Horden and Purcell call a “maritime milieu”.<sup>411</sup> Excavations and investigations around the shores of the Black Sea reveal the extensive links between the population and the maritime landscape. Ships, and other watercraft, are perhaps the most important mechanism for understanding the links between the coastal, inland, and maritime economic and social networks that existed on and around the Black Sea. The 13<sup>th</sup> century shipwreck excavated at Novy Svet provides information about Black Sea maritime trade in the 13<sup>th</sup> century, both in terms of artifacts raised from the wreck, and also the graffiti found on the Günsenin IV amphorae. The graffiti also allows us to investigate how individuals and communities may have functioned as within these networks, and how broadly diverse these networks were.

In 2002, when scholars from CUA at the National Taras Schevchenko University in Kiev began surveying the Bay of Sudak, they quickly identified a 13<sup>th</sup> century

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<sup>410</sup> Braudel 1972, 277.

<sup>411</sup> Horden and Purcell 2000, 133.

shipwreck off the coast of Novy Svet. As discussed in Chapter I, the identification rested on the plethora of 13<sup>th</sup> century ceramics, mostly amphorae and *sgraffito*-decorated glazed ware from an unidentified production site.<sup>412</sup> The raised artifacts were either placed in the archaeological museum in Sudak or brought to the CUA laboratories in Kiev for study. The major focus of the research has been on the *sgraffito* ware, which is one of only a few large cargoes of glazed ware excavated to date. Scholars at the National University are currently studying about 60 unbroken pieces and hundreds of sherds of open vessels such as plates and bowls, which are easily stacked and shipped.

The amphorae have also received some analysis. By the 13<sup>th</sup> century, the wooden barrel was gradually replacing the amphora as the primary form of liquid transport in the Mediterranean, making the Novy Svet assemblage one of the last documented amphora cargoes. Five different types of amphorae were identified in the corpus: Novy Svet Type 1, also known as Günsenin IV; Novy Svet Type 2, also known as Günsenin III; Novy Svet Type 3, Novy Svet Type 4, and Novy Svet Type 5. As explained in Chapter III, the excavators raised about 50% of the sherds on the seabed, most of which were Günsenin IV and III amphorae or amphora sherds. About 75% of the raised Günsenin IV amphora sherds were incised with graffiti or stamped. Chapter III also includes an overview of the morphology and distribution of the Günsenin IV amphorae, along with a short discussion of Nergis Günsenin's theory that the vessels are the 13<sup>th</sup> century development of the piriform Günsenin I amphorae.

In Chapter II, I lay out a basic historical overview of the major players in the 13<sup>th</sup> century Black Sea; the Byzantine Greeks, the Mongols, and the various Italian merchants

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<sup>412</sup> Zelenko 2008, 126-43, 156-68.

who dominated the major trade routes and set up *emporia* along the coast of the Black Sea. Obertus Stanconus, a Genoese chronicler writing about these colonies in the last decade of the 13<sup>th</sup> century, described a Pisan ship that was burnt and sunk by the Genoese in the Bay of Sudak on August 14, 1277. Sergei Zelenko, the primary excavator of the Novy Svet wreck, has hypothesized that the Novy Svet shipwreck is the Pisan ship described in Stanconus's account. This identification, while not confirmed by a single find, is plausible owing to the location of the shipwreck at Novy Svet and the date of the artifacts. Analysis of the raised artifacts supports the theory that the Novy Svet ship sank after burning.<sup>413</sup> The lack of personal items or any items of high commercial value could also be attributed to the looting of the ship by the Genoese before the ship was destroyed. The identification, however, may never be completely certain and requires further investigation.

Not surprisingly, this account offers no description of the cargo, the crew, or the ship, beyond the presence of Pisan merchants. It does, however, describe the route of the final voyage of the vessel. While fleeing Constantinople and their Genoese pursuers, the Pisans stopped at Sinope and, presumably after cutting across the open water, arrived at Sudak. There is no explanation given for the presence of Byzantine amphorae on an Italian shipwreck in the northern Black Sea. Stanconus also provides no clues about why potmarks in the shape of Greek, Cyrillic, and Arabic letters, as well as Turkic runes are on those amphorae. The amphora graffiti on the Novy Svet amphorae may be the most important clue to illuminating aspects of trade in the northern Black Sea in the 13<sup>th</sup> century. As the only textual artifacts recovered from the wreck, the most prevalent

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<sup>413</sup> Zelenko 2008, 140-1,167.

question about the amphora graffiti is if they can support Zelenko’s identification of the Novy Svet vessel with the account of the Pisan ship.

### **General Conclusions**

Of the 1005 graffiti identified on the Günsenin IV amphorae from Novy Svet, 474 are presented in this thesis (table 5.1). The graffiti are comprised of five major types: (A) Greek or Cyrillic letters (186 examples), (B) Turkic/Oghuric runes (105 examples), (C) geometric or pictorial symbols (104 examples), (D) numerical designations (61 examples), and (E) Arabic letters (3 examples).

**Table 5.1. Novy Svet graffiti sorted by type**

<b>Type</b>	<b># of Marks</b>
Greek/Cyrillic Letters	186
Turkic/Oghuric Runes	105
Arabic Letters	3
Signs	104
Numerical Designations	61
Stamps	9
<b>Total</b>	<b>474</b>

There are some observed trends among the incised marks on the Günsenin IV amphorae from the Novy Svet shipwreck. The marks were incised onto handles, handle

bases, and the shoulders, all highly visible locations. It is likely that most of the amphorae had had multiple graffiti applied to them at the time of sinking.

In Chapter IV, I identified a series of potential moments when graffiti could potentially be applied and what they may indicate, including names of owners or potters, capacities or prices, and even official recordation. Some of the marks have interpretations, but many have no concrete translation or explanation. Two of the Arabic inscriptions are names written in full, Mahmud and Wassid. Several of the Greek letters could also be abbreviations of names, such as Michael or Alexios. Other Greek or Cyrillic letters could be words or phrases, either indicating contents, like wine or lentils, or functioning as a type of protective inscription, such as an invocation of Christ or the Theotokos, the Mother of God. The meanings of other marks are more obscure.

In amphora studies, many scholars link incised marks with a mercantile or commercial significance. Whether a symbol is interpreted as a name or a price or prayer, it can be examined through the lens of commerce. However, the idea of ‘reading’ graffiti betrays several assumptions, the first being that it is readable. These marks may not have been intended to be legible beyond the moment of their creation, or even legible to more than a few specialized individuals with the knowledge of how to interpret such marks in a specific context.

The second assumption is that, once we are able to read graffiti, we will understand what they refer to. Our anxieties and hesitation to speak definitively about the meaning of graffiti reflect our lack of understanding of the specific processes of ancient and medieval trade. When we question whether the marks refers to potters, owners, or merchants, we reveal our own inability to distinguish between these groups

and individuals in the archaeological record, or indeed even to understand where and how these groups interacted or even overlapped. Many discussions of potmarking systems become speculative extremely quickly, and with good reason. When Johnston imagines traders ordering pots in the Kerameikos or slaves collecting amphorae for lading and shipment, he is trying to flesh out a skeletal understanding of the economic and commercial practices to which the jars were integral.<sup>414</sup>

Finally, we are both encouraged and burdened by the hope that the script on the pots will tell us something about the inscribers. One of the excavators' hopes is that the graffiti will be able to provide some linguistic clues to the identities of those who were associated with the ship and its cargo, and perhaps confirm the identification of Novy Svet wreck as the Pisa ship. Nevertheless, the identification of a writing system is not the same as identifying the agents, participants, and stakeholders of that system. The idea that a potmarking system leads us to the political or cultural identity of the inscriber and then to the trader or middleman is what Johnston sees as a common trap in amphorae and graffiti studies.<sup>415</sup> Within the Novy Svet assemblage, for example, we see Greek, Cyrillic, and Oghuric runic signs, all of which might have been used by Hellenized Bulgars in a variety of roles.

These assumptions must be addressed by constantly negotiating with and referring to the context of the amphorae from Novy Svet. Unfortunately, it is not exactly clear where each amphora was located on the seabed, so groups of amphorae are difficult to pick out. The fact that these jars were raised from a shipwreck makes them different from a terrestrial assemblage, for here the amphorae are part of a process in which they

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<sup>414</sup> Johnston 1974, 143.

<sup>415</sup> Johnston 1979, 22.

were temporarily linked. They are at the same stage in transit, postulating a greater level of connectivity than exists for a group of vases found in a terrestrial deposit, such as a well or a tomb. In an economic sense, this assemblage has been preserved in real time.

Many previous studies of amphora graffiti have focused on artifacts in a post-excavation context. In fact, some of the seminal work done on amphora graffiti from the Mediterranean and Black Seas was based on artifacts from a wide range of collections and sites. Nevertheless, it is instructive to examine other studies of amphora graffiti. They may lend insight into what other scholars have done with similar assemblages.

### **Comparative Analyses**

In the 1970s and 1980s, Alan Johnston studied a series of marks found under the feet of Greek painted vases from the Archaic and Classical periods. He theorized that, although there was a clear correlation between some of the marks and the letters of the Greek alphabet, it was by no means a universal potmarking system.<sup>416</sup> Later in the 1980s, Nicolle Hirschfeld examined incised potmarks on Late Helladic and Late Minoan III ceramics in the Aegean, over 500 examples from a large geographical area.<sup>417</sup> These graffiti were apparently linked to the Cypro-Minoan writing system, although Hirschfeld, as I explained in Chapter IV, was also wary of using these Cypro-Minoan marks as the basis of her typology.<sup>418</sup> These two assemblages are very different from the Novy Svet corpus. Hirschfeld studied graffiti on a whole range of vessel types from disparate sites, linked by a common potmarking system associated with a single syllabary. Johnston

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<sup>416</sup> Johnston 1974, 138.

<sup>417</sup> Hirschfeld 1990, 5-6.

<sup>418</sup> Hirschfeld 1990, 46-53.

studied painted vases from a period several centuries long, but his examples were from museums and their provenance had been lost. The Novy Svet corpus, on the other hand, is from a single layer at a single site, and displays a wide variety of signs and symbols, which may indicate several potmarking systems.

One site that has yielded a large number of amphorae with graffiti is the Athenian Agora. There have been several studies made of the amphora graffiti from the Agora, mostly from the Late Archaic, Classical, and Hellenistic periods. Mabel Lang's seminal work on graffiti and dipinti focused on ceramics from the Agora, and included examples from the Iron Age to Late Antiquity.<sup>419</sup> Her analysis focused on translation of the graffiti, categorizing them as names, messages, dedications, owners' marks, and commercial notations dealing with capacity and contents. She was careful to note the shape of the letters, parallels, and exceptions. Mark Lawall's article 'Graffiti, Wine Selling, and the Reuse of Amphorae in the Athenian Agora, ca. 430 to 400 B.C.' has a narrower focus. His sample is drawn from the amphorae found in the southeastern corner of the Agora that dates to the last 30 years of the fifth century. This is a closer parallel to the corpus at Novy Svet, because in this case, it is far more likely that the graffiti are the result of a similar process. Lawall and Lang both favor interpreting much of the graffiti as indications of measure, capacity, or price. They see many of the letters, such as Π and Δ as acrophonic numerals, and only when there is no obvious numerical interpretation do they consider the marks as indications of ownership or contents.<sup>420</sup> They are aided in these interpretations by the fact that they can draw specific comparisons between the volume and weight of the jars and the various markings.

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<sup>419</sup> Lang 1976, Lang 1956

<sup>420</sup> Lawall 2000, 18-9; Lang 1976, 55-87.

Byzantine scholars generally tend to favor ownership as the primary interpretation of amphora graffiti. They interpret graffiti as references to individuals who may have participated in the production or purchase of the jars, such as potters, merchants, owners, sailors, and officials. The most comprehensive study of Byzantine amphora graffiti is Elizabeth Garver's 1995 dissertation, *Les Marques Sur Les Amphores Byzantines Du IXe Aux XIVe Siecle*. Based partly on her 1993 thesis *Byzantine Amphoras of the Ninth Through Thirteenth Centuries in the Bodrum Museum of Underwater Archaeology*, in her dissertation she presents examples of amphora graffiti from a wide range of sites in the Eastern Mediterranean and the Black Sea. Garver also eschews a language-based typology for a morphological approach as many of the marks correspond to several different writing systems in use around the Black Sea during the Medieval period, including Greek, Cyrillic, and runic alphabets.

The best comparanda for the Novy Svet graffiti are from sites in and around the Black Sea and the Sea of Marmara. The unintentional deposition of a shipwreck assemblage provides a 'real time' glimpse into the trading process. What we must remember, however, is that the shipwreck assemblage did not materialize from nothing aboard a ship, but is merely one moment in a series of converging processes and practices.

The most meaningful amphora assemblages are those that were excavated at Yassı Ada and at Serçe Limanı, because there the amphora graffiti were well contextualized and interpreted in concert with the analysis of the crew's identity, the cargo, and the route of the ship. In his analysis of the graffiti from the 7<sup>th</sup> century Yassı Ada shipwreck, Fred van Doorninck indentified almost half of the markings as names.

The names take the form of Greek letters, usually monograms.<sup>421</sup> According to van Doorninck, the other marks were invocations of God, descriptions of amphora contents, or even numbers. Van Doorninck linked the large number of names to the large number to the different people who had owned the amphorae during their use lives, although he questioned whether that was common practice, or the result of military conflict.<sup>422</sup>

The 104 amphorae from the 11<sup>th</sup> century Serçe Limanı shipwreck have even more in common with those from the Novy Svet assemblage. The majority of the amphorae raised from the wreck have more than one graffito on each vessel, as at Novy Svet, and also show evidence of reuse.<sup>423</sup> These marks include Greek letters, usually interpreted as abbreviations of names. The most common letter is ‘M’, which occurs 24 times, both alone and with other letters attached, in one case MIR. Van Doorninck reads this as the common Slavic name Miroslav. Other names among the graffiti included ΛEON (Leon), NH (Nicolas), and Ιω (John).<sup>424</sup> The ‘M’ amphorae were found together in the stern, while the ‘ΛEON’ amphorae were found amidships.<sup>425</sup> Along with the Greek letters were several marks, including geometric signs, which are identified as Protobulgarian runes. Van Doorninck notes that the runes were inscribed before firing, while the Greek letters were inscribed after. Therefore, he has postulated that those graffiti inscribed before firing represent potters’ marks, while those inscribed after refer to the owners.<sup>426</sup>

There are two other shipwreck sites that should be discussed. The Çamaltı Burnu I shipwreck, excavated by Nergis Günsenin in the Sea of Marmara, shares many

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<sup>421</sup> van Doorninck 1989, 250-251.

<sup>422</sup> van Doorninck 1989, 252-3.

<sup>423</sup> van Doorninck 1998, 74.

<sup>424</sup> van Doorninck 1998, 75.

<sup>425</sup> van Doorninck 1989, 254-6.

<sup>426</sup> van Doorninck 1998, 75; van Doorninck 1989, 256.

similarities with the wreck at Novy Svet. Both are dated to the 13<sup>th</sup> century, and both were carrying a large cargo of Günsenin IV amphorae. Both were also carrying smaller cargoes of Günsenin III amphorae and glazed ceramics.<sup>427</sup> Although Günsenin has noted the presence of graffiti on the amphorae from Çamaltı Burnu, so far little has been published about them, except that they are found on the handles and bodies of the amphorae and that most are indecipherable. What have been published are the seven different types of monogram stamps, most found on handle bases. Günsenin read these monograms refer as names, including ΛΕΟΝ (Leon) and ΙΩΑΝΝΙΣ (John). These stamps seem to be linked with the larger variants of Günsenin IV jars, and are probably owners' or potters' marks.<sup>428</sup> Although there are no monogram stamps in the Novy Svet corpus, the letters Ιω (John) do occur several times.

The second Byzantine shipwreck found in the Black Sea with examples of amphora graffiti is a 5<sup>th</sup> or 6<sup>th</sup> century ship excavated by Dr. G. Toncheva off the coast of Bulgaria in the Bay of Varna.<sup>429</sup> Although the amphorae from this wreck belong to a much earlier type, Torone III, they display evidence of an unusually large number of graffiti, with many sherds bearing more than one graffito. The graffiti are comprised of a large number of Greek letters, both single and in combination, applied at a variety of times.<sup>430</sup> Minchev concludes that the large number of graffiti indicate a long use-life for the jars. In some cases, he concludes that the letters function as numbers indicating capacity or price, while others speak to the owners of the amphorae. There are several graffiti with religious inscriptions, including simple crosses and invocations of God

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<sup>427</sup> Günsenin 2003, 362-71; Günsenin 2001, 117-9.

<sup>428</sup> Günsenin 2003, 364; Günsenin 2001, 118, 124, fig. 7.

<sup>429</sup> Minchev 2011, 144-7.

<sup>430</sup> Minchev 2011, 147-8.

(Θεως) or the Mother of God (Θεοτοκος). These signs occur as incisions, block monograms, or stamps.<sup>431</sup>

The best parallels for the Novy Svet corpus, however, come from 12<sup>th</sup> and 13<sup>th</sup> century terrestrial sites around the Black Sea and the Sea of Azov, specifically at Chersonesos in Crimea and Sarkel on the Don River. The amphora graffiti from these sites display many of the same runic and geometric potmarks as at Novy Svet (Table 5.2).

At Chersonesos, for example, the  $\backslash/$  shape, as seen in the Novy Svet corpus on HC 06 512, can be seen on the shoulder of one Günsenin IV vessel.<sup>432</sup> The ‘grain sheaf’ rune is seen on the shoulders and handle bases of other Günsenin IV vessels (HC 07 456, HC 08 31, HC 04 548).<sup>433</sup> There are several instances of the bow-tie |X| rune<sup>434</sup> (HC 03 319), 2 examples of the crossed 7s rune<sup>435</sup> (HC 08 672, HC 05 70), and a pentagram (HC 07 334).<sup>436</sup> Graffiti from Chersonesos also include Greek and Cyrillic letters, such as A<sup>437</sup> (HC 05 306), B<sup>438</sup> (HC 08 225), KL<sup>439</sup> (HC 05 364), M<sup>440</sup> (HC 07 132), and the quartered circle  $\otimes$  standing for  $\Theta$  (HC 04 603).<sup>441</sup>

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<sup>431</sup> Minchev 2011, 148-50.

<sup>432</sup> Romanchuck et al. 1995, 151.41.159.

<sup>433</sup> Romanchuck et al. 1995, 147.37. 169.59.1-2.

<sup>434</sup> Romanchuck et al. 1995, 166.56.1-4.

<sup>435</sup> Romanchuck et al. 1995, 153.43.168, 162.52.3.

<sup>436</sup> Romanchuck et al. 1995, 165.55.5.

<sup>437</sup> Romanchuck et al. 1995, 161.51.4,6; 165.55.1-2, 168.58.1-6.

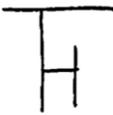
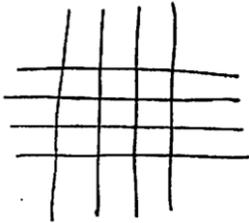
<sup>438</sup> Romanchuck et al. 1995, 162.52.4; 163.53.1-3, 166.56.6-9.

<sup>439</sup> Romanchuck et al. 1995, 151.41.161.

<sup>440</sup> Romanchuck, et al. 1995, 165.55.3-4.

<sup>441</sup> Romanchuck et al. 1995, 164.54.4.

**Table 5.2. Parallel marks from Chersonesos and Sarkel**

Description	Picture	Chersonesos	Sarkel
∨/ or /∖		✓	✓
Grain sheaf		✓	✓
Bow-tie		✓	✓
Crossed 7s		✓	✓
Pentagram		✓	✓
TH			✓
Grids			✓
Tally Marks			✓

The group of incised marks on amphorae found at the fortress at Sarkel, also known as Belaya Vezhya, provides many interesting parallels for the Novy Svet assemblage. The fortress was built in 833 by the Khazars with the help of Emperor Theophilos and changed hands several times, first in 964 when it was captured by the Rus, and finally in the 12<sup>th</sup> century when it was taken by the Mongols of the Golden Horde.<sup>442</sup> It was a key city in Central Asian trade networks, being at the site of portage between the Don and Volga rivers. Among the finds from the 12<sup>th</sup> century strata are Günsenin I and Günsenin IV amphorae with graffiti. The amphora graffiti at Sarkel resemble the graffiti from Novy Svet in several ways. First, the same range of symbols is present at both sites; Greek/Cyrillic letters, Turkic/Oghuric runes, tally marks, and geometric signs.<sup>443</sup> Only Arabic letters have not been identified at Sarkel. Second, amphorae from both sites display similar tendencies in graffiti placement and reuse. Whole amphorae from Sarkel have more than one mark, usually located on the shoulder, handle, or handle base. Finally, some of the best parallels for the more unusual Novy Svet graffiti are found at Sarkel, including the crossed 7s runes, grain sheaves, and the TH graffito that appears twice on the handle of HC 08 179.<sup>444</sup> The tally marks at Novy Svet that have been interpreted as numerical designations are also seen at Sarkel.<sup>445</sup>

It is interesting that Sarkel is located miles upriver from the Black Sea, at the outer limits of Byzantine or Italian influence. We could therefore conceive of an exchange system where Greek amphorae entered through the southern coast of the Black

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<sup>442</sup> Groussett 1970, 179-81.

<sup>443</sup> Scherbak 1959.

<sup>444</sup> Scherbak 1959, tables I-III, VII, IX, XIX.

<sup>445</sup> Scherbak 1959, table I.

Sea, but remained circulated in northern local trade networks, continually being reused and remarked. Although we must be wary of our own assumptions and biases, this sort of speculation may be the best way at present to speak concerning the various agents and participants in the Novy Svet ship's final voyage, its crew, and its cargo.

### **Speculations and Interpretations**

The graffiti on the 13<sup>th</sup> century Novy Svet shipwreck augment many of the traditional interpretations of contemporary historical documents. The Black Sea in the 13<sup>th</sup> century is often seen as the game board for the Italian city-states' struggle for economic dominance in the lucrative transcontinental trade routes. On the Novy Svet wreck, however, there is no identifiable evidence to support any sort of Italian presence, be it Pisan, Genoese or Venetian. What sort of evidence would support the theory of an Italian presence? While no single artifact can pinpoint the homeport of a ship, a group of artifacts that can be demonstrated to have been in use by the captain and crew would be compelling evidence. For example, a system of weights that correspond to Pisan or Genoese measures would be evidence that the merchants aboard frequented those cities or their colonies. Analysis of the wood from the hull could provide clues to the place where the ship was constructed. Personal effects of Italian origin, such as eating or drinking vessels, gaming pieces, weapons, or even religious paraphernalia, could strengthen the argument that there were Italians on board the vessel in some capacity. Ideally, archaeologists would prefer to find some sort of textual artifact on board, perhaps a steelyard or a ceramic vessel, with an inscription using Latin letters and corresponding to an Italian dialect.

There are no such items, however, among the artifact from the Novy Svet shipwreck to date and the languages identified on the Günsenin IV amphorae are Greek, Cyrillic, Arabic, and perhaps Bulghar, or another Oghuric language. The languages of the amphora graffiti, however, do not represent the only candidates for the owners or operators of the ship. In fact, the story of the Genoese pursuit and sinking of the Pisan ship allows for a cargo of non-Italian origin. Following Stanconus' account, the ship was laden at Constantinople and sailed eastward along the southern coast of the Black Sea, stopping at Sinope to prepare for the open-water journey to the Crimean peninsula. If the Pisan ship is the Novy Svet wreck, then the variety of writing systems found onboard should in no way be surprising. The amphora graffiti could refer to individuals who participated in the Black Sea trade network, whether or not they were specifically involved in the final voyage of the ship.

Instead of beginning with ethnic or cultural identity, a notoriously thorny subject, it may be prudent to discuss the various economic roles that individuals associated with the ship and its cargo would likely have held. These roles are easily listed; merchants (*emporoi*), cargo owners, cargo producers, customs officials, and the ship's captain (*naukleros*) and crew (*nautai*). On the Yassı Ada ship, for example, the name and title of the ship's captain is inscribed on a bronze steelyard.<sup>446</sup> The cargo of the Serçe Limanı ship, on the other hand and the careful separation of different groups of amphorae with different names, may indicate the presence on board of several merchants, but whether any of them also served as the ship's captain is unknown. On the Novy Svet wreck, we do not have the repetition of names to the same degree as exists on the Serçe Limanı

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<sup>446</sup> Bass 1982, 314.

shipwreck. Perhaps the merchants whose names are represented on the amphorae were not the merchants of the final voyage. The cargo could have been purchased from the original owners without any indication being noted on the jars. It may be that the reused amphorae were marked as one shipment with tallies, runes, or some other way that may not have survived in the archaeological record, such as *dipinti*. Finally, it is entirely possible that the graffiti refer not to people aboard, but to individuals invested in the amphora production and use-life before the final voyage; including potters and merchants.

This leads to another area of speculation, the process by which the amphorae and the rest of the cargo were loaded on board. We could suggest that the entire cargo, or at least the amphorae, were a single shipment, loaded at one port by one merchant or group of merchants who funded this specific voyage. Another theory is that the Günsenin IV amphorae should be thought of as the primary cargo, with the remaining amphorae, ceramics, and potentially missing cargoes as secondary. The cargoes could have been picked up either at one central port, such as Pera in Constantinople, or at several ports along the Mediterranean or Black Sea coasts. Finally, it is possible that the entire assemblage represents a series of small cargoes, probably loaded and unloaded at a sequence of ports depending on the needs of the merchants who owned the cargoes.

Finally, there is the issue of the ethnic or cultural identity of the individuals aboard. The graffiti here are particularly useful because it is possible to postulate a connection between used language and identity, as long as we do not fall into the trap of assuming a one-to-one association between the language and the ethnicity, religious,

cultural, or political affiliation of the individuals in question.<sup>447</sup> There are at least four writing systems present in the Novy Svet graffiti, including Greek letters, Cyrillic letters, Arabic letters, and Turkic runes. These markings may refer to owners or merchants, except that some amphorae have graffiti from multiple writing systems. It may be, as on the Serçe Limanı amphorae, that those marks inscribed before firing refer to potters while those inscribed after firing refer to merchants or owners.

These identifications, however, do not fully explain the cultural or ethnic identity of those who made the marks. It is tempting, for example, to identify the Greek letters with the Byzantine Greeks living in the capital city of Constantinople. But there were Greeks around the Black Sea who did not live in the sphere of the Byzantine Emperor's power. In the north, there were Greeks living in communities all along the Crimean coast, especially in the old colonies such as Chersonesos and Caffa. Also, along with the restored emperor at Constantinople, there was another Greek polity along the southern coast of the Black Sea; the empire of Trapezon. Founded in 1204 by the Komnenoi nobles fleeing the Fourth Crusade and the sack of Constantinople, the Empire of Trapezon was comprised of several major cities along the southeastern coast of the Black Sea.<sup>448</sup> If the Novy Svet wreck is the Pisan ship, than it is certainly possible that the amphorae with Greek graffiti could have been brought aboard by Greek merchants based in the empire of Trapezon.

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<sup>447</sup> When I presented this corpus at the Byzantine Studies Conference in 2009, the audience paid particular attention to the presence of Arabic names in the graffiti, probably because of the historical enmity between the Byzantine Empire and Arabic speaking states in Asia Minor and the Near East. Even though there was extensive interaction between the Byzantine Greeks and the Turks, modern understandings of identity can color our interpretation of events in the past.

<sup>448</sup> Miller 1968.

There were also several areas where the Greek alphabet was in use alongside other writing systems. Ceramic, stone, and metal artifacts from sites in medieval Romania, including Dinogetia (modern Dobrudja) and Capidava, and Bulgaria, including Preslav, are inscribed with Greek, Cyrillic, and runic marks.<sup>449</sup> Inscriptions and graffiti with both Greek letters and runic symbols have also been seen on artifacts in the Crimean peninsula and in Greater Bulgaria, along the Volga and the Don Rivers. Through the spread of Orthodox Christianity and the Byzantine political and military influence, it is possible that the Bulgars, Rus, and Slavic speaking populations were utilizing both Greek/Cyrillic and runic writing systems.

Of particular interest are the Hellenized Bulgarians who lived along the northern coast of the Sea of Marmara and the southwestern coast of the Black Sea. Van Doorninck and Günsenin specifically link these Bulgarian communities near the Sea of Marmara with local amphora production in the 11<sup>th</sup> century. According to van Doorninck, the Serçe Limanı amphorae were produced by Hellenized Orthodox Bulgarians in order to supply a local wine production center, most likely a monastery. The runic symbols could correspond to family names or potter's marks, while the Greek letters inscribed after firing could refer to the purchasing merchants, either Greeks or Hellenized individuals who utilized Greek letters in order to conform to the standard language of trade at the time. Greek marks inscribed after firing could also refer to such merchants, or could also be marks made by customs or state officials that indicate measures, counts, or taxes.<sup>450</sup>

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<sup>449</sup> Barnea 1954, figs. 25-7, Doncheva-Petkova 1980.

<sup>450</sup> van Doorninck 1998, 12-3.

Finally, it would behoove us to examine the possible scenarios that could have resulted in the three Byzantine amphorae sherds with Arabic graffiti being raised at Novy Svet from a potentially Italian shipwreck. Arabic speaking merchants were certainly present in and around the Black Sea during the 13<sup>th</sup> century, so it is entirely possible that one such individual or group of individuals could have been connected in some way with the Novy Svet vessel.<sup>451</sup> In one scenario, the Arabic names on the amphorae from the Novy Svet shipwreck could refer to previous owners of the reused amphorae. Perhaps these amphorae were in circulation along the southern coast of the Black Sea, either among the Seljuks or the Il-Khanate. In the 13<sup>th</sup> century, the Seljuk Sultanate of Rum had gained control of much of Anatolia, including the port of Sinope on the northern coast of Turkey.<sup>452</sup> Although the Seljuk Empire came under control of the Il-Khanate in 1261, they still maintained an economic and cultural presence in Anatolia. The vessels could have been loaded at the port of Sinope, which fell to the Seljuks in 1214, or at Byzantine Greek sites such as Constantinople/Pera or Trapezon, where Arabic speaking merchants may have traveled.

We must keep in mind that as much as modern scholars use artifacts to access cultural identity, individuals in the networks discussed may also have used these artifacts to construct their own cultural identity. The amphora is a vessel that was recognizably Mediterranean for over two millennia, and could be considered a cultural signifier. The very act of using amphorae can be seen as the result of the adoption or appropriation of a Mediterranean practice, perhaps as part of the colonization process. Turkic and Oghuric

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<sup>451</sup> I have only found one other example, however, of Arabic graffiti documented on Byzantine amphorae. The 11<sup>th</sup> century amphora was found in Kiev, and has been translated to the name ‘Kabus’. Garver 1995, 74, fig. 9.117.

<sup>452</sup> Golden 1998, 26.

writing systems were developed in Central Asia, far from the pillars of Herakles and the coastal cities of the Greeks and the Romans. Nevertheless, at Novy Svet and other sites on the Black Sea coast and the banks of the major tributary rivers, archaeologists continue to uncover Mediterranean style jars covered with runic graffiti. Perhaps what is most significant about the Novy Svet assemblage is not the identification of specific individuals, but the revelation of how people who are considered outside Mediterranean culture, such as Mongols and Bulgars, appropriated and utilized the processes and tools of the Mediterranean maritime world, specifically ceramics.

Along with the identity of the merchants and potters, it is also possible to speculate about the various routes in the Black Sea maritime network and the final voyage of the Novy Svet ship. Sea routes are not simple lines linking various ports, but webs of contacts that require knowledge of both the local area and general rules of seafaring. The routes presented here are not differentiated shipping lanes, but rather different patterns of use.<sup>453</sup> There are three general scenarios to consider (Fig. 5.1). First, is the theory that the ship that sank at Novy Svet was a local vessel that sailed primarily within the northern Black Sea littoral, making short journeys from the Dneipr delta, around the Crimean peninsula, through the Kimmerian Bosphoros, and in the Sea of Azov to the Don delta.

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<sup>453</sup> Horden and Purcell 2000, 140.

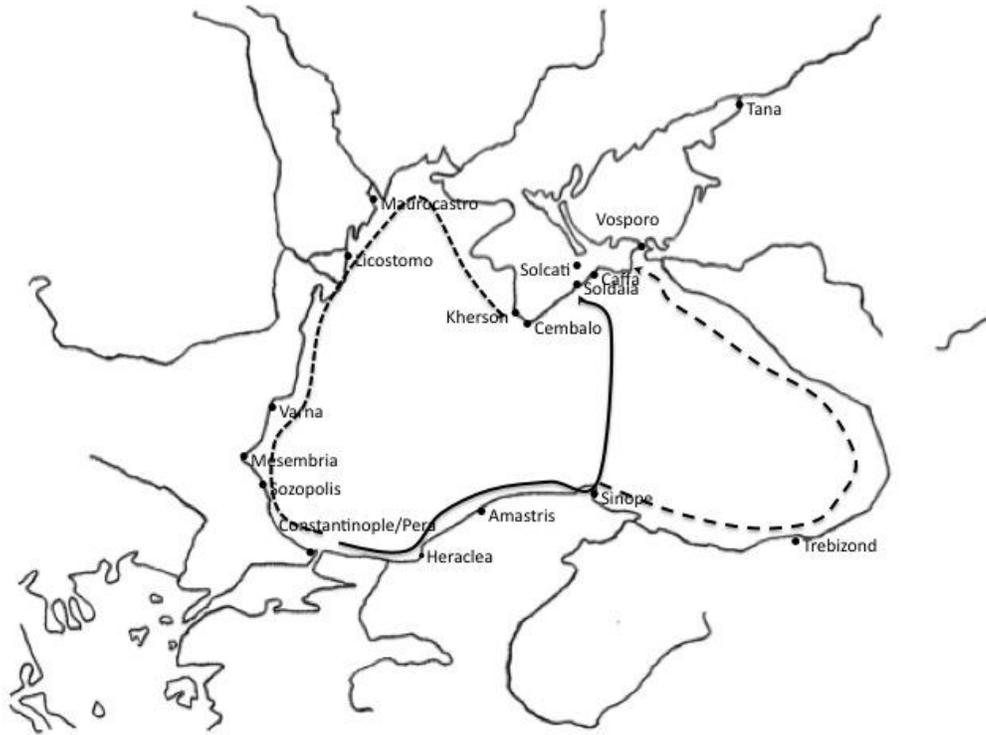


Fig. 5.1 Possible routes for the final voyage of the Novy Svet ship.

Second, the ship could have been involved in trade all along the Black Sea, moving from Sea of Marmara in the south and west to the Sea of Azov in the north and east. There are several routes traditionally utilized by ships sailing across the Black Sea. There is the western route, whereby a ship leaves from a port along the southwestern coast, such as Constantinople, and makes its way up the western coast, past the Danube, and eventually to the Crimean peninsula. There is the eastern route, whereby a ship makes its way along the cities of the Empire of Trapezon, up along the eastern coast of the Black Sea, across the Kimmerian Bosphoros, and again to the Crimean peninsula.

There is also the central route; a ship could abandon the coastal routes by jumping off at a city along the southern coast, usually Sinope or Trapezon, and sail across the open water to a city along the Crimean peninsula, usually Caffa. Such a ship could have belonged to any major merchant in the Black Sea; Greek, Bulgarian, Slav, Armenian, Seljuk, Jew, or Italian.

Finally, the ship could have regularly traveled between the Black and Mediterranean Seas. Such a ship may also have utilized the major shipping routes in the Black Sea, and the most likely owner of such a vessel would have been an Italian merchant. It is this last scenario that is laid out in Obertus Stanconus's account.<sup>454</sup> The ship left Pisa and stopped at Pera, the Italian port at Constantinople. After an altercation with several Genoese merchants, the Pisans left Constantinople, fleeing along the southern coast of the Black Sea until they reached Sinope. There they struck out across the open ocean and reached the northern Black Sea not at Caffa, but at Sudak, where the ship was sunk by the Genoese who had followed in hot pursuit.

There is nothing, however, in the Novy Svet graffiti that confirms the presence of Italian merchants or sailors on board the ship during its final voyage. The graffiti seems to reflect networks of potters and merchants within the Black Sea, perhaps even in a small area in the north. Given the ability of amphorae to travel a long ways, especially within an established and well-used maritime network, these jars could have been brought aboard the ship at almost any major port in the Black Sea. Nevertheless, the account of the Pisan vessel allows us to think about how the Italian presence in the Black Sea interfaced with the local trade networks. If the Novy Svet wreck is the Pisan ship, it

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<sup>454</sup> Stanconus et al. 1856, 76-7.

is possible that the amphorae were laden at Constantinople, or at a port along the southern coast of the Black Sea.

A shipwreck can be seen as a type of node in an economic network, a temporary confluence of interests and actions that reflect connectivity and not a permanent settlement that strives to maintain strong or weak connections. The Novy Svet wreck seems to have been the confluence of several agents, specifically Greeks and Bulgars. Without the Stanconus report, there is no secure evidence of an Italian connection, illustrating the dangers of basing an identification solely on a historical source. As textual artifacts, the amphora graffiti from the wreck provide a remarkably apt presentation of the multiple voices and agents working in the economic network of the Black Sea. Historians ascribe cultural hegemony to the Byzantine Greeks and economic primacy to the Italian merchants, but hegemonies are never complete and primacies are never total. Individuals and groups who are marginalized or unrecognized in the main historical narrative enter the archaeological discourse through such artifacts. These humble sherds grant material reality to the theoretical economic networks in the Black Sea connecting the Mediterranean and Central Asian systems.

In Plato's *Phaedo*, Socrates famously speaks about the expanded Greek world, comparing the settlements and cities of the Hellenic people to "ants or frogs living around a pond."<sup>455</sup> The pond that he was speaking of was all the waters between the Pillars of Herakles (known in modern times as the straits of Gibraltar) and the river Phasis (known now as the river Rioni in Georgia) on the east coast of the Black Sea. Throughout the historical record, there are references to and descriptions of the Black Sea and its role in

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<sup>455</sup> Plato *Phaedo*, 109a-b.

the Mediterranean maritime system. In the medieval period, the Black Sea was an avenue for the reach of Byzantine political power and cultural influence, a gateway for the spread of Orthodox Christianity and Islam through Eastern Europe and the Central Asian steppes, and the stage for economic and military competition between the Italian city states.

We must remember, however, that the Black Sea was also part of a Central Asian network. In the medieval period, Turks, Bulgars, Slavs, Rus, and Mongols all utilized the Black Sea and its tributary rivers to expand their borders, set up new cities, and move their goods to market. The Black Sea is the connection between Greater Bulgaria along the Volga and Bulgaria along the Danube. The Mongols used the northern Black Sea, the Sea of Azov, and the tributary rivers as part of the northern Silk Routes. The medieval Black Sea isn't just part of a Greek or Italian sphere, but a Bulgar sphere and a Turkic sphere.

Nevertheless, the graffiti from the Novy Svet shipwreck cannot bear the burden of speaking for marginalized and poorly understood voices in archaeological discourse. After all, we are not the intended audience for these markings and, however closely they resemble familiar letters and signs, we are missing the context that would allow us to read them. Despite this, the graffiti do show the breadth of participants in the Black Sea trade network.

There is nothing in the graffiti that supports the proposed identification of the Novy Svet wreck as the Pisan ship. There are no explicitly Italian artifacts or personal items, and there are no identifiably Italian letters, words, or phrases among the amphora graffiti. These markings, however, allow us to speculate not only about the identity of

potters or merchants, but also about the processes and patterns of the maritime trading network within the Black Sea and how the arrival and dominance of the Italian merchant affected the rest of economic activity in the area.

The Italian presence in the Black Sea, especially after the establishment of colonies along the northern coast, is usually understood in terms of the long distance, high value trade that was occurring along the northern Silk Routes through Central Asia during the *Pax Mongolica* in the 13<sup>th</sup> century. Even when the Italian merchants developed interests in the local products and natural resources of the lands around the Black Sea, such as grain or salt, they were focused on the export of these resources to Constantinople or to the Italian home cities of Genoa, Venice, and Pisa. This type of trade is usually labeled as high commerce; directed, large scale, or luxury driven exchange. Low commerce, on the other hand, is comprised of small scale and small cargo trade within local networks, such as cabotage. The majority of the artifacts found at Novy Svet are amphorae, presumably full of wine, and sets of glazed tablewares, hardly the luxurious or large scale cargoes associated with Italian medieval high commerce. If the identification of the shipwreck with the Pisan vessel is to stand, this disparity must be resolved. The artifacts raised at Novy Svet should encourage scholars to be cautious when making direct associations between archaeological material and the historical record, and to think critically about the role that Italian merchants could have played in the Black Sea maritime economic landscape.

In *The Corrupting Sea*, Horden and Purcell reject a binary high commerce/low commerce understanding of ancient maritime economic activity. Instead, they argue, high and low commerce should be seen as part of the same network which encompasses a

range of activities, from cabotage and piracy to the massive movement of goods and peoples from one end of a maritime network to another.<sup>456</sup> They remind us that even in periods of concentrated, state-sponsored, large-scale maritime economic activity, the volume of cabotage exceeds large scale commerce, and that the movement of goods across small distances is always the norm.<sup>457</sup>

### **Further Research**

There are several avenues for further research concerning the Novy Svet graffiti. Since 2008, more recent excavation seasons have revealed new examples of graffiti to be analyzed and categorized. Graffiti are also seen on the Günsenin III amphorae raised from the wreck. It would be instructive to compare the graffiti on the two amphora types, especially considering that they are also seen together on the Çamaltı Burnu shipwreck. Further research could also focus on the comparison and discussion of the runic marks among the Novy Svet graffiti with the runes seen in the various locations around the Black Sea. If there are stronger associations to be made with Protobulgarian runes found along the Danube, then the identification of runes with the Bulgarian potters along the Sea of Marmara may hold weight. Also, although very few whole jars were raised from the Novy Svet wreck site, it would still be useful to measure the capacities of the raised amphorae, and investigate the extent of standardization and any associations between some of the marks and amphora capacity.

The prevalence of several language systems among the Novy Svet graffiti raises the question of literacy. The graffiti elicit the notion that they were to be recognized, but

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<sup>456</sup> Horden and Purcell 2000, 140-4.

<sup>457</sup> Horden and Purcell 2000, 150-1.

how and by whom is as of yet unknown. Although we do not have informative data about literacy in this period, we do have commercial archival sources, indicating that merchants were either literate, to some degree, or had the resources to have things read/written for them.<sup>458</sup> Participation in the economic network, at least for some, seems to have required a level of literacy or semi-literacy.

Finally, although this thesis deals with amphora graffiti, many of the issues raised are also applicable to the other major set of ceramics aboard the *Novy Svet* shipwreck, the glazed ware. As mentioned in Chapter IV, the glazed ware also has graffiti, usually single letters or symbols applied to the underside of the foot of many bowls and plates. As information about the chemical and petrographic make-up of the glazed ware becomes available, it is important to discuss and analyze the production and circulation of these ceramics. Like the *Günsenin IVs*, there are various scenarios regarding how the glazed ware cargo came to be on the ship before it sank, including the places of production, the role of the graffiti, and various points of lading.<sup>459</sup>

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<sup>458</sup> Balard 1978.

<sup>459</sup> Paul Arthur has published works detailing ceramics found in Lecce, Italy through the medieval period. In the 12<sup>th</sup> and 13<sup>th</sup> centuries, not only does this region show evidence of sgraffito ware importation, perhaps from Epiris, but there is also evidence of amphorae from Ganos. Arthur et al. 2007, 240-1, 250.

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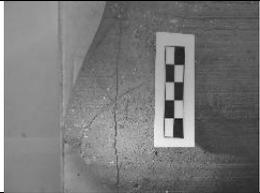
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APPENDIX A

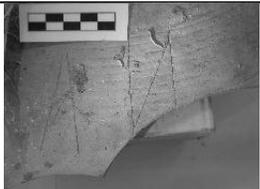
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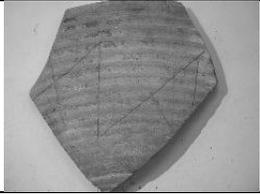
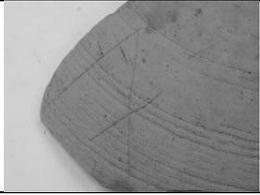
<b>AR 1</b>	HC 02 40	Shoulder	Fabric 2
Mahmud (name) محمود	Narrow, deep incisions applied to shoulder after firing.		
	Parallels: 'Kabus' on the body of an 11 <sup>th</sup> century amphora from Kiev Garver 1995, fig. 9:117, Karger, 1958, 426-7.		
<b>AR 2</b>	HC 04 473	Shoulder	Fabric 4
Waseem (name) وسيم	Broad, deep incisions applied to shoulder; incomplete. <b>NM 7.</b>		
	See <b>AR 1.</b>		
<b>AR 3</b>	HC 08 435-1	Shoulder, Handle Base	Fabric 1
Allah + M الله + م; geometric symbols	Arabic 'Allah' and 'M' applied to handle base; geometric X, O, two parallel horizontal lines, and pentagram below handle base. Narrow, deep incisions; incomplete		
	Parallels: Mixture of Arabic and geometric seemingly unattested. For Arabic names, see <b>AR 1.</b> For pentagrams, see Van Doorninck 1989, fig. 3.7; Karger 1958, fig. 107; Barnea 1967, fig. 155.8; Barnea 1967, fig. 161.8; Romanchuck 1995, 165.55.5; Dioshenko 2001, 95.3.		

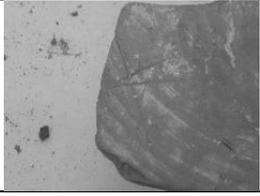
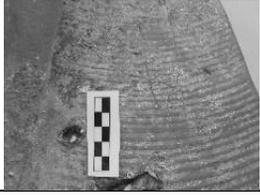
<b>GC 1</b>	HC 08 225	Handle	Fabric 1
B	Thick, deep incisions applied to handle before firing.		
	Parallels: Romanchuk 1995, figs. 162.52.4, 163.53.1-3, 166.56.5-9, Duzhenko 2001, fig. 94.1, Garver 1993, fig. 32, Barnea 1954, fig. 2, Stanchev 1960, figs. 15-16, Dovzhenok 1996, pl. XIII:8, Scherbak 1959, VII, XVI, XVII.		

<b>GC 2</b>	HC 08 823	Body	Fabric 1
B, retrograde	Broad, deep incisions applied to body below handle base before firing, incomplete.		
	Parallels: Romanchuk 1995, figs. 162.52.4, 163.53.1-3, 166.56.5-9, Duzhenko 2001, fig. 94.1, Garver 1993, fig. 32, Barnea 1954, fig. 2, Stanchev 1960, figs. 15-16, Dovzhenok 1996, pl. XIII:8, Scherbak 1959, VII.		
<b>GC 3</b>	HC 03 431	Handle	Fabric 5
BP, ligature	Narrow, deep incisions applied after firing.		
	Parallels: No ligature parallels. B and P seen together in Garver 1993, fig. 21.		
<b>GC 4</b>	HC 07 361	Handle	Fabric 2
BP	Medium incisions applied to handle base after firing.		
	Parallels: B and P seen together in Garver 1993, fig. 21.		
<b>GC 5</b>	HC 06 218	Shoulder, Handle	Fabric 4
B, retrograde, horizontal line	Narrow incisions applied below handle base, incomplete.		
	Parallels: Romanchuk 1995, figs. 162.52.4, 163.53.1-3, 166.56.5-9, Duzhenko 2001, fig. 94.1, Garver 1993, fig. 32, Barnea 1954, fig. 2, Stanchev 1960, figs. 15-16, Dovzhenok 1996, pl. XIII:8, Scherbak 1959, VII.		
<b>GC 6</b>	HC 08 730	Shoulder	Fabric 1
I B I, retrograde, horizontal line	Narrow, light incisions applied to shoulder after firing. Incomplete. <b>GC 184.</b>		
			

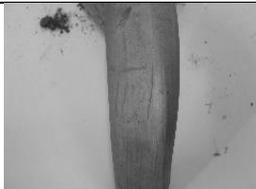
<b>GC 7</b>	HC 08 144	Shoulder	Fabric 3
BBB, each surmounted w/ T	Broad, medium incisions applied to shoulder after firing. Incomplete.		
	Parallels: Scherbak 1959, XVI.		
<b>GC 8</b>	HC 07 401	Shoulder, Handle, Neck	Fabric 2
B, retrograde	Narrow, medium incisions applied after firing to shoulder under handle. Incomplete.		
	Parallels: Romanchuk 1995, figs. 162.52.4, 163.53.1-3, Duzhenko 2001, fig. 94.1, Garver 1993, fig. 32, Barnea 1954, fig. 2, Stanchev 1960, figs. 15-16, Dovzhenok 1996, pl. XIII:8, Scherbak 1959, VII.		
<b>GC 9</b>	HC 08 528	Shoulder, Handle Base	Fabric 2
B, retrograde	Narrow, medium incisions applied after firing to handle base. Incomplete.		
	Parallels: Romanchuk 1995, figs. 162.52.4, 163.53.1-3, Duzhenko 2001, fig. 94.1, Garver 1993, fig. 32, Barnea 1954, fig. 2, Stanchev 1960, figs. 15-16, Dovzhenok 1996, pl. XIII:8, Scherbak 1959, VII.		
<b>GC 10</b>	HC 08 350	Shoulder	Fabric 3
AB, retrograde	Broad, deep incisions applied to shoulder, possibly before firing. Incomplete.		
	Parallels: Bulgakov 2001, 37; Parshina 2001, 112.2-4.		
<b>GC 11</b>	HC 06 137	Shoulder, Handle, Neck	Fabric 4
B, retrograde	Narrow, medium incisions applied after firing to shoulder. Incomplete. <b>NM 56.</b>		
	Parallels: Romanchuk 1995, figs. 162.52.4, 163.53.1-3, Duzhenko 2001, fig. I.1-5, III.18-19; Garver 1993, fig. 32, Barnea 1954, fig. 2, Stanchev 1960, figs. 15-16, Dovzhenok 1996, pl. XIII:8, Scherbak 1959, VII.		

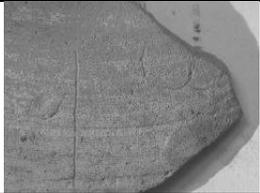
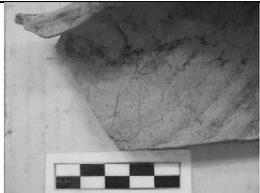
<b>GC 12</b>	HC 05 378	Shoulder	Fabric 2
B, retrograde, w/ + crossing backstaff	Narrow, deep incisions applied after firing to shoulder.		
	Parallels: Romanchuk 1995, 163.53.3; Scherbak 1959, XVI.		
<b>GC 13</b>	HC 06 556	Handle	Fabric 2
B, retrograde	Broad, deep incisions applied possibly before firing to handle. <b>GC 60.</b>		
	Parallels: Romanchuk 1995, figs. 162.52.4, 163.53.1-3, Duzhenko 2001, fig. 94.1, Garver 1993, fig. 32, Barnea 1954, fig. 2, Stanchev 1960, figs. 15-16, Dovzhenok 1996, pl. XIII:8, Scherbak 1959, VII.		
<b>GC 14</b>	HC 08 296	Shoulder, Handle Base	Fabric 1
XB, retrograde	Narrow, deep incisions applied to shoulder after firing. Incomplete. <b>NM 28.</b>		
	Parallels: Romanchuk 1995, 163.53.3; Scherbak 1959, XVI.		
<b>GC 15</b>	HC 08 770	Shoulder, Handle	Fabric 3
AN	Narrow, deep incisions applied to shoulder after firing. <b>TR</b>		
	Parallels: Bulgakov 2001, 26, 1.26; Garver 1995, 3.7,62; van Doorninck 1989, 2.7; Scherbak 1959, XI, XVII, XVII.		
<b>GC 16</b>	HC 08 239-1	Shoulder	Fabric 2
AAX, ligature	Narrow, deep incisions applied to shoulder after firing. Same amphora as HC 08 239/2. Incomplete.		
	No known parallels.		

<b>GC 17</b>	HC 08 239- 2	Shoulder	Fabric 2
AΛX, ligature	Narrow, deep incisions applied to shoulder after firing. Same amphora as HC 08 239/1. Incomplete.		
	No known parallels.		
<b>GC 18</b>	HC 08 723	Shoulder	Fabric 3
AΛX, ligature	Narrow, deep incisions applied to shoulder after firing. Guidelines around ligature.		
	No known parallels.		
<b>GC 19</b>	HC 08 724	Shoulder	Fabric 3
AΛX, ligature	Narrow, deep incisions applied to shoulder after firing. Incomplete.		
	No known parallels.		
<b>GC 20</b>	HC 05 306	Shoulder	Fabric 2
A	Narrow, deep incisions applied to shoulder after firing. Incomplete.		
	Parallels: Bulgakov 2001, 8, 39; Parshina 2001, 112.8; Zochenko 2001, fig. 22, Romanchuck 1995, 165.55.2, 168.58.5; Garver 1995, 9.40,43; Günsenin 1990, LXXVIII: 1c.		
<b>GC 21</b>	HC 06 502	Shoulder	Fabric 3
OA	Narrow, deep incisions applied to shoulder after firing. Incomplete.		
	Parshina 2001, 112.8; Romanchuck 1995, 165.55.2, 168.58.5; Garver 1995, 9.40,43.		

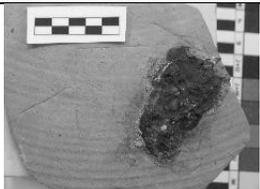
<b>GC 22</b>	HC 07 162	Shoulder	Fabric 5
A	Narrow, faint incisions applied to shoulder after firing.		
	Bulgakov 2001, 8, 39; Parshina 2001, 112.8; Romanchuck 1995, 165.55.1, 168.58.3; Garver 1995, 2.6-7; Scherbak 1959, XIX.		
<b>GC 23</b>	HC 07 579	Shoulder	Fabric 2
A	Narrow, deep incisions applied to shoulder after firing.		
	Bulgakov 2001, 8, 39; Parshina 2001, 112.8; Romanchuck 1995, 165.55.1, 168.58.3; Garver 1995, 2.6-7; Scherbak 1959, XIX.		
<b>GC 24</b>	HC 08 591	Handle	Fabric 1
A	Narrow, deep incisions applied to handle after firing.		
	Bulgakov 2001, 8, 39; Parshina 2001, 112.8; Romanchuck 1995, 165.55.1, 168.58.3; Garver 1995, 2.6-7; Scherbak 1959, XIX.		
<b>GC 25</b>	HC 08 593	Handle Base	Fabric 2
A	Narrow, deep incisions applied to shoulder after firing.		
	Bulgakov 2001, 8, 39; Parshina 2001, 112.8; Romanchuck 1995, 165.55.1, 168.58.3; Garver 1995, 2.6-7; Scherbak 1959, XIX.		
<b>GC 26</b>	HC 08 80	Handle Base	Fabric 3
A	Medium, deep incisions applied to handle base after firing. Incomplete. Two other marks on this amphora, <b>NM 2</b>		
	Bulgakov 2001, 8,39; Parshina 2001, 112.8; Romanchuck 1995, 165.55.1, 168.58.3; Garver 1995, 2.6-7; Scherbak 1959, XIX.		
<b>GC 27</b>	HC 08 82-1	Handle	Fabric 4
A	Narrow, deep incisions applied to handle after firing. <b>GC 71, GC 116, GC 144, GC 145, TR 62, SN 24.</b>		

	Bulgakov 2001, 8,14; Parshina 2001, 112.8; Romanchuck 1995, 165.55.1, 168.58.3; Garver 1995, 2.6-7; Scherbak 1959, XIX.		
<b>GC 28</b>	HC 06 162	Shoulder	Fabric 2
A	Narrow, faint incisions applied to shoulder after firing.		
	Parallels: Bulgakov 2001, 8,39; Parshina 2001, 112.8; Romanchuck 1995, 165.55.2, 168.58.5; Garver 1995, 9.40,43.		
<b>GC 29</b>	HC 04 386	Handle	Fabric 3
A	Narrow, deep incisions applied to handle after firing.		
	Parallels: Bulgakov 2001, 8, 39; Parshina 2001, 112.8; Zochenko 2001, fig. 22, Romanchuck 1995, 165.55.2, 168.58.5; Garver 1995, 9.40,43; Günsenin 1990, LXXVIII: 1c.		
<b>GC 30</b>	HC 04 387	Shoulder	Fabric 3
A	Narrow, medium depth incisions. <b>TR 88.</b>		
	Parallels: Bulgakov 2001, 8, 39; Parshina 2001, 112.8; Zochenko 2001, fig. 22, Romanchuck 1995, 165.55.2, 168.58.5; Garver 1995, 9.40,43; Günsenin 1990, LXXVIII: 1c.		
<b>GC 31</b>	HC 06 426	Shoulder	Fabric 1
A	Medium, faint incisions.		
	Parallels: Bulgakov 2001, 8, 39; Parshina 2001, 112.8; Zochenko 2001, fig. 22, Romanchuck 1995, 165.55.2, 168.58.5; Garver 1995, 9.40,43; Günsenin 1990, LXXVIII: 1c.		
<b>GC 32</b>	HC 06 42	Shoulder	Fabric 2
\A/	Narrow, deep incisions applied to shoulder after firing.		

	Lang 1979, 9, 2.B10.		
<b>GC 33</b>	HC 08 775	Handle	Fabric 3
IA	Narrow, deep incisions applied to handle after firing.		
	Parallels: Bulgakov 2001, 22; Duzhenko 2001, III.16, 17, IV.30a; Parshina 2001, 112.8; Romanchuk 1995, 161. 51.5, 168.58. 4; Garver 1995, 2.4-5; Hayes 1992, 15.i; Scherbak 1959, III.		
<b>GC 34</b>	HC 08 354	Handle	Fabric 7
IA	Narrow, deep incisions.		
	Parallels: Bulgakov 2001, 22; Duzhenko 2001, III.16, 17, IV.30a; Parshina 2001, 112.8; Romanchuk 1995, 161. 51.5, 168.58. 4; Garver 1995, 2.4-5; Hayes 1992, 15.i; Scherbak 1959, III.		
<b>GC 35</b>	HC 08 611	Handle	Fabric 1
Γω	Narrow, deep lines applied to handle after firing.		
	Parallels: Parshina 2001, 112.20; Romanchuk 1995, 56.166.10; Günsenin 1990, pl. LXXVI 1b; Scherbak 1959, IV, XVI, XVII.		
<b>GC 36</b>	HC 06 628	Handle	Fabric 2
+AΣ \ Iω	Broad, deep lines applied to handle after firing. Angular ω. Two other marks		
	Parallels: Bulgakov 2001, 9, 30, 47, 61; Garver 1995, Scherbak 1959, VI, XVI, XVII, XVIII.		
<b>GC 37</b>	HC 03 753	Handle	Fabric 1
Iω and geometric signs,     o	Narrow, faint marks applied to handle after firing		

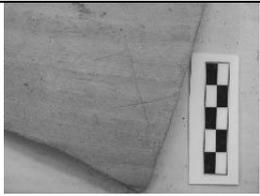
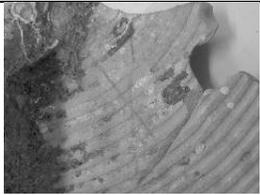
	No parallels for Iω with the geometric signs.		
<b>GC 38</b>	HC 08 93	Shoulder	Fabric 3
Iω	Narrow, medium lines applied to shoulder, after firing. Curved ω. Incomplete.		
	Parallels: Bulgakov 2001, 12,15,24-27; Parshina 2001 112.21, 114. 52-58, Zochenko 2001, fig. 26.		
<b>GC 39</b>	HC 05 327	Shoulder, Handle, Neck	Fabric 2
Iω	Narrow, deep lines applied to handle. Curved ω with ~ above. <b>ST 8.</b>		
	Parallels: Bulgakov 2001, 12,15,24-27; Parshina 2001 112.21, 114. 52-58, Zochenko 2001, fig. 26.		
<b>GC 40</b>	HC 08 2	Shoulder	Fabric 2
ω	Narrow, faint incisions applied to shoulder after firing. Incomplete.		
	Parallels: Parshina 113.36.		
<b>GC 41</b>	HC 05 693	Shoulder, Handle, Neck	Fabric 3
ω	Narrow, deep incisions applied to shoulder after firing. Incomplete.		
	Parallels: Parshina 113.36.		
<b>GC 42</b>	HC 08 817	Shoulder	Fabric 1
IωI	Narrow, deep lines applied to shoulder after firing. Incomplete.		

	Parallels: Parshina 2001, 114.52,58.		
<b>GC 43</b>	HC 03 457	Handle, Neck	Fabric 3
III	Medium, deep incisions applied to handle after firing.		
	Parallels: Baranov and Maiko 2001, fig. 5.6; Bulgakov 2001, 33; Duzhenko 2001, fig. II.7; Zankin 2001, 5.2,3,16; van Doorninck 1989, 3.8; Barnea 1971, 87.1; Barnea 1967, 160:4; Scherbak 1959, IV.		
<b>GC 44</b>	HC 08 298	Shoulder, Handle Base	Fabric 1
III	Narrow, medium incisions applied to handle base. Incomplete		
	Parallels: Baranov and Maiko 2001, fig. 5.6; Bulgakov 2001, 33; Duzhenko 2001, fig. II.7; Zankin 2001, 5.2,3,16; van Doorninck 1989, 3.8; Barnea 1971, 87.1; Barnea 1967, 160:4; Scherbak 1959, IV.		
<b>GC 45</b>	HC 08 76	Shoulder	Fabric 1
III	Medium deep lines applied to shoulder. Incomplete. <b>TR 28, TR 98.</b>		
	Parallels: Baranov and Maiko 2001, fig. 5.6; Bulgakov 2001, 33; Duzhenko 2001, fig. II.7; Zankin 2001, 5.2,3,16; van Doorninck 1989, 3.8; Barnea 1971, 87.1; Barnea 1967, 160:4; Scherbak 1959, IV.		
<b>GC 46</b>	HC 08 812	Handle, Shoulder	Fabric 2
III	Narrow, deep incisions applied to handle after firing.		
	Parallels: Baranov and Maiko 2001, fig. 5.6; Bulgakov 2001, 33; Duzhenko 2001, fig. II.7; Zankin 2001, 5.2,3,16; van Doorninck 1989, 3.8; Barnea 1971, 87.1; Barnea 1967, 160:4; Scherbak 1959, IV.		
<b>GC 47</b>	HC 08 818	Shoulder	Fabric 2
III	Narrow, faint lines applied to shoulder after firing. Incomplete.		

	Parallels: Baranov and Maiko 2001, fig. 5.6; Bulgakov 2001, 33; Duzhenko 2001, fig. II.7; Zankin 2001, 5.2,3,16; van Doorninck 1989, 3.8; Barnea 1971, 87.1; Barnea 1967, 160:4; Scherbak 1959, IV.		
<b>GC 48</b>	HC 08 783	Handle	Fabric 1
III	Narrow, deep incisions applied after firing. <b>SN 22.</b>		
	Parallels: Baranov and Maiko 2001, fig. 5.6; Bulgakov 2001, 33; Duzhenko 2001, fig. II.7; Zankin 2001, 5.2,3,16; van Doorninck 1989, 3.8; Barnea 1971, 87.1; Barnea 1967, 160:4; Scherbak 1959, IV.		
<b>GC 49</b>	HC 08 337	Handle Base, Shoulder	Fabric 3
III III	Narrow, faint lines applied to handle base after firing.		
	Parallels: Scherbak 1959, XVIII.		
<b>GC 50</b>	HC 08 266	Shoulder	Fabric 3
III III	Narrow, deep incisions, applied after firing.		
	Parallels: Scherbak 1959, XVIII.		
<b>GC 51</b>	HC 04 376	Shoulder	Fabric 2
III	Narrow, faint incisions, applied after firing.		
	Parallels: Baranov and Maiko 2001, fig. 5.6; Bulgakov 2001, 33; Duzhenko 2001, fig. II.7; Zankin 2001, 5.2,3,16; van Doorninck 1989, 3.8; Barnea 1971, 87.1; Barnea 1967, 160:4; Scherbak 1959, IV.		
<b>GC 52</b>	HC 07 214	Handle Base	Fabric 5
III	Narrow, faint incisions applied after firing. <b>TR 37, NM 57, SN</b>		

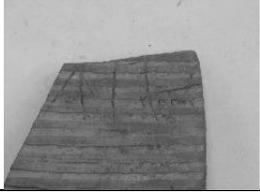
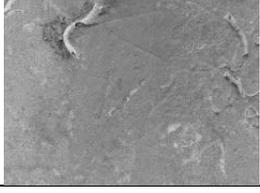
	<b>58, SN 59.</b>		
	Parallels: Baranov and Maiko 2001, fig. 5.6; Bulgakov 2001, 33; Duzhenko 2001, fig. II.7; Zankin 2001, 5.2,3,16; van Doorninck 1989, 3.8; Barnea 1971, 87.1; Barnea 1967, 160:4; Scherbak 1959, IV.		
<b>GC 53</b>	HC 05 72	Handle Base	Fabric 3
III	Narrow, faint incisions, applied after firing.		
	Parallels: Baranov and Maiko 2001, fig. 5.6; Bulgakov 2001, 33; Duzhenko 2001, fig. II.7; Zankin 2001, 5.2,3,16; van Doorninck 1989, 3.8; Barnea 1971, 87.1; Barnea 1967, 160:4; Scherbak 1959, IV.		
<b>GC 54</b>	HC 04 197	Shoulder	Fabric 3
III	Narrow, deep incisions, incomplete.		
	Parallels: Baranov and Maiko 2001, fig. 5.6; Bulgakov 2001, 33; Duzhenko 2001, fig. II.7; Zankin 2001, 5.2,3,16; van Doorninck 1989, 3.8; Barnea 1971, 87.1; Barnea 1967, 160:4; Scherbak 1959, IV.		
<b>GC 55</b>	HC 07 617	Shoulder	Fabric 2
IIIГ	Narrow, deep incisions applied after firing. <b>TR 9, NM 51.</b>		
			
<b>GC 56</b>	HC 05 148	Handle	Fabric 3
X	Narrow, faint incisions, applied after firing.		
	Parallels: Bulgakov 2001, 19,65; Duzhenko 2001, fig. III.23,V.35; Zochenko 2001, fig. 24; Romanchuck 1995, 51.161.7, 55.165.5, 57.167.8, 58.168.7; Garver 1993, fig. 36; Günsenin 1990, LXXVI. 1e; van Doorninck 1989, fig. 1.4; Barnea 1967, 155:2, 162:8,26; Scherbak 1959, VIII, XV, XVI, XVIII.		

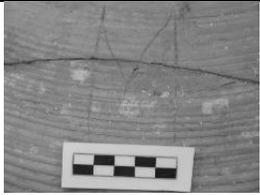
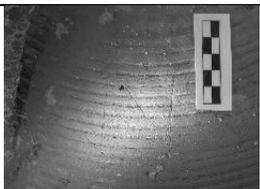
<b>GC 57</b>	HC 05 676	Shoulder	Fabric 2
X	Narrow, faint incisions, applied after firing.		
	Parallels: Bulgakov 2001, 19,65; Duzhenko 2001, fig. III.23,V.35; Zochenko 2001, fig. 24; Romanchuck 1995, 51.161.7, 55.165.5, 57.167.8, 58.168.7; Garver 1993, fig. 36; Günsenin 1990, LXXVI. 1e; van Doorninck 1989, fig. 1.4; Barnea 1967, 155:2, 162:8,26; Scherbak 1959, VIII, XV, XVI, XVIII.		
<b>GC 58</b>	HC 05 81	Shoulder	Fabric 1
X	Narrow, faint incisions, applied after firing. <b>GC 119.</b>		
	Parallels: Bulgakov 2001, 19,65; Duzhenko 2001, fig. III.23,V.35; Zochenko 2001, fig. 24; Romanchuck 1995, 51.161.7, 55.165.5, 57.167.8, 58.168.7; Garver 1993, fig. 36; Günsenin 1990, LXXVI. 1e; van Doorninck 1989, fig. 1.4; Barnea 1967, 155:2, 162:8,26; Scherbak 1959, VIII, XV, XVI, XVIII.		
<b>GC 59</b>	HC 06 546	Handle	Fabric 2
X	Narrow, faint incisions, applied after firing.		
	Parallels: Bulgakov 2001, 19,65; Duzhenko 2001, fig. III.23,V.35; Zochenko 2001, fig. 24; Romanchuck 1995, 51.161.7, 55.165.5, 57.167.8, 58.168.7; Garver 1993, fig. 36; Günsenin 1990, LXXVI. 1e; van Doorninck 1989, fig. 1.4; Barnea 1967, 155:2, 162:8,26; Scherbak 1959, VIII, XV, XVI, XVIII.		
<b>GC 60</b>	HC 06 556	Handle	Fabric 2
X	Narrow, faint incisions, applied after firing. <b>GC 13.</b>		
	Parallels: Bulgakov 2001, 19,65; Duzhenko 2001, fig. III.23,V.35; Zochenko 2001, fig. 24; Romanchuck 1995, 51.161.7, 55.165.5, 57.167.8, 58.168.7; Garver 1993, fig. 36; Günsenin 1990, LXXVI. 1e; van Doorninck 1989, fig. 1.4; Barnea 1967, 155:2, 162:8,26; Scherbak 1959, VIII, XV, XVI, XVIII.		
<b>GC 61</b>	HC 07 150	Handle	Fabric 3
X	Narrow, faint incisions, applied after firing.		
	Parallels: Bulgakov 2001, 19,65; Duzhenko 2001, fig. III.23,V.35; Zochenko 2001, fig. 24; Romanchuck 1995, 51.161.7, 55.165.5, 57.167.8, 58.168.7; Garver 1993, fig. 36; Günsenin 1990, LXXVI. 1e; van Doorninck 1989, fig. 1.4; Barnea 1967, 155:2, 162:8,26; Scherbak 1959, VIII, XV, XVI, XVIII.		
<b>GC 62</b>	HC 07 374	Handle	Fabric 1

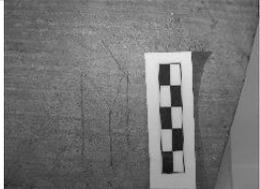
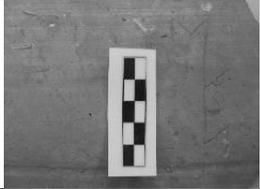
X	Narrow, deep incisions. <b>GC 134.</b>		
	Parallels: Bulgakov 2001, 19,65; Duzhenko 2001, fig. III.23,V.35; Zochenko 2001, fig. 24; Romanchuck 1995, 51.161.7, 55.165.5, 57.167.8, 58.168.7; Garver 1993, fig. 36; Günsenin 1990, LXXVI. 1e; van Doorninck 1989, fig. 1.4; Barnea 1967, 155:2, 162:8,26; Scherbak 1959, VIII, XV, XVI, XVIII.		
<b>GC 63</b>	HC 07 504	Shoulder	Fabric 3
X	Narrow, faint incisions, applied after firing.		
	Parallels: Bulgakov 2001, 19,65; Duzhenko 2001, fig. III.23,V.35; Zochenko 2001, fig. 24; Romanchuck 1995, 51.161.7, 55.165.5, 57.167.8, 58.168.7; Garver 1993, fig. 36; Günsenin 1990, LXXVI. 1e; van Doorninck 1989, fig. 1.4; Barnea 1967, 155:2, 162:8,26; Scherbak 1959, VIII, XV, XVI, XVIII.		
<b>GC 64</b>	HC 08 179	Handle	Fabric 2
X	Narrow, deep incisions, applied after firing. <b>GC 89, GC 124, GC 125, SN 16.</b>		
	Parallels: Bulgakov 2001, 19,65; Duzhenko 2001, fig. III.23,V.35; Zochenko 2001, fig. 24; Romanchuck 1995, 51.161.7, 55.165.5, 57.167.8, 58.168.7; Garver 1993, fig. 36; Günsenin 1990, LXXVI. 1e; van Doorninck 1989, fig. 1.4; Barnea 1967, 155:2, 162:8,26; Scherbak 1959, VIII, XV, XVI, XVIII.		
<b>GC 65</b>	HC 08 339	Shoulder	Fabric 2
X	Narrow, medium incisions, applied after firing.		
	Parallels: Bulgakov 2001, 19,65; Duzhenko 2001, fig. III.23,V.35; Zochenko 2001, fig. 24; Romanchuck 1995, 51.161.7, 55.165.5, 57.167.8, 58.168.7; Garver 1993, fig. 36; Günsenin 1990, LXXVI. 1e; van Doorninck 1989, fig. 1.4; Barnea 1967, 155:2, 162:8,26; Scherbak 1959, VIII, XV, XVI, XVIII.		
<b>GC 66</b>	HC 08 542	Handle	Fabric 2
X	Narrow, faint incisions, incomplete. <b>NM 37.</b>		
	Parallels: Bulgakov 2001, 19,65; Duzhenko 2001, fig. III.23,V.35; Zochenko 2001, fig. 24; Romanchuck 1995, 51.161.7, 55.165.5, 57.167.8, 58.168.7; Garver 1993, fig. 36; Günsenin 1990, LXXVI. 1e; van Doorninck 1989, fig. 1.4; Barnea 1967, 155:2, 162:8,26; Scherbak 1959, VIII, XV, XVI, XVIII.		

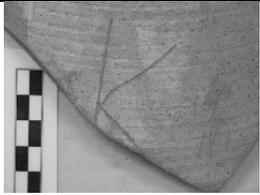
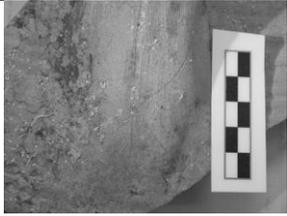
<b>GC 67</b>	HC 08 595	Handle	Fabric 3
X	Narrow, deep incisions, applied before firing.		
	Parallels: Bulgakov 2001, 19,65; Duzhenko 2001, fig. III.23,V.35; Zochenko 2001, fig. 24; Romanchuck 1995, 51.161.7, 55.165.5, 57.167.8, 58.168.7; Garver 1993, fig. 36; Günsenin 1990, LXXVI. 1e; van Doorninck 1989, fig. 1.4; Barnea 1967, 155:2, 162:8,26; Scherbak 1959, VIII, XV, XVI, XVIII.		
<b>GC 68</b>	HC 08 683	Handle Base	Fabric 7
X	Narrow, faint incisions. <b>NM 42.</b>		
	Parallels: Bulgakov 2001, 19,65; Duzhenko 2001, fig. III.23,V.35; Zochenko 2001, fig. 24; Romanchuck 1995, 51.161.7, 55.165.5, 57.167.8, 58.168.7; Garver 1993, fig. 36; Günsenin 1990, LXXVI. 1e; van Doorninck 1989, fig. 1.4; Barnea 1967, 155:2, 162:8,26; Scherbak 1959, VIII, XV, XVI, XVIII.		
<b>GC 69</b>	HC 08 689	Shoulder	Fabric 3
X	Narrow, faint incisions, applied after firing. <b>TR 19.</b>		
	Parallels: Bulgakov 2001, 19,65; Duzhenko 2001, fig. III.23,V.35; Zochenko 2001, fig. 24; Romanchuck 1995, 51.161.7, 55.165.5, 57.167.8, 58.168.7; Garver 1993, fig. 36; Günsenin 1990, LXXVI. 1e; van Doorninck 1989, fig. 1.4; Barnea 1967, 155:2, 162:8,26; Scherbak 1959, VIII, XV, XVI, XVIII.		
<b>GC 70</b>	HC 08 830	Handle Base	Fabric 3
X	Narrow, medium depth incisions applied after firing. <b>GC 139, GC 163, SN 99.</b>		
	Parallels: Bulgakov 2001, 19,65; Duzhenko 2001, fig. III.23,V.35; Zochenko 2001, fig. 24; Romanchuck 1995, 51.161.7, 55.165.5, 57.167.8, 58.168.7; Garver 1993, fig. 36; Günsenin 1990, LXXVI. 1e; van Doorninck 1989, fig. 1.4; Barnea 1967, 155:2, 162:8,26; Scherbak 1959, VIII, XV, XVI, XVIII.		
<b>GC 71</b>	HC 08 82-1	Handle	Fabric 4
X	Narrow, faint incisions. <b>GC 27, GC 116, GC 144, GC 145, TR 62, SN 24.</b>		

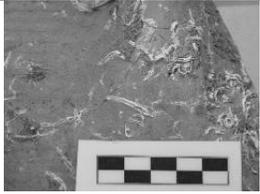
	Parallels: Bulgakov 2001, 19,65; Duzhenko 2001, fig. III.23,V.35; Zochenko 2001, fig. 24; Romanchuck 1995, 51.161.7, 55.165.5, 57.167.8, 58.168.7; Garver 1993, fig. 36; Günsenin 1990, LXXVI. 1e; van Doorninck 1989, fig. 1.4; Barnea 1967, 155:2, 162:8,26; Scherbak 1959, VIII, XV, XVI, XVIII.		
<b>GC 72</b>	HC 04 550	Handle	Fabric 3
X	Narrow, faint incisions, applied after firing.		
	Parallels: Bulgakov 2001, 19,65; Duzhenko 2001, fig. III.23,V.35; Zochenko 2001, fig. 24; Romanchuck 1995, 51.161.7, 55.165.5, 57.167.8, 58.168.7; Garver 1993, fig. 36; Günsenin 1990, LXXVI. 1e; van Doorninck 1989, fig. 1.4; Barnea 1967, 155:2, 162:8,26; Scherbak 1959, VIII, XV, XVI, XVIII.		
<b>GC 73</b>	HC 05 147	Handle	Fabric 3
X	Narrow, faint incisions, incomplete. <b>GC 185.</b>		
	Parallels: Bulgakov 2001, 19,65; Duzhenko 2001, fig. III.23,V.35; Zochenko 2001, fig. 24; Romanchuck 1995, 51.161.7, 55.165.5, 57.167.8, 58.168.7; Garver 1993, fig. 36; Günsenin 1990, LXXVI. 1e; van Doorninck 1989, fig. 1.4; Barnea 1967, 155:2, 162:8,26; Scherbak 1959, VIII, XV, XVI, XVIII.		
<b>GC 74</b>	HC 06 220-2	Shoulder	Fabric 3
VX	Narrow, deep incisions, applied before firing.		
	Parallels: Romanchuck 1995, 55.165.6.		
<b>GC 75</b>	HC 07 120	Handle Base	Fabric 3
XX	Narrow, faint incisions.		
	Parallels: Romanchuck 1995, 54.164.5; Günsenin 1990, XLVIII. 1c.		
<b>GC 76</b>	HC 06 537-1	Shoulder	Fabric 3
XP, retrograde	Narrow, faint incisions, applied after firing.		

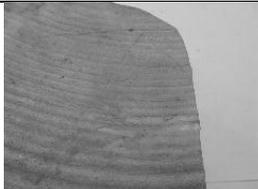
			
<b>GC 77</b>	HC 08 533	Handle Base	Fabric 1
XP	Narrow, faint incisions, applied after firing. <b>TR 15, 86, NM 14.</b>		
			
<b>GC 78</b>	HC 08 355	Shoulder	Fabric 2
/\\ II X	Narrow, deep incisions, incomplete. Parallels: Scherbak 1959, III.		
			
<b>GC 79</b>	HC 08 293	Handle	Fabric 2
XS, ligature	Narrow, faint incisions.		
			
<b>GC 80</b>	HC 07 578	Handle Base	Fabric 1
NX or MX, ligature	Narrow, faint incisions. Parallels: Günsenin 1990, XX. 1d,e; van Doorninck 1989, 2.7; Barnea 1967, 155:15, 156:2, 157:5,9, 158: 17, 159:7, 162:14; Scherbak 1959, XVI.		
			
<b>GC 81</b>	HC 07 132	Shoulder	Fabric 5
M	Narrow, deep incisions, applied before firing.		

	Parallels: Bulgakov 2001, 33, 34, 40, 60, 62; Duzhenko 2001, II.9,10; Parshina 2001, 113.37-40; Romanchuck 1995, 55.165.3-4; Garver 1993, 17; Günseinin 1990, XXV. 2b,c; van Doorninck 1989, fig. 3.9,11,23; Brusic 1976, VI.5; Barnea 1971, 87.2,5; Barnea 1967, 157:3, 160:8; Scherbak 1959, II, XVI, XVII; Changova 1954, fig. 8.4.		
<b>GC 82</b>	HC 08 105	Shoulder	Fabric 1
<b>M</b>	Narrow, faint incisions, incomplete, applied after firing.		
			
<b>GC 83</b>	HC 06 504-1	Shoulder	Fabric 2
M surmounted with double-barred +	Narrow, faint incisions, applied after firing. <b>GC 84, SN 7.</b>		
			
<b>GC 84</b>	HC 06 504-1	Handle	Fabric 2
M +, + underneath	Narrow, faint incisions, applied after firing. <b>GC 83, SN 7.</b>		
			
<b>GC 85</b>	HC 08 749	Shoulder	Fabric 3
M surmounted with +	Narrow, faint incisions applied after firing.		
	Parallels: Barnea 1967, 162:24.		
<b>GC 86</b>	HC 08 796	Shoulder	Fabric 1
M surmounted with +	Narrow, faint incisions applied after firing.		

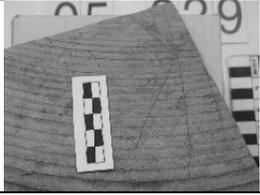
	Parallels: Barnea 1967, 162:24.		
<b>GC 87</b>	HC 08 791	Shoulder	Fabric 2
M surmounted with + \\\	Narrow, faint incisions applied after firing.		
	Parallels: Barnea 1967, 162:24.		
<b>GC 88</b>	HC 07 400	Shoulder	Fabric 2
MKA	Narrow, deep incisions, applied before firing.		
	MKΦ seen in Bulgakov 2001, 34.		
<b>GC 89</b>	HC 08 179	Handle	Fabric 2
MH surmounted with +	Narrow, deep incisions applied after firing. <b>GC 64, GC 124, GC 125, SN 16.</b>		
	Parallels: Günsenin 1990, LXXVIII: 1b; Scherbak 1959, XIX.		
<b>GC 90</b>	HC 08 799	Shoulder	Fabric 1
KMHI	Narrow, faint incisions applied after firing.		
			
<b>GC 91</b>	HC 03 770	Shoulder	Fabric 3
K	Narrow, deep incisions applied before firing.		

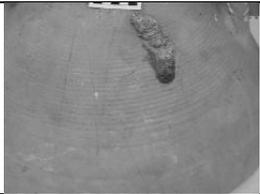
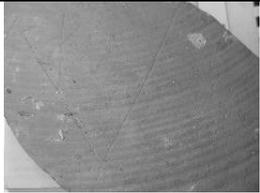
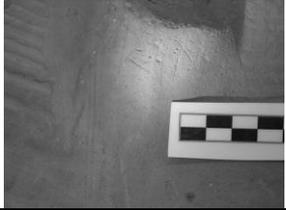
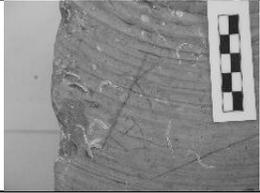
	Parallels: Baranov and Maiko 2001, fig. 4.3; Bulgakov 2001, 13,22,23; Duzhenko 2001, II.12,13; Parshina 2001, 112.12-14; 113.41-42, 115.34; Romanchuck 1995, 55.165.6, 57.167.1, 58.168.5; Garver 1993, fig. 11, 31; Hayes 1992, 13.8; Günsenin 1990, fig. 43; van Doorninck 1989, 3.21 Barnea 1971, 87.9; Barnea 1967, 160:17, Scherbak 1959, IV, XVI.		
<b>GC 92</b>	HC 06 572	Handle	Fabric 2
K	Narrow, faint incisions.		
	Parallels: Baranov and Maiko 2001, fig. 4.3; Bulgakov 2001, 13,22,23; Duzhenko 2001, II.12,13; Parshina 2001, 112.12-14; 113.41-42, 115.34; Romanchuck 1995, 55.165.6, 57.167.1, 58.168.5; Garver 1993, fig. 11, 31; Hayes 1992, 13.8; Günsenin 1990, fig. 43; van Doorninck 1989, 3.21 Barnea 1971, 87.9; Barnea 1967, 160:17, Scherbak 1959, IV, XVI.		
<b>GC 93</b>	HC 07 499	Handle Base	Fabric 2
K	Narrow, deep incisions, applied after firing.		
	Parallels: Baranov and Maiko 2001, fig. 4.3; Bulgakov 2001, 13,22,23; Duzhenko 2001, II.12,13; Parshina 2001, 112.12-14; 113.41-42, 115.34; Romanchuck 1995, 55.165.6, 57.167.1, 58.168.5; Garver 1993, fig. 11, 31; Hayes 1992, 13.8; Günsenin 1990, fig. 43; van Doorninck 1989, 3.21 Barnea 1971, 87.9; Barnea 1967, 160:17, Scherbak 1959, IV, XVI.		
<b>GC 94</b>	HC 07 602-2	Shoulder	Fabric 2
K	Narrow, medium depth incisions, applied after firing.		
	Parallels: Baranov and Maiko 2001, fig. 4.3; Bulgakov 2001, 13,22,23; Duzhenko 2001, II.12,13; Parshina 2001, 112.12-14; 113.41-42, 115.34; Romanchuck 1995, 55.165.6, 57.167.1, 58.168.5; Garver 1993, fig. 11, 31; Hayes 1992, 13.8; Günsenin 1990, fig. 43; van Doorninck 1989, 3.21 Barnea 1971, 87.9; Barnea 1967, 160:17, Scherbak 1959, IV, XVI.		
<b>GC 95</b>	HC 08 295	Shoulder	Fabric 1
K	Medium, deep incisions applied before firing. <b>NM 30.</b>		

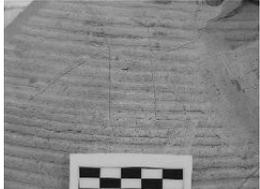
	Parallels: Baranov and Maiko 2001, fig. 4.3; Bulgakov 2001, 13,22,23; Duzhenko 2001, II.12,13; Parshina 2001, 112.12-14; 113.41-42, 115.34; Romanchuck 1995, 55.165.6, 57.167.1, 58.168.5; Garver 1993, fig. 11, 31; Hayes 1992, 13.8; Günsenin 1990, fig. 43; van Doorninck 1989, 3.21Barnea 1971, 87.9; Barnea 1967, 160:17, Scherbak 1959, IV, XVI.		
<b>GC 96</b>	HC 08 424-1	Shoulder	Fabric 1
K	Narrow, medium incisions, applied after firing.		
	Parallels: Baranov and Maiko 2001, fig. 4.3; Bulgakov 2001, 13,22,23; Duzhenko 2001, II.12,13; Parshina 2001, 112.12-14; 113.41-42, 115.34; Romanchuck 1995, 55.165.6, 57.167.1, 58.168.5; Garver 1993, fig. 11, 31; Hayes 1992, 13.8; Günsenin 1990, fig. 43; van Doorninck 1989, 3.21Barnea 1971, 87.9; Barnea 1967, 160:17, Scherbak 1959, IV, XVI.		
<b>GC 97</b>	HC 04 563	Handle	Fabric 3
K	Narrow, faint incisions applied after firing.		
	Parallels: Baranov and Maiko 2001, fig. 4.3; Bulgakov 2001, 13,22,23; Duzhenko 2001, II.12,13; Parshina 2001, 112.12-14; 113.41-42, 115.34; Romanchuck 1995, 55.165.6, 57.167.1, 58.168.5; Garver 1993, fig. 11, 31; Hayes 1992, 13.8; Günsenin 1990, fig. 43; van Doorninck 1989, 3.21Barnea 1971, 87.9; Barnea 1967, 160:17, Scherbak 1959, IV, XVI.		
<b>GC 98</b>	HC 04 604	Handle Base	Fabric 4
K	Narrow, faint incisions applied after firing. <b>TR 39.</b>		
	Parallels: Baranov and Maiko 2001, fig. 4.3; Bulgakov 2001, 13,22,23; Duzhenko 2001, II.12,13; Parshina 2001, 112.12-14; 113.41-42, 115.34; Romanchuck 1995, 55.165.6, 57.167.1, 58.168.5; Garver 1993, fig. 11, 31; Hayes 1992, 13.8; Günsenin 1990, fig. 43; van Doorninck 1989, 3.21Barnea 1971, 87.9; Barnea 1967, 160:17, Scherbak 1959, IV, XVI.		
<b>GC 99</b>	HC 05 674	Handle Base	Fabric 5
K	Narrow, medium depth incisions.		
	Parallels: Baranov and Maiko 2001, fig. 4.3; Bulgakov 2001, 13,22,23; Duzhenko 2001, II.12,13; Parshina 2001, 112.12-14; 113.41-42, 115.34; Romanchuck 1995, 55.165.6, 57.167.1, 58.168.5; Garver 1993, fig. 11, 31; Hayes 1992, 13.8; Günsenin 1990, fig. 43; van Doorninck 1989, 3.21Barnea 1971, 87.9; Barnea 1967,		

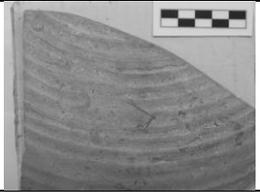
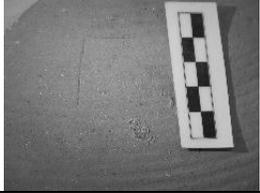
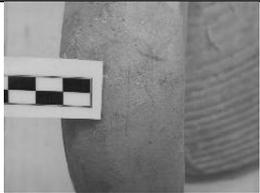
	160:17, Scherbak 1959, IV, XVI.		
<b>GC 100</b>	HC 06 57	Handle	Fabric 2
K, face down.	Narrow, faint incisions.		
	Parallels: Baranov and Maiko 2001, fig. 4.3; Bulgakov 2001, 13,22,23; Duzhenko 2001, II.12,13; Parshina 2001, 112.12-14; 113.41-42, 115.34; Romanchuck 1995, 55.165.6, 57.167.1, 58.168.5; Garver 1993, fig. 11, 31; Hayes 1992, 13.8; Günsenin 1990, fig. 43; van Doorninck 1989, 3.21 Barnea 1971, 87.9; Barnea 1967, 160:17, Scherbak 1959, IV, XVI.		
<b>GC 101</b>	HC 07 266	Shoulder	Fabric 2
K	Narrow, faint incisions, incomplete.		
	Parallels: Baranov and Maiko 2001, fig. 4.3; Bulgakov 2001, 13,22,23; Duzhenko 2001, II.12,13; Parshina 2001, 112.12-14; 113.41-42, 115.34; Romanchuck 1995, 55.165.6, 57.167.1, 58.168.5; Garver 1993, fig. 11, 31; Hayes 1992, 13.8; Günsenin 1990, fig. 43; van Doorninck 1989, 3.21 Barnea 1971, 87.9; Barnea 1967, 160:17, Scherbak 1959, IV, XVI.		
<b>GC 102</b>	HC 08 163	Shoulder	Fabric 1
K, face down	Narrow, faint incisions.		
	Parallels: Baranov and Maiko 2001, fig. 4.3; Bulgakov 2001, 13,22,23; Duzhenko 2001, II.12,13; Parshina 2001, 112.12-14; 113.41-42, 115.34; Romanchuck 1995, 55.165.6, 57.167.1, 58.168.5; Garver 1993, fig. 11, 31; Hayes 1992, 13.8; Günsenin 1990, fig. 43; van Doorninck 1989, 3.21 Barnea 1971, 87.9; Barnea 1967, 160:17, Scherbak 1959, IV, XVI.		
<b>GC 103</b>	HC 08 523	Shoulder	Fabric 3
K	Narrow, faint incisions, incomplete, applied after firing.		
	Parallels: Baranov and Maiko 2001, fig. 4.3; Bulgakov 2001, 13,22,23; Duzhenko 2001, II.12,13; Parshina 2001, 112.12-14; 113.41-42, 115.34; Romanchuck 1995, 55.165.6, 57.167.1, 58.168.5; Garver 1993, fig. 11, 31; Hayes 1992, 13.8; Günsenin 1990, fig. 43; van Doorninck 1989, 3.21 Barnea 1971, 87.9; Barnea 1967, 160:17, Scherbak 1959, IV, XVI.		
<b>GC 104</b>	HC 08 740	Handle Base	Fabric 1
K, face down	Narrow, deep incisions applied after firing.		

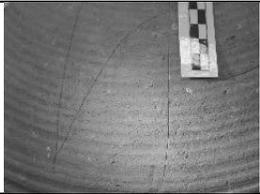
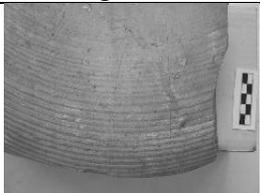
	Parallels: Baranov and Maiko 2001, fig. 4.3; Bulgakov 2001, 13,22,23; Duzhenko 2001, II.12,13; Parshina 2001, 112.12-14; 113.41-42, 115.34; Romanchuck 1995, 55.165.6, 57.167.1, 58.168.5; Garver 1993, fig. 11, 31; Hayes 1992, 13.8; Günsenin 1990, fig. 43; van Doorninck 1989, 3.21 Barnea 1971, 87.9; Barnea 1967, 160:17, Scherbak 1959, IV, XVI.		
<b>GC 105</b>	HC 08 77	Handle	Fabric 2
K, face down	Narrow, faint incisions applied after firing.		
	Parallels: Baranov and Maiko 2001, fig. 4.3; Bulgakov 2001, 13,22,23; Duzhenko 2001, II.12,13; Parshina 2001, 112.12-14; 113.41-42, 115.34; Romanchuck 1995, 55.165.6, 57.167.1, 58.168.5; Garver 1993, fig. 11, 31; Hayes 1992, 13.8; Günsenin 1990, fig. 43; van Doorninck 1989, 3.21 Barnea 1971, 87.9; Barnea 1967, 160:17, Scherbak 1959, IV, XVI.		
<b>GC 106</b>	HC 08 806	Handle	Fabric 2
K	Narrow, faint incisions applied after firing.		
	Parallels: Baranov and Maiko 2001, fig. 4.3; Bulgakov 2001, 13,22,23; Duzhenko 2001, II.12,13; Parshina 2001, 112.12-14; 113.41-42, 115.34; Romanchuck 1995, 55.165.6, 57.167.1, 58.168.5; Garver 1993, fig. 11, 31; Hayes 1992, 13.8; Günsenin 1990, fig. 43; van Doorninck 1989, 3.21 Barnea 1971, 87.9; Barnea 1967, 160:17, Scherbak 1959, IV, XVI.		
<b>GC 107</b>	HC 04 424	Shoulder	Fabric 1
K	Narrow, deep incisions, applied before firing.		
	Parallels: Baranov and Maiko 2001, fig. 4.3; Bulgakov 2001, 13,22,23; Duzhenko 2001, II.12,13; Parshina 2001, 112.12-14; 113.41-42, 115.34; Romanchuck 1995, 55.165.6, 57.167.1, 58.168.5; Garver 1993, fig. 11, 31; Hayes 1992, 13.8; Günsenin 1990, fig. 43; van Doorninck 1989, 3.21 Barnea 1971, 87.9; Barnea 1967, 160:17, Scherbak 1959, IV, XVI.		
<b>GC 108</b>	HC 08 673	Handle Base	Fabric 1
> K	Narrow, deep incisions, applied before firing.		
	Parallels: Duzhenko 2001, VII.55.		

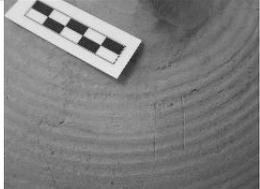
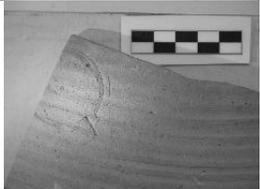
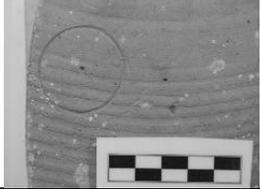
<b>GC 109</b>	HC 08 183	Shoulder	Fabric 2
KI	Narrow, deep incisions applied after firing.		
	Parallels: Barnea 1954, 5.4.		
<b>GC 110</b>	HC 05 329	Shoulder	Fabric 5
KI, retrograde	Narrow, faint incisions, applied after firing.		
	Parallels: Barnea 1954, 5.4.		
<b>GC 111</b>	HC 03 710	Handle	Fabric 3
K - v N	Narrow, faint incisions applied after firing.		
			
<b>GC 112</b>	HC 05 219	Handle	Fabric 3
ΦK	Narrow, deep incisions, applied after firing.		
<b>No picture</b>	Parallels: Bulgakov 2001, 31; Garver 1995, 3.198		
<b>GC 113</b>	HC 05 328	Handle	Fabric 4
K retrograde, surmounted by +	Narrow, faint incisions, applied after firing.		
			
<b>GC 114</b>	HC 04 477	Shoulder	Fabric 3
N or Λ K	Parallels: Maiko 2001, fig. 1.4.		
			

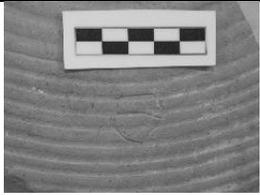
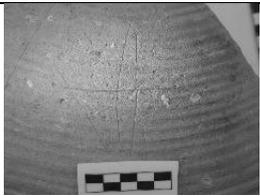
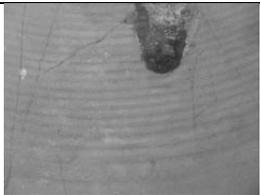
<b>GC 115</b>	HC 04 373	Shoulder	Fabric 2
N or Λ K	Narrow, medium incisions, applied after firing.		
	Parallels: Maiko 2001, fig. 1.4.		
<b>GC 116</b>	HC 08 82-1	Shoulder	Fabric 4
N or Λ K	Narrow, faint incisions, applied after firing. <b>GC 27, GC 71, GC 116, GC 144, GC 145, TR 62, SN 24.</b>		
	Parallels: Maiko 2001, fig. 1.4.		
<b>GC 117</b>	HC 08 338	Shoulder	Fabric 3
K	Narrow, faint incisions. <b>TR 10.</b>		
	Parallels: Baranov and Maiko 2001, fig. 4.3; Bulgakov 2001, 13,22,23; Duzhenko 2001, II.12,13; Parshina 2001, 112.12-14; 113.41-42, 115.34; Romanchuck 1995, 55.165.6, 57.167.1, 58.168.5; Garver 1993, fig. 11, 31; Hayes 1992, 13.8; Günsenin 1990, fig. 43; van Doorninck 1989, 3.21; Barnea 1971, 87.9; Barnea 1967, 160:17, Scherbak 1959, IV, XVI.		
<b>GC 118</b>	HC 06 159	Handle Base	Fabric 1
K λ	Narrow, faint incisions.		
	Parallels: Romanchuck 1995, 41.151; Scherbak 1959, XVIII; Barnea 1954, 5.17,18.		
<b>GC 119</b>	HC 05 81	Shoulder	Fabric 1
(T)Kλ	Narrow, deep incisions applied after firing. <b>GC 58</b>		
	Parallels: Romanchuck 1995, 41.151; Scherbak 1959, XVIII; Barnea 1954, 5.17,18.		

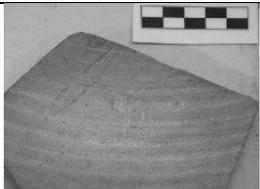
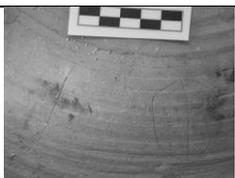
<b>GC 120</b>	HC 05 364	Handle	Fabric 3
Κ λ	Narrow, faint incisions, applied after firing.		
	Parallels: Romanchuck 1995, 41.151; Scherbak 1959, XVIII; Barnea 1954, 5.17,18.		
<b>GC 121</b>	HC 04 548	Shoulder	Fabric 2
λ Κ	Narrow, faint incisions, applied after firing. <b>GC 122, TR 33.</b>		
			
<b>GC 122</b>	HC 04 548	Shoulder	Fabric 2
λ   Κ χ λ	Narrow, deep incisions, applied after firing. <b>GC 121, TR 33.</b>		
	Parallels: Romanchuck 1995, 41.151.161; Garver 1993, fig. 14.		
			
<b>GC 123</b>	HC 06 560	Handle	Fabric 2
[Λυ]μωτρησοκλο	Narrow, medium depth incisions, incomplete.		
	No known parallels.		
<b>GC 124</b>	HC 08 179	Handle	Fabric 2
TH, ligature	Narrow, deep incisions, applied after firing. <b>GC 64, GC 89, GC 125, SN 16.</b>		
	Parallels: Scherbak 1959, I, XIX.		

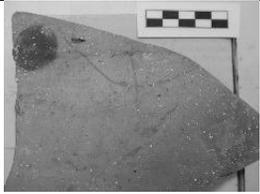
<b>GC 125</b>	HC 08 179	Handle	Fabric 2
TH, ligature	Narrow, deep incisions, applied after firing. <b>GC 64, GC 89, GC 124, SN 16.</b>		
	Parallels: Scherbak 1959, I, XIX.		
<b>GC 126</b>	HC 03 787	Handle	Fabric 2
HV, ligature	Narrow, deep incisions, perhaps applied before firing.		
	Parallels: Garver 1993, fig. 9; Günsenin 1990, XXXV. 3c; Scherbak 1959, XVIII.		
<b>GC 127</b>	HC 07 514	Shoulder	Fabric 2
Г	Narrow, deep incisions.		
	Parallels: Garver 1993, fig. 22; Barnea 1967, 157:2, Scherbak 1959, XVIII.		
<b>GC 128</b>	HC 08 766	Shoulder	Fabric 3
Г	Narrow, faint incisions applied after firing.		
	Parallels: Garver 1993, fig. 22; Barnea 1967, 157:2, Scherbak 1959, XVIII.		
<b>GC 129</b>	HC 04 182	Handle	Fabric 2
N	Narrow, faint incisions applied after firing.		
	Parallels: Duzhenko 2001, III.21,22,25; Parshina 2001, 112.16-19; Zankin 2001, 3.1, 4.3; Hayes 1992, 13.4; Günsenin 1990, LXXVII. 1c,d, LXXXI. 3b; Scherbak 1959, XVI.		
<b>GC 130</b>	HC 06 469	Shoulder	Fabric 5
N	Broad, deep incisions, incomplete.		

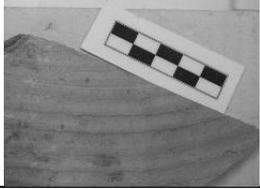
	Parallels: Duzhenko 2001, III.21,22,25; Parshina 2001, 112.16-19; Zankin 2001, 3.1, 4.3; Hayes 1992, 13.4; Günsenin 1990, LXXVII. 1c,d, LXXXI. 3b; Scherbak 1959, XVI.		
<b>GC 131</b>	HC 07 294	Handle	Fabric 2
N	Narrow, deep incisions, applied after firing.		
	Parallels: Duzhenko 2001, III.21,22,25; Parshina 2001, 112.16-19; Zankin 2001, 3.1, 4.3; Hayes 1992, 13.4; Günsenin 1990, LXXVII. 1c,d, LXXXI. 3b; Scherbak 1959, XVI.		
<b>GC 132</b>	HC 08 763	Shoulder	Fabric 3
N	Narrow, faint incisions applied after firing.		
	Parallels: Duzhenko 2001, III.21,22,25; Parshina 2001, 112.16-19; Zankin 2001, 3.1, 4.3; Hayes 1992, 13.4; Günsenin 1990, LXXVII. 1c,d, LXXXI. 3b; Scherbak 1959, XVI.		
<b>GC 133</b>	HC 08 746	Shoulder	Fabric 1
N	Narrow, faint incisions applied after firing.		
	Parallels: Duzhenko 2001, III.21,22,25; Parshina 2001, 112.16-19; Zankin 2001, 3.1, 4.3; Hayes 1992, 13.4; Günsenin 1990, LXXVII. 1c,d, LXXXI. 3b; Scherbak 1959, XVI.		
<b>GC 134</b>	HC 07 374	Shoulder	Fabric 1
N, retrograde	Narrow, faint incisions. <b>GC 62.</b>		
	Parallels: Barnea 1967, 158:15.		
<b>GC 135</b>	HC 08 515	Shoulder	Fabric 3
NN or NVI	Narrow, faint incisions, applied after firing. <b>TR 103</b>		

			
<b>GC 136</b>	HC 03 489	Handle	Fabric 1
N or Z	Narrow, faint incisions applied after firing.		
	Parallels: Duzhenko 2001, III.21,22,25; Parshina 2001, 112.16-19; Zankin 2001, 3.1, 4.3; Hayes 1992, 13.4; Günsenin 1990, LXXVII. 1c,d, LXXXI. 3b; Scherbak 1959, XVI.		
<b>GC 137</b>	HC 06 264	Shoulder	Fabric 3
O	Compass-drawn circle, applied before firing.		
			
<b>GC 138</b>	HC 04 375	Shoulder	Fabric 3
O	Narrow, deep incisions, applied before firing, compass-drawn. <b>TR 73.</b>		
			
<b>GC 139</b>	HC 08 830	Handle Base	Fabric 3
O	Narrow, deep incisions applied after firing. <b>GC 70, GC 163, SN 99.</b>		
			
<b>GC 140</b>	HC 03 519	Shoulder	Fabric 3
⊙ or Φ	Narrow, faint incisions applied after firing.		

	Parallels: Baranov and Maiko 2001, fig 5.6; Bulgakov 2001, 32, 34; Duzhenko 2001, II.14, VII.49,52; Parshina 2001, 114.43,44; Zankin 2001, fig. 2.1, 5.16,19; Romanchuck 1995, 51.161.1, 54.164.3; Garver 1993, fig. 30; Günsenin 1990, LXV: 1e,f; Scherbak 1959, I, III, V, VII, XVIII.		
<b>GC 141</b>	HC 03 531	Shoulder	Fabric 1
⊙ or Φ	Narrow, faint incisions applied after firing.		
	Parallels: Baranov and Maiko 2001, fig 5.6; Bulgakov 2001, 32, 34; Duzhenko 2001, II.14, VII.49,52; Parshina 2001, 114.43,44; Zankin 2001, fig. 2.1, 5.16,19; Romanchuck 1995, 51.161.1, 54.164.3; Garver 1993, fig. 30; Günsenin 1990, LXV: 1e,f; Scherbak 1959, I, III, V, VII, XVIII.		
<b>GC 142</b>	HC 08 746	Shoulder	Fabric 2
⊙ or Φ	Narrow, faint incisions applied after firing.		
	Parallels: Baranov and Maiko 2001, fig 5.6; Bulgakov 2001, 32, 34; Duzhenko 2001, II.14, VII.49,52; Parshina 2001, 114.43,44; Zankin 2001, fig. 2.1, 5.16,19; Romanchuck 1995, 51.161.1, 54.164.3; Garver 1993, fig. 30; Günsenin 1990, LXV: 1e,f; Scherbak 1959, I, III, V, VII, XVIII.		
<b>GC 143</b>	HC 08 773	Shoulder	Fabric 3
⊙ or Φ	Narrow, medium incisions applied after firing.		
	Parallels: Baranov and Maiko 2001, fig 5.6; Bulgakov 2001, 32, 34; Duzhenko 2001, II.14, VII.49,52; Parshina 2001, 114.43,44; Zankin 2001, fig. 2.1, 5.16,19; Romanchuck 1995, 51.161.1, 54.164.3; Garver 1993, fig. 30; Günsenin 1990, LXV: 1e,f; Scherbak 1959, I, III, V, VII, XVIII.		
<b>GC 144</b>	HC 08 82-1	Shoulder	Fabric 4
⊙ or φ	Narrow, faint incisions, applied after firing. <b>GC 27, GC 71, GC 116, GC 145, TR 62, SN 24.</b>		
	Parallels: Baranov and Maiko 2001, fig 5.6; Bulgakov 2001, 32, 34; Duzhenko 2001, II.14, VII.49,52; Parshina 2001, 114.43,44; Zankin 2001, fig. 2.1, 5.16,19; Romanchuck 1995, 51.161.1, 54.164.3; Garver 1993, fig. 30; Günsenin 1990, LXV: 1e,f; Scherbak 1959, I, III, V, VII, XVIII.		
<b>GC 145</b>	HC 08 82-1	Shoulder	Fabric 4
⊙ or φ	Medium, faint incisions, applied before firing. <b>GC 27,</b>		

	<b>GC 71, GC 116, GC 144, TR 62, SN 24.</b>		
	Parallels: Baranov and Maiko 2001, fig 5.6; Bulgakov 2001, 32, 34; Duzhenko 2001, II.14, VII.49,52; Parshina 2001, 114.43,44; Zankin 2001, fig. 2.1, 5.16,19; Romanchuck 1995, 51.161.1, 54.164.3; Garver 1993, fig. 30; Günsenin 1990, LXV: 1e,f; Scherbak 1959, I, III, V, VII, XVIII.		
<b>GC 146</b>	HC 06 519	Handle	Fabric 2
Θc	Narrow, medium depth incisions, applied before firing.		
	Parallels: Parshina 2001, 114.44; Hayes 1992, 15.f; van Doorninck 1989, fig. 2.11.		
<b>GC 147</b>	HC 06 606	Shoulder	Fabric 5
Θε	Narrow, faint incisions, applied after firing.		
	Parallels: Parshina 2001, 114.44; Hayes 1992, 15.f; van Doorninck 1989, fig. 2.11.		
<b>GC 148</b>	HC 06 645	Handle	Fabric 2
Θε	Narrow, faint incisions, applied after firing.		
	Parallels: Parshina 2001, 114.44; Hayes 1992, 15.f; van Doorninck 1989, fig. 2.11.		
<b>GC 149</b>	HC 07 516	Shoulder	Fabric 2
TΦ	Narrow, deep incisions, applied after firing.		
	Parallels: Garver 1995, 3.274,275.		
<b>GC 150</b>	HC 03 818	Shoulder	Fabric 2
Φ or Θ	Narrow, deep incisions applied after firing.		

	Parallels: Baranov and Maiko 2001, fig 5.6; Bulgakov 2001, 32, 34; Duzhenko 2001, II.14, VII.49,52; Parshina 2001, 114.43,44; Zankin 2001, fig. 2.1, 5.16,19; Romanchuck 1995, 51.161.1, 54.164.3; Garver 1993, fig. 30; Günsenin 1990, LXV: 1e,f; Scherbak 1959, I, III, V, VII, XVIII.		
<b>GC 151</b>	HC 04 4	Shoulder	Fabric
Φ or Θ	Narrow, deep incisions, applied after firing.		
	Parallels: Baranov and Maiko 2001, fig 5.6; Bulgakov 2001, 32, 34; Duzhenko 2001, II.14, VII.49,52; Parshina 2001, 114.43,44; Zankin 2001, fig. 2.1, 5.16,19; Romanchuck 1995, 51.161.1, 54.164.3; Garver 1993, fig. 30; Günsenin 1990, LXV: 1e,f; Scherbak 1959, I, III, V, VII, XVIII.		
<b>GC 152</b>	HC 07 100	Shoulder	Fabric 5
Φ or Θ	Medium, deep incisions applied before firing, incomplete.		
	Parallels: Baranov and Maiko 2001, fig 5.6; Bulgakov 2001, 32, 34; Duzhenko 2001, II.14, VII.49,52; Parshina 2001, 114.43,44; Zankin 2001, fig. 2.1, 5.16,19; Romanchuck 1995, 51.161.1, 54.164.3; Garver 1993, fig. 30; Günsenin 1990, LXV: 1e,f; Scherbak 1959, I, III, V, VII, XVIII.		
<b>GC 153</b>	HC 07 439	Shoulder	Fabric 3
Φ inside Δ	Narrow, faint incisions, applied after firing.		
			
<b>GC 154</b>	HC 06 318	Handle Base	Fabric 3
Θ or φ	Narrow, deep incisions, applied before firing.		
	Parallels: Baranov and Maiko 2001, fig 5.6; Bulgakov 2001, 32, 34; Duzhenko 2001, II.14, VII.49,52; Parshina 2001, 114.43,44; Zankin 2001, fig. 2.1, 5.16,19; Romanchuck 1995, 51.161.1, 54.164.3; Garver 1993, fig. 30; Günsenin 1990, LXV: 1e,f; Scherbak 1959, I, III, V, VII, XVIII.		
<b>GC 155</b>	HC 03 580	Shoulder	Fabric 3
Quartered O	Narrow, faint incisions, applied after firing, incomplete.		

		Parallels: Duzhenko 2001, VIII.62; Romanchuck 1995, 54.164.3; Barnea 1967, 162:13Scherbak 1959, I; Barnea 1954, 5:23.	
<b>GC 156</b>	HC 04 603	Handle Base	Fabric 3
Quartered O	Medium, faint lines, applied after firing.		
		Parallels: Duzhenko 2001, VIII.62; Romanchuck 1995, 54.164.3; Barnea 1967, 162:13Scherbak 1959, I; Barnea 1954, 5:23.	
<b>GC 157</b>	HC 05 241	Shoulder	Fabric 3
Quartered O	Medium, faint incisions, applied before firing.		
		Parallels: Duzhenko 2001, VIII.62; Romanchuck 1995, 54.164.3; Barnea 1967, 162:13Scherbak 1959, I; Barnea 1954, 5:23.	
<b>GC 158</b>	HC 08 711	Handle	Fabric 2
Quartered O	Narrow, deep incisions, applied after firing.		
		Parallels: Scherbak 1959, I.	
<b>GC 159</b>	HC 06 544	Handle Base	Fabric 1
Quartered O	Narrow, medium depth incisions, applied before firing. <b>TR 48.</b>		
		Parallels: Duzhenko 2001, VIII.62; Romanchuck 1995, 54.164.3; Barnea 1967, 162:13Scherbak 1959, I; Barnea 1954, 5:23.	
<b>GC 160</b>	HC 08 826	Handle	Fabric 1
Quartered O	Narrow, faint incisions applied after firing.		

	Parallels: Duzhenko 2001, VIII.62; Romanchuck 1995, 54.164.3; Barnea 1967, 162:13; Scherbak 1959, I; Barnea 1954, 5:23.
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<b>GC 161</b>	HC 03 507	Handle	Fabric 2
Ey	Narrow, faint incisions applied after firing.		
	Parallels: Romanchuck 1995, 54.164.6.		

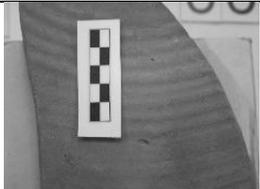
<b>GC 162</b>	HC 08 785	Shoulder	Fabric 2
E	Medium, deep incisions, perhaps applied before firing, incomplete.		
	Parallels: Duzhenko 2001, II.6; Parshina 2001 114.46,61; Romanchuck 1995, 57.167.5-7; Barnea 1967, 160:14.		

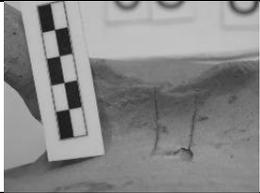
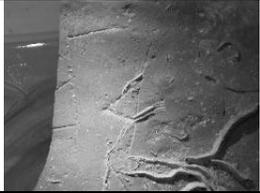
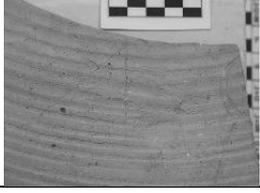
<b>GC 163</b>	HC 08 830	Shoulder	Fabric 3
P	Narrow, medium depth incisions applied after firing. <b>GC 70, GC 139, SN 99.</b>		
			

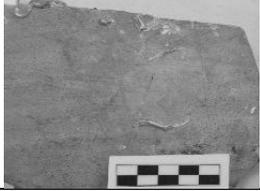
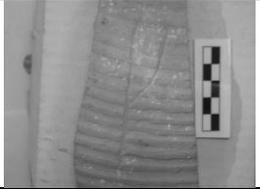
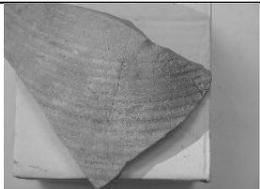
<b>GC 164</b>	HC 08 38	Handle Base	Fabric 1
R, retrograde, /	Medium, faint incisions, applied before firing.		
			

<b>GC 165</b>	HC 05 71	Shoulder	Fabric 3
t over \	Narrow, medium depth incisions, applied after firing.		

			
<b>GC 166</b>	HC 06 177	Handle	Fabric 2
t over c	Narrow, deep incisions.		
	Parallels: Hayes 1992, 14.18.		
<b>GC 167</b>	HC 06 626	Handle	Fabric 5
t over c	Narrow, faint incisions. <b>NM 10.</b>		
	Parallels: Hayes 1992, 14.18.		
<b>GC 168</b>	HC 04 483	Handle Base	Fabric 2
Δ	Narrow, faint incisions applied before firing.		
	Parallels: Hayes 1992, 43.78; Günsenin 1990, XXVII. 1d,e; Barnea 1967, 155:3; Scherbak 1959, V.		
<b>GC 169</b>	HC 06 242	Handle	Fabric 1
Δ	Narrow, medium depth incisions, applied before firing. <b>TR 91</b>		
	Parallels: Hayes 1992, 43.78; Günsenin 1990, XXVII. 1d,e; Barnea 1967, 155:3; Scherbak 1959, V.		
<b>GC 170</b>	HC 06 507	Shoulder	Fabric 7
Λ	Narrow, faint incisions, incomplete. <b>TR 58.</b>		

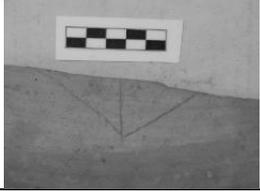
			
<b>GC 171</b>	HC 08 265	Shoulder	Fabric 2
ΛY	Narrow, faint incisions, applied after firing.		
			
<b>GC 172</b>	HC 08 525	Shoulder	Fabric 1
ΛY	Narrow, faint incisions, incomplete.		
			
<b>GC 173</b>	HC 05 665	Shoulder	Fabric 1
Π	Narrow, faint incisions, applied after firing.		
	Parallels: Duzhenko 2001, II.11, III.27; Zankin 2001, 5.15; Romanchuck 1995, 59.169.3; Barnea 1967, 162:19.		
<b>GC 174</b>	HC 08 267	Handle Base	Fabric 2
Π	Medium, faint incisions applied after firing.		
	Parallels: Duzhenko 2001, II.11, III.27; Zankin 2001, 5.15; Romanchuck 1995, 59.169.3; Barnea 1967, 162:19.		
<b>GC 175</b>	HC 08 824	Shoulder	Fabric 2
Π	Narrow, deep incisions applied after firing. <b>SN 25.</b>		

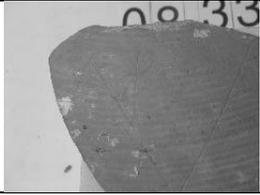
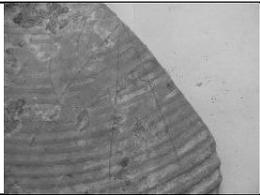
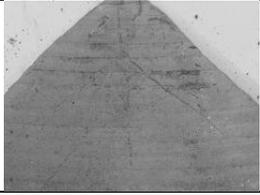
	Parallels: Duzhenko 2001, II.11, III.27; Zankin 2001, 5.15; Romanchuck 1995, 59.169.3; Barnea 1967, 162:19.		
<b>GC 176</b>	HC 07 235	Shoulder	Fabric 1
λ	Narrow, medium depth incisions, applied after firing. <b>TR 6, TR 7, SN 11, SN 12.</b>		
			
<b>GC 177</b>	HC 08 540	Shoulder	Fabric 2
ΑΓ, in ligature, A	Narrow, medium incisions. Incomplete.		
			
<b>GC 178</b>	HC 08 807	Shoulder	Fabric 1
Double O	Narrow, medium depth incisions, applied before firing		
			
<b>GC 179</b>	HC 04 546	Shoulder	Fabric 3
Double O	Narrow, faint incisions, incomplete.		
	Parallels: Baranov and Maiko 2001, fig. 5.6.		
<b>GC 180</b>	HC 04 598	Shoulder	Fabric 3
VY	Narrow, faint incisions applied after firing, incomplete.		

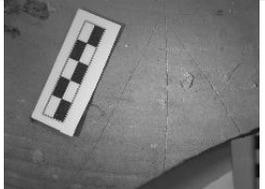
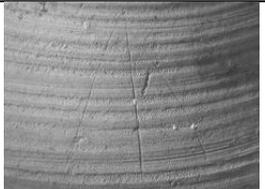
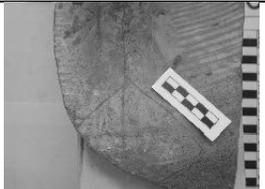
			
<b>GC 181</b>	HC 06 473	Shoulder	Fabric 1
Y	Medium, deep incisions, applied before firing.		
	Parallels: Duzhenko 2001, V.34; Zankin 2001, fig. 4.5.		
<b>GC 182</b>	HC 08 418	Shoulder	Fabric 2
Y	Narrow, medium incisions, applied after firing, incomplete.		
	Parallels: Duzhenko 2001, V.34; Zankin 2001, fig. 4.5.		
<b>GC 183</b>	HC 08 190	Shoulder	Fabric 2
Y	Narrow, faint incisions, incomplete, applied after firing.		
	Parallels: Duzhenko 2001, V.34; Zankin 2001, fig. 4.5.		
<b>GC 184</b>	HC 08 730	Shoulder	Fabric 1
Z, retrograde	Narrow, deep incisions, incomplete. <b>GC 6.</b>		
			
<b>GC 185</b>	HC 05 147	Handle	Fabric 3
Z, retrograde	Medium, deep incisions, applied before firing. <b>GC 73.</b>		

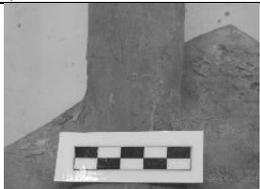
			
<b>GC 186</b>	HC 03 531	Shoulder	Fabric 1
Z	Narrow, faint incisions applied after firing.		
			
<b>GC 187</b>	HC 08 78	Shoulder	Fabric 2
Ж	Narrow, faint incisions applied after firing, incomplete.		
	Parallels: Garver 1993, fig. 31, Doncheva-Petkova 1977, 46.13.		

<b>TR 1</b>	HC 03 531	Shoulder	Fabric 1
/\	Narrow, faint incisions applied after firing.		
	Parallels: Romanchuck 1995, 40.158, 54.164.8; van Doorninck 1989, 3.16; Barnea 1967, 155:4,156:6,13; Scherbak 1959, III, VII, VIII, XI, XVII.		
<b>TR 2</b>	HC 05 282	Handle Base	Fabric 1
/\	Narrow, deep incisions, applied after firing.		
	Parallels: Romanchuck 1995, 40.158, 54.164.8; van Doorninck 1989, 3.16; Barnea 1967, 155:4,156:6,13; Scherbak 1959, III, VII, VIII, XI, XVII.		
<b>TR 3</b>	HC 06 292	Shoulder	Fabric 3
/\	Narrow, faint incisions, applied after firing.		

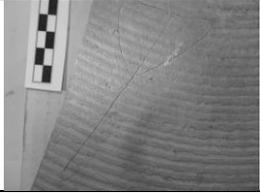
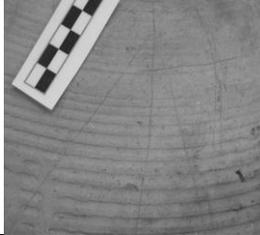
	Parallels: Romanchuck 1995, 40.158, 54.164.8; van Doorninck 1989, 3.16; Barnea 1967, 155:4,156:6,13; Scherbak 1959, III, VII, VIII, XI, XVII.		
<b>TR 4</b>	HC 06 597	Handle Base	Fabric 5
//\	Broad, deep incisions, applied before firing.		
	Parallels: Romanchuck 1995, 40.158, 54.164.8; van Doorninck 1989, 3.16; Barnea 1967, 155:4,156:6,13; Scherbak 1959, III, VII, VIII, XI, XVII.		
<b>TR 5</b>	HC 06 598	Shoulder	Fabric 1
//\	Medium, deep incisions, incomplete.		
	Parallels: Romanchuck 1995, 40.158, 54.164.8; van Doorninck 1989, 3.16; Barnea 1967, 155:4,156:6,13; Scherbak 1959, III, VII, VIII, XI, XVII.		
<b>TR 6</b>	HC 07 235	Handle Base	Fabric 1
//\	Narrow, deep lines applied after firing. <b>GC 176, TR 7, SN 11, SN 12.</b>		
	Parallels: Romanchuck 1995, 40.158, 54.164.8; van Doorninck 1989, 3.16; Barnea 1967, 155:4,156:6,13; Scherbak 1959, III, VII, VIII, XI, XVII.		
<b>TR 7</b>	HC 07 235	Handle Base	Fabric 1
//\	Narrow, deep lines applied after firing. <b>GC 176, TR 6, SN 11, SN 12.</b>		
<b>No picture</b>	Parallels: Romanchuck 1995, 40.158, 54.164.8; van Doorninck 1989, 3.16; Barnea 1967, 155:4,156:6,13; Scherbak 1959, III, VII, VIII, XI, XVII.		
<b>TR 8</b>	HC 07 251	Handle Base	Fabric 1
//\	Narrow, deep incisions, applied after firing.		
	Parallels: Romanchuck 1995, 40.158, 54.164.8; van Doorninck 1989, 3.16; Barnea 1967, 155:4,156:6,13; Scherbak 1959, III, VII, VIII, XI, XVII.		

<b>TR 9</b>	HC 07 617	Shoulder	Fabric 2
/\	Narrow, faint incisions, incomplete. <b>GC 55, NM 51.</b>		
	Parallels: Romanchuck 1995, 40.158, 54.164.8; van Doorninck 1989, 3.16; Barnea 1967, 155:4,156:6,13; Scherbak 1959, III, VII, VIII, XI, XVII.		
<b>TR 10</b>	HC 08 338	Shoulder	Fabric 3
/\	Narrow, faint incisions. <b>GC 117.</b>		
	Parallels: Romanchuck 1995, 40.158, 54.164.8; van Doorninck 1989, 3.16; Barnea 1967, 155:4,156:6,13; Scherbak 1959, III, VII, VIII, XI, XVII.		
<b>TR 11</b>	HC 08 264	Shoulder	Fabric 2
/\	Narrow, faint incisions applied after firing.		
	Parallels: Romanchuck 1995, 40.158, 54.164.8; van Doorninck 1989, 3.16; Barnea 1967, 155:4,156:6,13; Scherbak 1959, III, VII, VIII, XI, XVII.		
<b>TR 12</b>	HC 08 309	Shoulder	Fabric 2
/\	Narrow, faint incisions applied after firing.		
	Parallels: Romanchuck 1995, 40.158, 54.164.8; van Doorninck 1989, 3.16; Barnea 1967, 155:4,156:6,13; Scherbak 1959, III, VII, VIII, XI, XVII.		
<b>TR 13</b>	HC 08 57	Handle Base	Fabric 1
/\	Narrow, deep incisions, applied before firing.		
	Parallels: Romanchuck 1995, 40.158, 54.164.8; van Doorninck 1989, 3.16; Barnea 1967, 155:4,156:6,13; Scherbak 1959, III, VII, VIII, XI, XVII.		
<b>TR 14</b>	HC 08 690	Shoulder	Fabric 2
/\	Narrow, faint incisions applied after firing.		

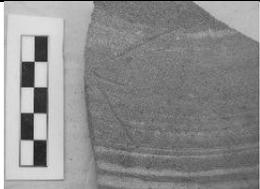
	Parallels: Romanchuck 1995, 40.158, 54.164.8; van Doorninck 1989, 3.16; Barnea 1967, 155:4,156:6,13; Scherbak 1959, III, VII, VIII, XI, XVII.		
<b>TR 15</b>	HC 08 533	Shoulder under Handle	Fabric 1
//\	Narrow, faint incisions. <b>GC 77, TR 86, NM 14.</b>		
	Parallels: Romanchuck 1995, 40.158, 54.164.8; van Doorninck 1989, 3.16; Barnea 1967, 155:4,156:6,13; Scherbak 1959, III, VII, VIII, XI, XVII.		
<b>TR 16</b>	HC 08 733	Shoulder	Fabric 3
//\	Narrow, faint incisions applied after firing.		
	Parallels: Romanchuck 1995, 40.158, 54.164.8; van Doorninck 1989, 3.16; Barnea 1967, 155:4,156:6,13; Scherbak 1959, III, VII, VIII, XI, XVII.		
<b>TR 17</b>	HC 08 74	Shoulder	Fabric 2
//\	Narrow, faint incisions, applied before firing.		
	Parallels: Romanchuck 1995, 40.158, 54.164.8; van Doorninck 1989, 3.16; Barnea 1967, 155:4,156:6,13; Scherbak 1959, III, VII, VIII, XI, XVII.		
<b>TR 18</b>	HC 08 800	Handle Base	Fabric 1
//\	Narrow, deep incisions, applied after firing. <b>SN 98.</b>		
	Parallels: Romanchuck 1995, 40.158, 54.164.8; van Doorninck 1989, 3.16; Barnea 1967, 155:4,156:6,13; Scherbak 1959, III, VII, VIII, XI, XVII.		
<b>TR 19</b>	HC 08 689	Shoulder	Fabric 3
//\	Narrow, faint incisions, applied after firing. <b>GC 69.</b>		

	Parallels: Romanchuck 1995, 40.158, 54.164.8; van Doorninck 1989, 3.16; Barnea 1967, 155:4,156:6,13; Scherbak 1959, III, VII, VIII, XI, XVII.		
<b>TR 20</b>	HC 03 299-2	Handle	Fabric 2
\\	Narrow, deep incisions applied after firing, incomplete. <b>SN 27.</b>		
	Parallels: Baranov and Maiko 2001, fig. 5.6; Zochenko 2001, fig. 15; Romanchuck 1995, 41.151; Günsenin 1990, LXXVI. 1c; Scherbak 1959, III, VIII.		
<b>TR 21</b>	HC 05 645	Handle Base	Fabric 1
\\	Medium, faint incisions, applied after firing.		
	Parallels: Baranov and Maiko 2001, fig. 5.6; Zochenko 2001, fig. 15; Romanchuck 1995, 41.151; Günsenin 1990, LXXVI. 1c; Scherbak 1959, III, VIII.		
<b>TR 22</b>	HC 06 512	Handle	Fabric 2
\\	Narrow, deep incisions, applied after firing.		
	Parallels: Baranov and Maiko 2001, fig. 5.6; Zochenko 2001, fig. 15; Romanchuck 1995, 41.151; Günsenin 1990, LXXVI. 1c; Scherbak 1959, III, VIII.		
<b>TR 23</b>	HC 07 615	Handle Base	Fabric 2
\\	Narrow, faint incisions applied after firing.		
	Parallels: Baranov and Maiko 2001, fig. 5.6; Zochenko 2001, fig. 15; Romanchuck 1995, 41.151; Günsenin 1990, LXXVI. 1c; Scherbak 1959, III, VIII.		
<b>TR 24</b>	HC 08 738	Handle	Fabric 1
\\	Narrow, faint incisions applied after firing.		

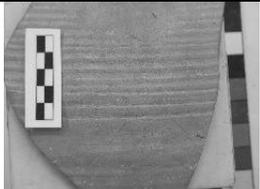
	Parallels: Baranov and Maiko 2001, fig. 5.6; Zochenko 2001, fig. 15; Romanchuck 1995, 41.151; Günsenin 1990, LXXVI. 1c; Scherbak 1959, III, VIII.		
<b>TR 25</b>	HC 06 352	Handle	Fabric 2
//	Narrow, deep incisions, applied after firing.		
	Parallels: Baranov and Maiko 2001, fig. 5.6; Zochenko 2001, fig. 15; Romanchuck 1995, 41.151; Günsenin 1990, LXXVI. 1c; Scherbak 1959, III, VIII.		
<b>TR 26</b>	HC 05 330	Handle Base	Fabric 2
//, connected	Narrow, faint incisions, applied after firing.		
	Parallels: Baranov and Maiko 2001, fig. 4.4.		
<b>TR 27</b>	HC 07 110	Shoulder	Fabric 2
//, connected	Narrow, faint incisions, applied after firing.		
	Parallels: Baranov and Maiko 2001, fig. 4.4.		
<b>TR 28</b>	HC 08 76	Shoulder	Fabric 1
//, connected	Wide, faint incisions, applied before firing. <b>GC 45, TR 98.</b>		
	Parallels: Baranov and Maiko 2001, fig. 4.4.		
<b>TR 29</b>	HC 07 605	Handle	Fabric 4
//, connected	Narrow, deep incisions, applied after firing.		

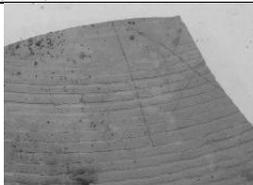
	Parallels: Baranov and Maiko 2001, fig. 4.4.		
<b>TR 30</b>	HC 07 506	Shoulder	Fabric 1
/\, connected	Narrow, faint incisions.		
	Parallels: Baranov and Maiko 2001, fig. 4.4.		
<b>TR 31</b>	HC 06 35	Shoulder	Fabric 2
/\ +	Narrow, faint incisions, applied after firing.		
			
<b>TR 32</b>	HC 05 277	Handle	Fabric 3
/\	Medium, deep incisions, applied before firing.		
	Parallels: Scherbak 1959, XII.		
<b>TR 33</b>	HC 04 548	Handle Base	Fabric 2
/\, surmounted with 6 parallel horizontal lines	Narrow, deep incisions, applied after firing. <b>GC 121, GC 122.</b>		
	Parallels: Romanchuck 1995, 59.169.2		
<b>TR 34</b>	HC 07 297	Shoulder	Fabric 2
/\, surmounted with 3 parallel horizontal lines	Broad, medium depth incisions. <b>TR 35.</b>		

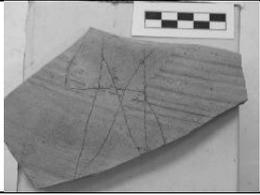
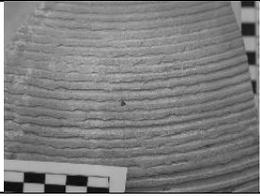
	Parallels: Scherbak 1959, XVII.		
<b>TR 35</b>	HC 07 297	Shoulder	Fabric 2
//, surmounted with 3 parallel horizontal lines	Broad, medium depth incisions, applied before firing. <b>TR 34.</b>		
	Parallels: Scherbak 1959, XVII.		
<b>TR 36</b>	HC 03 247	Handle Base	
\\/\	Narrow, medium depth incisions applied after firing, incomplete.		
			
<b>TR 37</b>	HC 07 214	Handle Base	Fabric 5
\\/\	Broad, deep incisions, applied before firing. <b>GC 52, NM 57, SN 58, SN 59.</b>		
	Parallels: Baranov and Maiko 2001, fig. 5.6; Zochenko 2001, fig. 15; Romanchuck 1995, 41.151; Günsenin 1990, LXXVI. 1c; Scherbak 1959, III, VIII.		
<b>TR 38</b>	HC 08 787	Handle Base	Fabric 1
\\/\ over +	Narrow, deep incisions, applied before firing. <b>TR 52.</b>		
			
<b>TR 39</b>	HC 04 604	Handle Base	Fabric 4
\\/\ over quartered semi-circle	Narrow, deep incisions, applied before firing. <b>GC 98.</b>		

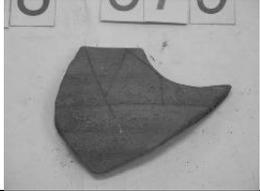
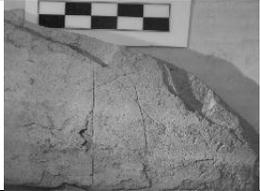
			
<b>TR 40</b>	HC 06 583	Handle Base	Fabric 3
∕∕ over bisected semi-circle	Broad, deep incisions, applied before firing.		
	Parallels: Romanchuck 1995, 52.162.2, 57.167.9; Barnea 1967, 156:17; Scherbak 1959, I, VII.		
<b>TR 41</b>	HC 06 402	Shoulder	Fabric 5
∕∕, 6 horizontal lines overlapping	Narrow, faint lines, incomplete.		
	Parallels: Romanchuck 59.169.2.		
<b>TR 42</b>	HC 08 819	Shoulder	Fabric 2
∕∕, facing left	Narrow, faint incisions applied after firing.		
	Parallels: Scherbak 1959, XI.		
<b>TR 43</b>	HC 03 412	Handle Base	Fabric 3
∕∕ inside O	Narrow, faint incisions applied after firing, incomplete.		
			
<b>TR 44</b>	HC 05 383	Shoulder	Fabric 2
∕∕∕∕	Narrow, faint incisions, applied after firing.		

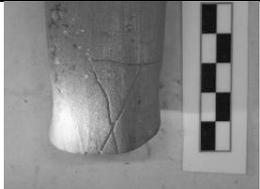
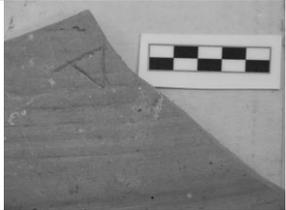
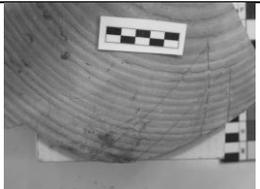
	Parallels: Scherbak 1959, XI.
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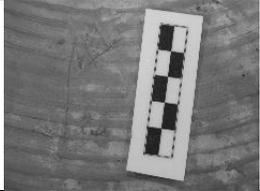
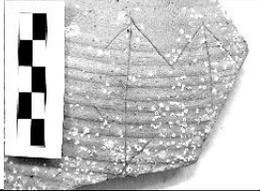
<b>TR 45</b>	HC 03 319	Handle Base	Fabric 1
<>	Narrow, faint incisions applied after firing.		
	Parallels: Zankin 2001, fig. 3.1; Zochenko 2001, fig. 16; Romanchuck 1995, 56.166.1-4; Scherbak 1959, VII, XII, XV; Barnea 1954, 2.15.		
<b>TR 46</b>	HC 03 515	Shoulder	Fabric 1
<>	Narrow, faint incisions applied after firing, incomplete.		
	Parallels: Zankin 2001, fig. 3.1; Zochenko 2001, fig. 16; Romanchuck 1995, 56.166.1-4; Scherbak 1959, VII, XII, XV; Barnea 1954, 2.15.		
<b>TR 47</b>	HC 05 337	Shoulder	Fabric 1
<>	Medium, deep incisions, applied before firing.		
	Parallels: Zankin 2001, fig. 3.1; Zochenko 2001, fig. 16; Romanchuck 1995, 56.166.1-4; Scherbak 1959, VII, XII, XV; Barnea 1954, 2.15.		
<b>TR 48</b>	HC 06 544	Shoulder	Fabric 1
<>	Narrow, faint incisions, incomplete. <b>GC 159.</b>		
	Parallels: Zankin 2001, fig. 3.1; Zochenko 2001, fig. 16; Romanchuck 1995, 56.166.1-4; Scherbak 1959, VII, XII, XV; Barnea 1954, 2.15.		
<b>TR 49</b>	HC 06 580	Handle Base	Fabric 2
<>	Broad, deep incisions, applied before firing.		

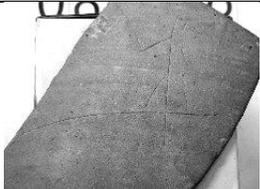
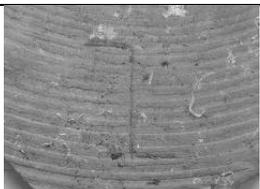
	Parallels: Zankin 2001, fig. 3.1; Zochenko 2001, fig. 16; Romanchuck 1995, 56.166.1-4; Scherbak 1959, VII, XII, XV; Barnea 1954, 2.15.		
<b>TR 50</b>	HC 08 787	Handle Base	Fabric 1
><	Narrow, faint incisions applied after firing. <b>TR 38.</b>		
	Parallels: Zankin 2001, fig. 3.1; Zochenko 2001, fig. 16; Romanchuck 1995, 56.166.1-4; Scherbak 1959, VII, XII, XV; Barnea 1954, 2.15.		
<b>TR 51</b>	HC 08 821	Shoulder	Fabric 1
><	Narrow, faint incisions applied after firing.		
	Parallels: Zankin 2001, fig. 3.1; Zochenko 2001, fig. 16; Romanchuck 1995, 56.166.1-4; Scherbak 1959, VII, XII, XV; Barnea 1954, 2.15.		
<b>TR 52</b>	HC 08 688	Shoulder	Fabric 3
><	Narrow, medium, applied before firing, incomplete. <b>NM 12</b>		
	Parallels: Zankin 2001, fig. 3.1; Zochenko 2001, fig. 16; Romanchuck 1995, 56.166.1-4; Scherbak 1959, VII, XII, XV; Barnea 1954, 2.15.		
<b>TR 53</b>	HC 08 532	Shoulder	Fabric 1
><	Narrow, deep incisions, incomplete.		
	Parallels: Zankin 2001, fig. 3.1; Zochenko 2001, fig. 16; Romanchuck 1995, 56.166.1-4; Scherbak 1959, VII, XII, XV; Barnea 1954, 2.15.		
<b>TR 54</b>	HC 05 357	Handle	Fabric 3
><	Narrow, deep incisions, applied after firing. <b>SN 80.</b>		
	Parallels: Dovzhenok 1966, XIII.2.		

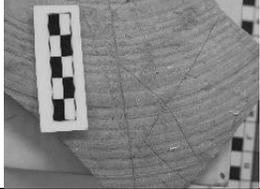
<b>TR 55</b>	HC 08 770	Handle	Fabric 3
><	Narrow, deep incisions applied before firing.		
	Parallels: Dovzhenok 1966, XIII.2.		
<b>TR 56</b>	HC 07 561	Handle Base	Fabric 5
X	Narrow, deep incisions, applied before firing.		
			
<b>TR 57</b>	HC 03 544	Shoulder	Fabric 3
X	Narrow, faint incisions, applied after firing.		
	Parallels: Barnea 1971, 87.3; Barnea 1967, 156:6; Scherbak 1959, IX.		
<b>TR 58</b>	HC 06 507	Handle Base	Fabric 7
X	Broad, medium depth incisions. <b>GC 170.</b>		
	Parallels: Barnea 1971, 87.3; Barnea 1967, 156:6; Scherbak 1959, IX.		
<b>TR 59</b>	HC 07 604	Shoulder	Fabric 2
X	Narrow, deep incisions.		
	Parallels: Barnea 1971, 87.3; Barnea 1967, 156:6; Scherbak 1959, IX.		
<b>TR 60</b>	HC 08 679	Shoulder	Fabric 2
X	Narrow, medium incisions, incomplete.		

	Parallels: Barnea 1971, 87.3; Barnea 1967, 156:6; Scherbak 1959, IX.		
<b>TR 61</b>	HC 08 792	Shoulder	Fabric 1
<sup>X</sup>	Narrow, faint incisions applied after firing.		
	Parallels: Barnea 1971, 87.3; Barnea 1967, 156:6; Scherbak 1959, IX.		
<b>TR 62</b>	HC 08 82-1	Shoulder	Fabric 4
<sup>X</sup>	Medium, faint incisions, applied after firing. <b>GC 27, GC 71, GC 116, GC 144, GC 145, SN 24.</b>		
	Parallels: Barnea 1971, 87.3; Barnea 1967, 156:6; Scherbak 1959, IX.		
<b>TR 63</b>	HC 08 829	Shoulder	Fabric 2
<sup>X</sup>   T	Narrow, faint incisions applied after firing. <b>SN 26.</b>		
	Parallels: Barnea 1971, 87.3; Barnea 1967, 156:6; Scherbak 1959, IX.		
<b>TR 64</b>	HC 07 589	Shoulder	Fabric 3
<sup>X</sup>	Narrow, faint incisions, applied after firing.		
	Parallels: Barnea 1971, 87.3; Barnea 1967, 156:6; Scherbak 1959, IX.		
<b>TR 65</b>	HC 06 501	Handle	Fabric 1
><	Narrow, deep incisions, incomplete.		

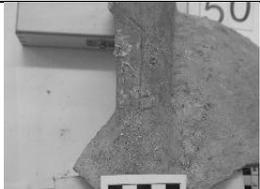
	Parallels: Barnea 1954, 2.14.		
<b>TR 66</b>	HC 06 594	Shoulder	Fabric 1
Λ <sup>x</sup>	Narrow, deep incisions, applied before firing.		
			
<b>TR 67</b>	HC 06 307	Shoulder	Fabric 3
ΛΛ, crossed	Narrow, deep incisions, incomplete.		
	Parallels: Duzhenko 2001, VI.37; Romanchuck 1995, 52.162.3, 55.165. 3,4; 58.168.7; Garver 1993, fig. 17; Günsenin 1990, XXV. 2b,c; van Doorninck 1989, 3.23.		
<b>TR 68</b>	HC 08 672	Handle	Fabric 2
ΛΛ, crossed	Narrow, faint incisions, applied after firing.		
	Parallels: Duzhenko 2001, VI.37; Romanchuck 1995, 52.162.3, 55.165. 3,4; 58.168.7; Garver 1993, fig. 17; Günsenin 1990, XXV. 2b,c; van Doorninck 1989, 3.23.		
<b>TR 69</b>	HC 08 335	Handle Base	Fabric 1
ΛΛ, crossed	Broad, faint incisions, applied before firing.		
	Parallels: Duzhenko 2001, VI.37; Romanchuck 1995, 52.162.3, 55.165. 3,4; 58.168.7; Garver 1993, fig. 17; Günsenin 1990, XXV. 2b,c; van Doorninck 1989, 3.23.		
<b>TR 70</b>	HC 08 768	Shoulder	Fabric 2
Mirrored M	Narrow, faint incisions applied after firing, incomplete		

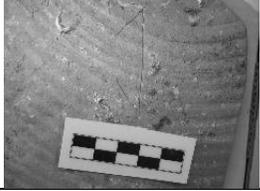
	Parallels: Parshina 2001, 112.1; Scherbak 1959, II, VII.		
<b>TR 71</b>	HC 05 279	Shoulder	Fabric 3
v	Narrow, faint incisions applied after firing.		
			
<b>TR 72</b>	HC 04 8	Shoulder	Fabric 1
>>	Narrow, faint incisions, applied after firing.		
			
<b>TR 73</b>	HC 04 375	Shoulder	Fabric 3
2 vertical arrows	Narrow, deep incisions, applied after firing. <b>GC 138.</b>		
	Parallels: Doncheva-Petkova 1977, 46.9; Barnea 1967, 155:1.		
<b>TR 74</b>	HC 05 70	Handle Base	Fabric 1
Mirrored Ms	Narrow, deep incisions, applied before firing.		
	Parallels: Parshina 2001, 112.1; Scherbak 1959, II, VII.		
<b>TR 75</b>	HC 06 33	Handle	Fabric 2
Z variation	Narrow, deep incisions, applied before firing.		

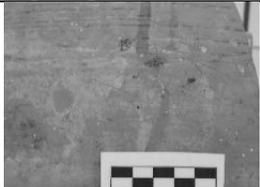
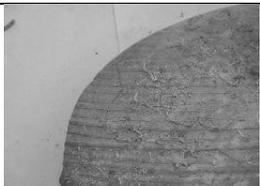
	Parallels: Garver 1993, fig. 29; Scherbak 1959, II, X.		
<b>TR 76</b>	HC 07 308	Handle	Fabric 1
Z variation	Narrow, deep incisions, applied after firing.		
	Parallels: van Doorninck 1989, 3.6; Scherbak 1959, VIII.		
<b>TR 77</b>	HC 08 677	Shoulder	Fabric 2
W variation	Narrow, faint incisions applied after firing.		
	Parallels: Doncheva-Petkova 1989,46.11.		
<b>TR 78</b>	HC 08 678	Shoulder	Fabric 1
W variation	Narrow, medium depth lines applied after firing.		
	Parallels: Doncheva-Petkova 1989,46.11.		
<b>TR 79</b>	HC 08 516	Shoulder	Fabric 3
Z	Broad, medium depth incisions, applied before firing.		
	Parallels: van Doorninck 1989, 254, fig. 3.6; Scherbak 1959, VIII.		
<b>TR 80</b>	HC 04 384	Shoulder	Fabric 2
K	Narrow, deep incisions, incomplete.		

			
<b>TR 81</b>	HC 05 326	Handle Base	Fabric 2
>  >>	Narrow, faint incisions, applied after firing.		
	Parallels: Duzhenko 2001, fig. VI.43.		
<b>TR 82</b>	HC 08 674	Handle	Fabric 3
∧ surmounted by O	Narrow, faint incisions, applied after firing.		
			
<b>TR 83</b>	HC 06 521	Handle Base	Fabric 3
∧ surmounted by double O	Narrow, faint incisions, applied after firing		
			
<b>TR 84</b>	HC 07 617	Handle	Fabric 4
/\ surmounted by O	Broad, faint incisions, applied after firing.		
	Parallels: Zankin 2001, 3.1.		
<b>TR 85</b>	HC 07 225	Shoulder	Fabric2
Bisected Oval	Medium width, medium depth incisions, applied before firing.		

	Parallels: Zankin 2001, 1.2, 2.1, 3.2-7.		
<b>TR 86</b>	HC 08 533	Shoulder	Fabric 1
	Narrow, faint incisions, incomplete. <b>GC 77, TR 15, NM 14.</b>		
			
<b>TR 87</b>	HC 07 494	Handle	Fabric 3
+ ,two arms connected	Narrow, faint incisions, applied before firing.		
			
<b>TR 88</b>	HC 04 387	Shoulder	Fabric 3
+ ,two arms connected	Narrow, faint incisions applied after firing. <b>GC 30.</b>		
			
<b>TR 89</b>	HC 07 603	Shoulder	Fabric 3
+ ,two arms connected	Broad, deep incisions, applied before firing.		
			
<b>TR 90</b>	HC 03 534	Handle	Fabric 2
Horizontal B shape with	Narrow, deep incisions applied before firing.		

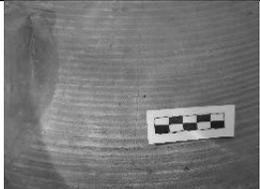
			
<b>TR 91</b>	HC 06 242	Handle	Fabric 1
VV	Broad, medium depth incisions. <b>GC 169.</b>		
			
<b>TR 92</b>	HC 05 286	Handle	Fabric 3
\_ \_	Narrow, deep incisions, applied before firing.		
			
<b>TR 93</b>	HC 07 62	Shoulder	Fabric 2
7	Narrow, faint incisions applied after firing		
			
<b>TR 94</b>	HC 08 750	Handle	Fabric 2
-///	Narrow, deep incisions applied before firing.		
			
<b>TR 95</b>	HC 06 354	Handle	Fabric 3
\_.	Narrow, faint incisions, applied after firing.		

			
<b>TR 96</b>	HC 08 764	Handle	Fabric 3
↳	Narrow, deep, incisions applied after firing.		
			
<b>TR 97</b>	HC 08 647	Handle	Fabric 1
	Narrow, faint incisions applied after firing.		
			
<b>TR 98</b>	HC 08 76	Shoulder	Fabric 1
—	Medium width incisions. <b>GC 45, TR 28.</b>		
			
<b>TR 99</b>	HC 07 207	Shoulder	Fabric 2
/—\	Narrow, medium depth incisions, applied before firing.		
			
<b>TR 100</b>	HC 07 535	Handle	Fabric 2
←—.	Broad, medium depth incisions, incomplete.		

			
<b>TR 101</b>	HC 07 15	Shoulder	Fabric 2
T	Broad, medium depth incisions, applied after firing.		
			
<b>TR 102</b>	HC 05 412	Shoulder	Fabric 3
Zig Zag	Narrow, faint incisions, applied before firing.		
	Parallels: Romanchuck 1995, 59.169.1.		
<b>TR 103</b>	HC 08 515	Shoulder	Fabric 3
Zig Zag	Narrow, faint incisions, incomplete, applied after firing. <b>GC 135.</b>		
	Parallels: Romanchuck 1995, 59.169.1.		
<b>TR 104</b>	HC 08 676	Shoulder	Fabric 3
Zig Zag	Narrow, faint incisions, incomplete, applied after firing. <b>TR 105, SN 19.</b>		
	Parallels: Romanchuck 1995, 59.169.1.		
<b>TR 105</b>	HC 08 676	Shoulder	Fabric
Zig Zag	Narrow, faint incisions, incomplete, applied after firing. <b>TR 104, SN 19.</b>		

	Parallels: Romanchuck 1995, 59.169.1.
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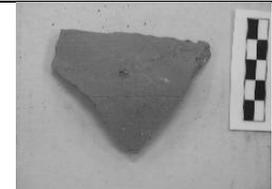
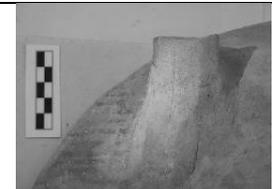
<b>SN 1</b>	HC 03 680	Handle	Fabric 2
+	Narrow, faint incisions applied after firing.		
	Parallels: Minchev 2011, 149, fig. 8; Bulgakov 2001, 7; Duzhenko 2001, V.34, VI.45, VIII.56-60; Zankin 2001, fig. 5.4,13,14,17; Romanchuck 1995, 52.162.15, 54.164.1, 55.165.7; Barnea 1967, 155:8,160:7; Scherbak 1959, IV, VIII, XV; Barnea 1954, 5:9,11.		

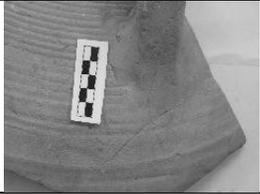
<b>SN 2</b>	HC 03 712	Shoulder	Fabric 2
+	Narrow, faint incisions applied after firing.		
	Parallels: Minchev 2011, 149, fig. 8; Bulgakov 2001, 7; Duzhenko 2001, V.34, VI.45, VIII.56-60; Zankin 2001, fig. 5.4,13,14,17; Romanchuck 1995, 52.162.15, 54.164.1, 55.165.7; Barnea 1967, 155:8,160:7; Scherbak 1959, IV, VIII, XV; Barnea 1954, 5:9,11.		

<b>SN 3</b>	HC 03 719	Handle	Fabric 2
+	Narrow, faint incisions, applied after firing.		
	Parallels: Minchev 2011, 149, fig. 8; Bulgakov 2001, 7; Duzhenko 2001, V.34, VI.45, VIII.56-60; Zankin 2001, fig. 5.4,13,14,17; Romanchuck 1995, 52.162.15, 54.164.1, 55.165.7; Barnea 1967, 155:8,160:7; Scherbak 1959, IV, VIII, XV; Barnea 1954, 5:9,11.		

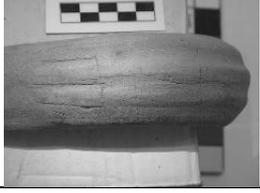
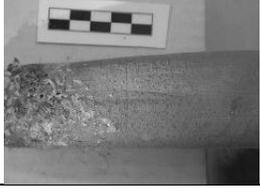
<b>SN 4</b>	HC 04 2	Handle	Fabric 2
+	Narrow, faint incisions, applied after firing.		
	Parallels: Minchev 2011, 149, fig. 8; Bulgakov 2001, 7; Duzhenko 2001, V.34, VI.45, VIII.56-60; Zankin 2001, fig. 5.4,13,14,17; Romanchuck 1995, 52.162.15, 54.164.1, 55.165.7; Barnea 1967, 155:8,160:7; Scherbak 1959, IV, VIII, XV; Barnea 1954, 5:9,11.		

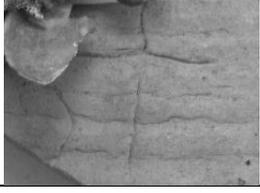
<b>SN 5</b>	HC 05 280	Handle	Fabric 2
+	Narrow, faint incisions, applied after firing.		

	Parallels: Minchev 2011, 149, fig. 8; Bulgakov 2001, 7; Duzhenko 2001, V.34, VI.45, VIII.56-60; Zankin 2001, fig. 5.4,13,14,17; Romanchuck 1995, 52.162.15, 54.164.1, 55.165.7; Barnea 1967, 155:8,160:7; Scherbak 1959, IV, VIII, XV; Barnea 1954, 5:9,11.		
<b>SN 6</b>	HC 05 304	Handle Base	Fabric 2
+	Narrow, deep incisions, applied after firing.		
	Parallels: Minchev 2011, 149, fig. 8; Bulgakov 2001, 7; Duzhenko 2001, V.34, VI.45, VIII.56-60; Zankin 2001, fig. 5.4,13,14,17; Romanchuck 1995, 52.162.15, 54.164.1, 55.165.7; Barnea 1967, 155:8,160:7; Scherbak 1959, IV, VIII, XV; Barnea 1954, 5:9,11.		
<b>SN 7</b>	HC 06 504-1	Handle Base	Fabric 2
+	Narrow, deep incisions, applied before firing, <b>GC 83, GC 84.</b>		
	Parallels: Minchev 2011, 149, fig. 8; Bulgakov 2001, 7; Duzhenko 2001, V.34, VI.45, VIII.56-60; Zankin 2001, fig. 5.4,13,14,17; Romanchuck 1995, 52.162.15, 54.164.1, 55.165.7; Barnea 1967, 155:8,160:7; Scherbak 1959, IV, VIII, XV; Barnea 1954, 5:9,11.		
<b>SN 8</b>	HC 07 122	Shoulder	Fabric 2
+	Narrow, faint incisions.		
	Parallels: Minchev 2011, 149, fig. 8; Bulgakov 2001, 7; Duzhenko 2001, V.34, VI.45, VIII.56-60; Zankin 2001, fig. 5.4,13,14,17; Romanchuck 1995, 52.162.15, 54.164.1, 55.165.7; Barnea 1967, 155:8,160:7; Scherbak 1959, IV, VIII, XV; Barnea 1954, 5:9,11.		
<b>SN 9</b>	HC 07 18	Handle	Fabric 2
+	Narrow, faint incisions.		
	Parallels: Minchev 2011, 149, fig. 8; Bulgakov 2001, 7; Duzhenko 2001, V.34, VI.45, VIII.56-60; Zankin 2001, fig. 5.4,13,14,17; Romanchuck 1995, 52.162.15, 54.164.1, 55.165.7; Barnea 1967, 155:8,160:7; Scherbak 1959, IV, VIII, XV; Barnea 1954, 5:9,11.		
<b>SN 10</b>	HC 07 220	Shoulder	Fabric 2
+	Narrow, faint incisions.		

	Parallels: Minchev 2011, 149, fig. 8; Bulgakov 2001, 7; Duzhenko 2001, V.34, VI.45, VIII.56-60; Zankin 2001, fig. 5.4,13,14,17; Romanchuck 1995, 52.162.15, 54.164.1, 55.165.7; Barnea 1967, 155:8,160:7; Scherbak 1959, IV, VIII, XV; Barnea 1954, 5:9,11.		
<b>SN 11</b>	HC 07 235	Handle	Fabric 1
+	Narrow, deep incisions, applied after firing. <b>GC 176, TR 6, TR 7, SN 12.</b>		
	Parallels: Minchev 2011, 149, fig. 8; Bulgakov 2001, 7; Duzhenko 2001, V.34, VI.45, VIII.56-60; Zankin 2001, fig. 5.4,13,14,17; Romanchuck 1995, 52.162.15, 54.164.1, 55.165.7; Barnea 1967, 155:8,160:7; Scherbak 1959, IV, VIII, XV; Barnea 1954, 5:9,11.		
<b>SN 12</b>	HC 07 235	Handle	Fabric 1
+	Narrow, deep incisions, applied after firing. <b>GC 176, TR 6, TR 7, SN 11.</b>		
<b>No picture</b>	Parallels: Minchev 2011, 149, fig. 8; Bulgakov 2001, 7; Duzhenko 2001, V.34, VI.45, VIII.56-60; Zankin 2001, fig. 5.4,13,14,17; Romanchuck 1995, 52.162.15, 54.164.1, 55.165.7; Barnea 1967, 155:8,160:7; Scherbak 1959, IV, VIII, XV; Barnea 1954, 5:9,11.		
<b>SN 13</b>	HC 07 344	Handle	Fabric 2
+	Narrow, deep incisions, applied after firing.		
	Parallels: Minchev 2011, 149, fig. 8; Bulgakov 2001, 7; Duzhenko 2001, V.34, VI.45, VIII.56-60; Zankin 2001, fig. 5.4,13,14,17; Romanchuck 1995, 52.162.15, 54.164.1, 55.165.7; Barnea 1967, 155:8,160:7; Scherbak 1959, IV, VIII, XV; Barnea 1954, 5:9,11.		
<b>SN 14</b>	HC 07 602-1	Handle Base	Fabric 2
+	Narrow, medium depth incisions.		
	Parallels: Minchev 2011, 149, fig. 8; Bulgakov 2001, 7; Duzhenko 2001, V.34, VI.45, VIII.56-60; Zankin 2001, fig. 5.4,13,14,17; Romanchuck 1995, 52.162.15, 54.164.1, 55.165.7; Barnea 1967, 155:8,160:7; Scherbak 1959, IV, VIII, XV; Barnea 1954, 5:9,11.		
<b>SN 15</b>	HC 08 121	Handle Base	Fabric 2
+	Narrow, faint incisions applied after firing.		

	Parallels: Minchev 2011, 149, fig. 8; Bulgakov 2001, 7; Duzhenko 2001, V.34, VI.45, VIII.56-60; Zankin 2001, fig. 5.4,13,14,17; Romanchuck 1995, 52.162.15, 54.164.1, 55.165.7; Barnea 1967, 155:8,160:7; Scherbak 1959, IV, VIII, XV; Barnea 1954, 5:9,11.		
<b>SN 16</b>	HC 08 179	Handle	Fabric 2
+	Narrow, deep incisions, applied after firing. <b>GC 64, GC 89, GC 124, GC 125.</b>		
	Parallels: Minchev 2011, 149, fig. 8; Bulgakov 2001, 7; Duzhenko 2001, V.34, VI.45, VIII.56-60; Zankin 2001, fig. 5.4,13,14,17; Romanchuck 1995, 52.162.15, 54.164.1, 55.165.7; Barnea 1967, 155:8,160:7; Scherbak 1959, IV, VIII, XV; Barnea 1954, 5:9,11.		
<b>SN 17</b>	HC 08 273	Shoulder	Fabric 3
+	Narrow, faint incisions, applied after firing.		
	Parallels: Minchev 2011, 149, fig. 8; Bulgakov 2001, 7; Duzhenko 2001, V.34, VI.45, VIII.56-60; Zankin 2001, fig. 5.4,13,14,17; Romanchuck 1995, 52.162.15, 54.164.1, 55.165.7; Barnea 1967, 155:8,160:7; Scherbak 1959, IV, VIII, XV; Barnea 1954, 5:9,11.		
<b>SN 18</b>	HC 08 434	Shoulder	Fabric 1
+	Narrow, faint incisions.		
	Parallels: Minchev 2011, 149, fig. 8; Bulgakov 2001, 7; Duzhenko 2001, V.34, VI.45, VIII.56-60; Zankin 2001, fig. 5.4,13,14,17; Romanchuck 1995, 52.162.15, 54.164.1, 55.165.7; Barnea 1967, 155:8,160:7; Scherbak 1959, IV, VIII, XV; Barnea 1954, 5:9,11.		
<b>SN 19</b>	HC 08 676	Handle Base	Fabric 3
+	Narrow, faint incisions, applied after firing. <b>TR 104, 105.</b>		
	Parallels: Minchev 2011, 149, fig. 8; Bulgakov 2001, 7; Duzhenko 2001, V.34, VI.45, VIII.56-60; Zankin 2001, fig. 5.4,13,14,17; Romanchuck 1995, 52.162.15, 54.164.1, 55.165.7; Barnea 1967, 155:8,160:7; Scherbak 1959, IV, VIII, XV; Barnea 1954, 5:9,11.		
<b>SN 20</b>	HC 08 769	Shoulder	Fabric 2
+	Narrow, deep incisions applied after firing.		

	Parallels: Minchev 2011, 149, fig. 8; Bulgakov 2001, 7; Duzhenko 2001, V.34, VI.45, VIII.56-60; Zankin 2001, fig. 5.4,13,14,17; Romanchuck 1995, 52.162.15, 54.164.1, 55.165.7; Barnea 1967, 155:8,160:7; Scherbak 1959, IV, VIII, XV; Barnea 1954, 5:9,11.		
<b>SN 21</b>	HC 08 777	Handle Base	Fabric 2
+	Narrow, faint incisions applied after firing.		
	Parallels: Minchev 2011, 149, fig. 8; Bulgakov 2001, 7; Duzhenko 2001, V.34, VI.45, VIII.56-60; Zankin 2001, fig. 5.4,13,14,17; Romanchuck 1995, 52.162.15, 54.164.1, 55.165.7; Barnea 1967, 155:8,160:7; Scherbak 1959, IV, VIII, XV; Barnea 1954, 5:9,11.		
<b>SN 22</b>	HC 08 783	Handle	Fabric 1
+	Narrow, medium depth incisions applied after firing. <b>GC 48.</b>		
	Parallels: Minchev 2011, 149, fig. 8; Bulgakov 2001, 7; Duzhenko 2001, V.34, VI.45, VIII.56-60; Zankin 2001, fig. 5.4,13,14,17; Romanchuck 1995, 52.162.15, 54.164.1, 55.165.7; Barnea 1967, 155:8,160:7; Scherbak 1959, IV, VIII, XV; Barnea 1954, 5:9,11.		
<b>SN 23</b>	HC 08 815	Handle	Fabric 1
+	Narrow, faint incisions applied after firing.		
	Parallels: Minchev 2011, 149, fig. 8; Bulgakov 2001, 7; Duzhenko 2001, V.34, VI.45, VIII.56-60; Zankin 2001, fig. 5.4,13,14,17; Romanchuck 1995, 52.162.15, 54.164.1, 55.165.7; Barnea 1967, 155:8,160:7; Scherbak 1959, IV, VIII, XV; Barnea 1954, 5:9,11.		
<b>SN 24</b>	HC 08 82-1	Handle Base	Fabric 4
+	Narrow, faint incisions. <b>GC 27, GC 71, GC 116, GC 144, GC 145, TR 62.</b>		
	Parallels: Minchev 2011, 149, fig. 8; Bulgakov 2001, 7; Duzhenko 2001, V.34, VI.45, VIII.56-60; Zankin 2001, fig. 5.4,13,14,17; Romanchuck 1995, 52.162.15, 54.164.1, 55.165.7; Barnea 1967, 155:8,160:7; Scherbak 1959, IV, VIII, XV; Barnea 1954, 5:9,11.		
<b>SN 25</b>	HC 08 824	Handle	Fabric 2
+	Narrow, deep incisions applied after firing. <b>GC 175.</b>		

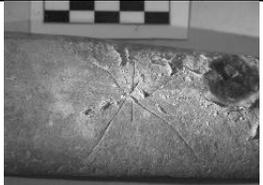
	Parallels: Minchev 2011, 149, fig. 8; Bulgakov 2001, 7; Duzhenko 2001, V.34, VI.45, VIII.56-60; Zankin 2001, fig. 5.4,13,14,17; Romanchuck 1995, 52.162.15, 54.164.1, 55.165.7; Barnea 1967, 155:8,160:7; Scherbak 1959, IV, VIII, XV; Barnea 1954, 5:9,11.		
<b>SN 26</b>	HC 08 829	Handle Base	Fabric 2
+	Narrow, faint incisions applied after firing. <b>TR 63</b>		
	Parallels: Minchev 2011, 149, fig. 8; Bulgakov 2001, 7; Duzhenko 2001, V.34, VI.45, VIII.56-60; Zankin 2001, fig. 5.4,13,14,17; Romanchuck 1995, 52.162.15, 54.164.1, 55.165.7; Barnea 1967, 155:8,160:7; Scherbak 1959, IV, VIII, XV; Barnea 1954, 5:9,11.		
<b>SN 27</b>	HC 03 299-2	Handle Base	Fabric 2
+ with extra lines at the end of each arm	Broad, deep incisions applied before firing. <b>TR 20.</b>		
			
<b>SN 28</b>	HC 08 216	Shoulder	Fabric 2
Loop +	Medium, deep incisions, applied before firing, incomplete.		
	Parallels: Parshina 2001, 115.71,72; Romanchuck 1995, 53.163.4-5; Barnea 1971, 87.1		
<b>SN 29</b>	HC 07 418	Shoulder	Fabric 2
O +	Narrow, faint incisions applied after firing.		
	Parallels: Parshina 2001, 115.71,72; Romanchuck 1995, 53.163.4-5; Barnea 1971, 87.1		
<b>SN 30</b>	HC 08 737	Shoulder	Fabric 2
O +	Narrow, faint incisions applied after firing.		

	Parallels: Parshina 2001, 115.71,72; Romanchuck 1995, 53.163.4-5; Barnea 1971, 87.1		
<b>SN 31</b>	HC 98 18	Handle Base	Fabric 2
Six rayed star	Narrow, medium depth incisions applied after firing.		
	Parallels: Zankin 2001, fig. 2.1; Scherbak 1959, X, XIII.		
<b>SN 32</b>	HC 04 556	Handle Base	Fabric 1
Six rayed star	Narrow, faint incisions applied after firing.		
	Parallels: Zankin 2001, fig. 2.1; Scherbak 1959, X, XIII.		
<b>SN 33</b>	HC 05 149	Handle	Fabric 3
Seven rayed star	Narrow, faint incisions applied after firing.		
			
<b>SN 34</b>	HC 06 150	Shoulder	Fabric 2
Seven rayed star	Narrow, faint incisions, applied after firing.		
			
<b>SN 35</b>	HC 08 827	Shoulder	Fabric 3
Six rayed star	Incomplete		

	Parallels: Zankin 2001, fig. 2.1; Scherbak 1959, X, XIII.
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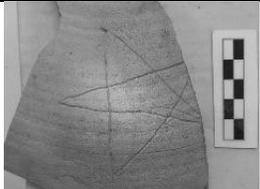
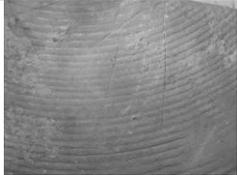
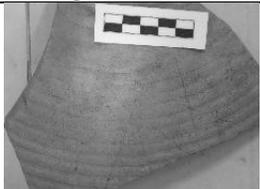
<b>SN 36</b>	HC 08 810	Shoulder	Fabric 1
Six rayed star	Narrow, faint incisions applied after firing.		
	Parallels: Zankin 2001, fig. 2.1; Scherbak 1959, X, XIII.		

<b>SN 37</b>	HC 08 811	Handle Base	Fabric 1
Six rayed star	Narrow, faint incisions applied after firing.		
	Parallels: Zankin 2001, fig. 2.1; Scherbak 1959, X, XIII.		

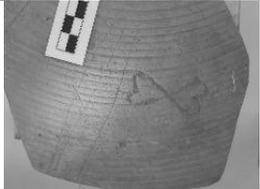
<b>SN 38</b>	HC 08 816	Handle	Fabric 3
Eight rayed star	Narrow, medium depth incisions applied after firing.		
	Parallels: Baranov and Maiko 2001, fig. 4.5; Romanchuck 1995, 56.166.9; Barnea 1967, 161:8.		

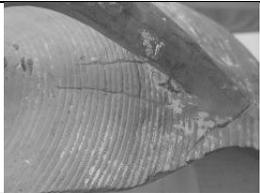
<b>SN 39</b>	HC 03 445	Handle Base	Fabric 3
Pentagram	Medium, deep lines, applied before firing, incomplete.		
	Parallels: van Doorninck 1989, fig. 3.7,11; Karger 1958, fig. 107; Barnea 1967, fig. 155.8; Barnea 1967, fig. 161.8; Romanchuck 1995, 54.164.7, 55.165.5; Duzhenko 2001, fig. III.19, IV.40; Parshina 2001, 2.3,5; Zankin 2001, fig. 4.6; Barnea 1967, 155:8; Scherbak 1959, XI.		

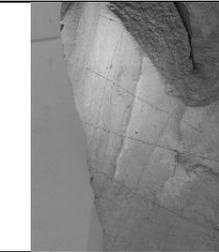
<b>SN 40</b>	HC 05 140	Shoulder	Fabric 3
Pentagram	Medium, deep lines, applied before firing.		

	Parallels: van Doorninck 1989, fig. 3.7,11; Karger 1958, fig. 107; Barnea 1967, fig. 155.8; Barnea 1967, fig. 161.8; Romanchuck 1995, 54.164.7, 55.165.5; Duzhenko 2001, fig. III.19, IV.40; Parshina 2001, 2.3,5; Zankin 2001, fig. 4.6; Barnea 1967, 155:8; Scherbak 1959, XI.		
<b>SN 41</b>	HC 06 86	Shoulder	Fabric 5
Pentagram	Medium, faint incisions.		
	Parallels: van Doorninck 1989, fig. 3.7,11; Karger 1958, fig. 107; Barnea 1967, fig. 155.8; Barnea 1967, fig. 161.8; Romanchuck 1995, 54.164.7, 55.165.5; Duzhenko 2001, fig. III.19, IV.40; Parshina 2001, 2.3,5; Zankin 2001, fig. 4.6; Barnea 1967, 155:8; Scherbak 1959, XI.		
<b>SN 42</b>	HC 06 466	Shoulder	Fabric 2
Pentagram	Narrow, faint incisions, incomplete.		
	Parallels: van Doorninck 1989, fig. 3.7,11; Karger 1958, fig. 107; Barnea 1967, fig. 155.8; Barnea 1967, fig. 161.8; Romanchuck 1995, 54.164.7, 55.165.5; Duzhenko 2001, fig. III.19, IV.40; Parshina 2001, 2.3,5; Zankin 2001, fig. 4.6; Barnea 1967, 155:8; Scherbak 1959, XI.		
<b>SN 43</b>	HC 07 250	Handle	Fabric 3
Pentagram	Narrow, medium depth lines.		
	Parallels: van Doorninck 1989, fig. 3.7,11; Karger 1958, fig. 107; Barnea 1967, fig. 155.8; Barnea 1967, fig. 161.8; Romanchuck 1995, 54.164.7, 55.165.5; Duzhenko 2001, fig. III.19, IV.40; Parshina 2001, 2.3,5; Zankin 2001, fig. 4.6; Barnea 1967, 155:8; Scherbak 1959, XI.		
<b>SN 44</b>	HC 07 534-3	Shoulder	Fabric 2
Pentagram	Narrow, deep incisions, incomplete.		
	Parallels: van Doorninck 1989, fig. 3.7,11; Karger 1958, fig. 107; Barnea 1967, fig. 155.8; Barnea 1967, fig. 161.8; Romanchuck 1995, 54.164.7, 55.165.5; Duzhenko 2001, fig. III.19, IV.40; Parshina 2001, 2.3,5; Zankin 2001, fig. 4.6; Barnea 1967, 155:8; Scherbak 1959, XI.		
<b>SN 45</b>	HC 04 432	Shoulder	Fabric 1
Hexagram, bird	Medium depth incisions, incomplete, applied after firing.		

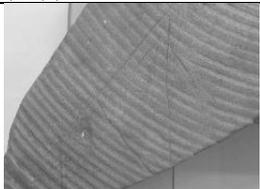
	Parallels for birds: Barnea 1967, 156:9,11		
<b>SN 47</b>	HC 03 293	Handle	Fabric 3
Grid	Narrow, faint incisions, applied after firing.		
	Parallels: Baranov and Maiko 2001, fig. 5.1; Garver 1995, 4.41; Barnea 1967, 160:15, 161:2,9; Scherbak 1959, IX, X.		
<b>SN 48</b>	HC 03 505	Handle	Fabric 3
Grid	Narrow, faint incisions, applied after firing.		
	Parallels: Baranov and Maiko 2001, fig. 5.1; Garver 1995, 4.41; Barnea 1967, 160:15, 161:2,9; Scherbak 1959, IX, X.		
<b>SN 49</b>	HC 04 175	Handle Base	Fabric 3
Grid	Narrow, faint incisions, applied after firing. <b>SN 79.</b>		
	Parallels: Baranov and Maiko 2001, fig. 5.1; Garver 1995, 4.41; Barnea 1967, 160:15, 161:2,9; Scherbak 1959, IX, X.		
<b>SN 50</b>	HC 06 217	Handle	Fabric 2
Grid	Narrow, faint incisions, applied after firing.		
	Parallels: Baranov and Maiko 2001, fig. 5.1; Garver 1995, 4.41; Barnea 1967, 160:15, 161:2,9; Scherbak 1959, IX, X.		
<b>SN 52</b>	HC 06 392	Shoulder	Fabric 1
Grid	Narrow, faint incisions, applied after firing.		

	Parallels: Baranov and Maiko 2001, fig. 5.1; Garver 1995, 4.41; Barnea 1967, 160:15, 161:2,9; Scherbak 1959, IX, X.		
<b>SN 53</b>	HC 06 548	Shoulder	Fabric 2
Grid	Narrow, faint incisions, applied after firing.		
	Parallels: Baranov and Maiko 2001, fig. 5.1; Garver 1995, 4.41; Barnea 1967, 160:15, 161:2,9; Scherbak 1959, IX, X.		
<b>SN 54</b>	HC 06 9	Shoulder	Fabric 1
Grid	Narrow, faint incisions, applied after firing. <b>SN 101.</b>		
	Parallels: Baranov and Maiko 2001, fig. 5.1; Garver 1995, 4.41; Barnea 1967, 160:15, 161:2,9; Scherbak 1959, IX, X.		
<b>SN 55</b>	HC 07 13	Handle	Fabric 2
Grid, 1 column	Narrow, faint incisions, applied after firing. <b>SN 56.</b>		
	Parallels: Barnea 1967, 155:10.		
<b>SN 56</b>	HC 07 13	Handle	Fabric 2
Grid, 1 column	Narrow, faint incisions, applied after firing. <b>SN 55.</b>		
	Parallels: Barnea 1967, 155:10.		
<b>SN 57</b>	HC 07 127	Shoulder	Fabric 2
Grid	Narrow, deep incisions applied before firing.		

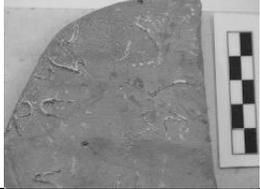
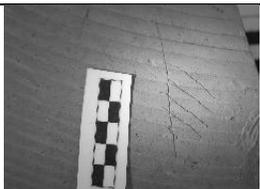
	Parallels: Baranov and Maiko 2001, fig. 5.1; Garver 1995, 4.41; Barnea 1967, 160:15, 161:2,9; Scherbak 1959, IX, X.		
<b>SN 58</b>	HC 07 214	Handle	Fabric 5
Grid	Narrow, faint incisions, applied after firing. <b>GC 52, TR 37, SN 59, NM 57.</b>		
	Parallels: Baranov and Maiko 2001, fig. 5.1; Garver 1995, 4.41; Barnea 1967, 160:15, 161:2,9; Scherbak 1959, IX, X.		
<b>SN 59</b>	HC 07 214	Shoulder	Fabric 5
Grid, 1 column	Medium, deep incisions, applied before firing. <b>GC 52, TR 37, SN 58, NM 57.</b>		
	Parallels: Barnea 1967, 155:10.		
<b>SN 60</b>	HC 07 265	Handle Base	Fabric 4
Grid	Narrow, faint incisions, incomplete.		
	Parallels: Baranov and Maiko 2001, fig. 5.1; Garver 1995, 4.41; Barnea 1967, 160:15, 161:2,9; Scherbak 1959, IX, X.		
<b>SN 61</b>	HC 07 563	Shoulder	Fabric 1
Grid, 1 column	Narrow, faint lines, applied after firing.		
	Parallels: Barnea 1967, 155:10.		
<b>SN 62</b>	HC 07 59	Shoulder	Fabric 2
Grid	Narrow, faint incisions, incomplete.		

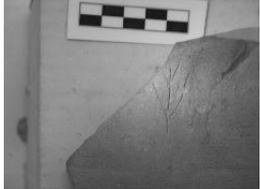
	Parallels: Baranov and Maiko 2001, fig. 5.1; Garver 1995, 4.41; Barnea 1967, 160:15, 161:2,9; Scherbak 1959, IX, X.		
<b>SN 63</b>	HC 07 622	Handle Base	Fabric 1
Grid	Narrow, faint incisions, applied after firing.		
	Parallels: Baranov and Maiko 2001, fig. 5.1; Garver 1995, 4.41; Barnea 1967, 160:15, 161:2,9; Scherbak 1959, IX, X.		
<b>SN 64</b>	HC 08 174	Handle Base	Fabric 1
Grid	Broad, medium depth incisions applied before firing, incomplete.		
	Parallels: Baranov and Maiko 2001, fig. 5.1; Garver 1995, 4.41; Barnea 1967, 160:15, 161:2,9; Scherbak 1959, IX, X.		
<b>SN 65</b>	HC 08 351	Handle Base	Fabric 2
Grid	Narrow, faint incisions applied after firing.		
	Parallels: Baranov and Maiko 2001, fig. 5.1; Garver 1995, 4.41; Barnea 1967, 160:15, 161:2,9; Scherbak 1959, IX, X.		
<b>SN 66</b>	HC 08 353	Shoulder	Fabric 2
Grid	Narrow, faint incisions, incomplete.		
	Parallels: Baranov and Maiko 2001, fig. 5.1; Garver 1995, 4.41; Barnea 1967, 160:15, 161:2,9; Scherbak 1959, IX, X.		
<b>SN 67</b>	HC 08 519	Shoulder	Fabric 2
Grid	Narrow, deep incisions, applied after firing.		

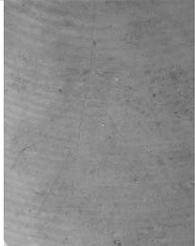
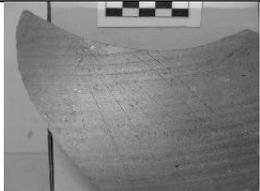
	Parallels: Baranov and Maiko 2001, fig. 5.1; Garver 1995, 4.41; Barnea 1967, 160:15, 161:2,9; Scherbak 1959, IX, X.		
<b>SN 68</b>	HC 08 524	Handle Base	Fabric 2
Grid	Narrow, medium incisions, applied after firing.		
	Parallels: Baranov and Maiko 2001, fig. 5.1; Garver 1995, 4.41; Barnea 1967, 160:15, 161:2,9; Scherbak 1959, IX, X.		
<b>SN 69</b>	HC 08 535	Handle Base	Fabric 1
Grid	Narrow, faint incisions, incomplete.		
	Parallels: Baranov and Maiko 2001, fig. 5.1; Garver 1995, 4.41; Barnea 1967, 160:15, 161:2,9; Scherbak 1959, IX, X.		
<b>SN 70</b>	HC 08 608	Shoulder	Fabric 3
Grid	Medium, faint incisions, incomplete.		
	Parallels: Baranov and Maiko 2001, fig. 5.1; Garver 1995, 4.41; Barnea 1967, 160:15, 161:2,9; Scherbak 1959, IX, X.		
<b>SN 71</b>	HC 08 710	Handle Base	Fabric 3
Grid	Narrow, deep incisions, incomplete.		
	Parallels: Baranov and Maiko 2001, fig. 5.1; Garver 1995, 4.41; Barnea 1967, 160:15, 161:2,9; Scherbak 1959, IX, X.		
<b>SN 72</b>	HC 08 739	Handle Base	Fabric 1
Grid	Narrow, medium depth incisions applied after firing.		

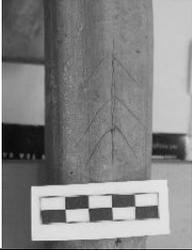
	Parallels: Baranov and Maiko 2001, fig. 5.1; Garver 1995, 4.41; Barnea 1967, 160:15, 161:2,9; Scherbak 1959, IX, X.		
<b>SN 73</b>	HC 08 759	Handle	Fabric 1
Grid	Narrow, medium depth incisions applied after firing.		
	Parallels: Baranov and Maiko 2001, fig. 5.1; Garver 1995, 4.41; Barnea 1967, 160:15, 161:2,9; Scherbak 1959, IX, X.		
<b>SN 74</b>	HC 04 83	Handle	Fabric 3
<del>XXXXXXXXK</del>	Narrow, faint incisions applied after firing.		
			
<b>SN 75</b>	HC 08 527	Handle	Fabric 2
>	Narrow, faint incisions applied after firing.		
			
<b>SN 76</b>	HC 08 422	Shoulder	Fabric 1
/ <	Medium, faint incisions applied after firing, incomplete.		
			
<b>SN 77</b>	HC 03 494	Handle	Fabric 2
Grain Sheaf	Narrow, medium depth incisions applied after firing.		

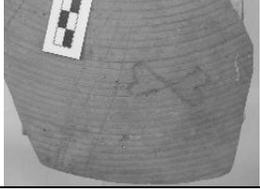
	Parallels: Romanchuck 1995, 37.147, 52.162.10,15, 59.169.1; Hayes 1992, 15.e; Bjelajac 1989, 2.3; Scherbak 1959, II, III, IX.		
<b>SN 78</b>	HC 03 786	Handle	Fabric 2
Grain Sheaf	Narrow, faint incisions applied after firing.		
	Parallels: Romanchuck 1995, 37.147, 52.162.10,15, 59.169.1; Hayes 1992, 15.e; Bjelajac 1989, 2.3; Scherbak 1959, II, III, IX.		
<b>SN 79</b>	HC 04 175	Handle	Fabric 3
Grain Sheaf	Narrow, medium depth incisions. <b>SN 49.</b>		
	Parallels: Romanchuck 1995, 37.147, 52.162.10,15, 59.169.1; Hayes 1992, 15.e; Bjelajac 1989, 2.3; Scherbak 1959, II, III, IX.		
<b>SN 80</b>	HC 05 357	Handle Base	Fabric 3
Grain Sheaf	Narrow, deep incisions, applied after firing. <b>TR 54.</b>		
	Parallels: Romanchuck 1995, 37.147, 52.162.10,15, 59.169.1; Hayes 1992, 15.e; Bjelajac 1989, 2.3; Scherbak 1959, II, III, IX.		
<b>SN 81</b>	HC 05 433	Shoulder	Fabric 1
Grain Sheaf	Narrow, medium depth incisions, applied after firing.		
	Parallels: Romanchuck 1995, 37.147, 52.162.10,15, 59.169.1; Hayes 1992, 15.e; Bjelajac 1989, 2.3; Scherbak 1959, II, III, IX.		
<b>SN 82</b>	HC 05 681	Shoulder	Fabric 2
Grain Sheaf	Narrow, faint incisions, applied after firing.		

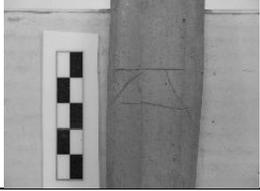
	Parallels: Romanchuck 1995, 37.147, 52.162.10,15, 59.169.1; Hayes 1992, 15.e; Bjelajac 1989, 2.3; Scherbak 1959, II, III, IX.		
<b>SN 83</b>	HC 06 247	Handle Base	Fabric 2
Grain Sheaf	Narrow, medium depth incisions, incomplete.		
	Parallels: Romanchuck 1995, 37.147, 52.162.10,15, 59.169.1; Hayes 1992, 15.e; Bjelajac 1989, 2.3; Scherbak 1959, II, III, IX.		
<b>SN 84</b>	HC 07 279	Shoulder	Fabric 7
Grain Sheaf	Narrow, deep incisions applied after firing. <b>SN 89.</b>		
	Parallels: Romanchuck 1995, 37.147, 52.162.10,15, 59.169.1; Hayes 1992, 15.e; Bjelajac 1989, 2.3; Scherbak 1959, II, III, IX.		
<b>SN 85</b>	HC 08 767	Shoulder	Fabric 3
Grain Sheaf	Narrow, deep incisions applied after firing.		
	Parallels: Romanchuck 1995, 37.147, 52.162.10,15, 59.169.1; Hayes 1992, 15.e; Bjelajac 1989, 2.3; Scherbak 1959, II, III, IX.		

<b>SN 86</b>	HC 06 424	Handle Base	Fabric 2
Grain Sheaf	Narrow, medium depth incisions, applied before firing.		
	Parallels: Romanchuck 1995, 37.147, 52.162.10,15, 59.169.1; Hayes 1992, 15.e; Bjelajac 1989, 2.3; Scherbak 1959, II, III, IX.		
<b>SN 87</b>	HC 06 605	Handle	Fabric 2
Grain Sheaf	Narrow, deep incisions, applied after firing.		

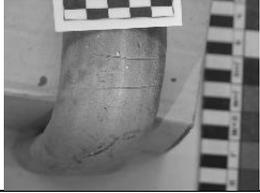
	Parallels: Romanchuck 1995, 37.147, 52.162.10,15, 59.169.1; Hayes 1992, 15.e; Bjelajac 1989, 2.3; Scherbak 1959, II, III, IX.		
<b>SN 88</b>	HC 07 12	Shoulder	Fabric 2
Grain Sheaf	Narrow, faint incisions, applied after firing.		
	Parallels: Romanchuck 1995, 37.147, 52.162.10,15, 59.169.1; Hayes 1992, 15.e; Bjelajac 1989, 2.3; Scherbak 1959, II, III, IX.		
<b>SN 89</b>	HC 07 279	Shoulder	Fabric 7
Grain Sheaf	Narrow, faint incisions. <b>SN 84.</b>		
	Parallels: Romanchuck 1995, 37.147, 52.162.10,15, 59.169.1; Hayes 1992, 15.e; Bjelajac 1989, 2.3; Scherbak 1959, II, III, IX.		
<b>SN 90</b>	HC 07 29	Shoulder	Fabric 2
Grain Sheaf	Narrow, faint incisions, incomplete.		
	Parallels: Romanchuck 1995, 37.147, 52.162.10,15, 59.169.1; Hayes 1992, 15.e; Bjelajac 1989, 2.3; Scherbak 1959, II, III, IX.		
<b>SN 91</b>	HC 07 357	Handle	Fabric 1
Grain Sheaf	Narrow, faint incisions, applied after firing.		
	Parallels: Romanchuck 1995, 37.147, 52.162.10,15, 59.169.1; Hayes 1992, 15.e; Bjelajac 1989, 2.3; Scherbak 1959, II, III, IX.		
<b>SN 92</b>	HC 07 456	Handle	Fabric 1
Grain Sheaf	Narrow, medium depth incisions, applied after firing.		

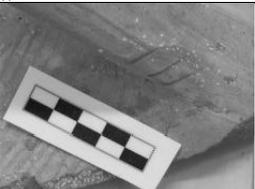
	Parallels: Romanchuck 1995, 37.147, 52.162.10,15, 59.169.1; Hayes 1992, 15.e; Bjelajac 1989, 2.3; Scherbak 1959, II, III, IX.		
<b>SN 93</b>	HC 08 31	Shoulder	Fabric 1
Grain Sheaf, laces both directions	Narrow, faint incisions applied after firing, incomplete.		
	Parallels: Romanchuck 1995, 37.147, 52.162.10,15, 59.169.1; Hayes 1992, 15.e; Bjelajac 1989, 2.3; Scherbak 1959, II, III, IX.		
<b>SN 94</b>	HC 08 425	Handle	Fabric 1
Grain Sheaf	Narrow, deep incisions, incomplete.		
	Parallels: Romanchuck 1995, 37.147, 52.162.10,15, 59.169.1; Hayes 1992, 15.e; Bjelajac 1989, 2.3; Scherbak 1959, II, III, IX.		
<b>SN 95</b>	HC 08 570	Handle	Fabric 2
Grain Sheaf	Narrow, faint incisions.		
	Parallels: Romanchuck 1995, 37.147, 52.162.10,15, 59.169.1; Hayes 1992, 15.e; Bjelajac 1989, 2.3; Scherbak 1959, II, III, IX.		
<b>SN 96</b>	HC 08 646	Handle	Fabric 2
Grain Sheaf	Narrow, faint incision applied after firing.		
	Parallels: Romanchuck 1995, 37.147, 52.162.10,15, 59.169.1; Hayes 1992, 15.e; Bjelajac 1989, 2.3; Scherbak 1959, II, III, IX.		
<b>SN 97</b>	HC 08 788	Handle	Fabric 3
Grain Sheaf	Narrow, deep incisions applied after firing.		

	Parallels: Romanchuck 1995, 37.147, 52.162.10,15, 59.169.1; Hayes 1992, 15.e; Bjelajac 1989, 2.3; Scherbak 1959, II, III, IX.		
<b>SN 98</b>	HC 08 800	Handle	Fabric 1
Grain Sheaf	Narrow, deep incisions applied after firing. <b>TR 18.</b>		
	Parallels: Romanchuck 1995, 37.147, 52.162.10,15, 59.169.1; Hayes 1992, 15.e; Bjelajac 1989, 2.3; Scherbak 1959, II, III, IX.		
<b>SN 99</b>	HC 08 830	Handle Base	Fabric 3
Grain Sheaf	Narrow, medium depth incisions applied after firing. <b>GC 70, GC 139, GC 163.</b>		
	Parallels: Romanchuck 1995, 37.147, 52.162.10,15, 59.169.1; Hayes 1992, 15.e; Bjelajac 1989, 2.3; Scherbak 1959, II, III, IX.		
<b>SN 100</b>	HC 08 145	Handle	Fabric 3
O-A-O	Narrow, medium depth incisions, applied after firing.		
			
<b>SN 101</b>	HC 06 9	Shoulder	Fabric 5
Two hearts	Broad, deep incisions, applied before firing. <b>SN 54.</b>		
			
<b>SN 102</b>	HC 06 460	Handle	Fabric 3
A—	Narrow, faint incisions, applied before firing.		

	Parallels: Garver 1993, fig. 8.56.		
<b>SN 103</b>	HC 08 124	Shoulder	Fabric 2
Δ	Medium, deep incisions, incomplete, applied before firing.		
	Parallels: Duzhenko 2001, fig. III.20.		
<b>SN 104</b>	HC 07 179	Shoulder	Fabric 3
Γ spiral	Narrow, medium depth incisions.		
			
<b>SN 105</b>	HC 03 301	Handle	Fabric 3
trapezoid	Narrow, deep incisions.		
			
<b>SN 106</b>	HC 08 536	Shoulder	Fabric 1
Bisected angular 8	Broad, deep incisions.		
	No known parallels.		

<b>NM 1</b>	HC 08 751	Handle	Fabric 1
	Narrow, deep incisions, applied after firing.		

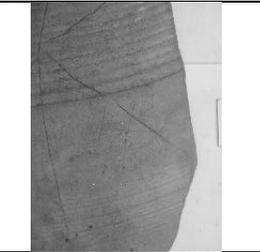
	Parallels: Günsenin 1990, LXXXVII. 1b.		
<b>NM 2</b>	HC 08 80	Handle	Fabric 3
	Narrow, medium incisions applied after firing. <b>GC 26.</b>		
	Parallels: Günsenin 1990, LXXXVII. 1b.		
<b>NM 3</b>	HC 07 18	Shoulder	Fabric 2
‡	Narrow, faint incisions, applied before firing.		
	Parallels: Romanchuck 1995, 56.166.11; Garver 1993, 2.		
<b>NM 4</b>	HC 07 509	Handle	Fabric 2
‡	Faint, narrow incisions, applied after firing.		
	Parallels: Romanchuck 1995, 56.166.11; Garver 1993, 2.		
<b>NM 5</b>	HC 08 543	Handle	Fabric 1
‡	Narrow, faint incisions. <b>NM 15.</b>		
<b>No picture</b>	Parallels: Romanchuck 1995, 56.166.11; Garver 1993, 2.		
<b>NM 6</b>	HC 08 741	Handle	Fabric 2
‡	Narrow, faint incisions applied after firing.		
	Parallels: Romanchuck 1995, 56.166.11; Garver 1993, 2.		
<b>NM 7</b>	HC 04 473	Shoulder	Fabric 4
	Narrow, deep incisions, applied after firing. <b>AR 2.</b>		

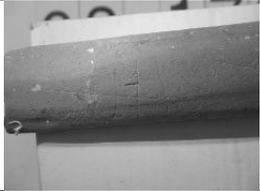
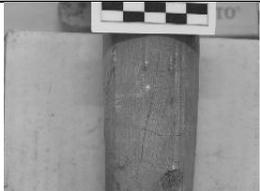
	Parallels: Scherbak 1959, XIII, XV.		
<b>NM 8</b>	HC 05 10	Handle	Fabric 2
	Narrow, faint incisions, applied after firing.		
	Parallels: Scherbak 1959, XIII, XV.		
<b>NM 9</b>	HC 05 94	Handle Base	Fabric 3
	Narrow, medium depth incisions.		
	Parallels: Scherbak 1959, XIII, XV.		
<b>NM 10</b>	HC 06 626	Handle	Fabric 5
	Narrow, deep incisions. <b>GC 167.</b>		
	Parallels: Scherbak 1959, XIII, XV.		
<b>NM 11</b>	HC 07 217	Handle	Fabric 1
	Broad, deep incisions, applied before firing.		
	Parallels: Scherbak 1959, XIII, XV.		
<b>NM 12</b>	HC 08 688	Shoulder	Fabric 3
	Narrow, faint incisions applied after firing. <b>TR 52.</b>		

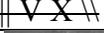
	Parallels: Scherbak 1959, XIII, XV.		
<b>NM 13</b>	HC 08 10	Handle	Fabric 1
	Narrow, faint incisions, applied after firing.		
	Parallels: Scherbak 1959, XIII, XV.		
<b>NM 14</b>	HC 08 533	Handle	Fabric 1
	Narrow, faint incisions. <b>GC 77, TR 15, TR 86.</b>		
	Parallels: Scherbak 1959, XIII, XV.		
<b>NM 15</b>	HC 08 543	Handle	Fabric 1
	Narrow, faint incisions. <b>NM 4.</b>		
	Parallels: Scherbak 1959, XIII, XV.		
<b>NM 16</b>	HC 08 784	Handle	Fabric 1
	Narrow, medium depth incisions applied after firing.		
	Parallels: Scherbak 1959, XIII, XV.		
<b>NM 17</b>	HC 08 9	Handle	Fabric 1
	Medium, deep incisions, applied before firing.		

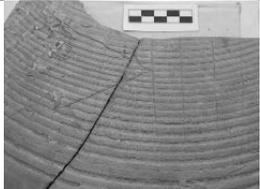
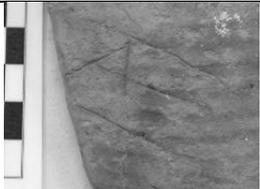
	Parallels: Scherbak 1959, XIII, XV.		
<b>NM 18</b>	HC 08 180	Shoulder	Fabric 2
	Narrow, medium incisions, applied before firing.		
	Parallels: Scherbak 1959, XIII, XV.		
<b>NM 19</b>	HC 07 399-3	Handle	Fabric 3
	Narrow, medium incisions.		
	Parallels: Zankin 2001, fig. 5.18; Scherbak 1959, I, IX, XI.		
<b>NM 20</b>	HC 04 385	Handle	Fabric 3
	Narrow, faint incisions, applied after firing.		
	Parallels: Zankin 2001, fig. 5.18; Scherbak 1959, I, IX, XI.		
<b>NM 21</b>	HC 04 551	Handle	Fabric 2
	Narrow, deep incisions, applied before firing.		
	Parallels: Zankin 2001, fig. 5.18; Scherbak 1959, I, IX, XI.		
<b>NM 22</b>	HC 07 424	Handle	Fabric 2
	Narrow, deep incisions applied after firing.		

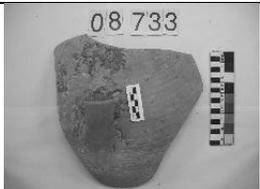
			
<b>NM 23</b>	HC 06 151	Handle Base	Fabric 2
≡	Narrow, faint incisions, applied after firing.		
	Parallels: Zankin 2001, fig. 5.18; Scherbak 1959, I, IX, XI.		
<b>NM 24</b>	HC 08 312	Shoulder	Fabric 3
≡	Narrow, faint incisions, applied after firing.		
	Parallels: Zankin 2001, fig. 5.18; Scherbak 1959, I, IX, XI.		
<b>NM 25</b>	HC 08 351	Shoulder	Fabric 2
≡	Narrow, faint incisions applied after firing.		
	Parallels: Zankin 2001, fig. 5.18; Scherbak 1959, I, IX, XI.		
<b>NM 26</b>	HC 08 647	Handle	Fabric 1
≡	Narrow, medium depth incisions, applied after firing.		
	Parallels: Zankin 2001, fig. 5.18; Scherbak 1959, I, IX, XI.		
<b>NM 27</b>	HC 08 645	Handle	Fabric 1
≡	Narrow, deep incisions.		

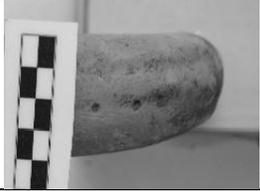
	Parallels: Zankin 2001, fig. 5.18; Scherbak 1959, I, IX, XI.		
<b>NM 28</b>	HC 08 296	Handle Base	Fabric 1
≡	Narrow, faint incisions, applied after firing. <b>GC 14.</b>		
	Parallels: Zankin 2001, fig. 5.18; Scherbak 1959, I, IX, XI.		
<b>NM 29</b>	HC 08 81	Shoulder	Fabric 2
≡	Narrow, faint incisions applied after firing.		
	Parallels: Zankin 2001, fig. 5.18; Scherbak 1959, I, IX, XI.		
<b>NM 30</b>	HC 08 295	Handle	Fabric 1
≡	Narrow, faint incisions applied after firing. <b>GC 95.</b>		
	Parallels: Zankin 2001, fig. 5.18; Scherbak 1959, I, IX, XI.		
<b>NM 31</b>	HC 08 649	Handle	Fabric 6
/≡	Medium, deep incisions, applied after firing.		
	Parallels: Scherbak 1959, I,		
<b>NM 32</b>	HC 05 700	Handle	Fabric 3
≡	Narrow, faint incisions, applied after firing.		

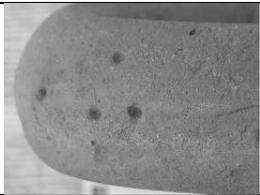
	Parallels: Scherbak 1959, XI.		
<b>NM 33</b>	HC 07 219	Handle Base	Fabric 1
	Narrow, faint lines, applied after firing.		
	Parallels: Scherbak 1959, XI.		
<b>NM 34</b>	HC 08 178	Handle	Fabric 2
	Narrow, faint incisions, applied after firing.		
	Parallels: Scherbak 1959, XI.		
<b>NM 35</b>	HC 04 167	Handle	Fabric 2
	Narrow, faint incisions applied after firing.		
	Parallels: Scherbak 1959, XI.		
<b>NM 36</b>	HC 08 135	Handle	Fabric 1
	Narrow, medium incisions, applied after firing.		
			
<b>NM 37</b>	HC 08 542	Handle	Fabric 2
	Narrow, faint incisions applied after firing. <b>GC 66.</b>		

			
<b>NM 38</b>	HC 03 289	Handle	Fabric 4
	Narrow, medium depth incisions applied after firing.		
			
<b>NM 39</b>	HC 08 732	Handle	Fabric 3
	Narrow, faint incisions applied after firing.		
			
<b>NM 40</b>	HC 07 215-1	Handle	Fabric 3
	Narrow, faint incisions, applied after firing.		
			
<b>NM 41</b>	HC 08 530	Handle	Fabric 3
	Narrow, faint incisions, incomplete.		
			
<b>NM 42</b>	HC 08 683	Handle	Fabric 7
	Narrow, medium depth incisions. <b>GC 68.</b>		

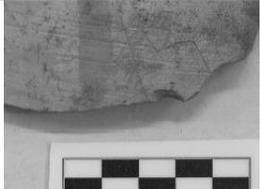
			
<b>NM 43</b>	HC 08 675	Handle	Fabric 3
V  λ	Narrow, faint incisions, applied after firing.		
			
<b>NM 44</b>	HC 08 747	Shoulder	Fabric 5
>	Narrow, deep incisions applied after firing.		
			
<b>NM 45</b>	HC 04 374	Shoulder	Fabric 3
<	Narrow, medium depth incisions, incomplete.		
			
<b>NM 46</b>	HC 07 206	Handle	Fabric 1
2 notches	Broad, deep notches, applied before firing.		
<b>No picture</b>			
<b>NM 47</b>	HC 08 241	Handle	Fabric 3
6 notches	Broad, deep notches, applied before firing.		
			
<b>NM 48</b>	HC 08 756	Handle	Fabric 1
10 notches	Broad, deep notches, applied before firing.		

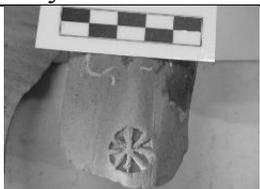
			
<b>NM 49</b>	HC 08 537	Handle	Fabric 1
1 drilled hole	Parabolic cross section, applied after firing.		
	Parallels: Zochenko 2001, fig. 22		
<b>NM 50</b>	HC 05 673	Handle	Fabric 2
1 drilled hole	Parabolic cross section, applied after firing.		
	Parallels: Zochenko 2001, fig. 22		
<b>NM 51</b>	HC 07 617	Handle Base	Fabric 2
2 drilled holes	Parabolic cross section, applied after firing. <b>GC 55, TR 9.</b>		
			
<b>NM 52</b>	HC 08 733	Handle Base	Fabric 3
2 drilled holes	Parabolic cross section, applied after firing.		
			
<b>NM 53</b>	HC 08 725	Handle	Fabric 2
2 drilled holes	Parabolic cross section, applied after firing.		

			
<b>NM 54</b>	HC 03 362-1	Handle	
3 drilled holes	Parabolic cross section, applied after firing. <b>NM 55.</b>		
	Parallels: Teslenko 2001, 2.3,4, 3.1.		
<b>NM 55</b>	HC 03 362-1	Handle	
3 drilled holes	Parabolic cross section, applied after firing. <b>NM 54.</b>		
	Parallels: Teslenko 2001, 2.3,4, 3.1.		
<b>NM 56</b>	HC 06 137	Handle Base	Fabric 4
3 drilled holes	Parabolic cross section, applied after firing. <b>GC 11.</b>		
	Parallels: Teslenko 2001, 2.3,4, 3.1.		
<b>NM 57</b>	HC 07 214	Handle	Fabric 5
3 drilled holes	Parabolic cross section, applied after firing. <b>GC 52, TR 37, SN 58, SN 59.</b>		
<b>No picture</b>	Parallels: Teslenko 2001, 2.3,4, 3.1.		
<b>NM 58</b>	HC 08 117	Handle Base	Fabric 2
3 drilled holes	Parabolic cross section, applied after firing.		
	Parallels: Teslenko 2001, 2.3,4, 3.1.		
<b>NM 59</b>	HC 07 495	Handle	Fabric 3

4 drilled holes	Parabolic cross section, applied after firing.		
	Parallels: Garver 1993, fig. 32.		
<b>NM 60</b>	HC 08 570	Handle	Fabric 2
4 drilled holes	Parabolic cross section, applied after firing.		
	Parallels: Garver 1993, fig. 32.		
<b>NM 61</b>	HC 06 465	Handle	Fabric 5
8 drilled holes	Parabolic cross section, applied after firing.		
	Parallels: Garver 1993, fig. 32.		

<b>UN 1</b>	HC 08 294	Shoulder	Fabric 1
Indecipherable	Narrow, faint incisions applied after firing.		
			
<b>UN 2</b>	HC 04 464/ HC 04 465	Shoulder	Fabric 1
Indecipherable	Narrow incisions applied after firing, both shallow and deep, covers sherd, multiple overlapping lines, incomplete.		
			
<b>UN 3</b>	HC 06 510	Shoulder	Fabric 5
Indecipherable	Medium width, deep incisions applied after firing and thin, faint		

	lines applied after firing, both incomplete.		
			
<b>UN 4</b>	HC 08 794	Shoulder	Fabric 6
Indecipherable	Medium width incisions applied after firing.		
			
<b>UN 5</b>	HC 08 517	Shoulder	Type II
Indecipherable	Greek/Cyrillic letters and/or runic signs, applied after firing		
See Figure 1	Parallels: Garver 1995, 9.7; Scherbak 1959, XVII.		
<b>UN 6</b>	HC 04 555	Shoulder	Fabric 1
Indecipherable	Narrow, medium incisions applied after firing, incomplete.		
	Parallels: Scherbak 1959, II.		
<b>ST 1</b>	HC 02 112	Handle Base	Fabric 3
8 rayed star			
	Parallels: Duzhenko 2001, fig. XI.1; Teslenko 2001, 2.3,4, 5.2; Hayes 1992, 14.19.		
<b>ST 2</b>	HC 03 439	Handle Base	Fabric 2
Indecipherable			
	Parallels: Teslenko 2001, 2.2,6, 5.1.		

<b>ST 3</b>	HC 05 285	Handle Base	Fabric 2
Cross			
	Parallels: Teslenko 2001, 4.1.		
<b>ST 4</b>	HC 05 285	Handle Base	Fabric 2
Cross			
	Parallels: Teslenko 2001, 4.1.		
<b>ST 5</b>	HC 05 285	Handle Base	Fabric 2
Cross			
	Parallels: Teslenko 2001, 4.1.		
<b>ST 6</b>	HC 05 285	Handle Base	Fabric 2
Cross			
	Parallels: Teslenko 2001, 4.1.		
<b>ST 7</b>	HC 05 327	Handle	Fabric 2
8 rayed star	<b>GC 39.</b>		
	Parallels: Hayes 1992, 14.19.		
<b>ST 8</b>	HC 05 80	Handle	Fabric 3
Rosette			

			
<b>ST 9</b>	HC 05 80	Handle	Fabric 3
Rosette			
			

**Figure 1**  
**UN 5**  
**HC 08 517**  
**Novy Svet Type II**

