

## THE LATE ROMAN AMPHORAE FROM TROPAEUM TRAIANI, SECTOR A (NORTH OF THE BASILICA A), 2005–2016

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**Abstract:** This paper reports the characterization of 82 amphorae fragments discovered in archaeological contexts at Tropaeum Traiani (Adamclisi, Constanța County, Romania), in Sector A (north of the Basilica A), from 2005 to 2016, dated between the 4<sup>th</sup>–6<sup>th</sup> centuries AD, in an attempt to understand the consumption and circulation of different commodities, as well as the trade connections of this settlement from the Lower Danube with the rest of the Roman world during the Late Antiquity period. The 82 fragments of Late Roman amphorae presented in this study belong to an assemblage including a total number of 283 amphorae fragments. The ceramic material is divided into 15 types, subtypes and variants of amphorae. The statistics based on the entire amphorae assemblage show the predominance of LRA 2 (38%) and LRA 1 (33%), while LRA 3 is less represented. The imports of olive oil represent 76% of the total imports, while wine only 24%.

**Cuvinte-cheie:** Tropaeum Traiani, perioada romană târzie, amfore, comerț, economie

**Rezumat:** În încercarea de a înțelege consumul și circulația diferitelor mărfuri, precum și legăturile comerciale ale așezării de la Tropaeum Traiani (Adamclisi, județul Constanța, România), de la Dunărea de Jos cu restul lumii romane în perioada antică târzie, un lot de 82 de fragmente de amfore descoperite în diverse contexte arheologice în această așezare, în sectorul A (la nord de Basilica A), între anii 2005–2016, datate între secolele IV–VI d.Hr. este analizat în articolul de față. Cele 82 de fragmente de amfore romane târzii prezentate în acest studiu aparțin unui ansamblu care include un număr total de 283 de fragmente de amfore. Materialul ceramic este împărțit în 15 tipuri, subtipuri și variante de amfore. Statisticile bazate pe întregul ansamblu de amfore arată predominanța tipurilor LRA 2 (38%) și LRA 1 (33%), în timp ce LRA 3 este mai puțin reprezentat. Importurile de ulei de măsline reprezintă 76% din totalul importurilor, iar cele de vin doar 24%.

### INTRODUCTION

This study reports the characterization of an assemblage of Roman amphorae finds (82 fragments) excavated in well-defined archaeological contexts at Tropaeum Traiani, Constanța County, Romania, on the so-called Sector A – North of the Basilica A.

Recently, archaeological research has been resumed north of Basilica A, in order to identify the annexes, the relations between them and to the nearby monuments. The ultimate goal of the archaeological research is to reveal the entire insula to which the basilica belonged. The archaeological research is carried out by digging parallel trenches, oriented perpendicular to the northern side of the basilica, starting from the city wall and reaching the cardo, numbered in the continuation of the old trenches. From 2005 to 2016, 38 trenches with a standard size of 5 × 3 m, disposed in a grid system, with one-meter baulks between them were excavated. Depending on the requirements of the research, local topography and the

already existing monuments, baulks were dismantled and more trenches of varying sizes were drawn (Pl. I).

The general stratigraphy of the investigated area is the following: vegetal layer; gravel mixed with grey soil; grey soil; debris with fragments of tiles, bricks and stones; yellow ash coat clay and occupation layer – clay floor. Although based on drawing parallel sections, this research also meets the requirements of an investigation over a large area, more precisely, from the city walls to cardo street, which allows a better observation and understanding of late Roman urbanism. To accomplish this goal, archaeological excavation was limited only to the investigation of the last, late Roman levels of functioning of the city<sup>1</sup>.

Archaeological research is still ongoing, but so far it has led to the partial or complete identification of several buildings in the immediate vicinity (A 5 and A 15) or attached to the northern wall of the basilica (two annex rooms: on the north-eastern and north-western corners). It was noticed that they focus on two points, one in the north of the atrium and narthex of the basilica and

<sup>1</sup> The last archaeological excavation season took place in 2016. From the following year until now, the Tropaeum Traiani archaeological site has not received any funding from the Ministry of Culture and National

Identity. Panait 2006; 2007; 2009; 2010; 2011; 2012; 2013; 2014; 2015; 2016; 2017; Panait, Vâlcu 2019, p. 157–158.

another in its northeastern corner. Since there are no other buildings in between, this space was probably a courtyard. This empty area was identified in 2009<sup>2</sup>, when a geomagnetic survey provided the evidence of its great dimensions. This region without constructions lies almost in the middle of the northern wall of the basilica, between the two aforementioned areas.

The results of the archaeological research summarized so far allowed us to assume that some additional buildings and a yard where Christians could assemble for different celebrations were located on the northern side of the basilica. The elements identified in the research indicate the existence of an enclosure on the northern side of the basilica, separating the yard and the annexes from the rest of the civil buildings located in this part of the Late Roman town.

## METHODOLOGY

The Late Roman Amphorae<sup>3</sup> were divided according to their contents and production centres. The fabric had been observed with a magnifying glass and the fabric pictures were taken with a digital camera Olympus Tough TG-4. The most important aspect is the production centre, because once established, it can offer relevant information about the type of commerce and the actors involved in the activity of transportation and distribution. Therefore, the amphorae fragments were set on types and we have chosen to illustrate the most representative fragments while the others can be found on the final statistic, which was made by counting all the rims, bases and handles<sup>4</sup>. The colour of the fabric was indicated using Munsell colour system. The chronological frame of the analysed fragments was mainly based on typology, but also taking into account the stratigraphic arguments, since the artefacts were discovered in well-defined and well dated archaeological layers. In the general stratigraphy of the roman city those are NV, NVIA, and NVIB<sup>5</sup>.

<sup>2</sup> Ștefan *et alii* 2010a, p. 23; Ștefan *et alii* 2010b, p. 23–24.

<sup>3</sup> The present study takes into consideration only the Late Roman imported amphoras. The questions concerning the locally produced amphoras will be answered in a separate paper.

<sup>4</sup> All the drawings of the amphorae fragments and the fabric photos were made by Bianca Grigoraș. The fabric photos were increased about six times on the plates.

<sup>5</sup> Bogdan Cătănicu, Barnea 1979a, p. 35–45.

<sup>6</sup> Opaïț 2021.

<sup>7</sup> Tezgör 2010, p. 128–129.

<sup>8</sup> Opaïț 2010, p. 375.

<sup>9</sup> The following abbreviations were used: TT = Tropaeum Traiani; S = Trench; S A2β = trial trench, near the city wall, inside room β from the Edifice no. A2; RD = rim diameter; BD = base diameter; PH = preserved height; HD = handle diameter; A5 = Edifice no. 5; A4 = Edifice no. 4; SS

## WINE AMPHORAE

### South Pontic Production Centres

#### *Carrot amphorae*

This amphora shape was frequently made by many production centres: Sinope, Heraclea, and an unknown centre, maybe Amastris<sup>6</sup>.

#### *Sinopean Carrot amphorae*

There are only three rims belonging to this type, and according to their fabric, they have a Sinopean origin. Their different sizes suggest the existence of variation in variants and capacities. The first one has a groove on the top and at the exterior of the rim (inv. 110/2013). According to Tezgör's typology, this can be included in the large type C Snp I-1<sup>7</sup>. Given the rim diameter, this fragment can be assigned to the subtype dated between the middle of the 4<sup>th</sup> century AD and the beginning of the 5<sup>th</sup> century AD, while its capacity is varying between ca. 23, 32, and 36 litres<sup>8</sup>. Another fragment (inv. 75/2014) has also a groove on the top and at the exterior of the rim. These grooves are less deep than at the previous one, and the fragment is dated to the second half of the 4<sup>th</sup> century – first half of the 5<sup>th</sup> century AD. In the second and the third quarter of the 5<sup>th</sup> century, it seems that the Sinopean amphorae became more elongated and decreased their capacity. From this period, we have found only one amphora fragment. This rim (inv. 131/2014) is vertical, with a shallow groove at the exterior.

Catalogue<sup>9</sup>:

- INV 110.** Fragmentary rim; Tezgör type C Snp I-1 large; TT 2013, S 25; RD = 12 cm; PH = 2 cm; colour: reddish yellow 5YR 6/6; date: the second half of the 4<sup>th</sup> century – first half of the 5<sup>th</sup> century AD; analogies: Hamyris<sup>10</sup>, Topraichioi<sup>11</sup>, Ibida<sup>12</sup>, Baia<sup>13</sup>, Novae<sup>14</sup>, Iatrus<sup>15</sup> (Pl. II/1).
- INV 75.** Fragmentary rim; Tezgör type C Snp I-1; TT 2014, S 18; RD = 10 cm; PH = 3.5 cm; colour: very pale brown 7.5YR 7/4; date: the second half of the 4<sup>th</sup> century – first half of the 5<sup>th</sup> century AD; analogies: Dinogetia<sup>16</sup>, Halmyris<sup>17</sup>, Topraichioi<sup>18</sup> (Pl. II/2).
- INV 131.** Fragmentary rim; Tezgör type C Snp III-2b; TT 2014, S 18; RD = 6 cm; PH = 6 cm; colour: reddish yellow 5YR 6/6; date: in the second and third quarter of the 5<sup>th</sup> century AD; analogies: Troesmis<sup>19</sup>, Halmyris<sup>20</sup>, Topraichioi<sup>21</sup>, Tomis<sup>22</sup>, (Pl. II/3).

34–36 = trial trench on the western side of the surface previously occupied by the trenches 34, 35, 36.

<sup>10</sup> Paraschiv 2000–2001, p. 460, pl. I/1–3.

<sup>11</sup> Opaïț 1991b, p. 241, fig. 23/1.

<sup>12</sup> Paraschiv 2000–2001, p. 460.

<sup>13</sup> Paraschiv 2004, p. 159, pl. IV/2.

<sup>14</sup> Biernacki, Klenina 2015, p. 99.

<sup>15</sup> Conrad 2007, p. 212, fig. 1.949.

<sup>16</sup> Opaïț *et alii* 2020, p. 385, fig. 4/23.

<sup>17</sup> Topoleanu 2003, p. 200, pl. XL/10.

<sup>18</sup> Opaïț 1991b, p. 241, fig. 23/1.

<sup>19</sup> Opaïț 1980, p. 306, 308, pl. XI/3, XII/4.

<sup>20</sup> Opaïț 1991a, p. 148.

<sup>21</sup> Opaïț 1991b, p. 241, fig. 24/1.

<sup>22</sup> Rădulescu 1976, p. 107–108, pl. X/4a.

**South Pontic Amphorae (unknown centre)**

According to the form and the fabric of the amphorae we were able to identify multiple variants and subtypes from the south Pontic production centres. They have different dimensions and some of them are rich in iron inclusions, while others have many white inclusions.

The unknown amphora type illustrated by the fragment inv. no. 14/2016 was discussed by D. Paraschiv<sup>23</sup>, A. Opaïț<sup>24</sup>, and D. Tezgör<sup>25</sup>. In Paraschiv's typology it was included into form D and is not assigned to a specific centre. It has a slight concavity under the rim and a long neck. Its dating starts from the middle of the 4<sup>th</sup> century AD and goes no later than mid-5<sup>th</sup> century AD<sup>26</sup>. The fabric is different and according to Opaïț it may come from an unknown south Pontic centre of production<sup>27</sup>. D. Tezgör proposes a west Pontic centre, taking into consideration the constant presence of those amphorae in Scythia<sup>28</sup>. The fragment has in composition iron oxide and foraminifera, while the colour is red.

Catalogue:

4. **INV 14.** Rim. TT 2016, S 45; PH = 5.5 cm; colour: red 2.5YR 5/6; date: the middle of the 4<sup>th</sup> century – as late as the beginning of the 5<sup>th</sup> century AD; analogies: Noviodunum<sup>29</sup>, Topraichioi<sup>30</sup>, Patara<sup>31</sup>, Samsun and Ereğli museum<sup>32</sup> (Pl. II/4).

**South Pontic LRA 1 imitations - Böttger II-4/Opaïț D-II**

Given the rich in iron oxide fabric and the whitish inclusion, this amphora type, according to A. Opaïț, may also be a south Pontic production, possibly Amastis<sup>33</sup>. The rim is thick and the neck has grooves. The fragments found at Tropaeum Traiani have the rim diameter varying between 7 and 10 cm, which suggest different capacities. Analogies: Halmyris<sup>34</sup>, Topraichioi<sup>35</sup>, Ulmetum<sup>36</sup>, Tomis<sup>37</sup>, Iatrus<sup>38</sup>, Sinope<sup>39</sup>. This type can be dated from the 5<sup>th</sup> to the 6<sup>th</sup> centuries AD.

Catalogue:

5. **INV 91.** Rim. TT 2013, S 25/27 dismantling baulk; RD = 6.5 cm; PH = 6 cm; colour: yellowish red 5YR 5/6; date: the 5<sup>th</sup>–6<sup>th</sup> centuries AD (Pl. II/5).
6. **INV 107.** Rim. TT 2013, S 38; RD = 10 cm; PH = 4.5 cm; colour: red light 2.5YR 6/6; date: the end of the 6<sup>th</sup> – beginning of the 7<sup>th</sup> centuries AD (Pl. II/6).
7. **INV 197.** Rim. TT 2016, S 21; RD = 9 cm; PH = 4 cm; colour: red 2.5YR 5/6-5/8; date: the 5<sup>th</sup>–6<sup>th</sup> centuries AD (Pl. II/7).
8. **INV 264.** Rim. TT 2013, S 18; RD = 8 cm; PH = 3.5 cm; colour: red 2.5YR 5/6; date: the 5<sup>th</sup>–6<sup>th</sup> centuries AD (Pl. II/8).

<sup>23</sup> Paraschiv 2000–2001.

<sup>24</sup> Opaïț 2010.

<sup>25</sup> Tezgör 2020, p. 81–83 (type C Snp III-1 similis).

<sup>26</sup> Paraschiv 2000–2001, p. 462, pl. II/12.

<sup>27</sup> Opaïț 2010, p. 389, 391.

<sup>28</sup> Tezgör 2020, p. 80.

<sup>29</sup> Paraschiv 2000–2001, p. 462, pl. II/12.

<sup>30</sup> Opaïț 1991b, p. 255–256, pl. 25/3; Opaïț 2010, p. 389, 391, fig. 8/1b.

<sup>31</sup> DüNDAR 2018, p. 171, fig. 11.

<sup>32</sup> Tezgör 2020, p. 81–83, pl. XXIX/5–6.

<sup>33</sup> Opaïț 2021.

<sup>34</sup> Opaïț 1991a, p. 146–147, pl. 19/11–12.

<sup>35</sup> Opaïț 1991b, p. 217, pl. 22/1, 2.

9. **INV 5661.** Rim. TT 2009, S 25; RD = 7 cm; PH = 10.5 cm; colour: yellowish red 5YR 5/6; date: the 5<sup>th</sup>–6<sup>th</sup> centuries AD (Pl. II/9).

The following subtype has a slightly flaring rim, not very distinctive from the neck. It can be dated to the end of the 6<sup>th</sup> century and beginning of the 7<sup>th</sup> century AD. The fabric has white inclusions (shell?). The fragments from Tropaeum Traiani have a rim diameter which varies between 8 and 9 cm. Analogies: Samsun, Sinope<sup>40</sup>, Chersonesos<sup>41</sup>.

Catalogue:

10. **INV 153.** Rim. TT 2016, S 48; RD = 9 cm; PH = 4.6 cm; colour: red 2.5YR 5/6-5/8; date: end of the 6<sup>th</sup> – beginning of the 7<sup>th</sup> century AD (Pl. III/10).
11. **INV 177.** Rim. TT 2013, S 20; RD = 10 cm; PH = 5.5 cm; colour: red 2.5YR 5/8; date: end of the 6<sup>th</sup> – beginning of the 7<sup>th</sup> century AD (Pl. III/11).
12. **INV 361.** Rim. TT 2011, S 33–36; RD = 8 cm; PH = 3.5 cm; colour: red 2.5YR 5/6-5/8; date: end of the 6<sup>th</sup> – beginning of the 7<sup>th</sup> century AD (Pl. III/12).

A variant of this type may be represented by fragments which have a thickened rim with an indentation on the inner side, long neck with multiple grooves on the inside. According to A. Opaïț they may be dated to the late 6<sup>th</sup> and the beginning of the 7<sup>th</sup> centuries AD. Analogies: Chersonesos<sup>42</sup>.

Catalogue:

13. **INV 5698.** Rim. TT 2010, S 36; RD = 10 cm; PH = 7 cm; colour: light red 2.5YR 6/6-6/8; date: late 6<sup>th</sup> and the beginning of the 7<sup>th</sup> centuries AD (Pl. III/13).
14. **INV 5706.** Rim. TT 2010, S 36; RD = 9 cm; PH = 6.5 cm; colour: light red 2.5YR 6/8; date: early 7<sup>th</sup> century AD (Pl. III/14).

**Opaïț B V**

From the south Pontic area is presumed to come some small-sized amphorae (ca. 1–2 litres). According to A. Opaïț, this type may be an imitation of the Kuzmanov XVI type<sup>43</sup>. It is dated to the end of the 6<sup>th</sup> century AD, and the fabric is reddish with iron and a whitish slip oxide, and the rim diameter varies from 5 to 6 cm<sup>44</sup>. It is widespread in the province of Scythia but also some examples have been found in Pannonia<sup>45</sup>. Analogies: Troesmis<sup>46</sup>, Halmyris<sup>47</sup>, Ibdia<sup>48</sup>.

Catalogue:

15. **INV 64.** Base; TT 2016, S 19; BD = 2 cm; PH = 2 cm; date: end of the 6<sup>th</sup> century AD (Pl. III/15).

<sup>36</sup> Gămureac 2018, p. 329, pl. VII/37.

<sup>37</sup> Opaïț 2021.

<sup>38</sup> Conrad 2007, p. 213, fig. 2/1080.

<sup>39</sup> Tezgör 2020, p. 87–89, pl. XXXI/6.

<sup>40</sup> Tezgör 2020, p. 38–39, pl. XVI/1.2.3.

<sup>41</sup> Opaïț 2021.

<sup>42</sup> Opaïț 2021.

<sup>43</sup> Opaïț 2004a, p. 29.

<sup>44</sup> Opaïț 2004a, p. 29.

<sup>45</sup> Opaïț 2004a, p. 29.

<sup>46</sup> Baumann 1980, p. 185, pl. 17/1.

<sup>47</sup> Opaïț 1991a, p. 144, pl. 15/92; Topoleanu 2000, p. 153, pl. LI/405–405.

<sup>48</sup> Paraschiv 2014, p. 427, fig. 4/4.

16. **INV 5102.** Upper part; TT 2006, S A2B; RD = 5.4 cm; PH = 11 cm, HD = 2.8/1.6 cm; colour: light red 2.5YR 6/8; date: end of the 6<sup>th</sup> century AD (Pl. III/16).

A variant of this type may be represented by fragments which have the handle attached nearby or directly on the rim. The rim can be rounded or slightly flattened on top. The earlier subtype can have frequent grooves on the neck. Analogies: Ibida<sup>49</sup>, Ulmetum<sup>50</sup>, Pompeiopolis<sup>51</sup>.

Catalogue:

17. **INV 79.** Rim and handle; TT 2011, SS 34–36; HD = 2.8/1.5 cm; PH = 4 cm; colour: light red 2.5YR 6/8; date: second half of the 5<sup>th</sup> century AD (Pl. IV/17).
18. **INV 246.** The rim is missing. TT 2016, S 47; PH = 4 cm; colour: red 2.5YR 5/6–5/8; date: 6<sup>th</sup> century AD (Pl. IV/18).
19. **INV 3851.** Rim and handle; TT 2005, S 10; RD = 6 cm; PH = 4 cm, HD = 2.6/1.4 cm; colour: red 2.5YR 5/6; date: end of the 6<sup>th</sup> century AD (Pl. IV/19).
20. **INV. 3872.** Rim. TT 2005, inside A5, last level; RD = 4.4 cm; PH = 4.2 cm; colour: yellowish red 5YR 5/6; date: end of the 6<sup>th</sup> century AD (Pl. IV/20).
21. **INV 3981.** Rim. TT 2005, between A4 and A5, last level; PH = 4.5 cm, HD = 2.8/2.2 cm; colour: red 2.5YR 5/6–5/8; date: end of the 6<sup>th</sup> century AD (Pl. IV/21).
22. **INV 250.** Rim. TT 2016, S 47; RD = 6 cm; PH = 3; colour: red 2.5YR 5/8; date: 5<sup>th</sup>–6<sup>th</sup> centuries AD (Pl. IV/22).

### West Pontic Amphorae

From the west Pontic area, the most popular amphora is type **Kuzmanov XV**. This type has been analysed and discussed by D. Kuzmanov<sup>52</sup>, A. Opaïț<sup>53</sup> and D. Paraschiv<sup>54</sup>. At Tropaeum Traiani this is represented by the upper (one fragment) and lower parts (three fragments). It dates from the second half of the 5<sup>th</sup> century AD to the first half of the 6<sup>th</sup> century AD, while the fabric is reddish with large iron oxides inclusions. The only fragment of rim preserved has a diameter of 10 cm, while the base diameters are of 4 cm. Analogies: Dinogetia<sup>55</sup>, Halmyris<sup>56</sup>, Ibida<sup>57</sup>, Capidava<sup>58</sup>, Dichin<sup>59</sup>, Amasra Museum<sup>60</sup>.

Catalogue:

23. **INV 5643.** Rim. TT 2009, S 25; RD = 11 cm; PH = 6 cm; colour: red 2.5YR 5/6; date: the second half of the 5<sup>th</sup> century AD to the first half of the 6<sup>th</sup> century AD (Pl. V/23).
24. **INV 5499.** Base. TT 2008, S 22; BD = 3 cm; PH = 15 cm; colour: red

2.5YR 5/6; date: the second half of the 5<sup>th</sup> century AD to the first half of the 6<sup>th</sup> century AD (Pl. V/24).

25. **INV 6333.** Base. TT 2009, S 25; BD = 3 cm; PH = 18 cm; colour: red 2.5YR 5/6; date: the second half of the 5<sup>th</sup> century AD to the first half of the 6<sup>th</sup> century AD (Pl. V/25).
26. **INV 203.** Base. TT 2012, S 30; BD = 4 cm; PH = 10 cm; colour: reddish yellow 5YR 6/6; date: the second half of the 5<sup>th</sup> century AD to the first half of the 6<sup>th</sup> century AD (Pl. V/26).

### Kuzmanov XVI

This type is represented at Tropaeum Traiani only by two lower parts. The dimensions of this type are small, and the capacities seems to be of only 2 or 3 litres, as shown by A. Opaïț's calculations on the amphorae found at Halmyris<sup>61</sup>. This type is widespread in Scythia but also in small quantities in Moesia Secunda<sup>62</sup>. Analogies: Halmyris<sup>63</sup>, Ibida<sup>64</sup>, Ulmetum<sup>65</sup>, Capidava<sup>66</sup>, Chernomorets<sup>67</sup>.

Catalogue:

27. **INV 65.** Base. TT 2015, S 43; BD = 1 cm; PH = 13.5 cm; colour: red 2.5YR 5/6–5/8; date: the 5<sup>th</sup> century to the 6<sup>th</sup> century AD (Pl. IV/27).
28. **INV 104.** Base. TT 2015, S 43; BD = 1 cm; PH = 6 cm; colour: red 2.5YR 5/8; date: the 5<sup>th</sup> century to the 6<sup>th</sup> century AD (Pl. IV/28).

### West Asia Minor - LRA 3 Amphorae

The amphorae produced in the area Sardis – Miletus – Pergamon are present in a small number in the Lower Danube area<sup>68</sup>. This fact is also reflected in our discoveries as it is represented in our sector only by two bases, dated in the 5<sup>th</sup> century AD. Analogies: Dinogetia<sup>69</sup>, Halmyris<sup>70</sup>, Topraichioi<sup>71</sup>, Tropaeum Traiani<sup>72</sup>, Novae<sup>73</sup>, Iatrus<sup>74</sup>, Alexandria<sup>75</sup>.

Catalogue:

29. **INV 610.** Base. TT 2012, S 37; colour: red 2.5YR 4/6; BD = 3 cm; PH = 3 cm; date: 5<sup>th</sup> century AD (Pl. VI/29).
30. **INV 169.** Base. TT 2013, S 20; colour: brown 7.5YR 5/3; BD = 3 cm; PH = 2.5 cm; date: 5<sup>th</sup> century AD (Pl. VI/30).

### Gaza Area

The Gaza wine gained its popularity during the 5<sup>th</sup> and 6<sup>th</sup> centuries AD, being considered a vintage wine<sup>76</sup>. It became common in the Mediterranean trade, mainly on the shores of the Eastern Mediterranean, but it was also found in the Western Mediterranean, the Black Sea, and the Aegean<sup>77</sup>. In Scythia, the LRA 4 amphorae are present in small quantities during the 4<sup>th</sup> century AD, but increased

<sup>49</sup> Paraschiv 2014, p. 427, fig. 5/5.

<sup>50</sup> Gămureac 2018, p. 327, pl. V/20.

<sup>51</sup> Opaïț 2018, p. 702, fig. 29–30.

<sup>52</sup> Kuzmanov 1985.

<sup>53</sup> Opaïț 2004a, p. 28–29.

<sup>54</sup> Paraschiv 2002, p. 15–16.

<sup>55</sup> Opaïț *et alii* 2020, p. 385, fig. 4/22.

<sup>56</sup> Topoleanu 2000, p. 151, pl. XLVIII/390–393.

<sup>57</sup> Opaïț 1991c, p. 26, fig. 6/26; Paraschiv, Mocanu 2010, p. 538, pl. III/1; Paraschiv 2014, p. 426, fig. 3/1–4.

<sup>58</sup> Opraș 2003, p. 73, pl. XXV/125.

<sup>59</sup> Swan 2019, p. 543, fig. 20/28.

<sup>60</sup> Tezgör 2020, p. 72–73, pl. XXVIII/1.

<sup>61</sup> Opaïț 2004a, p. 28.

<sup>62</sup> Paraschiv 2002, p. 180.

<sup>63</sup> Topoleanu 2000, p. 152, pl. XLIX/395–400.

<sup>64</sup> Paraschiv, Mocanu 2010, p. 538; Paraschiv 2014, p. 427, fig. 4/3.

<sup>65</sup> Gămureac 2018, p. 323, pl. IV/1.

<sup>66</sup> Opraș 2003, p. 74, pl. XXVI.

<sup>67</sup> Hristov 2015, p. 104, fig. VI/2.

<sup>68</sup> Opaïț 2017, p. 597.

<sup>69</sup> Opaïț *et alii* 2020, p. 385, fig. 26/27.

<sup>70</sup> Topoleanu 2000, p. 136, pl. XLII/345; Opaïț 2017, p. 597.

<sup>71</sup> Opaïț 1991b, p. 245, pl. 27/4.

<sup>72</sup> Gămureac 2009, p. 250, pl. II/10.

<sup>73</sup> Biernacki, Klenina 2015, p. 108, fig. 8/4.

<sup>74</sup> Conrad 2007, p. 213, fig. 2/1081.

<sup>75</sup> Bonifay, Leffy 2002, p. 77, fig. 9/79–80.

<sup>76</sup> Mayerson 1985; 1992; Pieri 2005.

<sup>77</sup> Regev 2004, p. 348.

their presence in the 5<sup>th</sup> and the 6<sup>th</sup> centuries AD, as it is shown by the discoveries from Dinogetia<sup>78</sup>, Halmyris<sup>79</sup>, and Tropaeum Traiani<sup>80</sup>. The fragments discovered were divided according to A. Opaït typology<sup>81</sup> in the following subtypes:

1. The fragment INV 147/2011 may be included in subtype LRA 4 A2, having a vertical rim, with a concavity on the inside, and an elongated body. This may be dated to the beginning of the 5<sup>th</sup> century AD. The INV 349/2011 can be assigned to the subtype LRA 4 A4, dated from the second half of the 5<sup>th</sup> century to the 6<sup>th</sup> century AD, for which the rim is taller and ends in a small hook. Analogies: Dinogetia<sup>82</sup>, Halmyris<sup>83</sup>, Tomis<sup>84</sup>, Novae<sup>85</sup>.

Catalogue:

31. **INV 147.** Rim. TT 2011, S 28; RD = 10 cm; PH = 2.5 cm; colour: reddish yellow 5YR 6/6; date: the beginning of the 5<sup>th</sup> century AD (Pl. VI/31).
32. **INV 349.** Rim. TT 2011, S 34–36; RD = 12 cm; PH = 4 cm; colour: yellowish red 5YR 5/6; date: the beginning of the 5<sup>th</sup> century AD (Pl. VI/32).

2. The fragment included in the second subtype - LRA 4 B - has a short, rounded, thickened rim. According to the analogies it may be dated at the beginning of the second half of the 5<sup>th</sup> century AD. Analogies: Topraichioi<sup>86</sup>, Novae<sup>87</sup>, Beyrouth<sup>88</sup>, Svetinja<sup>89</sup>.

Catalogue:

33. **INV 109.** Rim. TT 2012, S 38; RD = 12 cm; PH = 5 cm; colour: the core is light brownish yellow 10YR 6/4, margins yellowish red 5YR 5/6; date: the second half of the 5<sup>th</sup> century AD (Pl. VI/33).

3. LRA 4 D has a vertical rim, with a groove on the inside. This may be dated to the 5<sup>th</sup> century AD. Analogies: Capidava<sup>90</sup>, Chernomorets<sup>91</sup>, Patara<sup>92</sup>.

Catalogue:

34. **INV 5106.** Rim. TT 2006, S 18; RD = 10 cm; PH = 2 cm; colour: the core is light olive brown 2.5Y 5/4, margins reddish yellow 5YR 6/6; date: the 5<sup>th</sup> century AD (Pl. VI/34).
35. **INV 5586.** Rim. TT 2009, S 18; RD = 10 cm; PH = 2 cm; colour: reddish yellow 5YR 6/6; date: the 5<sup>th</sup> century AD (Pl. VI/35).
36. **INV 5304.** Rim. TT 2008, sector A, S 23; RD = 12 cm; PH = 4 cm; colour: yellowish red 5YR 5/6; date: the 5<sup>th</sup> century AD (Pl. VI/36).

4. The last LRA 4 amphorae which arrived to the Tropaeum Traiani were included in the LRA 4 C2 subtype, being dated to the second half of the 6<sup>th</sup> century AD. The rim is vertical and the body more elongated. One of the amphorae has traces of secondary burning (INV. 3954/2010). Analogies: Capidava<sup>93</sup>, Troesmis<sup>94</sup>, Noviodunum<sup>95</sup>, Halmyris<sup>96</sup>, Ibida<sup>97</sup>, Histria<sup>98</sup>, Tomis<sup>99</sup>, Novae<sup>100</sup>, Iatrus<sup>101</sup>, Byllis<sup>102</sup>, Beyrouth<sup>103</sup>, Saraçhane (Istanbul)<sup>104</sup>, Caesarea Maritima<sup>105</sup>.

Catalogue:

37. **INV 46.** Rim. TT 2016, S 44; RD = 10 cm; PH = 4 cm; colour: brown 7.5 YR 5/4; date: the second half of the 6<sup>th</sup> century AD (Pl. VII/37).
38. **INV 379.** Rim. TT 2012, S 40; RD = 10 cm; PH = 4 cm; colour: reddish yellow 5YR 6/6; date: the second half of the 6<sup>th</sup> century AD (Pl. VII/38).
39. **INV 6437.** Rim. TT 2010, S 36; RD = 13 cm; PH = 10.5 cm; HD = 3/2.5 cm; colour: yellowish red 5YR 5/6 date: the second half of the 6<sup>th</sup> century AD (Pl. VII/39).
40. **INV 672.** Rim. TT 2012, S 38; RD = 10 cm; PH = 6 cm; colour: yellowish red 5YR 5/6; date: the second half of the 6<sup>th</sup> century AD (Pl. VII/40).
41. **INV 3954.** Rim. TT 2010, inside A5, on the floor, -0.90-1.10 m; RD = 12 cm; PH = 10 cm; HD = 3/2 cm; colour: grey 5YR 5/1; date: the second half of the 6<sup>th</sup> century AD (Pl. VII/41).

### Cilicia/Cyprus amphorae

#### LRA 1 Amphorae

The LRA 1 amphorae are present in the Lower Danube area between the second half of the 4<sup>th</sup> century AD and the beginning of the 7<sup>th</sup> century AD. They have multiple fabrics and this fact suggests multiple workshops. Possible workshops were identified in Cilicia, Cyprus, and in the 7<sup>th</sup> century at Rhodes<sup>106</sup>. According to A. Opaït, they can be divided into many subtypes and variants<sup>107</sup>, many of them being identified also at Tropaeum Traiani.

1. Subtype LRA 1 A3 (INV. 125/2013, 5103/2006) has a folded band rim with a slight concavity, short, slightly cylindrical, narrow tronconical neck, twisted handles, with a pear-shaped body ending in a small nipple. Some of them have a *dipinto* on the shoulder (INV. 5103/2006). Analogies: Ulmetum<sup>108</sup>, Callatis<sup>109</sup>, Sacidava<sup>110</sup>, Troesmis<sup>111</sup>, Iatrus<sup>112</sup>.

<sup>78</sup> Opaït et alii 2020, p. 385, fig. 5/28.

<sup>79</sup> Opaït 2017, p. 599.

<sup>80</sup> Bogdan Cătănciu, Barnea 1979b, p. 190, fig. 170/310.

<sup>81</sup> Opaït 2004a, p. 20–22.

<sup>82</sup> Opaït et alii 2020, p. 385, fig. 5/28.

<sup>83</sup> Opaït 1991a, p. 180, fig. 14/40808; Suceveanu et alii 2003, p. 311, pl. LI/24.

<sup>84</sup> Bucovală 1988, p. 187, fig. 16.

<sup>85</sup> Biernacki, Klenina 2015, p. 112, fig. 12/6.

<sup>86</sup> Opaït 1991b, p. 234, pl. 16/2.

<sup>87</sup> Biernacki, Klenina 2015, p. 112, fig. 12/10.

<sup>88</sup> Pieri 2007, p. 297–327.

<sup>89</sup> Ivanišević 2016, p. 93, fig. 7/14.

<sup>90</sup> Opreș 2003, p. 65–68, fig. XXII/105.

<sup>91</sup> Hristov 2015, p. 96–97, fig. VI–8/38.

<sup>92</sup> Dündar 2018, p. 170, fig. 7.

<sup>93</sup> Opreș, Rațiu 2017, p. 84, pl. 6.

<sup>94</sup> Baumann 1980, p. 184, pl. 17/2.

<sup>95</sup> Barnea, Barnea 1984, p. 102, pl. VIII/3.

<sup>96</sup> Topoleanu 2000, p. 137, pl. XLIII/346–347.

<sup>97</sup> Opaït 1991c, p. 30, fig. 6/33.

<sup>98</sup> Bădescu, Bivolaru 2015, p. 197, fig. 6/7.

<sup>99</sup> Bucovală, Pașca 1988–1989, p. 142, pl. 9/b–c.

<sup>100</sup> Biernacki, Klenina 2015, p. 112, fig. 12/3.

<sup>101</sup> Conrad 2007, p. 214, fig. 3/1222.

<sup>102</sup> Bonifay 2008, p. 949, fig. 17/11.

<sup>103</sup> Pieri 2007, p. 304–305, fig. 6.

<sup>104</sup> Hayes 1992, p. 64, fig. 22/5.

<sup>105</sup> Johnson 2008, p. 97, catalogue 1180.

<sup>106</sup> Opaït 2004b, p. 294.

<sup>107</sup> Opaït 2004a, p. 8–10.

<sup>108</sup> Gămureac 2017, p. 263, pl. VIII/45.

<sup>109</sup> Opaït, Ionescu 2016, p. 71, pl. XIX/111.

<sup>110</sup> Scorpan 1973, p. 320, fig. 34.

<sup>111</sup> Baumann 1980, p. 182–185, pl. 15/1.

<sup>112</sup> Opaït 2004b, p. 294, fig. 2.

Catalogue:

42. **INV 125.** Upper part; TT 2013, S 20; RD = 9 cm; PH = 10.5 cm; colour: very pale brown 10YR 7/4; date: AD 425–460 (Pl. VIII/42).
43. **INV 5103**<sup>113</sup>. Upper part; TT 2006, S A2β; RD = 8.7 cm; PH = 25 cm; HD = 3/2.8 cm; colour: pink 7.5YR 7/4; date: AD 425–460 (Pl. VIII/43).
2. A special variant of this subtype is represented by INV. 5104/2006 and P. Reylods indicates a Cilician production<sup>114</sup>. Analogies come from Ibida<sup>115</sup>.

Catalogue:

44. **INV 5104.** Rim fragment. TT 2006, S 18; RD = 8 cm; PH = 11 cm; HD = 3.2/2.9 cm; colour: reddish yellow 5YR 6/6; date: beginning of the 5<sup>th</sup> century AD (Pl. VIII/44).
3. One of the subtypes, LRA 1 A4, dated to the 6<sup>th</sup> century AD, continues to have a folded rim with a large concavity on the exterior. The body continues to be pear-shaped and the base has a small indent. Analogies: Troesmis<sup>116</sup>, Halmyris<sup>117</sup>, Ulmetum<sup>118</sup>, Histria<sup>119</sup>, Tomis<sup>120</sup>, Knidos<sup>121</sup>, Beyrouth<sup>122</sup>, Antinoopolis<sup>123</sup>, Svetinja<sup>124</sup>, Carthage<sup>125</sup>, Caesarea Maritima<sup>126</sup>.

Catalogue:

45. **INV 5456.** Rim fragment; TT 2008, S 22; RD = 9 cm; PH = 9 cm; colour: the core is very pale brown 10YR 7/4; date: AD 500–550 (Pl. IX/45).
46. **INV 48.** Rim fragment; TT 2016, S 44; RD = 10 cm; PH = 9 cm; colour: light brown 7.5YR 6/4; date: 580–600 AD (Pl. IX/46).
47. **INV 5051.** Rim fragment; TT 2006, S 13; RD = 14; PH = 6.5 cm; colour: very pale brown 10YR 7/4; date: the second half of the 6<sup>th</sup> century AD (Pl. IX/47).
48. **INV 174.** Upper part; TT 2014, S 43; RD = 10; PH = 10 cm; colour: reddish yellow 7.5YR 7/6–6/6; date: the second half of the 6<sup>th</sup> century AD (Pl. IX/48).
49. **INV 190.** Rim fragment; TT 2016, S 48; RD = 12; PH = 7 cm; colour: pink 7.5YR 7/3; date: the second half of the 6<sup>th</sup> century AD (Pl. IX/49).
50. **INV 619.** Rim fragment; TT 2012, S 37; RD = 8 cm; PH = 6 cm; HD 3.8/2.9 cm; colour: light brown grey 2.5Y 6/2; date: the second half of the 6<sup>th</sup> century AD (Pl. IX/50).

4. In this subtype we may also include the fragments which have a sharp rim, with a deep concavity followed by a rib. Under the rim starts the handle. The neck is long, measuring 11 cm (5002/2006). These fragments are dated in the late 6<sup>th</sup> century AD. Analogies: Halmyris<sup>127</sup>, Ibida<sup>128</sup>, Histria<sup>129</sup>, Sacidava<sup>130</sup>, Capidava<sup>131</sup>, Knidos<sup>132</sup>, Elaiussa Sebaste<sup>133</sup>, Beyrouth<sup>134</sup>, Svetinja<sup>135</sup>, Caesarea Maritima<sup>136</sup>.

Catalogue:

51. **INV 6485.** Rim fragment; TT 2010, S 34/36, dismantling baulk; RD = 10 cm; PH = 6.5 cm; colour: brown 7.5YR 5/3; date: the second half of the 6<sup>th</sup> century AD (Pl. X/51).
52. **INV 154.** Rim fragment; TT 2016, S 48; RD = 10 cm; PH = 7 cm; HD = 3.5/2.6 cm; colour: reddish yellow 5YR 6/6; date: AD 580–600 (Pl. X/52).
53. **INV 5002.** Upper part; TT 2006, S 16; RD = 10; PH = 12; HD = 3.5/2.5 cm; colour: light brown 7.5YR 6/4; date: the second half of the 6<sup>th</sup> century AD (Pl. X/53).
5. An interesting variant, which is dated to the second half of the 6<sup>th</sup> century AD, has a short, band rim; the handles begin under the rim and are rounded in section, while the upper part of the neck is short and pushed into the lower part of the neck. Analogies: Ibida<sup>137</sup>, Patara<sup>138</sup>, Chersonesos<sup>139</sup>, Aquae<sup>140</sup>, Elaiussa Sebaste<sup>141</sup>, Kellia<sup>142</sup>.

Catalogue:

54. **INV 5221.** Upper part; TT 2006, S 12; RD = 9 cm; PH = 10 cm; HD = 3.3/3 cm; colour: reddish yellow 7.5YR 6/6; date: AD 550–600 (Pl. X/54).
6. The variant LRA 1 B2 is represented by sherds with a round, flaring rim with the handle attached under the rim. Analogies: Halmyris<sup>143</sup>, Topraichioi<sup>144</sup>, Capidava<sup>145</sup>, Chersonesos<sup>146</sup>, Aquae<sup>147</sup>, Caesarea Maritima<sup>148</sup>.

<sup>113</sup> The fragment was examined by Dragoș Hălămagi (Vasile Pârvan Institute of Archaeology), to whom we would like to thank for the help and information provided. The fragment bears two *dipinti* and a *graffito*. The *dipinto* on the left was painted with thick dark red strokes: only two letters are clearly visible, perhaps ην. The second *dipinto* was added next to it, in light red and with thinner lines. Several letters are discernible, but their reading is hindered by the more stylized cursive hand and the faded traces of paint: a θ in the middle of the word seems clear. Finally, a letter or some other symbol was incised at a later date. Since the two *tituli picti* have a probable commercial nature, the *graffito* may be interpreted, due to its positioning, as a mark associated with retail practices. Nevertheless, a subsequent reuse is also a plausible explanation.

<sup>114</sup> Reynolds 2005, p. 577–578, fig. 31.

<sup>115</sup> Information A. Opaïț.

<sup>116</sup> Lewit 2015, p. 154, fig. 3

<sup>117</sup> Opaïț 1991a, p. 184, fig. 18/104; Topoleanu 2000, p. 134–135, pl. XLI/337.

<sup>118</sup> Gămureac 2018, p. 339, pl. V/22.

<sup>119</sup> Bădescu, Cliante 2014, p. 191, fig. 3; Bădescu, Bivolaru 2015, p. 194–195, fig. 3–4.

<sup>120</sup> Opaïț 2004b, p. 294, fig. 3.

<sup>121</sup> Doksanalth 2020, p. 522, fig. 5/49.

<sup>122</sup> Pieri 2007, p. 299–304, fig. 3.1.

<sup>123</sup> Pieri 2012, p. 46, fig. 2/13 (2).

<sup>124</sup> Ivanišević 2016, p. 93, fig. 7/2.

<sup>125</sup> Reynolds 2005, p. 577–578, fig. 4.

<sup>126</sup> Johnson 2008, p. 106, catalogue 1264.

<sup>127</sup> Opaïț 1991a, p. 183, fig. 17/105; Topoleanu 2000, p. 134–135, pl. XLI/338.

<sup>128</sup> Opaïț 1991c, p. 37, fig. 10/72.

<sup>129</sup> Bădescu, Bivolaru 2015, p. 194–195, fig. 3–4.

<sup>130</sup> Scorpan 1975, p. 274–275, pl. X/3.

<sup>131</sup> Opaïț 2003, p. 53–59, pl. XVII/9.

<sup>132</sup> Doksanalth 2020, p. 522, fig. 5/47.

<sup>133</sup> Ferrazzoli, Ricci 2010, p. 815–819, fig. 6/26.

<sup>134</sup> Pieri 2007, p. 299–304, fig. 4.

<sup>135</sup> Ivanišević 2016, p. 93, fig. 7/5.

<sup>136</sup> Johnson 2008, p. 105, catalogue 1263.

<sup>137</sup> Opaïț 1991c, p. 30, fig. 7/39.

<sup>138</sup> Dündar 2018, p. 172, fig. 12.

<sup>139</sup> Opaïț 2004b, p. 305, fig. 34.

<sup>140</sup> Bjelajac 1996, p. 75, fig. XXV/145.

<sup>141</sup> Ferrazzoli, Ricci 2010, p. 818, fig. 5/25.

<sup>142</sup> Reynolds 2005, p. 577–578, fig. 33/a.

<sup>143</sup> Opaïț 1991a, p. 184, fig. 18/106–108; Topoleanu 2000, p. 134–135, pl. XLII/340.

<sup>144</sup> Opaïț 1991b, p. 239, fig. 21/2.

<sup>145</sup> Opaïț 2003, p. 53–59, fig. XVII/11.

<sup>146</sup> Opaïț 2004b, p. 305, fig. 35.

<sup>147</sup> Bjelajac 1996, p. 75, fig. XXV/139.

<sup>148</sup> Johnson 2008, p. 112, catalogue 1349.

## Catalogue:

55. **INV 110.** Upper part; TT 2012, S 38; RD = 10 cm; PH = 7 cm; colour: brown 7.5YR 5/4; date: AD 601–615 (Pl. X/55).
56. **INV 372.** Upper part; TT 2012, S 40; RD = 10 cm; PH = 6.5 cm; colour: light brown 7.5YR 6/4; date: AD 601–615 (Pl. X/56).

7. The last variant is represented by a fragment which has a rounded, thickened rim and the handles are set directly on the rim. Analogies: Ibida<sup>149</sup>, Beyrouth<sup>150</sup>.

## Catalogue:

57. **INV 161;** Rim fragment; TT 2015, S 46; RD = 8.7 cm; PH = 12 cm; HD = 4/2.8 cm; colour: brown 7.5YR 5/4; date: The 6<sup>th</sup> century AD (Pl. X/57).

## North African

From the Nord African region, two fragments of Spatheia, Bonifay type 3B were identified. The content of this amphora is debatable, as multiple contents have been discussed, such as wine<sup>151</sup>, salsamenta<sup>152</sup>, *garum*<sup>153</sup>. The Spatheia in the shipwreck Dramont E is supposed to contain olive seeds<sup>154</sup>.

Spatheion 3 in Bonifay typology is dated at the end of the 6<sup>th</sup> century-beginning of the 7<sup>th</sup> century AD. This type has been decreasing its dimensions from the 5<sup>th</sup> to the 7<sup>th</sup> century AD<sup>155</sup>. Analogies: Dinogetia<sup>156</sup>, Noviodunum<sup>157</sup>, Halmyris<sup>158</sup>, Ovidiu<sup>159</sup>, Cernavodă<sup>160</sup>, Capidava<sup>161</sup>, Dichin<sup>162</sup>, Iatrus<sup>163</sup>, Constantinople<sup>164</sup>, Yassi Ada<sup>165</sup>, Gortyna (Crete)<sup>166</sup>, Knidos<sup>167</sup>, Svetinja<sup>168</sup>. Imitations of Spatheia are known in the South of Spain<sup>169</sup>.

## Catalogue:

58. **INV 254.** Rim fragment. TT 2012, S 38; RD = 7 cm; PH = 4.5 cm; colour: pale brown 2.5Y 8/3; date: the 6<sup>th</sup> century – beginning of the 7<sup>th</sup> century AD (Pl. XI/58).
59. **INV 5176.** Rim fragment and body. TT 2006, S 21; RD = 6.7 cm; PH = 17 cm; date: the 6<sup>th</sup> century – beginning of the 7<sup>th</sup> century AD (Pl. XI/59).

<sup>149</sup> The fragment from Ibida has the same fabric with this sherd. Information A. Opaït.

<sup>150</sup> Pieri 2007, p. 299–304, fig. 3/2.

<sup>151</sup> Bonifay 2007, p. 20.

<sup>152</sup> Bonifay 2016, p. 596.

<sup>153</sup> Bonifay 2005, p. 575.

<sup>154</sup> Bonifay 2007, p. 13.

<sup>155</sup> Bonifay 2010, p. 40.

<sup>156</sup> Opaït *et alii* 2020, p. 386, fig. 7/41.

<sup>157</sup> Barnea, Barnea 1984, p. 102, pl. VIII/1

<sup>158</sup> Opaït 1991a, p. 144, fig. 15/89–90; Topoleanu 2000, p. 147–148, pl. XLVII/378; Topoleanu 2003, p. 215, pl. LV/18.

<sup>159</sup> Bucovaia 1998, p. 187, fig. 17.

<sup>160</sup> Lewit 2015, p. 154, fig. 7.

<sup>161</sup> Opraș 2003, p. 51, pl. XVII/1; Opraș, Potârniche 2019, p. 240–243.

<sup>162</sup> Swan 2007, p. 261, fig. 3/29–31.

<sup>163</sup> Conrad 2007, p. 213–214, fig. 3/1220.

<sup>164</sup> Bonifay 2005, p. 573, fig. 2/16.

<sup>165</sup> Bonifay 2010, p. 56, fig. 4/16.

<sup>166</sup> Perna 2020, p. 495, fig. 8.

## OLIVE OIL AMPHORAE

## LRA 2

This type was manufactured in the Peloponnese, Aegean islands, the Western Asia Minor coast, and has various subtypes and variants. It had a constant evolution, which can be easily seen in the different sizes of the rims. Thus, in the 4<sup>th</sup> century AD the rim diameter is 14 cm, in the 5<sup>th</sup> century AD it decreases to 12 cm, in the 6<sup>th</sup> century AD and at the beginning of the 7<sup>th</sup> century AD it has 10<sup>170</sup>, while some variants have 8 cm. For some variants we can observe a specific type of fabric.

It is important to stress out that the lids for this amphora type are also well known. Of course, they follow the same evolution as the rim diameters. Although the number of lids does not equate the number of rims, still there are 7 lids discovered until now.

1. The first subtype has a funnel-shaped rim and an internal small concavity. In Perri's typology, this form is included in LRA2 A and is dated to the 5<sup>th</sup> century AD<sup>171</sup>. Analogies: Dinogetia<sup>172</sup>, Topraichioi<sup>173</sup>, Ibida<sup>174</sup>, Histria<sup>175</sup>, Dichin<sup>176</sup>, Marseille<sup>177</sup>, Port-Cros<sup>178</sup>, Port-Vendres<sup>179</sup>, Thessaloniki<sup>180</sup>.

## Catalogue:

60. **INV. 5584.** Rim fragment. TT 2009, S 28; RD = 11 cm; PH = 6 cm; RH = 4.8 cm; colour: red 2.5YR 5/8; date: the second half of the 5<sup>th</sup> century AD (Pl. XI/60).

2. The rim is different from the previous one by being more vertical, the groove between the rim and the neck is visible, but the interior of the rim is less irregular. Analogies: Topraichioi<sup>181</sup>, Tomis<sup>182</sup>. It dates to the end of the 4<sup>th</sup> century AD.

## Catalogue:

61. **INV. 371.** Rim fragment. TT 2012, S 40; RD = 13 cm; PH = 8 cm; RH = 5.5 cm; colour: red 2.5YR 4/8; date: end of the 4<sup>th</sup> century AD (Pl. XI/61).

<sup>167</sup> Dosksanalth 2020, p. 522, fig. 5/62–63.

<sup>168</sup> Ivanišević 2016, p. 93, fig. 7/9.

<sup>169</sup> Bonifay 2007, p. 14.

<sup>170</sup> A. Opaït informed us about a variant from the 6<sup>th</sup> century AD with a mouth of 11.5–13 cm wide (Information A. Opaït, based on the analysis of the roman ceramics from Dinogetia).

<sup>171</sup> Pierri 2005, p. 86–87, pl. 23/1.

<sup>172</sup> Pierri 2005, p. 86–87.

<sup>173</sup> Opaït 1984, p. 681, pl. VI/4.

<sup>174</sup> Opaït 1991c, p. 37, fig. 10/70.

<sup>175</sup> Scorpan 1976, p. 159–160, pl. VII/7.

<sup>176</sup> Swan 2019, p. 353, fig. 20.26/16h.611.

<sup>177</sup> Pierri 2005, p. 69–84, pl. 23/1.

<sup>178</sup> Pierri 2005, p. 69–84, pl. 23/2.

<sup>179</sup> Pierri 2005, p. 69–84, pl. 24/2.

<sup>180</sup> Akriopoulou, Slampeas 2014, p. 289, fig. 5.

<sup>181</sup> Opaït 1984, p. 684, pl. IX/4.

<sup>182</sup> Rădulescu 1973, p. 199; Scorpan 1977, p. 159–160, pl. VII/8; Opaït 1984, p. 677, pl. II/4; Karagiorgou 2001, p. 130, fig. 7/4.

62. **INV. 477.** Rim fragment. TT 2012, S. 14; RD = 13 cm; PH = 5.5 cm; RH = 4.5 cm; colour: red 2.5YR 5/6; date: end of the 4<sup>th</sup> century AD (Pl. XI/62).

3. The rim is funnel-shaped, delimited from the neck by a deep groove. At the interior, usually we can observe a big concavity followed by ribs. It is dated to the middle of the 5<sup>th</sup> century AD. Analogies: Dinogetia<sup>183</sup>, Halmyris<sup>184</sup>, Topraichioi<sup>185</sup>, Dichin<sup>186</sup>, Novae<sup>187</sup>, Carthage<sup>188</sup>, Iatrus<sup>189</sup>, Castrum villa on Brijuni Island<sup>190</sup>, Neapolis<sup>191</sup>.

Catalogue:

63. **INV. 24.** Rim fragment. TT 2011, S. 34–36; RD = 12 cm; PH = 9 cm; RH = 5.5 cm; colour: pink 7.5YR 7/4; date: the middle of the 5<sup>th</sup> century AD (Pl. XI/63).

64. **INV. 249.** Rim fragment. TT 2012, S 38; RD = 14 cm; PH = 6 cm; RH = 5.5 cm; colour: red 2.5YR 5/6; date: the middle of the 5<sup>th</sup> century AD (Pl. XI/64).

65. **INV. 567.** Rim fragment. TT 2012, S 17; RD = 12 cm; PH = 9 cm; RH = 5.5 cm; colour: light red 2.5YR 6/6; date: the middle of the 5<sup>th</sup> century AD (Pl. XII/65).

66. **INV. 5487.** Rim fragment. TT 2008, S 22; RD = 14 cm; PH = 5 cm; RH = 5 cm; colour: light red 2.5YR 6/6; date: the middle of the 5<sup>th</sup> century AD (Pl. XII/66).

67. **INV. 5516.** Rim fragment. TT 2008, S 22; RD = 12 cm; PH = 6.5 cm; RH = 5.5 cm; colour: light red 2.5YR 6/6; date: the middle of the 5<sup>th</sup> century AD (Pl. XII/67).

68. **INV. 6452.** Rim fragment. TT 2010, S 29; RD = 12 cm; PH = 6.5 cm; RH = 5.5 cm; colour: red 2.5YR 5/6; date: the middle of the 5<sup>th</sup> century AD (Pl. XII/68).

69. **INV. 6432.** Rim fragment. TT 2010, S 29; RD = 13 cm; PH = 6.5 cm; RH = 6 cm; colour: red 2.5YR 5/6; date: end of the 4<sup>th</sup> century – beginning to the 5<sup>th</sup> century AD (Pl. XII/69).

70. **INV. 164.** Rim fragment. TT 2012, S 38; Rim; RD = 12 cm; PH = 5 cm; RH = 5 cm; colour: red 2.5YR 5/6; date: the end of the 4<sup>th</sup> century – beginning to the 5<sup>th</sup> century AD (Pl. XII/70).

4. The last subtype is dated to the second half of the 6<sup>th</sup> century AD and is characterized by a decrease in the rim diameter and the height of the rim. The rim is separated from the neck by a small groove, and the interior preserves a deep groove so the lid of the vessel can be well-attached. In Pierri's typology, this type is included in variant 2B<sup>192</sup>. Analogies: Halmyris<sup>193</sup>,

Ibida<sup>194</sup>, Tropaeum Traiani<sup>195</sup>, Capidava<sup>196</sup>, Dichin<sup>197</sup>, Novae<sup>198</sup>, Chersonesos<sup>199</sup>, Marseille<sup>200</sup>, Kenchreai<sup>201</sup>, Corinth<sup>202</sup>, Trimammium<sup>203</sup>, Caesarea Maritima<sup>204</sup>, Knidos<sup>205</sup>, Constantinople, Saraçhane<sup>206</sup>.

Catalogue:

71. **INV 5164.** Rim fragment. TT 2006, S 11; RD = 10.5 cm; PH = 6 cm; RH = 2.5 cm; colour: pink 7.5YR 7/4; date: the second half of the 6<sup>th</sup> century AD (Pl. XIII/71).

72. **INV 209.** Rim fragment. TT 2011, S 37; RD = 10 cm; PH = 6 cm; RH = 6 cm; colour: red 2.5YR 5/6; date: the second half of the 6<sup>th</sup> century AD (Pl. XIII/72).

73. **INV 253.** Rim fragment. TT 2012, S 38; RD = 10 cm; PH = 4.3 cm; RH = 3 cm; colour: light red 2.5 YR 6/6; date: the second half of the 6<sup>th</sup> century AD (Pl. XIII/73).

74. **INV 5488.** Rim fragment. TT 2008, S 23; RD = 10 cm; PH = 6 cm; RH = 3 cm; colour: reddish grey 2.5YR 6/1; date: the second half of the 6<sup>th</sup> century AD (Pl. XIII/74).

75. **INV 43.** Rim fragment. TT 2016, S 43; RD = 10 cm; PH = 4.5 cm; RH = 3 cm; colour: light red 2.5YR 6/6; date: the second half of the 6<sup>th</sup> century AD (Pl. XIII/75).

76. **INV 3853.** Rim fragment. TT 2005, S 10; RD = 10 cm; PH = 3.5 cm; RH = 3 cm; colour: red 2.5YR 5/6; date: the second half of the 6<sup>th</sup> century AD (Pl. XIII/76).

## Pontic – Zeest 80

*The Nord Aegean* amphorae are represented by fragments of Zeest 80 type, which are supposed to be used for olive oil. The examples found at Tropaeum Traiani are very small sherds, which belong to two upper parts, one base, and other four separated handles. This type has a truncated conical rim with a small concavity on top. The handles are massive with grooves on the top.

In the late Roman period, it seems that this type was distributed in the Black Sea area and for this reason has initially been suggested an origin in this region<sup>207</sup>. However, recently, A. Opaït inclines toward a north Aegean origin<sup>208</sup>. The early Roman subtype seems to reach a more expanded area. The examples from Tropaeum Traiani can be dated in the second half of the 5<sup>th</sup> century AD. Analogies: Dinogetia<sup>209</sup>, Agighiol<sup>210</sup>, Topraichioi<sup>211</sup>, Sacidava<sup>212</sup>, Heraclea Pontica<sup>213</sup>, Dichin<sup>214</sup>.

<sup>183</sup> Barnea 1966, p. 251, fig. 12/7.

<sup>184</sup> Opaït 2004a, p. 11–12, pl. 6/2.

<sup>185</sup> Opaït 1984, p. 682, pl. 7/6 (level IV); Opaït 2004a, p. 11–12, pl. 6/4.

<sup>186</sup> Swan 2019, p. 353, fig. 20.26/16b.605.

<sup>187</sup> Klenina 2013, p. 86, pl. 4/2; Biernacki, Klenina 2015, p. 105, fig. 6/21.

<sup>188</sup> Remolà, Uscatescu 1998, p. 554, fig. 2/3.

<sup>189</sup> Karagiorgou 2001, p. 130, fig. 7/3.

<sup>190</sup> Bezecky *et alii* 2015, p. 193–194, fig. 3/7.

<sup>191</sup> Carsana, Del Vecchio 2017, p. 413, fig. 6/23.

<sup>192</sup> Pierri 2005, p. 85–93, pl. 26.

<sup>193</sup> Topoleanu 2000, p. 132–133, pl. XL; Opaït 2004a, p. 12; Lewit 2015, p. 154, fig. 4.

<sup>194</sup> Opaït 1991c, p. 37, fig. 5/24.

<sup>195</sup> Ionescu *et alii* 2013, p. 193, pl. IV/48.

<sup>196</sup> Opraș 2003, p. 59–64, fig. XXI/65–69.

<sup>197</sup> Swan 2019, p. 353, fig. 20.27/18b.624.

<sup>198</sup> Klenina 2013, p. 86, pl. 4/6; Biernacki, Klenina 2015, p. 105, fig. 6/7.

<sup>199</sup> Sazanov 2007, p. 804, fig. 3/7.

<sup>200</sup> Pierri 2005, p. 85–93, pl. 26.

<sup>201</sup> Heath *et alii* 2015, p. 7–9, fig. 5/1.

<sup>202</sup> Slane, Sanders 2005, p. 274, fig. 13/4–8.

<sup>203</sup> Sharankov, Varbanov 2018, p. 336–338, fig. 3–6.

<sup>204</sup> Johnson 2008, p. 108, catalogue 1288.

<sup>205</sup> Doksanalth 2020, p. 522, fig. 5/54–54.

<sup>206</sup> Hayes 1992, p. 63, fig. 22/10–11.

<sup>207</sup> Opaït 2004a, p. 26.

<sup>208</sup> Information A. Opaït, based on the analysis of the Roman ceramics from Dinogetia.

<sup>209</sup> Barnea 1966, p. 256, fig. 15/6; Opaït *et alii* 2020, p. 385, fig. 6/35.

<sup>210</sup> Opaït 2004a, p. 26.

<sup>211</sup> Opaït 1991b, p. 231, fig. 13/1–3.

<sup>212</sup> Scorpan 1973, p. 314, fig. 36/4; Scorpan 1976, p. 163–164, pl. X/3; Opaït 2004a, p. 26.

<sup>213</sup> Opaït 2004a, p. 26.

<sup>214</sup> Swan 2019, p. 540, fig. 20.28/22.635.



Catalogue:

77. **INV 63.** Rim fragment. TT 2016, S 19; RD = 10 cm; PH = 3.5 cm; RH = 3 cm; colour: red 2.5YR 5/8; date: second half of the 5<sup>th</sup> century AD (Pl. XIV/77).
78. **INV 5262.** Rim fragment. TT 2008, S 22; PH = 12.5 cm; colour: red 2.5YR 4/6; date: second half of the 5<sup>th</sup> century AD (Pl. XIV/78).
79. **INV 175.** Base. TT 2012, S 30; BD = 4 cm; PH = 7.5 cm; colour: brown 7.5YR 4/3; date: second half of the 5<sup>th</sup> century AD (Pl. XIV/79).

### North African Amphorae

The **North African** amphorae which may have been used for olive oil are represented by two different types.

The first type is Keay VIII B represented by two variants. According to Michel Bonifay, the first one (INV. 5238) is an early variant of this type of amphora, something transitional between Keay 59 and Keay VIII B<sup>215</sup>. The height of the rim is small, measuring only 3 cm. At the exterior and interior, it has a concavity. Under the rim we can observe a deep groove.

The second variant (INV. 5210) is also represented by one fragment. The sherd is very fragmentary but the fabric is typical for this type, being pinkish, with yellow cream skin. Analogies: Tomis<sup>216</sup>, Kerch<sup>217</sup>.

Catalogue:

80. **INV 5238.** Rim. TT 2008, S 20; RD = 14 cm; PH = 3 cm; colour: red 2.5YR 5/8; date: middle of the 5<sup>th</sup> century AD (Pl. XIV/80).
81. **INV 5210.** Rim. TT 2008, S 20; RD = 14 cm; PH = 3 cm; colour: red 2.5YR 5/6; date: middle of the 5<sup>th</sup> century AD to the beginning of the 6<sup>th</sup> century AD (Pl. XIV/81).

The Keay LXII Q amphorae are represented only by one base. This is conical and thickened at the middle height of it. Analogies: Dinogetia<sup>218</sup>, Tomis<sup>219</sup>, Nora<sup>220</sup>.

Catalogue:

82. **INV 3980.** Base. TT 2005, S 12; BD = 4.5 cm; PH = 15.5 cm; colour: reddish yellow 5YR 7/6; date: second half of the 5<sup>th</sup> century AD (Pl. XIV/82).

### CONCLUSIONS

In spite of the reduced dimensions of this sector, localized in the vicinity of a Christian church, there was found a large number of amphorae (Pl. XV/4). Regarding the wine imports, there are six areas which exported this

commodity. They spread from the south and west Pontic area, to the western coast of the Asia Minor, Cilicia, Cyprus and Gaza. The olive oil arrived from three major areas: the Peloponnese, the North Africa and the North Aegean region (Pl. XV/1).

The presence of the eight different types of wine amphorae (Pl. XV/2) indicates diversity in the dietary tastes and their presence from the end of the 4<sup>th</sup> century till the beginning of the 7<sup>th</sup> century AD demonstrates the existence of a very sophisticated network of logistics<sup>221</sup> as well as the maintaining of these axes over this long period of time. LRA 1 type was the most predominant wine container not only from this excavation<sup>222</sup> but also from the whole province of Scythia<sup>223</sup>. The other important commercial axes come from the south Pontic area, dominated by the Sinopean workshops and some unidentified ones. This region has a long tradition of exporting wine to the Lower Danube territory from the 1<sup>st</sup> century until the beginning of the 7<sup>th</sup> century AD. The identification of the latest types of south Pontic amphorae at Tropaeum Traiani represents an important facet of the late Roman economy. These amphorae were transported not only through the cabotage, but they reached also the inner settlements, on the land routes.

However, given the location of the investigated sector, the idea that church representatives were involved in such a trade, as evidenced by the presence of LRA 4 amphorae, cannot be totally rejected. The latter is recognized in the literature as coming from the holy land and as part of an ecclesiastical trade<sup>224</sup>. In ancient sources this wine from the Palestinian area (*gazition*) was recognized not only for its taste qualities but also because it was considered to be used in the Church in religious ceremonies (services) and for its medicinal properties.

The LRA 2 amphora type is the predominant olive oil (Pl. XV/3) container from our sector and it is well known in the Scythia province. This territory, highly militarized, received special attention from the central authority by sending a large quantity of olive oil to the soldiers attached to the frontiers. This fact is demonstrated by the LRA 2 amphorae found on the Black Sea coast in sites like Histria,<sup>225</sup> Tomis,<sup>226</sup> Argamum, Topraichioi<sup>227</sup> but also on the Danubian limes at Sacidava<sup>228</sup>, Capidava,<sup>229</sup> Dinogetia,<sup>230</sup> Noviodunum,<sup>231</sup> Aegyssus,<sup>232</sup> Halmyris<sup>233</sup>

<sup>215</sup> Bonifay 2004, p. 132, fig. 71/5–9. Michel Bonifay (personal communication) confirmed the presence of these two variants at Tropaeum Traiani.

<sup>216</sup> Opaïț 1997–1998, p. 55.

<sup>217</sup> Smokotina 2014, p. 78, note 24, fig. 8.

<sup>218</sup> Opaïț *et alii* 2020, p. 386, fig. 7/39.

<sup>219</sup> Opaïț 1997–1998, p. 51.

<sup>220</sup> Napolitano 2020, p. 255, fig. 2/9.

<sup>221</sup> Opaïț *et alii* 2020, p. 390.

<sup>222</sup> In addition to present discoveries see similar discoveries published by Bogan Cătănciu, Barnea 1979b; Gămureac 2009, p. 249; Gămureac *et alii* 2015–2016, p. 218.

<sup>223</sup> Bădescu, Cliante 2014, p. 175; for multiple information about the LRA 1 amphorae discoveries in Scythia see also Opraș 2003 p. 53–59; Opaïț 2004a, p. 8–10, Paraschiv 2006, p. 89–92.

<sup>224</sup> Opaïț forthcoming.

<sup>225</sup> Bădescu, Cliante 2014, p. 176–178, fig. 4/1–9.

<sup>226</sup> Rădulescu 1976, p. 107.

<sup>227</sup> Opaïț 1991b, p. 254.

<sup>228</sup> Scorpan 1973, p. 320, fig. 36/3; Scorpan 1976, p. 159–160.

<sup>229</sup> Opraș, Rațiu 2016, p. 198, pl. X/4–5.

<sup>230</sup> Barnea 1966, p. 256, fig. 15/6.

<sup>231</sup> Barnea, Barnea 1984, p. 102, pl. VIII/3.

<sup>232</sup> Opaïț 1984, p. 313.

<sup>233</sup> Topoleanu 2000, p. 132–133, pl. XXXIX/325–326.

while in the central area of the province in Ulmetum<sup>234</sup> and Ibida,<sup>235</sup> always with a percentage bigger than 16% from the total amount of amphorae<sup>236</sup>. The presence of this amphorae type is not recorded only on this sector but also in other excavated areas of the city<sup>237</sup>, a fact which demonstrates the constant care of the central authority for this region from the 4<sup>th</sup> century until the 7<sup>th</sup> century, even if the olive oil arrived also from North Africa and the North Aegean region.

The presence of all these amphora types allows us to consider the existence of a multitude types of commerce. The one conducted by the state, through *annona*, bringing along the most predominant types like LRA 1 and LRA 2, which does not allow us to exclude the possibility of a military presence at Tropaeum Traiani. Another type of commerce was certainly the one conducted by the private traders, allowing us to comprehend the taste of the soldiers and the elites. In the end, the active involvement of the church in sending goods to the province at a time of great distress is not excluded.

From a statistical point of view, taking into consideration only the rim fragments (Pl. XV/6), after we have established that these fragments cannot be mended, we observed that the LRA 2 amphorae represent 38 %, LRA 1 33%, the amphorae from the south Pontic area 14%, followed by the LRA 4 with 8% while the West Pontic amphorae are represented by 1%. There are only four rims and one base of North African amphorae and two bases of LRA 3 type (Pl. XV/2). Transforming this number of rim fragments into capacities, the results are quite interesting. The imports of olive oil represent 76% of the total imports, while wine only 24% (Pl. XV/5, 7).

The amphorae produced in the oriental basin of the Mediterranean Sea reached the provinces of the Lower Danube area through the port towns on the western coast of the Black Sea. Their numbers increased continuously during the Roman period, especially in the 4<sup>th</sup> century AD, when the Empire's capital was moved to Constantinople and, as a consequence, the profound interest of the empire for the well-being of the provinces which protected the capital.

Indirectly, this study demonstrates the commercial relations of the settlements from the Lower Danube region with the rest of the Roman world and improves our current understanding of different commodities circulation and distribution during Late Antiquity.

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<sup>234</sup> Rădulescu 1976, p. 107.

<sup>235</sup> Opaïț 1991c, p. 28/cat. no. 7. 24. fig. 5, p. 37/cat. no. 70, fig. 10.

<sup>236</sup> Bădescu, Cliante 2014, p. 177; for multiple information about the LRA 2 amphorae discoveries in Scythia see also Opaïț 1984; Karagiorgou 2001; Paraschiv 2006, p. 92–95.

<sup>237</sup> Bogdan Cătănciu, Barnea 1979b, NV 3(1), p. 187 și fig. 161.3.1, p. 211; NVIA 3(2), p. 190 și fig. 167.3.2, p. 216; NVIA 3(7), p. 190 și fig. 168.3.7, p. 217; NVIA 3(2), p. 190 și fig. 170.3.2, p. 219; Gămureac 2009, p. 249; Gămureac et alii 2015–2016, p. 218.

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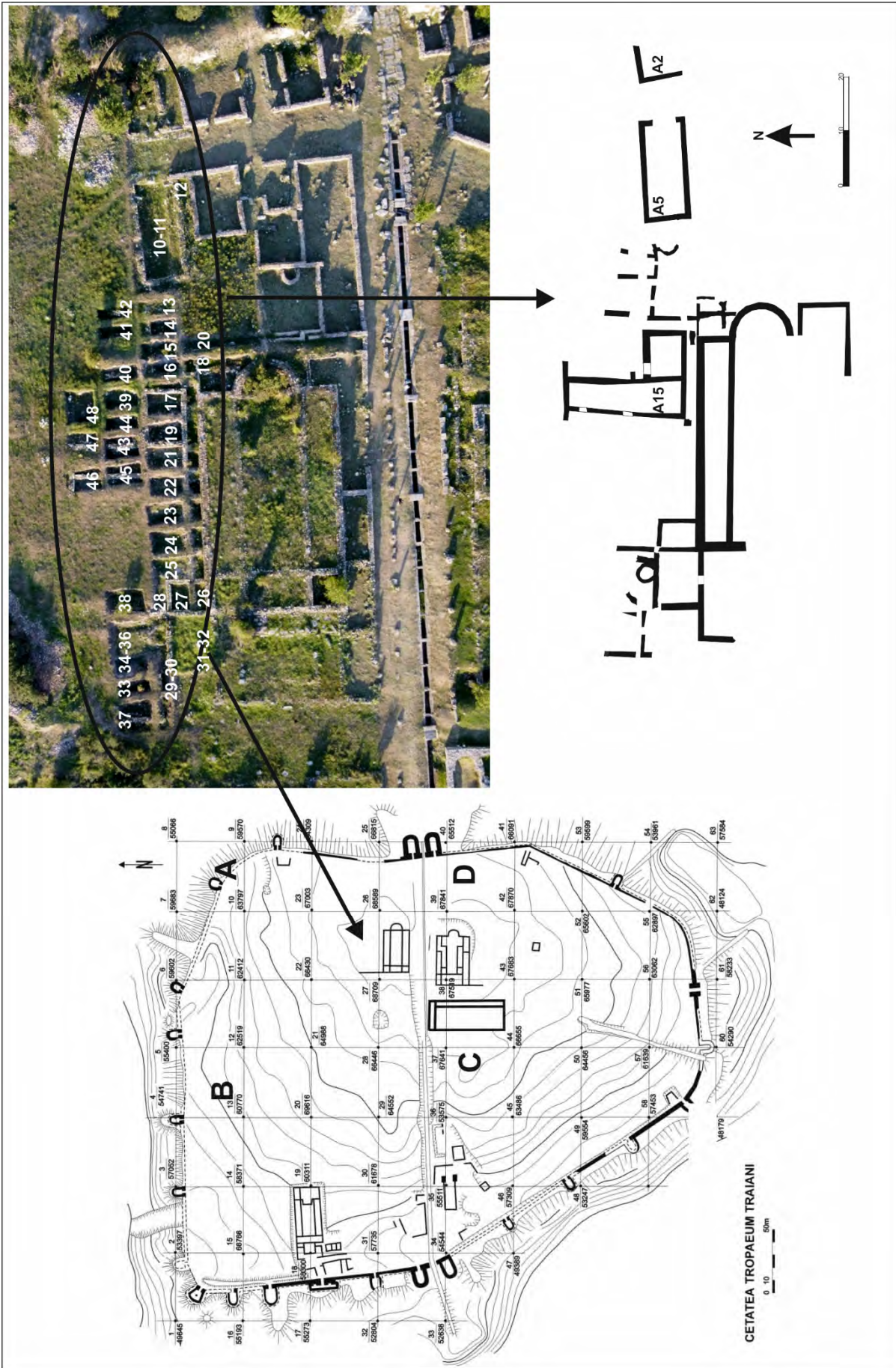


Plate I. General plan of the Sector A – north of Basilica A (2005–2016) and photo from the drone (Robert Constantin, 2020).

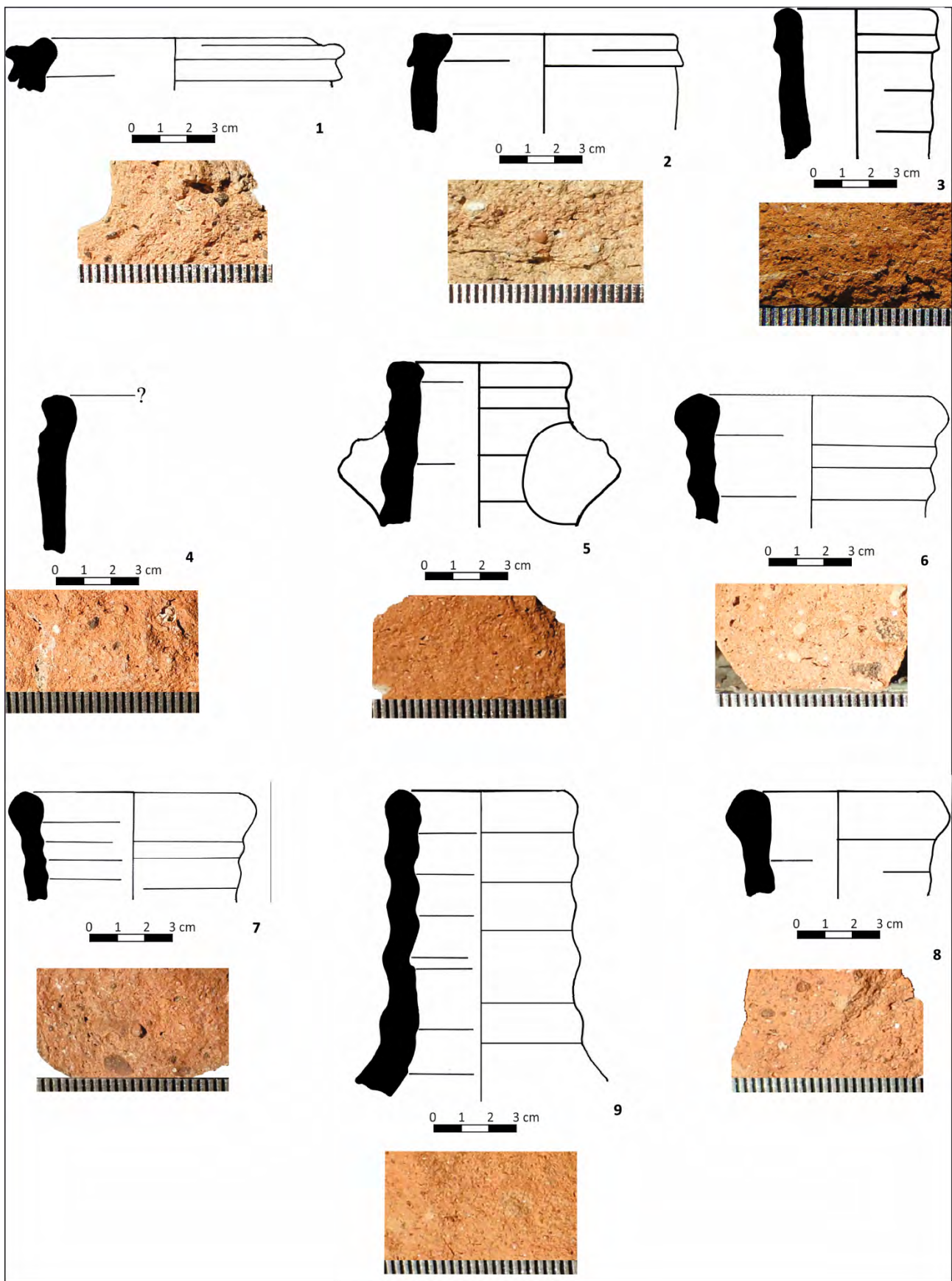
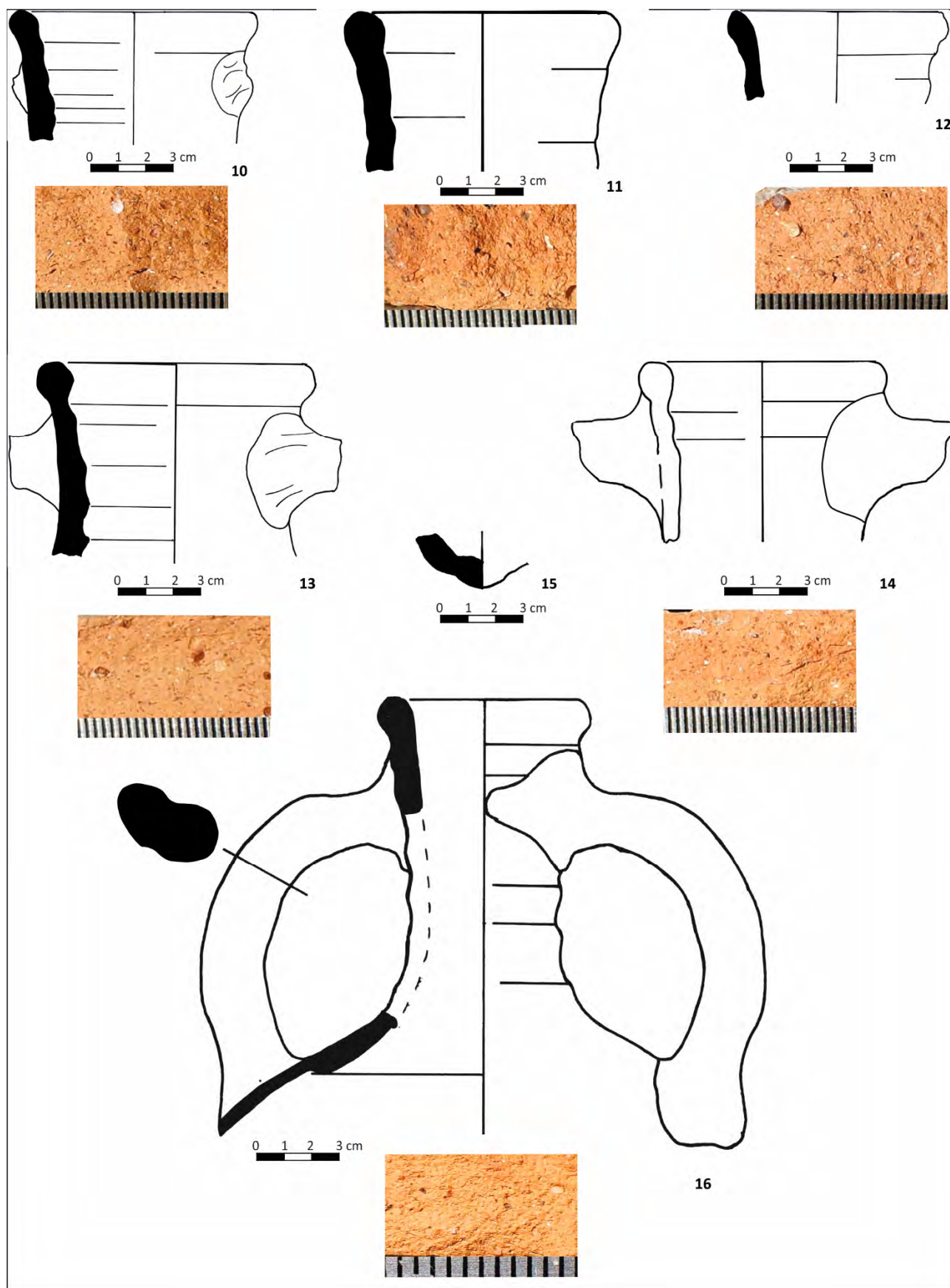


Plate II. Sinopean carrot amphorae nos. 1–3; South Pontic unknown centre no. 4; South Pontic LRA 1 imitations-Böttger II-4/Opaiț D-II nos. 5–9.



**Plate III.** South Pontic subtype nos. 10–12; variant of South Pontic nos. 13–14; Opaït B V nos. 15–16.



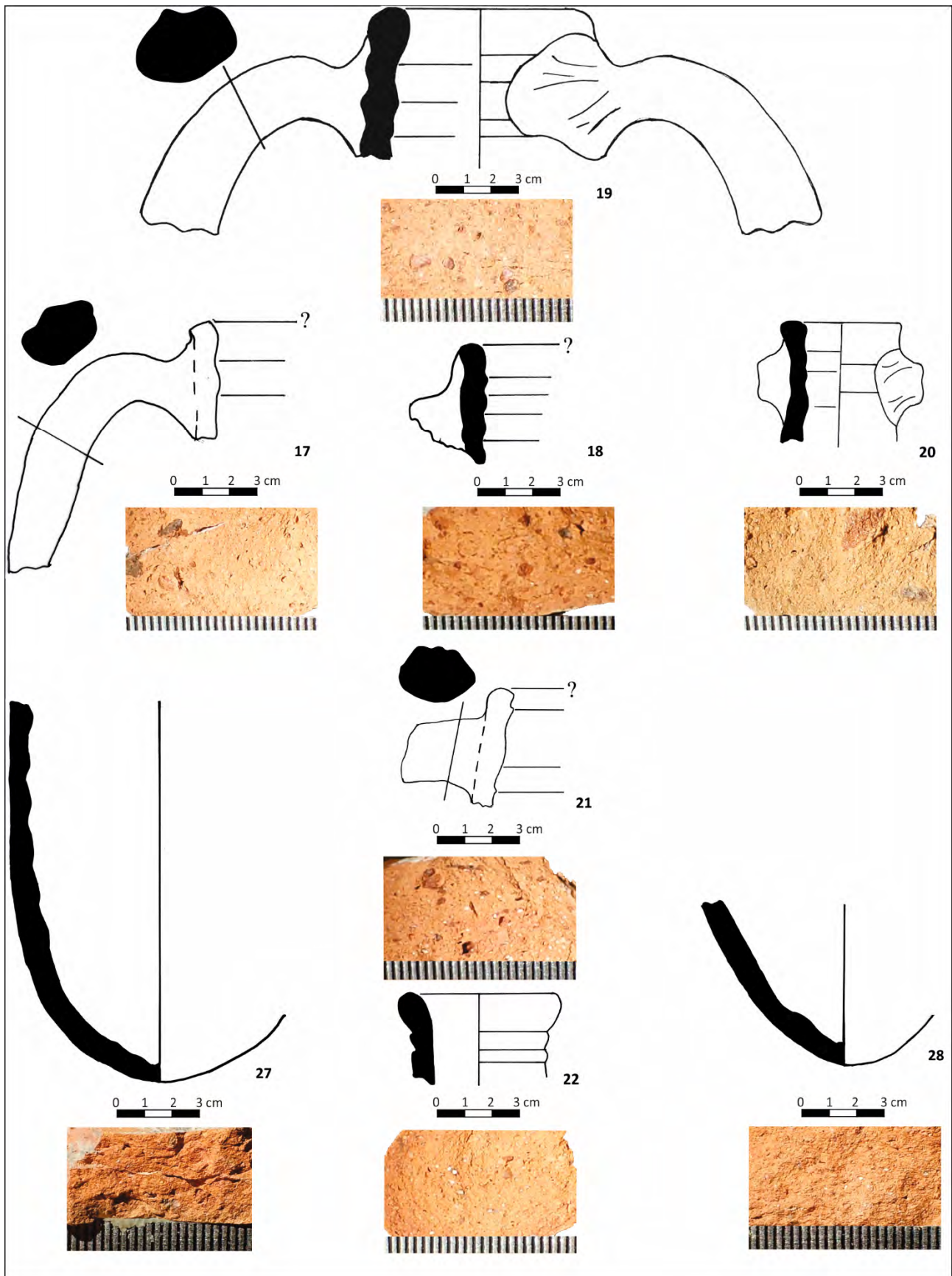


Plate. IV. Variant of Opaț B V nos. 17–22; Kuzmanov XVI nos. 27–28.

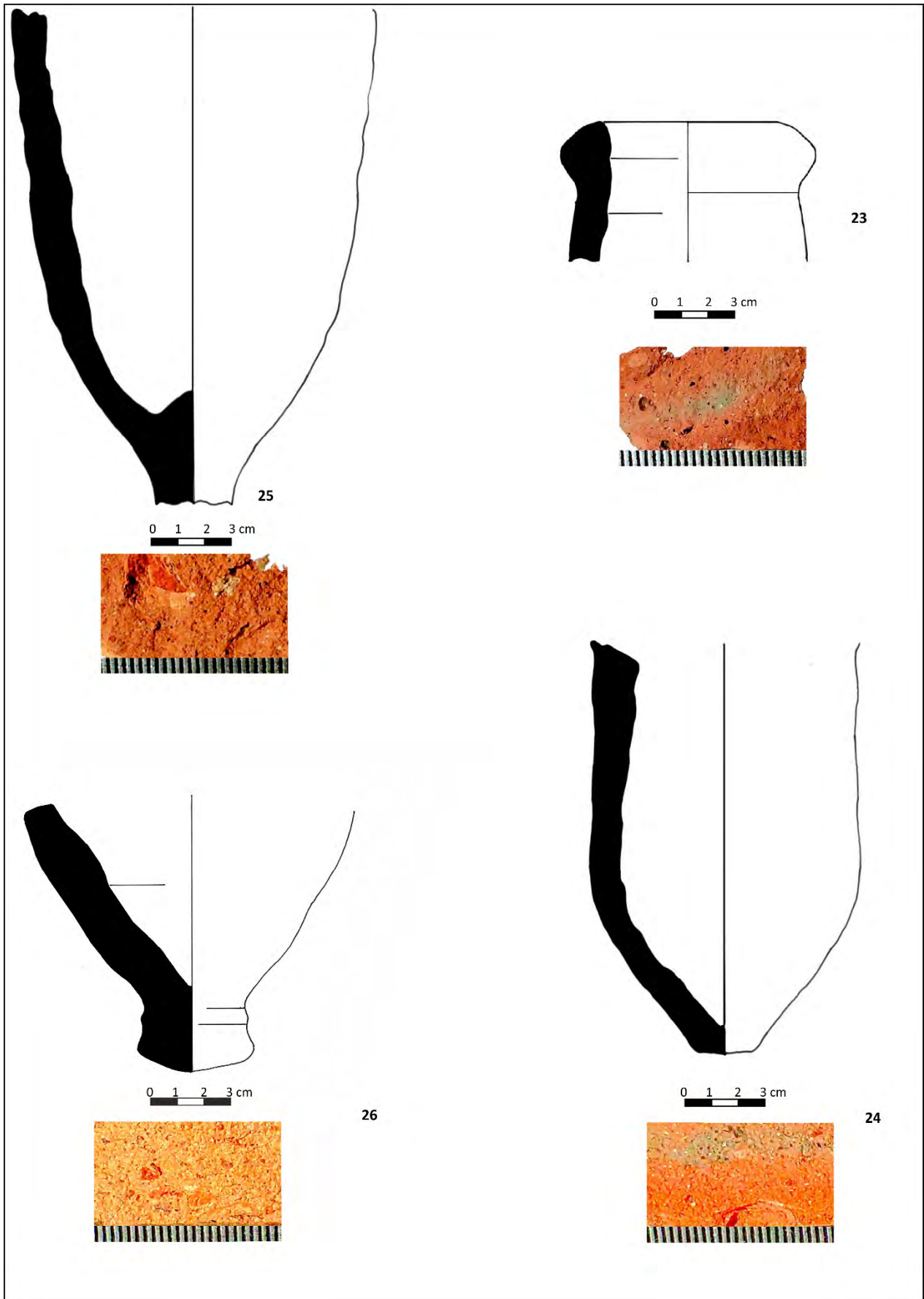


Plate V. West Pontic Amphorae nos. 23–26.

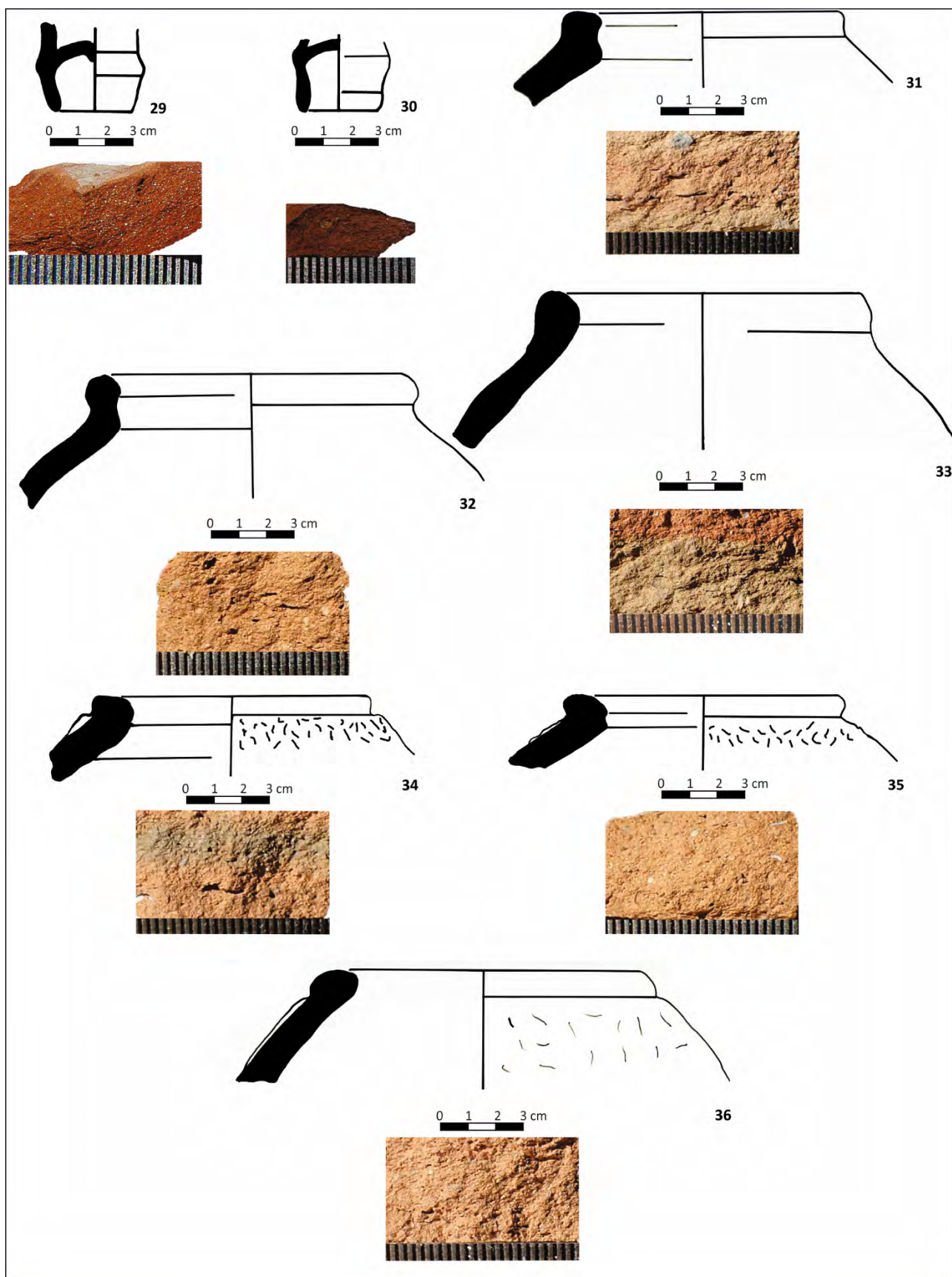


Plate VI. LRA3 nos. 29–30; LRA4 A2 no. 31; LRA 4 no. 32; LRA4 4B no. 33; LRA4 4D nos. 34–36.

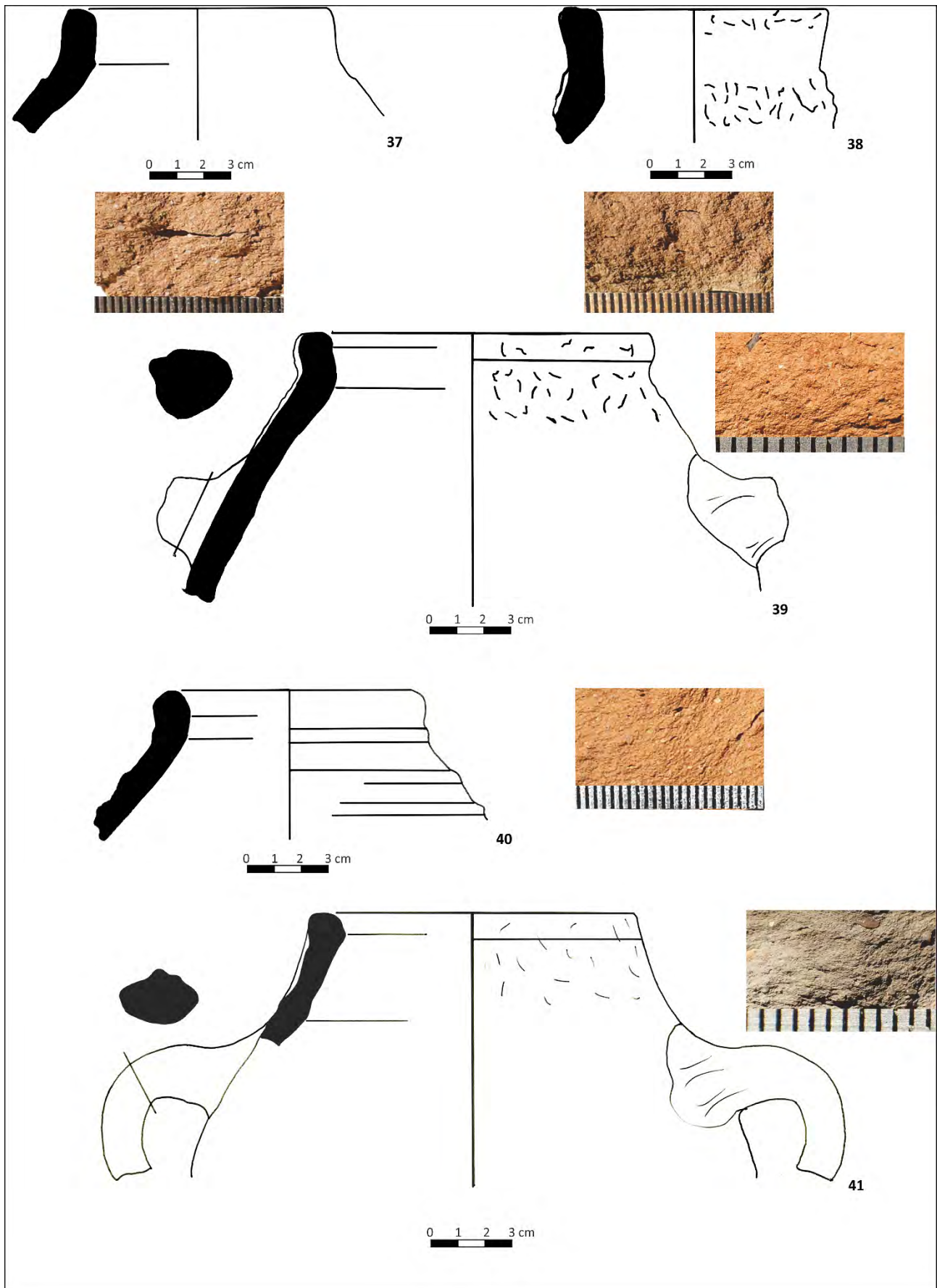


Plate VII. Subtype LRA4 C2 nos. 37–41.

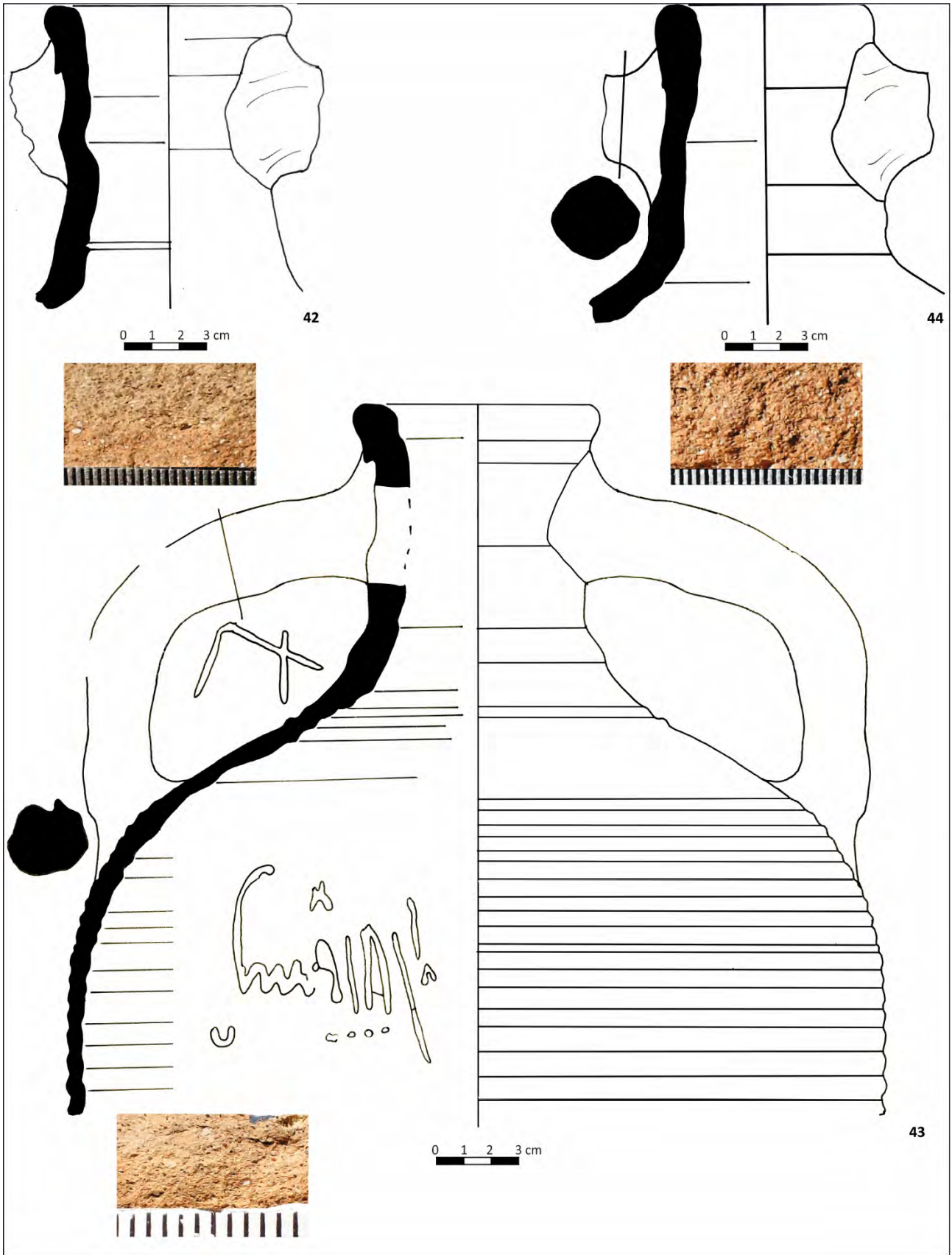


Plate VIII. LRA 1, subtype LRA1 A3 nos. 42–43; variant of this subtype no. 44.

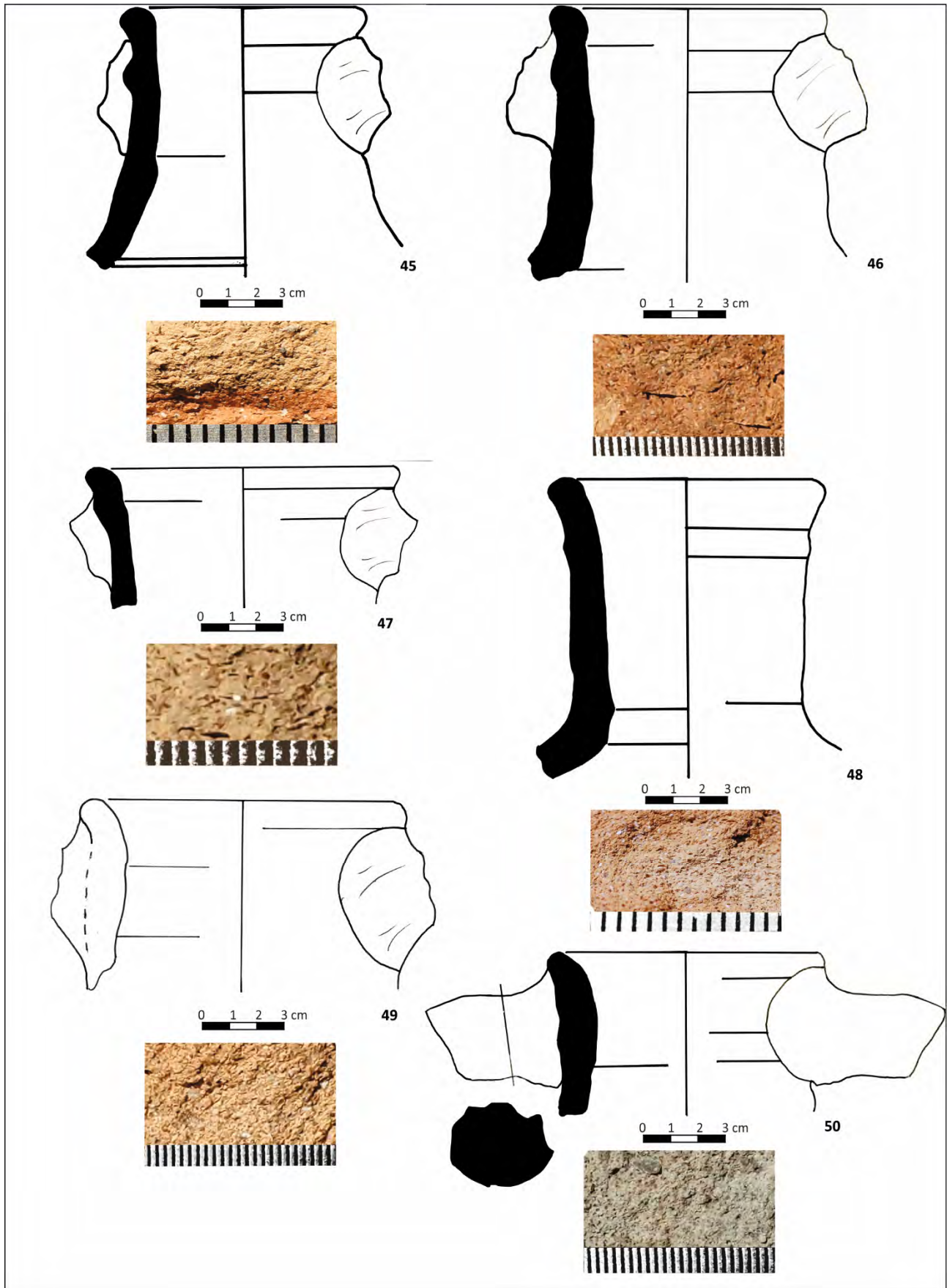


Plate IX. Subtype LRA1 A4 nos. 45–50.

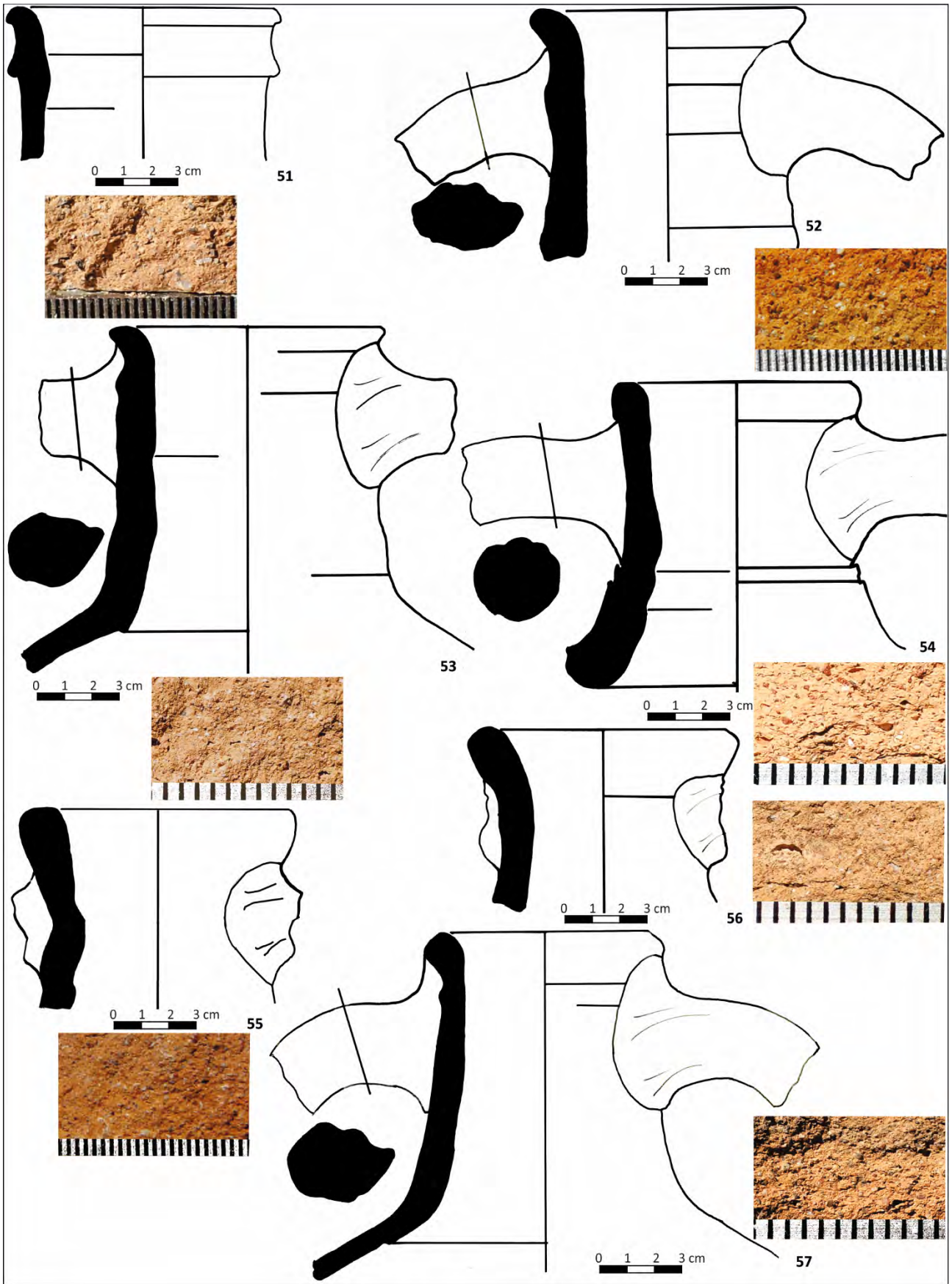


Plate X. Subtype LRA 1 A4 nos. 51–53; variant of this subtype no. 54; LRA1 B2 nos. 55–56; variant of LRA1 B2 no. 57.

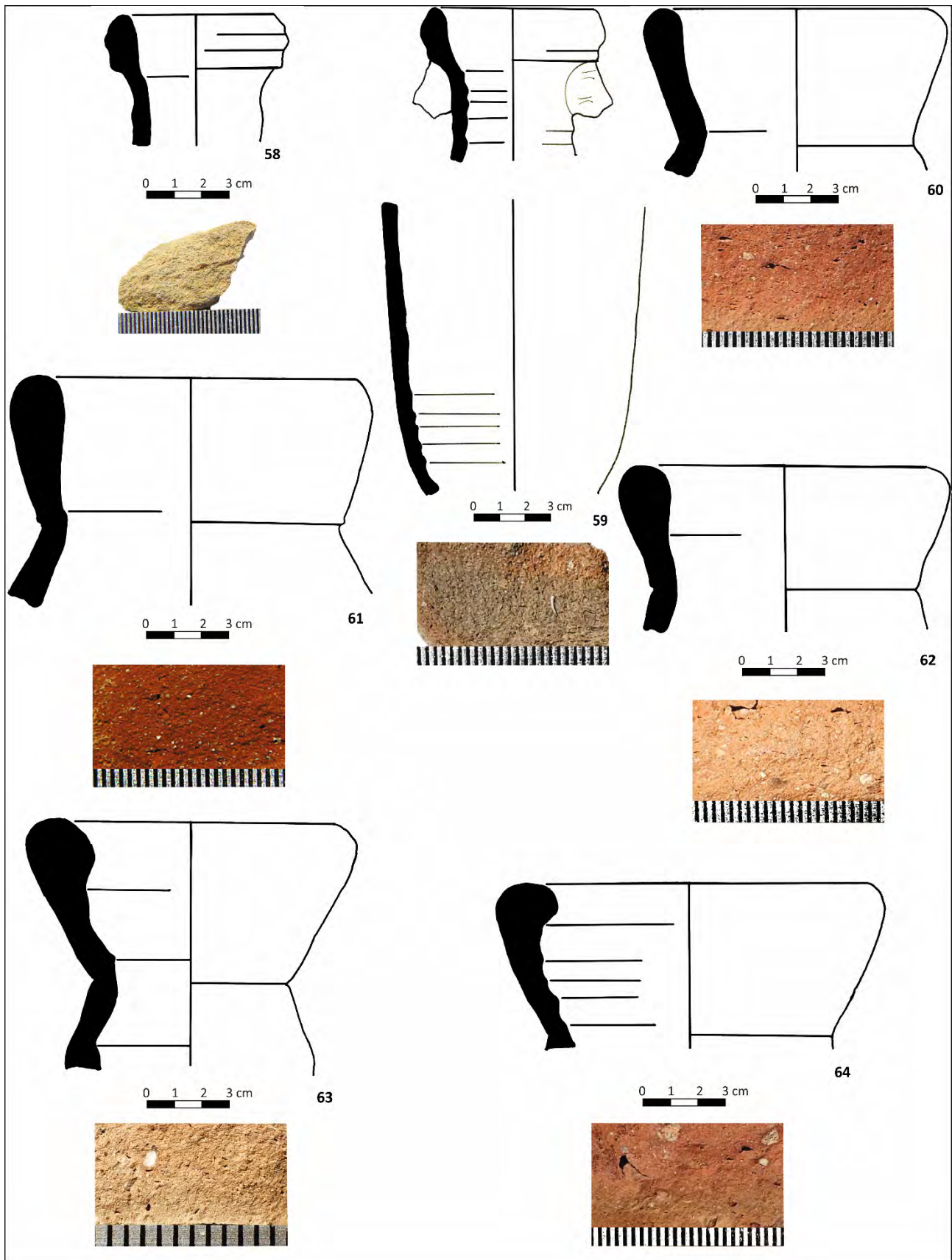


Plate XI. Spatheion 3B nos. 58–59; variants of LRA 2 nos. 60–64.



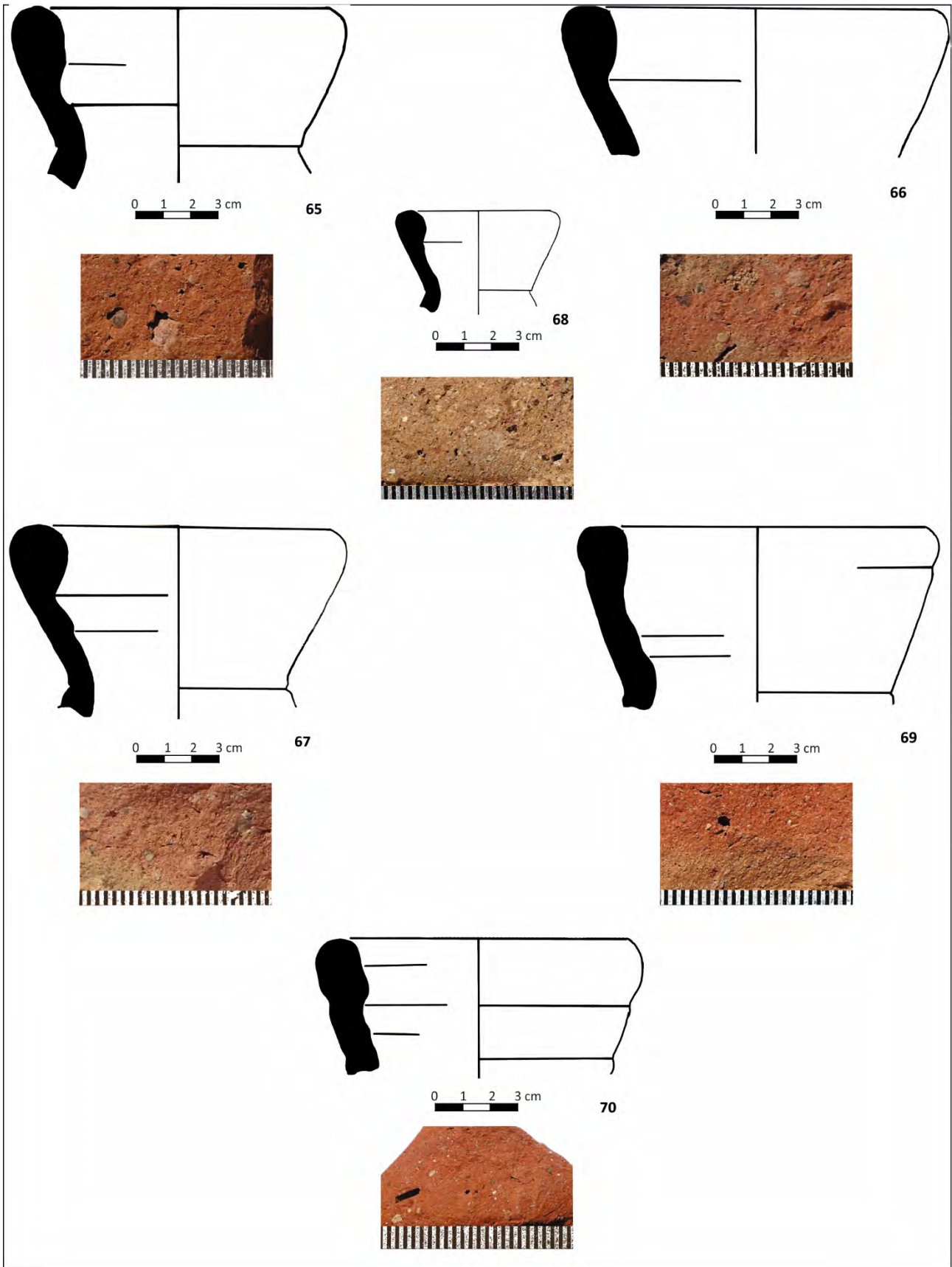


Plate XII. Variant of LRA2 nos. 65–70.

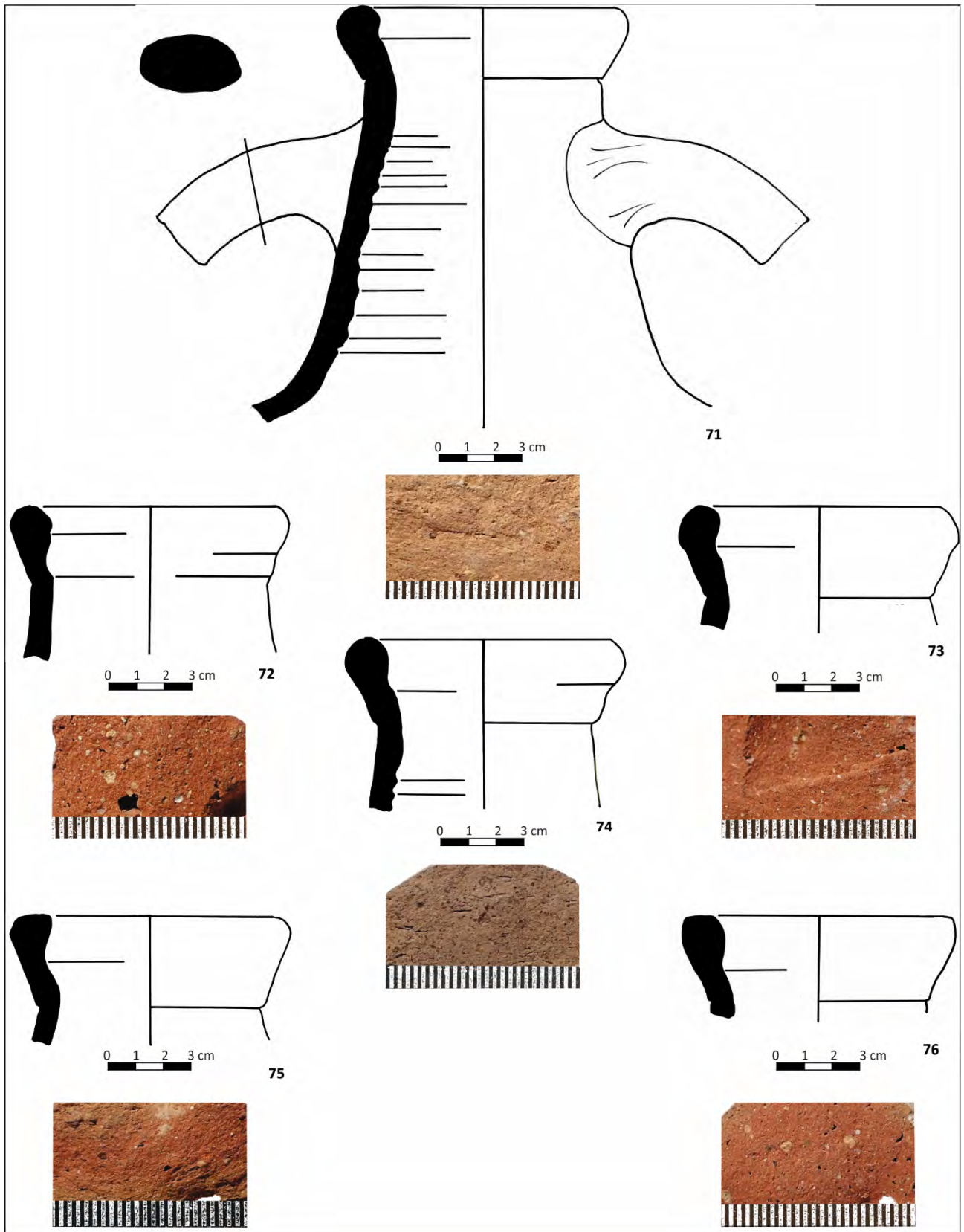


Plate. XIII. Subtype of LRA2 nos. 71–76.

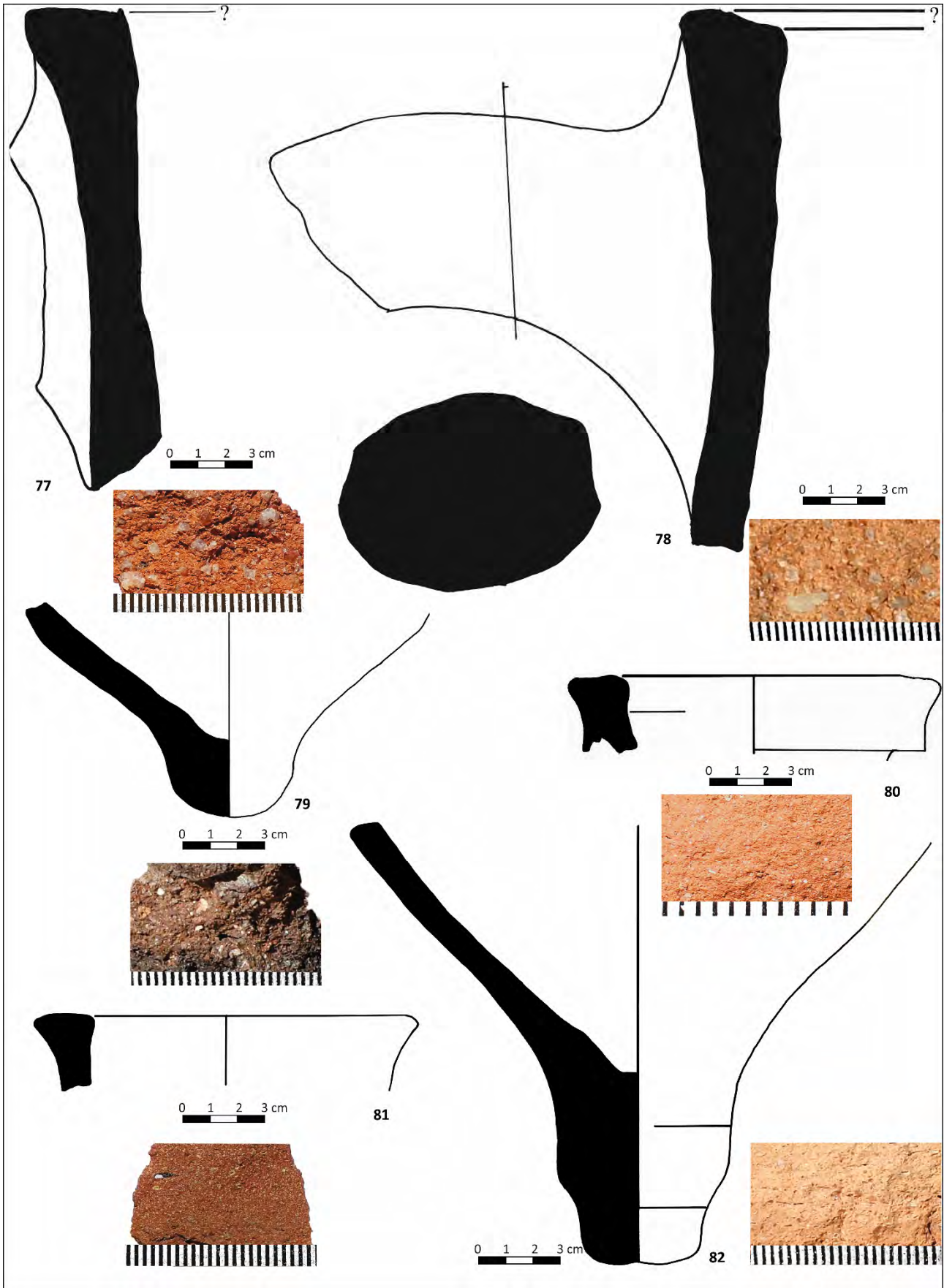


Plate XIV. Zeest 80 nos. 77–79; Keay VIII B no. 80–81; Keay LXII Q no. 82.

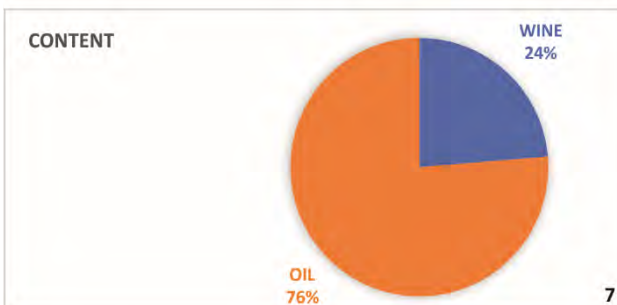
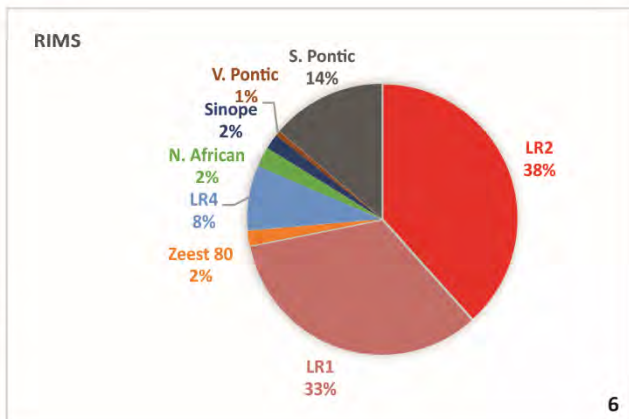
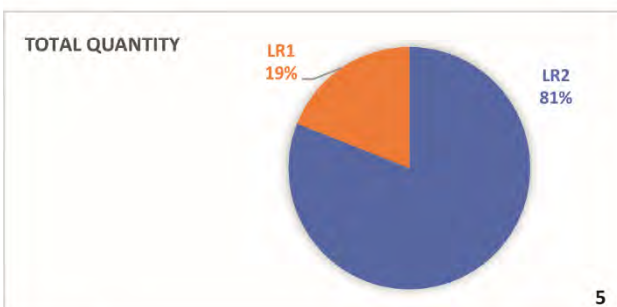
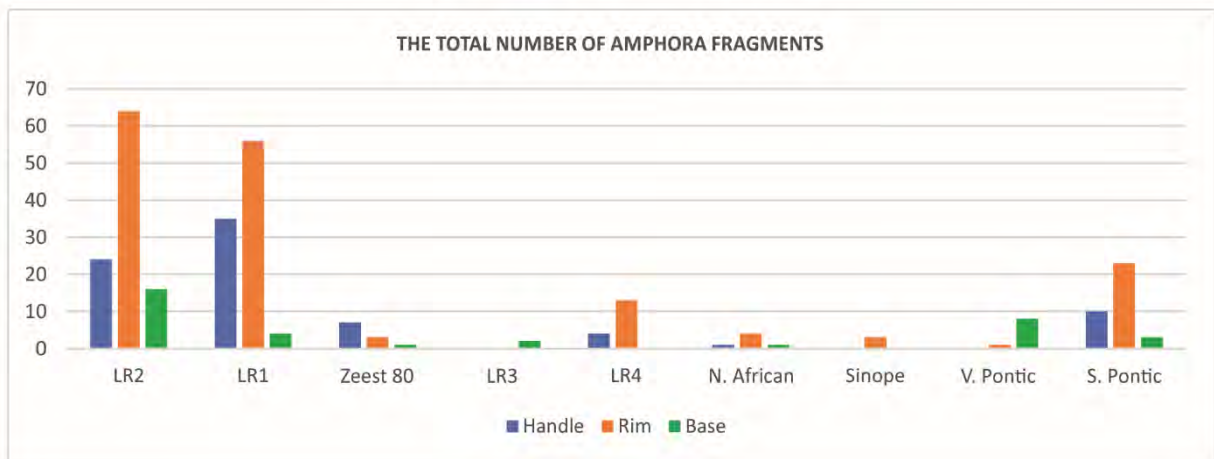
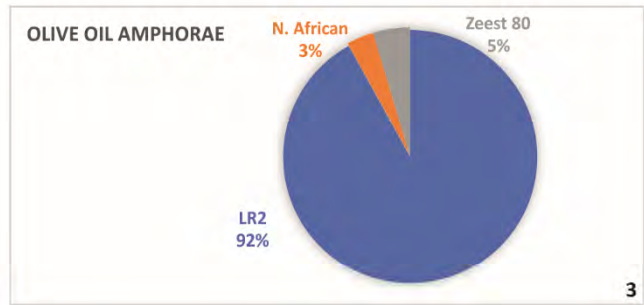
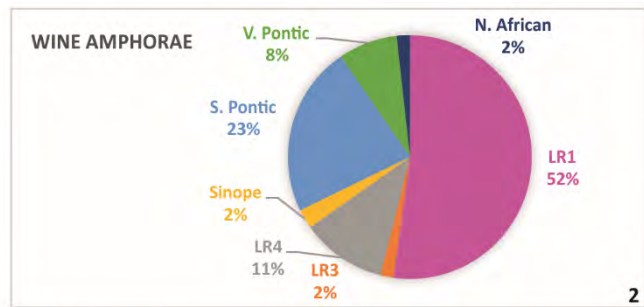
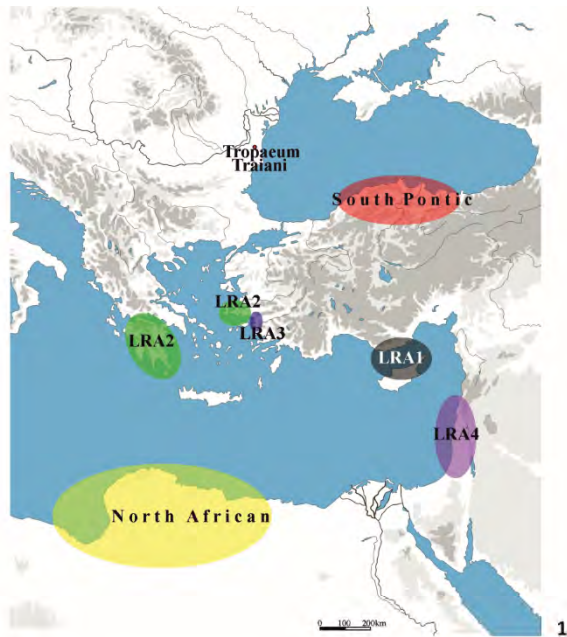


Plate XV. Map showing the place of production for each type of amphorae discussed in the paper (no. 1) and graphic statistics based on the total number of late roman amphorae coming from the investigated sector (nos. 2-7).